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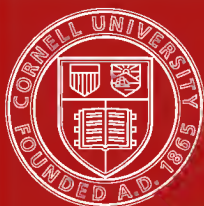
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CATALOGUE  
OF  
MAMMALIA.

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INDIAN MUSEUM.

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PART I.





CATALOGUE  
OF  
MAMMALIA

IN THE  
INDIAN MUSEUM,  
CALCUTTA :

BY  
JOHN ANDERSON, M.D., F.R.S.,  
SUPERINTENDENT OF THE INDIAN MUSEUM, AND PROFESSOR OF COMPARATIVE ANATOMY,  
MEDICAL COLLEGE.

PART I.  
Primates, Prosimiæ, Chiroptera, and Insectivora.

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## PREFACE.

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A CATALOGUE of the Mammalia in the Museum of the Asiatic Society of Bengal, drawn up by the late Mr. Edward Blyth, was published by the Society in 1863.

In 1865, the Museum of the Asiatic Society practically became the property of the Government of India, although the legal transfer was not completed until 1876.

The various departments of the Museum have very largely increased since 1863, many of them now being four-fold more extensive than they were seventeen years ago. It was, therefore, recently resolved to issue a series of catalogues of the various departments of the Museum, with the object of making their contents known, and thus extending the usefulness of the Institution.

Two instalments have already been published, *viz.*, a Fasciculus of the Catalogue of the Mollusca, and the first part of a Hand-List of the same group. The present volume, therefore, is the third of the series.

It comprises, however, only the first four orders of the Mammalia, *viz.*, *Primates*, *Prosimia*, *Chiroptera*, and *Insectivora*; but catalogues of the remaining orders will be published as soon as possible.

Some idea of the increase that has taken place in the

collection of Mammalia since 1863 may be gained from the following table ; but in other groups the increase is even more marked :—

	PRIMATES.		PROSIMILIA.		CHIROPTERA.		INSECTIVORA.	
	1863.	1881.	1863.	1881.	1863.	1881.	1863.	1881.
Genera . . .	11	17	3	7	24	27	13	17
Species . . .	40	73	7	14	67	113	36	52
Specimens . .	162	572	22	69	215	1,116	123	426

The Chiroptera in this catalogue, with a few exceptions, were identified by Mr. G. E. Dobson, who published a list of them in his Monograph of the Asiatic Chiroptera, issued by the Trustees of this Museum in 1876 ; and his arrangement of the group has been followed.

A list of the donors to the sections dealt with in this part of the Catalogue will be found after this Preface. It includes, as far as possible, the names of all contributors before and since 1863.

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# MAMMALIA.

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## I.—ORDER PRIMATES.

### I.—SUB-ORDER CATARRHINI.

#### I.—FAMILY HOMINIDÆ.

I.—GENUS HOMO, Linn., 1766.

#### II.—FAMILY SIMIIDÆ.

##### I.—SUB-FAMILY SIMIINÆ.

GENUS ANTHROPOPITHECUS, Blainville, 1839.

##### 1. *Anthropopithecus troglodytes*.

- Simia troglodytes*, *Gmelin, Linn. Syst. Nat.*, vol. i, 1788, p. 26.  
*Troglodytes niger*, *Geoff., Ann. du Mus.*, t. xix, 1812, p. 87.  
*Simia pan*, *Donovan, Naturalist's Repos.*, no. 19, 1823-27.  
*Troglodytes leucoprymnus*, *Lesson, Illust. Zool.*, pl. 212, 1831.  
*Anthropopithecus troglodytes*, *Blainville, Leçons Orales*, 1839.  
*Satyrus lagaros*, *Mayer, Wiegmann Arch.*, 1856, p. 282.  
*Troglodytes calvus*, *Du Chaillu, Proc. Bost. Soc. Nat. Hist.*, vol. vii, 1861, p. 296.  
*Troglodytes kooloo-kamba*, *Du Chaillu, Proc. Bost. Soc. Nat. Hist.*, vol. vii, 1861, p. 358.  
*Troglodytes tschego*, *Duvernoy, Arch. du Mus.*, t. viii, 1861, p. 15.  
*Troglodytes vellerosus*, *Gray, Proc. Zool. Soc. Lond.*, 1862, p. 181.  
*Mimetes troglodytes*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 6.

The Chimpanzee.

*Hab.* West Africa.

1a. A stuffed specimen of a young male, probably about 18 months old, No. 2A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1844.

b. A natural skeleton of a young individual. Presented by Edward Blyth, Esq., 1864.

c. An adolescent male in alcohol. By exchange with British Museum, 14th June 1877.

## 2. *Anthropopithecus gorilla*.

*Troglodytes gorilla*, *Savage, Bost. Journ. Nat. Hist.*, vol. v, 1847, p. 417, pls. xl-xliii.

*Troglodytes savagei*, *Owen, Proc. Zool. Soc.*, 1848, p. 29.

*Gorilla gina*, *Is. Geoff. St. Hil., Arch. du Mus.*, t. viii, 1855-56, pp. 1 *et seq.*

The Gorilla.

*Hab.* Gaboon, West Africa.

2a. A cast of the skull of an adult male. Presented by Edward Blyth, Esq., May 1864.

b. A cast of the skull of an adult female. Presented by Edward Blyth, Esq., May 1864.

c. A cast of the skull of a young female. Presented by Edward Blyth, Esq., May 1864.

## GENUS *SIMIA*, Cuv. & Geoff., 1795.

### 3. *Simia satyrus*.

Borneosche orang-outang or pongo, *Wurmb. Verhandl., Batav. Genootschap*, d. ii, 1786, p. 245.

Singe de Wurmb, *Audebert, Singes et Makis.*, Fam. I, 1797, p. 18, Tab. Anat., fig. 3.

*Simia satyrus*, *Linn., Syst. Nat.* 1766, p. 34.

*Papio wurmbii*, *Latr., Singes* Fam. I, 1801, p. 196.

*Pithecus satyrus*, *Geoff., Ann. du Mus.*, t. xix, 1812, p. 88, *partim*.

*Simia wurmbii*, *Fischer, Syn. Mamm.*, 1829, p. 32, *partim*.

*Simia morio*, *Owen, Trans. Zool. Soc. Lond.*, vol. ii, 1841, p. 168, pls. 33 & 34, ♀ skull; *Blyth, Journ. As. Soc. Beng.*, vol. xxii, 1853, p. 371, pls. vii & viii, ♀ skull.

*Pithecus brookei*, *Blyth, Journ. As. Soc.*, vol. xxii, 1853, p. 375.

*Pithecus owenii*, *Blyth, op. cit.*, p. 375.

*Pithecus curtus*, *Blyth, op. cit.*, vol. xxiv, 1855, p. 527.

The Orang-outang of Borneo.

*Hab.* Borneo.

3a. A stuffed adult male,<sup>1</sup> its skull, and the bones of its trunk. The bare cheeks are enormously outwardly enlarged,

<sup>1</sup> This specimen was received at the Museum immediately after death (during my absence from India), but it is to be regretted that no observations or



the skin of the face and of the great bare area on the guttural sacks being livid black. The skin of the face is sparsely covered with short red hairs, and the forehead also is almost naked. The sides of the upper lip and the chin are clad with long bright maroon-red hairs. The hair on the middle of the head, immediately behind the forehead, is rather short, while that over the temporal and parietal regions is long and directed forwards. On the rest of the head the hair is dark maroon-black, this colour also extending round the sides of the neck and on to the throat. Between the shoulders the colour is more rufous, whilst down the back it is almost as dark as the head, the sides being also maroon-red, as well as the shoulders, the arms being almost red, and thus paler than every other part of the body. The lower portions of the thorax and the abdomen are dark maroon-red. The legs are almost as pale as the arms. The hair on the body generally and on the limbs is very long, measuring as much as 13 to 14 inches.

The skull has a well-developed sagittal and lambdoidal ridge, and the orbital ridges are also well marked, and the malo-maxillary area is broad. The facial portion slopes well forwards, also the interorbital area, in which the nasals are tolerably well developed. The orbits are large and more or less rounded. The canines are large, and their ridges very prominent. The dentition is complete, and the molars are large, and also the front upper incisors, which, however, are much ground down. The palate is oblong and deep. The lower jaw is very powerful and heavy, and the canines are large. The right tooth, however, is broken across, but its root is so long that it is visible on the lower aspect of the symphysis.

This Orang, as stated by its donor, Mr. Rutledge, arrived at Singapore in a native craft from Borneo, along with some other Orangs. Presented by Wm. Rutledge, Esq., 8th November 1880.

♂. A flat skin and skull of a young male. This specimen in life had the cheek swellings partially developed. The hair on the head is much the same as in the previous male as regards colour and distribution, but is somewhat shorter. The skin of the face is sparsely covered with short red hairs,

measurements were recorded, beyond that the huge face measured nearly 14 inches across. The skeleton, with the bones of trunk and of the hind limbs, still ligamentary, measures 4 feet  $\frac{1}{2}$  inch from the vertex to the under surface of the *os calcis* in a straight line, although the thoracic portion of the vertebral column is much curved.

but the red moustache and beard are only beginning to show. The general distribution of colour is much the same as in the previous animal, with the exception of the arms, which are dark maroon-brown; and the hair about the *nates* and on the sides is more rufous than in the preceding animal. The following are some of the measurements of this individual:—

	in.
Heel to vertex . . . . .	36·25
Stretch of arms to middle finger . . . . .	64·50
Head of femur to heel . . . . .	14·75

The skull measures 6"·95 from the occiput to the anterior border of the premaxillary, with a width across the zygoma of 4"·75, and a maximum parietal width of 4"·12. The milk canines and incisors are still present, but the front upper incisors can be seen in their sockets to be very broad and large teeth, the two permanent molars that are through being also very large. There is as yet no trace whatever of a sagittal ridge, and the temporal ridges from the orbits are still 3 inches apart on the vertex. The orbits are moderately large and rounded, and the interorbital area is nearly vertical, the nasals being small. The muzzle is broad and directed forwards, almost at right angles to the interorbital surface. The symphysis of the lower jaw is deep. The front lower incisors are through and serrated, and the penultimate molar is appearing through the alveolus. Purchased, 28th July 1879.

c. A young male in alcohol and its skull. In life it presented distinct indications of cheek swellings, although it had only its milk teeth. The general colour was dark maroon. It was a heavily-built animal, with shorter fingers than the generality of Orangs of its age. The following were its measurements:—

	ft.	in.
Height, erect,—heel to vertex . . . . .	2	1·50
Outstretched arms . . . . .	3	4·20
"    legs . . . . .	2	7·75
Head of humerus to tip of middle finger . . . . .	1	6·00
Length of middle finger . . . . .	0	2·40
"    of hind extremity to tip of middle toe . . . . .	1	2·75
"    of middle toe . . . . .	0	1·97
"    of hand . . . . .	0	5·50
"    of foot . . . . .	0	6·50
Vent to vertex . . . . .	1	5·50

Presented by the Zoological Gardens, Calcutta, 2nd June 1877. This specimen in the colour of its hair more resembled the form

which appears not to have cheek swellings, but in its squat, powerful build and short fingers it was evidently not that race.

*d.* The skin and skull of an adolescent male. This specimen is nearly uniformly coloured dark maroon, darkest on the head and ferruginous on the back of the thighs, moustache and beard. The hair is long, with the exception of that on the middle of the head, but the direction of the hair on this region and external to it is the same as in the adult animal first described. The moustache and beard are only partially developed. The face is sparsely covered with short red hairs. The cheeks did not present any trace of swellings.

The milk canines are still present, and there is no trace externally of the permanent teeth. The front pair of the upper permanent incisors are fully through, and the outer incisor of the right side is also present, but its fellow of the opposite side is only appearing. The penultimate molar had been in full functional activity. The front incisors are very broad and the molars are very large. The palate is long, broad, and deep. The orbits are small and round, but flattened above, and the interorbital area slopes slightly forwards, and the maxillæ are much forwardly directed. From the upper margin of the nasals to the anterior border of the foramen magnum is 4".05, and from the latter point to the anterior margin of the premaxillæ measures 5".66. As yet there is no sagittal ridge, the ridges being only feeble raised lines, separated from each other by more than two inches. This character, however, in a male Orang skull is only an indication of youth, whereas it is a characteristic feature of the more delicately formed female skull. The skull presents a depression near the upper border of the left parietal, and another on the right orbit, but similar depressions of this nature are better illustrated in one of the succeeding adult skulls. Presented by the Zoological Gardens, Calcutta, 29th April 1880.

*e.* A stuffed nearly adult female with its skull and hyoid bone, and the uterus in alcohol. The hair is long and dark maroon, approaching to blackish on the body generally, but on the back of the thighs it is a pallid ferruginous. The hair on the head is long and directed forwards, longest in the temporal region, and the face is sparsely covered with short hairs. The moustache is only very feebly indicated, and also the beard. This animal lived for about one year and a half in the Zoological Gardens, Calcutta, and at its death it measured 3 feet 8.50 inches from its heel to the vertex, and the stretch of its arms was 6 feet 4 inches. The skull has very much the same form as in the preceding male. The skulls so closely resemble each

other that the specific identity of the two animals seems highly probable. This female skull has the same large upper front incisors, but its first and second molars are smaller than in the foregoing male, but the two palates have much the same form. The last molars of this female are through the alveolus, but not yet on a level with the other molars. The orbits are larger than in the foregoing male, and are slightly forwardly oval. The interorbital area has much the same slope as in the preceding male skull, and the facial portion about the same forward direction. From the upper margin of the nasals to the inferior border of the foramen magnum measures 3·70 inches, and from the latter point to the tip of the premaxilla is 5·30 inches. The temporal ridges are far apart.

In the lower jaw there is the peculiarity of the complete absence of the last molar on the left side.

The hyoid: on the basihyal end of the right thyrohyal there is a large hook-shaped process, which in the other basihyal assumes the form of a bullate hooked pointed epiphysis. It is in no way connected with the basihyal, and when the right thyrohyal is viewed from below this hook-shaped body appears only as a backwardly and upwardly projecting process, whereas on the left side it appears as an epiphysis; viewed from above, the basihyal end of the right thyrohyal is seen to have been composed of the hook-shaped process described, and an intermediary portion amalgamated on the under surface; on the left side the same structure is observed. It would thus appear that there are cerato and epiphysals so approximated in their position on the basihyal as to amalgamate with the thyrohyal; on the same stand with this is exhibited the partially ossified thyroid cartilage. Presented by the Zoological Gardens, Calcutta, 8th April 1879.

*f.* The skin, skull, and the bones of the trunk of an adolescent male. This animal in external appearance is comparable with *d*, as the hair in colour and distribution is the same, the skin of the face of *d* being only a little more hairy. This latter character, however, can be explained: the animal died in the month of December, the second cold season it had lived in Calcutta, and it is probable that the increased amount of hair on the face was due to climate.

Although there is such a close resemblance externally between the animals, the skulls are remarkably different. This skull has large upper incisors, but smaller than those of *d*, as are also its molars. The orbits are much larger and more open, and without any flattening above; the interorbital area is longer, and not so forwardly sloped, and the muzzle is not

so broad, these differences being probably due to the effects of confinement, as the previous specimen *d* was only a few months in captivity before it died, whereas this animal was nearly three years in confinement and at a period when its teeth would have doubtless attained a greater development had it been in a state of nature.<sup>1</sup> The brain case, although not so high as in it, is fuller and broader. The last molar is not visible, and the outer upper incisors and the canines, above and below, are only coming through. The parietal ridges are mere lines, far apart. From the upper margin of the nasal to the anterior border of the foramen magnum measures 3".55, and the length from the incisor border of the premaxillaries to the foramen magnum is 5".10.

Presented by the Zoological Gardens, Calcutta, 23rd December 1879.

*g.* The skin and skull of an adolescent female. Dark maroon, darkest on the head and arms, ferruginous on the back of the thighs. The hair is long, and directed forwards on the head, as in the previous examples, which it closely resembles.

The skull is like that of *e*, but the muzzle is not so forwardly projected. From the upper end of the nasal to the foramen magnum is 3".70, and from the latter to the front of the premaxillary measures 5".40. The temporal ridges are far apart. The incisors are large, but not quite so large as in that skull. The permanent upper incisors are appearing, and the last molar is visible through a small opening in the alveolus. The molars are not quite so large as in *e*.

The atlas is firmly ankylosed to the skull at the condyles on both sides, and on the left side the bone is amalgamated with the skull at the condyle and along nearly one-half of the

<sup>1</sup> This animal, after living in the Zoological Gardens, Calcutta, for about 18 months, was suddenly deprived, by death, of the female (*e*), who had been his constant but distant companion during that period. Her death affected him much, as it did also the young female who had been reared by her, and who was believed to be her child. The male appeared to pine and used to sit outside, on the top of the large house in which they were kept, looking in the direction in which the dead body of his companion had been carried away. During the day he could not be induced to go into his house for shelter from the blazing sun. The result was, that one very hot day, in the end of April, he came down from his look-out in a dazed condition, apparently blind and staggering. He never rallied, and at last he became paralysed and died 7 months afterwards.

The young female, when her supposed parent, but if not so, tender foster-mother, was carried away dead, exhibited all the signs of deep grief, emitting a wailing sound, but no tears, attempting to follow the body, and, when driven back, crying and rolling on the ground in a paroxysm of grief.

basi-occipital, the foramen for the front pair of nerves being almost wholly obliterated on that side, whereas two large foramina occur on the anterior and external aspect at the front, where the atlas has coalesced with the condyle at the skull.

The mammae and teats of this animal were greatly enlarged, and it was stated that she had given birth to a young one on the voyage up to Calcutta from Singapore. Mr. Fraser, who examined this Orang at its death, has recorded in the Museum Register that she had distinct indications of cheek swellings.

Presented by W. Rutledge, Esq., 10th August 1880.

*h.* A stuffed adult female, its skull and the bones of its trunk. This female exactly resembled the female *e* in its dark maroon, almost blackish long hair, directed forwards on the head. The face, like the foregoing, was blackish in life, and the eyes were small and brown, and no white sclerotic was visible. It was received in Calcutta, nursing a very young animal, said to have been its own child, and which is separately described.

The orbits are large and erectly oval. The interorbital area slopes forwards, as in the previous skulls, but the nasal area is not nearly so depressed as in them, and the muzzle is longer. From the upper end of the nasals, to the anterior border of the foramen magnum, is 3".50, and from the latter to the tip of the maxillary, measures 5".20. No temporal ridges, beyond a faint line on each side, indicating the attachment of the muscle and posteriorly converging on the parietals to within 0".35 of each other. The front upper incisors are much smaller than in the foregoing skull, and the molars are also less, and the palate is deeper. In the lower jaw there is a well-developed supernumerary molar on each side.

This individual had doubtless spent all its days in a wild state, dying shortly after its capture. Presented by W Rutledge, Esq., 7th April 1877.

*i.* The flat skin and skeleton of the young of the previous individual. The hair on the body was sparse and bright ferruginous; dark maroon on the head, and long and directed forwards.

This animal had cut only its first incisors and first bicuspids in the upper jaw. The fontanelle is closed, but the remains of the almost obliterated suture form a permanent raised line. This young animal died the same day as its mother. Presented by W. Rutledge, Esq., 7th April 1877.

*j.* The skin and skull, and bones of the trunk of an adult female like the preceding adult, but with somewhat shorter hair. The skull has all its teeth, but it is much smaller than

*e, g, and h.* Its incisors are very much smaller than those of either *e* or *g*, but the incisors of *h* are so much ground down that their original dimensions can only be guessed at, but they appear to have been about the size of those of this specimen. The muzzle, however, of *h* is very much larger than the muzzle of this skull and measures 2".50 across, while this muzzle is only 2".11 and very much shorter. The muzzle of *e* is 2".50, while that of *g*, in which the canines are only partially through, is as much as 2".40. The orbits of this specimen resemble those of *g*, but differ greatly in appearance from the vertically elongated orbits of *h*, which are 1".85 in vertical height as compared with 1".50 in this individual. These few details suffice to show how great is the individual variation among the skulls of Orangs, the animals of which were apparently identical in life.

There is a well-marked indentation on the left half of the parietal, and a long rugosity on the temporal ridge of that side. Presented by W. Rutledge, Esq., 3rd March 1879.

*k.* A stuffed female: general colour as in the previous females; *viz.*, dark maroon, but with short and somewhat sparse hair, probably due to the effects of confinement. Presented by W. Rutledge, Esq., 12th January 1870.

*l.* The flat skin and skeleton of a young male, dark maroon like the preceding animals. Although this Orang had cut only its first molar teeth below and above, its skull is as long as the female skull *j*, which conveys some idea of the great difference in size between the sexes. The general appearance of a male skull at this period is that of a female, there being no muscular ridges developed beyond the feeble temporal ridges, which are far apart. The orbits of this skull are large and obliquely placed ovals. Presented by W. Rutledge, Esq., 3rd March 1879.

*m.* A young male, in alcohol, with no trace of cheek excrescences, a rather large head, with a broad and deep muzzle, and with short and rather sparse hair. The hair short on the head, and deep maroon throughout. Presented by W. Rutledge, Esq., 20th March 1879.

*n.* The skin, skull, and bones of the trunk of a young male. General colour maroon, passing into bright ferruginous on the back, and still lighter on the back of the thighs, and darkest on the head and arms. The hair is long and distributed in the same way as in the foregoing animals, from which this individual differs only in its brighter colour, paler face, and fleshy colour around the eyes and about the mouth. This colouration of the face has distinguished, more or less, all the young Orangs that have passed under my observation,—they

exceed one hundred in number,—but as age advances the colour becomes darker, and the pale hue is entirely lost.

The first molar is through in both jaws, and it is large; and the other two are visible behind it. No ridges have formed. Extreme length of skull, occiput to front of premaxillaries, 7".05. Presented by W. Rutledge, Esq., 1st March 1876.

*o.* A young stuffed male like previous specimen: described by Mr. Blyth in a footnote<sup>1</sup> as No. 5, but not entered in his Catalogue. No history.

*p.* A young stuffed male like the preceding specimen, No. 4B of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1859.

*q.* The flat skin and skeleton of a young male like the preceding specimens. Total length of the skull 6".95; same age of dentition as in the last individual. Presented by W. Rutledge, Esq., 26th June 1875.

*r.* The skull, and skin of the head, of a young male. The skin of the head has been kept on account of the great length of the hair. The skull resembles the last skull, but the orbits are smaller and more rounded. The first and second molars are through, and the first upper incisor of the left side is nearly fully displayed, while the adjoining teeth are partially through. This skull in its dentition is of the same age as the skull of the dark-coloured male (*d*) with very large front upper incisors, but the total length of this skull is only 6".73, as compared with 7".60 in the skull *d*. Its breadth also is very much less, as it measures across the zygoma only 4".50 to 4".98 in *d*. The great differences that exist between the dimensions of these skulls are also shown in the length of the palate, which is 2".95 long in *d*, and only 2".50 in this skull. This animal was smaller in every way than the male *d*, and, like it, had no cheek swellings. This small Orang, however, cannot well be the *Mias kassir*, for one of the characters of that supposed species is its large incisors and molars, a distinctive feature of the larger of these two Orangs, *viz.*, of No. 3 *d*, and it is not probable that three species of Orang exist. I am, therefore, disposed to regard these differences only as individual, and there can be no doubt that they are very great, but not greater than the differences in dimensions of skull, and in the size of teeth, that exist among individuals of the various races of men. The next skull reveals also even greater differences of dimensions than in the case under consideration. Presented by W. Rutledge, Esq., 1st June 1880.

<sup>1</sup> Journ. As. Soc., Vol. XXII, p. 378, No. 5.



*s.* The skin, skull, and bones of the trunk of a young male of exactly the same external characters as the two previous animals, but with the skull very different from *m*. It has high oval orbits, but little concavity in the nasal region, whereas in the skull of *m* there is considerable concavity, and the orbits are more rounded, and the interorbital region more vertical than in this skull, which is also not nearly so full and rounded as in the parietal region. Although they are of the same age as regards their teeth, the skull measures only 6".77, whereas *m* is 7".05. The first molar is also considerably larger than the corresponding teeth of *m*. Presented by W. Rutledge, Esq., 19th May 1877.

*t.* A stuffed young female, No. 4C of Blyth's Catalogue. No history.

*u.* The skin, skull, and bones of the trunk of a young male, exactly like *m* and *o*. Milk dentition, but with the first molar through. Total length of skull 6".25. Molars large. Presented by W. Rutledge, Esq., 2nd December 1878.

*v.* The flat skin and skeleton of a young male. The hair in its colour and distribution is the same as in the preceding individuals. The total length of the skull is 6".20. The first and second molars are already through, but the latter only partially, and the upper permanent front incisors are also present. They are 0".59, broad, but not so large as the incisors of the male *d*. The molars are not so large as those of *o*, whereas its incisors are a little broader than the incisors of *o*, and, as in it, are much serrated. Presented by W. Rutledge, Esq., 1st June 1880.

*w.* The skin, skull, and bones of a young male. First molar through. Presented by W. Rutledge, Esq., 19th May 1877.

*x.* The flat skin and skeleton of a young male of the same character as the preceding young specimens. Milk dentition. Purchased, 20th October 1875.

*y.* The flat skin and skeleton of a young male, the same as in the foregoing individual. Milk dentition. Presented by W. Rutledge, Esq., 8th November 1880.

*z.* A stuffed young male like the preceding example. Presented by W. Rutledge, Esq., 2nd February 1874.

*aa.* A stuffed young male resembling the foregoing. Presented by W. Rutledge, Esq., 7th September 1870.

*bb.* The skin and skeleton of an adult female, Nos. 4 D and E of Blyth's Catalogue, exactly like the foregoing male *m*. This animal, which had lived 12 years in confinement, was described by Blyth as a new species, *P*.

*owenii*,<sup>1</sup> but in his Catalogue,<sup>2</sup> published afterwards, he regarded it as *S. morio*, but it has small front incisors. Moreover, the skull has not the form of the female skull of ferine Orangs, and I am disposed to regard its shape as abnormal, and the effects of a life of captivity. Presented by J. Apcar, Esq., 1846.

*cc.* The skin, skull, and bones of the trunk of a young female, having long dark maroon hair on the head, belly and limbs, and bright ferruginous on the sides, back, and hinder aspect of the thighs. The face dusky brown, with a pale area around the eyes and mouth: the same as the preceding female in the colour and length of its hair, and agreeing in all its details with the male *m.* The first molar is through, one upper incisor (left) and the two lower incisors, the latter being especially strongly serrated, there being one mesial eminence to the serrated edge, with two smaller ones on either side of it. The skull measures 6".45. Presented by W. Rutledge, Esq., 17th January 1876.

*dd.* The flat skin and skeleton of a young female, with external characters similar to the foregoing females. Skull 6".17 long. First molar through. Purchased, 18th February 1879.

*ee.* The flat skin and skull of a young female; the external characters the same as the preceding; skull 5".88 long. First molar through. Purchased, 3rd January 1870.

*ff.* The flat skin and skeleton of a young female, the same as the foregoing; skull 5".50. Milk dentition. Orbits very high. Presented by W. Rutledge, Esq., 26th April 1880.

*gg.* A stuffed young female, the skull not removed, but the animal externally inseparable from the foregoing specimens. Presented by W. Rutledge, Esq., 1st February 1874.

*hh.* The flat skin and skeleton of a young female with milk dentition; the same as the preceding. Purchased, 20th October 1869.

*ii.* The flat skin and skeleton of an individual similar to preceding one. Presented by W. Rutledge, Esq., 9th February 1874.

*jj.* A young male in alcohol, with long hair on the head directed forwards, and long hair on the body. General colour red, ferruginous on the body, darker on the head. Also more hair about the face than in *m.* The muzzle also is smaller, not so broad, although the dentition is in much the same state as

<sup>1</sup> Journ. As. Soc. Bengal, Vol. XXII (1853), pp. 37 to 75, pls. 9, 10.

<sup>2</sup> Cat. of Mammals, As. Soc. Mus., 1863, p. 4.

in *m.* The forehead also is higher than in *m.* Presented by W. Rutledge, Esq., 20th March 1879.

*kk.* A young ferruginous female in alcohol. Presented by Dr. J. Anderson, 21st January 1867.

*ll.* A young female similar to preceding, in alcohol. Presented by Dr. J. Anderson, 21st January 1867.

*mm.* A young male in alcohol, like preceding specimen. Presented by W. Rutledge, Esq., 4th January 1873.

*nn.* The skull of an adult male. Borneo. Regarded by Blyth as a female *Mias Rambi*, No. 3D of his Catalogue, described in Journ. As. Soc. Bengal, Vol. XXII, page 376, and measurements given in 3rd column, page 580 *l. c.*, and figured in pls. iii and iv, being one of the skulls described by Mr. Blyth as *P. brookei* (*l. c.*, page 375). Presented by Major Gregory, July 1838, Journ. As. Soc. Bengal, Vol. VII, page 669.

*oo.* A mounted skeleton of an adult male: No. 3E of Blyth's Catalogue: first described by Blyth as a fully mature female (?) of the *Mias pappan*, Journ. As. Soc. Bengal, Vol. XXII, p. 375, and afterwards as a youthful male *Pappan*, *op. cit.*, Vol. XXIV, p. 519, and in his Catalogue of Mammals, p. 3, as an adult male *Mias pappan*. Borneo. Presented by Mr. Wm. Nicholls of Sarawak, 1853.

*pp.* An imperfect skeleton of an adult male, considered by Blyth as a female *Mias pappan*; No. 3F of his Catalogue; and described, *op. cit.*, Vol. XXIV, 1855, pp. 518, 525. Borneo. Presented by Sir James Brooke, C.B., 1855. This specimen is distinguished by a supernumerary molar and by depressions on the skull. The right humerus of this animal had been fractured in life, the two ends of the fracture overlapping each other; a great mass of osseous tissue had been thrown out around them. The left fibula had also been fractured. This specimen has the eleventh rib of the right side firmly amalgamated to the vertebra, like a transverse process.

*qq.* The skeleton of an adult male considered by Blyth to be an adolescent male *Mias rambii*, with very large teeth, all the teeth being present and the incisors much worn. The temporal ridges meet on the vertex in a low ridge. The muzzle is heavy and protuberant. Described *op. cit.*, p. 523, No. 3G of Blyth's Catalogue. Borneo. Presented by Sir James Brooke, C.B., 1855.

*rr.* The skeleton of an aged male older than the previous specimen and regarded by Blyth as a mature male *Mias rambii*. No. 3H of his Catalogue, and described *op. cit.*, p. 324. It differs in its skull being broader across the malar

region than the previous specimen, in its protuberant muzzle being somewhat narrower, and in its sagittal and lambdoidal crests being much more developed. Sadong, Borneo. Presented by Sir James Brooke, C.B., 1855.

ss. The skeleton of an adult male sent by Sir James Brooke as a *Mias chapin*, was considered by Blyth to be a large old female *Rambi*, No. 3I of his Catalogue. It is remarkable for its large vertically elongated orbits, its rather feeble muzzle, and elongated face. The sagittal ridge is less developed than in the preceding specimen. Described by Mr. Blyth *op. cit.*, p. 521. Sadong, Borneo. Presented by Sir James Brooke, C.B., 1855.

tt. The skeleton of an adult male considered by Blyth to be a small, but full-grown, female *Mias rambi*, although it had been sent as a *Mias pappan*. No. 3J of Blyth's Catalogue. Described *op. cit.*, pp. 522, 523. Sadong, Borneo. Presented by Sir James Brooke, C.B., 1855.

uu. The skeleton of a mature male described by Blyth as a fully mature female *Rambi*, *op. cit.*, p. 523: No. 3K of Blyth's Catalogue. Much the same as the previous specimen, but with the sagittal crest not developed. In this skeleton the twelfth rib of each side is united to its vertebra and resembles a transverse process. Borneo. Presented by Sir James Brooke, C.B., 1855.

vv. The skeleton of an adult male; No. 3Q of Blyth's Catalogue: described by Blyth, *op. cit.*, pp. 520, 526, as *Pithecus cartus*. Borneo. Presented by Sir James Brooke, C.B., 1855.

ww. The imperfect skeleton of an adult female, No. 4A of Blyth's Catalogue, described by him as *P. morio*, in the Journal of the Asiatic Society of Bengal, vol. XXII, p. 371, plates VII and VIII. Very different from the foregoing male skulls in the absence of muscular ridges. It has all the characters of the skull figured by Owen as *S. morio*<sup>1</sup>: incisor 0".50 broad, but the molars are not large. Skull 7".40 long. Said to be from Borneo. Presented by R. W. G. Frith, Esq., 1836.

xx. The skull of a young animal cutting its permanent incisors and second molar. Upper incisors broad, 0".60, and much serrated. Lower incisors very irregularly placed. No. 3L of Blyth's Catalogue. Length of skull 6".35. Donor unknown.

yy. A young skull bisected, No. 3M of Blyth's Catalogue, retaining deciduary incisors. Length of skull 6".50.

<sup>1</sup> Trans. Zool. Soc. 1841, Vol. 11, p. 168.

zz. The skull of a younger specimen: first molar appearing. No. 3N of Blyth's Catalogue. Length of skull 5".95.

aaa. The skull of a young animal not in Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1863. Length 6".22.

bbb. The skull of a young animal not in Blyth's Catalogue. Length 6".05.

ccc. The skull, and the brain in alcohol, of a young animal with milk teeth and first molar. Skull cap cut away to permit of the removal of the brain. Length of skull 6". Purchased, July 1867.

ddd. The skull of a young animal with the first permanent molar through. The outer plate of the right maxillary and of the mandible has been removed to show the relation of the permanent to the deciduary teeth. Length 5".88. No history.

eee. The skull of a young male with milk teeth only. Length of skull 5".52. Purchased, 17th October 1870.

fff. The skull of a young male with milk teeth. Length 5".43. Purchased, August 1865.

ggg. The skeleton of a young male with milk dentition. Length of skull 5".40. Presented by W. Rutledge, Esq., 26th June 1875.

hhh. The skull of a young animal with milk dentition. Length of skull 5".10. Purchased, 5th January 1878.

iii. A right *scaphoid*, *lunare*, *unciform*, *magnum* and *cuneiform*, in duplicate, marked 3ww. Left *scaphoid*, 2 *lunare*, 2 *unciform*, 2 *magnum*, and 2 *cuneiform* bones marked 3xx.

Right *calcaneum*, *astragalus*, *naviculare*, *cuboid*, *cuneiform*, and *ecto-cuneiform*, in duplicate, marked 3yy.

Left *calcaneum*, *astragalus*, *naviculare*, *cuboid*, *cuneiform*, and *ecto-cuneiform* in duplicate marked 3zz.

2nd, 3rd, 4th, and 5th metacarpals of right hand, marked 3AAA. 1st, 3rd, 4th, and 5th metacarpals of right hand, marked 3BBB. Right 4th metacarpal, marked 3ccc; right 3rd metacarpal, marked 3DDD. 1st to 5th left metacarpals, marked 3EEE. Left 1st and 2nd metacarpals, marked 3FFF. Left 4th and 5th metacarpals, marked 3GGG. Right metacarpals 1st to 5th, marked 3HHH. Right metacarpals 1st to 5th, exclusive of 4th, marked 3III. Left metacarpals 1st to 5th, marked 3JJJ. Left 1st to 5th metacarpals, marked 3KKK. Thirty-one 1st phalanges of hands and feet, marked 3LLL. Thirteen 2nd phalanges of hands and feet, marked 3MMM. Twenty unguis phalanges of hands and feet, marked 3NNN. Borneo. Presented by Sir James Brooke, C.B., 1855.

*jjj.* A dried right hand. No history. Marked 3000.

*kkk.* A preparation of penis of the *3a*, displaying the penial bone 0".50 in length, situated in the distal end of the organ.

The foregoing seven skeletons from Borneo, presented to the Asiatic Society of Bengal by Sir James Brooke, were described by Mr. Blyth in 1855, three as males and four as females, and he remarked,<sup>1</sup> "There is no reason to doubt the correct determination of sex in any of the specimens." To one, however, conversant with the great differences in size and form that exist between the skulls of the two sexes of Orangs there is every reason to doubt that any of them are females. The skulls of these skeletons are all distinguished by the characteristic features of the male sex, great size, strong muscular ridges, and huge canines, and all present a common likeness to the skull *3a*, which is certainly known to be the skull of an adult male Orang-outang, which in life was distinguished by the enlargement of his cheeks into huge bare excrescences.

The variations presented by these skulls in the extent to which the external margins of their orbits are developed, the breadth across their orbits, the form of the orbits, the length of the muzzle, the degree of concavity of the profile, the zygomatic breadth, the degree of convergence of the temporal ridges, the arch of the frontals and of the parietals, the length, depth, and form of the palate, the depth of the symphysis, the height and breadth of the ascending ramus of the lower jaw, and the dimensions of the teeth, are very great and amply justify the application to them of the remark made by Wallace<sup>2</sup> regarding the Orangs collected by himself in Borneo, that they manifest differences as decided as those existing between the most strongly marked forms of the Caucasian and African crania in the human species.

When Mr. Blyth catalogued the mammals in the Museum of the Asiatic Society of Bengal,<sup>3</sup> the only two adult female Orangs then existing in the collection he referred to the supposed species *S. morio*, Owen,<sup>4</sup> which was founded on a female Orang skull, whereas all the males were referred by him to *S. satyrus*. Two adult, or nearly adult, females have been

<sup>1</sup> Journ. As. Soc. Bengal, Vol. XXIV, 1855, p. 518; *op. cit.*, p. 528.

<sup>2</sup> Ann. and Mag. Nat. Hist., Vol. VII, 1856, p. 472.

<sup>3</sup> Cat. Mamm., As. Soc. Mus., Vol. V, 1863, p. 4.

<sup>4</sup> Trans. Zool. Soc. Lond., 1841, Vol. II, p. 168, pls. 33 and 34.

added to the Museum since then, but all of them have the features which distinguish the skull figured by Owen as *S. morio*. Among the other numerous additions which have been made towards the illustration of this anthropoid ape, three skulls, nearly the same size as the adult female skull and thus resembling the skull named *S. morio*, are the skulls of adolescent males, their milk teeth being only partially shed. Each of these skulls thus still possessed a great capacity for growth. In four still younger male skulls, nearly equalling in size the adult female skull, but yet with milk incisors and canines, the likeness between the sexes, notwithstanding the disparity of age, is very great; the after-divergence, however, is enormous. After a careful and repeated consideration of the foregoing specimens, skeletons, and skins, the same conclusion has always been arrived at, that these materials are all referable to one large species of Orang-ontang so far as the adult males and females, and probably also the adolescents and young, are concerned. As indicated above, there would, however, appear to be a dark and pale variety.

Some of the males of the dark race had cheek excrescences, while others had not, whereas none of the males of the pale variety manifested any trace of such facial enlargements. I have observed these cheek excrescences beginning to show themselves in a baby dark-coloured male Orang, and have also seen them in another young male of the same colour, probably 6 years of age.

In 1841 Sir James Brooke<sup>1</sup> stated that the *Mias rambi* of Borneo was taller than the *Mias pappan*, which is the Bornean race provided with cheek excrescences, and that the *Rambi* was destitute of those structures. Wallace<sup>2</sup> also mentions that the Dyaks of North-Western Borneo have names for three species of *Mias*, although he could never find any one who could determine them with precision. The Dyaks say that the *Mias rambi*, which has very long hair, equals the *Mias chappan* or *pappan* in size, but that it has no cheek excrescences. Wallace, however, regarded the *Mias rambi* as probably only rare examples of the large species in which the excrescences have been little or at all developed. In the "Malay Archipelago" no mention is made of the *Mias rambi*, nor indeed of Orangs without cheek excrescences equalling in dimensions those provided with these structures: all the Orangs, *Mias*

<sup>1</sup>, Proc. Zool. Soc. London, p. 55.

<sup>2</sup> Ann. and Mag. Nat. Hist., 1856, Vol. XVII, p. 475.

*kassir*, which had no excrescences, were much smaller animals than those which had them and were referred by Wallace to *S. morio*.

Wallace does not give any detailed description of the skull of the males he referred to *S. morio*, but he says, "It is smaller and weaker, and the zygomatic arches narrower than in the large species; it has no bony crest, but two faint ridges from  $1\frac{3}{4}$  inch to 2 inches apart, exactly as in the *S. morio* of Prof. Owen, figured in the 'Transactions of the Zoological Society.' The teeth, however, are, in proportion to the skull, of immense size, equalling, and in one case surpassing, those of the larger animals; the molars extending further backward, and the incisors and canines being set closely together, room is found for them in a much smaller jaw." The only skulls in this Museum corresponding generally to the foregoing description are those of female Orangs.

One adult male skull, 300, resembling, in size and in the development of its zygomatic and orbital ridges, the skull of the adult 3a with cheek excrescences, differs from it and resembles *S. morio* in the temporo-parietal ridges being far apart. Although this feature of *S. morio* occurs in this skull, there can be no doubt of the specific identity of the skull with the individual 3a or with *S. satyrus*, and Mr. Blyth records that Mr. Nicholls, who presented this Orang to the Asiatic Society of Bengal, stated that, if he remembered rightly, the skeleton had been given to him as that of a male, full grown, but not aged, and with a very broad face—a description which evidently indicates that the animal was an Orang with cheek excrescences. The non-union of the temporo-parietal ridges to form a sagittal ridge would appear in the case of male Orangs to be generally a sign that the animal had not attained full maturity. This skull has all its permanent teeth perfectly fresh and unground, and a few more years of masticating activity would probably have brought the ridges together. Even in female skulls referable to *S. morio*, the feeble lines indicating the temporal ridges tend to meet on the vertex in the fully adult animal, and in one skull the ridges are only separated by an interval of 0".40, which, in all likelihood, would have disappeared with increased age; whereas in a female, with the last molar only cutting the gum, these ridges are 0".50 apart. At the same time, in some cases, feeble development of the lower jaw, as pointed out by Mr. Wallace, associated with a small zygomatic aperture and a large cranial surface, contributes to keep the temporal ridges



apart; but these conditions cannot be regarded as the chief cause of separated temporal ridges in Orang skulls, and, moreover, in the skull 300 they do not exist, and yet the ridges are far apart.

In the old male 3pp, in its general features also resembling the skull 3a, the fronto-parietal ridges remain far apart, even although the animal is aged. The area, however, between the ridges is covered with deep indentations—an abnormal condition which may have contributed to the non-union of the ridges.

The male skeletons also exhibit almost quite as much variation in the length of their long bones as is manifested by the skulls, in the particulars already indicated. One is so remarkable for the shortness of its limb bones that Mr. Blyth at first regarded it as a new species which he designated *S. curtus*, but afterwards, when he had reviewed all the materials at his disposal, he sunk the name in his catalogue as a synonymy of *S. satyrus*.

The skull 3pp is remarkable for the number of depressions on its frontal, as well as on its parietal, region. They apparently resemble those described by Professor Humphry<sup>1</sup> as occurring in an Orang from Borneo in the Anatomical Museum of the University of Cambridge. There is a remarkable degree of similarity between the two skulls, and they further resemble each other in having the temporal ridges apart and in possessing supernumerary molars.

The depressions in this skull are chiefly confined to the interspace between the ridges, but they occur without any symmetry. There is one large depression on the parietal, immediately behind the left superciliary ridge 0".70 long and 0".65 broad, with another still deeper depression behind it, 0".30 long and 0".75 broad. A little removed from the right superciliary ridge is a long partially-interrupted depression 1".55 long and 0" .50 broad, which may be regarded as the equivalent on this side of the depression just described, and from which it is separated by a prominent eminence. All of these depressions occur on the frontal, but immediately behind them there is another depression occupying the mesial line of the skull, on the beginning of the parietal, 0".80 broad and

<sup>1</sup> Journ. Anat. and Phys., Vol. VIII, 1874, p. 136, Pl. VII, figures 4, 5 and 6. The specimen described by Professor Humphry is stated to have been a female, but the figure in which the canines are represented as large would seem to indicate, along with the general characters of the skull, that the animal had been a male.

0" 85 long, and still another on the posterior portion of the parietal close to the posterior end of the left temporal ridge. There is no trace of a sagittal suture. Nearly opposite to the first depression on the parietal, but immediately external to the left temporal ridge, there is another and sixth depression which seems to make itself felt along the inner side of the left temporal ridge. On making two transverse sections through these depressions and the intervening elevations, it is found that in the last of the depressions there is considerable thinning away of the walls of the skull, the cancellated substance having disappeared, and nothing but the hard tables remaining, in some places not thicker than 0"·05; so that, had the thinning been carried a little further, the skull might have presented the anomalous appearance of a series of openings in deep depressions.<sup>1</sup> In such instances the depression is fully 0"·10 in depth, and the walls of the skull on either side of it are fully 0"·20 thick, with the diploe well developed. Between the depressions of either side is an elevated, but flattened, area, occupying the middle of the frontal. On the inner surface of the skull there are no concavities corresponding to the external depressions, but there is one small circular pit about 0"·30 in diameter underlying the thickened area on the frontal. These defects in the skull appear to be due to an imperfection in the ossifying process, as stated by Professor Humphry, in consequence of which those parts of the skull are left thin.

It will be observed that these depressions, as in the instances cited by Professor Humphry in Man and in the Orang, do not occur in the course of the sagittal suture nor on the eminences of the frontal.<sup>2</sup>

Finding these depressions, in the two instances recorded,

<sup>1</sup> The skull of a female New Hollander in this Museum has one great parietal depression on the left side of the same nature as those in the Orang described above, another but smaller depression on the right side, and about six other irregular depressions on the left side. The first-mentioned depression is thinned away at its bottom to 0"·03.

<sup>2</sup> In the foregoing New Holland skull the largest of the left parietal depressions involves the left parietal eminence.

In the Museum of the Medical College the skull of a young female Orang presents a simple depression on the commencement of the sagittal suture, and another slight one 0"·70 by 0"·50, which has its outline well defined by a clear difference in the texture of the depression and that of the surrounding parts. The depressed area is very dense and almost porcelaneous. This skull also presents two deep pits on either side of the foramen magnum. The lambdoidal and sagittal sutures are obliterated, but the skull is very small, although it has got its lower permanent and its middle upper incisors.

associated with separated temporal ridges and an abnormal number of teeth, Orang skulls presenting any of these characters, either singly or in association, should be carefully observed.

Supernumerary teeth occur on both the upper and lower jaws of the left side. In the former the supernumerary tooth is a small erect two-fanged cylindrical tooth with two cusps. The normal last molar is deformed, consisting of three distinct internal cusps, with a large external cusp equalling the conjoint dimensions of the three former. In the skull described by Professor Humphry the additional tooth occurred on each side of the upper jaw, and, although smaller than the other teeth, both were well formed and with the normal number of fangs.

The supernumerary tooth in the lower jaw is quite as large as the last molar and has its crown directed forwards to the right side, as in the Orang skull described by Professor Humphry, due to the circumstance that it is set in the base of the coronoid process. From its position its crown could never be brought into use, but the hinder margin of the cingulum is partially worn away by friction against the upper supernumerary tooth.

The female skull *3k* has a well-formed additional molar behind the normal last tooth on each side of the lower jaw, each perfectly erect and in no way out of position.

Among these adult male Borneau skulls there is considerable variation, not only in the breadth of the front upper incisors, but in the length of the dental line from the premolar to the last molar, and in the dimensions of the molars, and in some skulls more particularly of the last molar.

Throughout the series there is considerable diversity in the extent and form of the nasal bones. In the skull *3vv* the nasals are 1".45 long, expanding from 0".25 to 0".50, their greatest width. In the skull *3pp* these bones show a decided tendency to unite with the maxillaries, whereas in skull *3ss* the nasals are little, if at all, expanded below, and are 1".80 long with a maximum width of 0".35, exhibiting no tendency whatever to union either with the frontal or maxillaries. In the skull *3tt* the maxillaries form a broad suture between the orbits, and the nasals disappear, being represented by a small azygos bone 0".55 in length and 0".18 in greatest breadth, so that it is quite possible that occasionally in Orangs the nasals may be suppressed or lost in the maxillaries, so insignificant is their fragmentary representation in the skull.

## Measurements of Skulls and Skeletons of Orangs, male and female.

	3 D. 3m	3 E. 3oo	3 F. 3pp	3 G. 3gq	3 H. 3pr	3 I. 3ss	3 J. 3ft	3 K. 3ut	3 Q. 3ov	4 A. 3ev	4 D. 366	3 h. ♀	3 e. ♀	3 l. ♂	3 n. ♂
Depth of the skull from the vertex to the base of the occipital condyles . . . . .	3.65	3.80	3.87	3.84	3.80	3.85	3.75	3.68	3.45	3.50	3.66	3.58	3.70	3.65	3.60
Length of the skull from the occiput to the margin of the premaxillaries . . . . .	8.80	9.10	8.47	8.45	8.75	9.10	8.73	8.45	8.40	7.40	7.13	7.55	7.40	7.15	7.05
Length of the skull from the occiput to the fronto-nasal suture . . . . .	5.30	5.45	5.20	4.90	5.30	5.15	5.30	5.17	5.00	4.60	4.00	4.88	4.63	4.85	4.56
Length of the skull from the fronto-nasal suture to the margin of the premaxillaries . . . . .	4.25	4.10	4.08	3.95	4.00	4.30	4.00	3.90	3.80	3.50	2.80	3.80	3.80	3.25	2.86
Greatest lateral diameter of the skull at the post-auditory ridges . . . . .	5.18	5.95	5.46	5.40	5.60	5.90	5.58	6.00	5.80	4.80	4.80	4.95	4.95	4.90	4.50
Smallest lateral diameter of the skull behind the orbits . . . . .	2.25	2.25	2.30	2.60	2.30	2.60	2.15	2.10	2.15	2.30	2.00	2.20	2.15	2.95	2.25
Distance between the temporal ridges . . . . .	...	1.30	0.75	...	...	...	0.20	...	...	0.60	2.10	0.85	1.80	3.45	3.05
Diameter of the skull at the zygoma . . . . .	6.30	6.43	6.53	6.25	6.60	6.93	6.40	6.53	6.00	5.25	4.95	5.25	4.85	4.60	4.50
Length of the zygomatic fossa . . . . .	2.20	2.28	2.10	1.80	2.43	2.40	2.65	2.10	2.00	1.79	1.50	1.70	1.70	1.45	1.53
Diameter of skull taken between the outsides of the orbits . . . . .	4.87	4.40	4.70	4.90	4.80	4.40	4.30	4.20	4.80	3.7	3.91	3.98	3.57	3.40	3.65
Breadth of the interorbital space . . . . .	0.60	0.45	0.44	0.83	0.65	0.60	0.55	0.52	0.60	0.40	0.54	0.50	0.35	0.88	0.30
Transverse diameter of the orbital cavity . . . . .	1.44	1.40	1.43	1.50	1.44	1.42	1.30	1.45	1.42	1.21	1.30	1.30	1.15	1.30	1.20
Vertical diameter of the orbital cavity . . . . .	1.95	1.68	1.68	1.90	1.60	2.00	1.81	1.57	1.81	1.60	1.40	1.70	1.32	1.55	1.40
Vertical diameter of the nasal aperture . . . . .	1.30	1.20	1.27	1.40	1.35	0.45	1.32	1.40	0.30	1.20	0.85	1.30	0.64	1.15	0.80
Transverse diameter of the nasal aperture . . . . .	0.90	0.81	0.75	0.85	1.00	0.92	0.87	0.95	0.88	0.85	0.70	0.81	0.74	0.75	0.88
Interspace between the infra-orbital foramina . . . . .	1.93	...	1.50	1.60	2.17	1.80	1.77	1.60	2.10	1.70	1.43	1.77	1.50	1.41	1.45
Distance between the inferior margin of the nasal bone and the inferior margin of the premaxillaries . . . . .	2.70	2.72	2.66	2.70	2.90	2.80	2.76	3.00	3.40	2.30	1.63	2.00	1.90	2.05	1.94

From the anterior margin of the occipital foramen to the posterior margin of the bony palate . . . . .	3'80	3'25	2'90	2'55	3'40	3'46	3'85	3'85	3'20	2'70	2'55	2'40	2'94	2'35	2'38
Length of the bony palate along the mesial line . . . . .	3'55	3'75	3'25	3'60	3'55	3'35	3'28	3'30	3'12	2'65	2'67	2'82	3'05	2'50	2'49
Breadth of palate between canine . . . . .	1'68	1'50	1'45	1'60	1'70	1'57	1'46	1'40	1'56	0'95	1'40	1'50	1'68	1'61	1'69
" " last molar . . . . .	1'68	1'50	1'28	1'50	1'50	1'40	1'16	1'50	1'28	1'33	1'40	1'45	0'60	...	...
From the anterior margin of the intermaxillary bones to the anterior palatine foramina . . . . .	0'94	1'15	1'00	1'10	0'60	0'50	1'00	0'98	1'09	0'85	0'72	0'70	0'85	0'59	0'75
Breadth of the crown of the first incisor, upper jaw . . . . .	0'52	0'58	0'50	0'67	0'82	0'60	0'55	0'66	0'48	0'60	0'50	0'43	0'62	0'43	0'45
" " second " " " . . . . .	0'38	...	0'30	0'30	0'30	0'35	0'40	0'35	0'30	0'35	0'35	0'35	0'36	0'33	0'26
Breadth of the incisors <i>in situ</i> . . . . .	1'60	...	1'50	1'75	1'90	1'63	1'60	1'60	1'45	1'45	1'68	1'50	1'85	1'50	1'28
Longitudinal extent of molars and bicuspids of one side, upper jaw . . . . .	2'15	2'25	2'10	2'37	2'20	2'20	2'10	2'18	2'05	2'05	2'05	2'00	2'15	...	...
Length of crown of upper canine . . . . .	0'65	1'20	...	1'25	0'90	0'87	0'80	1'20	...	0'42	0'68	0'49	0'63	...	...
Breadth of " " " " " . . . . .	0'70	0'66	0'50	0'72	0'88	0'65	0'60	0'70	0'67	0'52	0'80	0'50	0'65	...	...
Length of the lower jaw from the condyle to the anterior surface of the sockets of the incisors . . . . .	6'35	6'78	6'25	6'40	6'35	7'15	6'30	6'57	6'60	6'65	6'49	6'60	6'45	4'87	4'85
Length of canine, lower jaw . . . . .	0'66	1'00	...	1'00	0'95	0'86	0'86	0'85	...	0'45	0'68	0'62	0'70	...	...
Greatest breadth of " " " " " . . . . .	0'60	0'80	0'55	0'73	0'67	0'55	0'50	0'60	0'53	0'44	0'54	0'46	0'49	...	...
Breadth of ascending ramus . . . . .	2'64	2'70	3'50	2'45	2'90	2'68	2'70	2'70	2'80	1'60	1'88	2'00	3'10	...	...
Length of right humerus . . . . .	...	14'30	...	14'10	15'60	16'25	18'85	16'05	18'00	12'85	...	...	...	...	...
" of " radius . . . . .	...	14'30	...	13'78	16'00	16'10	13'50	14'90	13'50	13'25	...	...	...	...	...
" of " ulna . . . . .	...	16'10	...	14'70	16'80	16'00	14'20	16'40	13'20	18'30	...	...	...	...	...
" of " femur . . . . .	...	10'80	...	10'20	11'30	11'33	10'46	11'70	10'00	9'90	...	...	...	...	...
" of " tibia . . . . .	...	9'40	...	9'00	10'00	10'60	9'00	9'00	9'10	8'60	...	...	...	...	...
" of " fibula . . . . .	...	8'60	...	8'20	9'10	9'40	...	9'10	8'50	8'05	...	...	...	...	...

4. *Simia abelii*.

Ourang-outang of Sumatra, *Clarke Abel, As. Resch.*, vol. xv, 1825, p. 489, pls. 1 to 3, and IV & V.

*Simia abelii*, *Fischer, Syn. Mamm.*, 1829, p. 10.

*Pithecus satyrus*, *Evans, Journ. As. Soc. Bengal*, vol. vii, 1838, p. 669, *partim*.

*Simia gigantea*, *Pearson, Journ. As. Soc. Bengal*, vol. x, 1841, p. 660.

*Pithecus bicolor*, *Is. Geoff. Atti della terza riun. d. Scienz. Ital.*, 1841; *ibid.*, *Arch. du Mus.*, t. ii, 1841, p. 526.

Sumatran Orang-outang.

*Hab.* Sumatra.

4a. The lower jaw, No. 3B of Blyth's Catalogue, of the large individual first described by Dr. Clarke Abel in the Asiatic Researches, Vol. XV, 1825. This jaw was figured in the same work, Plates IV and V, and again figured, half natural size, in the Journ. As. Soc. Bengal, Vol. VI, Plate XVIII. Described by Mr. Blyth, *op. cit.*, Vol. XXII, 1853, p. 374. This specimen is very much smaller than the jaw of the next skull. The former measures only 6".55 in the extreme length of the jaw, whereas the latter is no less than 7".60. The condyle of Dr. Clarke Abel's specimen is only 3".50 above the inferior line of the horizontal ramus, whereas in the next individual the measurement is 4".90. The coronoid process of the former is only 3".90, while in the latter it is 4".70, the breadth of root of the ascending ramus in Dr. Clarke Abel's animal being 2".30 to 2".65 in next specimen. There is no perceptible difference in the length of the dental line of the two jaws, but this jaw is enormously larger than the other. The symphysis in Dr. Clarke Abel's specimen is only 2".60, and in the next skull it is as great as 3".05. The form of the jaws is much the same, and although the smaller jaw has all its teeth, the teeth are not worn, whereas in the other massive jaw the teeth are considerably worn. I am therefore disposed to attribute the difference in size solely to individual peculiarities. Presented by Captain Cornfoot, 1822.<sup>1</sup>

<sup>1</sup> The stuffed skin of Dr. Clarke Abel's specimen from the north coast of Sumatra, presented by Captain Cornfoot, *As. Researches*, Vol. XV, App. p. 32, 1822, and described in the Asiatic Researches for 1825, in which the head, lower jaw, teeth, hand and foot are figured, was not in the Asiatic Society's Museum when I took charge of it for the Trustees of the Indian Museum.

Owen has stated that the Sumatran Orang has no cheek excrescences, but

*b.* The skull of an adult male. Sumatra. No. 3C of Blyth's Catalogue: described by Pearson as *S. gigantea*, Journ. As. Soc. Bengal, Vol. X, p. 660, and the measurements given by Mr. Blyth, *op. cit.*, Vol. XXII, p. 380, tab. No. 2, and figured *l. c.*, Plates I and II. The skull is much more massive than any of the skulls of *S. satyrus* and distinguished from them by the great depth of the malo-maxillary area, which is flat and much expanded, and measures 2 inches in height, whereas in the skulls referred to *S. satyrus* it is seldom above 1"·42 in depth. The muzzle also is very powerful, and the canine ridges enormous. The breadth across the front of the orbital region is greater than in the foregoing skulls of *S. satyrus*, and the superciliary ridges are much more developed. The orbits are irregularly vertically oval. The temporal ridges are strongly marked and form a prominent sagittal ridge. The zygomatic arch is strong, and the lower jaw very massive, with a broad ascending ramus. This skull corresponds so closely to the figure of the skull described by Professor Owen<sup>1</sup> that there can be no doubt of their specific identity.

## II.—SUB-FAMILY HYLOBATINÆ.

GENUS HYLOBATES, Illiger, 1811.

### 5. *Hylobates syndactylus*.

*Simia syndactylus*, *Raffles, Trans. Linn. Soc.*, vol. xiii, 1822, p. 241.

*Pithecus syndactylus*, *Desmarest, Mamm.*, 1820, p. 531.

*Hylobates syndactylus*, *F. Cuv., Hist. Nat. des Mammif. livr.* xxxiv, Novembre 1821.

*Siamanga syndactyla*, *Gray, Cat. Mamm. B. M.*, 1843, p. 1.

*Hylobates (Siamanga) syndactylus*, *Anderson, Anat. and Zool. Resch., and West. Yunnan Expd.*, 1878, p. 10.

*Hab.* Sumatra and Malayan Peninsula.

*5a.* A young male stuffed: its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 24th June 1873.

*b.* The skin of an adult female and the bones of its trunk. Presented by W. Rutledge, Esq., 24th June 1873.

*c.* A young male stuffed, and its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 16th August 1873.

Mr. Blyth distinctly mentions that the skin of Dr. Clarke Abel's specimen possessed cheek excrescences, but less developed than in the Bornean male (*Journ. As. Soc. Beng.*, Vol. XXII, 1853, p. 370).

<sup>1</sup> *Trans. Zoological Soc. Vol. I, 1835, Pl. 53.*

*d.* An adult female stuffed: its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 29th September 1873.

*e.* The ligamentary skeleton of an adult male. Presented by W. Rutledge, Esq., 19th April 1874.

*f.* The skeleton and flat skin of a young male. Presented by the Zoological Gardens, Calcutta, 26th June 1880.

*g.* The skin and skull of a young male. Presented by W. Rutledge, Esq., 29th November 1880.

## 6. *Hylobates hoolock*.

The Fifé Nieuhoff, *Recueil des Voyages, &c.*, t. iii, 1716, p. 168.

The Golock, *De Visme, Philosoph. Trans.*, vol. lix, 1769, p. 72.

The Gulok, *Pennant, Hist. Quad.* vol. i, 3rd ed. 1793, p. 185.

The Voulock, *Allamand, Buffon, Hist. Nat.* (Sonnini ed.), t. xxxv, (1809), p. 140.

The Hoolock, *McClelland, Proc. Zool. Soc.*, 1839, p. 148.

Simia lar, *Philosoph. Trans.*, vol. lix, 1769, p. 607.

Simia hoolock, *Harlan, Trans. Amer. Phil. Soc.*, vol. iv, new ser., 1834, p. 52, pl. 2 (animal & skull).

? *Hylobates niger*, *Ogilby, Proc. Zool. Soc.*, 1840, p. 20.

*Hylobates hulok*, *Wagner, Schreber, Säugeth. Suppl.*, Bd. i (1840), p. 76; vol. v, 1855, p. 20.

*Hylobates hoolock*, *Lesson, Sp. des Mammif.*, 1840, p. 54.

*Hylobates chronomandus*, *Ogilby, Proc. Zool. Soc.*, 1837, p. 689.

*Hylobates scyritus*, *Ogilby, Madr. Journ. Lit. & Sc.*, vol. xii, 1840.

*Hab.* Assam; extending into the Eastern Himalayas (Bhutan), also to upper portion of the valley of the Irrawadi, and into the hilly country to the east of that river at Bhamo, and from Manipur and Cachar into Northern Arakan.

*6a.* A stuffed adult male, and its articulated skeleton: Nos. 5 A and H of Blyth's Catalogue. Entirely black, with the exception of a white supercilium. From the Barrackpore Menagerie, 1842.

*b.* A stuffed adolescent male, same as preceding specimen, and its articulated skeleton: Nos. 5 B and I of Blyth's Catalogue. From Barrackpore Menagerie, 1842.

*c.* A stuffed adult female, brown above, darker on the under parts, sides of face, hands and feet. No. 5D of Blyth's Catalogue. Presented by Lieutenant-Colonel R. S. Tickell, 1842-49.

*d.* A stuffed adult female: the same as *c.* No. 5F of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur.



*e.* A stuffed adult female: pale yellow above and light brown below, and blackish on the fingers and toes. No. 5E of Blyth's Catalogue. Assam. Presented by S. G. T. Heatly, Esq.

*f.* A stuffed young female: dark brown, but lighter on the back and outside of the limbs. Arakan. Presented by Sir Arthur P. Phayre.

*g.* The skin of a young male: black. Purchased, September 1866.

*h.* A stuffed young black female. Purchased, 19th May 1868.

*i.* The skin of a young black male. Purchased, 29th May 1869.

*j* and *k.* A stuffed young male and female, both black. Assam. Presented by W. Rutledge, Esq., May 1870.

*l.* A stuffed adolescent black male. Assam. Presented by H. F. Blanford, Esq., 16th July 1870.

*m.* A stuffed adolescent female, with greyish head. Assam. Presented by W. Rutledge, Esq., 29th April 1871.

*n.* The skin of a young black male. Presented by W. Rutledge, Esq., 16th June 1871.

*o.* The skin of a young female: dark blackish-brown, lighter on the back and on the sides of the face: beard greyish. Presented by W. Rutledge, Esq., 24th June 1870.

*p.* The skin of a young male: blackish brown on the back, and sides of the face and middle of chest. Presented by W. Rutledge, Esq., 30th June 1871.

*q.* The skin and bones of the trunk of a nearly adult female: pale yellow above, and light brown below and on the sides of the head. Cachar. Museum Collector, 1867-68.

*r.* A characteristic adult male, jet black, with white supercilium. Samaguting, Assam. Presented by Captain J. Butler, October 1872.

*s.* A young, pale yellow female, in alcohol. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.

*t.* The ligamentary skeleton of a young male. The general colour of this gibbon was yellow, but the belly and inside of the limbs were brown. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.

*u.* The ligamentary skeleton of a young male, like the preceding specimen. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.

*v.* The skin and ligamentary skeleton of a young male, the same as the two preceding specimens. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.

w. An imperfect flat skin of a black male. Hotha, Western Yunnan. Dr. J. Anderson. Presented by the First Expedition to Western Yunnan, 1868.

x. Another similar male skin. Teng-yue-chow, Yunnan. Dr. J. Anderson. Presented by the First Expedition to Western Yunnan, 1868.

y. The skin of a young female, also its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 17th April 1877.

z. The skin, skull, and bones of the trunk of an adult female: greyish yellow above and blackish brown below, and on the sides of the head and on the fingers. Presented by the Zoological Gardens, Calcutta, 19th May 1877.

aa. The skin and skull of an adult male. Presented by W. Rutledge, Esq., 26th May 1879.

bb. The skin and skull of a young female. This specimen has the head and back greyish yellow; this colour also occurring here and there on the limbs and along the mesial line of the under surface of the body. This individual marks the transition from black to pale yellow, a colour which frequently occurs in adult females. Tipperah. Presented by the Zoological Gardens, Calcutta, 28th August 1879.

cc. The skin and skull of a young black female. Presented by W. Rutledge, Esq., 10th April 1880.

dd. A young skull, No. 5I of Blyth's Catalogue.

ee. A young skull, No. 5L of Blyth's Catalogue.

ff. A young skull, No. 5M of Blyth's Catalogue.

gg. A young skull, No. 5K of Blyth's Catalogue.

hh. The skull of a young animal. Gáro Hills. Presented by Lt.-Colonel H. H. Godwin Austen, 13th June 1870.

ii. The skull of a young animal. No history.

jj. The skeleton of a young male. Purchased, 12th June 1869.

kk. The ligamentary skeleton of an adolescent male. Purchased, 6th June 1869.

## 7. *Hylobates* lar.

*Homo* lar, *Linn., Mantissa Plant.* 1771, Append., p. 521.

*Simia lengimana*, *Schreber, Säugeth.* Bd. i, 1775, p. 66, pl. iii, fig. 1 (Buffon).

*Simia* lar, *Gmelin, Linn. Syst. Nat.* 13th ed. 1788, p. 29; *Audebert, Hist. Nat. des Singes, &c.*, Fam. I, Sect. II, fig. 1.

*Pithecus* lar, *Latr., Hist. Nat. de Buffon* (Sonnini ed.), 1809, t. xxxvi, p. 276.

*Pithecus varius*, *Latr., Hist. Nat. de Buffon* (Sonnini ed.), t. xxxvi, 1809, p. 276.

- Pithecus variegatus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 88.
- Hylobates lar*, *Illiger, Abhand. der Akad. der Wiss. Berlin*, 1815, p. 88; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 5; *Anderson, Anat. and Zool. Resch. &c.*, 1878, p. 5.
- Hylobates variegatus*, *Kuhl, Beitr. zur Zool.* 1820, p. 5.
- Simia albimana*, *Vigors & Horsfield, Zool. Journ.*, no. 13, 1828, vol. iv, p. 107.
- Simia variegatus*, *Fischer, Syn. Mamm.* 1829, p. 11.
- Hylobates albimanus*, *Is. Geoff. St.-Hil., Zool. du Voyage de Bélanger*, 1834, p. 29.
- Hylobates leuciscus*, *Cantor, Ann. & Mag. Nat. Hist.* vol. xvii, 1846, p. 338.
- Hylobates entelloides*, *Is. Geoff. St.-Hil., Compt. Rend.* t. xv, 1842, p. 717.

*Hab.* Arakan, Lower Pegu, Tenasserim, and Malayan Peninsula.

7a. A stuffed adult female; brown, but paler on the lower half of the back. In Skin Collection. No history.

b. The skin of an adult: brown, but passing into greyish between the shoulders and along the back; darkest on the head.

c. A stuffed adult male: brown, but much variegated on the back and on the arms with an intermixture of yellowish. No history.

d. A stuffed adult female: brown, becoming pale yellowish-brown on the back and on the extremities, the legs being but little paler than the normally coloured feet. No history.

e. A stuffed adult female: pale yellow. Malacca, 1846.

f. A stuffed young female: rich yellow.

g. A stuffed very young female: pale yellow.

h. A stuffed adult female, black, with the usual distinctive marks. Presented by A. Grote, Esq., 26th June 1864.

i. A stuffed young female: brown, pale yellowish on back of the thighs, and yellowish on the throat, chest, and middle line of abdomen. Purchased, 20th September 1866.

j. A stuffed adolescent male: black, with the usual markings. Tenasserim. Presented by the Countess Mayo, 14th February 1870.

k. A stuffed adult male: brown, darkest on the head, passing into light yellowish-brown on the lumbar region. Presented by W. Rutledge, Esq., 14th July 1871.

l. A stuffed young animal: top of the head black, paler on the occiput and between the shoulders, where the colour is greyish. On the lumbar region, hips, and under surface of thighs the colour is yellowish. Hands yellowish brown, feet yellow, and the area around the nude, black face white.

*m.* A stuffed young female: greyish brown, dark brown on the vertex; back greyish, passing into yellow on the lumbar region, and on the back of the thighs. Presented by W. Rutledge, Esq., 29th September 1871.

*n.* The skin of an adolescent: pale brownish yellow, the hands and feet somewhat paler; the eyebrows blackish, and the area around the face white. No history.

*o.* The skin of a young male: black, with some grey patches on the back, and pale on the sacral region: area around callosities and the back of the thighs rusty yellow; mesial line of chest and abdomen greyish yellow. Presented by W. Rutledge, Esq., 2nd March 1876.

*p.* The skin, skull, and bones of the trunk of a young male. Presented by the Zoological Gardens, Calcutta, 6th May 1877.

*q.* The skin, skull, and bones of the trunk of a young male. Presented by W. Rutledge, Esq., 19th August 1878.

*r.* The skin, skull, and bones of the trunk of a young female resembling *l* and *m*. Presented by W. Rutledge, Esq., 13th February 1877.

*s.* The skin of an adult, uniform pale, sandy yellow. Mooleyit Range, Tenasserim. Collected by Mr. Ossian Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*t.* The skin of an adult female like the last, and from the same locality. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*u.* A nearly mature male foetus in alcohol. The head is especially well clad with hair, but the back of the loins and of the brachium are covered with numerous hairs directed downwards, but all the other parts are nearly nude. The teats are especially well developed. This is the foetus of *t*. Mooleyit Range, Tenasserim. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*v.* The mounted skeleton of an adult male. Tenasserim. Presented by W. Theobald, Esq., 1856.

*w.* The skull of a dark-coloured young animal. Nasal processes of frontal downwardly prolonged and broad. No history.

*x.* The skull of a pale adolescent: nasal processes of frontal short and narrow. No history.

*y.* An imperfect skull of a pale-brown adult. Nasal processes of frontal moderately downwardly prolonged and broad. No history.

*z.* The skull of a young yellow individual. No. 8E of Blyth's Catalogue.

8. *Hylobates agilis*.

- The Ounko, *F. Cuv., Hist. Nat. des Mammif.* Juin 1824, livr<sup>ns</sup> xlii & xliii.
- Hylobates agilis*, *F. Cuv., Hist. Nat. des Mammif.* Sept. 1821, livr<sup>ns</sup> xxxii & xxxiii; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 5; *Anderson, Anat. & Zool. Resch.* 1878, p. 9.
- Simia lar, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 242.
- Pithecus agilis*, *Desmarest, Mamm.*, 1820, p. 532.
- Hylobates rafflesii*, *Is. Geoff. St.-Hil., Cat. Méthod. des Mammif.* 1851, p. 8.
- Hylobates variegatus*, *Temminck, Monogr. de Mamm.* t. i., 1827, p. xiii.
- Hylobates rafflei*, *Geoff. St.-Hil., Cours de l'Hist. Nat. des Mammif.* 7<sup>me</sup> leçon 1829, p. 34.
- Hylobates unko*, *Temm. (partim), Sp. des Mammif.* 1840, p. 53.
- Hylobates concolor*, *Müller, Verhandl. over de Zool. Ind. Archipel*, 1841, p. 48.
- Hylobates mülleri*, *Martin, Nat. Hist. Quadr.* 1841, p. 444; *Anderson, Anat. & Zool. Resch.*, 1878, p. 8.
- Hylobates funereus*, *Is. Geoff. St.-Hil., Compt. Rend.* t. xxxi, Dec. 1850, p. 874.
- Hylobates pileatus*, *Gray, Proc. Zool. Soc. Lond.*, 1861, p. 136, pl. xxi; *Anderson, Anat. & Zool. Resch. &c.*, 1878, p. 6.

*Hab.* Sumatra, Siam, Cochin China, Borneo, and Sulu Islands.

A careful reconsideration of the various gibbons to which the terms above given have been applied leads me to regard them all as local races and varieties of one and the same species.

*8a.* The skin of a young male: brown, paler on the lumbar region, and on the outside of the hind limbs; hands and feet black; chest pale yellowish-brown; supercilium white; no white on the whiskers. Presented by W. Rutledge, Esq., 6th September 1869.

*b.* A stuffed young female: brown, passing into yellowish on the lumbar region, and to pale brown on the outside of the thighs; top of the head brown, parietal and occipital regions pale greyish-brown; supercilium and whiskers white; chest and inside of limbs black; hands and feet blackish brown. Presented by W. Rutledge, Esq., 16th January 1870.

*c.* A stuffed young male: the same as the preceding. Presented by W. Rutledge, Esq., 8th August 1871.

*d.* A stuffed young male: same as *b.* Presented by W. Rutledge, Esq., 27th August 1871.

*e.* A stuffed young male and its skull: the same as *b.* Presented by W. Rutledge, Esq., 13th July 1875.

*f.* A young female in alcohol. Presented by W. Rutledge, Esq., 28th July 1877.

*g.* The skin, skull, and bones of the trunk of an adult female: greyish brown on the back, passing into yellowish brown on the lumbar region, and on the back and the sides of the thighs; into darker fuliginous brown on the shoulders, sides, and outsides of the limbs. Top of the head dark brown; supercilium greyish; whiskers darker grey; throat, chest, and anterior half of front limbs black; inside of fore and hind limbs darker than the outsides; mesial portion of ventral aspect white. Presented by W. Rutledge, Esq., 8th May 1873.

*h.* The skin and skeleton of a young male: general colour ashy, darkest on the vertex, shoulders, and across the chest, and on the hands and feet; fading to pale grey on the lower portion of the back and on the hind limbs. Presented by W. Rutledge, Esq., 16th January 1877.

*i.* The skin, skull, and bones of the trunk of an adult female: supercilium grey; forehead and mesial line of crown black-brown; temporal and supra-occipital regions yellowish grey. Sides of the face and neck, throat, chest, shoulders, upper half of the fore limbs, under surface and inside of thighs and fore limbs, black; a narrow dark-brown line from the sides of the neck round the nape; back light yellowish-grey, passing on the sides into brown; limbs greyish brown; hands black; feet less so. Purchased, 24th December 1878.

*j.* The skin, skull, and bones of trunk of an adult female: grey from the occiput downwards along the back, becoming paler on the hinder quarters, with a distinct yellowish tint. The crown, also the sides of the head and neck, the throat, breast, shoulders, inside of brachium and posterior border of antibrachium, and the whole of the under parts and inside of the thighs, black. Supercilium greyish. The outside of the fore-arms brownish grey, also the hands. The outsides of the thighs greyish, like the back; the lower portion of the hind limb grey and blackish; the feet greyish. Presented by W. Rutledge, Esq., 14th July 1877.

*k.* The skin, skull, and bones of the trunk of a young female, like the previous specimen, but the grey of the back paler and somewhat yellow, and not extending upwards beyond the shoulders, above which the colour is brownish ashy, darkening into fuliginous blackish brown on the crown; hands and feet black, or nearly so. Purchased, 25th December 1878.

*l.* The skull of a young male resembling *b*. Presented by Babu R. R. Shaw, 4th March 1867.

9. *Hylobates leuciscus*.

The Long-armed Ape, *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, pl. xxxviii, p. 184.

The Long-armed Ape (var.  $\beta$ ), *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, p. 184.

Le Moloch, *Audebert, Hist. Nat. des Singes*, 1<sup>re</sup> fam., sec. ii, fig. ii.

The Long-armed Ape (white var.), *Shaw, Gen. Zool.* vol. i, pt. 1. 1840, p. 12, pl. vi.

Le Gibbon cendré, *Latr., Hist. Nat. de Buffon* (Sonnini ed.), t. xxxv (1809), p. 207, pl. x.

*Simia leucisca*, *Schreber, Säugeth. tab.* iiiB, 1775.

*Pithecus leuciscus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 89.

*Hylobates leuciscus*, *Kuhl, Beitr. zur Zool.* 1820, p. 6; *Anderson, Anat. & Zool. Resch.* 1878, p. 7.

*Hab.* Java.

*9a.* A stuffed specimen in bad condition; yellow; darkest on the top of the head and the outside of the brachium; palest on the nape and down the back. No. 6 of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1848.

*b.* Another specimen, like the preceding, but younger: No. 6 of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1848.

*c.* Another, nearly the same as the two preceding specimens, but tending to brownish grey on the top of the head and outside of the arms, and on the shoulders. No. 6 of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1848.

*d.* A stuffed adolescent female and its skull: Nos. 7 A and B of Blyth's Catalogue: yellowish grey; dark brown on the vertex, on the inside of the thighs, and along a line from the groin to the axilla. Pale yellowish-white on the lower half of the back, and on the hips and back of thighs. Fingers and toes dusky. The area of the fontanelle in the skull is ossified as a distinct bone intercalated between the anterior portion of the parietal and posterior half of the frontal; last molar not through. Purchased, 1834.

*e.* A stuffed young female: pale yellow; fuliginous on the top of the head, nape, shoulders, and upper half of the back, and on the outside of the brachium; inside of thighs, outside of antibrachium tinged with fuliginous; hands concolorous with antibrachium, and the feet yellow, like the legs; area around the face yellow; chest and belly yellowish, but the former tinged with fuliginous. Purchased, 18th July 1869.

*f.* A stuffed adolescent female: almost uniform greyish brown, darkest on the forehead and brachium; palest on the side of the face and on the supercilium. Presented by Wm. Rutledge, Esq., 4th September 1870.

*g.* A stuffed young female, and the bones of the trunk: nearly the same as the preceding; the viscera in alcohol. Presented by Wm. Rutledge, Esq., 2nd July 1872.

*h.* A stuffed young female, and the bones of the trunk: slightly darker than the last two; fuliginous yellow on the lumbar region, hips, upper half of the inside of the thighs, chest, and belly, the chin, the sides of the face, and the supercilium. Presented by Wm. Rutledge, Esq., 26th June 1873.

*i.* The skin of a young female, its skull (milk dentition) and the bones of the trunk: resembling the preceding specimen. Second and third digits of the right foot partially united at their base. Presented by Wm. Rutledge, Esq., 10th April 1876.

*j.* The skin of a young male, the skull and bones of the trunk: ashy grey on the upper parts, darkest on the crown, the forehead being greyish white; the throat, neck, chest, mesial line of the belly, and the front and outside of the thighs yellowish grey; the fingers and the distal ends of the toes dark brown. Presented by Wm. Rutledge, Esq., 7th July 1877.

*k.* The skin of an adolescent female, its skull and the bones of the trunk: like the preceding specimen, but somewhat paler; no yellowish grey on the throat, no brown on the fingers and toes; yellowish around the callosities and on the back of the thighs. Presented by the Zoological Gardens, Calcutta, 21st July 1877.

*l.* The skin of a young female, its skull and the bones of the trunk: like the preceding individual, but somewhat darker. Presented by Wm. Rutledge, Esq., 10th December 1878.

*m.* The skin and skull of a young male. Presented by Wm. Rutledge, Esq., 3rd December 1879.

*n.* The skin and skull of a young female resembling *i.* Presented by Wm. Rutledge, Esq., 2nd March 1880.

#### 10. *Hylobates leucogenys*.

L'Onke, *Tabraca, Hist. Civile et Nat. de Siam*, t. ii, 1771, p. 308.

*Hylobates leucogenys*, *Ogilby, Proc. Zool. Soc.*, 1840, p. 20; *Anderson, Anat. & Zool. Resch. &c.*, 1878, p. 6.

*Hab.* Siam.

10*a.* The skin, the skull, and the bones of the trunk of a



young female: wholly black, with the exception of a feebly whitish supercilium, and a greyish white ruff on the sides of the face and behind the chin. The interocular nasal portion of the skull is relatively narrower than in *H. agilis*. Presented by the Zoological Gardens, Calcutta, 4th December 1878.

♂. The skin and skull of an adolescent female: wholly black, with a brown tinge on the body; whiskers and eyebrows grey. In both of these specimens the second and third digits of the feet are united at the base. Presented by Wm. Rutledge, Esq., 13th June 1874.

### III.—FAMILY CERCOPITHECIDÆ.

#### I.—SUB-FAMILY SEMNOPIITHECINÆ.

GENUS SEMNOPIITHECUS, F. Cuv., 1821.

##### 11. *Semnopithecus entellus*.

L'entelle, *Audebert, Hist. Nat. des Singes*, 1797, fam. iv, sec. ii, fig. 2.

*Simia entellus*, *Dufresne, Bull. Soc. Philom.* t. i, 1797, p. 49.

*Cercopithecus entellus*, *Latr., Hist. Nat. de Buffon*, t. xxxvi (Sonnini ed.), 1809, p. 283.

*Semnopithecus entellus*, *Desmoulins, Dict. Class. d'Hist. Nat.* t. vii (1825), p. 568; *Anderson, Anat. & Zool. Resch.*, 1878, p. 15.

*Presbytes entellus*, *Gray, Hand-list, Brit. Mus.* 1843, p. 4; *Blyth, Cat. Mamm. Mus. As. Soc. Bengal*, 1863, p. 11; *Jerdon, Mamm. Ind.* 1867, p. 4.

*Presbytes anchises*, *Elliot, Blyth, Journ. As. Soc.* vol. xiii, 1844, pp. 470, 476.

*Hab.* India.

11a. A stuffed adult male, No. 27A of Blyth's Catalogue: pale yellow; pale brownish on the outside of the limbs, and black on the hands and feet. Presented by Edward Blyth, Esq., 1842.

♂. A stuffed adult female, No. 27B of Blyth's Catalogue: brownish on the middle of the back from the nape to the tail, and dark brown on the outside of the limbs; hands and feet black. Presented by Edward Blyth, Esq., 1842.

c. A stuffed adolescent female, No. 27C of Blyth's Catalogue: like the preceding specimen, but more brightly coloured

on the head, and golden yellow or rusty fulvous on the flanks and under surface, thus approaching *S. pileatus*. Jangipur. Presented by J. W. Laidlay, Esq., 1848.

*d.* A stuffed young male, No. 27D of Blyth's Catalogue: pale yellow; brownish on the middle of the lower two-thirds of the back, and slightly so on the outside of the limbs; hands and feet black. Presented by Edward Blyth, Esq., 1842.

*e.* A stuffed young female, No. 27E of Blyth's Catalogue: pale yellow; no trace of brown on the back; hands and feet brownish black. Presented by Edward Blyth, Esq., 1842.

*f.* A stuffed young male: pale yellow, slightly suffused with fuliginous on the lumbar and sacral regions, and on the middle of the back; limbs pale yellow; hands and feet brownish. Purchased, February 1866.

*g.* A stuffed adult (gravid) female: the bones of the trunk, and the fetus in alcohol. Yellow on the head, flanks, belly, and front of fore-arms and back of thighs; rather dark-greyish brown on the back, with a yellow tinge, but the former colour deepening towards the tail. Purchased, 8th August 1869.

*h.* A stuffed young male: pale yellow, suffused with pale fuliginous on the middle of the back; yellow, slightly rusty on the back of the thighs; reddish brown on the tail and similarly coloured around the ankles, on the tarsal and on the carpal regions; the rest of the upper surface of the hands and feet black. Purchased, 8th March 1870.

*i.* The skin of a pale yellow adolescent male: much the same as the last, but the rufous less intense. Asiatic Society's specimen, but no history.

*j.* The skin, skull, and bones of the trunk of a young female: pale yellow, fuliginous on the latter half of the back and on the outside of the limbs; tail brownish yellow; hands and feet black. Presented by Wm. Rutledge, Esq., 9th February 1874.

*k.* The flat skin and skeleton of an animal the same as the preceding female *j.* Purchased, 22nd June 1872.

*l.* The flat skin and skeleton of an adult male: rather bright yellow and golden on the ventral region; lower half of back and outside of limbs dusky fuliginous; hands and feet black. Purchased, 6th August 1873.

*m.* The flat skin and skeleton of a younger and more deeply coloured male than the preceding. Presented by Raja Rajendra Mullick, Bahadur, 7th December 1873.

*n.* The flat skin and skeleton of a young female: dusky on

the lower half of the back and on the outside of the limbs. Presented by B. Collins, Esq., 13th September 1874.

*o.* The skin, skull, and bones of the trunk of an adolescent male. Purchased, 6th October 1877.

*p.* The skeleton of a male. Presented by Wm. Rutledge, Esq., 18th June 1880.

*q.* The articulated skeleton of an adult male. Probably No. 27F of Blyth's Catalogue.

*r.* The disarticulated skeleton of an adult female. Royal Botanical Gardens, Howrah. Presented by Dr. J. Anderson, 2nd September 1865.

*s.* The disarticulated skeleton of an adult female. Royal Botanical Gardens, Howrah. Purchased, 30th December 1868.

*t.* The disarticulated skeleton of a young female. Presented by Dr. J. Anderson, 24th June 1869.

*u to w.* Three skulls of adult males, Nos. 27G, H, and I of Blyth's Catalogue.

*x.* The skull of an adolescent male. Presented by G. Sceva, Esq., 10th October 1868.

*y.* The disarticulated skeleton of an adult. Botanical Gardens, Calcutta. Presented by Dr. J. Anderson, 1867.

*z.* The skeleton of a very large adult male. Allahabad. Presented by John Cockburn, Esq., 17th January 1879.

#### VAR. *a.*

#### *Semnopithecus schistaceus.*

The langâr, *Hodgson, Journ. As. Soc.* 1832, vol. i, p. 339.

The long-tailed monkey, *Pemberton, Journ. As. Soc. Beng.* vol. viii, 1839, p. 272.

The Masuri langar, *Hutton, Journ. As. Soc. Beng.* vol. xiii, 1844, p. 471.

*Semnopithecus entellus*, *Hodgson, Proc. Zool. Soc.* 1834, p. 95.

*Semnopithecus schistaceus*, *Hodgson, Journ. As. Soc. Beng.* vol. ix, 1840, p. 1212; *Anderson, Anat. & Zool. Resch.* 1878, p. 16.

*Semnopithecus nepalensis*, *Hodgson, Journ. As. Soc. Beng.* vol. ix, 1840, p. 1212.

*Presbytis schistaceus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 11; *Jerdon, Mamm. Ind.* 1867, p. 6.

*Hab.* Himalaya, Bhutan, and to the West of Simla, at elevations from 4,000 to 13,000 feet.

*11aa.* A stuffed adult male and skull, Nos. 28A and B of Blyth's Catalogue: head, neck, chest, inside of limbs, and under parts yellow; general colour of the trunk brownish or fuliginous yellow, and darkest on the shoulders, outside of

fore limbs, and thighs; hands nearly black; feet dusky; hair long and profuse on the body, and on the feet; tail concolorous with the body, paling towards the tip. Masuri. Presented by Captain T. Hutton, 1848.

*bb.* The skin of an adult male: general colour of the upper parts, except the head, dark slaty, darkest on the outside of the fore limbs, passing almost into blackish on the fingers; dark on the thighs, but paling towards the ankle and passing almost into blackish on the toes. Tail concolorous with the back, becoming darker towards the tip. Head pale yellow, nearly white; chin, throat, chest and under parts, and inside of limbs, yellowish. Fur wavy, profuse, and long. Sikkim, Himalaya. Presented by L. Mandelli, Esq., November 1875.

*cc.* The skin of another adult, the same as the last. Sikkim. Presented by L. Mandelli, Esq., November 1875.

*dd.* The skin of an adolescent individual: head more yellow than preceding specimens, and the feet not quite so dark. Sikkim. Presented by L. Mandelli, Esq., November 1875.

## 12. *Semnopithecus priamus*.

*Semnopithecus priamus*, *Elliot, Blyth, Journ. As. Soc. Beng.* vol. xiii (1844), pp. 470, 476.

*Semnopithecus pallipes*, *Blyth, Ann. & Mag. Nat. Hist.* 1844, p. 312.

*Presbytis priamus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 732, pl. liv. fig. 1; *Cat. Mamm. As. Soc. Mus.* 1863, p. 12; *Jerdon, Mamm. Ind.* 1867, p. 7.

*Presbytis thersites*, *Elliot, Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 1271, pl. liv. fig. 3.

*Semnopithecus albipes*, *Gray, Cat. Monkeys and Lemurs, B. M.*, 1870, p. 15.

*Semnopithecus priamus*, *Anderson, Anat. & Zool. Resch., &c.*, 1878, p. 19.

*Hab.* The Eastern Ghâts of India, and Northern Ceylon.

*12a.* A stuffed adult female, and skull: No. 30A of Blyth's Catalogue. Pale fuliginous on the upper parts of the trunk and on the head, but palest on the head and darkening towards the rump; almost yellow on the nape. Outside of the fore limbs and thighs pale ashy brown; yellow on the sides of the head, throat, chest and inside of the limbs, lower half of the thigh, and hands and feet. Coromandel Coast. Presented by Sir Walter Elliot, 1847.

*b.* A stuffed adult male, and skull, No. 30B of Blyth's Catalogue. Much darker than the preceding specimen:

fuliginous brown on the upper parts, except the sides and part of the head and nape, which are yellowish; vertex pale fuliginous brown, the same colour as the back, also the outside of the limbs and the tail. Under parts, inside of the limbs, and back of thighs yellowish; upper surface of hands showing a distinct tendency to dusky. St. Pedro, Ceylon. Presented by E. L. Layard, Esq., 1848.

*c.* A stuffed adult and its skull, No. 30C of Blyth's Catalogue. Larger than the preceding, but with the head and nape darker; limbs fuliginous, the hands and feet concolorous with them. "The original of *P. thersites*, Elliot, from Ceylon."—*Blyth*. Ceylon. Presented by Sir Walter Elliot, 1845.

*d.* A stuffed adult, No. 30D of Blyth's Catalogue: hands paler than No. 12*b*, and feet yellowish. Ceylon. Presented by E. L. Layard, Esq., 1849.

Blyth described *S. priamus* as having a compressed, high, vertical crest, but one of the foregoing specimens (*c*) shows no sign of a true crest, and, as Blyth stated that the specimen which was under his observation when alive had no crest, I examined the types of the species *a* and *b*, and found that in *a* the skin of the vertex had been cut open and cotton wool introduced between the skull and the skin, and that where the cotton wool was there the crest existed. In *b* the short compressed crest occurred exactly over the point of a wire that perforated the skull and pressed against the skin.

*e.* The skull of an adult male, No. 30E of Blyth's Catalogue. Trincomali. Presented by Dr. E. F. Kelaart.

*f.* The skull of an adult male, No. 30F of Blyth's Catalogue. Trincomali. Presented by Dr. E. F. Kelaart.

*g.* The skull of an adolescent male, No. 30G of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq.

*h.* The skull of an adult female, No. 30H of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq.

The skull of *S. priamus*, in its adult condition, is considerably smaller than that of *S. entellus*; the vertical depth of its face is relatively less than in that species, while, on the other hand, it is proportionally broader across the orbits. Its fronto-nasal depth also is less than in *S. entellus*, the nasals being short and broad, and the nasal opening considerably shorter than in that species; a line drawn through the centre of the face, from the alveolar border of the premaxillaries to the supraorbital ridge, does not touch the distal end of the nasals, these bones being rather flattened and broad, and slightly

concave. These differences in the details of the configuration must confer on *S. priamus* a very different visage from that of *S. entellus*. There is not much difference in the teeth of the two forms, but in *S. priamus* they are relatively larger than in *S. entellus*, except the canines, which are smaller.

### 13. *Semnopithecus hypoleucus*.

*Semnopithecus hypoleucus*, *Blyth, Journ. As. Soc. Beng.* vol. x, 1841, p. 839; vol. xvi, 1847, p. 733, pl. xxvi fig. 1; *Anderson, Anat. & Zool. Resch.* 1878, p. 20.

*Semnopithecus johnii*, *Anderson, Anat. & Zool. Resch.* 1878, p. 20 var.

*Semnopithecus dussumieri*, *Is. Geof. St.-Hil., Comptes Rendus*, 1842, t. xv, p. 719.

*Presbytis johnii*, *Blyth, Journ. As. Soc. Beng.* vol. xxviii, 1859, p. 283; *Cat. Mamm. As. Soc. Mus.* 1863, p. 12; *Jerdon, Mamm. Ind.* 1867, p. 7.

*Hab.* Forests of the Malabar Coast.

13a. A stuffed adult male and skull, No. 29A of Blyth's Catalogue. Head, except the eyebrows and skin of face, yellow; throat, under parts, inside of brachium and thighs yellow, especially bright on the chest and belly. Brown from the shoulders to the root of the tail, darkest on the middle of the back, paler on the sides and the posterior half, and the outside of the thighs. Antibrachium, front of thighs, and lower half of legs black, light brownish on the front of the tibia. Hands and feet black, concolorous with the limbs. Tail black, brownish towards its tip. Hair of head semi-erect and backwardly directed; a few black hairs before the ears: nails black. The skull of this species has the general features of the skull of *S. priamus*, but it is smaller and characterised by much less prominent supraorbital ridges and by considerably less interorbital breadth, with narrow rather compressed nasals, in this respect conforming to the female of *S. priamus*. The skull is entire, with the exception of the occipital and basi-occipital portion, and its length from the premaxillaries to the lambdoidal ridge is 4".26, the palate measuring 1".73. The fronto-malar and greatest zygomatic breadth are respectively 2".55 and 3".30. These measurements show that this species is the smallest of the Indian *Semnopithec*i. Travancore. Presented by Dr. W. Coles, 1841.

### 14. *Semnopithecus pileatus*.

The Assam entellus monkey, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 732.

*Semnopithecus pileatus*, *Blyth, Journ. As. Soc. Beng.* vol. xii, 1843, p. 174; *Anderson, Anat. & Zool. Resch.* 1878, p. 13.

*Presbytis pileatus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 735, pl. xxvi fig. 3; *Cat. Mamm. Asiatic Soc. Mus.* 1863, p. 12.

*Semnopithecus chrysogaster*, *Licht. Peters, Proc. Zool. Soc.* 1866, p. 429, *footnote*.

*Semnopithecus potenziანი*, *Pr. Bonap., Comptes Rendus*, t. xliii, 1856, p. 412.

*Hab.* Northern Assam, Tipperah, Eastern Bengal Hill Tracts, Arakan, Upper Burma, and Tenasserim.

14a. A stuffed adult female, No. 31A of Blyth's Catalogue. Sides of head and under parts orange yellowish; hands and feet black. Chittagong Hills. Presented by the Rev. J. Barbe, 1844.

b. A stuffed adult female, No. 31B of Blyth's Catalogue. Considerably paler than the preceding specimen, especially on the posterior half of the trunk and the limbs, which are almost yellow. Carpal portion of hand blackish, fingers yellowish; feet similarly coloured. Tail concolorous with the back, becoming darker towards the tip. Chittagong Hills. Presented by the Rev. J. Barbe, 1844.

c. A stuffed adolescent male, No. 31C of Blyth's Catalogue. The orange yellow especially bright on the front of the shoulder, side of the neck, and head. Outside of lower half of hind limbs rich yellow, hands and feet dusky. Tipperah Hills. Presented by F. Skipwith, Esq., 1846.

d. A stuffed female, No. 31D of Blyth's Catalogue. Light coloured; under parts pale yellow; no trace of orange. General colour of upper parts and outside of limbs greyish or fuliginous, darkest on the front of the head and on the shoulders. Presented by the Barrackpore Menagerie, 1843.

e. A stuffed young female, the same as the last specimen, but the fingers yellow and the carpal region dusky. Presented by Wm. Rutledge, Esq., 20th December 1870.

f. A stuffed adult male, its skull, and the bones of the trunk. Sides of head and under parts pale yellow, as in the preceding specimen. Upper parts greyish, passing into blackish on the dorsum of the hand; fingers yellow; feet and lower half of tibial portion of leg and the whole of the dorsum of the feet yellow, except a transverse blackish band across the base of the toes. Presented by Raja Rajendra Mullick, Bahadur, 19th March 1873. This is a Menagerie specimen.

g. The skin of a young animal: rich yellow above; supraorbital hairs black; forehead yellow; vertex dusky grey;

occiput yellow: a fuliginous band across the nape: back of neck rufous or orange; back, outside of fore limbs, and dorsum of first half of the tail, pale greyish with an orange tinge. Lower half of outside of limbs, hands, and feet rich yellow; under parts yellow.

*h.* Skin of an adult male: upper surface of head dark brown, passing into greyish on the occiput; the dark-coloured cap rapidly contracts on the nape into a narrow area on the back of the neck; dark greyish-brown over the shoulders and backwards along one-half of the back, passing into grey on the lumbar region, first half of the tail, and outside of the fore limbs and thighs; terminal half of tail black and tufted; hands dark greyish-brown; base of the toes and their first halves brownish; sides of the head and ventral aspect of the body bright rusty yellow. The inside of the fore limbs and lower half of the legs pale yellow. The hair of the crown cap longish and directed backwards; a tuft of long yellow hair below and behind the ears is directed forwards, as in *S. cephalopterus*. Khási Hills. Presented by Lieut.-Colonel H. H. Godwin Austen, 11th May 1870.

*i.* The skin of an adolescent female: darkest on the outside of the fore limbs; the hands and feet dark brown, with the exception of the great toe, which is yellow. The greyish of the posterior half of the back and the first half of the tail is suffused with yellow. The yellow of the sides of the head and under parts is almost orange-yellow. Sibságar, Upper Assam. Presented by S. E. Peal, Esq., July 1870.

*j.* The skin and skull of an adult female. The yellow of the sides of the head and under parts deep orange; outside of the fore limbs suffused with pale orange; lower half of hind limbs wholly orange-yellow, also the hinder portion of the thighs. Fingers yellow; dorsum of hand more or less blackish; dorsum of feet yellow, darkest across the metacarpals. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*k.* The skin of an adult female. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*l.* The skin of an adult male resembling *h.* Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*m.* The skin and skull of an adult male, like *h.*, but darker. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*n.* The skin of a young male, and its skull. It resembles *l.*, but is not so orange below. Hill Tracts, Arakau. Presented by the Zoological Gardens, 23rd January 1878.



*o.* The skull of an adult male. Assam. Museum Collector, 1874.

*p.* The skull of a female, less the lower jaw. No history.

*q.* An adult female skeleton. Arakan Hill Tracts. Presented by the Zoological Gardens, 16th March 1878.

### 15. *Semnopithecus cephalopterus*.

The lion-tailed monkey ( $\beta$ ), *Pennant, Syn. Quad.* 1771, p. 109, pl. 108 fig. 2.

La guenou à face pourpre, *Buffon, Hist. Nat. Suppl.* t. vii, 1789, p. 80, pl. xxi.

The purple-faced monkey, *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, p. 199, pl. xliii.

*Cercopithecus senex, Erxleben, Systema Regni Animalis,* 1777, p. 24.

*Cercopithecus kephalopterus, Zimm., Geograph. Gesch.* Bd. ii, 1780, p. 185.

*Simia veter, Shaw, Gen. Zool.* vol. i, pt. i (1800), p. 36.

*Cercopithecus leucopymnus, Otto, Nova Acta, Acad. Nat. Cur.* Bd. xii, Pt. ii, 1825, p. 505.

*Semnopithecus fulvogriseus, Dcsmoulins, Dict. Class. d'Hist. Nat.* t. vii, 1825, p. 570.

*Semnopithecus nestor, Bennet, Proc. Zool. Soc.* 1833, p. 67.

*Presbytes cephalopterus, Gray, Hand-list Mamm.* 1843, p. 4; *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, pp. 734, 1271; *Cat. Mamm. As. Soc. Mus.* 1862, p. 13.

*Presbytis ursinus, Blyth, Journ. As. Soc. Beng.* vol. xx, 1851, p. 155; *Cat. Mamm. As. Soc. Mus.* 1863, p. 13.

*Presbytes albinus, Kelaart, Prodromus Faunæ Zeylanicæ,* 1852, p. 7.

*Semnopithecus kelaartii, Schlegel, Mus. d'Hist. Nat. des Pays-Bas (Simiæ),* 1876, p. 52.

*Semnopithecus cephalopterus et ursinus, Anderson, Anat. & Zool. Reich.* 1878, pp. 22, 24.

*Hab.* Ceylon and its highlands.

15*a.* A stuffed adolescent female, No. 34A of Blyth's Catalogue. Hairs of head longish and brown: eyebrows black; beard and whiskers white; body black, with the exception of the sacral region, back and outside of the thighs, which are greyish, this colour most pronounced on the sacral region; tail, for three-quarters of its extent greyish brown. Inside of thighs anterior to the callosities, and the last quarter of tail pale yellowish, almost white. Purchased, 1845.

*b.* A stuffed young male, the same as the preceding, but the black hairs of the trunk tinged with greyish, and the yellowish at the base of the thighs absent. Purchased, 10th December 1866.

c. A stuffed adolescent female : tinged with greyish ; the whiskers, below the ears, brown throughout the greater part of their extent, but white at the base. The yellow, anterior to the callosities, well developed. Presented by Wm. Rutledge, Esq., March 1868.

d. A stuffed very young male : brownish black ; no yellow area before the callosities. Presented by Wm. Rutledge, Esq., 1870.

e. A stuffed adult male, its skull, and the bones of its trunk : brown, with a large grey area in the sacral region and base of the thighs ; hair on head brown and longish. Presented by the Barrackpore Menagerie, 1872.

f. The skeleton of a female, No. 34E of Blyth's Catalogue. No history.

g. The skull of a female, No. 34F of Blyth's Catalogue. No history.

h. The imperfect skeleton of a young female. Presented by Wm. Rutledge, Esq., 18th February 1871.

i. The skin, skull, and bones of the trunk of a young female. Presented by Wm. Rutledge, Esq., 7th February 1877.

j. The skeleton of an adult female. Presented by Wm. Rutledge, Esq., 7th November 1878.

k. The skull of a young male. Purchased, 8th July 1879.

l. A young female, in alcohol. Presented by Wm. Rutledge, Esq., 26th July 1879.

m. A stuffed adolescent female, and its skull, No. 34B of Blyth's Catalogue. Uniformly pale brown, except on the head, which is still paler yellowish brown ; sacral region pale grey ; hands and feet dark brown ; a pale yellow area at the base of the thighs internally and before the callosities. Ceylon. Presented by R. Templeton, Esq., 1848.

n. The skin and skull of an adolescent male, No. 34C of Blyth's Catalogue. Rufous brown, but otherwise resembling the preceding specimen, only the inner aspects of the thighs appear to have been dark brown, with no yellow area at their base. Ceylon. Presented by T. C. Jerdon, Esq., 1843.

o. A stuffed adolescent female : brown, passing into grey on the sacral region ; inside of the thighs darker than the outside ; a pale yellow area at their base ; head pale brown ; beard and whiskers white. Purchased, 1st November 1866.

*Hill variety (S. ursinus, Blyth).*

p. A stuffed adult male and skull, No. 33A of Blyth's Catalogue. Dark brown, passing into black on the hands and feet,

and into slightly paler brown on the head; hardly perceptibly paler on the sacral region, but passing into greyish brown on the tail. Eyebrows long and black; beard and whiskers white; fur profuse and long, and nearly  $3\frac{1}{2}$  inches in length. Newara, Elia, Ceylon. Presented by Dr. E. F. Kelaart, 1847.

*q.* The skin of a young male, No. 33B of Blyth's Catalogue; paler brown than the preceding; pale yellowish-brown on the head; beard and whiskers white; sacral region and outside of thighs faintly paler brown. Newara, Elia, Ceylon. Presented by Dr. E. F. Kelaart, 1846.

*r.* A stuffed young female, No. 33C of Blyth's Catalogue; resembling the last specimen, but with a pale yellow area on the inside of the base of the thighs anterior to the callosities, as in true *S. cephalopterus*. Mountains of Ceylon. Presented by Dr. E. F. Kelaart, 1846.

*White variety (S. senex, Erxl.).*

*s.* A stuffed young female, No. 34D of Blyth's Catalogue; pale-yellowish white throughout, except on the head, which is faintly marked with brownish, and over the shoulders and the middle of the back, which are tinged with dusky. Ceylon. Presented by Dr. E. F. Kelaart, 1851.

16. *Semnopithecus johnii*.

Einiger affenarten, *C. J. John, Berlin, Ges. Nat. Freunde N. Schr.* Bd. i, 1795, pp. 211, 218.

*Cercopithecus johnii, Fischer, Syn. Mamm.* 1829, p. 25.

*Semnopithecus cucullatus, Is. Geoff. St.-Hil., Zool. Voy. de Bélanger,* 1834, p. 38, pl. I.

*Semnopithecus johnii, Waterhouse, Cat. Mamm. Mus. Zool. Soc. Lond.* 2nd ed., 1838, p. 5; *Anderson, Anat. & Zool. Resch.* 1878, p. 21.

*Semnopithecus jubatus, Wagner, Schreber, Säugeth. Suppl.* Bd. i, 1840, p. 305.

*Semnopithecus cephalopterus, Blyth, Journ. As. Soc.* vol. xiii, 1844, p. 469 (*partim*).

*Presbytis cucullatus, Blyth, Journ. As. Soc. Beng.* vol. xxviii, 1859, p. 283; *Cat. Mamm. As. Soc. Mus.* 1863, p. 14.

*Presbytis jubatus, Jerdon, Mamm. Ind.* 1867, p. 8.

*Hab.* Nilgiris to Travancore.

16*a.* A stuffed adult male, No. 35A of Blyth's Catalogue; jet black; head brown with long hair, paler on the occiput, and similarly-coloured beard and whiskers; grey on the

sacral region and back of the thighs, less so on the tail, and no yellow at the base of the thighs. Barrackpore Park Menagerie, 1844.

*b.* A stuffed adult female, No. 35B of Blyth's Catalogue; resembling the last, but with the yellow area at the base of the thighs, as in *S. cephalopterus*. Nilgiris. Presented by T. C. Jerdon, Esq., 1843.

*c.* The flat skin and articulated skeleton of a female. Purchased, 15th November 1867.

*d.* The skull of an adult male. The Rev. J. Baker.

### 17. *Semnopithecus obscurus*.

*Semnopithecus obscurus*, *Reid, Proc. Zool. Soc.* 1837, p. 14; *Anderson, Anat. & Zool. Resch.* 1878, p. 25.

*Semnopithecus obscurus*, *Lesson, Sp. des Mammif.* 1840, p. 65.

*Presbytes obscura*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 14.

*Semnopithecus leucomystax*, *Müller and Schlegel, Verhandl.* 1839-44, p. 59.

*Semnopithecus halonifer*, *Cantor, Proc. Linn. Soc.* (1845), vol. i, 1849, p. 235.

*Hab.* Malayan Peninsula and Siam.

*17a.* A stuffed adult male, and skull, No. 37A of Blyth's Catalogue; dark brown on the sides of the body, slightly paler on the back; fore limbs dark brown, hind limbs paler greyish brown; hands and feet black; occiput with long, backwardly directed, pale brownish-yellow hairs; whiskers brown and long; beard sparse and whitish. Malayan Peninsula. Presented by the Rev. F. W. Lindstedt, 1846.

*b & c.* A stuffed adult female and skull, No. 37B of Blyth's Catalogue, and its young one: it resembles the previous specimen, but the yellow of the head is more or less continued to the root of the tail as a broad yellowish-brown band; the young male, probably No. 37D of Blyth's Catalogue, is bright yellow, and its tail is bushy towards its extremity. Presented by R. W. G. Frith, Esq., 1846.

*d.* A stuffed half-grown male, No. 37C of Blyth's Catalogue; pale brown, palest on the middle of the back; pale area of head not so yellow as in adults. Presented by Mr. W. G. Moxon, 1856.

*e.* Skin of a very young female, probably No. 37E of Blyth's Catalogue: pale brown; outside of hind limbs yellowish; tail dusky brown at base, bright yellow in the rest of its length; occipital region pale yellowish-grey. Presented by the Rev. F. W. Lindstedt.

*f.* A stuffed young male, probably No. 37F of Blyth's Catalogue : same age as preceding specimen ; yellow, marked on the anterior half of the body with brownish, not obscuring the underlying yellow ; the grey on the occiput showing faintly ; lower halves of fore limbs and hind feet brown. Presented by the Rev. F. W. Lindstedt.

*g.* The skin of a somewhat older individual, No. 37G of Blyth's Catalogue : passing from yellow into brown ; the hind quarters and tail still yellow ; occipital region bright grey. Mergui. Presented by Major Berdmore, 1854.

### 18. *Semnopithecus maurus*.

The middle-sized black monkey, *Edwards' Gleanings, Nat. Hist.* 1764, part iii, p. 221, pl. 311.

La guenon nègre, *Buffon, Hist. Nat. Suppl. t. vii*, 1789, p. 83.

The Negro monkey, *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, p. 206.

*Simia maura*, *Schreber, Säugeth.* Bd. i, 1775, p. 107, pl. xxiiB.

*Cercopithecus maurus*, *Erxleben, Syst. Reg. An.* 1777, p. 41.

*Semnopithecus maurus*, *F. Cuv., Hist. Nat. des Mamm.* Nov. 1822, livr. n. xxxviii ; *Anderson, Anat. & Zool. Resch.* 1878, p. 27.

*Simia ceylonicus*, *Desmoulins, Dict. Class. d'Hist. Nat.* t. vii, 1825, p. 572.

*Semnopithecus edwardsii*, *Fischer, Syn. Mamm.* 1829, p. 15.

*Presbytes maura*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3.

*Presbytes maurus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 735 ; *Cat. Mamm. As. Soc. Mus.* 1863, p. 13.

*Semnopithecus pyrrhus*, *Horsfld. Horsfield, Zool. Resch. Java*, 1821 (plate).

*Presbytes pyrrhus*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3 ; *Blyth, Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 10.

*Hab.* Malayan Peninsula, Sumatra, and Java.

18*a.* A stuffed adolescent male, and skull, No. 32A of Blyth's Catalogue : yellowish at the base of the tail. Purchased, 1846-9.

*b.* The skin of an adolescent male and its skull, No. 32B of Blyth's Catalogue. Purchased, 1846-49.

*c.* An adolescent female : yellow at the base of the tail and at the base of the thighs internally. Presented by Wm. Rutledge, Esq., August 1869.

*d.* The skin, skull, and bones of the trunk of an adolescent female. Sumatra. Presented by Wm. Rutledge, Esq., 9th May 1873.

*e.* The skin and skeleton of an adolescent male. Presented by Raja Rajendra Mullick, Bahadur, 5th August 1876.

*f.* The skin, skull, and bones of the trunk of a young

female: yellow at the base of the tail beneath, and before and external to the callosities. Presented by Wm. Rutledge, Esq., 18th January 1877.

*g.* The skin, skull, and bones of the trunk of a young male: no yellow at the tail or callosities. Presented by Wm. Rutledge, Esq., 26th January 1877.

*h.* The skin, skull, and bones of the trunk of a young female. Presented by Wm. Rutledge, Esq., 1st October 1880.

*i.* The skull of an adolescent female, No. 32C of Blyth's Catalogue. No history.

*j.* The skeleton of a male, No. 37H of Blyth's Catalogue. Tenasserim. Presented by Dr. Helfer, 1838.<sup>1</sup>

*k.* The skeleton of an adult female. Purchased, 24th November 1865.

*l.* A stuffed adult female: rich ferruginous; the *S. pyrrhus* of Horsfield, Java. From the collection of the India Museum, London. Presented through the Trustees of the British Museum, 13th January 1880.

### 19. *Semnopithecus barbei*.

*Semnopithecus maurus*, Helfer, *Journ. As. Soc. Beng.* vol. xvii, 1838, p. 858.

*Presbytis barbei*, Blyth, *Journ. As. Soc. Beng.* vol. xvi, 1847, p. 734, *Cat. Mamm. As. Soc. Mus.* 1863, p. 14.

*Semnopithecus barbei*, Anderson, *Anat. & Zool. Resch.* 1878, p. 12.

*Hab.* Tipperah; Irrawadi Valley; Tenasserim.

*19a.* A stuffed adult male and its skull, No. 36A of Blyth's Catalogue: blackish brown, except on the front of the shoulders and fore limbs, lower part of hind legs, the back and sides of the head, and the tail, which are greyish-brown. Hands, feet, eyebrows, and whiskers black, and the under parts nearly the same; dark greyish-brown on the lighter upper parts. Tipperah Hills.<sup>2</sup> Presented by the Rev. J. Barbe, 1845.

<sup>1</sup> This skeleton was first determined by Pearson as the skeleton of a Negro monkey, *S. maurus*, *Journ. As. Soc. Bengal*, vol. vii (13), p. 669, but Blyth regarded it as probably belonging to *S. obscurus*. A comparison, however, of its skull with that of *S. obscurus* (a skull of which Blyth had not) proves it to be most nearly allied to this species.

<sup>2</sup> Blyth, in his description of this species, gives Tenasserim Province of Ye as the locality from whence he obtained his types, but in his Catalogue of Mammals (p. 14) Tipperah is given as the correct locality on the strength of information subsequently communicated by Mr. Barbe.

*b.* A stuffed adult female and its skull, No. 36B of Blyth's Catalogue: the same as the preceding. Presented by the Rev. J. Barbe, 1845.

*c.* A stuffed young male: paler than the adults. Purchased, 1866.

*d.* The skin of an adult male: black with a wash of grey chiefly on the shoulders and brachium. Mooleyit Range, Tenasserim. Collected by Mr. Ossian Limborg, January 1877. Presented by Dr. J. Anderson, 11th December 1880.

*e.* The skull of an adult male, killed in the 2nd defile of the Irrawadi. Dr. J. Anderson. Presented by the Second Expedition to Western Yunnan, 1875.

This species appears to be very closely allied to the next, and a larger series of specimens than is at my disposal will probably prove their identity.

## 20. *Semnopithecus phayrei*.

*Semnopithecus phayrei*, *Journ. As. Soc. Beng.* vol. xvi, 1847, p. 733, pl. xxxi, fig. 3, p. 1271; *Anderson, Anat. & Zool. Resch.* 1878, p. 34.

*Presbytis phayrei*, *Blyth, Cat. Mam. As. Soc. Mus.* 1863, p. 15.

*Hab.* Arakan.

*20a.* A stuffed adult male, No. 38A of Blyth's Catalogue, and skull: uniform brown, slightly paler on the shoulders and passing into dark blackish-brown on the antibrachium, and hands and feet; tail concolorous with the body; white of the under parts scarcely extending on to the inside of the limbs; hair of head rather long, not radiating on the crown, directed outwards and backwards on the middle of the frontal region, and forming a vertical crest; whiskers rather long; a broad area around the eyes pure white; nose black; around lips fleshy white. The skull has the interorbital space of moderate length, the forehead rather full, but the supraorbital ridges are not strongly developed, whilst the external orbital angle of the frontal is rather prominent in adults. The greatest breadth of the orbits is from the external frontal angle obliquely downwards and outwards across the orbit, whereas in *S. barbei* and *S. obscurus* the orbits are nearly round. The ridges marking the attachments of the temporal muscles do not meet on the middle line, but are separated by about an interval of an inch. The brain-case is upwardly tilted, so that the occipital region is nearly vertical, and associated with this there is a downward slope of the facial region. Arakan. Presented by Sir Arthur P. Phayre, 1844.

*b.* A stuffed young male, like the preceding, No. 38C of Blyth's Catalogue. Arakan. Presented by Major J. Abbot, 1844.

*c.* A stuffed young female, like the preceding, No. 38D of Blyth's Catalogue. Arakan. Presented by Major J. Abbot, 1844.

*d.* A young male in alcohol. Akyab Hill Tracts. Presented by the Zoological Gardens, 8th July 1877.

*e.* A young female in alcohol. Akyab Hill Tracts. Presented by the Zoological Gardens, 9th August 1877.

## 21. *Semnopithecus holotephreus*.

*Semnopithecus holotephreus*, *Anderson, Anat. & Zool. Resch.* 1878, p. 27.

*Hab.* Unknown.

*21a.* A stuffed adult male, its skull and bones of the trunk: uniform dark slaty-grey, passing into black on the forearm and hands, and also on the feet; under parts and inside of front limb and thighs pale yellowish grey. Head slightly crested over the vertex, but only with a feeble tendency to lateral compression, supraorbital hairs moderately long and black; whiskers rather long, directed backwards and outwards, hiding the ears in front; face bluish black; area around the eyes and lips white.

The nasal region of the skull is rather prominent, nearly straight and moderately broad, with the orifice narrow and rather long. Supraorbital ridges are well developed, and the orbits are nearly round and of moderate size. The premaxillaries form a slightly expanded suture with the nasals. The last-mentioned bones are about half the lateral length of the premaxillaries. The palate has moderately broad margins, very slightly posteriorly convergent.

The colour of this specimen has much faded since it was first described, and it now resembles *S. barbei*, with which it may ultimately prove to be identical.

Presented by Wm. Rutledge, Esq., 29th October 1872.

## 22. *Semnopithecus cristatus*.

*Simia cristata*, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 244.

*Semnopithecus pruinosus*, *Desmarest, Mamm.* 1820, (Suppl.) p. 533.

*Semnopithecus mitratus*, *Cuv., Règ. Animal*, 1829, nouv. éd, t. i, p. 4 *partim*.



*Semnopithecus cristatus*, Müller, *Tijdschr. voor Natuur., Gesch. en Phys.* DL ii, 1835, pp. 316, 328; Anderson, *Anat. & Zool. Resch.* 1878, p. 29.

*Semnopithecus rutledgii*, Anderson, *Anat. & Zool. Resch.* 1878, p. 38.

*Hab.* Sumatra and Borneo.

22a. A stuffed adult male: brownish black, tinged with fuliginous on the flanks, forearm, and crest; a short crest on the vertex directed backwards, and with long black hair on the temporal region directed forwards. Sumatra. Collected by Sir Stamford Raffles, and presented by him to the India Museum, London, as an example of *S. cristatus*. Presented by the India Museum, through the Trustees of the British Museum, 13th April 1880.

b. A stuffed adolescent female and its skull: black; the hairs tipped with lustrous grey on the head and trunk, and yellowish grey on the limbs, except on the hands and feet, which are black; hair of the under parts pale and more broadly tipped yellowish grey; tail black, tipped with grey above, under surface yellowish, especially at the root; hair very short on the sides of the head, where it is so broadly tipped with grey as to be almost white; medium crest erect and compressed; front of forehead black, whiskers long, backwardly and upwardly directed, and broadly tipped with yellowish grey. Face bluish black. Type of *S. rutledgii*. Presented by Wm. Rutledge, Esq., 18th September 1871.

c. A skin of a young female, like the preceding, with its skull and the bones of its trunk; but the under surface of the tail at the root quite yellow; crest but little defined, and front of the head jet black. Presented by Wm. Rutledge, Esq., 14th December 1874.

d. An adolescent female in alcohol. Presented by Wm. Rutledge, Esq., 21st February 1879.

### 23. *Semnopithecus siamensis*.

*Semnopithecus siamensis*, Müller und Schlegel, *Verhandl.* 1844, p. 60; Anderson, *Anat. & Zool. Resch.* 1878, p. 37.

*Semnopithecus albocinereus*, Blyth, *Journ. As. Soc. Beng.* vol. xii, 1843, p. 175; *Cat. Mamm. As. Soc. Mus.* 1863, p. 15.

*Presbytes cinerea*, Gray, *Hand-list. Mam. B. M.* 1843, p. 193.

*Semnopithecus nigrimanus*, Is. Geoff. *St.-Hil., Arch. du Mus.* t. ii, 1843, p. 546.

*Semnopithecus argentatus*, Blyth, *Horsfld., Cat. Mamm. E. Ind. Co.'s Mus.* 1851, p. 7.

*Semnopithecus cinereus*, Mivart, *Proc. Zool. Soc.* 1861, p. 626.

*Presbytes cristatus*, (*nec Raffles*), *Blyth, Journ. As. Soc. Bengai*, vol. xlv, 1875, ex. no., p. 9.

*Presbytes melanopus*, *Blyth, Journ. As. Soc. Beng.* 1875, ex. no. p. 9.

*Hab.* Siam and Malayan Peninsula.

23a. A stuffed adult male and its skull, No. 39A of Blyth's Catalogue: brown, passing into rusty brown on the occipital portion of the crest, and into blackish brown on the parietal and frontal regions, on the hands and feet, and on the tail. Under parts, and the hinder two thirds of the outsides of the thighs, yellowish; outside of tibial portion of limb greyish brown. The hair of the head radiating from two centres on the frontal, enclosing a short crest, forwardly directed, continuous with the higher peaked, laterally compressed, parieto-frontal crest.

There are generally only four tubercles on the last molar of the lower jaw, but in one of the skulls in this Museum there is a distinct rudimentary fifth talon.

Malacca. Presented by R. W. G. Frith, Esq., 1846.

b. A stuffed adult female and skull, No. 39B of Blyth's Catalogue; considerably paler than the preceding. Malacca. Presented by the Rev. F. W. Lindstedt, 1846.

c. The skin of an adult female, No. 38C of Blyth's Catalogue: paler than the last specimen. Malacca. Presented by R. W. G. Frith, Esq., 1846.

d. A stuffed young female, No. 38D of Blyth's Catalogue. The brown colour is confined on the back by a well-defined area, the sides being yellowish. Last half of tail bushy and dark brown. Malacca. Presented by the Rev. F. W. Lindstedt, 1846.

e. Skin, skull, and bones of the trunk of an adolescent male. Presented by Wm. Rutledge, Esq., 29th December 1878.

#### 24. *Semnopithecus femoralis*.

*Simia maura*, *Raffles, Trans. Lin. Soc.* vol. xiii, 1822, p. 247.

*Semnopithecus femoralis*, *Horsfield, Appendix, Life of Sir T. S. Raffles*, 1830, p. 643; *Anderson, Anat. & Zool. Resch.* 1878, p. 30.

*Semnopithecus chrysomelas*, *Müller, Tijdsch. voor. Natuur. Gesch.* Dl. v, pts. i and ii (1838), (*Plate*), p. 138.

*Semnopithecus sumatranus*, *Müller and Schlegel, Verhandl.* 1839-44, pp. 61, 73, tab. 10 bis, fig. 1 ♂.

*Simia femoralis*, *Cantor, Journ. As. Soc. Beng.* vol. xv, 1846, p. 175.

*Hab.* Sumatra and Borneo.

24a. A stuffed adolescent female: blackish brown [above, passing into black on the hands and feet; beard and all the under parts yellowish white, but with a greyish tint on the sides of the chest; inside of the fore and hind limbs pure pale yellowish, running as a mere but prominent line to the wrists and ankles. A narrow, unsullied yellowish-white line down the centre of the chest and belly; tail greyish at the base underneath. Purchased, 11th December 1867.

b. A stuffed adult female like the preceding, and its skull, but the chest and belly are greyish black, with the exception of the narrow median yellow white line; the white on the inside of the limbs is confined to the brachium and thigh; beard sparse and greyish. Presented by Wm. Rutledge, Esq., 6th July 1869.

c. Skin and bones of the trunk of a young female, like the preceding, but with the white of the inside of the fore limbs prolonged to the wrist. Presented by Wm. Rutledge, Esq., 10th April 1876.

#### 25. *Semnopithecus melalophus*.

*Semnopithecus melalophus*, *F. Cuv., Hist. Nat. des Mammif.*, t. ii, livr. xxx. Juillet 1821, pl. iv; *Anderson, Anat. & Zool. Resch.* 1878, p. 34.

*Semnopithecus flavimanus*, *Lesson, Cent. Zool.* 1830, Aug. p. 109, pl. xl.

*Semnopithecus sumatranus*, var. *aurata*, *Müller and Schlegel, Verh. d. Zool. Mus. Berlin*, 1839-44, pl. x, bis, fig. 2, head of ♀.

*Presbytes melalophus*, *Gray, Hand-list Mamm. B. M.* 1843, p. 2.

*Presbytes flavimana*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3.

*Presbytes nobilis*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3.

*Semnopithecus nobilis*, *Gray, Cat. Monkeys and Lemurs, B. M.*, 1870, p. 17.

*Hab.* Sumatra.

25a. A stuffed young female, the skull and bones of the trunk; uniform pale yellowish-white, except on the crest and back, which are marked with blackish brown; hands and feet yellowish; face in life leaden bluish black, with whitish around the eyes and lips. Crest erect and laterally compressed. Presented by Wm. Rutledge, Esq., 4th December 1874.

b. A stuffed still younger female, and its skull: the same as the preceding. Presented by Wm. Rutledge, Esq., 11th May 1875.

c. The skull of a female resembling *a*, but with outside of the limbs marked with orange-yellow, a black crest and the

back much darker. Presented by Wm. Rutledge, Esq., 13th May 1875.

*d.* Skin, skull, and bones of the trunk of an adult female: crest black in front and greyish behind; the back much more darkly marked with blackish than the previous specimens; pale rusty brown or yellow on the sides; outside of the limbs and hands yellowish; tail pale yellowish-brown, marked with darker; under parts whitish. Presented by Wm. Rutledge, Esq., 6th November 1874.

*e.* The skin of an adolescent female and skull: equally dark on the back with the last specimen, but with less yellow on the sides and limbs. Presented by Wm. Rutledge, Esq., 18th August 1875.

*f.* The skin, skull, and bones of the trunk of an adult male of the same coloration as *d*, but the feet yellower than the outside of the limbs. Presented by Wm. Rutledge, Esq., 6th November 1875.

*g.* The skin of an adolescent male, and its viscera in alcohol: this specimen resembles *d*. Presented by Wm. Rutledge, Esq., 6th June 1876.

*h.* The natural skeleton of an adult male. Presented by Wm. Rutledge, Esq., 8th May 1876.

*i.* The disarticulated skeleton of an adolescent female. Presented by Wm. Rutledge, Esq., 4th July 1875.

*j.* The skin, skull, and bones of the trunk of an adult female. Presented by Wm. Rutledge, Esq., 20th October 1876.

*k.* The skeleton of a young female. Presented by Wm. Rutledge, Esq., 17th October 1876.

*l.* An adult male in alcohol. Presented by Wm. Rutledge, Esq., 10th June 1879.

#### SUB-GENUS NASALIS, Geoff., 1812.

##### 26. *Semnopithecus (Nasalis) larvatus*.

Le Kahau, *Wurmb, Batav. Genootsch. Verhand.* Bd. iii, 1781, p. 145.

La guenon à long nez, *Buffon, Hist. Nat. Suppl.* t. vii, 1779, p. 53, pls. xi and xii.

Le Kahau, *Audebert, Hist. Nat. des Singes*, Fam. iv, sect. ii, fig. i, 1797.

The Proboscis Monkey, *Shaw, Genl. Zool.* vol. i, pt. i (1800), pl. 22.

*Cercopithecus larvatus*, *Wurmb, op. cit.* p. 145.

*Nasalis larvatus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 91.

*Cercopithecus nasicus*, *Desmarest & Viey, Nouv. Dict. d'Hist. Zool.* t. xv, 1817, p. 574.

- Cercopithecus (Nasalis) nasicus*, *Desmarest, Mamm.* 1820, p. 55.  
*Simia nasica*, *F. Cuv., Dict. des Sc. Nat.* t. xx, 1821, p. 32.  
*Semnopithecus nasicus*, *Desmoulins, Dict. Class. d'Hist. Nat.* t. vii, 1825, p. 570.  
*Nasalis recurvus*, *Vigors & Horsfield, Zool. Journ.* vol. iv, 1828-29, p. 109 (fig. head).  
*Semnopithecus larvatus*, *Fischer, Syn. Mam.* 1829, p. 16.  
*Simia nasalis*, *Martin, Proc. Zool. Soc.* 1837, p. 70.  
*Rhynchopithecus larvatus*, *Dahlbom, Stud. Zool. Fam. Règ. An.* 1856, p. 93, pl. iv.  
*Semnopithecus (Nasalis) larvatus*, *Anderson, Anat. & Zool. Resch.* 1878, p. 42.

*Hab.* Borneo.

26a. The skin of an adult female. Purchased, 30th April 1878.

b. A stuffed adolescent female, its skull, and the bones of its trunk. Presented by O. L. Fraser, Esq., 19th November 1878.

c. The skin, skull, and bones of the trunk of a young male: the sacral spot grey. Presented by Wm. Rutledge, Esq., 4th July 1879.

d. The skin, skull, and bones of the trunk of a young female: penultimate molar appearing. Presented by Wm. Rutledge, Esq., 8th July 1880.

GENUS COLOBUS, Illiger, 1811.

### 27. *Colobus guereza*.

- Colobus guereza*, *Rüppell, Neue Wirb.* p. 1, pl. 1, 1835.  
*Guereza rüppellii*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 19.

*Hab.* Abyssinia.

27a. The skin of an adult male. Shoa, Abyssinia. Presented by W. Ganslandt, Esq., Aden, 1st March 1880.

## II.—SUB-FAMILY CERCOPITHECINÆ.

GENUS CERCOPITHECUS, Erxleben, 1777.

### 28. *Cercopithecus pygerythrus*.

- Simia pygerythrus*, *F. Cuv., Hist. Nat. des Mammif.* livr.<sup>n</sup> xxiv, Jan. 1821.  
*Cercopithecus pygerythrus*, *Desm., Mamm. Suppl.* 1822, p. 534.  
*Cercopithecus lalandii*, *Is. Geoff. St.-Hil., Archiv. du Mus.* t. ii, 1843, p. 561.

*Cercopithecus faunus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 10.

*Chlorocebus pygerythrus*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 25.

*Hab.* South Africa, Cape of Good Hope, banks of the Zambesi and Batoka, and Mozambique.

28*a.* A stuffed adult male, No. 23A of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1857.

*b.* A stuffed adult male, considerably darker and without the yellowish tint on the back and sides, but in other respects resembling this species. Purchased, 1865.

*c.* The skin, skull, and bones of the trunk of an adolescent male: resembling 31*a*, and like the last specimen, but with a blue scrotum. Presented by Wm. Rutledge, Esq., 18th November 1876.

*d.* The skin of an adult male, and its skull: resembling the last specimen. This animal lived for some years in the Zoological Gardens, and bred with its female, the face of the young animal being white. Presented by the Zoological Gardens, 29th May 1880.

*e.* A stuffed adolescent male. Purchased, 23th July 1869.

#### 29. *Cercopithecus sabæus*.

Le grivet, *F. Cuv., Hist. Nat. des Mammif.*, t. i, livr.<sup>e</sup> vii, Juin 1819.

*Simia sabæa*, *Linn., Syst. Nat.*, 12th ed., p. 38, No. 18, non *Syn. Edwards* (nec *Cercop. sabæus, auct. recent.*)

*Cercopithecus sabæus*, *Is. Geoff. St.-Hil., Compt. Rend. de l'Acad. de Sc.* 1850, p. 874; *Cat. Method. des Mammif.* 1851, p. 22.

*Cercopithecus griseoviridis*, *Desm., Mamm.* 1822, p. 61.

*Cercopithecus engythithea*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 10.

*Chlorocebus engythithea*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 26.

*Hab.* Abyssinia.

29*a.* A stuffed adult male and its skull, No. 22A of Blyth's Catalogue. Presented by C. C. Egerton, Esq., 1836.

*b.* A young female, stuffed, No. 22B of Blyth's Catalogue. Cape de Verde Islands. Purchased, 1847.

*c.* An adolescent male, partially stuffed, in bad condition; rather grey, but broadly punctulated with yellow. No. 24A of Blyth's Catalogue. Abyssinia. Presented by Dr. E. Rüppell, 1856.

*d.* The skin of an adult male: much more yellow than the preceding individual; tail pale yellow; white below, and with a well-marked yellowish terminal tuft. Adigrat, Tigré, Abyssinia, 8,000 feet, April 1868. W. T. Blanford, Esq. Presented by the Abyssinian Expedition, 1868.

*e.* The skeleton of an adult male. Anseba Valley, Abyssinia, 4,000 feet. W. T. Blanford, Esq. Presented by the Abyssinian Expedition, 1868.

*f.* A skull, by exchange with H. Lydekker, Esq., 5th December 1877.

*g.* The skeleton of a young male. Presented by Wm. Rutledge, Esq., 24th February 1880.

### 30. *Cercopithecus albogularis*.

*Cercopithecus albogularis*, *Fraser, Zool. Typica*, pl. 2. 1848-49.

*Semnopithecus albogularis*, *Sykes, Proc. Zool. Soc. Lond.* 1832, p. 18.

*Cercopithecus monoides*, *Is. Geoff. St.-Hil., Compt. Rend.*, t. xv, p. 1038; *Blyth, Cat. Mamm. As. Soc. Beng.*, 1863, p. 10.

*Hab.* East Africa.

*30a.* A stuffed young female, No. 25A of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1853.

*b.* A stuffed young male: the callosities surrounded by a narrow line of deep rusty, which extends on to the under surface of the base of the tail. Purchased, 16th March 1866.

*c.* The skin, skull, hyoid and bones of the trunk of a fine adult male; no rufous around the callosities or on the under parts of the tail. The white of the side of the neck and between the arms anteriorly extending well up the side of the neck as an imperfect collar. Purchased, 26th November 1875.

*d.* The skeleton of a young male. Purchased, 5th June 1869.

*e.* The skin, skull, and bones of the trunk of an adult male. Purchased, 17th June 1878.

### 31. *Cercopithecus mona*.

*La mone*, *Audebert, Singes*, 1797, Fam. iv, Sect. 11, fig. 7.

*Simia mona*, *Erxleben, Syst. Ræg. An.* 1777-8, p. 32; *Schreber, Säugeth. Suppl.*, pl. i, p. 97, 1840, pl. 15; *F. Cuv., Hist. Nat. des Mammif.* t. i. livr<sup>n</sup>. ix, Août 1819.

*Hab.* West Africa.

*31a.* The skin, skull, and bones of the trunk of a young male. Purchased, 8th June 1878.

*b.* An adult male in alcohol. Presented by Wm. Rutledge, Esq., 25th February 1879.

*c.* The skin, skull, and bones of the trunk of a young male. Purchased, 27th November 1879.

*d.* The skeleton of an adult. Senegal. By exchange, 21st January 1879.

### 32. *Cercopithecus leucampyx*.

Diane femelle, *F. Cuv., Hist. Nat. des Mammif.* vol. iii, livr.<sup>e</sup> xlii, Juin 1824.

*Simia leucampyx*, *Fischer, Syn. Mamm.* 1829, p. 20.

*Cercopithecus diadematus*, *Is. Geoff. St.-Hil., Voyage de Bélanger*, 1830, p. 51.

*Cercopithecus pluto*, *Gray, Proc. Zool. Soc. Lond.* 1848, p. 57, fig. pl. 3.

*Hab.* West Africa.

*32a.* A skull bisected. By exchange with H. Lydekker, Esq., 5th December 1877.

*b.* The skeleton of an adult female. Angola. By exchange, 21st January 1879.

*c.* The skeleton of a female, by exchange, 21st January 1879.

### 33. *Cercopithecus ruber*.

*Simia patas*, *Erxleben, Syst. Reg. An.* 1777-78, p. 34; *Schreber, Säugeth.* Bd. i, 1774, p. 98, pl. 16.

*Simia rubra*, *Gmelin, Linn. Syst. Nat.* 1788, pp. 34-42.

*Cercopithecus ruber*, *Is. Geoff. St.-Hil., Tables des Quad.* 1812; *Blyth, Cat. Mamm. As. Soc. Beng.* 1863, p. 11.

*Chlorocebus ruber*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 25.

*Hab.* West Africa.

*33a.* A skull of an adolescent, No. 26A of Blyth's Catalogue.

*b.* The skin, skull, and bones of an adult male. Presented by Wm. Rutledge, Esq., 18th January 1879.

*c.* The skin, skull, and bones of the trunk of an adult female. Presented by O. L. Fraser, Esq., 27th October 1880.

### 34. *Cercopithecus petaurista*.

*Simia petaurista*, *Erxleben, Syst. Reg. Nat.* 1777-78, p. 35; *Schreber, Säugeth.* 1774, bd. 1, p. 103, pl. 19B.



*Cercopithecus ascanias*, *Audebert, Hist. Nat. des Singes et Makis*, Fam. iv, Sect. ii, fig. xiii; *Schreber, Säugeth.* pl. 19C.

*Hab.* West Africa.

34*a.* The skin, skull, and bones of the trunk of a young male. Presented by Wm. Rutledge, Esq., 29th October 1878.

### 35. *Cercopithecus diana.*

*La diane, Audebert, Hist. Nat. des Singes*, 1797, Fam. v, Sect. 2, pl. 6.  
*Simia diana, Erxleben, Syst. Reg. An.* 1777, p. 30; *Linn., Syst. Nat.* 12th ed., 1766, p. 38.

*Hab.* West Africa.

35*a.* The skin, skull, and bones of the trunk of a young female. Presented by Wm. Rutledge, Esq., 9th July 1878.

*b.* The skeleton of a young male. Purchased, 18th May 1879.

## GENUS CERCOCEBUS, Geoffroy, 1812.

### 36. *Cercocebus fuliginosus.*

*Mangabey, Audebert, Singes*, Fam. iv, Sect. ii, p. 15, pl. 9.  
*Cercopithecus fuliginosus, Kuhl, Beitr.* 1820-24, p. 14.  
*Cercocebus fuliginosus, Geoff., Ann. du Mus.* t. xix, p. 28.

*Hab.* West Africa.

36*a.* The skin, skull, and bones of the trunk of an adolescent male. Purchased, 9th May 1879.

*b.* The skin, skull, and bones of the trunk of a young male. Presented by O. L. Fraser, Esq., 14th October 1880.

## GENUS MACACUS, Lacépède, 1803.

### 37. *Macacus sinicus.*

*Le bonnet chinois, Buffon, Hist. Nat.* t. xiv, 1766, pp. 224, 241, pl. xxx.

*The Chinese Monkey, Pennant, Hist. Quad.*, vol. i, 1793, p. 209.

*Simia sinica, Lin., Mantissa Plant.* 1771, p. 521.

*Cercopithecus sinicus, Erxleben, Syst. Reg. An.* 1777, p. 41.

*Cynocephalus sinensis, Latr., Hist. Nat. de Buffon* (Sonnini ed.) t. xxxvi (1809), p. 293.

*Cercocebus radiatus, Is. Geoff. St.-Hil., Ann. du Mus.* 1812, t. xix, p. 98.

*Pithecus radiatus, Desmarest, Nouv. Dict. d'Hist. Nat.* t. xvi i (1817), p. 325.

*Simia sinica*, *F. Cuv.*, *Hist. Nat. des Mammif.* Juin 1820, livr.<sup>n</sup> xviii.  
*Cercopithecus radiatus*, *Kuhl*, *Beitr. zur Zool.* 1820, p. 13.

*Inuus* (*Cercocebus*) *radiatus*, *Wagner, Schreber, Säugeth. Suppl.*  
 Bd. i, 1840, p. 140.

*Macacus sinicus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p.  
 1272; *Anderson, Anat. & Zool. Resch.* 1878, p. 90.

*Inuus* (*Macacus*) *sinicus*, *Wagner, Schreber, Säugeth.*, Suppl. Bd. v,  
 1855, p. 56.

*Pithecus* (*Macacus*) *sinicus*, *Dahlbom, Stud. Zool. Fam. Bèg. An.*  
 1856, pp. 117, 119.

*Macacus radiatus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 8;  
*Jerdon, Mamm. Ind.* 1867, p. 12.

*Hab.* Southern India.

37a. A stuffed adult male; uniform olive brown above and on the outside of the limbs and upper surface of the tail. The laterally divided hair on the forehead dark brown, passing into greyish brown on the sacral region in reflected lights. Under parts pale greyish-yellow. Purchased, 12th June 1870.

b. A stuffed adult male like the last. Madras. Presented by Dr. J. Anderson, 21st February 1866.

c. A stuffed adult male, about the same age as the preceding, but darker, more especially on the root of the tail and on the groin. Purchased, 27th December, 1867.

d. A stuffed half-grown female, No. 18A of Blyth's Catalogue: darker than any of the preceding males. Purchased, 1844.

e. A stuffed female, about the same size as the last, but paler. Purchased, 5th March 1863.

f. A stuffed younger female, and its skull: darker than any of the foregoing animals. No. 19 of Blyth's Catalogue, but not entered by him in his list. Sent from Formosa by R. Swinhoe, Esq., 1859.<sup>1</sup> The skull of this specimen, No. 19A of Blyth's Catalogue. Presented by R. Swinhoe, Esq., 1859.

g. A stuffed young female, slightly paler than f. Purchased, September 1866.

h. The skin of a young female. Presented by Wm. Rutledge, Esq., 5th January 1875.

i. The natural skeleton of a young female: 12D, 6L, 3S, and 28C vertebræ. Presented by Wm. Rutledge, Esq., 5th January 1875.

j. The natural skeleton of an adolescent female. Purchased, 3rd June 1868.

k. The disarticulated skeleton of a young animal. Purchased, 25th September 1866.

<sup>1</sup> Journ. As. Soc. Beng. vol. xxix, p. 87.

l. The skull of an adult male. Presented by Dr. J. Anderson, 1865.

m. The skeleton of an adult female. Presented by Raja Rajendra Lal Mullick, Bahadur, 7th December 1874.

n. A newly-born male in alcohol, bred in the Zoological Gardens, from a pair brought from Madras. Presented by the Zoological Gardens, 22nd June 1880.

### 38. *Macacus pileatus*.

The Rilawa, *Knox, Hist. Rel. Ceylon*, 1681, ch. vi, p. 25.

La guenon couronnée, *Buffon, Hist. Nat. Suppl. t. vii*, 1789, p. 61, pl. xvi (juv.)

The Rillow, *Pennant, Hist. Quad.* vol. i. 3rd ed. 1793, p. 209.

Le bonnet chinois, *Audebert, Hist. Nat. des Singes*, 1797, Fam. iv, sect. ii, fig. 11.

The Rollewai, *Blyth, Journ. As. Soc. Beng.* vol. xiii, 1844, p. 476.

*Simia pileata*, *Shaw, Genl. Zool.* vol. i, pt. i, 1800, p. 53.

*Cercocebus sinicus*, *Is. Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 98.

*Pithecus sinicus*, *Desmarest, Nouv. Dict. d' Hist. Nat.* t. xviii, 1817, p. 324.

*Cercopithecus sinicus*, *Kuhl, Beitr. zur Zool.* 1820, p. 13.

*Macacus sinicus*, *Desmarest, Mamm.* 1820, p. 64.

*Inuus (Cercocebus) sinicus*, *Wagner, Schreber, Säugeth. Suppl. Bd. i*, 1840, p. 139.

*Macacus pileatus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 1272; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 9; *Anderson, Anat. & Zool. Resch.* 1878, p. 91.

*Inuus (Macacus) pileatus*, *Wagner, Schreber, Säugeth. Suppl. Bd. v* (1855), p. 55.

*Pithecus (Macacus) pileatus*, *Dahlbom, Stud. Zool. Fam. Règ. An.* 1856, pp. 117 & 119.

#### *Hab. Ceylon.*

38a. A stuffed adolescent male, No. 19A of Blyth's Catalogue: rich orange or rufous brown. Ceylon. Presented by R. Templeton, Esq., 1848.

b. A stuffed adolescent female, No. 19B of Blyth's Catalogue: not so richly coloured as the last. Ceylon. Presented by R. Templeton, Esq., 1848.

c. A skull, imperfect. Ceylon. Presented by E. L. Layard, Esq.

d. A skull. Ceylon. Presented by E. L. Layard, Esq.

### 39. *Macacus cynomolgus*.

Le Macaque, *Buffon, Hist. Nat.* t. xiv, 1776, p. 190.

The Philippine monkey, *Pennant, Syn. Quad.* 1771, p. 121.

- Simia cynomolgus*, *Lin.*, *Syst. Nat.* 12<sup>me</sup> éd., vol. i, 1766, p. 38.  
*Cercopithecus cynomolgus*, *Erxleben*, *Syst. Règ. Animal*, 1777, p. 28.  
*Cynocephalus cynomolgus*, *Latr.*, *Hist. Nat. de Buffon* (Sonnini ed.), t. xxxvi, 1809, p. 292.  
*Cercocebus cynomolgus*, *Geoff. St.-Hil.*, *An. du Mus.* t. xix (1812), p. 99.  
*Pithecus cynomolgus*, *Desmarest*, *Nouv. Dict. d'Hist. Nat.* t. xviii, 1817, p. 323.  
*Macacus cynomolgus*, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>n</sup>. iii, Fév. 1819; *Blyth, Cat. Mam. As. Soc. Mus.* 1863, p. 9; *Anderson, Anat. & Zool. Resch.* 1878, p. 73.  
*Simia fascicularis*, *Raffles*, *Trans. Linn. Soc.*, vol. xiii, 1822, p. 246.  
*Macacus carbonarius*, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>n</sup>. i, ii, Oct. 1825; *Cat. Mamm. As. Soc. Mus.* 1863, p. 9.  
*Macacus aureus*, *Is. Geoff. St.-Hil.*, *Zool. Voy. de Bélanger*, 1834, p. 58.  
*Cercopithecus cynosurus*, *Helper*, *Journ. As. Soc. Beng.* vol. vii, 1838, p. 858.  
*Semnopithecus buku*, *Martin*, *Mag. Nat. Hist.* (Charlesworth), vol. ii, new ser. 1838, p. 435.  
*Semnopithecus fascicularis*, *Waterhouse*, *Cat. Mamm. Zool. Soc. Mus. Lond.* 1838 (2nd ed.), p. 4.  
*Inuus* (*Cercocebus*) *cynomolgus*, *Wagner, Schreber, Säugeth.* Suppl. Bd. i, 1840, p. 135.  
*Inuus* (*Cercocebus*) *aureus*, *Wagner, Schreber. Säugeth.* Suppl. Bd. i, 1840, p. 138.  
*Semnopithecus kra*, *Lesson*, *Sp. des Mammif.* 1840, p. 65.  
*Macacus auratus*, *Müller und Schlegel, Verhandl.* 1839-44, p. 49.  
*Macacus philippensis*, *Is. Geoff. St.-Hil.*, *Cat. Méthod. des Mammif.* 1851, p. 29.  
*Inuus* (*Macacus*) *cynomolgus*, *Wagner, Schreber, Säugeth.* Suppl. Bd. v, 1855, p. 52.  
*Inuus* (*Macacus*) *palpebrosus*, *Wagner, Schreber, Säugeth.* Suppl. Bd. v, 1855, p. 54.  
*Pithecus* (*Macacus*) *cynomolgus*, *Dahlbom, Stud. Zool. Fam. Règ. An.* 1856, pp. 118, 120.  
*Pithecus* (*Macacus*) *aureus*, *Dahlbom, Stud. Zool. Fam. Règ. An.* 1856, pp. 118, 120.  
*Pithecus* (*Macacus*) *philippensis*, *Dahlbom, Stud. Zool. Fam. Règ. An.* 1856, pp. 118, 120.  
*Macacus fur*, *Slack, Proc. Acad. Nat. Sc. Philadelph.* 1867, p. 36 (plate).  
*Macacus cristatus*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 30.  
*Macacus assamensis*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 31.

*Hab.* Irrawadi valley, Burma, through Malayan Peninsula and islands; Siam.

39a. A stuffed adult male and skull, No. 20A of Blyth's

Catalogue: this has evidently been a Menagerie specimen. Faded, but brownish-olive above with a slight rufous yellow tint, brightest on the head; yellowish grey on the sides of the head and on the feet. Purchased, 1844.

*b.* A mounted ferine adult male and its skull: olive brown above, passing into a greyish olive on the outside of the limbs: dark olive-brown on the frontal region, and greyish around the face, which is covered with short hairs; beard and whiskers rather profuse and greyish; fingers and toes dark brown; face dusky fleshy; upper eyelids white; tail brownish above in its first third, olive yellowish below and pale brownish-olive in its last two thirds; under parts greyish, differing but little in tint from the outside of the limbs, but the hairs not annulated; tail nearly as long as the body; hair of head smooth and directed backwards. Desertion Creek, Elephant Point, banks of Irrawadi, near Rangoon. Presented by J. Armstrong, Esq., 27th January 1876.

*c.* The skin and skull of an adult ferine male, like the last specimen. Arakan. Procured by the Museum Collector, 1871.

*d.* The skin of a wild adult male. Tenasserim. Houg-daran, Maulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*e.* The skin of a wild adult male. Tenasserim. Houg-darau, Moulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*f.* The skin of a wild young male. Tenasserim. Houg-daran, Maulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*g.* The skin of a wild female. Tenasserim. Houg-darau, Maulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*h.* The skull of a male, but not fully grown. No. 20D of Blyth's Catalogue.

*i.* The skull of an adult female, No. 21E of Blyth's Catalogue: teeth large. Regarded by Blyth as a skull of *M. carbonarius*. Arakan. Presented by Sir Arthur P. Phayre, 1843.

*j.* The skull of an adult male. No history.

*k.* The skull of an adult male. No history.

*l.* The skull of an adult female, No. 20E of Blyth's Catalogue. No history.

*m.* The skull of an adult female, No. 21D of Blyth's Catalogue. Arakan. Presented by Sir A. P. Phayre, 1843.

*n.* The natural skeleton of a young animal. Presented by Dr. J. Anderson, April 1866.

Smaller var. (*M. carbonarius*).

*o.* A stuffed adult male and its skull: rich yellowish-brown, darkest on the head, paler on the outside of the limbs; tail brown above at base, greyish yellow throughout the greater part of its extent; temporal region and sides of the face greyish, also the under parts of the body. No. 21A of Blyth's Catalogue. Purchased, 1844.

*p.* A stuffed adolescent male and its skull: all the teeth through; the animal, however, is smaller than *o*; brownish olive, passing into grey on the sides of the head, lower half of the hind limbs, and under surface and inside of the limbs; long black superciliary hairs; upper eyelids bluish white; face and ears black; tail black at the base, brown olive in the remainder, and greyish yellow below. Purchased, December 1865.

*q.* A stuffed adult male and its skull: rather bright rusty red-brown on the head, nape, shoulders, and back, as far as the loins; passing into brown on the loins and into black on the upper surface of the tail in its proximal third; supraorbital hairs black; temporal region and sides of the head and beard greyish; outside of the limbs dark olive-brown, speckled with black; inside of the limbs, under aspect of the trunk, and rest of the tail below and above greyish. Presented by Wm. Rutledge, Esq., 12th June 1870.

*r.* A stuffed young male and its skull: brown above, yellow speckled; olive grey on the outside of the limbs; tail blackish above and in its first portion, greyish below and in the rest of its extent; supraorbital hairs and some on the forehead black; temporal region and sides of the head greyish; under parts greyish. Purchased, 16th October 1868.

*s.* A stuffed adult female and its skull: dark olive-brown, speckled with yellowish and black; paler on the limbs; blackish on the base of the tail above, rest of the tail greyish yellow; head coloured as in the last specimen; whiskers rather long. Presented by Wm. Rutledge, Esq., 10th March 1868.

*t.* A stuffed adolescent female and skull: the same as the last specimen, but the tail darker, being nearly brown. Presented by Dr. J. Anderson, 17th April 1868.

*u.* A stuffed young male and skull: resembling 43*r*, but greyer on the limbs. Purchased, 17th April 1870.

*v.* A stuffed young male and skull, No. 21B of Blyth's

Catalogue : uniform rich brown, darkest on the head and back, and brightest on the outside of the hind legs ; black supraorbital hairs, with blackish hairs on the cheeks ; under parts yellowish, with an orange tint ; tail yellowish brown, dark brown above ; the fur has a faint trace of yellowish annulations. Arakan. Presented by Capt. J. Abbott, 1844.

*w.* A stuffed young female and skull, No. 20C of Blyth's Catalogue : yellowish brown, with an olive tinge and richly punctulated with yellow, on the limbs and darkening on the middle of the head, on which the hairs have broad black tips ; supraorbital hairs black ; sides of the head yellowish ; under parts yellowish white. Timor. Presented by W. H. Benson, Esq., 1846.

*x.* A stuffed young female and skull, No. 20B of Blyth's Catalogue : dark fuliginous brown, with a slightly rusty tinge on the hind limbs ; under parts yellowish ; the hairs show only a faint trace of commencing annulations on the head, which is still less marked on the trunk. Nicobar Islands. Presented by Capt. Lewis, 1846.

*y.* The skeleton of a young male. This animal was brown above, the hairs on the anterior half of the head being broadly tipped with black ; the sacral region and outside of the thighs were washed with blackish ; tail black above, in its first two thirds, under surface yellowish white. Presented by Wm. Rutledge, Esq., 25th September 1871.

*z.* The flat skin and skeleton of an adult female resembling 39*g*. Presented by G. Nevill, Esq., 1st July 1873.

*aa.* The flat skin and skeleton of an adult female, like last specimen. Presented by Wm. Rutledge, Esq., 9th July 1873.

*bb.* The flat skin and skeleton of a female that resembled *M. aureus*, Is. Geoff. Presented by Wm. Rutledge, Esq.

*cc.* A very young female, in alcohol ; long hair on the crown of the head, tending to form a crest. Presented by O. L. Fraser, Esq., 9th September 1878.

*dd.* The flat skin and skeleton of an adult male of the rufous variety. This specimen was the parent of a hybrid, bred in the Zoological Gardens, Calcutta, from *M. rhesus*. Presented by the Zoological Gardens, 5th August 1878.

*ee.* The skin and skull of an adolescent male : general colour dark. Presented by Wm. Rutledge, Esq., 5th October 1880.

*ff.* A very young male, in alcohol : blackish brown above, brown on the outside of the limbs and tail, and yellow below ;

hair on the head rather long, but backwardly directed in two lines, one on either side of mesial line of frontal. Temples nearly bare. These are essentially the characters of extreme youth in this species. Purchased, 10th October 1867.

*gg.* A young male, in alcohol, and its skull. Purchased, 26th May 1870.

*hh.* A young female, in alcohol. Presented by Wm. Rutledge, Esq., 29th September 1871.

*ii.* A foetus in alcohol. Penang. Presented by Dr. F. Stoliczka, October 1870.

*jj.* A young male, in alcohol: dark coloured. Presented by Wm. Rutledge, Esq., 19th July 1879.

*kk.* The skeleton of an adult female. Purchased, 6th August 1868.

*ll.* The skeleton of an adult male. Purchased, July 1866.

*mm.* The skull of a young female. Purchased, 20th December 1867.

*nn.* The skeleton of an adult male. Purchased, 4th January 1868.

*oo.* The skeleton of an adult female. Purchased, 8th January 1870.

*pp.* The skeleton of a young animal. Presented by Dr. J. Anderson, January 1872.

*qq.* The skull of an adult female. Purchased.

#### 40. *Macacus silenus*.

L'Ouanderou, *Buffon, Hist. Nat.* t. xiv, 1766, p. 174, pl. xviii.

The Lion-tailed Monkey (a), *Pennant, Syn. Quad.* 1771, p. 109, pl. 120, fig. 1.

*Simia leonina* *Shaw, Genl. Zool.* vol. i, pt. i, 1800, p. 34.

*Simia silenus*, *Linn., Syst. Nat.* 12th ed., vol. i, 1766, p. 36.

*Simia veter*, *Gmelin, Linn. Syst. Nat.* vol. i, 13th ed. 1788, p. 30.

*Cercopithecus silenus*, *Erxleben, Syst. Règ. An.* 1777 (*partim*), p. 26.

*Cercopithecus veter*, *Erxleben, Syst. Règ. An.* 1777, p. 24.

*Cercopithecus vetulus*, *Erxleben, Syst. Règ. An.* 1777, p. 25.

*Simia ferox*, *Shaw, Genl. Zool.* vol. i, pt. i (1800), p. 30, pl. xvi.

*Papio silenus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 102.

*Pithecus silenus*, *Desmarest, Nouv. Dict. d'Hist. Nat.* t. xviii, (1817), p. 321.

*Macacus silenus*, *Desmarest, Mamm.* 1820, p. 63; *Anderson, Anat. & Zool. Resch.* 1878, p. 93.

*Inuus* (Maimon) *silenus*, *Wagner, Schreber, Säugeth.* Bd. i, 1840. p. 141, pls. xi B and xi, xi\*.

*Simia veter*, *Gray, Hand-list Mamm. B. M.* 1843, p. 8.

*Pithecus* (*Macacus*) *silenus*, *Dahlbom, Ind. Zool. Fam. Règ. An.* 1856, pp. 116, 119.



*Inuus silenus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 7; *Jerd., Mamm. Ind.* 1867, p. 10.

*Hab.* Southern India.

40a. A stuffed adult male and skeleton, No. 12 A and D of Blyth's Catalogue. Barrackpore Menagerie. Presented, 1843.

b. A stuffed adolescent male, No. 12B of Blyth's Catalogue. Presented by J. McClelland, Esq., 1848.

c. A stuffed young female. Purchased, 1849. No. 20C of Blyth's Catalogue.

d. The skin, and bones of the trunk of an adolescent male. Purchased, 22nd October 1875.

e. The skin, skull, and the bones of the trunk of an adolescent male. Presented by Raja Rajendra Mullick, Bahadur, 19th December 1876.

f. The skull of an adolescent female. Purchased, 12th February 1866.

#### 41. *Macacus rhesus*.

Le macaque à queue courte, *Buffon, Hist. Nat.* Suppl. t. vii, 1789, p. 56, pl. xiii.

A supposed new monkey, *Anderson, Proc. Zool. Soc.* 1872, p. 529 (figs. of skull).

Le rhesus, (*Simia rhesus*) *Audebert, Hist. Nat. des Singes*, 1797, Fam. ii, sect. i, pl. 1.

The wrinkled baboon, *Shaw, Gen. Zool.* vol. i, pt. 1, 1800, p. 33.

The bandar, *Hodgson, Journ. As. Soc.* 1832, vol. i, p. 339.

*Simia erythræa*, *Schreber, Säugeth.* 1775, pl. viii c.

*Macacus erythræus*, *Is. Geoff., Cat. Méthod. des Mammif.* 1851, p. 30.

*Macacus rhesus*, *Desmarest, Mamm.* 1820, p. 66, pl. vii, fig. 2 (*Buffon*); *Anderson, Anat. & Zool. Resch.* 1878, p. 55.

*Inuus* (*Maimon*) *erythræus*, *Wagner, Schreber Säugeth.* Suppl. bd. i, 1840, p. 142, pl. viii, c. (fig.; *Buffon*, ix, B.)

*Papio rhesus*, *Ogilby, Madr. Journ. Lit. & Sc.* vol. xii, 1840, p. 144.

*Macacus* (*pithex*) *oinops*, *Hodgson, Journ. As. Soc. Beng.* vol. ix, 1840, p. 1212, fig. head, p. 1213.

*Macacus oinops*, *Gray, Hand-List Mamm. B. M.* 1843, p. 8.

*Inuus* (*rhesus*) *erythræus*, *Wagner, Schreber, Säugeth.* Suppl. bd. v, 1855, p. 56.

*Pithecus* (*Macacus*) *erythræus*, *Dahlbom, Stud. Zool. Fam. Reg. An.* 1856, pp. 116, 119.

*Inuus assamensis*, *Blyth, Journ. As. Soc. Beng.* vol. xxxiv, 1865, p. 192.

† *Simia fulva*, *Shaw, Gen. Zool.* vol. i, pt. 1, 1800, p. 57.

*Inuus rhesus*, *Is. Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 101; *Blyth, Cat. Mamm. As. Soc. Beng.* 1863, p. 8; *Jerdon, Mamm. Ind.* 1867, p. 11.

*Pithecus rhesus*, *Desm., Nouv. Dict. d'Hist. Nat.* t. xviii, 1817, p. 326.

*Macacus erythræus*, *F. Cuv., Hist. Nat. des Mamm.* Oct. 1819, livr<sup>n</sup> xi ♀ et juv.; March 1821, livr<sup>n</sup> xxvi ♂; May 1821, livr<sup>n</sup> xxviii ♀ March 1825, livr<sup>n</sup> xlvi.

*Hab.* India generally and ascending the Himalaya to 7,000 feet and upwards (Simla and Nepal); extending into Assam, Arakan, and through Upper Burma to the Province of Yunnan, Western China.

41*a.* A stuffed adult male, No. 15A of Blyth's Catalogue (domesticated): rufous on the hind limbs and hind quarters. No history.

*b.* A stuffed adult ferine male, No. 15B of Blyth's Catalogue. Brown anteriorly and on the top of the head, greyish on the sides of the head; washed with rufous on the hind quarters and hind limbs; greyish yellow below; tail well clad. Sundarbans. No history.

*c.* A stuffed domesticated male, No. 15C of Blyth's Catalogue. Monstrously obese; uniform yellowish brown; bright rusty yellow on the hind quarters. No history.

*d.* A stuffed very young animal. The young of No. 15D of Blyth's Catalogue: reddish brown on the body, passing into brown on the head; hair not annulated. No history.

*e.* The skin and skull of an adult wild male: uniform brown on the upper surface of the body and tail; pale greyish brown on the under parts, and on the limbs; no rufous on the hind quarters; an almost black band of supraorbital hairs; moustachial hairs and those of the beard black; the skull fully adult. It differs from the skull of *M. assamensis* in its more elevated orbits, narrower interorbital space and shorter muzzle, besides being smaller in every way than the skull of that species. The extreme length of this skull is 5".19, while the skull No. 42*a*, that of a male which has only its permanent incisors cutting, the last molar being still in its socket, is already 5".54. The maximum breadth of this adult male skull across the zygomatic arches is 3".30, and that of the much younger skull of *M. assamensis* 3".63. This specimen and its skull are described in *Proc. Zool. Soc.* 1872, p. 529, skull figured. Sundarbans. Museum Collector, 26th April 1878.

*f.* A stuffed nearly adult ferine male: yellowish grey-brown, passing into fawn on the hind quarters and on the outside of the hind limbs; tail bushy at base and black tipped. Sundarbans. Museum Collector, 11th May 1870.

*g.* The skin and the skull of an adult male : like the last, but darker on the front of the forehead, which is almost black. Sundarbans. Museum Collector, 26th April 1870.

*h.* The skin and the skull of an adolescent male : rusty yellow posteriorly. Sundarbans. Museum Collector, 26th April 1870.

*i.* The skin and the skull of an adolescent male, like the preceding, but not so dark on the fore quarters. Sundarbans. Museum Collector, 26th April 1870.

*j.* The skin and the skull of a younger male : bright yellow posteriorly. Sundarbans. Museum Collector, 26th April 1870.

*k.* The skin of a young male : brown on the head and the middle of the back, unannulated brownish yellow on the sides, and bright rusty yellow on the hind quarters, tail and outside of the thighs. Sundarbans. Museum Collector, 26th April 1870.

*l.* The skin and the skull of an adolescent female, like the last. Sundarbans. Museum Collector, 26th April 1870.

*m.* The skin and the skeleton of an adolescent female : long black supraorbital hairs, and a whorl of black hairs on the sides of the head ; hinder half of body bright rufous. This specimen ( $\beta$ ) is the subject from which the figure, pl. iii, in my Anat. and Zool. Resch. was taken. Kakhyen Hills. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1868.

*n.* The skin and the skeleton of an adolescent female : black supraorbital hairs very sparse, and only a few black hairs on the sides of the head ; hinder half of the body and outside of hind legs rufous. This specimen is  $\alpha$  of the Anat. and Zool. Resch. Hotha Valley. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1868.

*o.* The skin of a young male : black supraorbital hairs and on the sides of the head as in 41*n* ; body generally yellowish, brick-red on the hind quarters and down the outside of the thighs ; upper surface of the head brownish ; antibrachium olive brown ; tail rufous at base, brownish above and yellowish below. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*p.* The skeleton of an adult female. Presented by Wm. Rutledge, Esq., 5th January 1876.

*q.* The skeleton of a female. Purchased, 22nd February 1867.

*r.* The skeleton of an adolescent male. Purchased, 16th April 1868.

s. The skeleton of an adult female. Purchased, 5th August 1869.

t. The flat skin and skeleton of an adolescent female. Presented by Dr. J. Anderson, 7th May 1870.

u. The skeleton of an adult female: a remarkably large and deep depression on the frontal over the left orbit. Presented by Dr. J. Anderson, July 1876.

v. The skeleton of an adolescent male. Presented by Dr. J. Anderson, July 1876.

w. The skull of an adult male. Purchased, 23rd September 1869.

x. The skull of an adult male. Presented by Dr. J. Anderson, July 1876.

y. The skull of an adult male. Presented by O. L. Fraser, Esq., 17th August 1876.

z. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 23rd September 1878.

#### 42. *Macacus assamensis*.

*Macacus assamensis*, McClelland, *Proc. Zool. Soc. Lond.* 1839, p. 148; Anderson, *Anat. & Zool. Resch.* 1878, p. 64; nec fem. = *M. leoninus*; Blyth *Cat. Mamm. Mus. As. Soc. Bengal*, 1863, p. 8.

*Papio assamensis*, Ogilby, *Royle's Ill. Him. Bot. Mamm.* 1840, p. lix.

*Macacus* (*Pithex*) *pelops*, Hodgson, *Journ. As. Soc. Beng.* vol. ix, 1840, p. 1213; *ibid.*, vol. x, p. 908.

*Macacus pelops*, Schinz, *Syn. Mamm.*, vol. i, 1844, p. 60.

*Inuus* (*rhesus*) *pelops*, Wagner, Schreber, *Säugeth. Suppl. bd. v*, 1855, p. 56.

*Inuus* (*rhesus*) *assamensis*, Wagner, Schreber, *Säugeth. Suppl. bd. v*, 1855, p. 57.

*Inuus assamensis*, Hutton, *Journ. As. Soc. Beng.* vol. xxxiii, 1864, Appendix, p. xiii.

*Inuus pelops*, Hutton, *Journ. As. Soc. Beng.* vol. xxxiii, 1864, Appendix, p. xiii; Jerdon, *Mamm. Ind.* 1867, p. 11.

*Macacus problematicus*, Gray, *Cat. Monkeys and Lemurs, B. M.*, 1870, p. 128.

*Macacus rheso-similis*, Selater, *Proc. Zool. Soc. Lond.* 1872, p. 495, pl. xxv (juv).

*Hab.* Himalaya, Assam, and Upper Burma.

42a. The skin and skull of an adult male; the tail has about the same proportion to the body as in *M. rhesus*; general colour rusty brown above, darkest over the shoulders and palest on the hind quarters and on the outside of the limbs, in which the brown is less marked; head with an

orange tint, but many of the hairs with black tips; supercilium and an area for the eyes to the ears more or less black, and the upper halves of the ears feebly black tufted, and their lower halves clad with grey hairs; under parts yellowish grey. The species is much larger than *M. rhesus* and more powerfully and more compactly built, and more like a pig-tailed monkey in these respects. The muzzle is long and the face pale fleshy. Obtained near Bhamo, Upper Burma, Second Expedition, Western Yunnan, 1875, and presented by Dr. J. Anderson to the Zoological Gardens, Calcutta, where it lived until the 19th January 1881.

*b.* The skin and skull of a young male: uniform brown, darkest on the back. Mishmi Hills, Assam. Presented by Dr. J. Anderson, 6th June 1876.

#### 43. *Macacus leoninus*.

*Macacus nemestrinus* (♀) *Blyth, Journ. As. Soc. Beng.* 1844, vol. xiii, p. 473.

*Inuus arctoides*, (♀) *Blyth, Journ. As. Soc. Beng.* 1847, vol. xvi, p. 731.

*Macacus leoninus*, *Anderson, Anat. & Zool. Resch. &c.* 1878, p. 52.

*Macacus assamensis*, *Anderson, op. cit.*, p. 65, female figs. 7 & 8, nec. ♂

*Cercopithecus*, *Helper, Journ. As. Soc. Beng.* vol. vii, 1838, p. 858.

*Macacus andamanensis*, *Bartlett, Land and Water*, July 24, 1869, vol. viii, p. 57. ♂

*Inuus leoninus*, *Blyth, Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 4; *Cat. Mamm. As. Soc. Mus.* 1863, p. 7.

*Hab.* Arakan, and the valley of the Irrawadi.

43*a.* The skin of an adult male, No. 14A of Blyth's Catalogue, and the type of the species: a short-legged powerful monkey, with long hair on the shoulders and on the humeral portion of the fore limb, and much shorter hair on the post-scapular area of the trunk; tail about one third the length of the trunk and head, and somewhat tufted at its tip; hair much annulated with brown and yellow, producing a yellowish brown tint, darkening on the hands and feet to brown, with but few annulations in these localities; hair on mesial line of head brown to the occiput, greyish external to this on the forehead and around the face and ears, but a pale brownish band passes down to the orbito-malar angle above the ear; whiskers, and pale brown of head, feebly annulated pale brown and greyish yellow; beard and whiskers well developed, especially the latter, which are continuous with the

long hair before the shoulder; belly and hind quarters clear pale yellowish with a tinge of grey; lower half of inside of limbs annulated as on the external surface; tail almost black above and with the tuft rich rusty yellow, its under surface concolorous with the hind quarters. Arakan. Presented by Sir Arthur P. Phayre, 1844.

b. The flat skin and the skeleton of an adolescent male: bright rusty rufous brown on the outside of the hind limbs and lower portion of the sides, which are but little annulated; tail brown above, no rufous. This specimen had lived some time in captivity. Purchased, December 1867.

c. The skin and skeleton of an adult female, with its fœtus *in utero* in alcohol: like the male, but wanting the brown on the head, the hair of which is but little annulated pale greyish-brown; whiskers forming a ruff, continuous with the well-developed beard; tail pale yellowish-brown, under parts greyish. The skull figured as female of *M. assamensis*, Anat. and Zool. Resch., figs. 7 & 8, p. 66. Second defile of the Irrawadi below Bhamo, Upper Burma. Dr. J. Anderson, 3rd March 1875. Presented by the 2nd Expedition to Western Yunnan.

d. The skull of an adult male, regarded by Blyth as the skull of *M. rhesus*. No. 15F of his Catalogue. This is probably the skull of the skin 43a.

e. The skin, skull, and bones of the trunk of a young male. Perak. Presented by O. L. Fraser, Esq., 6th January 1878.

#### 44. *Macacus nemestrinus*.

The Pig-tailed Monkey, *Edwards, Gleanings, &c.* 1758, tab. 24, vol. i, pp. 8, 10.

Le Maimon ou Singe à queue de cochon, *Buffon, Hist. Nat.* t. xiv, 1766, pp. 176, 179, pl. xix.

The Pig-tailed Baboon, *Pennant, Syn. Quad.* 1771, p. 105; *Hist. Quad.* vol. i, 3rd ed. 1793, p. 193.

Le Maimon, *Audebert, Hist. Nat. des Singes*, 1797, 2<sup>m</sup>e fam., sect. i, pl. ii.

*Simia nemestrina*, *Linn., Syst. Nat.* 12th ed. vol. i, 1766, p. 35.

*Papio nemestrina*, *Erxleben, Syst. Ræg. An.* 1777, p. 20.

*Cynocephalus nemestrinus*, *Latreille, Hist. Nat. de Buffon* (Sonnini ed.) 1809, t. xxxvi, p. 291.

*Inuus nemestrinus*, *Geoff. St.-Hil., Ann. du Mus.* 1812, vol. xix, p. 101; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 7.

*Pithecus nemestrinus*, *Desmarest, Nouv. Dict. d'Hist. Nat.* 1817, t. xviii, p. 325.

*Macacus nemestrinus*, *F. Cuv., Hist. Nat. des Mammif.* Août 1820, livr<sup>n</sup>. xix, Jan. 1822, livr<sup>n</sup>. xxxvi; *Anderson, Anat. & Zool. Resch.* 1878, p. 77.

*Simia carpolegus*, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 243.

*Inuus* (*Rhesus*) *nemestrinus*, *Wagner, Schreber, Säugeth. Suppl.* bd. v, 1855, p. 57.

*Pithecus* (*Macacus*) *nemestrinus*, *Dahlbom, Stud. Zool. Fam. Règ. An.* 1856, pp. 115, 118.

*Hab.* Malayan Peninsula, south of Tenasserim, Sumatra and Borneo.

44*a.* A stuffed adult male: deep black on the vertex and from the shoulder to the tail, the upper surface of which is also black: the black of the head extends in a narrow line downwards, before the ear; fur short on the shoulders. Purchased, 13th July 1867.

*b.* A stuffed adult male and its skull: fur rather long on the shoulders and wavy, and annulated with yellow and deep brown; dark brown on the top of the head; the dark-coloured line before the ear but little pronounced; no black on the back. Presented by Wm. Rutledge, Esq., 10th May 1870.

*c.* The skin and skull of an adult male, No. 13B of Blyth's Catalogue. Purchased, 1843.

*d.* A stuffed adult male, resembling *b* in the length and annulation of its fur, but nearly black on the back; stripe before the ear well marked. Presented by Wm. Rutledge, Esq., 27th September 1869.

*e.* A stuffed somewhat younger male than *d*, with its skeleton, No. 13A of Blyth's Catalogue: the fur on the shoulders shorter than *d*; hands and feet tending to dark brown. Purchased, 1843-52.

*f.* A stuffed much younger male: fur with only a trace of annulation; vertex brownish black; back washed with black; sides and limbs greyish yellow; band before the ear moderately defined. Purchased, 9th November 1866.

*g.* A stuffed still younger male: top of the head black, also the mesial line of the back from the shoulders along the upper surface of the tail; outside of the limbs brownish yellow. Purchased, 6th September 1866.

*h.* A stuffed somewhat younger male, intermediate between *f* and *g*. Presented by Wm. Rutledge, Esq., 10th March 1870.

*i.* A stuffed still younger male: head brown, no black on the back. Purchased, 28th August 1867.

*j.* The skin of an adult male. Purchased, 28th October 1869.

*k.* The skin of an adult male. Presented by Wm. Rutledge, Esq., 23rd July 1871.

*l.* The skin of a young male. Purchased, 25th June 1869.

*m.* The skin and skull of a young female: dull fuliginous brown; black on the head and from behind the shoulders along the middle of the back. Presented by O. L. Fraser, Esq., 29th April 1876.

*n.* The skin, skull, and the bones of the trunk of an adult male. Presented by Wm. Rutledge, Esq., 3rd November 1878.

*o.* The skin and the skeleton of an adult male. The fore-arms are bent, although both are healthy hard bones. Presented by the Zoological Gardens, 17th March 1877.

*p.* The skeleton of an adult male. Purchased, 1865.

*q.* The skeleton of an adult male. Purchased, 1866.

*r.* The skeleton of an adult male. Purchased, 6th August 1866.

*s.* The skeleton of an adolescent male. Purchased, 17th September 1866.

*t.* The skull of an adolescent male. Purchased, 18th September 1866.

*u.* The skull of an adult male. No history.

*v.* The skeleton of a young male: 19 caudal vertebræ. Purchased, 27th December 1867.

*w.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 6th July 1869.

*x.* The skeleton of a young female. Presented by Wm. Rutledge, Esq., 5th August 1869.

*y.* The skeleton of an adolescent female. No history.

*z.* The skeleton of an adult male. No history.

*aa.* A skull. No history.

*bb.* The skull of an adolescent female. No history.

#### 45. *Macacus arctoides.*

*Macacus speciosus*, *F. Cuv., Hist. Nat. des Mammif.* Fevr. 1825, livr<sup>n</sup>. xlvii.

*Macacus arctoides*, *Is. Geoff. St.-Hil., Mag. de Zool.* 1833, cl. i, pl. ii (adult); *Anderson, Anat. and Zool. Resch.* 1878, p. 45, pls. i, ii.

*Macacus maurus*, *Is. Geoff. St.-Hil. Voy. de Bélanger, Zool.* 1834, p. 61.

*Papio melanotus*, *Ogilby, Proc. Zool. Soc.* 1839, p. 31.

*Cynopithecus speciosus*, *Lesson, Sp. des Mammif.* 1840, p. 101.

*Inuus* (*Maimon*) *arctoides*, *Wagner, Schreber. Säugeth.* Suppl. bd. 1, 1840, p. 146.

? *Macacus ursinus*, *Gervais, Hist. Nat. des Mammif.* 1854, p. 93.

*Inuus* (*Inuus*) *arctoides*, *Wagner, Schreber, Säugeth.* Suppl. bd. v, 1855, p. 57.

*Pithecus* (*Macacus*) *arctoides*, *Dahlbom, Stud. Zool. Fam. Reg. An.* 1856, pp. 116, 118.

*Pithecus arctoides*, *Blainville, Ostéogr. Mamm.* t. i, p. 44, 1839-64, atlas ii, pl. vii (skull).



*Macacus tibetanus*, *A. M. Edwards, Comptes Rendus*, Février 14, 1870, vol. lxx, p. 341; *Rech. des Mammif.* 1868-74, p. 244, pls. xxxiv et xxxv.

*Macacus melanotus*, *Gray, Cat. Monkeys and Lemurs, B. M.*, 1870, p. 29.

*Macacus brunneus*, *Anderson, Proc. Zool. Soc.* 1871, p. 628; 1872, pp. 203-212, pl. xii (juv.); 1874, p. 652.

*Inuus speciosus*, *Blyth, Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 6.

*Hab.* High country of Cochin China, north-west to Yunnan and Assam, and to Eastern Tibet (Moupin).

45a. The skin, skull, and bones of the trunk of a fine adult male. In life this animal was a dark rich brown, compact, powerful monkey, with rather short limbs, intensely scarlet face, rather long muzzle, rudimentary tail, short radiating hair on the forehead, and long hair on the rest of the head falling forwards over the forehead, the hair before the ears and behind the cheeks being also directed anteriorly; the hair on the neck especially long and also on the shoulders,  $4\frac{1}{2}$  inches to 3 inches on the hinder half of the body; the colour darkest on the head and neck, but a decided reddish tinge on the hinder half of the body and external to the callosities; the latter and the huge scrotum and much-spined penis were rich scarlet in life; the upper surface of the hands and feet tend to black; under parts pale rufous brown; the hair more or less annulated, the annulations being especially numerous on the long hairs of the anterior parts. The skull has the general features of the skull of *M. nemestrinus*, but with a less powerful and considerably shorter muzzle. Kakhyen Hills; Bhamo, Upper Burma. Presented to the Zoological Gardens by Dr. J. Anderson.

b. A stuffed young male, its skeleton and its entire viscera preserved in alcohol: dark brown, more or less blotched with blackish; hair laterally divided on the forehead and radiating on the crown; ears with long hair on the inner aspect, projecting a long way external to their margins. The type of *M. brunneus*, Anderson, Proc. Zool. Soc. Lond. 1871, p. 628. Kakhyen Hills, to the east of Bhamo, Upper Burma. Presented by Dr. J. Anderson, 4th December 1872.

c. A young male, in alcohol: brown, but with the sides of the head yellowish, said to have been procured at Sadiya, Assam. Presented by Dr. J. Anderson, 30th June 1876.

d. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 19th October 1878.

e. The skin and skeleton of a young female from Tipperah. Presented by the Zoological Gardens, 17th October 1878.

f. A young female, in alcohol. Purchased, 20th March 1879.

#### 46. *Macacus maurus*.

*Macacus maurus*, *F. Cuv.*, *Hist. Nat. des Mamm.* 1823, Avril, livr.<sup>a</sup>.

xl; *Anderson*, *Anat. and Zool. Resch.* 1878, p. 80.

*Macacus maurus*, *Lesson*, *Man. de Mamm.* 1827, p. 44.

*Simia cuvieri*, *Fischer*, *Syn. Mamm.* 1829, p. 30.

*Cynocephalus niger* (?) *Quoy & Gaimard*, *Voy. de l'Astrolabe Zool.* vol. i, 1830, p. 67.

*Macacus arctoides*, *Is. Geoff. St.-Hil.*, *Zool. du Voyage de Bélanger*, 1834, p. 61 (*partim*).

*Macacus melanotus*, *Schinz* (*partim*), *Syn. Mamm.* bd. i, 1844, p. 59,

*Inuus maurus*, *Vrolik*, *Todd's Cyclop. Anat. & Phys.* 1852, vol. iv, p. 197.

*Macacus* (*Gymnopyga*) *inornatus*, *Gray*, *Proc. Zool. Soc.* 1866, p. 202, pl. xix.

*Hab.* North-West Borneo.

46a. A stuffed adolescent male, and its skull and bones of the trunk: brown, darkest on the forehead and on the hands and feet, which are darker than the body, but not black, and palest on the sides, back of the head and neck, which are pale yellowish-brown; tail very short; face and ears dusky black. Presented by Wm. Rutledge, Esq., 5th June 1871.

b. The skin, skull, and bones of the trunk of an adult male: dark ashy brown, paler on the head and sides of the neck, and palest on the back of the thighs, where the colour is ashy grey; face black; the skull has continuous superciliary ridges, and a very strong malo-temporal ridge; the upper canines have been either extracted or shed, but the canine eminences on the face remain; the bones of the trunk are much diseased, evidently affected by rickets, the pelvic bones being bent downwards to an extraordinary degree, also the lower margin of the scapula. This specimen lived long in confinement, notwithstanding these deformities. Presented by O. L. Fraser, Esq., 28th October 1880.

c. The skin, skull, and the bones of the trunk of an adult male: like the last, but slightly darker on the head; a ferine individual, showing supraorbital ridges, well-defined canine eminences, the muzzle being concave on each side from before the malar. Presented by Wm. Rutledge, Esq., 8th June 1881.

d. The skin, skull, and the bones of the trunk of an adult ferine male: like the last specimen. Presented by Wm. Rutledge, Esq., 20th August 1880.

e. The skin and skull of an adult female: like the preceding males; canines feeble, also their ridges. Presented by Wm. Rutledge, Esq., 4th June 1880.

f. The skin and skull of a nearly adult female: like the last. Presented by O. L. Fraser, Esq., 21st November 1880.

g. Skin and skull of an adult female: resembling preceding specimen. Presented by Wm. Rutledge, Esq., 2nd August 1880.

h. The skin and skull of a young male: pale brown, palest on the head and passing into dark brown on the hands and feet; skull with milk dentition. Presented by Wm. Rutledge, Esq., 4th July 1880.

i. Skeleton of a young male. Presented by Wm. Rutledge, Esq., 4th June 1880.

j. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 20th May 1880.

#### 51. *Macacus ocreatus*.

*Papio ochreatus*, *Ogilby, Proc. Zool. Soc.* 1840, p. 56.

*Macacus fusco-ater*, *Schinz, Syn. Mamm.* vol. i, 1844, p. 58.

*Inuus (Inuus) fusco-ater*, *Wagner, Schreber, Säugeth.* Suppl. vol. v, 1855, p. 59.

*Macacus ocreatus*, *Sclater, Proc. Zool. Soc.* 1860, p. 420, pl. lxxxii; *Anderson, Anat. and Zool. Resch.* 1878, p. 81.

*Macacus ochreatus*, *Blyth, Journ. As. Soc.* vol. xlv, 1875, ex. no. p. 7.

*Hab.* Celebes.

47a. A stuffed adolescent male and its skull, No. 16 of Blyth's Catalogue<sup>1</sup>: dark brown, except on the forearm from below the elbow, the hind leg from below the knee, the inside of the limbs, and the buttocks, which are grey; chest and belly brown, face black; a considerable bare area around the callosities; tail about 2 inches long. Presented by the Maharajah of Burdwan, 1858.

b. The skin, skull, and bones of the trunk of an adolescent male: upper surface glossy black brown; the front of the brachium and the outer surface of the limbs from the elbow and knee ashy grey, also the back of the thighs and the insides of the limbs; throat and chest also ashy grey; the rest of the under surface of the body dull black-brown, the hair on the head tending to form a crest on the vertex; hairs along the

<sup>1</sup> This specimen was marked No. (10 *Papio leucophaeus*) and is evidently, from the way in which the skin has been prepared, a specimen from the Maharajah of Burdwan, but it is a male, whereas the Ape referred by Blyth to *P. leucophaeus* was a female.

upper lip and chin black; the upper milk canines are present, two permanent molars appearing; upper incisors large; a swelling over the region of the upper canines. Presented by W. Rutledge, Esq., 22nd February 1880.

c. The skin, skull, and bones of the trunk of an adolescent male: wholly black, with the exception of the back of the thighs, which are brownish grey; throat grey, and a tinge of grey down the inner aspect of the forearms and partially on the chest; a tendency to form a crest; face black; tail rudimentary.

The skull is distinguished by considerable rotundity and breadth across the orbits. *M. ocreatus* and *M. maurus* have a narrow interorbital region, and the facial (maxillary) portion of the skull is not raised over the canines as in *C. niger*; moreover, this species has a tendency to flattening of the suborbital maxillary area—a feature which is characteristic of the skull of *Cynopithecus niger*. The latter species, however, has a peculiar feature in the great narrowness across its orbits, the combined breadth of which is much less than the malar region: neither *M. ocreatus* nor *M. maurus* exhibits this feature. The nasals of this species are much smaller than those of *M. maurus*. Presented by the Zoological Gardens, 25th August 1878.

## GENUS CYNOPITHECUS, Is. Geoff., 1835.

### 48. *Cynopithecus niger*.

*Cynocephalus niger*, *Desmarest, Mamm.* 1822, Suppl. p. 534.

*Cynocephalus malayanus*, *Desmoulins, Dict. Class. d'Hist. Nat.* t. v, 1824, p. 262.

*Papio niger*, *Griffith, An. Kingd.* vol. v (1847), p. 23; *Temminck, Poss. Néerland dans l'Inde Archip.* t. iii, 1847, p. 111.

*Macacus maurus* (?), *Quoy & Gaimard, Voy. de l'Astrolabe Zool.* t. i, 1831, p. 67.

*Macacus niger*, *Waterhouse, Cat. Mamm. Zool. Soc. Lond. Mus.* 1838, 2nd ed., p. 8.

*Inuus* (Maimon) *niger*, *Wagner, Schreber, Säugeth.* Suppl. bd. i, 1840, p. 147.

*Cynopithecus niger*, *Is. Geoff. St.-Hil., Zool. du Voy. de Bélanger*, 1834, p. 66.

*Cynocephalus* (*Cynopithecus*) *niger*, *Wagner, Schreber, Säugeth.* Suppl. bd. v, 1855, p. 61.

*Hab.* Celebes.

48a. A stuffed adult female, and skull: tail a mere knob. Presented by Wm. Rutledge, Esq., 28th September 1871.

*b.* A stuffed adult female, the bones of the trunk and the viscera in alcohol: tail half an inch long. Presented by Wm. Rutledge, Esq., 16th January 1872.

*c.* A stuffed adult female: tail a mere knob. Purchased, 12th January 1870.

*d.* A stuffed half-grown female: tail about half an inch long. Presented by Wm. Rutledge, Esq., 28th February 1871.

*e.* A stuffed young female. Presented by Wm. Rutledge, Esq., 11th April 1871.

*f.* The skin of a young female. Presented by Wm. Rutledge, Esq., 5th June 1871.

*g.* The skin, skull, and bones of the trunk of an adult male: the skull is very large and has enormous canines, with a very prominent canine eminence; the orbits are backwardly thrown, the facial portion of the skull elongated, forwardly projected, flat in front and laterally perpendicular and concave; the malar at its junction with the maxillary is swollen, and the nasal aperture is nearly as large as one half of an orbit. Presented by the Zoological Gardens, 9th August 1880.

*h.* The skin and skull of a young male: brownish-black trunk, passing into black on the limbs and head; the back of the thighs with a faint trace of grey. Presented by W. Rutledge, Esq., 8th September 1880.

*i.* The skeleton of an adult female. Presented by Wm. Rutledge, Esq., 9th January 1871.

*j.* The skull of an adolescent female. Presented by Wm. Rutledge, Esq., 11th February 1871.

*k.* The skeleton of an adolescent male. Presented by Wm. Rutledge, Esq., 3rd August 1871.

*l.* The skeleton of a young male. Presented by Wm. Rutledge, Esq., 7th December 1871.

*m.* The ligamentary skeleton of an adult female. Presented by Wm. Rutledge, Esq., 29th October 1871.

*n.* The skeleton of a very young female. Presented by Wm. Rutledge, Esq., 13th January 1872.

*o.* The skeleton of a young male. Presented by Wm. Rutledge, Esq., 3rd June 1872.

*p.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 5th September 1875.

*q.* The scapulæ, clavicles, pelvis, ribs, and vertebræ, and the viscera in alcohol of a young female. Presented by Wm. Rutledge, Esq., 13th December 1871.

r. The mounted skeleton of an adult female. Presented by Wm. Rutledge, Esq., 10th May 1871.

### III.—SUB-FAMILY CYNOCEPHALINÆ.

#### GENUS CYNOCEPHALUS, Brisson, 1756.

##### 49. *Cynocephalus hamadryas*.

Tartarin, *F. Cuv., Hist. Nat. des Mammif.* livr<sup>n</sup>. v, Avril, 1819.

*Simia hamadryas*, Linn., *Syst. Nat.*, 12th ed., 1766, p. 36; Schreber, *Säugeth.* bd. i (1774), p. 82, pl. x.

*Simia aegyptica*, Hasselquist, *Reise nach Palaest.* 1762-68, p. 189.

*Papio hamadryas*, Geoff. *St.-Hil., Ann. du Mus.* t. xix, 1812, p. 103.

*Cynocephalus thoth*, Ogilby, *Proc. Zool. Soc. Lond.* 1843, p. 11.

*Hamadryas aegyptica*, Gray, *Cat. Monkeys & Lemurs*, B. M., 1870, p. 34.

*Hab.* Abyssinia and Arabia.

49a. A stuffed adult male. Purchased, 6th October 1866.

b. The head of an adolescent male. Purchased, 29th January 1867.

c. The skin of an adult male. Hadoda, near Annesley Bay, Abyssinia. W. T. Blanford, Esq. Abyssinian Expedition, 1868.

d, e. Two skulls of adult males. Lebka Valley, Abyssinia. W. T. Blanford, Esq. Abyssinian Expedition, 1868.

f. A stuffed young female, apparently this species. Purchased, 7th February 1870.

g. The skin of a young female. Presented by Wm. Rutledge, Esq., 11th March 1877.

h. The skin, skull, and scapulæ of an adolescent male. These bones are quite light and very friable, and the scapula is thrown into folds as if it had been a piece of papier-mâché. This diseased condition of the bones is not unfrequently observed among monkeys reared from an early age in captivity. Purchased, 5th January 1878.

i. The skeleton of an adult male. Purchased, 6th January 1880.

j. A stuffed young male and its skull, marked No. 16A of Blyth's Catalogue, which is *Macacus assamensis*, McClelland, but in the Catalogue the species stands with a point of interrogation. Presented by the Maharajah of Burdwan, 1848.

50. *Cynocephalus doguera*.

*Cynocephalus babouin*, *Rüppell, Neue Wirbelthiere*, 1835, p. 7, *partim* (*nec auctorum*).

*Cynocephalus doguera*, *Pucheran et Schimper, Rev. et Mag. de Zool.* 1856, p. 96, et 1857, p. 250.

*Cynocephalus porcarius*, *Fitzinger, Sitzsber, Ak. Wiss. Wien.* 1866, p. 542.

*Papio doguera*, *Schlegel, Mus. de Pays-Bas Simia*, 1876, p. 126.

*Hab.* Abyssinia.

50a. A stuffed fully adult male, and the bones of the trunk: uniform yellowish olive on the whiskers and over all the body, above and below, except on the hands and feet, which are black, or nearly so; hair long (6 inches) and coarse on the front part of the body, basal portion (2 inches) ashy grey, the remainder banded nine times with orange and black, the first and last band the narrowest; 12 ribs; 25 caudal vertebræ. Purchased, 8th January 1870.

b. The skin of an adult male, its skull, and the bones of the trunk. Presented by Wm. Rutledge, Esq., 14th June 1876.

c. The skin and skeleton of an adult female: like the male, but smaller, and the feet uniform with the body. Presented by Wm. Rutledge, Esq., 30th June 1876.

d. The flat skin and skeleton of an adult. Presented by Wm. Rutledge, Esq., 15th August 1876.

51. *Cynocephalus porcarius*.

*Chacma*, *F. Cuv., Nat. Hist. des Mammif.* livr<sup>n</sup>. vii, Juin 1819.

*Simia porcaria*, *Bodd., Natur.* livr<sup>n</sup>. 22, p. 1, pl. 1.

*Simia sphingiola*, *Hermann, Obs. Zool.* vol. i (1804), p. 2.

*Papio porcarius*, *Geoff. St.-Hil., Ann. du Mus.* vol. xix (1812), p. 102.

*Cynocephalus ursinus*, *Schinz, Syn. Mamm.* vol. i, 1844, p. 64.

*Cynocephalus porcarius*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 6.

*Hab.* South Africa.

51a. A stuffed adult male, No. 11A of Blyth's Catalogue. Presented by E. L. Layard, Esq., Cape Town Museum, 1859.

b. A stuffed young male and its skull; No. 11B of Blyth's Catalogue. Purchased, 1846.

c. The skin, skull, and bones of the trunk of an adolescent female. Although this animal was far from being adult, it had huge swellings around the vaginal orifice while alive. The bones of the skull are enormously thickened and heavy, but those of the face are softened. This animal lived in

the Zoological Gardens for some years and during that period appeared quite healthy. Presented by the Zoological Gardens, 29th October 1880.

*d.* A newly born male in alcohol: a hybrid between this species and *Macacus nemestrinus*. Presented by Raja Rajendra Mullick, Bahadur, 1862.

### 52. *Cynocephalus maimon*.

Le Mandrill, *Audebert, Nat. Hist. des Singes*, 1797, fam. ii, sect. 2, fig.

1; *F. Cuv., Hist. Nat. des Mammif.* 1821; 1824, liv<sup>res</sup> xxix et xli.

*Simia maimon, Linn., Syst. Nat.* 1766, p. 35.

*Papio mormon, Geoff. St.-Hil., Ann. du Mus.* 1812, t. xix, p. 104.

*Mormon maimon, Gray, Cat. Monkeys & Lemurs, B. M.* 1870, p. 36.

*Papio maimon, Schlegel, Mus. d'Hist. Nat. des Pays-Bas*, 1876, livr<sup>e</sup>. 12, *Simiæ*, p. 130; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 6.

*Hab.* Western Africa.

*52a.* A stuffed adult male, No. 9A of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1858.

*b.* A stuffed adult female, No. 9B of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1858.

## II.—SUB-ORDER PLATYRRHINI.

### I.—FAMILY CEBIDÆ.

#### GENUS MYCETES, Illiger, 1811.

#### 53. *Mycetes ursinus*.

*Simia ursina, Humb., Recueil d'Observ. de Zool.* 1811-14, p. 329, fig. 30.

*Stentor ursinus, Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 108.

*Mycetes ursinus, Kuhl, Beitr.* 1820, p. 29.

*Hab.* Brazil.

*53a.* The skin of an adult male: yellowish on the dorsal surface and otherwise brown throughout. By exchange, 21st January 1879.

#### 54. *Mycetes seniculus*.

*Alouate, Buffon, Hist. Nat.* vol. xv, 1767, p. 5; Suppl., t. vii, 1789, pl. 25; *Audebert, Hist. Nat. des Singes*, 1797, fam. 5, sect. 1, fig. 1.

*Simia seniculus, Linn., Hist. Nat.* 12th ed. 1766, p. 37.

*Stentor seniculus, Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 107.



*Mycetes seniculus*, *Kuhl, Beitr.* 1820, p. 28.

*Mycetes stramineus*, *Spix (nec Geoffroy), Sim. Brazil*, p. 45, pl. 31.

*Stentor chrysurus*, *Is. Geoff., Mem. du Mus.* t. xvii, 1828, p. 166.

*Mycetes laniger*, *Gray, Ann. & Mag. Nat. Hist.* vol. xvi, 1845, p. 219.

*Mycetes auratus*, *Gray, Ann. & Mag. Nat. Hist.* op. cit., p. 220.

*Hab.* Brazil, Guiana, and Bolivia.

54a. The skin of an adult female: reddish chestnut, golden yellow on the dorsal surface, from the shoulders to the root of the tail. By exchange, 21st January 1879.

#### 55. *Mycetes palliatus*.

*Mycetes palliatus*, *Gray, Proc. Zool. Soc. Lond.* 1848, p. 138, pl. 6;  
*Sclater*, op. cit. 1872, p. 7.

*Hab.* Nicaragua.

55a. The skin of an adult female: black throughout, with a few silvery hairs from the axilla along the side. Panama. By exchange, 21st January 1879.

### GENUS ATELES, Geoff., 1806.

#### 56. *Ateles ater*.

*Ateles ater*, *F. Cuv., Hist. Nat. des Mammif.* livr<sup>n</sup>. xxxix, Mars, 1823.

*Hab.* Peru, between 2° and 14° S. Lat.

56a. The skin of an adult female. Brazil. By exchange, 21st January 1879.

#### 57. *Ateles paniscus*.

Le Coaita, *Buffon, Hist. Nat.* vol. xv, 1767, p. 25, pl. 1.

*Simia paniscus*, *Linn. Gmelin, Syst. Nat.* 1788, p. 36.

*Ateles paniscus*, *Geoff. St.-Hil., Ann. du Mus.* t. vii, p. 270.

*Hab.* Guiana, Lower and Upper Amazon Valley, Rio Negro, banks of the Madeira, &c.

57a. The skin of an adult male. By exchange, 21st January 1879.

#### 58. *Ateles geoffroyi*.

*Ateles geoffroyi*, *Kuhl, Beitr.* 1820, p. 26.

*Ateles melanochir*, *Desm., Mamm.* 1820, p. 76; *Sclater, Proc. Zool. Soc.* 1871, p. 226, pl. xv et fig. skull; op. cit. 1875, p. 419, pls.

48 & 49.

*Ateles belzebuth* var. *trianguligera*, *Weinland, Zool. Garten*, Bd. iii, 1862, pl. 207.

*Ateles melanochir* et *hybridus*, et *A. frontatus*, *A. ornatus* et *A. albifrons*, *Gray, Cat. Monkeys & Lemurs, B. M.*, pp. 43, 44, 1870.

*Ateles variegatus* et *Eriodis frontatus* v. *Frantzius*, *Wiegmann, Archiv.* vol. 35, part 1, 1869, pp. 257, 258.

*Hab.* Central America, Southern Mexico to Verragua.

58a. The skin of an adult female: pale greyish-yellow, with a black forehead, hands, feet, and knees; with blackish under the antibrachium. Central America. By exchange, 21st January 1879.

b. The skin of an adult: black above, with an intermixture of grey hairs, passing into yellowish grey towards the rump; under surface greyish yellow, golden on the insides of the thighs. By exchange, 21st January 1879.

c. The skin, skeleton, and the viscera in alcohol of an adolescent female: black, with a few yellowish hairs scattered throughout. This skull has three *ossa triquetra*, a large one between the frontal and parietals, and two smaller ones between these latter bones and the occipital. Presented by Wm. Rutledge, Esq., 18th August 1878.

#### 59. *Ateles chuva*.

*Ateles chuva*, *Schlegel, Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 175, et *syn.*

*Hab.* North-Eastern Peru, Ecuador and the mountains of Guiana.

59a. The skin of an adult male: black on the upper surface and along the outside of the humerus and the first half of the tail; outer side of the thigh blackish, with an intermixture of yellow; lower half of limbs yellowish, with intermixed black hairs; hands and feet yellowish, with intermixed black hairs; under surface of body yellowish; forehead golden yellow; ear black; whiskers and hairs on mouth white; eyebrows and hairs on the rest of the face black. By exchange, 21st January 1879.

### GENUS CEBUS, Erxleben, 1777.

#### 60. *Cebus flavus*.

*Simia flavia*, *Schreber, Säugeth.*, pl. 31B.

*Cebus flavus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 112.

*Cebus fulvus*, *Desm., Mamm.* 1820, p. 83.

*Cebus pallidus*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 49.

*Hab.* Brazil and Bolivia.

60*a*. The skin of an adult male: pale brown, passing into black on the head and becoming paler on the fore limbs, and darker on the hands and feet, and on the upper surface of the tail; sides of the face greyish; under surface greyish, with a tinge of yellow. By exchange, 21st January 1879.

#### 61. *Cebus capucinus*.

Le Sajou mâle, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>n</sup>. xii, Novr. 1819.  
*Cebus capucinus*, *Geoff. St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 111.

*Hab.* Guiana.

61*a*. The skeleton of an adult male. Presented by the Zoological Gardens, 15th October 1880.

#### 62. *Cebus hypoleucus*.

*Simia capucina* var. *a*, *Audebert*, *Hist. des Singes et Makis*, 1794, fam. 5, sect. ii, fig. 4.

*Simia hypoleuca*, *Humb.*, *Rec. d'Obs. de Zool.* 1811-14, p. 336.

*Cebus hypoleucus*, *Geoff. St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. iii;  
*F. Cuv.*, *Hist. Nat. des Mamm.* livr<sup>n</sup>. xvi, Mai 1820.

*Hab.* Guiana.

62*a*. The skin of an adult male: black above; forehead, side of face, throat, chest, and front of shoulders yellowish white; belly pale brown. By exchange, 21st January 1879.

*b*. The skin and skeleton of a female. Purchased, 16th December 1878.

*c*. The skin and skull of a young male. Purchased, 23rd December 1879.

*d*. The skin, skull, and the bones of the trunk of a young male. Purchased, 27th November 1879.

### GENUS NYCTIPITHECUS, Spix, 1823.

#### 63. *Nyctipithecus felinus*.

*Nyctipithecus felinus*, *Spix, Sim. et Vesper Brazil*, 1823 p. 24, pl. 18.

*Hab.* Bolivia, Paraguay, and Argentine Republic.

63*a*. An adult in alcohol. Presented by Wm. Rutledge, Esq., 16th September 1880.

## GENUS PITHECIA, Desmarest, 1804.

64. *Pithecia nocturna*.

- Simia pithecia*, *Linn., Syst. Nat.* 1766, p. 40; *Schreber, Säugeth.* Bd. i, 1774, p. 125, pl. xxxii.  
*Pithecia nocturna et adusta*, *Illiger, Abhandl. der Berlin Akad.* 1804-11, p. 107.  
*Pithecia rufiventer et leucocephala*, *Geoff. St.-Hil.*, t. xix, pp. 116-17, 1812.  
*Pithecia rufiventer, adusta, rufibarbata, et ochrocephala*, *Kuhl, Beitr.* 1820, pp. 43, 44.  
*Pithecia capillamentosa*, *Spix, Sim. et Vesper Brazil*, 1823, p. 16, pl. 11.  
*Pithecia pogonias*, *Gray, Zool. Sulph.* p. 13, pl. 2.  
*Pithecia chrysocephala*, *Is. Geoff., Cat. des Mammif.* 1851, p. 55.

*Hab.* Guiana.

64a. The skin of an adult female: brownish black, the hairs with a subterminal white band; under surface rufous; moustache yellowish. Eriquito River, British Guiana. By exchange, 21st January 1879.

65. *Pithecia satanas*.

- Couxio, *Humb., Rec. d'Obs. Zool.* 1811, p. 314, pl. 27.  
*Cebus satanas*, *Hoffmansegg, Ges. Naturforscher*, Bd. x, p. 93, 1807.  
*Pithecia satanas*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 115; *Sclater, Proc. Zool. Soc.* 1864, p. 712, pl. 41.  
*Chiropotes ater*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 61.

*Hab.* Lower Amazon; near Pará, British Guiana.

65a. An adult male, in alcohol. Presented by Wm. Rutledge, Esq., 13th August 1879.

## GENUS CHRYSOTHRIX, Kaup, 1835.

66. *Chrysothrix sciurea*.

- Le Saïmiri, *Audebert, Hist. Nat. des Singes et Makis*, fam. 5, sect. 2, pl. 7, 1797.  
*Simia sciurea*, *Linn., Syst. Nat.* 12th ed., 1766, p. 43; *Schreber, Säugeth.*, pl. xxx.  
*Callithrix sciureus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 113.  
*Chrysothrix sciurea*, *Wagner, Schreber, Säugeth.* Suppl. Bd. v, 1855, p. 120, tab. 9.  
*Chrysothrix sciureus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 16.

*Hab.* Guiana and Brazil.

66a. A stuffed adult. No. 40A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1844.

b. The skull. No. 40B of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1844.

c. The skin and skeleton, and the viscera in alcohol of an adult male. Presented by O. L. Fraser, Esq., 30th October 1878.

d. Skin of an adult male. By exchange, 1st January 1879.

e. An adult in alcohol. Presented by Wm. Rutledge, Esq., 30th September 1879.

f. A young male in alcohol. Presented by Wm. Rutledge, Esq., 20th May 1879.

## II.—FAMILY HAPALIDÆ.

### GENUS HAPALE, Kuhl, 1820.

#### 67. *Hapale jacchus*.

L'Ouistiti, *Buffon, Hist. Nat.* vol. xv, 1767, p. 96, pl. 14.

*Simia jacchus*, *Linn., Syst. Nat.* 12th ed., 1766, p. 40; *Schreber, Säugeth.* pl. 33.

*Hapale jacchus*, *Illiger, Prod. Syst. Mamm.* 1811, pp. 71, 72; *Kuhl, Beitr.* 1820, p. 46.

*Jacchus vulgaris*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, p. 119; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 16.

*Hub.* Brazil.

67a. A stuffed male and skull, No. 41A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1864.

b. The skull of a stuffed male, No. 41B of Blyth's Catalogue. Presented by E. Blyth, Esq., 1851.

c. A mounted adult male. Presented by Wm. Rutledge, Esq., 24th July 1873.

d. A mounted adult female. Presented by Wm. Rutledge, Esq., 24th July 1873.

e. A mounted adult female. Presented by Wm. Rutledge, Esq., 24th July 1873.

f. The skin, skull, and bones of the trunk of an adult male. Presented by Wm. Rutledge, Esq., 5th October 1876.

g & h. Two young in alcohol, born in Calcutta. Nos. 41E and F of Blyth's Catalogue. Presented by E. Blyth, Esq., 1851.

i. The skeleton of a female, No. 41C of Blyth's Catalogue. Presented by E. Blyth, Esq., 1852.

j. The skin and skull of a young female. Presented by Wm. Rutledge, Esq., 9th September 1872.

68. *Hapale penicillata*.

*Jacchus penicillatus*, *Ann. du Mus.* t. xix, 1812, p. 119.

*Jacchus vulgaris*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, var. 3, p. 63.

*Hab.* Brazil.

68a. The skin of an adolescent male, its skull and viscera. Presented by Mr. H. Swaries, 15th January 1869.

b. A mounted adult female and its skull. Presented by Wm. Rutledge, Esq., 6th March 1871.

69. *Hapale pygmaea*.

*Jacchus pygmaeus*, *Spix, Sim. et Vesper Brazil*, 1823, p. 32, pl. 24, fig. 2.

*Hapale pygmaea*, *Is. Geoff. St.-Hil., Cat. Mamm.* 1851, p. 61.

*Cebuella pygmaea*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 64.

*Hab.* Eastern Peru.

69a. A mounted adult. By exchange, 21st January 1879.

70. *Hapale rosalia*.

Le Marikina, *Buffon, Nat. Hist.* t. xv, 1767, p. 108, pl. 16.

*Simia rosalia*, *Linn., Syst. Nat.* 12th ed. 1766, p. 41.

*Hapale rosalia*, *Illiger, Prod. Syst. Mamm.* 1811, p. 72.

*Midas rosalia*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, p. 121.

*Leontopithecus rosalia*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 65.

*Hab.* Brazil.

70a. The skin of an adult: pale golden yellow; rufous around the face and along the neck, on the under surface and the lower portion of the limbs, with the exception of the fore feet, which are black, with a tinge of rufous above, the hind feet being pale golden yellow; the tail slightly dusky. Brazil. By exchange, 21st January 1879.

b. A stuffed adult male, its skull and skeleton. Presented by Wm. Rutledge, Esq., 3rd November 1880.

c. The skeleton of an adult male. By exchange, 28th May 1880.

71. *Hapale oedipus*.

Le Pinche, *Buffon, Hist. Nat.* t. xv, 1767, p. 114, pl. 17; *Audebert, Singes et Makis*, fam. 6, sect. ii, pl. 1; *F. Cuv., Nat. Hist. des Mammif.* livr<sup>n</sup>. lix, Janvier 1829.

Titi de Carthagène, *Humb., Rec. d'Obs. Zool.* 1811-14, p. 337.

- Simia œdipus*, *Linn., Syst. Nat.* 12th ed., 1766, p. 41; *Schreber, Säuggeth.* pl. 34.  
*Midas œdipus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 122; *Cat. Mammif.* 1851, p. 62.  
*Jacchus œdipus*, *Desmarest, Mamm.* 1820, p. 96.  
*œdipus titi*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 65.  
*Hapale œdipus*, *Schlegel, Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 258.

*Hab.* Columbia.

71a. The skin of an adult: head, throat, and under parts white, also the lower half of the brachium, antibrachium, and thigh; upper half of the tail chestnut, lower half black: the remaining parts of the trunk brownish, with a greyish olive tint and an intermixture of black and chestnut, the latter on the sides of the neck and on the back of the thigh, the black occurring chiefly on the lower half of the trunk. By exchange, 21st January 1879.

b. The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 24th May 1879.

c. An adult male in alcohol. Presented by Wm. Rutledge, Esq., 13th September 1880.

d. The flat skin and skeleton of an adult female. Presented by Wm. Rutledge, Esq., 18th September 1880.

e. The skin and skull of an adult male. Presented by Wm. Rutledge, Esq., 28th October 1880.

### 72. *Hapale leucopus*.

*Hapale leucopus*, *Günther, Proc. Zool. Soc. Lond.* 1876, p. 743, pl. lxxii.

*Hab.* Columbia.

72a. The skin of an adult male: silvery grey above, with an intermixture of fuliginous, specially on the occiput, which is dark brown, and on the base of the tail, the tip of which is white; the lower half of the outside of the limbs silvery white; forehead and hairs of face short, sparse, and white; throat dusky fuliginous; chest and under parts rich rufous. Antioquia, U. S. of Columbia. By exchange, 21st January, 1879.

b. The skin of an adolescent. By exchange, 21st January 1871.

### 73. *Hapale ursula*.

Le Tamarin nègre, *Buffon, Hist. Nat. Suppl.* t. vii, p. 116, pl. 32; *Audebert, Hist. Nat. des Singes et Makis*, 1797, fam. vi, sect. ii, pl. 6; *F. Cuv., Hist. Nat. des Mammif.* livr<sup>n</sup>. ix, Sept. 1819.

*Saguinus ursula*, Hoffm., *Mag. der Berl. Naturf. Freunde*, 1807, vol. x p. 102.

*Midas ursulus*, Geoff. St.-Hil., *Ann. du Mus.* t. xix, 1812, p. 121.

*Jacchus ursulus*, Desmarest, *Mamm.* 1820, p. 94.

*Hapale ursula*, Wagner, Schreber, *Säugeth. Suppl.* Bd. i, 1840, p. 246.

*Hab.* Brazil.

73a. A stuffed nearly adult male, its skull and bones of the trunk: face and fur jet black, with the exception of the back, from the shoulders to the root of the tail, which is more or less transversely banded with ferruginous. In the skull there appears to be the permanent absence of the last molar on the right side. Presented by Wm. Rutledge, Esq., May 1879.

b. An adult female in alcohol: the back more or less banded with rufous. Presented by Wm. Rutledge, Esq., 14th May 1879.

## II.—ORDER PROSIMIÆ.

### 1.—FAMILY LEMURIDÆ.

#### 1.—SUB-FAMILY LEMURINÆ.

#### GENUS LEMUR, Linn., 1758.

##### 74. *Lemur catta*.

*Le Mococho*, Buffon, *Hist. Nat.* t. xiii, 1765, p. 184, pl. 22; *Audebert, Hist. Nat. des Makis*, fig. 4; *F. Cuv., Nat. Hist. des Mammif.* livr<sup>n</sup>. v, Avril 1819.

*Lemur catta*, Linn., *Syst. Nat.* 1766, p. 45; *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 161; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 17; *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 72; *Schlegel, Mus. d'Hist. Nat. des Pays-Bas, Simia*, 1876, p. 314.

*Prosimia catta*, Lesson, *Sp. des Mammif.* 1840, p. 223.

*Hab.* Central part of Madagascar to Mouroundava on the west coast and Andrahoumbe on the east coast.—*Schlegel*.

74a. A stuffed male in bad condition, and its skull. No. 46A of Blyth's Catalogue. Madagascar. Presented by Dr. E. F. Kelaart, 1852.

b. The skin and skeleton of a male. Presented by Wm. Rutledge, Esq., 4th February 1876.



75. *Lemur varius*.

Le Vari, *Buffon, Hist. Nat.* t. xiii, 1765, p. 204, pl. 27  $\frac{1}{2}$ ; *Audebert, Nat. Hist. des Makis*, 1797, figs. 5 & 6; *F. Cuv., Nat. Hist. des Mammif.* livr<sup>n</sup>. xliii, Août, 1824.

*Lemur Macaco, Schreber, Säugeth.* Bd. i, p. 142, pl. xl, B (*nec* Linn.);

Maki roux, *F. Cuv., Nat. Hist. des Mammif.* Avril 1820, livr<sup>n</sup>. xv.

*Lemur macaco et ruber, Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 159.

*Lemur varius, Is. Geoffroy St.-Hil., Cat. des Mammif.* 1851, p. 71;

*Schlegel, Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 301.

*Varecia varia et rubra, Gray, Proc. Zool. Soc.* 1863, p. 136.

*Hab.* North-East coast of Madagascar.

75a. A stuffed male. Purchased, January 1863.

b. A stuffed adult male. Presented by Wm. Rutledge, Esq., 14th January 1869.

c. A stuffed adult male. Presented by Wm. Rutledge, Esq., 28th January 1869.

d. The skeleton of a male. Presented by Wm. Rutledge, Esq., 18th January 1873.

e. A skeleton. No history.

f. A toothless skull. No. 42B of Blyth's Catalogue. No history.

g. The skull of No. 42A of Blyth's Catalogue.

76. *Lemur macaco*.

The Black Maucauco, *Edwards, Glean.* vol. v, pl. 217.

*Lemur macaco, Linn., Syst. Nat.* 1766, p. 44; *ex syn. Fet. et Brown, Schlegel, Mus. des Pays-Bas*, 1876, p. 302; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 16.

*Lemur niger, Geoff. St.-Hil., Ann. du Mus.* vol. xix, 1812, p. 159.

*Lemur leucomystax, Bartlett, Proc. Zool. Soc. Lond.* 1862, p. 347, pl. 41 ♀.

*Varecia nigra, Gray, Proc. Zool. Soc. Lond.* 1863, p. 136.

*Hab.* North-West coast of Madagascar.

76a. A stuffed adolescent male: wholly black. No. 45A of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1850.

b. A stuffed young animal, No. 45B of Blyth's Catalogue: the same as the last. Presented by Raja Rajendra Mullick, Bahadur, 1864.

c. The skin and skull of an adolescent male: wholly black. Purchased, 27th November 1879.

## 77. Lemur albifrons.

Lemur albifrons, *E. Geoff.*, *Mem. sur les Makis* (Lemur, Linn.) *Mag. Encyclopèd.* t. i, p. 20; *Ann. du Mus.* t. xix, 1812, p. 160; *Audebert*, *Hist. Nat. des Makis*, fig. 3; et *Schreber*, pl. xxxixD; *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>n</sup>. iii, 19 Fév. 1819, ♂ nec fig. ♀ et juv.; *Is. Geoff. St.-Hil.*, *Cat. des Mammif.* 1851, p. 72; *Blyth*, *Journ. As. Soc. Beng.* vol. xxvii, 1858, p. 274; *Cat. Mamm. As. Soc. Mus.* 1863, p. 17 (*partim*); *Schlegel*, *Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 310.

*Prosimia albifrons*, *Gray*, *Cat. Monkeys & Lemurs*, *B. M.*, 1870, p. 73.

*Hab.* North-East coast of Madagascar.

83a. A stuffed male in bad condition, and its skull. No. 44A of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1858.

## 78. Lemur collaris.

Grand Mongous, *Buffon*, *Nat. Hist.* Suppl. vol. vii, 1789, p. 118, pl. 33. Le Mongous, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>n</sup>. ii, Janvier 1819. Maki à front blanc, ♀ et juv. (nec ♂), *Hist. Nat. des Mammif.* livr<sup>n</sup>. iii, • Fév. 1819.

Maki à front noir, *F. Cuv.*, *l. c.* livr<sup>n</sup>. xxx, Juillet 1821.

Lemur collaris et fulvus, *Geoff. St.-Hil.*, *Ann. du Mus.* vol. xix, 1812, p. 161.

Lemur brunneus, *Van der Hoeven Tijdschr.*, v. N. G. Bd. xi, 1844, p. 35.

Lemur nigrifrons, *Blyth*, *Cat. Mam. As. Soc. Mus.* 1863, p. 17.

*Prosimia melanocephala*, *Gray*, *Proc. Zool. Soc. Lond.* 1863, p. 137, pl. 18.

*Prosimia xanthomystax*, *Gray*, *Proc. Zool. Soc. Lond.* 1863, p. 138, pl. 17;

*Cat. Monkeys & Lemurs*, *B. M.*, 1870, p. 74.

Lemur collaris, *Schlegel*, *Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 306.

*Hab.* North-West coast of Madagascar.

78a. The skin of an adult male and its skull: corresponding to the *Maki à front noir* of F. Cuv. Presented by Wm. Rutledge, Esq., 27th August 1880.

## 79. Lemur nigrifrons.

Lemur simia-sciurus, *Petiv.*, *Schreber*, *Säugeth.* pl. 42.

Lemur nigrifrons, *Geoff. St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 160.

*Hab.* Madagascar.

79a. The skin and skull of an adult male: rather pale ashy grey throughout, above and below, except on the front of the head and around the ears, which is tinged with reddish yellow; the sides of the face external to one-half of the eyes are grey, but the rest is jet black, extending on to the forehead, but not reaching the vertex. Presented by the Zoological Gardens, Calcutta, 28th October 1879.

This Lemur seems closely allied to the *L. flavifrons*, Gray, Proc. Soc. Lond. 1867, p. 596, pl. 31.

### 80. Lemur mongoz.

The Mongoz, *Edwards, Gleanings*, vol. v, p. 12, pl. 216.

Le Mongous *Audebert, Hist. Nat. des Makis*, 1797, fig. 1.

Lemur mongoz, *Linn., Syst. Nat.* 12th ed. 1766, p. 44; *Sclater, Proc.*

*Zool. Soc.* 1871, pl. 16, fig. 1 ♂, fig. 2 ♀.

Lemur albimanus, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 160.

Lemur nigrifrons, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 17.

*Hab.* West coast of Madagascar.

80a. A stuffed specimen and its skeleton, Nos. 43 A and B of Blyth's Catalogue: much faded, but apparently agreeing with the characters of the female. The ashy grey on the shoulder and fore limb is much faded. Presented by Raja Rajendra Mullick, Bahadur, 1851.

b. A stuffed skin of a female: like the preceding, but with less white below the ear, and much faded. No. 44B of Blyth's Catalogue, and the type of *L. flaviventris*, Blyth, Journ. As. Soc. Beng., vol. xxvii, p. 274, 1858. This specimen, however, does not differ specifically from the previous individual. Presented by the Maharajah of Burdwan, 1858.

c. The skin, skull, and bones of the trunk of an adult female. It differs from the previous specimens in having no white on the breast, throat, or sides of the face, all of these parts being dark ashy grey, except the chin, which is paler. Presented by Wm. Rutledge, Esq., 11th October 1880.

d. The skin of an adult male and its skull: the sides of the neck and of the face are rufous, front of face greyish. Purchased, 4th December 1880.

e. The skin of a young male and its skull: resembling c, but showing a tendency to rufous on the side of the neck; the face and forehead black. Presented by Wm. Rutledge, Esq., 17th August 1880.

## II.—SUB-FAMILY INDRISINÆ.

GENUS PROPITHECUS, Lund, 1839.

### 81. Propithecus diadema.

*Propithecus diadema*, *Bennet, Proc. Zool. Soc. Lond.* 1832, p. 20; *Alph. Milne Edwards & Alf. Grandidier, Hist. Phys. Nat. et Pol. Madagascar*, t. vi; *Hist. Nat. des Mammif.* t. i (1875), texte p. 296, pl. 1.

*Hab.* The great forests of the eastern portion of Madagascar.—*Schlegel*.

81a. The skin of an adult. By exchange with the British Museum, 6th January 1879.

b. The skin of an adult female: darker than the last specimen. Purchased, 21st January 1879.

c. The skeleton of an adult. By exchange with the British Museum, 21st January 1879.

## GENUS INDRIS, Geoff., 1796.

### 82. *Indris brevicaudatus*.

*Indris brevicaudatus*, *Geoff. St.-Hil., Mem. sur les Rapp. Nat. des Makis*, t. i *Magasin Encyclopéd.* 1796, p. 46; *Alph. Milne Edwards & Alf. Grandidier, Hist. Phys. Nat. et Pol. de Madagascar*, t. vi; *Hist. Nat. des Mammif.* t. i, texte p. 335, pls. xi, xii.

*Hab.* Forests on the eastern side of the great mountains, between the bay of Antongil to the north, and the river Masora to the south.—*Alph. Milne Edwards & Grandidier*.

82a. The skin of an adult female, of the variety described by Professor Peters as *Lichanotus mitratus*.<sup>1</sup> By exchange with the British Museum, 6th January 1879.

## II.—FAMILY NYCTICEBIDÆ.

### I.—SUB-FAMILY NYCTICEBINÆ.

## GENUS NYCTICEBUS, Geoff., 1795.

### 83. *Nycticebus tardigradus*.

Le paresseux pentadactyle du Bengale, *Vosmaer, Description Amsterd.* 1770, pl. vi.

Le Loris paresseux, *Audebert, Hist. des Singes et Makis*, 1797, fig. 1.

Lemur tardigradus, *Linn., Syst. Nat.* 12th ed. 1766, p. 44.

Stenops tardigradus, *Illiger, Prod. Syst. Mamm.* 1811, p. 73.

*Nycticebus bengalensis et javanicus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 164.

*Nycticebus cinereus*, *A. M. Edwards, Nouv. Arch. du Mus.* t. iii, 1867; *Bull.* 1869, p. 11, pl. iii; *Anderson, Anat. & Zool. Resch.* 1878, p. 103.

*Nycticebus tardigradus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 18; *Anderson, Anat. & Zool. Resch.* 1878, pp. 103 et seq.

<sup>1</sup> M. B. Akad. der Wiss. zu Berlin (1871), p. 360.

*Hab.* Assam and Eastern Bengal through Upper Burma and Arakan to Siam, and through the Malayan Peninsula to Sumatra and Java.

VAR. *cinerea*.

Large race inhabiting Assam, Sylhet, and Cachar, and ranging eastwards through Upper Burma (Bhamo) to Siam. Clear greyish ashy, or silvery grey on the head and neck, with only a trace of the head markings so distinct in the Javan race; the rest of the trunk greyish, but washed with brownish and tending to reddish brown on the hind quarters. Dorsal band rich dark brown, fading away on the vertex; upper incisors two to four.

83a. A stuffed adult female, and its skull, No. 47A of Blyth's Catalogue: one pair of upper incisors. Tipperah. Presented by F. Skipwith, Esq., 1846.

b. A stuffed young animal. Tipperah. Presented by F. Skipwith, Esq., 1846.

c. A stuffed adult. Tipperah. Presented by A. Grote, Esq., 28th July 1864.

d. A stuffed adult female and its skull: two pairs of upper incisors. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 17th August 1867.

e & f. A stuffed adult female and its young one. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 17th August 1867.

g. A stuffed young male. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 5th July 1868.

h. An adult male in alcohol. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 17th August 1867.

i. An adult male in alcohol and its skull: two pairs of incisors. Bhamo, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western China, 1875.

j. The skeleton of an adult male. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 5th July 1868.

k. The skulls, Nos. 47 A to C of Blyth's Catalogue.

l. The skeleton of a specimen from Goálpára, Assam. Presented by H. L. Houghton, Esq., 1868.

VAR. *malaiana*.

A smaller variety, darker than the preceding, without the marked silvery grey; brownish, with a rusty hue; indistinct head markings as compared with var. *javanica*; dorsal line well defined to lumbar region; upper incisors 2 to 4; skull

smaller than the skull of the previous race. Occurs in Eastern Bengal (Chittagong) and extends through Arakan to Malacca.

*m.* A stuffed adult male and its skull, Nos. 47 B to D of Blyth's Catalogue: two pairs of upper incisors. Malacca. Presented by the Rev. F. J. Lindstedt, 1846.

*n.* A stuffed adolescent and its skull, Nos. 47 B, E, and G of Blyth's Catalogue: two pairs of upper incisors. Malacca. Presented by the Rev. F. J. Lindstedt, 1846.

*o.* A stuffed adolescent: brownish, with a dusky fuliginous or dusky tinge. Probably Nos. 47 B F of Blyth's Catalogue. Presented by Mr. Bell, 1857.

*p.* A stuffed adolescent female: brownish fawn; hairs on the back white-tipped, and markings on the trunk moderately well defined; one pair of upper incisors. Presented by Wm. Rutledge, Esq., 7th July 1870.

*q.* A stuffed young male: dusky brown, tipped with white; dorsal line nearly black; two pairs of incisors. Presented by Wm. Rutledge, Esq., 12th March 1870.

*r.* The skin, skull, and bones of the trunk of an adult male: two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 3rd March 1877.

*s.* The skin, skull, and bones of the trunk of an adult male: two pairs of upper incisors. Penang. Presented by the Zoological Gardens, Calcutta, 26th May 1877.

*t.* The skin, skull, and bones of the trunk of an adolescent female: rufous brown. Presented by Wm. Rutledge, Esq., 13th January 1873.

*u.* The flat skin and skeleton of a male: like the last; head markings partially defined; two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 13th February 1875.

*v.* The flat skin and skeleton of an adult male: like the last; upper incisors wanting. Presented by Wm. Rutledge, Esq., 22nd November 1875.

*w.* The skin of an adolescent female: dark fawn-brown; dorsal line nearly black; one pair of upper incisors. Presented by Wm. Rutledge, Esq., 22nd March 1876.

*x.* The flat skin and skeleton of an adult male: like the last; two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 8th August 1876.

*y.* A skeleton: two pairs of upper incisors. Presented by Dr. J. Anderson, 1st December 1872.

*z.* The skeleton of a male: two pairs of upper incisors. Presented by Dr. J. Anderson, 1st December 1872.

*aa.* The skeleton of an adult male: two pairs of upper incisors. Presented by Dr. J. Anderson, 7th July 1873.

*bb.* The skeleton and flat skin of an adult male: two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 1st February 1875.

*cc.* Skeleton and flat skin of an adult: two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 6th April 1877.

*dd.* The skeleton and flat skin of an adult male: no upper incisors. Presented by Wm. Rutledge, Esq., 25th April 1877.

*ee.* The skeleton of an adult male: two pairs of upper incisors. Purchased, 29th June 1869.

*ff.* The mounted skeleton of an adult: no history.

#### VAR. *javanica*.

About the same size as var. *malaiana*, but much paler, especially on the head, which has the brown bands from above the eyes and ears well defined, and united to the dorsal line, which, like the head bands, is rich brown.

*gg.* A stuffed adult and its skull, No. 47I of Blyth's Catalogue. Presented by the Batavian Society, 1845.

### GENUS LORIS, Geoff., 1796.

#### 84. *Loris gracilis*.

*Loris*, Buffon, *Nat. Hist.* vol. xiii (1765), p. 210, pl. 30.

Le Loris grêle, Audebert, *Hist. des Singes et Makis*, 1797, pl. ii.

*Loris gracilis*, Geoff. *St.-Hil., Ann. du Mus.* vol. xix, 1812, p. 163; Dalhöm, *Stud. Zool.* 1856, p. 211, pl. ix; Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 19.

*Stenops gracilis*, Kuhl, *Beitr.* 1820, p. 37.

*Nycticebus gracilis*, Schlegel, *Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 284.

*Hab.* Ceylon; Southern India; (?) Shan States east of British Burma.

*84a.* A stuffed specimen, No. 48A of Blyth's Catalogue. Presented by Sir Walter Elliot, 1843.

*b.* A stuffed specimen, No. 48B of Blyth's Catalogue. Presented by Sir Walter Elliot, 1843.

*c.* A stuffed young individual and its skull, Nos. 48 C and E of Blyth's Catalogue: with shorter limbs than *a* & *b*.<sup>1</sup> Presented by the Medical College, Calcutta, 1844.

<sup>1</sup> Blyth: *Journ. As. Soc. Beng.* vol. xvi, p. 736.

*d & e.* The skin, skull, and bones of the trunk of a shorter-limbed young animal, and the imperfect skeleton of another. Both were received alive from Rangoon, where they had been purchased from a Shan, who had stated that he had obtained them in the Shan States to the east of British Burma. The skulls are distinguished by having smaller orbits and narrower and more pointed muzzles than those of animals from Ceylon and India. Presented by Dr. J. Anderson, 1870.

*f.* The skin and skeleton of an adult male. Presented by Wm. Rutledge, Esq., 30th April 1875.

*g.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 21st July 1876.

*h.* The skeleton of an adult male. Ceylon. Presented by Dr. J. Anderson, 3rd February 1866.

*i.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 21st June 1874.

*j.* A skeleton. Coromandel Coast. Presented by Sir Walter Elliot, 1843.

## II.—SUB-FAMILY GALAGONINÆ.

### GENUS GALAGO, Geoff., 1796.

#### 85. *Galago senegalensis*.

Le Galago, *Audebert, Hist. Nat. des Singes, des Makis et des Galagos*, fig. 1.

*Galago senegalensis*, *Geoff., Rapp. Nat. des Makis, Magasin Encyclopéd.* vol. i, 1796, p. 20; *Schreber. Säugeth.* pl. xxxviii. B.; *Geoff. St.-Hil., Hist. Nat. des Mammif.* livr<sup>n</sup>. xxii, Nov. 1820, plate.

Lemur galago, *Shaw, Nat. Hist.* vol. i, pt. i, 1800, p. 108.

Otolicnus galago, *Illiger, Syst. Prod. Mamm.* 1811, p. 74.

*Galago geoffroyi*, *G. Fischer, Act. Soc. de Mosc.* vol. i, p. 25.

*Hab.* West Africa; Senegal; Gambia.—*Gray.*

85*a.* The skin and skull of an adult in bad condition. Asiatic Society's specimen. No history.

#### 86. *Galago garnetti*.

Otolicnus garnetti, *Ogilby, Proc. Zool. Soc. Lond.* 1838, p. 6.

Otogale garnetti, *Gray, Proc. Zool. Soc. Lond.* 1863, p. 140.

*Galago garnetti*, *Sclater, Proc. Zool. Soc. Lond.* 1864, p. 711.

*Hab.* Natal.

86*a.* The skin and skeleton of an adult male, both mounted.



Presented by His Excellency the Viceroy, Earl Northbrook,  
14th January 1875.

### III.—FAMILY TARSIDÆ.

#### I.—SUB-FAMILY TARSINÆ.

GENUS TARSIVS, E. Geoff., 1812.

##### 87. *Tarsius spectrum*.

*Lemur spectrum*, Pallas, *nov. spec., Quad. e Glir. ord.* 1778, p. 275, nt.  
*Tarsius spectrum*, Geoff. *St.-Hil., Ann. du Mus.* t. xix, 1812, p. 168;  
*Dalholm, Stud. Zool.* 1856, p. 231, pl. xi.

*Hab.* Malayan Archipelago (Philippines, Celebes, Java, and Sumatra).

87a. A stuffed adult; tail imperfect. Locality unknown. (*Horsfield.*) From the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

## III.—ORDER CHIROPTERA.

### I.—SUB-ORDER MEGACHIROPTERA.

#### I.—FAMILY PTEROPODIDÆ.

##### I.—GROUP PTEROPI.

GENUS PTEROPUS, Brisson, 1756.

##### 88. *Pteropus poliocephalus*.

*Pteropus poliocephalus*, Temm., *Monogr. Mammal.* t. ii, 1827, p. 179;  
*Dobson, Cat. Chiroptera, B. M.*, 1878, p. 31.

*Hab.* Australia.

88a. A stuffed adult male, No. 50A of Blyth's Catalogue. Presented by the Sydney Institution, 1846.

89. *Pteropus rodricensis*.

*Pteropus rodricensis*, *Dobson, Cat. Chiropt. B. M.*, 1878, p. 36.

*Hab.* Island of Rodriguez.

89*a.* The skin and skull of an adult. Island of Rodriguez. Presented by J. Caldwell, Esq., 4th November 1878.

*b.* The skin and skull of an adult. Island of Rodriguez. Presented by J. Caldwell, Esq., 4th November 1878.

*c.* An adult male in alcohol. Island of Rodriguez. By exchange with the British Museum, 6th September 1877.

*d & e.* Two skulls, one of an adult and the other of a young animal. The former was found in a cave along with bones *Pezophaps solitarius*. Island of Rodriguez. Presented by J. Caldwell, Esq., 30th May 1881.

90. *Pteropus edulis*.

*Pteropus edulis*, *Geoffroy, Ann. du Mus.* t. xv, 1810, p. 92; *Dobson, Cat. Chiroptera, B. M.*, 1878, p. 49.

*Hab.* Indo-Malayan Sub-region, extending also into some of the islands of the northern part of the Austro-Malayan Sub-region (Andaman and Nicobar Islands, Sumatra, Java, Borneo, Philippine Islands (Samar Island), Banda, Ternate, Timor).—*Dobson*.

90*a.* A stuffed adult female and its skull: the orbits of this skull are very perfect, the frontal, malar, and post-orbital processes having broadly united. No. 53A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*b.* A stuffed adolescent male and its skull. No. 53B of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*c.* A stuffed adolescent male and its skull, No. 53C of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*d.* The skin in bad condition and its skull, No. 53D of Blyth's Catalogue. Tenasserim. Presented by Dr. Helfer, 1839.

*e.* The skin of an adolescent. South Australia. By exchange with the Adelaide Museum, 1875.

*f.* The skin of an adolescent. South Australia. By exchange with the Adelaide Museum, 1875.

91. *Pteropus medius*.<sup>1</sup>

*Pteropus medius*, *Temminck, Monogr. Mammal.* t. i, p. 76; *Dobson, Cat. Chiroptera, B. M.*, 1878, p. 51.

*Hab.* India, Ceylon, Arakan, and Burma.

91a. The skin of an adult female, No. 51A of Blyth's Catalogue. Calcutta, 1842-43.

b. The skin of an adult male, No. 51B of Blyth's Catalogue. Calcutta, 1842-43.

c. The skin of an adult male, No. 51C of Blyth's Catalogue. Calcutta, 1842-43.

d. The skin of an adult male, No. 51D of Blyth's Catalogue. Calcutta, 1842-43.

e. The skin of a young male, No. 51E of Blyth's Catalogue. Calcutta, 1842-43.

f. The skin of an adult female, No. 51F of Blyth's Catalogue. Calcutta, 1842-43.

g. A stuffed adult female and skull, No. 51G of Blyth's Catalogue. Calcutta, 1842-43.

h. The skin and skull of an adult male, No. 51I of Blyth's Catalogue. Mergui. Presented by Major Berdmore, 1855.

i. The skin of an adult male. Cachar. Museum Collector, 1868.

j. A stuffed adult male. Mánbhúm. Museum Collector, 1866.

<sup>1</sup> In my note-book I find the following observation regarding this species:—

"August 23rd, 1869.—This species has been flying for the last few days from the north to the south of the city, in immense numbers, immediately after sundown. The sky, from east to west, has been covered with them as far as the eye could reach, and all were flying, with an evident purpose, and making for some common feeding ground. Over a transverse area of 250 yards, as many as 70 bats passed overhead in one minute, and as they were spread over an area of great breadth and could be detected in the sky on both sides as far as could be seen, their numbers were very great, but yet they continued to pass overhead for about half an hour. This is not the first time I have observed this habit in this species; indeed, it was much more markedly seen in August 1864, while I was residing in the Botanical Gardens, Calcutta. The sky, immediately after sunset, was covered with this bat, travelling in a steady manner from west to east, and spread over a great expanse, all evidently making for one common goal, and travelling, as it were, like birds of passage with a steady purpose. I observed them, not only on one, but both sides of the river. But in the Botanical Garden I noticed that, whilst the great mass of bats passed on, a few were attracted by trees then in fruit and seemed to go no further. This continued for a number of successive nights, but I did not observe the bats returning."

*k.* The skin of an adult female. Mánbhúm. Museum Collector, 1866.

*l.* The skin of an adult male. Manipur. Presented by Lieut.-Colonel H. H. Godwin-Austen, 26th August 1873.

*m.* The skin and skull of an adult male. Chutia Nágpur. Presented by V. Ball, Esq., 21st November 1868.

*n.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 16th August 1874.

*o.* An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 1866. The head of this specimen is figured in Dobson's Monograph of Asiatic Chiroptera, p. 18.

*p.* An adult female in alcohol. Calcutta. Presented by O. L. Fraser, Esq., 1872.

*q.* An adult female in alcohol. Pegu. Presented by W. Theobald, Esq., 1873.

*r.* An adult male in alcohol. Botanical Gardens, Calcutta. Presented by Dr. J. Anderson, 4th December 1872.

*s.* The mounted skeleton of an adult male. Calcutta. Presented by Dr. J. Anderson, 31st January 1866.

*t.* The skeleton of an adult male. Calcutta. Presented by Wm. Rutledge, Esq., 16th August 1873.

*u.* A skull. No history.

VAR. *assamensis*.

*v.* An adult male in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

92. *Pteropus nicobaricus*.

*Pteropus nicobaricus*, *Fitzinger, Sitz. Wien. Akad.* 1860, p. 389; *Zelebor, Reise der öster. Freg. Novara, Säugeth.* 1868, p. 11; *Dobson, Journ. As. Soc. Beng.* 1873, p. 198; *Dobson, Cat. Chiropt. B. M.* 1878, p. 54.

*Hab.* Andaman and Nicobar Islands; Java; Pulo; Condor.  
—*Dobson*.

92a. The skin and skull of an adolescent female. Java. No history.

*b.* A skin of a young female, No. 52A of Blyth's Catalogue. Type of *P. melanotus*, Blyth. Nicobar Islands. Presented by Captain Lewis, 1846.

*c.* The skin and skull of an adult female, No. 52B of Blyth's Catalogue. Type of *P. melanotus*, Blyth. Nicobar Islands. Presented by Captain Lewis, 1846.

*d.* The skin of an adult female. Black, but with the nape faintly chestnut. South Andamans. Presented by Lieut.-Colonel R. C. Tytler, 1864.

e. The skin and skull of an adult male: the same as the last. In the skull the frontal and post-orbital processes are nearly fully united. South Andamans. Presented by Lieut.-Colonel R. C. Tytler, 1864.

f. Skin and skull of an adolescent female: like the last two. South Nicobar. Presented by Lieut.-Colonel R. C. Tytler, 1864.

g. A mounted adult male and its skull. Nicobars. Bequeathed by Dr. F. Stoliczka, to the Asiatic Society of Bengal. 15th December 1875.

h. An adolescent male in alcohol. South Andamans. Presented by Lieut.-Colonel Tytler, 1863.

i. An adolescent female in alcohol. South Andamans. Presented by J. Homfray, Esq., 1871.

j. An adult male in alcohol. South Andamans. Presented by J. Homfray, Esq., 1871.

k. An adolescent female in alcohol. South Andamans. Presented by J. Homfray, Esq., 1871.

l. An adult female in alcohol. Andamans. Presented by G. E. Dobson, Esq., M.B., 30th May 1872.

m & n. An adolescent and a young female in alcohol. South Andamans. Bequeathed by Dr. F. Stoliczka, to the Asiatic Society of Bengal, 15th December 1875.

o. Skeleton of an adult male, skin in alcohol. Nicobar Islands. Presented by J. Homfray, Esq., 1871.

p. The skull (marked *Pt. javanicus*). Mergui. No history.

### 93. *Pteropus keraudrenii*.

*Pteropus keraudrenii* (*Quoy et Gaim.*) Dobson, *Cat. Chiropt. B. M.*, 1878, p. 63.

*Hab.* Polynesian Sub-region (except the Sandwich Islands, Gilbert's Group, Ellice's Group, and the Islands east of Samoa), apparently generally distributed, extending from the Mariana Islands to Savage Island, and from the New Hebrides to Samoa.—*Dobson*.

93a. An adult male in alcohol. Samoa. By exchange with the British Museum, 6th September 1877.

## GENUS CYNONYCTERIS, Peters, 1852.

### 94. *Cynonycteris amplexicaudata*.

*Pteropus amplexicaudatus*, *Geoff., Ann. du Mus.* t. xv, 1810, p. 96; *Dobson, Cat. Chiroptera, B. M.*, 1878, p. 72.

*Hab.* From the Persian Gulf to the Philippine Islands; Bengal, Southern India, Ceylon, Burma, Celebes, Amboina, Timor, Aru Islands.—*Dobson*.

94a. A stuffed adult female, No. 54A of Blyth's Catalogue. Coromandel Coast. Presented by Sir Walter Elliot, 1846.

b. A stuffed adult male, No. 54B of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1851. Type of *Pteropus seminudus*, Kelaart.

c. An adult female in alcohol. Singhhúm. Presented by V. Ball, Esq., 1870.

d. An adult female in alcohol. Luzon, Philippine Islands. By exchange with the Berlin Museum.

e. An adult female in alcohol. Pegu. Presented by W. Theobald, Esq., 1872.

f. An adult male in alcohol. Kishm Island, Persian Gulf. Presented by W. T. Blanford, Esq., 1872.

g to i. Two adult males and one adult female in alcohol. Moulmain Caves. Presented by J. Armstrong, Esq., M.B., 29th August 1877.

#### 95. *Cynonycteris minor*.

*Cynonycteris minor*, *Dobson, Journ. As. Soc. Beng.* 1873, p. 203, pl. xiv, fig. 9; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 73.

*Hab.* Java.

95a. The skin and skull of an adult male, No. 55A of Blyth's Catalogue. Presented by the Batavian Society, 1845. *Type*.

#### 96. *Cynonycteris collaris*.

*Pteropus collaris*, *Illiger, Abhandl. Akad. Berl.* 1815, p. 84.

*Cynonycteris collaris*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 75.

*Hab.* Equatorial and Southern Africa (West Africa, Gaboon; East Africa, Natal; South Africa, Cape of Good Hope).—*Dobson*.

96a. The skin of an adult male, No. 56A of Blyth's Catalogue. South Africa. Presented by E. L. Layard, Esq., 1859.

### GENUS CYNOPTERUS.

#### SUB-GENUS CYNOPTERUS.

#### 97. *Cynopterus marginatus*.

*Pteropus marginatus*, *Geoff., Ann. du Mus.* t. xiv, p. 97.

*Cynopterus marginatus*, *Dobson, Cat. Chiropt. B. M.*, 1878, p. 81.

*Hab.* India generally, from the Himalaya to Cape Comorin; Ceylon, Andaman Islands, Arakan, Burma, Malay Peninsula, Siam, Sumatra, Java, Billiton Island, Borneo, Celebes, Philippine Islands.—*Dobson*.

97a to g. Seven skins of males and females. Calcutta. Nos. 58 A to G of Blyth's Catalogue, 1841-51.

h & i. An adult male and female in alcohol. Calcutta. No. 58J of Blyth's Catalogue.

j & k. Two skins of adults, Nos. 58L & M of Blyth's Catalogue. Malacca. Presented by the Batavian Society, 1845.

l. Two skins of adults, No. 58O of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

m. The ligamentary skeleton of an adult: wanting the lower jaw. No. 58(?) of Blyth's Catalogue. Ceylon. Presented by Dr. Kelaart.

n & o. Two adults, male and female, in alcohol. No. 58 (?) of Blyth's Catalogue. Ceylon. Presented by Dr. Kelaart.

p & q. An adult male and female in alcohol. Darjeeling. Presented by Dr. J. Anderson, 1866.

r. An adult female in alcohol. Cachar. Museum Collector, 1868.

s. A ligamentary skeleton. Cachar. Museum Collector, 1868.

t. An adult male in alcohol. Chárápunjí. Presented by Lieutenant J. H. Bourne, 1872.

u. An adult male in alcohol and its skull. Bhamo, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

v. A young female in alcohol. Darjeeling. Presented by G. King, Esq., M.B., 6th March 1877.

w to aa. Three males and two females in alcohol. Andamans. Presented by Lieut.-Colonel R. C. Tytler, 1864.

bb & cc. An adult male and female in alcohol. Andamans. Collected by J. Wood-Mason, Esq., 1872.

dd. One adult female in alcohol. Andamans. Presented by J. Homfray, Esq., 1872.

The foregoing specimens from the Andaman Islands are the types of *C. marginatus*, var. *andamanensis*, Dobson, Journ. As. Soc. Beng., vol. lxii, 1873, p. 201, pl. xiv, fig. 5, but which were placed by him under *Cynopterus brachyotus*, Muller, in his Monograph of the Asiatic Chiroptera, 1876, p. 26, fig. of ear, and p. 190.

ee. A stuffed adult male. Alipore. Presented by J. Cockburn, Esq., 1st April 1878.

*ff to hh.* Skins of two males and of one young female. Penang. From the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

*ii & jj.* Two females in alcohol. Calcutta. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

*kk.* An adult male in alcohol. No history.

*ll.* A female in alcohol. Karáchi. By exchange with the Karáchi Museum, 9th September 1878.

#### 98. *Cynopterus scherzeri.*

*Pacyhsoma scherzeri*, *Fitzinger, Sitzungs. Wien. Akad.* 1860, p. 389, (*nom. nudum*).

*Cynopterus scherzeri*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 84.

*Hab.* Car-Nicobar Island.

*98a & b.* An adult female and its young in alcohol. Car-Nicobar Island. Presented by Dr. F. Stoliczka, 1873.

*c to e.* Two adult males and one young female in alcohol. Car-Nicobar Island. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

#### 99. *Cynopterus brachysoma.*

*Cynopterus brachysoma*, *Dobson, Journ. As. Soc. Beng.* 1871, p. 260; 1873, p. 202, pl. xiv, fig. 7; *ibid.*, *Cat. Chiropt. B.M.* 1878, p. 85.

*Hab.* Southern Andaman Islands.

*99a.* An adult female in alcohol. Andamans. Presented by Dr. F. Stoliczka, 1871. *Type.*

### II.—GROUP MACROGLOSSI.

#### GENUS EONYCTERIS, Dobson, 1873.

#### 100. *Eonycteris spelæa.*

*Macroglossus spelæus*, *Dobson, Proc. As. Soc. Beng.* 1871, p. 106; *Journ. As. Soc. Beng.* 1871, p. 261, pl. x, figs. 3 & 4.

*Eonycteris spelæa*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 94.

*Hab.* Burma (Farm Caves, Moulmain).—*Dobson.*

*100a to d.* Four adult females, one gravid, in alcohol. Farm Caves, Moulmain. Presented by Wm. Theobald, Esq.; 1872. *a* the Type.



*e.* A mounted skeleton of a male. Farm Caves, Moulmain. Presented by Wm. Theobald, Esq., 1872.

*f.* An adult female in alcohol. Moulmain. No history.

GENUS MACROGLOSSUS, F. Cuv., 1825.

101. *Macroglossus minimus.*

*Pteropus minimus*, *Geoffroy, Ann. du Mus.* t. xv, p. 97 (1810).

*Macroglossus minimus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 96.

*Hab.* From the Himalaya (Darjeeling) through Burma to the Malay Archipelago, and North and West Australia. Probably distributed throughout all the islands of the Malay Archipelago, and extending as far east as New Ireland.—*Dobson.*

101*a.* An adult female in alcohol, No. 57A of Blyth's Catalogue. Presented by Major Berdmore, 1858.

*b.* The skin of an immature individual. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*c.* A stuffed specimen. Siam. Collected by Dr. G. Finlayson; from the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

## II.—SUB-ORDER MICROCHIROPTERA.

### I.—FAMILY RHINOLOPHIDÆ.

#### I.—SUB-FAMILY RHINOLOPHINÆ.

GENUS RHINOLOPHUS, Geoff., 1803.

102. *Rhinolophus cælophyllus.*

*Rhinolophus cælophyllus*, *Peters, Proc. Zool. Soc.* 1866, p. 426, pl. xxxiv; *Dobson, Cat. Chiropt. B. M.* 1878, p. 104.

*Hab.* Moulmain; Tsagain, Upper Burma.

102*a* & *b.* An adult male and female in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

103. *Rhinolophus luctus.*

*Rhinolophus luctus*, *Temminck, Monogr. Mammal.* t. ii, p. 24, pl. xxx; *Dobson, Cat. Chiropt. B. M.* 1878, p. 105.

*Hab.* India (Western Ghats; Himalaya, Nepal, Masuri, Darjeeling, Sikkim; Khási Hills); Ceylon; Java; Sumatra; Borneo; Philippine Islands.—*Dobson*.

103*a*. The skin and skull of an adult, Nos. 62 A and B of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1852.

*b*. An imperfect skeleton, No. 62C of Blyth's Catalogue. Prepared from a specimen presented by B. H. Hodgson, Esq., 1842.

*c*. The skin of an adult. Darjeeling. Presented by H. J. Elwes, Esq., 1870.

*d* & *e*. An adult female and its foetus in alcohol. Darjeeling. Presented by J. Gammie, Esq., 1872.

#### 104. *Rhinolophus trifolius*.

*Rhinolophus trifolius*, *Temm., Monogr. Mamm. t. ii, 1835-41, p. 27, pl. 31*; *Dobson, Cat. Chiropt. B. M. 1878, p. 106*.

*Hab.* India (Eastern Coast); Java; Borneo.—*Dobson*.

104*a*. An adult male in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 16th December 1875.

#### 105. *Rhinolophus mitratus*.

*Rhinolophus mitratus*, *Blyth, Journ. As. Soc. Beng. vol. xiii, 1844, p. 483; xxii, 1852, p. 409*; *Dobson, Cat. Chiropt. B. M. 1878, p. 107*.

*Hab.* Peninsula of India (Cháibása).

105*a* & *b*. The skins of two adults, Nos. 63 A and B of Blyth's Catalogue. Cháibása. Presented by Lieut.-Colonel S. R. Tickell, 1843.

106. An adult female in alcohol. Darjeeling District. Presented by G. King, Esq., M.B., 6th March 1877.

#### 106. *Rhinolophus euryotis*.

*Rhinolophus euryotis*, *Temminck, Monogr. Mamm. t. ii, 1835-41, p. 26, pl. 29 fig. 5; pl. 32 figs. 13, 14, 15*; *Dobson, Cat. Chiropt. B. M. 1878, p. 108*.

*Hab.* Amboina; Aru Islands.—*Dobson*.

106*a* & *b*. An adult female and male in alcohol. Amboina. By exchange with the Berlin Museum, 1872.

107. *Rhinolophus pearsonii*.

*Rhinolophus pearsonii*, *Horsfield, Cat. Mamm. Mus. E. I. Co.* (1851) p. 33; *Dobson, Cat. Chiropt. B. M.* 1878, p. 108.

*Hab.* India (Masuri, Darjeeling, Khási and Gáro Hills, Tipai Mukh); Tibet; Yunnan (Hotha).—*Dobson*.

107*a* & *b*. Two adult males in alcohol, and the skull of *b*. Hotha, 4,500 feet, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*c*. The skin of an adult. Tipai Mukh. Lushai Expedition. Museum Collector, 1872.

108. *Rhinolophus macrotis*.

*Rhinolophus macrotis* (*Hodgson*), *Blyth, Journ. As. Soc. Beng.* xiii, p. 485; *Dobson, Cat. Chiropt. B. M.* 1878, p. 110.

*Hab.* Himalaya (Nipal, Masuri).

108 *a*. An adult female in alcohol, No. 70A of Blyth's Catalogue. Nipal. Presented by B. H. Hodgson, Esq., 1842.

*b*. Two adult males in alcohol, No. 70B of Blyth's Catalogue. Masuri. Presented by Captain T. Hutton, 1852.

109. *Rhinolophus affinis*.

*Rhinolophus affinis*, *Horsfield, Zool. Resch. in Java* (1824); *Temminck Monogr. Mamm.* t. ii, p. 31 (1835); *Dobson, Cat. Chiropt. B. M.* 1878, p. 112.

*Hab.* Peninsula of India from the Himalaya to Cape Comorin (inhabiting hill tracts); Ceylon; Burma; Sumatra; Java; Borneo.—*Dobson*.

109*a* to *f*. Six skins in very bad condition, Nos. 67 A to F of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

*g* to *i*. Three skins of adults, Nos. 68 A to C of Blyth's Catalogue. Barrackpore. Presented by Lieut.-Colonel R. C. Tytler, 1852-60.

*j* to *l*. One adult male and two females in alcohol, No. 67H of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

*m*. An adult male in alcohol. No history. Of the last three specimens, and including this, "a male and female answer to Kelaart's description of *R. rubidus*; the third, a female, to

Horsfield's original description of *R. affinis*."—*Dobson, Monogr. As. Chiroptera*, p. 195.

*n* & *o*. Two adult females in alcohol. No history.

*p*. An adult male in alcohol. Hotha, 4,500 feet. Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

† *q* & *r*. Two adult males in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*s*. The skin of an adult. Darjeeling. Presented by J. Gammie, Esq., 1872.

#### 110. *Rhinolophus andamanensis*.

*Rhinolophus andamanensis*, *Dobson, Journ. As. Soc. Beng.*, 1872, p. 337; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 113.

*Hab.* Southern Andaman Island.—*Dobson*.

110*a*. An adult male in alcohol. Andamans. Presented by J. Homfray, Esq., 1872. *Type*.

#### 111. *Rhinolophus petersii*.

*Rhinolophus petersii*, *Dobson, Journ. As. Soc. Beng.* 1872, p. 337; *ib.*, *Cat. Chiropt. B. M.* 1878, p. 113.

*Hab.* Unknown.

111*a* & *b*. Two adult males in alcohol. No history. *Types*.

#### 112. *Rhinolophus minor*.

*Rhinolophus minor*, *Horsfield, Zoolog. Resch. in Java* 1824; *Dobson, Cat. Chiropt. B. M.* 1878, p. 114.

*Hab.* Peninsula of India; Yunnan; Burma; Siam; Sumatra; Java; Borneo; Japan.—*Dobson*.

112*a* to *c*. Two adult females and one adult, sex undeterminable. No history. *Types*.

*d*. An adult female in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*e*. An adult male in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1875.

#### 113. *Rhinolophus garoensis*.

*Rhinolophus garoensis*, *Dobson, Journ. As. Soc. Beng.* 1872, p. 337; *ib.*, *Cat. Chiropt. B. M.* 1878, p. 115.

*Hab.* Gáro Hills, Assam ; Himalaya (Masuri).—*Dobson.*

113*a.* An adult female in alcohol. Gáro Hills, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1871. *Type.*

#### 114. *Rhinolophus euryale.*

*Rhinolophus euryale*, *Blasius, Archiv. fur. Naturg.* Bd. 1, p. 49 ;  
*Dobson, Cat. Chiropt. B. M.* 1878, p. 116.

*Hab.* Europe (south of the Alps); Asia Minor (Syria); Northern Africa.—*Dobson.*

114*a.* An adult female in alcohol. Pisa, Italy. By exchange with the Berlin Museum, 1872.

*b to f.* Three males and two females in alcohol. Jerusalem, Palestine, 18th April 1880. Collected and presented by Dr. J. Anderson, 28th December 1880.

#### 115. *Rhinolophus hipposideros.*

*Noctilio hipposideros*, *Bechstein, Naturg. Deutschl.* p. 1194, 1801.  
*Rhinolophus hipposiderus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 117.

*Hab.* Palæarctic Region ; Southern and Middle Europe ; North-East Africa ; Asia Minor ; Java.

115*a to c.* Two adolescent males, and one adult female in alcohol. Europe. Presented by the Hungarian Museum, April 1863.

#### 116. *Rhinolophus ferrum-equinum.*

*Vespertilio ferrum-equinum*, *Schreb. Säugeth.* Bd. 1, p. 174 (1775).  
*Rhinolophus ferrum-equinum*, *Dobson, Cat. Chiropt. B. M.*, 1878, p. 119.

*Hab.* Europe ; Africa ; Asia (Himalaya and Japan).

116*a & b.* An adult male and female in alcohol, in very bad condition ; Nos. 66 C and D of Blyth's Catalogue. Masuri. Presented by Captain T. Hutton, 1852. *R. tragatus*, Hodgson, according to Blyth.

*c.* An adult female in alcohol. Chuari, Chamba, 3,000 ft. Presented by Captain W. G. Murray, 1872.

*d.* A skin of an adult, No. 72A of Blyth's Catalogue. France. Presented by M. Melherbe, 1856.

*e.* A skin in bad condition, No. 65A of Blyth's Catalogue. Darjeeling. Presented by W. T. Blanford, Esq., 1857. Type of *R. brevitarisus*, Blyth. Dr. Dobson remarks, *l.c.*, p. 197, that this may perhaps be *R. minor*.

*f to h.* Two adult males and one adult female. Europe. Presented by the Hungarian Museum, April 1863.

117. *Rhinolophus capensis.*

*Rhinolophus capensis*, *Lichtenstein, Verz. Zool. Mus. Berl.* 1823, p. 4  
*Dobson, Cat. Chiropt. B. M.* 1878, p. 121.

*Hab.* South Africa (Zanzibar, Cape Colony).—*Dobson*

117*a.* An adult male in alcohol. Cape of Good Hope. By exchange with the British Museum, 6th September 1877.

118. *Rhinolophus*—(?)

*Rhinolophus*—(?) *Dobson, Monogr. Asiatic Chiropt. et Cat. Chiropt. Ind. Mus.* 1876, p. 196.

*Hab.* Unknown.

118*a.* An adult male in alcohol. No history.

119. *Rhinolophus*—(?)

*Rhinolophus*—(?) *Dobson, Monogr. Asiatic Chiropt. et Cat. Chiropt. Ind. Mus. Calcutta*, 1876, p. 196.

*Hab.* Unknown.

119*b.* An adult male in alcohol. No history.

II.—SUB-FAMILY PHYLLORHININÆ.

GENUS TRIÆNOPS, Dobson, 1871.

120. *Triænops persicus.*

*Triænops persicus*, *Dobson, Journ. As. Soc. Bengal*, xl, p. 455, pl. xxviii;  
*ibid.*, *Cat. Chiropt. B. M.* 1878, p. 124.

*Hab.* Shiráz, Persia, 4,750 feet.

120*a.* An adult female in alcohol. Shiráz, Persia. Presented by Lieut.-Colonel St. John, C.S.I., 1870. *Type.*

*b.* An adult female in alcohol. Shiráz, Persia. Presented by Lieut.-Colonel St. John, C.S.I., 1870. *Type.*

*c.* A skeleton of an adult male. Shiráz, Persia. Presented by Lieut.-Colonel St. John, C.S.I., 1870. *Type.*

## GENUS PHYLLORHINA, Bonaparte, 1831.

121. *Phyllorhina tridens*.

*Phyllorhina tridens* (Geoffroy), *Dobson, Cat. Chiropt. B. M.* 1878, p. 131.

*Hab.* Africa (Egypt, Zanzibar); Persia (Bushire); Sind (Karáchí).

121a to ff. Seventeen males and fifteen females in alcohol. From the temple of Denderah, Upper Egypt, 6th March 1880, where this bat occurs in immense numbers. Collected and presented by Dr. J. Anderson, 18th January 1881.

VAR. *murraiana*.

Distinguished from typical *P. tridens*, by its somewhat shorter, broader, and less pointed ears, but which otherwise conform to the characters of the ears of *P. tridens*. The projections, from the upper nose leaf are more marked than in *P. tridens* from Egypt, but in other respects the nose leaf is exactly as in it. The interfemoral and wing membranes are prolonged somewhat further down the tibia than is the case in bats of this species from Egypt, and the former membrane reaches the proximal end of the penultimate osseous caudal vertebra.

It attains to a larger size than any of the foregoing bats from Egypt, and the following are the measurements of the adult female *hh*; total length of body, 2"·30; tail 1"; head 0"·80; ear 0"·70; breadth of ear 0"·68; fore-arm 2"·07; thumb 0"·32; third finger, metacarpal 1"·46; 1st phalanx 0"·64; 2nd phalanx 0"·66; fifth finger, metacarpal 1"·16; 1st phalanx 0"·60; 2nd phalanx 0"·45; tibia 0"·74; foot 0"·40."

*gg.* An adult male in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

*hh.* An adult female in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

*ii.* An adolescent female in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

*jj.* An adult female in alcohol. Bushire. Persian Gulf. The Karáchí Museum, by exchange, 29th August 1879.

122. *Phyllorhina tricuspidata*.

*Rhinolophus tricuspidatus*, *Temm., Monogr. Mamm.* vol. ii, p. 26, pl. xxix fig. 4; pl. xxxii, figs. 11 and 12.

*Phyllorhina tricuspidata*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 131.

*Hab.* Austro-Malayan Sub-region (Morty Island; Batchian Amboina; New Ireland).—*Dobson*.

122*a*. An adult female in alcohol. Batchian. By exchange with the Berlin Museum, 1872.

### 123. *Phyllorhina stoliczkana*.

*Asellia stoliczkana*, *Dobson, Proc. As. Soc. Beng.* May 1871, p. 106; *Journ. As. Soc. Bengal*, 1871, p. 263, pl. xx fig. 1.  
*Phyllorhina stoliczkana*, *Cat. Chiropt. B. M.* 1878, p. 132.

*Hab.* Penang.

123*a*. An adult male in alcohol. Penang. Presented by Dr. F. Stoliczka, 1871. *Type*.

### 124. *Phyllorhina armigera*.

*Rhinolophus armiger*, *Hodgson, Journ. As. Soc. Beng.* iv, 1835, p. 699.  
*Phyllorhina armigera*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 135.

*Hab.* Himalaya (Masuri; Darjeeling; Nepal; Khási Hills); Ceylon; China (Amoy).—*Dobson*.

124*a*. An adult male in alcohol, No. 74A of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1852.

*b*. A skin of an adult female in bad condition, No. 74 B of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1852.

*c*. An adult female in alcohol. Khási Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870.

*d to f*. Two adolescent females and one very young female in alcohol. Shillong, Khási Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

*g & h*. Two adult females in alcohol. Katmandu, Nepal. Museum Collector, 1871.

*i*. Skin of an adult male. Darjeeling. Presented by H. J. Elwes, 1871.

*j*. Skin of an adult male. Dr. Cantor. Penang. From the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

### 125. *Phyllorhina leptophylla*.

*Phyllorhina leptophylla*, *Dobson, Journ. As. Soc. Bengal*, 1874, p. 234; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 136.

*Hab.* Khási Hills; Eastern Bengal.—*Dobson*.



125a. An adult male in alcohol. Khási Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870. *Type*.

### 126. *Phyllorhina diadema*.

*Rhinolophus diadema*, *Geoffroy*, *Ann. Mus. d'Hist. Nat.* livr<sup>n</sup> xx, p. 263.  
*Phyllorhina diadema*, *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 137.

*Hab.* Peninsula of India generally; Ceylon; Burma; Sumatra; Java; Borneo; Timor; Batchian Island; Amboina; Aru Islands; Philippine Islands.—*Dobson*.

126a & b. An adult male and female in alcohol, Nos. 75 A and B of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852. *H. lankadiva*, Kelaart.

c. Skin of an adult female in bad condition, No. 75C of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

d. Imperfect skeleton of an adult, No. 75D of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

e. A stuffed adult, No. 76A of Blyth's Catalogue. Moulmain. Presented by Lt.-Colonel S. R. Tickell, 1858.

f. An adult female in alcohol. Darjeeling. Presented by Dr. J. Anderson, 1867.

g to i. Three skins of adults. Udaipur. Presented by V. Ball, Esq., 1871.

j. An adult male in alcohol. Pullandur, Central Provinces. Presented by W. T. Blanford, Esq., 1871.

k. The skull of an adult. No history.

#### VAR. a.

*Phyllorhina masoni*, *Dobson*, *Journ. As. Soc. Beng.* 1872, p. 338; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 138.

*Hab.* Moulmain, Burma.

l. An adult male in alcohol. Moulmain. Presented by Captain Hood, 1872. *Type*.

### 127. *Phyllorhina nicobarensis*.

*Phyllorhina nicobarensis*, *Dobson*, *Journ. As. Soc. Beng.* 1871, p. 262, pl. xx fig. 2; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 138.

*Hab.* Nicobar Islands.

127a. An adult female in alcohol. Nicobars. Presented by Dr. F. Stoliczka, 1871. *Type*.

128. *Phyllorhina galerita*.

*Hipposideros galeritus*, *Cantor, Journ. As. Soc. Beng.* 1846, p. 183.

*Phyllorhina galerita*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 141.

*Hab.* Peninsula of India (Deccan) ; Penang ; Java ; Labuan.  
—*Dobson*.

128*a*. An adult female in alcohol. Lingsugur, Deccan.  
Presented by G. E. Dobson, Esq., M. B., 1876.

129. *Phyllorhina speoris*.

*Vespertilio speoris*, *Schneider, Suppl. Schreber, Säugeth. Atlas*, i,  
pl. 59 B.

*Phyllorhina speoris*, *Dobson, Cat. Chiropt. B. M.* 1878, pp. 143 et  
553.

*Hab.* Oriental Region (Peninsula of India ; Ceylon ;  
Burma ; Java and probably the other islands of the Malay  
Archipelago in the Indo-Malayan Sub-region).—*Dobson*.

129*a* & *b*. An adult female and male in alcohol, Nos. 78 A  
and B of Blyth's Catalogue. South India. Presented by  
Sir Walter Elliot, 1842.

*c*. Skin of an adult, No. 78C of Blyth's Catalogue. South  
India. Presented by Sir Walter Elliot, 1842.

*d* to *g*. Four skins of adults, Nos. 78 D to G of Blyth's  
Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

*h*. Skin of an adult, No. 78J of Blyth's Catalogue.  
Dehra Dun. Presented by L. C. Stewart, Esq., 1854.

*i*. Skull of an animal from the Deccan, No. 78K of  
Blyth's Catalogue. No history.

*j* to *n*. An adult male and female, and one young male,  
and two young females in alcohol. Ceylon. Presented by  
E. L. Layard, Esq.

*o*. An adult male in alcohol. Prome, Burma. Dr. J.  
Anderson. Presented by the 1st Expedition to Western  
Yunnan, 1868.

*p*. An adult female in alcohol. Chánda. Museum Col-  
lector, 1869.

*q* to *s*. An adult male and female and young in alcohol.  
Trichinopoly. Presented by Lieut.-Colonel Beddome, 19th  
November 1877.

*t* to *u*. Two adult females in alcohol. Travancore. Pre-  
sented by Lt.-Colonel Beddome, 9th September 1878.

130. *Phyllorhina larvata*.

*Rhinolophus larvatus, vulgaris, insignis et deformis, Horsfield, Zoolog. Resch. in Java (1824).*

*Phyllorhina larvata, Dobson, Cat. Chiropt. B. M. 1878, p. 145.*

*Hab.* Eastern Bengal (Khási hills; Sylhet, Goálpára, Arakan); Burma; Penang, Prome, Tenasserim; Siam; Java; Philippine Islands.—*Dobson*.

130*a to c.* Three skins of adults, Nos. 77 A to C of Blyth's Catalogue: in bad condition. Arakan. Presented by Sir Arthur Phayre, 1842.

*d to f.* Three skins of adults; Nos. 77 D to G. The skull of *d* separate. Sylhet. Presented by F. Skipwith, Esq., C.S., 1853.

*g.* An adult male in alcohol. Goálpára, Assam. Presented by H. L. Houghton, Esq., 1868.

*h to y.* Six males and twelve females in alcohol. Caves on right bank of Irrawadi opposite to Prome, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. The skull of *m* separate.

*z to bb.* Two adult males and a gravid female in alcohol. Khási hills. Presented by Lieutenant J. H. Bourne, 1872.

*cc.* An adult female in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*dd to hh.* One male and four adult females. Pegu. Presented by W. Theobald, Esq., 1872.

*ii.* The skeleton of an adult from the caves opposite to Prome, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*jj.* An imperfect skull of an adult from the caves opposite to Prome, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*kk & ll.* Two adult males in alcohol from Ashoun, Tenasserim. Presented by W. T. Blanford, Esq., 4th March 1877.

*mm & nn.* Two adult males in alcohol from near Moulmain. Presented by W. T. Blanford, Esq., 9th September 1878.

*oo.* A female in alcohol. Prome. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

131. *Phyllorhina bicolor*.

*Rhinolophus bicolor, Temm., Monogr. Mammal. t. ii, p. 18.*

*Phyllorhina bicolor, Dobson, Cat. Chiropt. B. M. 1878, p. 148.*

*Hab.* The Oriental Region. Typical examples have been found chiefly in the Indo-Malayan Sub-region (Nicobar Islands, Java, Borneo, Philippine Islands). Two of the varieties (*Phyllorhina amboinensis* and *P. aruensis*) extend into the northern parts of the Australian Region.—*Dobson*.

131*a* to *k*. Seven adult females, and four newly-born females, reddish chestnut, in alcohol. Nicobar Islands. Presented by J. Wood-Mason, Esq., 1873.

VAR. *a.* *Phyllorhina fulva*.

*Hipposideros fulvus* et *murinus*, *Gray, Mag. Zool. & Bot.* vol. ii, p. 492 (1838).

*Phyllorhina fuiva*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 149.

*Hab.* The continental parts of the Oriental Region; India, Ceylon, Burma, China (Amoy).—*Dobson*.

132*a*. The skin of an adult, No. 79A of Blyth's Catalogue and type of *Hipposideros cineraceus*, Blyth. Pind Dádan Khán, Punjab Salt Range. Presented by W. Theobald, Esq., 1853.

*m* to *o*. An adult male and two adult females in alcohol: *m* and *n* are No. 79B of Blyth's Catalogue, whereas *o* is No. 80A of Blyth's Catalogue, and is a small specimen with the wings from the side of the tarsi: taken from an unlabelled bottle containing several species. *m* and *n* are from Pind Dádan Khán, Punjab Salt Range. Presented by W. Theobald, Esq., 1853. The history of *o* is unknown.

*p* to *s*. A young male and two adolescent males, and one adolescent female; probably No. 80B of Blyth's Catalogue. No history.

*t*. Skin of an adult in very bad condition. South India. Presented by Sir Walter Elliot, 1842.

*u* & *v*. Two skins of adults. Chánda. Museum Collector, 1867.

*w* & *x*. Two adult males in alcohol and the skull of *w*. Pensee. Kakhyen hills, 3,500 ft. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*y* to *cc*. Five adult males in alcohol: fur bright golden yellow throughout. Cave No. 5, Tsagain, right bank of the Irrawadi, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*dd* to *ee*. An adult male and female in alcohol: fur white at the base, with dark-brown extremities. Cave No. 4, Tsagain, right bank of the Irrawadi, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*ff to qq.* Nine adult males and three adult females in alcohol: fur white at the base, with dark-brown extremities. Cave No. 8, Tsagain, right bank of the Irrawadi, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*rr.* The skin of an adult female. Agra. Presented by the Trustees of the Riddell Museum, Agra, 1869.

*ss.* An adult female in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870.

*tt & uu.* An adult male and female in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*vv.* An adult female in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*ww to yy.* Two males and a female in alcohol. Kachh. Presented by Dr. F. Stoliczka, 1872.

*zz to ddd.* Three females and two adult males. Prome, Burma. Presented by W. Theobald, Esq., 1872. The three females are pregnant, and the fur is bright golden yellow.

*eee.* An adult male in alcohol: very dark coloured. Názira, Assam. Presented by J. M. Foster, Esq., 1872.

*fff to iii.* Three males and one female in alcohol. Gauri Ságar Temple, Assam. Presented by J. M. Foster, Esq., 1875.

*jjj.* A skin of an adult. Cachar. Museum Collector, 1868.

*kkk & ll.* An adult and an adolescent male in alcohol. Travancore. Presented by Lt.-Colonel Beddome, 9th September 1878.

*mmm & nnn.* An adult female and male in alcohol. Allahabad. Presented by John Cockburn, Esq., 20th March 1877.

*ooo.* An adult in alcohol. Chárápunjí. Bequeathed by Dr. F. Stoliczka to the Asiatic Society of Bengal, 15th December 1875.

VAR. *b.* *Phyllorhina amboinensis.*

*Phyllorhina amboinensis*, Peters, *M. B. Akad. Berl.* 1871, p. 323; *Dobson, Cat. Chiropt. B. M.* 1878, p. 150.

*Hab.* Amboina; Peninsula of India.—*Dobson.*

*ppp & qqq.* An adult male and female in alcohol. Lingsugur, Deccan. Presented by G. E. Dobson, Esq., M.B., 1876.

132. *Cœlops frithii.*

*Cœlops frithii*, Blyth, *Journ. As. Soc. Beng.* vol. xxii, p. 251; vol. xxi, p. 361; *Dobson, Cat. Chiropt. B. M.* 1878, p. 152.

*Hab.* Bengal (Sundarbans) ; Java.

132a. A skin in a very dilapidated condition, No. 81A of Blyth's Catalogue. Sundarbans, Bengal. Presented by R. W. G. Frith, Esq., 1846. *Type.*

## II.—FAMILY NYCTERIDÆ.

### I.—SUB-FAMILY MEGADERMINÆ.

GENUS MEGADERMA, Geoffroy, 1810.

SUB-GENUS LYRODERMA, Peters.

#### 133. *Megaderma lyra.*

*Megaderma lyra*, Geoffroy, *Ann. du Muséum*, t. xv, p. 190 (1810); p. 5 (1839); *Suppl. Schreb., Säugeth.* v, p. 641 (1855); Dobson, *Cat. Chiropt. B. M.* 1878, p. 156.

*Hab.* Peninsula of India (from Kashmir to Cape Comorin) ; Ceylon.—Dobson.

133a to c. The skins of two adult females and of one adult, Nos. 59 B, C, and D of Blyth's Catalogue, Calcutta.

d & e. The skins of two adult males, No. 59E of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

f to h. Two adult females and one adult male in alcohol. No history.

i & j. Two imperfect skeletons, one wanting the skull ; Nos. 59 I and J of Blyth's Catalogue. Presented by Mr. W. Masters, 1842.

k & l. An adult male and a foetus in alcohol. Rániganj. Purchased.

m to p. The skins of three adult males and one female. An old Fort near Chánda, Central Provinces. Museum Collector, 1867.

q & r. A stuffed adult and the skin of an adult. Singhbhum. Presented by V. Ball, Esq., 31st February 1869.

s to u. Two males and one female in alcohol, one of the males newly born. No history.

v to aa. Five males, and one female in alcohol. These are all mature foetuses. Agra. Presented by the Trustees of the Riddell Museum, 1869.

bb to cc. A skin and a stuffed adult. Agra. Presented by the Trustees of the Riddell Museum, 1869.

*dd to ee.* Two adult males in alcohol. Sylhet. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870.

*ff to qq.* Five adult females, one young female, and four young males and two newly-born males. All of these specimens were obtained at the same time and place in an out-house at Mr. Shillingford's indigo factory near Purneah; all the young, even the largest, were adherent to the teats, some attached to the abdominal, and others to the pectoral nipples, and I observed that they moved about with great energy from one teat to another. Besides these I examined about forty other females, and each had only one young one with it. Presented by Dr. J. Anderson, 1872.

*rr to tt.* Two females and one male in alcohol. Nássik. Presented by Lt.-Colonel Haughton, 1872.

*uu.* A perfect skeleton prepared from an example without a history, 1872.

*vv.* An adult male in alcohol. Alipore, Calcutta. Presented by J. Cockburn, Esq., 1877.

*ww.* An adult male in alcohol. Gházipur. Presented by W. Whitwell, Esq., 5th December 1877.

*xx to zz.* A young male and two adult females in alcohol. Travancore. Presented by Lt.-Colonel Beddome, 9th September 1878.

*aaa.* The skin of an adult, in bad condition. Nepal. From India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

*bbb & ccc.* An adult male from Purneah and an adult female from Rániganj in alcohol. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

#### 134. *Megaderma spasma.*

*Vespertilio spasma*, *Linnaeus, Syst. Nat.* 1758, p. 32.

*Megaderma spasma*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 157.

*Hab.* Malayan Peninsula, Malacca; Siam; Philippine Islands, Ternate, Celebes, Sumatra, Java (?), Ceylon.—*Dobson.*

134*a.* The skin of an adolescent, No. 61A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*b & c.* The skins of two adults, Nos. 61 B & C of Blyth's Catalogue. Malacca. Presented by Mr. W. G. Moxon, 1850.

*d & e.* An adult female and male in alcohol, Nos. 60 A & B of Blyth's Catalogue. Tenasserim. Presented by W. Theobald, Esq., 1855. The Types of *M. horsfieldi*, Blyth.

## II.—SUB-FAMILY NYCTERINÆ.

## GENUS NYCTERIS, Geoffroy, 1803.

135. *Nycteris javanica*.

*Nycteris javanicus*, Geoffroy, *Ann. du Mus.*, t. xx, p. 20 (1813).

*Nycteris javanica*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 164.

*Hab.* Java ; Malayan Peninsula (Malacca).—Dobson.

135a. The skin of an adult, No. 82A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1846.

b. The skin and skull of an adult, in bad condition ; No. 82B of Blyth's Catalogue. Malacca. Presented by Mr. W. G. Moxon, 1851.

136. *Nycteris thebaica*.

*Nycteris thebaica*, Geoffroy, *Descr. de l'Egypt*, t. ii, p. 119, 1812, pl. 1, No. 2.

*Nycteris thebaica et capensis*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 165.

*Hab.* South and East Africa.

136a. An adult female in alcohol. The minute second premolar is in the line of the other teeth, but in all its other characters this specimen corresponds to the figure and description of *N. thebaica*. There does not appear, in view of the relations of the second premolar in this specimen, to be any valid reason for separating *N. thebaica* as a species distinct from *N. capensis*. The ruins of Karnak, Upper Egypt, 23rd March 1880. Collected and presented by Dr. J. Anderson, 15th January 1881.

## III.—FAMILY VESPERTILIONIDÆ.

## I.—GROUP PLECOTI.

## GENUS NYCTOPHILUS, Leach, 1822.

137. *Nyctophilus timoriensis*.

*Nyctophilus timoriensis* (Geoffroy), Dobson, *Cat. Chiropt. B. M.* 1878, p. 172.

*Hab.* The Australian Region ; from the Island of Timor to Tasmania, from West Australia to the Fiji Islands.—Dobson.



137*a*. The skin of an adult, No. 97A of Blyth's Catalogue. Presented by the Sydney Institution, 1846.

GENUS SYNOTUS, Keys & Blas., 1839.

138. *Synotus dargelinensis*.

*Plecotus dargelinensis*, *Hodgson, Ann. & Mag. Nat. Hist.* 1855, vol. xvi, p. 103.

*Synotus dargelinensis*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 177.

*Hab.* India (Darjeeling, Khási Hills, Sikhim, Masuri, Simla); Yárkand.—*Dobson*.

138*a* & *b*. An adult male and female in alcohol, Nos. 116 A & B of Blyth's Catalogue. Masuri. Presented by Capt. T. Hutton, 1844.

*c*. An adult female in alcohol. Darjeeling. Presented by Dr. J. Anderson, 1869.

*d*. An adult female in alcohol. Láchung, Sikhim, 8,000 ft. Presented by W. T. Blanford, Esq., 1872.

*e*. An adult female in alcohol. Simla. Presented by Moulvie Ator Ruhman, 1872.

*f*. An adult female in alcohol. Dr. F. Stoliczka. Yangi-hissar, between Káshghar and Yárkand. Presented by the Second Yárkand Mission, 1874.

*g*. A skull. No history.

GENUS PLECOTUS, Geoffroy, 1812.

139. *Plecotus auritus*.

*Vespertilio auritus*, *Linn., Syst. Nat.* 12th ed., 1766, p. 47; *Dobson, Cat. Chiropt. B. M.* 1878, p. 178.

*Hab.* The Palæarctic Region, extending from Ireland through Europe and North Africa to the Himalaya, and probably generally distributed throughout the temperate parts of Asia.—*Dobson*.

139*a*. An adult female in alcohol, No 114A of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1853.

*b* & *c*. The skins of two adults, Nos. 114 B & C of Blyth's Catalogue. England. Presented by H. E. Strickland, Esq., and Mr. Davison, 1844-47.

*d*. A stuffed adult, No. 114D of Blyth's Catalogue. France. Presented by M. Melherbe, 1854.

*e.* An adult in alcohol. Berlin. By exchange with the Berlin Museum, 1872.

*f.* An adult male in alcohol. Netley, England. Presented by G. E. Dobson, Esq., M.B., 1876.

*g to k.* Two males and three adult females in alcohol. Leh. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

*l to v.* Three males and seven females in alcohol. From the tombs of the Kings, Babel Moulouk. Left bank of the Nile, Upper Egypt. Collected and presented by Dr. J. Anderson, 18th January 1881.

## II.—GROUP VESPERTILIONES.

GENUS VESPERUGO, Keys and Blas., 1839.

SUB-GENUS VESPERUS.

### 140. *Vesperugo serotinus.*

*Vespertilio serotinus*, Schreber, *Säugeth.*, Bd. i, p. 167, pl. 53.

*Vesperugo serotinus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 191.

*Hab.* The Palæarctic, Ethiopian, Oriental, Nearctic, and Neotropical regions.—*Dobson.*

140*a & b.* Two skins. Shiráz, South Persia. Museum Collector, 1871. Types of *Hesperus shiraziensis*, Dobson.

*c.* The skin of an adult, No. 100A of Blyth's Catalogue. France. Presented by M. Melherbe, 1852.

*d.* An adult female in alcohol. Galicia. By exchange with the Berlin Museum, 1872.

*e to h.* Two adult males, an adult female, and a young female. Kashmir. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

*i to j.* Two females in alcohol. Shiráz, South Persia. W. T. Blanford, Esq. Presented by the Eastern Persian Boundary Commission, 1871-72.

*k & l.* An adult male in alcohol. Darrang, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

### 141. *Vesperugo andersoni.*

*Vesperus andersoni*, Dobson, *Proc. As. Soc. Beng.* Sept. 1871, p. 211.

*Vesperugo andersoni*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 195.

*Hab.* Teng-yue-chow, Yunnan.

141a. An adult male in alcohol. Teng-yue-chow, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. *Type*.

b. The skeleton of an adult male. Teng-yue-chow, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. *Type*.

#### 142. *Vesperugo nasutus*.

*Vesperugo nasutus*, Dobson, *Journ. As. Soc. Beng.* p. 311, 1877; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 200.

*Hab.* Shikárpur, Sind.

142a. An adult male in alcohol. Shikárpur, Sind. Presented by W. T. Blanford, Esq., 9th August 1878. *Type*.

#### 143. *Vesperugo atratus*.

*Nycticejus atratus*, Blyth, *Cat. Mamm. Mus. As. Soc. Beng.*, No. 96. *Vesperugo atratus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 206.

*Hab.* Himalaya (Darjeeling).

143a & b. Two adult females in alcohol, Nos. 96 A & B of Blyth's Catalogue; one much dilapidated. Darjeeling. Presented by Major W. S. Sherwill, 1853. Types of *Nycticejus atratus*, Blyth.

c. The skin of an adult in bad condition. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

#### 144. *Vesperugo discolor*.

*Vespertilio discolor*, Natterer, *Kuhl, Deutsch. Flederm. Wetter. Ann.* vol. iv (1819).

*Vesperugo discolor*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 204.

*Hab.* The Palæarctic Region. In Europe extending from England through Southern Sweden and Russia to the Ural Mountains, and southwards through France, Germany and Italy; chiefly found, however, in the mountain tracts of these countries. In Asia recorded as yet from Western Siberia (Barnaul) and Eastern Turkistan (Kizil, Yangihissar) only.—Dobson.

144a. An adult male in alcohol. Berlin. By exchange with the Berlin Museum, 1875.

b & c. An adolescent male and female in alcohol. Kizil. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

*d & e.* An adult and adolescent female in alcohol. Yangi-hissar. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

#### 145. *Vesperugo pachyotis.*

*Vesperugo (Vesperus) pachyotis*, Dobson, *Proc. As. Soc. Beng.* 1871, p. 211; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 206.

*Hab.* Khási Hills, Assam.

145*a & b.* An adult male and female in alcohol. Khási Hills. Presented by Lieutenant J. H. Bourne, 1872.

#### 146. *Vesperugo pachypus.*

*Vespertilio pachypus*, Temminck, *Monogr. Mammal.* vol. ii, p. 217, pl. 54, figs. 4-6.

*Vesperugo pachypus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 208.

*Hab.* Oriental Region; Peninsula of India (Darjeeling); Tenasserim Province; Andaman Islands; Sumatra, Java, Philippine Islands.—*Dobson.*

146*a to e.* An adult male and four females in alcohol, No. 103A of Blyth's Catalogue. Tenasserim. Presented by Major Berdmore, 1858. Types of *Scotophilus fulvidus*, Blyth.

*f & g.* Two adult females in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*h.* The skin of an adult. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*i to s.* Nine adult females, and one adult and one adolescent male in alcohol. Andamans. Presented by J. Homfray, Esq., 1871.

*t to ff.* Seven females and six males in alcohol. Andamans. Collected by J. Wood-Mason, Esq., 1872.

*gg.* The skeleton of an individual from the Andamans. Collected by J. Wood-Mason, Esq., 1872.

*hh.* A skull. No history.

*ii.* An adult female in alcohol. Darjeeling. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka.

*jj.* An adult female in alcohol. Andaman Islands. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

#### SUB-GENUS VESPERUGO.

#### 147. *Vesperugo noctula.*

*Vespertilio noctula*, Schreber, *Säugeth.* Bd. i, p. 166, pl. 52 (1775).

*Vesperugo noctula*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 212.

*Hab.* Palæartic, Ethiopian, and Oriental Regions, extending from England to Japan, and from the Scandinavian Peninsula to Southern Africa. In Europe generally distributed; in Asia extending from Western Turkestan along the Himalayas and other mountain ranges to Ceylon, and through the Malay Peninsula to Sumatra and Java; in Africa recorded from the northern parts, and from Mozambique.—*Dobson*.

147*a.* The skin of an adult, No. 89A of Blyth's Catalogue. England. Presented by H. E. Strickland, Esq., 1845.

*b* & *c.* Two skins of adults, Nos. 89 B and C of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1844.

*d.* An adult male in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*e.* An adult female in alcohol. Galicia. By exchange with the Berlin Museum, 1872.

#### 148. *Vesperugo leisleri*.

*Vespertilio leisleri*, *Kuhl, Ann. Wetteran. Gesellsch. Naturk.* 1819, Bd. i, p. 47.

*Vesperugo leisleri*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 215.

*Hab.* Europe and the temperate regions of Asia, extending from the Azores to the Himalaya.

148*a.* The skin of an adult, No. 102A of Blyth's Catalogue. England. Presented by H. E. Strickland, Esq., 1845.

*b.* An adult female in alcohol. Brandenburg. By exchange with the Berlin Museum, 1872.

#### 149. *Vesperugo imbricatus*.

*Vespertilio imbricatus*, *Horsfd., Zool. Resch. in Java*, 1874.

*Vesperugo imbricatus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 217.

*Hab.* Malayan Peninsula (Malacca); Java.—*Dobson*.

149*a.* An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

#### 150. *Vesperugo maurus*.

*Vesperugo maurus*, *Blasius, Wiegmann, Arch.* 1853, p. 35; *Dobson, Cat. Chiropt. B. M.* 1878, p. 218.

*Hab.* The Palæartic and Oriental Regions, extending from the Canary Islands (Palma, Teneriffe) and Middle

Europe (Switzerland and Tyrol) to China (Pekin, Amoy, Cochin China), India (Khási Hills) and the Malay Archipelago (Java).—*Dobson*.

150*a*. An adult male in alcohol. Geneva. By exchange with the Berlin Museum, 1872.

*b*. An adult male in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1871. Type of *Vesperugo austenianus*, Dobson.

*c*. An adult male in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1875.

*d*. An adult female in alcohol. Allahabad. Presented by John Cockburn, Esq., 19th March 1877.

*e*. An adult male in alcohol. Sind. By exchange with the Karáchí Museum, 4th June 1878.

*f*. An adult female in alcohol. Assam. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka.

#### 151. *Vesperugo affinis*.

*Pipistrellus affinis*, Dobson, *Proc. As. Soc. Beng.* 1871, p. 213.

*Vesperugo affinis*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 220.

*Hab.* Upper Burma (Bhamo, 450 feet).

151*a*. An adult female in alcohol. Bhamo, Upper Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. *Type*.

#### 152. *Vesperugo pipistrellus*.

*Vespertilio pipistrellus*, Schreb., *Säugeth.* i, p. 167, pl. 54 (1775).

*Vesperugo pipistrellus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 223.

*Hab.* The Palæarctic Region, apparently generally distributed.—*Dobson*.

152*a*. An adult male in alcohol. Berlin, Prussia. By exchange with the Berlin Museum, 1872.

*b*. An adult male in alcohol. England. Presented by G. E. Dobson, Esq., M.B., 1876.

*c to j*. Three adult and one adolescent male, and four adult females in alcohol. Yangihissar. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

*k to p*. Three males and three females in alcohol. Kárghalik, south of Yárkand, 29th and 30th May 1874. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

*q & r.* An adult male and female. Kashmir. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1873-74.

*s.* An adult female in alcohol. By exchange with the Berliu Museum, 1872. Labelled *V. nathusii*, Keys and Blas.

*t.* The skin of an adult, No. 104A of Blyth's Catalogue. Amoy, China. Presented by R. Swinhoe, Esq., 1859. *Scotophilus pumiloides*, Tomes *apud* Blyth.

### 153. *Vesperugo abramus*.

*Vespertilio imbricatus*, *Temm.* (non *Horsfield*) *Monogr. Mammal.* t. ii, p. 216, pl. 54; *Wagner, Suppl. Schreb. Säugeth.* v, p. 738 (1855).

*Vespertilio abramus*, *Temm., l. c.*, p. 232, pl. 58; *Wagner, l. c.*, p. 739.

*Vesperugo abramus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 226.

*Hab.* Apparently generally distributed throughout the Oriental Region, extending from India through Burma and China to Southern Japan and the Islands of the Malay Archipelago; also to the northern part of the Australian Region (Celebes, New Guinea, North Australia); found during the summer months in the Palæarctic Region throughout middle Europe (*Blasius*) from the Rhine to Southern Russia, and from Northern Germany to the Mediterranean, even extending into Sweden (*Nilsson*).—*Dobson*.

153*a to c.* Three skins of adults in very bad condition, No. 105A of Blyth's Catalogue, Calcutta. No history. *Scotophilus coromandelianus*, F. Cuv., after Blyth.

*d & e.* An adult male and female in alcohol; No. 105B of Blyth's Catalogue, Calcutta. No history.

*f to h.* Three skulls in bad condition, No. 105C of Blyth's Catalogue, Calcutta. No history.

*i to l.* One male and three females in alcohol. No history.

*m.* An adult male in alcohol. Nicobars. Presented by J. Homfray, Esq.

*n.* An adult male in alcohol. Pegu. Presented by Dr. F. Stoliczka, 1871.

*o.* A young male in alcohol. Chánda. Museum Collector, 1867.

*p & q.* An adult male and female in alcohol. Cachar. Museum Collector, 1867.

*r to x.* Four young males, one adolescent male and one adult, and one adolescent female. Shiráz, Persia. Museum Collector, 1871.

*y.* The skin of an adult. Darjeeling. Presented by H. J. Elwes, Esq., 1871.

*z.* The skin of an adult. Hazáribágh. Presented by W. T. Blanford, Esq., 1872.

*aa.* The skin of an adult. Darjeeling. Presented by L. Mandelli, Esq., 1872.

*bb to mm.* Two adult and one adolescent males, and eight adult and one adolescent females. Khási Hills. Presented by Lieutenant J. H. Bourne, 1872.

*nn to rr.* Five skins of immature specimens. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*ss to vv.* Four adolescent males in alcohol. Pachwára. Presented by H. Whitwell, Esq., 1872.

*ww.* An adult female in alcohol. Hazáribágh. Presented by W. T. Blanford, Esq., 1872.

*xx.* An adult female in alcohol. Sirguja. Presented by W. T. Blanford, Esq., 1872.

*yy to bbb.* One adult, one adolescent, and one young female, and one young male in alcohol. Goálpára, Assam. Presented by H. L. Houghton, Esq., 1872.

*ccc & ddd.* Two adult females in alcohol. Gáro Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1872.

*eee & fff.* An adult male and female in alcohol. Nazira, Assam. Presented by J. M. Lister, Esq., 1872.

*ggg.* An adult female in alcohol. Manipur Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

*hhh to kkk.* One adult male and three adult females. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*lll.* An adult male in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*mmm to sss.* Three males and four females in alcohol. Chutia Nágpur. Presented by W. T. Blanford, Esq., 1872.

*ttt & uuu.* An adult female and an adolescent male in alcohol. Purneah. Presented by Dr. J. Anderson, 1872.

*vvv.* An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

*www to bbbb.* Six adult males in alcohol. Darjeeling. Presented by W. S. Atkinson, Esq., 1872.

*cccc to mmmm.* One adult, two adolescent, and one young male; and one adult, four adolescent, and two young females in alcohol. India, 1872. No history.

*nnnn to rrrr.* Two adult, one gravid, and two adolescent females in bad condition in alcohol. Rájanpur, Punjab Frontier. Presented by G. E. Dobson, Esq., M.B., 1872.

*ssss to aaaaa.* Two adult and three young males, and three adult and one young female, in alcohol. Darrang, Assam,



Duffla Expedition 1874. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

bbbb. An adult in alcohol. Sind. Presented by W. T. Blandford, Esq., 9th September 1878.

cccc. An adolescent male in alcohol. Calcutta. Presented by G. E. Dobson, Esq., M.B., 9th September 1878.

dddd. An adult female in alcohol. Japan. By exchange with the Berlin Museum, 1872.

This specimen in the catalogue of the Asiatic Chiroptera was (p. 216) referred to *V. akokumuli*, Temm.

eeee. The skeleton of an adult female from the Khási Hills. Presented by Lieut. J. H. Bourne, 8th April 1873.

#### 154. *Vesperugo kuhlii*.

*Vespertilio kuhlii*, *Natt. in Kuhl, Deutsch. Flederm. Wetteran Ann.* iv, p. 58 (1817).

*Vesperugo kuhlii*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 230.

*Hab.* Southern Europe, countries south of the Pyrenees, and the Alps; Northern Africa; Southern Asia, Palestine, Persia, Balúchistán, India; probably generally distributed throughout these countries.—*Dobson*.

154a & b. Two skins of adults in very bad condition, No. 99A of Blyth's Catalogue. Calcutta. No history, Types of *Nycticejus canus*, Blyth.

c & d. Two skins of adults. Cachar. Museum Collector, 1867.

e & f. Two very young females in alcohol. Calcutta. Presented by Mr. Dillon, 1866.

g. An adolescent male in alcohol. Calcutta. Presented by Dr. J. Anderson, 1870.

h. An adult female in alcohol. Purneah. Presented by Dr. J. Anderson, 1872.

i & j. An adolescent male and an adult female in alcohol. Dhappa, Calcutta. Presented by O. L. Fraser, Esq., 1872.

k & l. An adult male and female in alcohol. Lingsugur, Deccan. Presented by G. E. Dobson, Esq., M.B., 1876.

m & n. An adult male and female in alcohol. North Italy. By exchange with the Berlin Museum, 1872.

o. Skin of an adult. Shiráz, Persia. Museum Collector, 1871.

p. An adult male in alcohol. Rájanpur, Punjab Frontier. Presented by W. F. Murray, Esq., M.B., 1871. Type of var. *leucotis*, Dobson.

*q to s.* Three adult females in alcohol. South-East Persia. W. T. Blanford, Esq. Eastern Persia Commission, 1872.

*t.* One adult male in alcohol. Shiráz, South Persia. W. T. Blanford, Esq. Eastern Persia Boundary Commission, 1872.

*u.* One adult female. Karmán, South-East Persia. W. T. Blanford, Esq. Eastern Persia Boundary Commission, 1872.

*v.* An adult female in alcohol. Bampúr, Balúchistán. W. T. Blanford, Esq. Eastern Persia Boundary Commission, 1872.

*w to y.* An adult and adolescent male and one adult female in alcohol. Shikárpur, Sind. Presented by W. T. Blanford, Esq., 9th September 1878.

*z to bb.* An adult female with two fetuses. Calcutta. Presented by Mr. H. Phillip, 24th March 1875.

*cc.* A stuffed specimen in bad condition. Sent by the Asiatic Society of Bengal to the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880. Labelled *Scotophilus lobatus*, Gray.

#### 155. *Vesperugo annectens*.

*Pipistrellus annectens*, Dobson, *Proc. As. Soc. Beng.* 1871, p. 213.

*Vesperugo annectens*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 234.

*Hab.* Nágá Hills, Assam.

155*a.* An adult female in alcohol. Nágá Hills, Assam. Presented by Captain J. Butler, 1871. *Type*.

#### SUB-GENUS HESPEROPTERUS, Peters.

#### 156. *Vesperugo tickelli*.

*Nycticejus tickelli*, Blyth, *Journ. As. Soc. Beng.* xx, p. 157.

*Vesperugo tickelli*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 240.

*Hab.* Peninsula of India (Cháibásá, Jashpur, Sirgnja); Ceylon.—Dobson.

156*a to c.* Three skins of adults, Nos. 95 A to C of Blyth's Catalogue. Cháibásá. Presented by Lt-Colonel S. R. Tickell, 1842. *Types*.

*d.* A skull, No. 95D of Blyth's Catalogue from an individual. Presented by Lt.-Colonel S. R. Tickell, 1842.

*e to g.* An adult male and two females in alcohol. Andamans. Presented by Lt.-Colonel R. C. Tytler, 1864.

*h.* A skin of an adult. Singhbhúm. Museum Collector, 1869.

*i.* An adult male in alcohol. Sirguja. Presented by W. T. Blanford, Esq., 1871.

*j.* The skin of an adult. Jashpur. Presented by W. T. Blanford, Esq., 1871.

*k.* An adult male in alcohol. Tenasserim. Presented by W. T. Blanford, Esq., 9th September 1878.

157. *Vesperugo blanfordi*.

*Vesperugo blanfordi*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 242.

*Hab.* Tenasserim.

157*a.* An adult male in alcohol. Tenasserim. Presented by W. T. Blanford, Esq., 9th September 1878. *Type.*

*b.* An adolescent male in alcohol. Johore. Presented by J. Wood-Mason, Esq., 1873.

GENUS CHALINOLOBUS, Peters, 1866.

158. *Chalinolobus gouldii*.

*Chalinolobus gouldii* (*Gray*), Dobson, *Cat. Chiropt. B. M.* 1878, p. 250.

*Hab.* Australia (Queensland, New South Wales, Victoria, South Australia); Tasmania.—*Dobson.*

158. The skin of an adult, No. 97A of Blyth's Catalogue. Australia. Presented by the Sydney Institution, 1846.

GENUS SCOTOPHILUS, Leach, 1822.

Sub-GENUS SCOTOPHILUS.

159. *Scotophilus temminckii*.

*Scotophilus* (*P*) *kuhl*i, Leach, *Trans. Linn. Soc.* xiii (1822), p. 71.

*Vespertilio temminckii*, Horsfield, *Zool. Reschs. in Java* (1824).

*Scotophilus temminckii*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 258.

*Hab.* The Oriental Region (Peninsula of India, Ceylon, Barma; Southern China; Sumatra, Java, Borneo, and the Philippine Islands).—*Dobson.*

159*a to l.* Twelve skins of adults, Nos. 92A and 93A of Blyth's Catalogue. Calcutta. No history.

*m to r.* Three males and three females in alcohol, No. 93B of Blyth's Catalogue. Calcutta. No history. *q, r, & s* are apparently fully grown (*N. luteus*, Blyth).

- s to y.* Seven skins. Asiatic Society of Bengal. No history.
- z & aa.* Two skulls in bad condition, No. 93C of Blyth's Catalogue labelled *N. belangéri*. Calcutta. No history.
- bb.* A skeleton, No. 92 of Blyth's Catalogue labelled *N. flavescens*, Blyth.
- cc.* A skull, No. 92C of Blyth's Catalogue labelled *N. luteus*.
- dd.* An imperfect skeleton, No. 92D of Blyth's Catalogue. Calcutta. No history.
- ee.* The skin of an adult, No. 94A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.
- ff.* The skin, No. 94B of Blyth's Catalogue. Dacca. Presented by Lt.-Colonel R. C. Tytler, 1860.
- gg to ii.* Three adult males in alcohol. Kyndoolip, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunuan, 1868.
- jj to ll.* Three adult females. No history.
- mm & nn.* One mounted adult and one skin. Presented by V. Ball, Esq., labelled *N. luteus*.
- oo to qq.* One adolescent and one young male, and one adult female. Rániganj. Purchased, 1869.
- rr to uu.* Two adolescent and two adult males in alcohol. Calcutta. Purchased, 1870.
- vv.* One adult male in alcohol. Rajmáhal. Presented by V. Ball, Esq., 1868.
- ww to xx.* Two adult males in alcohol. Calcutta. Presented by V. Ball, Esq., 1868.
- yy to fff.* One adult, three adolescent, and one young male, and two adults and one adolescent female. Calcutta. Presented by Dr. J. Anderson, 1867.
- ggg.* An adult male in alcohol. Biláspur. Presented by W. T. Blanford, Esq., 1870.
- hhh.* An adult male in alcohol. Allahabad. Presented by H. Whitweil, Esq., September 1872.
- iii to mmm.* Three adult males and two adult females. Bengal. Museum Collector, 1867.
- nnn.* An adult female in alcohol. Burma. Presented by W. Theobald, Esq., 1872.
- ooo.* The skeleton of an adult. Calcutta. Presented by G. King, Esq., M.B., 1866.
- ppp & qqq.* Two males in alcohol. Gauháti, Assam. Presented by G. E. Dobson, Esq., M.B.
- rrr & sss.* Two adult males in alcohol. Dhappa. Presented by O. L. Fraser, Esq.

*lll*. An adult female in alcohol. Allahabad. Presented by J. Cockburn, Esq.

*uuu & vvv*. Two skins of an adult male and female. Allahabad. Presented by J. Cockburn, Esq.

*www*. An adult male in alcohol. Nilgiris. Presented by W. Theobald, Esq.

*xxx & yyy*. Two skins. Chánda. Museum Collector, 1867.

*zzz*. A skin. Cachar. Museum Collector, 1867.

*aaaa*. A mounted specimen. Calcutta. A. C. Carlyle, Esq., 1863.

*bbbb*. The perfect skeleton of an adult. Calcutta. Presented by Dr. J. Anderson, 1872.

*cccc*. The perfect skeleton of a smaller specimen than the preceding. Calcutta. Presented by Dr. J. Anderson, 1872.

*dddd to hhhh*. Four females and one male in alcohol. No history.

*iii*. An adolescent male in alcohol. Chánda. Presented by W. T. Blanford, Esq., 1870.

*jjjj to mmmm*. One adult male and three adult females in alcohol. Marampur, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

The fur of *iiii & jjjj* is reddish yellow and that of *kkkk & lll* is brown.

*nnnn*. An adolescent female in alcohol. No history.

*oooo*. An adult male in alcohol. Goálpára, Assam. H. L. Houghton, Esq., 1864.

*pppp*. An adult female in alcohol. Mánbhúm. Museum Collector, 1866.

*qqqq*. Skin of a male. Gauháti, Assam. Museum Collector, 1870.

*rrrr to tttt*. Three skins of adults. Agra. Presented by the Trustees of the Riddell Museum, 1870.

*uuuu*. An adult female in alcohol. Pegu. Presented by Wm. Theobald, Esq., 1872.

*vvvv*. An adult male in alcohol. Lingsugur, Deccan. Presented by G. E. Dobson, Esq., 1875.

*wwww*. An adolescent female in alcohol. Calcutta. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 6th December 1876.

*xxxx*. An adult female in alcohol. Sind. Presented by W. T. Blanford, Esq., 9th September 1878.

*yyyy*. An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 18th January 1879.

*zzzz*. An adult female in alcohol. Calcutta. Bequeathed

to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

*aaaaa*. An adult female in alcohol. Ráníganj. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

*bbbbbb*. A female in alcohol. Annamulli forest, Madras Presidency. Presented by Lt.-Colonel Beddome, 7th September 1877.

*ccccc to eeeee*. Three skulls. Calcutta. Labelled *M. flaveolus*, Blyth.

VAR. *a*.

*Nycticejus heathii*, *Horsfield, Proc. Zool. Soc.* 1831, p. 113.

*Scotophilus heathii*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 260.

*Hab.* Peninsula of India (Coromandel and Malabar coasts, Rájanpur, Punjab frontier, Karáchí); Ceylon.

*fffff*. An adult male in alcohol, No. 91A of Blyth's Catalogue. Coromandel. Presented by Sir Walter Elliot, 1843.

*ggggg*. The skin of an adult male, No. 91B of Blyth's Catalogue. Coromandel. Presented by Sir Walter Elliot, 1843.

*hhhhh*. An adult female in alcohol No. 91C of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq., 1850.

*iiii*. Skeleton of a female, No. 91C of Blyth's Catalogue. Ceylon. Prepared, 1873.

*jjjjj & kkkkk*. Two skins, No. 91D of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq., 1850.

*lllll*. A female in alcohol. Rájanpur, Punjab. Presented by W. F. Murray, Esq., M.B., 1872.

*mmmmm & nnnnn*. Two adult females in alcohol. Rájanpur. Presented by E. Sanders, Esq., M.B., 28th September 1877.

*ooooo & ppppp*. An adult female and a young male. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

*qqqqq*. An adult and three adolescent females and three adolescent males. Karáchí. By exchange with the Karáchí Museum, 19th September 1878.

SUB-GENUS SCOTEINUS.

160. *Scotophilus emarginatus*.

*Nycticejus emarginatus*, *Dobson, Proc. As. Soc. Beng.* 1871, p. 211; *ibid., Cat. Chiropt. B. M.* 1878, p. 262.

*Hab.* India, precise locality unknown.—*Dobson*.

160*a.* An adult female in alcohol. No history. *Type*.

#### 161. *Scotophilus pallidus*.

*Scotophilus pallidus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 264.

*Hab.* Peninsula of India (Míán Mir, near Lahore; Sind).—*Dobson*.

161*a.* An adult female in alcohol. Míán Mir, Lahore. Presented by J. S. Gunn, Esq., M.B., 1875. *Type*.

*b.* An adult male in alcohol. Sultan Kot, near Shikárpur, Sind. Presented by W. T. Blanford, Esq., 9th September 1878.

*c & d.* Two adult males. Rájanpur, Punjab. Presented by E. Sanders, Esq., M.B., 13th August 1877.

#### SUB-GENUS SCOTOMANUS.

#### 162. *Scotophilus ornatus*.

*Nycticejus ornatus*, *Blyth, Journ. As. Soc. Beng.* vol. xx, p. 517; *Dobson, Cat. Chiropt. B. M.* 1878, p. 265.

*Hab.* India (Darjeeling, Khási Hills); Burma (Ponsee and Kakhyen Hills); Yunnan (Nantin and Sanda Valley).—*Dobson*.

162*a.* A skin of an adult, No. 90B of Blyth's Catalogue. Purchased, 1858. *Type*.

*b.* An adult male in alcohol and its skulls. Manwyne, Sanda Valley, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*c.* An adult male in alcohol. Ponsee, 3,500 feet; Kakhyen Hills, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*d.* The skeleton of an adult female, procured by Dr. J. Anderson at Nantin. Presented by the 1st Expedition to Western Yunnan, 1868.

*e.* A skin. Darjeeling. Presented by J. H. Elwes, Esq., 1870.

*f & g.* Two skins, one immature. Darjeeling. Presented by Dr. F. Stoliczka, 1872.

*h.* A skin in alcohol. Darjeeling. Presented by W. S. Atkinson, Esq., 1872.

*i.* An adult male in alcohol. Head of Iril Valley, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

*j.* The skin of an adult. Head of Iril Valley, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

GENUS NYCTICEJUS, Rafnesque, 1819.

163. *Nycticejus crespuscularis*.

*Nycticejus crespuscularis* (*Leconte*), *Dobson, Cat. Chiropt. B. M.* 1878, p. 266.

*Hab.* North America, from New York to the Rocky Mountains, and southwards to New Orleans and to the West Indian Islands (Cuba).—*Dobson*.

163*a.* An adult male in alcohol. Cuba. Presented by G. E. Dobson, Esq., M.B., 1876.

GENUS HARPIOCEPHALUS, Dobson, 1876.

164. *Harpiocephalus suillus*.

*Harpiocephalus suillus* (*Temm.*), *Dobson, Cat. Chiropt. B. M.* 1878, p. 278.

*Hab.* Malayan Archipelago (Sumatra, Java, Flores).—*Dobson*.

164*a.* An adult in alcohol: in bad condition; skin only. Java. By exchange with the Berlin Museum, 1872.

165. *Harpiocephalus harpia*,

*Vespertilio harpia*, *Temminck, Monogr. Mammal.* t. ii, p. 219, pl. 55 (1839).

*Harpiocephalus harpia*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 281.

*Hab.* Himalaya (Darjeeling, Khási Hills); Sumatra; Java; Amboina.—*Dobson*.

165*a.* The skin of a male in bad condition, No. 106A of Blyth's Catalogue. Darjeeling. Purchased, 1851.

*b.* The skeleton of an adult male, No. 106B of Blyth's Catalogue. Darjeeling. Presented by W. Theobald, Esq., 1854.

*c.* An adult female in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1868.

*d.* An adult male in alcohol. Darjeeling. Presented by W. S. Atkinson, Esq., 1872.



166. *Harpiocephalus cyclotis*.

*Murina cyclotis*, Dobson, *Proc. As. Soc. Beng.* Dec. 1872, p. 210; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 282.

*Hab.* Himalaya, Darjeeling; Ceylon.—Dobson.

166*a.* An adult female in alcohol. No history. *Type.*

*b.* The skeleton of an adult. No history. Prepared in 1872.

*c.* An adult male in alcohol, No. 107A of Blyth's Catalogue. Darjeeling. Presented by Major Sherwill, 1853.

*d.* The skin of an adult. Darjeeling. Presented by J. H. Elwes, Esq., 1870.

## GENUS VESPERTILIO, Keys &amp; Blas., 1839.

## SUB-GENUS LEUCONOE.

167. *Vespertilio hasseltii*.

*Vespertilio hasseltii*, Temm., *Monog. Mammal.* t. ii, p. 225 (1835-41); Dobson, *Cat. Chiropt. B. M.* 1878, p. 291.

*Hab.* Malay Peninsula; Siam; Sumatra; Java.—Dobson.

167*a.* An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

168. *Vespertilio adversus*.

*Vespertilio adversus* (Horsfield), Dobson, *Cat. Chiropt. B. M.* 1878, p. 292.

*Hab.* Siam; Java; Borneo; Gerontalo; Celebes; Australia (Port Essington, Brisbane, Swan River, South Australia).—Dobson.

168*a.* An adult female in alcohol. Java. By exchange with the Berlin Museum, 1872.

169. *Vespertilio longipes*.

*Vespertilio macropus*, Dobson (non Gould), *Pros. As. Soc. Beng.* 1872, p. 209.

*Vespertilio longipes*, Dobson, *Proc. As. Soc. Beng.* 1873, p. 110; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 294.

*Hab.* Caves of Bhima Devi, Kashmir (elevation about 6,000 feet).

169a. One adult male in alcohol. Caves of Bhima Devi, 6,000 feet. Kashmir. Presented by Captain W. G. Murray, 1872. *Types*.

b. The skeleton of an adult without skull. Caves of Bhima Devi. Presented by Captain W. G. Murray, 1872. *Type*.

#### 170. *Vespertilio dascyneme*.

*Vespertilio dascyneme* (Boie), *Dobson, Cat. Chiropt. B. M.* 1878, p. 295.

*Hab.* From Southern England to Altai Mountains; probably generally distributed throughout the temperate regions of Europe and Asia. On the continent of Europe it is recorded from the Netherlands, France, Denmark, Prussia, Hungary, and Italy.—*Dobson*.

170a. An adult female in alcohol. Gallicia. By exchange with the Berlin Museum, 1872.

#### 171. *Vespertilio daubentonii*.

*Vespertilio daubentonii* (Leisler), *Dobson, Cat. Chiropt. B. M.* 1878, p. 297.

*Hab.* From Ireland to the Altai Mountains; from Finland to Sicily; from the Altai Mountains to Teuasserim; probably generally distributed throughout Europe to the temperate regions of Asia north of the Himalayas, attaining the most northerly range of all the species of the genus. Found as far north as Banffshire in Scotland.—*Dobson*.

171a & b. Two adult females in alcohol. Ashoun, Tenasserim. Presented by W. T. Blanford, Esq., 9th September 1878.

#### SUB-GENUS VESPERTILIO.

#### 172. *Vespertilio nipalensis*.

*Vespertilio nipalensis*, *Dobson, Proc. As. Soc. Bengal*, 1871, p. 214; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 302.

*Hab.* Katmandu, Nipal.

172a. An adult female in alcohol. Katmandu, Nipal. Museum Collector, 1871. *Type*.

#### 173. *Vespertilio emarginatus*.

*Vespertilio emarginatus*, *Geoffroy, Ann. du Muséum*, vol. viii, p. 198; *Dobson, Cat. Chiropt. B. M.* 1878, p. 303.

*Hab.* Middle and Southern Europe, extending from France and Rhenish Prussia to Italy.—*Dobson*.

VAR. *a.* *Vespertilio desertorum*.

*Pipistrellus lepidus*, *Blyth, Journ. As. Soc. Bengal*, vol. xiv, p. 340.

*Vespertilio desertorum*, *Dobson, Blanford, Ann. & Mag. Nat. Hist.* Nov. 1875; *Dobson, Cat. Chiropt. B. M.* 1878, p. 304.

*Hab.* Balúchistán.

173*a* to *e*. Five adult females in alcohol. Jálk, Balúchistán, 3,000ft. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*f.* A skull marked *V. lepidus*, *Blyth*. Kandahar. No history.

174. *Vespertilio nattereri*.

*Vespertilio nattereri* (*Kuhl*), *Dobson, Cat. Chiropt. B. M.* 1878, p. 307.

*Hab.* Middle Europe, from Ireland to the Ural Mountains, and from Southern Sweden to the Alps.—*Dobson*.

174*a*. An adult male in alcohol. Mulhouse. By exchange with the Berlin Museum, 1872.

175. *Vespertilio murinus*.

*Vespertilio murinus*, *Schreber, Säugeth.* i, p. 165; *Dobson, Cat. Chiropt. B. M.* 1878, p. 309.

*Hab.* Europe, Asia, Northern Africa, and Abyssinia, apparently almost limited to the Palæarctic Region, and not extending further north than Southern England and Denmark.—*Dobson*.

175*a*. The skin of an adult. No. 111 A of *Blyth's Catalogue*. Masuri. Presented by Captain T. Hutton, 1852.

*b* to *d*. One adult male and two adult females in alcohol. Hungary. Presented by the Hungarian Museum, 1864.

*e*. The skin of an adult. Shiráz, Persia. Persian Boundary Commission. Museum Collector, 1871.

176. *Vespertilio murinoides*.

*Vespertilio murinoides*, *Dobson, Journ. As. Soc. Beng.* xlii, pt. ii, p. 205, pl. xiv, 1873; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 310.

*Hab.* N.-W. Himalaya (Chamba), at an elevation of 3,900 feet.—*Dobson*.

176a. An adult male in alcohol. Chamba. Presented by H. M. L. Hutchison, Esq., H. M.'s 14th Regt., 1873. *Type*.

### 177. *Vespertilio formosus*.

*Vespertilio formosus*, *Hodgson, Journ. As. Soc. Beng.* iv, p. 700 (1835); *Dobson, Cat. Chiropt. B. M.* 1878, p. 311.

*Hab.* Himalaya (Nipal, Darjeeling); India (Cháibásá, Khási Hills); China (Shanghai, Kiang, Amoy); Island of Formosa.—*Dobson*.

177a. The skin of an adult. Darjeeling. Presented by J. H. Elwes, Esq., 1870.

b. An adult female in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1871.

c. An adult female in alcohol. Goálpára, Assam. Presented by H. L. Haughton, Esq., 1870.

d. A skin in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871. *Type* of *V. auratus*, *Dobson*.

e to i. Four skins, Nos. 108 A to D of Blyth's Catalogue. *Types* of *K. pallida*, Blyth. Cháibásá. Presented by Lt.-Colonel S. R. Tickell, 1842.

### 178. *Vespertilio montivagus*.

*Vespertilio montivagus*, *Dobson, Journ. As. Soc. Beng.* 1874, pt. ii, p. 237; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 313.

*Hab.* Hotha, Yunnan.

178a to e. An adult male and four adult females in alcohol. Hotha, 4,500 feet, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Yunnan. *Types*.

### 179. *Vespertilio muricola*.

*Vespertilio muricola*, *Hodgson, Journ. As. Soc. Beng.*, vol. x, 1841, p. 908; *Dobson, Cat. Chiropt. B. M.* 1878, p. 316.

*Hab.* Himalaya (Sikkim; Láchung, 8,000 feet; Simla; Dalhousie); Tibet; India (Chutia Nágpur); Arakan (Akyab); Malay Peninsula, Sumatra, Java, Borneo, Celebes, Amboina, and probably all the islands of the Malay Archipelago, within the Oriental Region.—*Dobson*.

179a. The skin of an adult and its skull, Nos. 110 A and B of Blyth's Catalogue. Calcutta, 1844.

b. An adult female in alcohol. Borneo. By exchange with the Berlin Museum, 1872.

*c & d.* An adult male and female. Láchung, Sikkim. Presented by W. T. Blanford, Esq., 1872. Types of *V. blanfordi*, Dobson.

*e.* An adult female in alcohol. Simla. Presented by Moulvie Ataor Rahman, 1871.

*f.* A skin. Darjeeling. Presented by J. H. Elwes, Esq., 1871.

*g.* An adult female in alcohol. Marri. Marked *var. V. blanfordi*, Dobson. Dr. F. Stoliczka. Yárkand Expedition, 1873.

*h.* A skull, No. 110C of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1850.

180. *Vespertilio dobsoni*, *nov. sp.*

*Hab.* India (Purneah, Bengal).

180*a.* An adult female in alcohol. Purneah. Presented by S. J. Shillingford, Esq., 20th July 1875.

*b.* A young female. Purneah. Presented by S. J. Shillingford, Esq., 20th July 1875. Preserved in alcohol.

A depression between the eyes; muzzle rather broad; nose slightly projecting beyond the upper lip; the two nostrils separated from each other by a marked furrow. The ears are rounded at the tip, with hardly any concavity below the tip, the external margin being slightly convex. The tragus is long, but a little tapering to its point, rounded off into the straight inner margin from the outer margin; which is convex, but deeply concave at its base. A small anteriorly curved lobule at its base. The first finger is about one-fourth as long as the fore arm and is strongly developed. The feet are large, with rather powerful toes. The wing membrane is attached to the base of the toes; the wing membrane from the elbow forwards is brownish black, profusely spotted with yellow, much the same as in *K. picta*, while in the remainder of the membrane the yellow spots are confluent in lines from the elbow and humerus to the leg, almost replacing the hair, which is confined to narrow lines. The outer femoral membrane is yellowish orange, with parallel interrupted lines passing from the tail to the legs; fore arm and fingers yellow. The face is clad as in *V. formosus*, and the fur is distributed on the membranes in the same way as in that species. Dentition the same as in *V. formosus*, only the teeth are much larger in individuals of the same sex.

The measurements of an adult female preserved in alcohol.

Tip of snout to vent 2".50, head 1".89, tail 2", ear (attachment behind mouth) 0".7, tragus 0".35, fore arm 2".15, index finger 2".1, 2nd finger 3".61, 3rd finger 3", 4th finger 2".9, thumb 0".50, tibia 1", foot 0".6.

This species is distinguished from *V. formosus* by its greater size; by its much broader muzzle; larger teeth; broader and less pointed tragus; stronger and longer thumb; much larger feet; and by the uniform yellow dotting of the whole of the wing membrane.

### 181. *Vespertilio mystacinus*.

*Vespertilio mystacinus*, *Leisler, Kuhl. Deutsch. Flederm. Ann. Wetterau. Naturk.* iv, p. 55 (1819); *Dobson, Cat. Chiropt. B. M.* 1878, p. 314.

*Hab.* Palearctic Region; Europe (from Finland to Spain; from Ireland to Middle Russia); in Asia, hitherto found in Syria, at Peking, and in the Himalayas only.—*Dobson*.

181a. An adult female in alcohol. Galicia. By exchange with the Berlin Museum, 1872.

## GENUS KERIVOULA, Gray, 1842.

### 182. *Kerivoula picta*.

*Vespertilio pictum*, *Pallas, Spicil. Zoolog.* fasc. iii, p. 7.  
*Kerivoula picta*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 332.

*Hab.* Peninsula of India; Ceylon; Burma; Sumatra; Java. Probably distributed generally throughout the Oriental Region.—*Dobson*.

182a. A mounted specimen, No. 109B of Blyth's Catalogue. Jaipur. Presented by J. Payter, Esq., 1852.

b. A skin, No. 109A of Blyth's Catalogue; in bad condition. Ceylon. Presented by R. Templeton, Esq.

c. A skin, No. 109C of Blyth's Catalogue; imperfect. Ceylon. Presented by Dr. E. F. Kelaart, 1851.

d. A skin, No. 109D of Blyth's Catalogue. Java. Presented by the Batavian Society, 1844.

e. An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 1869.

f. The skeleton of an individual from Calcutta. Presented by Dr. J. Anderson.

g. The skin of an adult. Darjeeling. Bequeathed to the Asiatic Society in Bengal by Dr. F. Stoliczka. 15th December 1875.

*h & i.* An adult male and female in alcohol. Dacca. Presented by T. Blisset, Esq., 1875.

*j.* A stuffed specimen in very bad condition from the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

### 183. *Kerivoula hardwickii*.

*Vespertilio hardwickii*, *Horsfield, Zool. Resch. in Java* (1825).  
*Kerivoula hardwickii*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 335.

*Hab.* Peninsula of India (Sibságar, Assam; Shillong, Khási Hills); Camboja; Java; Borneo; Duke of York Island.—*Dobson*.

183*a.* An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

*b & c.* An adult male and female in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*d.* An adult male in alcohol. No history.

### 184. *Kerivoula lanosa*.

*Kerivoula lanosa* (*Smith*) *Dobson, Cat. Chiropt. B. M.* 1878, p. 340.

*Hab.* S.-E. Africa (Shupanga, near the Zambesi River, East Coast of Cape Colony).—*Dobson*.

184*a.* An adult female in alcohol. Zambesi. By exchange with the British Museum, 6th September 1877. *K. nidicola*, Kirk.

## III.—GROUP MINIOPTERI.

GENUS MINIOPTERUS, Bonaparte, 1837.

### 185. *Miniopterus schreibersii*.

*Vespertilio schreibersii*, *Natterer, in Kuhl, Deutschl. Flederm. Ann. Wetterau.* iv, p. 41 (1819).  
*Miniopterus schreibersii*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 348.

*Hab.* Southern Europe and Asia, Africa, Madagascar, and Australia. In Europe, inhabiting Spain, Switzerland, Lower Austria, Italy, and Sicily; in Asia, Syria, India, Ceylon, Burma, Southern China (Amoy), Japan, Philippine Islands; extending through the Malay Archipelago to Australia; probably generally distributed throughout Africa and Madagascar.—*Dobson*.

185*a.* An adult male in alcohol. North Italy. By exchange with the Berlin Museum, 1872.

*b to cc.* Thirteen adult and four adolescent males, and eleven adult females in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the Second Expedition to Western Yunnan, 1875.

VAR. *a.*

*Miniopterus pusillus*, Dobson, *Monogr. As. Chiropt.* 1876, p. 162.

*Miniopterus schreibersii* var. *a.*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 351.

*Hab.* India (Madras); Andaman and Nicobar Islands, Philippine Islands (Erumango).—*Dobson.*

*dd.* An adult female in alcohol. Nicobars. Presented by Dr. F. Stoliczka, 1871. *Type.*

*ee to gg.* Three adult males in alcohol. Nicobars. Presented by V. Ball, Esq., 1876.

*hh to vv.* Nine adult males and six adult females in alcohol. Katchal, Nicobars. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

*ww.* An imperfect skeleton from the Nicobars. Presented by Dr. F. Stoliczka, 1871.

#### IV.—FAMILY EMBALLONURIDÆ.

##### I.—SUB-FAMILY EMBALLONURINÆ.

###### 1.—GROUP EMBALLONURÆ.

###### GENUS TAPHOZOUS, Geoff., 1812.

###### SUB-GENUS TAPHOZOUS.

###### 186. *Taphozous melanopogon.*

*Taphozous melanopogon*, Temm., *Monog. Mammal.*, t. ii, 1835-41, p. 287; *Dobson, Cat. Chiropt. B. M.* 1878, p. 380.

*Hab.* India (Lower Bengal, Madras, Malabar Coast); Burmah; Pinang; Pulo Tickus; Cochin-China; Java; Borneo; Philippine Islands.—*Dobson.*

*186a to c.* Three adult males in alcohol. No history.

*d to g.* Four adult females in alcohol. Jashpur, Chutia Nágpur. Presented by W. T. Blanford, Esq., 1871.

*h.* An adult male in alcohol. Amherst, Tenasserim. Presented by Dr. J. Anderson, 1872.



- i.* An adult male skeleton. No history.  
*j to m.* One adult male, and three adult females in alcohol; No. 5 Cave, Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.  
*n.* A skin. Sambalpur. Presented by V. Ball, Esq., 16th June 1877.  
*o & p.* An adult male and female in alcohol. Trichinopoly. Presented by Lt.-Colonel Beddome, 19th November 1877.

187. *Taphozous theobaldi*.

*Taphozous theobaldi*, *Proc. As. Soc. Beng.*, Aug. 1872, p. 152; *Cat. Chiropt. B. M.* 1878, p. 381.

*Hab.* Tenasserim Province.

- 187*a & b.* An adult male and female in alcohol. Tenasserim. Presented by W. Theobald, Esq., 1855. *Type.*  
*c.* An adult male in alcohol. Forearm 3".10. Bushire. By exchange with the Karáchí Museum, 29th April 1879.

188. *Taphozous longimanus*.

*Taphozous longimanus*, *Hardwicke, Linn. Trans.* xiv, 1825, p. 525; *Dobson, Cat. Chiropt. B. M.* 1878, p. 384.

*Hab.* Peninsula of India, Ceylon; Burma. Abundant about Calcutta, and in all the southern parts of the Indian Peninsula; not yet recorded from Northern India nor from the Himalayas.—*Dobson.*

188*a to f.* Six skins, Nos. 85 A to F of Blyth's Catalogue. Calcutta. No history.

*g.* An imperfect skeleton, No. 85M of Blyth's Catalogue.

*h.* One skin, No. 85J of Blyth's Catalogue. Travancore. Presented by Dr. Coles, 1841, labelled *T. brevicaudus*.

*i & j.* A skull labelled *Taphozous cantori*, Blyth, and *T. brevicaudus*.

*k to o.* Two adult and one young male, the latter the young of *m*, and two adult females in alcohol. No. 85G of Blyth's Catalogue. Rangoon. Presented by Sir Joseph Fayrer, M.D., &c., 1852.

*p.* One skin, No. 85I of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1841.

*q.* A skin. Chánda. Muscum Collector, 1867.

*r.* One adult male in alcohol. Presented by Dr. J. Anderson, 1870.

s. An adult male in alcohol. Singhbhúm. Presented by V. Ball, Esq., 1870.

t. An adult male in alcohol. Biláspur, Central Provinces. Presented by W. T. Blanford, Esq., 1871.

u to w. Two adult males and one adult female in alcohol. Pegu. Presented by W. Theobald, Esq., 1872.

x & y. An adult male in alcohol (Pegu), and an adult female (Calcutta). Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

z. An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 19th December 1876.

aa. An adult male in alcohol. Calcutta. Presented by O. L. Fraser, Esq., 22nd February 1881.

#### 189. *Taphozous nudiventris*.

*Taphozous nudiventris*, *Cretzschmar*, in *Rüpp. Atlas. Reise. nördl. Afrika. Säugeth.* 1826, p. 70, fig. 276; *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 387.

*Hab.* Africa (North Africa, Egypt, Nubia, Gambia); Asia Minor (Palestine, Euphrates).—*Dobson*.

189a to p. Eight adult males, and eight adult females in alcohol. Ruins of Karnak, Upper Egypt, 23rd March 1880. Collected, and presented by Dr. J. Anderson, 18th January 1881.

#### VAR. a.

*Taphozous kachhensis*, *Dobson*, *Journ. As. Soc. Beng.* 1872, p. 211; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 388.

*Hab.* Kachh; North-West India.

i. An adult male in alcohol. Kachh. Presented by Dr. F. Stoliczka, 1872. *Type*.

j. A male in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th September 1878.

#### SUB-GENUS TAPHONYCTERIS.

#### 190. *Taphozous perforatus*.

*Taphozous perforatus*, *Geoff.*, *Descript. de l'Égypte*, t. ii, p. 126; *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 383.

*Hab.* Egypt.

190a to c. Three males in alcohol. Temple of Karnak, Upper Egypt. Collected, and presented by Dr. J. Anderson, 17th January 1881.

191. *Taphozous saccolæmus*.

*Taphozous saccolæmus*, *Temminck, Monogr. Mammal.*, vol. ii, p. 285; pl. 60; *Dobson, Cat. Chiropt. B. M.* 1878, p. 388.

*Hab.* Lower Bengal (Sylhet); Ceylon; Burma; Malay Peninsula; Sumatra; Java.—*Dobson*.

191*a*. One skin; No. 84A of Blyth's Catalogue. Southern India. Presented by Sir Walter Elliot, 1843.

*b*. A skin; No. 84B of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*c*. An adult female in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

192. *Taphozous affinis*.

*Taphozous affinis*, *Dobson, Ann. Mag. Nat. Hist.* 1875, vol. xvi, p. 232; *Dobson, Cat. Chiropt. B. M.* 1878, p. 389.

*Hab.* Labuan Island; Sumatra.

192*a*. An adult in alcohol. By exchange with the Berlin Museum, 6th September 1877.

## II.—GROUP RHINOPOMATA.

## GENUS RHINOPOMA, Geoff, 1812,

193. *Rhinopoma microphyllum*.

*Rhinopoma microphyllum* (Geoffr.), *Dobson, Cat. Chiropt. B. M.* 1878, p. 400.

*Hab.* Africa (Egypt, Kordofan); Asia Minor (Palestine); Indian Peninsula generally; Burma.—*Dobson*.

193*a* & *b*. Two adult males in alcohol, Nos. 83 A and B of Blyth's Catalogue. Agra. Presented by Major Wroughton, 1844.

*c* & *d*. Two skins, Nos. 83 C and D of Blyth's Catalogue. Agra. Presented by Major Wroughton, 1844.

*e*. A skin, No. 83E of Blyth's Catalogue. Presented by A. D. Bartlett, Esq.

*f*. A skeleton, No. 83F of Blyth's Catalogue. Agra. Presented by Major Wroughton, 1844.

*g* & *h*. Two skulls. No history.

*i* & *j*. Two skins. Agra. Presented by the Trustees of the Riddell Museum, 1869.

*k & l.* Two adult males in alcohol. Kachh. Presented by Dr. F. Stoliczka, 1872. Testicles enormously enlarged, and a layer of fat at their base.

*m to q.* Two adult males and three adult females. Fatehpur Sikri. Presented by Dr. J. Anderson, 19th November 1877.

## II.—SUB-FAMILY MOLOSSINÆ.

### I.—GROUP MOLOSSI.

GENUS CHEIROMELES, Horsfield, 1824.

#### 194. *Cheiromeles torquatus*.

*Cheiromeles torquatus*, *Horsfield, Zool. Resch. in Java*, pl. (P); *Dobson, Cat. Chiropt. B. M.* 1878, p. 405.

*Hab.* Malay Peninsula (Singapore); Sumatra; Java; Borneo.—*Dobson*.

194*a.* Two skins of an adult, No. 86 A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*b.* A stuffed specimen. Siam. Collected by Finlayson. From the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

GENUS NYCTINOMUS, Geoffroy, 1812.

### SUB-GENUS NYCTINOMUS.

#### 195. *Nyctinomus cestonii*.

*Dinops cestonii*, *Savi, Nuov. Giorn. de' Letter.* p. 230, 1825.

*Nyctinomus cestonii*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 423.

*Hab.* Europe (Madeira, Switzerland, Italy, Sicily, Greece); Africa (Egypt, Nubia); Asia (Amoy, China).—*Dobson*.

195*a.* An adult male in alcohol, No. 87A of Blyth's Catalogue. Amoy, China. Presented by R. Swinhoe, Esq., 1860. Type of *N. insignis*, Blyth.

#### 196. *Nyctinomus tragatus*.

*Nyctinomus tragatus*, *Dobson, Journ. As. Soc. Beng.* vol. xliii, 1874, p. 143; *Cat. Chiropt. B. M.* 1878, p. 424.

*Hab.* Peninsula of India (Rájanpur, N. W. Frontier; Jashpur, near Chutia Nágpur; Calcutta).—*Dobson*.

196*a*. An adult male in alcohol, No. 88 F of Blyth's Catalogue. Calcutta. No history. *Type*.

*b*. An adult male in alcohol. Jashpur, west of Chutia Nágpur. Presented by W. T. Blandford, Esq., 1871.

*c*. An adult female in alcohol. Rájanpur, Punjab frontier. Presented by W. F. Murray, Esq., M.B., 1872.

#### 197. *Nyctinomus plicatus*.

*Vespertilio plicatus*, *Buchanan-Hamilton*, *Trans. Linn. Soc.* 1800, vol. v, 1880, p. 261, fig.

*Nyctinomus plicatus*, *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 425.

*Hab.* Peninsula of India (Calcutta, Ludhiána, Agra, Madras); Sumatra; Java; Borneo; Malay Peninsula (Singapore); Philippine Islands.—*Dobson*.

197*a*. An adult male in alcohol, No. 88E of Blyth's Catalogue. No history.

*b* & *c*. Two skins, Nos. 88 A & B of Blyth's Catalogue. Ludhiána. Presented by Captain Boys, 1845.

*d* & *e*. Two skins, Nos. 88 C & D of Blyth's Catalogue. Calcutta.

*f*. A skeleton, No. 88G of Blyth's Catalogue. No history.

*g*. A skin in very bad condition, No. 88H of Blyth's Catalogue. Dark specimen (*N. tenuis*, Horsfd.), old collection.

*h* to *j*. Three skins. Agra. Presented by the Trustees of the Riddell Museum, 1869.

*k*. An adult male, and its viscera. Indian Museum. Dr. J. Anderson, 16th December 1876.

*l*. An adult female in alcohol. Allahabad. Presented by John Cockburn, Esq., 20th March 1877.

#### 198. *Nyctinomus johorensis*.

*Molossus* (*Nyctinomus*) *johorensis*, *Dobson*, *Proc. As. Soc. Beng. Jan.* p. 22, 1873.

*Nyctinomus johorensis*, *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 432.

*Hab.* Malay Peninsula (Johore).

198*a*. An adult male in alcohol. Johore, Malayan Peninsula. Presented by J. Wood-Mason, Esq., 1872. *Type*.

#### 199. *Nyctinomus braziliensis*.

*Nyctinomus braziliensis* (*Is. Geoff. St. Hil.*), *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 437.

*Hab.* Warmer regions of North and South America and their islands, extending from California to Chili; apparently everywhere distributed throughout the tropical and sub-tropical parts of America, where it is probably the most common species of the genus, as it has the widest range.—*Dobson*.

199*a*. An adult female in alcohol. Mexico. Presented by G. E. Dobson, Esq., M.B., 1876.

## VI.—FAMILY PHYLLOSTOMIDÆ.

### I. SUB-FAMILY PHYLLOSTOMINÆ.

#### I.—GROUP STENODERMATA.

#### GENUS ARTIBEUS, Leach, 1822.

##### SUB-GENUS ARTIBEUS.

#### 200. *Artibeus perspicillatus*.

*Artibeus perspicillatus* (*Linnaeus*), *Dobson, Cat. Chiropt. B. M.* 1878, p. 519.

*Hab.* Mexican, Antillean, and Brazilian Sub-Regions, apparently generally distributed throughout the two first named sub-regions, but in many parts of the Brazilian sub-region its place appears to be taken by *A. planirostris*.—*Dobson*.

200*a* & *b*. An adult male and female. Demerara. Presented by G. E. Dobson, Esq., M.B., 1874.

## IV.—ORDER INSECTIVORA.

### I.—FAMILY GALEOPITHECIDÆ.

#### GENUS GALEOPITHECUS, Pallas, 1780.

#### 201. *Galeopithecus volans*.

*Lemur volans*, *Lin., Syst. Nat.* ed. 12th, 1766, p. 45.

*Galeopithecus volans*, *Pallas, Act. Acad. Petrop.* t. iv, 1780, p. 280, tab. 8; *Shaw, Genl. Zool.* vol. 1, pt. 1, 1800, p. 116, pls. 38 and 39.

- Galeopithecus rufus*, *Geoff. Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 19; *Geoff., Cours.* 12<sup>me</sup> *Leç.* 1829, p. 37; *Desm., Mammif.* 1822, p. 108.
- Galeopithecus rufus, variegatus et ternatensis*, pp., et 38, *Geoff., Cours.* 12<sup>me</sup> *Leç.* 1828, p. 37; *Desm., Mammif.* 1822, p. 108.
- Galeopithecus temminckii*, *Waterhouse, Proc. Zool. Soc. Lond.*, 1838, p. 119; *Trans. Zool. Soc.* vol. ii, p. 335, pl. 58, fig. 2.
- Galeopithecus rufus, undatus et macrurus*, *Wagner, Schreber, Säugeth.* Suppl. Bd. i, 1880, pp. 324, 326 et 327.

*Hab.* Malacca, Sumatra, and Borneo.

201a. Stuffed specimen, No. 49A of Blyth's Catalogue. Malacca. Presented by R. W. G. Frith, Esq., 1844.

b. A flat skin, mounted skeleton, and nearly mature foetus, in alcohol, of an adult female. Siukip Island, Sumatra. Museum Collector, 14th May 1874.

c to e. Three skulls, Nos. 49 C, D, & E of Blyth's Catalogue. Malacca. No history.

f. Skin of a young animal, much variegated with grey, brownish and black, interspersed with white spots. Perak, Malayan Peninsula. Presented by Mrs. R. Allen, Calcutta, 6th April 1877.

g to i. The skins of two males and one female. The males are dusky brown above, variegated with dark brown, and spotted with white. From the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

j & k. Two skulls from the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

## II.—FAMILY TUPAIIDÆ.

### I.—SUB-FAMILY TUPAIINÆ.

GENUS TUPAIA, Raffles, 1820.

#### 202. *Tupaia ellioti*.

*Tupaia ellioti*, *Waterhouse, Proc. Zool. Soc.* 1849, pp. 106 et 108, pl. xiii; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 82; *Jerdon, Mamm. of Ind.* 1867, p. 64; *Ball, Proc. As. Soc. Beng.* 1874, p. 95; *Anderson, Anat. & Zool. Resch., &c.*, 1878, p. 124, pl. vii, figs. 12 and 13 (skull).

*Hab.* Southern and Central India (Madras, Gondulpudu, Godavari Valley) and extending northwards to Cuttack and to the Karakpur Hills, Monghyr, North-Western Bengal.

202a to c. Two stuffed adults and one adolescent, and the skulls of *b* and *c*, Nos. 241 A, B, & C of Blyth's Catalogue. Madras. Presented by Sir Walter Elliot, 1851.

*d* to *f*. Two adult males and one female in alcohol. Karakpur Hills, Monghyr. Presented by E. Lockwood, Esq., C.S., 1874.

*g*. A skull. Karakpur Hills, Monghyr. Presented by E. Lockwood, Esq., C.S., 1874.

*h*. Skeleton of an adult. Gondulpudu, Godávri Valley. Presented by W. T. Blandford, Esq., 27th July 1871.

*i*. Contents of the stomach of one of the foregoing individuals from Monghyr, consisting chiefly of the remains of small beetles.

*j* to *l*. Two adult males and one adult female in alcohol. Monghyr. Presented by the Zoological Gardens, 1st and 12th May 1880.

### 203. *Tupaia belangeri*.

*Tupaia* dn Pégou, *Is. Geoff. St. Hil., Zool. de Bélanger*, 1834, p. 103, tab. 4.

*Cladobates belangeri*, *Wagner, Schreber, Säugeth.* 1842, Suppl. pt. ii, p. 42; op. cit. Bd. V, 1856, p. 527.

*Tupaia belangeri*, *Anderson, Anat. & Zool. Resch. &c.* 1878, p. 126, pl. vii, figs. 6 and 7 (skull).

*Tupaia ferruginea*, *Blyth (partim), Cat. Mamm. As. Soc. Mus.* 1863, p. 81.

*Tupaia peguana*, *Jerdon, Mamm. Ind.* 1867, p. 65.

*Hab.* Nepal; Eastern Himalaya (Kurseong, Darjeeling); Assam; Khási Hills; Arakan, Island of Preparis, and Burma, and North Tenasserim.

203a & b. Two stuffed adults and the skulls; Nos. 240 G and H of Blyth's Catalogue. Arakan. Presented by Sir Arthur P. Phayre, 1844.

*c*. A skull, No. 240 I of Blyth's Catalogue. Arakan. Presented by Sir Arthur P. Phayre, 1844.

*d*. An adult female in alcohol, No. 240J of Blyth's Catalogue. Pegu. Presented by Major Berdmore, 1856.

*e*. The skeleton of a specimen sent alive from Chárápunjí, No. 240K of Blyth's Catalogue. Presented by R. W. G. Frith, Esq., 1851.

*f*. An adult male in alcohol. No history.

*g*. A mounted skeleton, prepared from a specimen belonging to the Asiatic Society of Bengal. No history.

*h*. A skeleton of an adult. No history.

*i*. An adolescent male in alcohol without its skull. No history.



*j.* The skin and skull of an adult male. Cachar. Museum Collector, 1868.

*k.* The skin of an adolescent female, and its skull. Darjeeling. Presented by J. H. Elwes, Esq., 1871.

*l.* A young female in alcohol. Chárápunjí. Presented by Lieutenant J. H. Bourne, 7th July 1871.

*m to p.* Four skins. Arakan and Lower Pegu. Captain F. H. Hood and Museum Collector, 1872.

*q to z.* Five adult males, and four adult females in alcohol. Arakan and Lower Pegu. Presented by Captain F. H. Hood, and Museum Collector, 1872.

*aa & bb.* Three skulls. Arakan and Lower Pegu. Presented by Captain F. H. Hood, 1872.

*cc.* A skin. No history.

*dd.* The skin of an adult. Borpani, Dikrang, Assam. Daffa Expedition, 1875. Presented by Lieut.-Colonel H. H. Godwin-Austen.

*ee.* The skin of an adult. Assam. Presented by A. W. Chennell, Esq., 1875.

*ff.* An adult female in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*gg.* Skin of an adult male. Assam. Purchased, 1876. An orange mesial line along the ventral aspect.

*hh.* The skin of an adult. This specimen is darker than the generality of individuals from the mainland and approaches in this respect to *T. ferruginea*. Island of Preparis, off the coast of Arakan. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

*ii.* An adult in alcohol. Amherst. Presented by J. Armstrong, Esq., M.B., 29th August 1877.

*jj & kk.* Two skulls without any history.

*ll.* A skeleton of an adolescent. No history.

#### 204. *Tupaia chinensis*.

*Tupaia chinensis*, Anderson, *Anat. & Zool. Resch. &c.*, 1878, p. 129, pl. vii, figs. 8 and 9.

*Hab.* China (high country of Western Yunnan).

204*a.* An adolescent male in alcohol, and its skull. Pensee, Kakhyen Hills, 3,185 ft., Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*b & c.* One skin of an adult and its skull. Muangla, Sanda Valley, Yunnan, 2,400 ft. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

205. *Tupaia ferruginea*.

Sorex-glis, *Diard & Duvaucel, As. Resch.* vol. xiv, 1822, pp. 471 et 475, pl. ix.

*Tupaia ferruginea* *Raffles, Linn. Trans.* vol. xiii, p. 256, 1822; *Blyth's Cat. Mamm. As. Soc. Mus.* 1863 (*partim*), p. 81; *Anderson, Anat. & Zool. Resch. &c.* 1878, p. 130, pl. vii, figs. 4 and 5 (skull).

*Hab.* Malayan Peninsula, Sumatra, Borneo, and Java.

205a. A stuffed adult and its skull, No. 240 A of Blyth's Catalogue. Penang. Presented by the Rev. J. Barbe, 1846.

b. A stuffed young animal and its skull, No. 240B of Blyth's Catalogue. Penang. Presented by the Rev. J. Barbe, 1846.

c. A stuffed adult and its skull, No. 240C of Blyth's Catalogue. Malacca. Presented by the Rev. F. W. Lindstedt, 1846.

d. A stuffed young animal and its skull, No. 240D of Blyth's Catalogue. Presented by Major Berdmore, 1856.

e. A stuffed young animal and its skull, No. 240E of Blyth's Catalogue. Mergui. Presented by Major Berdmore, 1856.

f. A preparation showing the teeth removed from the skull, and set in position, in wax, illustrating the differences between the deciduous and permanent teeth in both jaws, before any of the deciduous teeth are lost. Prepared from the skull of No. 240F of Blyth's Catalogue, from Mergui. Presented by Major Berdmore, 1856.

g. A skull from Mergui. Presented by Major Berdmore, 1856. The roots of the teeth of both jaws exposed to show the relations between the permanent and deciduous teeth.

h. First, second, and third molars of the right upper jaw; second and third right upper deciduous premolars; and second and third deciduous premolars, right lower jaw.

206. *Tupaia malaccana*.

Cerp ou Banxring, *F. Cuv., Mammif.* t. ii, livr<sup>n</sup> xxxv, Decembre 1821.

*Tupaia javanica*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 82.

*Tupaia malaccana*, *Anderson, Anat. & Zool. Resch.* 1878, p. 134, pl. vii, figs. 16 and 17 (skull).

*Hab.* Malacca.

206a & b. Two stuffed adults and two skulls, Nos. 242 A and B. Malacca. Presented by R. W. G. Frith, Esq., 1846.

207. *Tupaia tana*.

*Tupaia tana*, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 257; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 81; *Anderson, Anat. & Zool. Resch. &c.* p. 136, 1878, pl. vii, figs. 1 and 2 (skull).

*Hab.* Borneo.

207*a.* A stuffed adult male, No. 239A of Blyth's Catalogue. Sumatra. Presented by the Batavian Society, 1845.

208. *Tupaia nicobarica*.

*Cladobates nicobaricus*, *Zelebor, Reise der Novara Säugeth.* Bd. i, p. 17, pls. i et ii, 1868.

*Tupaia nicobarica*, *Anderson, Anat. & Zool. Resch. &c.* p. 136, pl. vii, fig. 3 (skull).

*Hab.* Nicobars.

208*a.* The skin of an adolescent male. Great Nicobar Island. By exchange with V. Ball, Esq., Sept. 1876.

*b.* An adult male in alcohol. Nicobar Islands. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

## II.—SUB-FAMILY HYLOMINÆ.

## GENUS HYLOMYS, S. Muller.

209. *Hylomys peguensis*.

*Hylomys peguensis*, *Blyth, Journ. As. Soc. Beng.* vol. xxxviii, 1859, p. 294; *Cat. Mamm. As. Soc. Mus.* 1863, p. 82; *Anderson, Trans. Zool. Soc. Lond.* vol. viii, 1874, p. 453, pl. lxiv; *Anat. & Zool. Resch. &c.* 1878, p. 138, pl. vi.

*Hab.* Kakhyen Hills, Western Yunnan; Tenasserim, Java and Borneo.

209*a.* An adult female in alcohol, No. 243A of Blyth's Catalogue. Presented by Major Berdmore, 1858.

*b.* The mounted skeleton of an adult. Pensee, Kakhyen Hills, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Yunnan, 1868. Described, and figured in the Transactions of the Zool. Soc., vol. viii, p. 453.

## III.—FAMILY ERINACEIDÆ.

## I.—SUB-FAMILY GYMNURINÆ.

GENUS GYMNURA, Horsfield, Vigors, 1827.

210. *Gymnura rafflesii*.*Viverra gymnura*, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 271.*Gymnura rafflesii*, *Horsfield and Vigors, Zool. Journ.* vol. iii, 1828, p. 246, tab. 8; *Wagner, Schreb. Säugeth. Suppl. Bd. ii*, 1841, p. 46; *ibid.*, Suppl. Bd. v, 1856, p. 534; *Muller & Schlegel, Verhandl. I.*, p. 26, 1839-43; *Cant. Journ. As. Soc.* vol. xv, 1846, p. 190; *Owen, Odontog.*, p. 419, pl. 3, fig. 4; *Blyth, Cat. Mamm. As. Soc. Mus. Cal.* 1863, p. 81; *Gray, Cat. Bones Mamm., Coll. B. M.* 1862, p. 117.*Echinosorex rafflesii*, *Blainv., Ost. Atl. t. i, Insectiv.* pl. 6. (skull); pl. 10 (teeth).*Hab.* Malayan Peninsula (Sumatra, Borneo, and other Islands).

210a. A stuffed adolescent and its skull, No. 238A of Blyth's Catalogue. Malacca. Presented by C. Huffnagle, Esq., 1846.

VAR. *candida*, Gunther.

b. A stuffed adult and its skull. Sarawak, Borneo. Presented by W. Rutledge, Esq., 4th June 1869.

## II.—SUB-FAMILY ERINACEINÆ.

GENUS ERINACEUS, Linn., 1766.

211. *Erinaceus europæus*, Linn.*Erinaceus europæus*, *Linn. Syst.* 12th ed. 1766, vol. i, p. 75.*Erinaceus vulgaris*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 80.*Hab.* Europe.

211a &amp; b. A stuffed adult and adolescent, Nos. 235 A and B of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1843.

c &amp; d. Two skulls, Nos. 235 C and D of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1843.

e. A mounted skeleton of an adult, No. 235E of Blyth's Catalogue. Presented by J. H. Gurney, Esq., 1860.

*f* & *g*. Two glass tubes containing two spines, and sections of the spines of this species. Dr. J. Anderson, 1878.

*h*. An adult male in alcohol. England. Presented by W. Rutledge, Esq., 17th December 1881.

### 212. *Erinaceus micropus*.

*Erinaceus auritus*, Pearson, *Journ. As. Soc. Beng.* vol. v, 1836, p. 191.

*Erinaceus collaris*, Gray, *List. Mamm. B. M.* 1843, p. 81 (*partim*).

*Erinaceus micropus*, Blyth, *Journ. As. Soc. Beng.* vol. xv, 1846, p. 170, (*partim*); *ibid.*, *op. cit.* vol. xxii, 1853, p. 582; *ibid.*, *Cat. Mamm. Mus. As. Soc. Beng.* 1863, p. 80; Wagner, *Schreb. Säugeth. Suppl.* Bd. v, 1855, p. 591; Stoliczka, *Journ. As. Soc. Beng.* vol. xli, 1872, p. 225.

*Erinaceus nudiventris*, Horsfield, *Cat. Mamm. East. Ind. Cos. Mus.* 1851, p. 136.

*Erinaceus* (*Hemiechinus*) *micropus* Fitzinger, *Sitzungshte. der K. Akad. Wissensch. Wien.* Bd. lx, pl. 1, 1867, p. 875 (*partim*); Anderson, *Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1878, p. 200, pl. v, figs. a to d.

*Hab.* Southern India.

212a. A stuffed adult, No. 237A of Blyth's Catalogue, and its skull B. Presented by W. H. Smoult, Esq., 1836.

*b*. A skull, No. 237C of Blyth's Catalogue. Presented by Sir Walter Elliot, Madras, 1843.

*c*. An adolescent male in alcohol, and its skull. Coimbatore. Presented by the Madras Museum, 23rd December 1876.

*d*. A young animal in alcohol. Coimbatore. Presented by the Madras Museum, 13th December 1876.

*e* to *g*. Three adult males in alcohol and the skulls of *f* and *g* (the former figured J. A. S. B. vol. xlvii, pt. ii, 1878, pl. v A, figs. a to d). Trichinopoly. Presented by the Zoological Gardens, 5th December 1877.

*h*. An adult male in alcohol. Coimbatore. Presented by the Zoological Gardens, 5th December 1877.

*i*. Two tubes containing spines, and sections of spines of this species.

### 213. *Erinaceus pictus*.

? *Erinaceus indicus*, Royle, *Ill. Ind. Zool.* 1839, p. 6; not described.

*Erinaceus collaris*? Hutton, *Journ. As. Soc. Beng.* vol. xiv, 1845, p. 351, 3rd specimen, *partim*; Blyth, *l. c.* p. 352, footnote; *ibid.*, *op. cit.* vol. xxii, 1853, p. 582 (*partim*).

*Erinaceus micropus*, Blyth, *Journ. As. Soc.* vol. xv, 1846, p. 170 (*partim*).

*Erinaceus* (*Hemiechinus*) *micropus*, Fitzinger, *Sitzungshte. der K. Akad. Wissensch. Wien.* Bd. lvi, pt. i, 1867, p. 875 (*partim*).

*Erinaceus* (*Hemiechinus*) *pictus*, Stoliczka, *Journ. As. Soc. Beng.* vol. xli, 1872, p. 223.

*Erinaceus pictus*, *Anderson, Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1878, p. 203, pl. iii.

*Hab.* Western and North-Western India to Sind.

213a to h. Three adults, two adolescents, and three younger individuals, and the skulls of *a*, *b*, *c*, *d*, *e*, *f*, and *g*. Agra District. Presented by the Trustees of the Riddell Museum, 15th April 1870.

*i*. One skull. Agra District. Presented by the Trustees of the Riddell Museum, Agra, April 1870.

*j*. A skull. Presented by W. Rutledge, Esq., 14th March 1874.

*k*. The flat skin and skeleton of an adult male. North-Western Provinces. Presented by W. Rutledge, Esq., 30th December 1872.

*l*. An adult female in alcohol. Alwar. Presented by Major T. Cadell, V.C., 12th May 1877.

*m*. A young female in alcohol; with larger spines than the generality of specimens, and with the brown band near the apices of the spines absent, so that the animal appears white. Karáchi. By exchange with the Karáchi Museum, 19th November 1870.

*n*. An adult male in alcohol. Karáchi. By exchange with the Karáchi Museum, 2nd May 1877.

*o*. An adolescent female in alcohol. Gunah, Central India. Presented by A. Barclay, Esq., M.B., 19th September 1878. Differing somewhat from the ordinary examples of *E. pictus* by its somewhat larger ears and finer spines, and by the dark brown below the eye passing downwards and under the neck as a lower collar.

*p*. Three tubes containing spines and sections of spines of this species.

*q to s*. Three adult males in alcohol. Karáchi. By exchange with the Karáchi Museum, 12th December 1879.

*t*. An adult female in alcohol. Karáchi Museum. By exchange, 19th August 1879.

#### 214. *Erinaceus grayi*.

*Erinaceus collaris*, *Gray, Ill. Ind. Zool.* vol. i, 1830-32, pl. viii (not described); *ibid.*, *List. Mamm. B. M.* 1843, p. 81 (*partim*); *Hutton, Journ. As. Soc. Beng.* vol. xiv, 1845, p. 351 (first two specimens only); *Blyth, op. cit.* vol. xv, 1846, p. 170; *ibid.*, *op. cit.* vol. xxii, 1853, p. 582 (*partim*); *Wagner, Schreb. Säugeth.* Suppl. Bd. v, 1856, p. 590; *Stoliczka, Journ. As. Soc.* vol. xli, 1872, p. 225.

*Erinaceus grayi*, *Bennett, Proc. Zool. Soc.* 1832, p. 124; *Gray, List. Mamm. B. M.* 1843, p. 81; *Wagner, Schreb. Säugeth.* Suppl. Bd. ii,

- 1841, p. 28; *ibid.*, *op. cit.* Suppl. Bd. v, 1856, p. 590; *Fitzinger, Sitzungsbtte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 870 (*partim*); *Stoliczka, Journ. As. Soc. Beng.* vol. xli, 1842, p. 225; *Anderson, Journ. As. Soc. Beng.* vol. xlvii, 1878, pt. 11, p. 204, pl. iv.
- Erinaceus spatangus*, *Bennett, Proc. Zool. Soc.* 1832, p. 124, *juv.*; *Ogilby, Royle's Il. Ind. Himal. Botany*, 1839, p. 62; *Blyth, Journ. As. Soc. Beng.* vol. xv, 1846, p. 170; *Gray, Mamm. B. M.* 1843, p. 82; *Wagner, Schreb. Säugeth.* Suppl. Bd. ii, 1841, p. 27; *ibid.*, *op. cit.* Suppl. Bd. v, 1856, p. 590; *Stoliczka, Journ. As. Soc. Beng.* vol. xli, 1872, p. 225.
- Hemiechinus grayi*, *Fitzinger, Sitzungsbtte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 870.
- Hemiechinus collaris*, *Fitzinger, Sitzungsbtte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 872.
- Hemiechinus spatangus*, *Fitzinger, Sitzungsbtte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 873.
- Erinaceus blanfordi*, *Anderson, Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1878, p. 208, pl. v.

*Hab.* North-Western India, Western India to Sind.

214 *a to e*. Three adult females, one young female and one adolescent male in alcohol, and the skulls of *a* and *e*, the former skull figured, *Journ. As. Soc. Beng.* vol. xlvii, 1878, pl. iv. Fathigarh. Presented by Andrew Anderson, Esq., 11th November 1872.

*f*. The newly-born young of *b* in alcohol: eyes closed; ear of right side imperforate, that of the left side widely open, the conch being folded down on both sides. The muscular mantle covering the dorsum has a thickened margin, corresponding to the downward distribution of the spines. The spines are prolonged forwards nearly in the same line with the eye. On the middle of the forehead there is a narrow area extending a short way backwards, perfectly free of spines. A few short spines occur behind this area on the vertex, but from the nape of the neck backwards to near the posterior end of the mantle there is a continuous, rather broad, linear bare space. The spines are of two kinds, coloured and uncoloured, and the latter are the larger, and doubtless become replaced by coloured spines. The spines are placed rather widely apart, and are not very numerous, and the shortest occur along the side of the back; the largest are about  $\frac{1}{4}$  of an inch in length. The whiskers "and the hairs along the upper lips are present" and a few short scattered hairs occur on the chin, but all the other portions of the animal are perfectly nude. The snout is short and broad, and the teeth are visible. Fathigarh. Presented by Andrew Anderson, Esq., 11th November 1872.

*g*. Flat skin and skeleton of a young animal. North-Western Provinces. Presented by W. Rutledge, Esq., 9th June 1871.

*h.* Six tubes containing spines and sections of spines of this species. Dr. J. Anderson.

*i.* An adult male in alcohol. Agra. Major T. Cadell, V.C. Presented by the Zoological Gardens, 21st July 1877.

*j.* An adolescent male in alcohol, and its skull figured, Journ. As. Soc. Beng., vol. xlvii, 1878, pl. v. Type of *E. blanfordi*, Anderson. Rohri, Sind. By exchange with W. T. Blanford, Esq., 22nd March 1877.

*k.* An adult male in alcohol. Karáchi. By exchange with the Karáchi Museum, 29th April 1877.

*l.* A very young female in alcohol. By exchange with the Karáchi Museum, 19th November 1877.

*m.* An adult male and two adult females in alcohol. Kotri. By exchange with the Karáchi Museum, 19th August 1879.

*p to r.* One male and two adult females. By exchange with the Karáchi Museum, 12th December 1879.

*s.* An adult male in alcohol. Presented by the Zoological Gardens, 15th April 1880.

#### 215. *Erinaceus auritus*.

*Erinaceus auritus*, Pallas, *Nov. Comment. Act. Petropol.* vol. xiv, 1870, p. 573, pl. 21, fig. 4.

*Erinaceus albulus*, Stoliczka, *Journ. As. Soc. Beng.* vol. xli, 1872, pl. 2, fig. 2, p. 226; Blanford, *2nd Yarkand Mission, Mammalia*, 1879, p. 14, pl. 1, fig. 2, and pl. 1a, fig. 1.

*Erinaceus macracanthus*, Blanford (*partim*), *Eastern Persia*, vol. ii, *Zoology*, 1876, p. 27, pl. 1, fig. 2, nec fig. 1.

*Hab.* Eastern Europe and Western Asia, as far south as Yárkand, and extending downwards to the Highlands of South-Eastern Persia.

215a. The skin and skull of an aged male. Volga, Russia. Presented by Professor Peters, Berlin, 6th September 1877.

*b.* A stuffed adolescent and its skull. Langur, near Sánju, Yárkand, 6,570 ft. Presented by the 1st Mission to Yárkand. Dr. Henderson, 1870. Type of *E. albulus*, Stoliczka.

*c to e.* The skins of two adult and one young and skulls of *c* and *d*. Yárkand. Dr. F. Stoliczka. Presented by the 2nd Mission to Yárkand, 1873-74.

*f.* The skin of an adult male. Kárghalik, south of Yárkand. Dr. F. Stoliczka. Presented by the 2nd Mission to Yárkand, 1873-74.

*g.* The skin of an adult. Jigda, found dead on the road. Dr. F. Stoliczka. Presented by the 2nd Mission to Yárkand, 1873-74.



*h* & *i*. The skins of an adult and of another. Yangihissar. Dr. F. Stoliczka. Presented by the 2nd Mission to Yárkand, 1873-74.

*j*. A disarticulated skeleton. Yárkand, 25th May, 1874. Dr. F. Stoliczka. Presented by the 2nd Mission to Yárkand, 1873-74.

*k*. Two tubes containing spines and sections of spines of this species.

*l*. The skin and skull of an adolescent male. Karmán. South-Eastern Persia, 6,000 feet, 9th May 1872. W. T. Blanford, Esq. One of the types of *E. macracanthus*, Blanford, and figured in Eastern Persia, 1870-72, Vol. II, Zoology, pl. 1, fig. 2. Presented by the Persian Boundary Commission, 1872.

The skin of this animal is inseparable from skins of *E. albulus*, which is apparently identical with *Erinaceus auritus*. In the absence of a bare area on the forehead this hedgehog resembles *E. auritus*, while in this important structural feature it differs essentially from *E. macracanthus*. The bare area is apparently not a variable feature in a species, neither is it sexual.

The skull also closely resembles the skull of *E. auritus* and is inseparable from it.

#### 216. *Erinaceus megalotis*.

(?) *Erinaceus auritus*, Pallas, Hutton, Journ. As. Soc. Beng. vol. xiv, 1845, p. 353.

*Erinaceus megalotis*, Blyth, Journ. As. Soc. Beng. vol. xiv, 1845, p. 353; Cat. Mamm. As. Soc. Beng. Mus. 1863, p. 80; Stoliczka, Journ. As. Soc. Beng., vol. xli, 1872, p. 225; Blanford, Zool. of Persia, 1876, p. 28.

*Hab.* Afgháuístán.

216*a*. An adult, mounted; No. 234A of Blyth's Catalogue. Kandahár. Presented by Captain T. Hutton, 1845. Type of *E. megalotis*, Blyth.

*b*. The skin and skull of an adult. Purchased from a Kabul merchant, trading between Kabul and India, January 1870.

*c*. Five tubes containing spines of this species.

Ears very large and rounded; muzzle rather short and broad; feet large; inner hind toe well developed; claws large and strong. Tail short, moderately long, and nearly naked. The spines are rather long, but much shorter than in *E. macracanthus*, and they do not reach forwards to the ear, but nearly so, and they are not divided on the vertex by a bare space. The spines are covered with 28 raised ridges, rather strongly

marked by small tubercles, as in *E. macracanthus*. In the type, the spines have in some instances a narrow pale tip, somewhat as in *E. grayi*, hardly perceptible, however, in the great majority, and immediately succeeded by a broad pale-yellowish band, followed by a narrow dusky band, again succeeded by a pale band. In two specimens obtained from a native merchant trading between British territory and Kabul, and which seem to belong to this species, the spines are narrowly tipped with black, succeeded by a narrow blackish band, which is followed by a broad white band, in its turn succeeded by a narrow obscure dusky area, the base of the spine being white.

The type is in too poor a condition to gain a correct idea regarding the character of the fur, but Captain Hutton has described the face, inside of the ears, and chin, as far as the base of the ears, very pale cinereous, or nearly white; from thence all the under parts are sooty, or rusty black; head, limbs, and under parts clothed with soft hairs of a sooty black or fuliginous brown; feet darkest; tail black. In the two specimens purchased from the Kabul merchant the ears, the sides of the head from the ears to the chin, are white, while the front of the face is whitish, mixed with black hairs, giving a curious appearance, as described by Hutton; the under parts are rusty black; the limbs dark brown.

The skull of the type of *E. megalotis* was not in the collections made over by the Asiatic Society to the Government of India. The skulls, however, of the two other specimens, which may be regarded as examples of this species, present a close resemblance to the skull of *E. macracanthus*, but they are very much larger than the skulls of very old examples of that species, and the muzzle of the skull is shorter and broader, and there is relatively greater width of the post-orbital contraction. The teeth also are very much larger, but the species are undoubtedly very closely allied.

#### 217. *Erinaceus macracanthus*.

*Erinaceus macracanthus*, *Blanford*, *Eastern Persia*, vol. ii, *Zoology*, 1876, p. 27, pl. 1, fig. 1, *nec* fig. 2.

*Hab.* Highlands of Persia.

217a. The skin of an adult female and its skull; free ends of spines broadly tipped with black. Máhún, near Karmán, South-Eastern Persia, 6,000 feet, 3rd May 1872. W. T. Blanford, Esq. Presented by the Persian Boundary Commis-

sion, 1872. One of the *types* of *E. macracanthus*, Blanford, figured in Eastern Persia, 1870-72, Zoology, vol. ii, pl. 1, fig. 1.

*b.* The skin of an adult like the foregoing. Dizak, Balúchistán, 4,000 feet, 21st March 1872. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*c.* The skin of an adult female; spines wholly yellow, brownish washed. Karmán, 6,000 feet, South-Eastern Persia. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*d.* The skin of a large adult like the last and its skeleton. Karmán, South-East Persia, 5,000 feet. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*e.* Three glass tubes containing the spines of this species.

#### 218. *Erinaceus jerdoni*.

*Erinaceus jerdoni*, *Anderson, Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1878, p. 209, pl. Va, figs. e to h.

*Hab.* Eastern Afghánistán (Kurram Valley), North-Western Punjab (Pind Dádun Khán, Rájanpur), Sind.

218a & b. Two skins wholly black in bad condition. Nos. 236 A and B of Blyth's Catalogue. Pind Dádun Khán. Presented by W. Theobald, Esq., 1859.

*c.* A skull, No. 236C of Blyth's Catalogue.

*d.* An adolescent male in alcohol and its skull. Rájanpur. Presented by E. Sanders, Esq., M. B., 30th April 1878.

*e.* A gravid female with four fetuses, three in one, and one in the other horn of the uterus, in alcohol, and its skull, the latter figured in the Journal Asiatic Society, Bengal, vol. xlvii, 1878, pl. Va, figs. e to h. By exchange with the Karáchí Museum, 4th June 1878.

*f.* An adolescent female in alcohol and its skull. Sind. By exchange with the Karáchí Museum, 4th June 1878.

*g.* A young male in alcohol. By exchange with the Karáchí Museum, 19th August 1879.

*h.* A young male in alcohol. By exchange with the Karáchí Museum, 12th December 1879.

*i.* An adult female in alcohol. Thull, Kurram Valley, Eastern Afghánistán. Presented by A. Barclay, Esq., M. B., 7th February 1880.

*j to m.* The head and feet of an adult, a fœtus and the heads of two young specimens in alcohol. Thull, Kurram Valley. Presented by A. Barclay, Esq., M. B., 7th February 1880.

*n.* Six tubes containing the spines of this species.

## IV.—FAMILY CENTETIDÆ.

GENUS ERICULUS, Is. Geoff. St. Hilaire, 1839.

219. *Ericulus setosus*:Tendrac, *Buffon, Nat. Hist.* t. xii, 1764, p. 438, pl. 57.*Erinaceus setosus*, *Schreber, Säugeth.* Bd. iii, 1778, p. 583, pl. 164; *ibid.* *Wagner.**Ericulus nigrescens*, *Is. Geoff. St. Hil., Mag. de Zool.* pls. 1. à 4, 1839; p. 33, pls. 3 & 4; *Mivart, Proc. Zool. Soc.* 1871, p. 73, pl. v, (*skeleton*).*Ericulus spinosus*, *Is. Geoff. St. Hil.* l. c. p. 34; *Wagner, Schreber, Säugeth. Suppl.* Bd. v, 1855, p. 584.*Hab.* Madagascar.

219a. The skeleton of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

GENUS CENTETES, Illiger, 1811:

220. *Centetes ecaudatus*.Le Tanrec, *Buffon, Nat. Hist.* t. xii, 1766, p. 438, pl. 56.*Erinaceus ecaudatus*, *Gmelin, Linn. Syst. Nat.* 13th ed. 1788, p. 117, *partim, nec le jeune tanrec, Buffon, = Hemicentetes.**Centetes ecaudatus*, *Mivart, Proc. Zool. Soc.* 1871, p. 59.*Hab.* Madagascar.

220a. The skin of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

b. The skeleton of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

GENUS HEMICENTETES, Mivart, 1871.

221. *Hemicentetes madagascariensis*.Le jeune tanrec, *Buffon, Nat. Hist. Suppl.* t. iii, 1776, p. 214, pl., xxxvii.*Erinaceus madagascariensis*, *Shaw, Genl. Zool.* vol. 1, pl. ii, 1800, p. 548; *Mivart, Proc. Zool. Soc. Lond.* 1871, p. 58, figs. 1, 2, and 3 (*skull*).*Ericius semispinosus*, *Giebel, Zeitsch. Ges. Natur*, 1871, p. 57, pl. ii, figs. 1 to 3.*Hab.* Madagascar.

221a. The skeleton of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

## V.—FAMILY CHRYSOCHLORIDÆ.

GENUS CHRYSOCHLORIS, Cuvier, 1800.

222. *Chrysochloris rutilans*.

*Chrysochloris rutilans*, *Wagner, Schreber, Säugeth. Suppl. Bd. ii, 1845, p. 125; ibid., l. c. Suppl. Bd. v, 1856, p. 580.*

*Chrysochloris hottentotta*, *A. Smith, Zool. Journ. vol. iv, Oct. 1828 to July 1829, p. 436; South Afr. Quart. Journ. 1833, p. 81; Wagner, Schreber, Säugeth. Suppl. Bd. ii, 1841, p. 120; ibid., l. c. Suppl. Bd. v, 1856, p. 581.*

*Chrysochloris holosoricea*, *Licht. Darstellung, 1827-34, pl. xli, fig. 2; Wagner, Schreber, Säugeth. Suppl. Bd. ii, 1841, p. 124; ibid., l. c. Suppl. Bd. v, 1856, p. 581; Blyth, Cat. Mamm. As. Soc. Mus. 1863, p. 87.*

*Hab.* South Africa.

222*a* & *b*. Two stuffed specimens, Nos. 266 A and B of Blyth's Catalogue. Presented by E. L. Layard, Esq. 1859.

223. *Chrysochloris damarensis*.

*Chrysochloris damarensis*, *Ogilby, Proc. Zool. Soc. Jan. 1838, p. 5; Ann. & Mag. Nat. Hist. Oct. 1838, vol. ii, p. 146; Wagner, Schreber, Säugeth. Suppl., Bd. ii, 1841, p. 126; ibid., l. c. Bd. v, 1856, p. 582.*

*Hab.* Damarland, South Africa.

223*a*. A stuffed specimen, No. 267 A of Blyth's Catalogue. Presented by Major W. S. Sherwill, 1852.

## VI.—FAMILY TALPIDÆ.

GENUS RHINASTER, Wagner, 1841.

224. *Rhinaster cristatus*.

*Sorex cristatus*, *Linn., Syst. Nat. 12th ed., 1766, p. 73; Schreber Säugeth. Bd. iii, 1778, p. 566.*

*Talpa longicaudata*, *Erxleben, Syst. Reg. An. 1777, p. 118.*

*Condylura cristata*, *Desm., Mamm. 1820, p. 157; Harlan, Fauna Amer., 1825, p. 36.*

*Condylura longicaudata*, *Desm., Mamm. 1820, p. 157; Richardson, Fauna Br. Amer. 1829, p. 13.*

*Condylura macroura*, *Harlan, Fauna Amer. 1825, p. 39.*

*Condylura prasinata*, *Harris, Taylor's Phil. Mag. vol. 67, 1826, p. 191.*

*Rhinaster cristatus*, *Wagner, Schreber, Säugeth. Suppl. Bd. ii, 1841, p. 117; ibid., Suppl. Bd. v, 1856, p. 575.*

*Astromydes cristatus*, *Blyth, Cat. Mamm. As. Soc. Mus. 1863, p. 87.*

*Hab.* North America.

224a. A stuffed adult in bad condition, No. 264A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1843.

GENUS TALPA, Linn., 1766.

225. *Talpa europea*.

*Talpa europea*, Linn., *Syst. Nat.* 12th ed. 1766, p. 73; Schreber, *Säugeth.* Bd. iii, 1778, p. 558, pl. 156; Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 88.

*Hab.* Europe generally, extending to Northern Asia.

225a. A stuffed specimen; No. 268A of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1843.

b & c. Two skeletons, Nos. 268 B & C of Blyth's Catalogue. One presented by Mr. W. Masters, 1844; the other no history.

d. The skin of an adult. Hunter's Bog, Arthur's Seat, Edinburgh. Presented by Dr. J. Anderson, 3rd December, 1880.

226. *Talpa micrura*.

Assam mole, McClelland, *Journ. As. Soc. Beng.* vol. vii, 1838, p. 464. *Talpa micrura*, Hodgson, *Journ. As. Soc. Beng.* vol. x, 1840, p. 910; Gray, *List Spec. Mamm. Brit. Mus.* 1843, p. 75; Blyth, *Journ. As. Soc. Beng.* vol. xix, 1850, p. 215, plate iv, fig. 2 (skull); Horsfield, *Cat. Mamm. E. Ind. Cos. Mus.* 1851, p. 129; Wagner, Schreber *Säugeth.* Suppl. Bd. v, 1856, p. 578; Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 88; A. Milne Edward's *Recherch. des Mammif.* 1868-74, p. 284.

*Talpa cryptura*, Blyth, *Journ. As. Soc. Beng.* vol. xii, 1843, p. 928.

*Hab.* Nipal, Sikkim, and Assam.

Uniformly velvety brown, with a silvery grey gloss. Snout almost nude, being sparsely clad on its sides with bristly hairs, each seated on an eminence, in the centre of a well-defined pit. A broad mesial linear tract on the upper surface of the snout, quite devoid of hairs. The extremity of the snout with a transverse furrow below the nostril, and a tumid fold of skin below the furrow. Eye very minute and covered with membrane; eyelids not defined. Claws stout on the fore feet, and moderately long. Tail about one-third of the greatest breadth of the manus, not knobbed at its end and only sparsely clad.

The skull of this species resembles the skull of the other Asiatic moles, with the exception of *T. wogura* and *T. insularis*, in having four pairs of inferior incisors, but differs from *T. leucura*, &c., in possessing four pairs of upper premolars, and in this respect it resembles *T. macrura* and *T. longirostris*.

226a. An adult male in alcohol and its skull, No. 269A of Blyth's Catalogue, p. 88. Nepal. Presented by H. B. Hodgson, Esq., C.S., 1843.

b. An adult female in alcohol, No. 269B of Blyth's Catalogue. Darjeeling, p. 88. Purchased, 1842. *Type of T. cryptura*, Blyth. Journal, Asiatic Society, Bengal, vol. xii, 1843, p. 928.

c. A skull, probably that figured in Journal, Asiatic Society, Bengal, vol. xix, 1850, Plate IV, fig. 2, and possibly the skull of the foregoing specimen.

d. An adult female in alcohol, No. 269C of Blyth's Catalogue, p. 88. Assam. Presented by Colonel Jenkins, 1854.

e. A skin in alcohol. Sadiya, Assam. Presented by Colonel Jenkins, 1854.

f to h. Three stuffed adults; Nos. 269 D, E & F of Blyth's Catalogue, p. 88. Assam. Presented by Colonel Jenkins, 1854.

i to k. Three stuffed specimens; Nos. 269 G, H and I of Blyth's Catalogue, p. 88. Darjeeling. Presented by Mrs. Oakes, 1854, and the skull of i imperfect.

l. A skeleton mounted; No. 269J of Blyth's Catalogue, p. 88, Darjeeling. Presented by W. T. Blanford, Esq., 1857. Vertebrae, c. 7; d. 13, l. 6; s. 3; p. c. 3; caudal 8.

m. A stuffed adult. Darjeeling. Presented by T. C. Jerdon, Esq., 1854.

n. A young female in alcohol. Darjeeling. Presented by W. T. Blanford, Esq., 1871.

o. Skin of an adult. Samaguting, Assam. Presented by Captain J. Butler, October 1872.

p & q. Two skins of adults. Nágá Hills, Assam. Presented by Captain J. Butler, 14th April 1875.

r. Skin of an adult. Nágá Hills, Assam. Found at an elevation of 400 feet above the sea-level. Presented by A. W. Chennell, Esq., 19th April 1875.

s. Skin of a young animal. Nágá Hills, Assam. Presented by A. W. Chennell, Esq., 1st February 1877.

t to w. Three males and one female in alcohol. Sureil, British Sikkim. Presented by George King, Esq., M.B., 4th January 1878.

x & y. Two adult males in alcohol. Sureil, British Sikkim, Presented by George King, Esq., M.B., 10th February 1879.

z & aa. An adult male and female in alcohol. Sureil, British Sikkim. Presented by J. L. Lister, Esq., 10th February 1879.

In the natural skeleton, the caudal vertebrae, 8 in number, measure 6-tenths of an inch in length.

227. *Talpa leucura*.

*Talpa leucura*, Blyth, *Journ. As. Soc. Beng.* vol xix, 1851, p. 215, pl. iv, fig. 1 (skull); Wagner, *Schreber Säugeth.* Suppl. Bd. v, 1856, p. 578; Blyth, *Cat. Mamm. As. Soc. Mus.*, 1863, p. 88.

*Hab.* Sylhet, Khási Hills, and Tenasserim.

Wholly velvety black; considerably smaller than *T. micrura* and with the snout neither so long nor narrow. The snout is clad as in *T. micrura*, but the hair crypts are not so prominent. The manus is somewhat less broad than in *T. micrura* and the nails are not so long. The tail is considerably longer than in *T. micrura*, and it is dilated into a rounded knob, sparsely covered with longish white hair; its length exceeds two-thirds of the breadth of the manus. The eye is covered by a membrane, and there are no defined eyelids.

The skull is at once distinguished from the skull of *T. micrura*, by its much smaller size, and by the presence of only three pairs of premolars in the upper jaw. The adult skull is 1".2 long, whereas that of *T. micrura* measures 1".37. This difference of size is well marked in all the bones. The caudal vertebræ are longer, but feebler, than in *T. micrura*, and their number (8) is the same in both.

227a to c. Three stuffed specimens, Nos. 270 A, B and C of Blyth's Catalogue, p. 88. Sylhet. Presented by W. Skipwith, Esq., and R. W. G. Frith, Esq., 1845-51.

d. An adult female in alcohol, No. 270D of Blyth's Catalogue, p. 88. Chárápunjí. Presented by R. W. G. Frith, Esq. *Types of T. leucura*, Blyth.

e. An adult female in alcohol, No. 270E of Blyth's Catalogue, p. 88. Hilly region bordering on the Sittang River, Tenasserim. Presented by Major Berdmore, 1848.

f. A young female in alcohol. Khási Hills. Presented by W. S. Atkinson, Esq., 23rd December 1867.

g. A natural skeleton, No. 270F of Blyth's Catalogue, p. 88. Hilly region bordering on the Sittang River, Tenasserim. Presented by Major Berdmore, 1848.

h. A natural skeleton. Prepared from a specimen presented by Arthur Grote, Esq., 4th July 1868.

i. A skull: no history, apparently the skull figured by Blyth in the *Journal, Asiatic Society, Bengal*, vol. xix, 1851, pl. iv fig. 1.

j. Skin of an adult. Nágá Hills, Assam, found at an elevation of nearly 10,000 feet above the sea-level. Presented by A. W. Chennell, Esq., 14th April 1875.



## VII.—FAMILY SORICIDÆ.

## I.—SUB-FAMILY ANUROSORICINÆ.

GENUS ANUROSOREX, A. M. Edwards, 1870.

228. *Anurosorex assamensis*.

*Anurosorex assamensis*, *Anderson, Ann. & Mag. Nat. Hist.* vol. xvi, 1875, p. 252; *Anat. & Zool. Resch. Yunnan Exped.* 1878, p. 150, pl. v figs. 1-16.

*Hab.* Assam.

Head large; eye excessively small; ear hidden under the fur, and valvular. Feet devoid of hairs, scaly and of nearly equal breadth, but the fore-feet the shorter. Tail rudimentary, almost completely hidden by the fur. Fur nearly erect, fine, dense and silky, longest on the rump: numerous long hairs project beyond the general mass of the fur, and are brown, with obscure pale tips: general colour of the fur dark slaty, faintly marked with brownish rusty on the long hairs on the rump. Whiskers well developed: shorter hair above and between the eyes: semi-nude parts of the snout, the scaly limbs, and tail are flesh coloured, and the claws are yellow. Snout to vent 2".92: fore-foot 0".50: hind foot 0".75: tail 0".50.

278a to e. A stuffed adult female and her skeleton, and three of her young ones in alcohol. Obtained between Sibságar and Jaipur, Assam. Presented by S. E. Peal, Esq., September 1871. *Type.* Described and figured *Anat. & Zool. Resch.*

## II.—SUB-FAMILY CROCIDURINÆ.

GENUS CROCIDURA, Wagler, 1832.

SUB-GENUS PACHYURA, Séllys-Longchamps, 1839.

(*Lateral gland.*)229. *Crocidura cærulescens*.

La musaraigne musquée de l'Inde, *Buffon, Nat. Hist.* Suppl. t. vii, 1789, p. 281, pl. lxxi.  
Perfuming Shrew, *Pennant, Quadr.* vol. ii, 1781, p. 477.

<sup>1</sup> *Pygmura*, Anderson, *Proc. Zool. Soc. Lond.*, 1873, p. 229.

- Sorex cærulescens*, *Shaw, Genl. Zool.* vol. i, pt. 2 (1800), p. 533, *partim*. *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 82, sed nec *S. crassicaudatus*, *Licht.*; *Jerdon, Mamm. of Ind.* 1867, p. 53.
- Sorex indicus et murinus*, *Geoff. St. Hil. Ann. du Mus.*; t. xvii, 1811, p. 183; et p. 186: *Mém. du Mus. d'Hist. Nat.* t. i, 1815, p. 303, pl. xv, figs. 1 & 2.
- Sorex indicus*, *F. Cuv., Hist. Nat. des Mammif.*, livr<sup>n</sup>. XL, Avril 1823, pl. 28: *Sykes, Proc. Zool. Soc. Lond.* 1830, p. 99.
- Sorex sonneratii*, *Is. Geoff. St. Hil., Ann. du Mus.* t. xv, 1827, p. 132.
- Mus giganteus*, *Is. Geoff. St. Hil., Mém. du Mus.* 1827, p. 137 (*partim*).
- Sorex myosurus*, *Grey & Shaw, Ill. Ind. Zool.* vol. i, 1832, *Mamm.* pl. ix, nec *C. myosurus*, *Pallas*.
- Sorex murinus*, *Gray, List of Mamm. B. M.* 1843, p. 78 (*partim*); *Kelaart, Prod. Fauna Zeylanica* 1852, p. 30.
- Sorex tyleri*, *Blyth, Journ. As. Soc. Beng.*, vol. xxviii, 1859, p. 285.
- Crocidura (P.) waldemarii*, *Peters, Monatsb. K. P. Acad.*, 1870, p. 590.
- Pachyura indica*, *Anderson, Proc. Zool. Soc.* 1873, p. 231.
- Crocidura (P.) fulvocinerea*, et *sindensis*, *Anderson, Journ. As. Soc. Beng.* vol. xlvi, pt. 11, 1877, pp. 263 et 266.

*Hab.* India generally; Ceylon; Arakan and Burma.

The form is rather heavy in the fully adult, but in the adolescent it is less so: the limbs are short and stout. The head slopes gradually downwards and forwards from the vertex, and the snout, which varies in length, is long, but slightly depressed from beyond the moustachial swelling, which appears to gain in breadth as the animal advances in age, the head generally becoming much heavier than it is in the adolescent. The snout terminates in two somewhat tubular nostrils, which are divided from each other by a sharp incision; their orifices look outwards and forwards. There is a slight contraction before the eyes, followed by the considerable moustachial swelling. The eyes are small. The ears are moderately large and rounded, but of varying dimensions. The hind feet and toes are rather short, but of variable size, and the claws are moderately developed. The snout and the chin are seminude, sparsely clad with short pale hairs, but the moustachial hairs are numerous and long. The ears also are only very sparsely clad along their margins, and over their external aspect, with short delicate hairs. The fore-limb is densely clad, almost to the wrist, but immediately above the joint the hairs are short and sparse, and this character is preserved by the pelage on the backs of the fore-feet, while on the toes the hairs are fewer, and occur only between the rings that mark their upper surface. The backs of the fore-feet are also scaly. The lower half of the tibial portion of the hind limb is almost nude, the hairs being few and short, and this character occurs also on the upper surface of the *pes*. The feet have thus the appear-

ance of being nearly nude. There is a seminude area around the urino-genital orifice continuous with the seminude skin of the under surface of the tail. The tail is very thick at the base in the males, and has the appearance of being round, while in reality it is broader than it is deep from above downwards; like the hinder feet it is somewhat variable in length. It is marked by fine, much interrupted concentric rings, 25 to 30 to half an inch, and between these short white hairs occur, but so sparsely as in no way to obscure the skin, and at intervals of about quarter of an inch, long, isolated, white hairs occur to within half an inch of the tip of the tail. The fur varies in length, probably according to climate and seasonal changes. It is generally pure grey, but the tips of the hairs in adults are generally yellowish grey, so that animals have not unfrequently a pale fawn tint mixed with greyish, and in Assam specimens the fur is marked with reddish brown. All the seminude parts are pinkish flesh-coloured. The colour, however, is darkest in youth, when it is dark slate-grey, and palest in adult life, when it appears to become more rufous. The female (5), killed along with the male (4), has a decided rufous tint all over the upper parts; so much so that the colour may be described as rufous fawn, with a slight greyish tint on the side, the under surface also being grey with a rufous tint. In this gravid female the fur is extremely short, while in the male it is much longer.

The following measurements may be given of both sexes:—

	1	2	3	4	5	6	7	
							Assam var. <i>fulvo-</i> <i>cinerea.</i>	
	♂	♀	♂	♂	♀	♂	♀	
	in.	in.	in.	in.	in.	in.	in.	
Tip of snout to vent . . .	6·35	5·15	5·90	7·00	6·30	6·07	4·35	
Vent to tip of tail . . .	3·65	3·05	3·50	4·00	3·50	3·90	2·83	
Length of hind feet . . .	1·03	0·90	1·03	1·03	1·00	1·00	0·82	
Tip of snout to eye . . .	0·88	0·70	0·87	0·98	0·89	0·07	0·70	
Eye to ear . . . . .	0·51	0·41	0·51	0·65	0·54	0·57	0·35	
Height of ear <sup>1</sup> . . . . .	0·60	0·50	0·58	0·56	0·49	0·50	0·35	
Breadth of ear . . . . .	0·55	0·47	0·52	0·45	0·46	0·41	0·40	

<sup>1</sup> The height of the ear is taken in a straight line from below the orifice, and the breadth is measured from the centre of a straight line between the upper and lower ends of the conch, backwards to its free margin.

The following are the skull measurements :—

	♂	♀
	No. 5.	No. 4.
Inferior margin of foramen magnum to tip of premaxillaries between first incisors . . . . .	1·40	1·26
Greatest breadth across molars . . . . .	0·51	0·47
Breadth behind infraorbital foramen . . . . .	0·28	0·28
„ anterior to expansion of brain case . . . . .	0·35	0·35
„ external to glenoid articulation . . . . .	0·51	0·55
„ „ to tympanic . . . . .	0·67	0·62
Condyle of lower jaw to commencement of alveolar line . . . . .	0·77	0·77

The skulls are from two specimens from Calcutta, the measurements of which are already given. The female skull is that of an old animal, as the teeth are considerably worn and the basi-occipital suture has wholly disappeared, while in the male skull there is still a trace of it, but in the male skull the teeth are also worn. The male is the larger, with much more posterior breadth and much more powerful first incisors than the female skull. Although sexual, the differences in dentition show themselves in the upper first incisors, and not in the canines, as in other mammals.

There are 14 dorsal, and 19 caudal vertebræ.

At first I was disposed to recognise two large shrews as existing in Calcutta, one with larger feet than the other, but on a more extended enquiry I had to abandon any such opinion because of the constant recurrence of intermediate individuals, leading from one extreme into the other. The variability of the tail in this, as in other shrews, was *à priori* to be looked for owing to the circumstance that the tails of the newly born of the same litter vary considerably, and are always very short. In two females of the same brood the tail in one measured 3·05, and in the other 3·44. In the same individuals the hind foot is also seen to be the subject of considerable variation.

There can be no doubt but that this species, as well as other species of shrews, breed before they are adult, long before the basi-occipital suture of the skull shows any sign of tending to become obliterated, and long before the cranial muscular

ridges become defined. This being the case, it will probably be found that the young of these adolescent mothers are smaller than those produced by the larger fully mature females.

The young of this large shrew are born with none of their teeth through the gums, but at the same time the teeth are well developed, the gum forming a sharp ridge over the incisors and intermediate teeth to the second premolar, the incisors rapidly piercing the gum, their tips showing before the eyes have opened, and the large cusp of the second premolar rapidly following them.

Even before the eyes are opened, the young shrew is most active in its movements, rushing about in a wild way and snapping at everything that may touch it, its mobile snout being in constant motion. The head in the young state bears a very large proportion to the size of the trunk.

The gland on the side is situated nearly half-way between the fore and hind limbs, in a line with the head of the humerus, or nearly so. Around the gland, the fur is rather sparse, but its position is indicated by the existence of narrow short hairs arranged in two lateral bands which arch inwards and meet over the middle of the gland, the two bands being continuous behind the gland, and their hairs at that point arching forwards. These glands are equally developed in the male and female. In the very young shrew the musky odour emitted by this gland is hardly perceptible, but it is overpowering in the adult. It is, therefore, probably a means of bringing the sexes of this nocturnal animal together, as their sight cannot be very keen, whereas it is evident that their sense of smell is acute, or it may protect them against their enemies.

There is a distinct sac beyond the true termination of the rectum, opening by a puckered orifice nearly  $\frac{1}{4}$  of an inch within the sac: on either side of the rectal orifice, but below it, there is a deep pit, doubtless the orifice of a compound anal gland.

The *Sorex caeruleus*, Shaw (General Zoology, vol. 1, part. 2, 1800, p. 533), is founded on Pennant's shrew, or shrews from Java and the East India Islands, and on the *Musaraigne Musquée de l'Inde* of Buffon, which Shaw states was brought from Bengal by Sonnerat, whereas M. Geoffroy St. Hilaire, who also apparently described this species as *S. indicus*, informs us (Ann. du Mus. d'Hist. Nat., t. 17, 1811, p. 183) that his type had been originally described by Buffon as the *Musaraigne de l'Inde* (Hist. Nat. Suppl., t. vii,

p. 281, pl. 71), and that it was founded on an individual brought from Pondicherry by Sonnerat. He also seemed disposed to regard *S. murinus*, Liun. as also identical with it.

In the same volume of the *Annales du Muséum* in which Geoff. St. Hilaire described *S. indicus*, he also described *S. capensis*, said to have been obtained at the Cape of Good Hope; and in the 1st volume of the *Mémoires du Muséum*, 1815, plate xv, fig. 1, he gave a good representation of the former from a specimen obtained at Tranquebar. In 1827, in the *Mém. du Mus. d' Hist. Nat.*, vol. xv, Is. Geoff. St. Hilaire disputed the correctness of his father's views regarding the specific distinctness of *S. indicus* and *S. capensis*, and held them to be one and the same species, and he renamed it *S. sonneratii*. He doubted that the type of *S. capensis* had come from the Cape of Good Hope, as he considered it unlikely that such a mammal would have been overlooked by Kolbe, Sparrman, Levaillant and Daniel, and that the expedition under Baudin, Quoy and Gaimard, Lesson and Garnot and Delalande, could have failed to discover it, if it existed.

Duvernoy regarded *S. capensis* as the same as *S. serpentarius*, Is. Geoff., and he pointed out that the type of *S. capensis* was an individual from the Isle of France, where it had been obtained in 1804 by Peron and Lesueur.

Desmarest followed Geoff. St. Hilaire in separating *S. indicus* from *S. capensis*.

In 1827 Is. Geoff. St. Hilaire described a shrew which he said was found on the Continent of India, and probably also on the islands of the Archipelago, and which he identified with Mummy shrews from the Catacombs of Thebes and Memphis. Of this shrew he says two good figures had been published, being one by his father (*Mém. du Mus.*, vol. i, plate xv, fig. 1) under the name of Musaraigne, *S. indicus*, and the other by F. Cuvier in the *Histoire Nat. des Mammif.*, under the name of Monjourou, *S. indicus*. Geoff. St. Hilaire, however, states that this figure of *S. indicus* was, as I have already stated, taken from a Tranquebar individual. F. Cuvier's figure is apparently from a Pondichery animal obtained by Leschenault and is an example of the dark variety. This shrew Is. Geoff. named *Sorex giganteus*. Writing again, 1834 (*Zool. Voy. de Belanger*, p. 117), he gave a good description of the species founded on an individual from Bengal.

As there is no example of the large shrew of Egypt in this museum, I cannot say anything regarding its specific identity or distinctness from the giant shrew of India.

With regard to the food of this animal and of its allies generally, it is noteworthy that Is. Geoff. St. Hilaire states on the authority of Bélanger, that the large shrew at Pondichery "ferait de grands dégâts dans les magasins de riz." Being aware that the natives of Bengal generally assert that the musk shrew is a great eater of rice and of pulse, I procured a few alive to watch their habits. I found them, as was to be expected, thoroughly nocturnal, spending the day in sound slumbers when undisturbed, but waking up at nightfall, when they became very restless. I placed rice beside them, but it was always left untouched, whereas cockroaches were eaten with avidity. I have examined the contents of the stomachs of a large number of specimens, and have found traces of hair, ants, larvæ of flies, and flies themselves and bits of flesh, and a tapeworm. I am therefore disposed to believe that Bélanger was entirely wrong in ascribing to these animals depredations wholly attributable to rodents.

229a & b. Two stuffed adults, Nos. 244A & B of Blyth's Catalogue. Calcutta.

c. The skeleton of an adult female, No. 244C of Blyth's Catalogue. Calcutta.

d. The skull of a male, No. 244D of Blyth's Catalogue. Calcutta.

e & f. Two adult males in alcohol and the skull of e. Royal Botanical Gardens, Howrah. Presented by Dr. J. Anderson, 1867.

g. An adolescent male in alcohol and its skull. Ceylon. Presented by H. Nevill, Esq., 26th February 1871.

h to j. Three newly born females in alcohol. Calcutta. Purchased, 14th August 1871.

k & l. Two adult males in alcohol. Purneah. Museum Collector, March 1872.

m to p. An adult male and female, and one adolescent female, and another gravid, in alcohol, and the skulls of n & p. Fathigurh. Presented by Andrew Anderson, Esq., 22nd April 1872.

q & r. An adult male and an adult female in alcohol and the skull of q. Calcutta. Presented by Dr. J. Anderson, 22nd July 1872.

s. An adult male in alcohol and its skull imperfect. Purneah. Presented by G. W. Shillingford, Esq., 23rd August 1872.

t. An adult male in alcohol and its skull. Colombo, Ceylon. Presented by Dr. J. Anderson, October 1872. The

skull of this specimen has only 28 teeth, the small intermediate tooth having disappeared.

*u.* An adult female in alcohol and its skull. Calcutta. Presented by Dr. J. Anderson, 1872.

*v & w.* Two adult males in alcohol and the skull of *w.* Calcutta. Presented by Mr. R. DeCruz, 6th February 1875,

*x & y.* An adolescent and a young male in alcohol, and the skull of *x.* Museum Offices, Kyd Street, Calcutta, 19th April 1873.

*z.* The skin of an adult female, and its skull and bones of the trunk. Circular Road, Calcutta. Purchased, 8th May 1876.

*aa.* An adult male in alcohol and its skull. Madras. By exchange with the Central Museum, Madras, 13th December 1876.

*bb.* The skeleton of an adult male. Calcutta. Purchased, 3rd May 1877.

*cc.* The skeleton of an adult male. Calcutta. Purchased, 5th May 1877.

*dd.* The skeleton of an adult male. Calcutta. Purchased, 6th May 1877.

*ee & ff.* An adult and gravid female and an adult female in alcohol. Calcutta. Purchased, 10th May 1877.

*gg & hh.* Two skins of adult males, their skulls and bones of the trunks. Calcutta. Purchased, 16th May 1877.

*ii.* The skin, skull, and bones of the trunk of an adult male. Calcutta. Purchased, 22nd May 1877.

*jj.* The skin, skull, and bones of the trunk of an adult female. Calcutta. Purchased, 25th May 1877.

*kk.* The skin, skull, and bones of the trunk of an adult female. Calcutta. Purchased, 30th May 1877.

*ll.* The skin, skull, and bones of the trunk of an adult female. Calcutta. Purchased, 31st May 1877.

*mm.* The skin and skeleton of an adult male. Calcutta. 5th June 1877.

*nn & oo.* An adult and adolescent male in alcohol. Calcutta. Purchased, 19th February 1877.

*pp.* The skeleton of an adult male. Calcutta. 7th May 1877.

*qq & rr.* Two young animals in alcohol, eyes still closed. Museum Offices, Kyd Street, Calcutta. 17th July 1877.

VAR. *fulvocinerea.*

*ss.* An adult male and female in alcohol and their skulls. Gauhati, Assam. Museum Collector, October 1872.



The skin of an adult and its skull. Gauhátí. Museum Collector, October 1872.

*uu.* An adult female in alcohol, No. 247C of Blyth's Catalogue. Arakan. Presented by Sir Arthur P. Phayre, 1845.

VAR. *sindensis.*

*vv.* An adult female in alcohol and its skull. Karáchí. By exchange with the Karáchí Museum, 2nd April 1877. Type of *C. sindensis.*

*ww & xx.* Two females in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th March 1877.

*yy to bbb.* An adolescent and a young male and two females in alcohol. Karáchí. By exchange with the Karáchí Museum, 29th April 1879.

*ccc & ddd.* An adult male and another in alcohol. Karáchí. By exchange with the Karáchí Museum, 4th June 1878.

*eee & ggg.* Three specimens in alcohol. Karáchí. By exchange with the Karáchí Museum, 12th December 1879.

230. *Crocidura beddomii*, *n. sp.*

*Hab.* Southern India (Kollegál, Coimbatore).

Snout moderately long, rather abruptly and sharply pointed. The snout, feet and tail very pale flesh-coloured. General colour of fur dark grey, rather richly marked with rufous in some. The tail is about half the length of the body, and the hind feet are small. The tail is nearly nude and sparsely covered with short white hairs, with a few long white hairs intermixed.

The adult male and female have the following measurements:—

	♂	♀
Snout to vent . . . . .	4.30	4.10
Tail, vent to tip . . . . .	2.30	2.50
Hind foot . . . . .	0.72	0.68

This species is closely allied to *C. cerulescens*, but it is very much smaller with a proportionally less elongated snout. It is separated from *C. murina* also by its shorter snout, the colour of its nude parts, its sparsely clad tail and by the colour of its fur.

*a to d.* An adult and two adolescent males and one adult female in alcohol, and the skull of *a.* Kollegál hills, Coimbatore District. Presented by Colonel Beddome, 25th November 1878.

*e.* An adult female in alcohol. Russellkonda. Ganjam District. Presented by Colonel Beddome, 25th March 1879.

231. *Crocidura murina*.

- Sorex murinus*, *Linn., Syst. Nat.*, 12th ed., 1766, p. 74; *Blyth, Cat. Mamm. As. Soc. Mus.*, p. 83.
- Sorex myosurus*, *Pallas, Act. Acad. Petrop.* vol. x, 1785, p. 327, pl. iv; *Wagner, Schreber Säugeth. Suppl.* Bd. v, 1856, p. 552, *partim*.
- Sorex caeruleus* var. *Raffles, Linn. Trans.* vol. xiii, 1822, p. 225.
- Sorex serpentarius*, *Is. Geoff. St. Hil., Voyage de Bélanger*, 1834, p. 119; *Blyth, Cat. Mamm. As. Soc. Mus.*, 1860, p. 83.
- Sorex soccatus*, *Hodgson, Ann. & Mag. Nat. Hist.* vol. xv, 1845, p. 135; *Blyth, op. cit.*, p. 84.
- Sorex niger*, *Elliot, Horsfield, Cat. Mamm. E. Ind. Co's. Mus.* 1851, p. 135; *Blyth, op. cit.*, p. 84.
- Sorex kandianus*, et ferrugineus, *Kelaart, Prod. Faunæ Zeylanicæ*, 1852, pp. 30, 31.
- Sorex heterodon*, *Blyth, Journ. As. Soc. Beng.* vol. xxiv, 1855, p. 30; *viridescens*.
- Sorex viridescens*, *Blyth, Journ. As. Soc., Beng.*, vol. xxviii, 1859, p. 285.
- Sorex albinus*, *Blyth, Journ. As. Soc. Beng.* vol. xxix, 1860, p. 90.
- Sorex griffithii*, *Blyth, Cat. Mamm. As. Soc. Mus.*, 1863, p. 83.
- Crocidura (P.) ceylanica*, *Peters, M. B. Akad. Berl.*, 29th July, 1870, p. 591.
- Crocidura (P.) blanfordi*, *Anderson, Journ. As. Soc. Beng.*, vol. xlvi, pt. ii, 1877, p. 269.
- Crocidura (P.) blythii* et *pealana* *Anderson, Journ. As. Soc. Beng.*, vol. xlvi, pt. ii, 1877, pp. 264, 267 et 276.

*Hab.* Eastern and Southern India; Himalayas (Nepal, Sikkim); Assam, Khási Hills; Arakan, Burma; Tenasserim, Malayan Peninsula, Sumatra, Java, China (Amoy).

Snout moderately long and pointed, not much swollen across the incisors. Lower lip sharp and pointed. Feet well developed, the hind feet being rather large. Fore-limb clothed to the wrist; tibial portion of hind limb in its lower half moderately clad with short brown hairs. Snout, ears, feet, and tail brown; claws moderate and yellow; tail somewhat swollen at the base, round, rather thickly clad with short dark brown hairs, and with long white and brownish hairs interspersed. Tail about the length of the trunk without the head, but varying much in its dimensions. General colour above brown, generally more or less washed with rusty or reddish, and sometimes with a faintly grizzled sheen in certain lights. Under surface dark mousey brown. Fur soft and silky, generally rather short, but longer in individuals from high localities.

♂	Tip of snout to vent	4·70	hind foot without claws	0·95	tail	3·00
♀	" " "	4·15	" " "	0·80	" "	2·70

In this as in the former species and those which follow, the

male is considerably larger than the female, and, moreover, the individual differences in size in the sexes are considerable.

The first incisors above are rather long and the curve outwards from the base anteriorly is not so abrupt as in the previous species, but it is not a character calling for special remark, as the degree to which it occurs is variable.

The antero-posterior breadth of the posterior portion of the first incisor equals the same breadth across the base of the anterior portion of the tooth where it joins its posterior portion. The cusp of the posterior portion is not prominent, and there is only a very obscure process of the cingulum at its inner side. The second incisor is large and its breadth above equals the united breadth of the 3 incisors and eye tooth, and its point is above the level of the middle cusp of the false molar. The second premolar is smaller than the canine and lying immediately behind it, and in contact with it is the first premolar which is wholly visible from the outside of the jaw or nearly so. The cusp on the anterior border of the 1st premolar is well developed and in nearly the same line as the points of the 3 incisors, and above the point of the canines, which is at a lower level.

*Skull measurements. Male fully adult, and female nearly so.*

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
♂ Length of skull	1.30	0.49	0.31	0.32	0.51	0.59	0.74
♀ " "	1.05	0.43	0.25	0.30	0.48	0.56	0.63

Tomes describes the type of *S. griffithii* as characterised by the large size of its teeth, which exceeded, he states, those of any example of *S. cærulescens* he had ever seen. Such a description, however, is in no way applicable to the types of *S. griffithii* as understood by Blyth, and it is therefore perfectly evident, apart from external characters, that they are not the *S. griffithii* of Horsfield. Tomes, however, did not concur with Horsfield in considering the fur as either short, close, or soft, but describes it as of medium length, deep blackish grey, glossy and rather coarse. The specimens from Arakan described by Blyth as *S. murinus* (Ann. and Mag. Nat. Hist., Vol. XVII, 1851, p. 15) were afterwards the types of Blyth's *S. griffithii*, but these specimens were regarded by Tomes as *S. cærulescens*, and one of them appears to be that species.

Blyth was under the impression that the type of *S. griffithii* was from the Khási Hills, although described from Afghánistán, because he saw a fine skin of a shrew be

believed to be *S. griffithii* from Chárápúnjí in the possession of Griffith. This specimen had been forwarded to the India House by Dr. M'Clelland, and Blyth seems to have concluded that it was the type of *S. griffithii*, Horsfield; but the evidence is unsatisfactory, and, moreover, Blyth's specimens, as already observed, do not agree with the description of *S. griffithii*.

In the type of *C. heterodon*, beyond the inward folding of the hair on the sides of the heel, as occurs in shrews generally, I cannot detect the hairy patch mentioned by Blyth. The feet have had the tarsal bones removed, and the heel thus appears to begin at a bared portion of the leg, and in this way I think Blyth had been misled.

The type of *S. viridescens*, Blyth, was "a flat skin, tailless, and with only one hind foot attached."

231a. A stuffed adult male and its skull, No. 247A of Blyth's Catalogue. Chárápúnjí. Presented by F. Skipwith, Esq., 1846.

b. An adult female in alcohol and its skull; No. 247B of Blyth's Catalogue. Chárápúnjí. Presented by F. Skipwith, Esq., 1846.

c to f. An adolescent male and three adult females in alcohol, and the skull of d. Sibságar, Nágá Hills, Assam. Presented by S. E. Peal, Esq., February 1871.

g. The skin and skull of an adult female. Sibságar, Assam. Presented by S. E. Peal, Esq., February 1871.

h. Stuffed specimen, No. 248C of Blyth's Catalogue. Mergui. Presented by Major Berdmore, 1853.

i. A stuffed specimen, No. 250A of Blyth's Catalogue Chárápúnjí. Presented by R. W. G. Frith, Esq., 1855. Type of *S. heterodon*, Blyth.

j. A young female in alcohol and its skull; and No. 248E of Blyth's Catalogue; its skull much blackened. Mergui. Presented by Major Berdmore, 1853.

k. An adolescent female in alcohol and its skull. Chárápúnjí. Presented by Lieutenant J. H. Bourne, 12th July 1871.

l. The skin of an adult male and its skull. Samaguting, Assam. Presented by Captain J. Butler, 1873.

m to o. One adult male, and one adult and one adolescent female in alcohol, and the skulls of m and o. Samaguting, Assam. Presented by Captain J. Butler, 1873.

p. A young male shrew in alcohol, and its skull, apparently this species. Sibságar, Assam. Presented by S. E. Peal, Esq., July 1871.

q. A stuffed adolescent, No. 244E of Blyth's Catalogue. Tenasserim. Presented by W. Theobald, Esq., 1855.

r. A stuffed adult and portion of its skull, No. 246A of Blyth's Catalogue. Calcutta, 1859.

s. The skin of a female. Head of Barak river, Nágá Hills, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 26th August 1873.

t. A stuffed adult male and its skull, No. 246D of Blyth's Catalogue. Amoy. Presented by R. Swinhoe, Esq., 1854.

u. The skin in alcohol and its skull, No. 246E of Blyth's Catalogue. Amoy. Presented by R. Swinhoe, Esq., 1859.

v. A stuffed specimen and portion of its skull, No. 245A of Blyth's Catalogue; in bad condition. Amoy. Presented by R. Swinhoe, Esq., 1859. The *type* of *Sorex albinus*, Blyth.

w & x. Two adult females in alcohol and their skulls. Sibsagar, Assam. Presented by S. E. Peal, Esq., 20th December 1875. *Types* of *C. pealana*.

y. A stuffed specimen. Tinnevely. Presented by the Rev. H. Baker, 1859. This is the pale specimen mentioned by Blyth.<sup>1</sup>

z. & aa. An adult male and female in alcohol and their skulls. Travancore. Presented by the Rev. Mr. Baker, 1870.

bb. Skin from Madras. Presented to the Museum of the East India Company by Colonel Sykes, and presented to the Indian Museum by the India Museum, London, through the Trustees of the British Museum, 13th April 1880. This is one of the types, if not the *type*, of *S. niger*, Sykes, and is probably the specimen mentioned in the Catalogue of the East India Company's Museum (Horsfield), p. 135, No. 147.

cc & dd. Two stuffed adult males (?) and their skulls, Nos. 246 G and H of Blyth's Catalogue. Malabar. Presented by the Rev. H. Baker, June 1859. *Type* of *S. viridescens*, Blyth.

ee. A stuffed adolescent specimen, in very bad condition; No. 251A of Blyth's Catalogue. Presented by the Rev. H. Baker, 1858.

ff. A stuffed male and its skull; No. 248A of Blyth's Catalogue. Kandy, Ceylon. Presented by Dr. Kelaart, 1852. *Type* of *Sorex kandianus*, Kelaart.

gg. A stuffed female and its skull. Khandála, 2,000 feet. Western Ghat. Presented by W. T. Blanford, Esq., 1871. *Type* *C. (P.) blanfordi*, Anderson.

<sup>1</sup> Journ. As. Soc. Beng. Vol. XXVIII, p. 284.

*hh.* A stuffed specimen and its skull, No. 249A of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1854.

*ii.* A nearly adult female in alcohol and its skull. Darjeeling. Presented by W. S. Atkinson, Esq., May 1871.

*jj to mm.* Two adolescent females. Sureil, British Sikkim. Presented by George King, Esq., M.B., 10th February 1879.

*nn to pp.* Three adult males: no history; probably from British Sikkim.

*qq to vv.* Two adolescent, and three adult males, and one adult female in alcohol. Sureil, British Sikkim. Presented by J. L. Lister, Esq., 10th February 1879.

*ww to yy.* An adolescent, a young and younger female in alcohol. Darjeeling. By exchange with W. T. Blandford, Esq., 27th November 1877.

### 232. *Crocidura swinhoei*.

*Sorex swinhoei*, *Blyth, Journ. As. Soc. Beng.*, vol. xxviii, 1859, p. 285.

*Sorex murinus*, *Blyth, Journ. As. Soc. Beng.*, vol. xxix, 1860, p. 89, *partim*; *ibid.*, *Cat. Mamm. As. Soc. Mus.*, 1863, p. 83, *partim*.

*Hab.* China (Amoy).

Snout long and pointed. Ears rather large. Feet proportioned to body; claws rather strong and blunt. Lower half of limbs with short hair; upper surface of feet not seminude, but clad with short brownish-yellow hairs. Tail about the length of the trunk; long, and ringed, covered with short yellowish-brown hair, with long white and brownish hairs intermixed. Fur short, silky dark brown, with a glossy lustre; the under surface mousey brown.

Length of stuffed specimen 3".60; fore-foot 0".43; hind foot 0".72; tail 2".40.

Unfortunately the dental portion and the lower jaw are the only parts of the skull that have been preserved. The upper front incisors are short, convergent to their tips, but widely apart throughout. There is a well-developed tubercle on the inside of the basal eminence. The small *front premolar* is placed *entirely within the line* of the other teeth on the palatal surface. The tooth on either side occupies exactly the same position as its fellow, and this circumstance leads me to regard the arrangement as normal. Even supposing it were not, the general characters of the Shrew themselves separate it from *C. murina*, with which Blyth regarded it as identical. The second incisor is large and more

than exceeds the size of the united third incisor and canine. These two last mentioned teeth are rather small, and the canine slightly exceeds the size of the incisor. The tip of the chief cusp of the false molar is below the level of the point of the second incisor.

232a. A stuffed adult, No. 246C of Blyth's Catalogue and its skull. Amoy. Presented by R. Swinhoe, Esq., 1854. Type of *S. swinhoei*, Blyth.

### 233. *Crocidura bidiana*.

*Crocidura* (P.) *stoliczkana et bidiana*, *Anderson, Journ. As. Soc. Beng.* vol. xlvi, pt. ii, 1877, pp. 270, 276.

*Hab.* Southern and Western India (Madras and Bombay).

Snout long and pointed. Ears moderately large and round, and rather well haired. Feet large and seminude; the lower halves of the radial and tibial portions are also seminude; claws with rather long sharp curved points. Tail not much swollen at the base, equalling the length of the trunk and one-half of the head, well covered with short brown hairs, with long whitish hairs intermixed, their bases being dark brown. Snout, ears, and feet pale reddish brown, tail darker. Fur long, fine, and dense, 0.35 in length, reddish brown above and below, the basal portion of the fur, as usual, being dark slaty. The under surface has also a greyish gloss.

Length, tip of snout to vent	. . . . .	in. 3.20
"    of tail	. . . . .	" 2.60
"    of hind foot	. . . . .	" 0.80
"    tip of snout to eye	. . . . .	" 0.70
"    eye to ear	. . . . .	" 0.27
Height of ear	. . . . .	" 0.27
Breadth of ear	. . . . .	" 0.30

The foregoing specimen is a male with nearly all the sutures of the skull obliterated. The upper incisors are not very prominent and but little curved, and there is a small but well-defined tubercle on the inner side of the posterior portion of these teeth forming a sharp conical cusp. The second incisor is large and nearly equals the length of the chief cusp of the first molar. The third incisor and canine are almost of equal size, but the latter, as is generally the case, is slightly larger than the former. The premolar is small and wedged in between the canine and the first molar, is sharply conical, and nearly wholly visible externally. The anterior cusp on the first molar is small and rather blunt, and

considerably above the level of the point of the canine. There is a minute eminence on the outside of the lower incisor near its tip. The total length of the upper line of teeth is 0".45.

The skull unfortunately met with an accident before it was measured. The smaller and more rounded ears, its larger size, and the presence of a lateral gland separate it from *C. rubicunda*.

233a. An adult male in alcohol, and its skull, imperfect. Madras. By exchange with the Central Museum, 13th December 1876. *Type* of *C. bidiana*.

b. An adolescent male in alcohol and its skull. Bombay. Presented by Dr. F. Stoliczka, 12th April 1872. *Type* of *C. stoliczkana*.

#### 234. *Crocidura macrotis*.

*Sorex peyrottetii*, *Blyth*, (*partim*) *Journ. As. Soc.*, vol. xvi (1847), p. 1275.

*Sorex melanodon*,<sup>1</sup> *Blyth Journ. As. Soc. Beng.* vol. xxiv, 1855, p. 33.

*Sorex nudipes*, *Blyth, Journ. As. Soc. Beng.*, vol. xxiv, 1855, p. 34.

*Pachyura nudipes*, *Blyth, Fizinger, Sitzungsber, Ak. Wiss. Wien.* 1868, p. 172; *Anderson, Proc. Zool. Soc.* 1873, p. 231.

*Pachyura assamensis*, *Anderson, Proc. Zool. Soc.* 1873, p. 232.

*Crocidura* (P.) *macrotis*, et *nitidofulva*, *Anderson, Journ. As. Soc. Beng.*, vol. xlvi, pt. ii, 1877, pp. 271 & 272.

*Hab.* Lower Bengal (Calcutta), Assam (Goálpára), Tenascrium (Amherst).

Snout semi-nude, long, and somewhat swollen across the incisors, with the nasal portion attenuated. Ears moderately large and rather patulous, their antero-posterior breadth equalling two-thirds of the distance from their lower angles to the tip of the snout; sparsely covered with short brown hairs on their outer, and partially so, on their inner surface. Limbs rather feeble, shortly haired from the elbow and knee downwards. Feet only sparsely covered with short brown hairs which are paler on the toes; toes rather short; claws well developed. Tail equalling or not quite equalling the length of the trunk, rounded, tapering and ringed, nearly nude in appearance, owing to the shortness of the brown hairs which sparsely clothe it; moderately long white hairs interspersed as usual. Fur very short, shining brown or dark-brown above, which is also the colour of the upper sur-

<sup>1</sup> Wagler in 1833 (*Isis*, p. 54) named a red-toothed shrew *S. melanodon* = *S. vulgaris*.



faces of the snout and tail; lower half of ears, chin, and feet, yellowish brown.

	Adolescent ♂	Adult ♀
Length, tip of snout to vent	in. 1·67	in. 1·75
"    of tail	"    1·08	"    1·27
"    hind foot	"    0·32	"    0·34
"    tip of snout to eye	"    0·27	"    0·30
"    eye to ear	"    0·17	"    0·14
Height of ear	"    0·19	"    0·20
Breadth of ear	"    0·15	"    0·24

The first upper incisors are rather widely apart, directed forwards and downwards. A well-developed tubercle on the inner side of the posterior portion, which is conically pointed. The second incisor is large, and more than equalling the longitudinal length of the third incisor and the canine; the third incisor is only a little smaller than the canine; the premolar is placed behind the canine, has a sharp point, and is visible externally, but its point is much above the level of the point of the anterior cusp of the first molar; the chief cusp of this last mentioned tooth is but little longer than the second incisor.

Blyth, in describing this species, stated that it was "remarkable for its naked feet and very large ears; also for the odoriferous glands on the sides being strongly developed; whereas we can detect them in no other of these minute species." The feet, however, of the type specimens, named in Blyth's own handwriting, appear to be quite as well haired, if not more so than in some other species, and, moreover, the glands on the sides are not peculiar to it as a small species. As the character assigned by Blyth, *viz.*, naked feet, is misleading, I have re-named this species after its distinguishing feature, namely, its large ears.

It is closely allied to *C. perrottetii* from the Nilgiris, but is distinguished from it by its larger ears and by the character of its teeth, the first incisor being well curved, with a prominent eminence at the base, and the first intermediate tooth being large and conical.

234 *a to e*. Four adult males and one adult female, and the skulls of *a*, *b* and *e*. Nos. 254 A to E of Blyth's Catalogue. Amherst, Tenasserim. Presented by E. P. Reilly, Esq., 1847. Types of *S. nudipes*, Blyth.

*f* & *g*. Two adult males in alcohol, and the skull of Nos. 255 A & B of Blyth's Catalogue. Calcutta, 1855-57. Types of *S. melanodon*, Blyth, and of *C. nitidofulva*, Anderson.

*h*. An adult male in alcohol. Calcutta. Presented by Mr. C. Swaries, March 1873.

i. An adult male in alcohol and its skull. Goálpára, Assam Presented by H. L. Houghton, Esq., 2nd December 1866 Type of *P. assamensis*, Anderson.

j. An adult male in alcohol and its skull. Botanical Gardens, Howrah. Presented by Dr. J. Anderson, 1872.

k. A gravid female, with five fœtuses in the womb, one opposite to the *os*, in alcohol, and its skull. Jessore. Presented by James Wood-Mason, Esq., October 1873.

### 235. *Crocidura perrottetii*.

*Sorex perrottetii*, Duvernoy, Mag. de Zool. Pl. 38 & 54, 1842, p. 89, Pl. 47.

*Crocidura* (P.) *nilgirica*, Anderson, Journ. As. Soc. Beng., vol. xlvi, pt. 2, 1877, p. 274.

*Hab.* Nilgiris (Utakamund).

Form small, slender. Head long, somewhat flattened; snout rather broad, but long and rather abruptly rounded towards the nostrils. Snout densely haired, and moustachial bristles rather numerous. Ears of moderate size and not hidden, rounded, and sparsely clad with short hairs. Limbs clad to the wrist and ankle, and the upper surface of the feet sparsely clad. Claws well developed and sharp; pads of feet rather prominent. Tail equals about the length from the vent to the front of the shoulder; not swollen at the base, rather slender; finely ringed, about 12 to 13 rings to the one-tenth of an inch; numerous short strong hairs between the rings, with scattered, long black hairs. Fur short, dense, and velvety; general colour, snout, ears, tail and upper surface of limbs, deep fuliginous, velvety black or dark brown, paler below with a silvery lustre. Claws yellowish.

#### *Adult male.*

Length from tip of snout to vent	. . . in.	1·78
" of tail	. . . . .	1·12
" of hind foot	. . . . .	0·35
Height of ear	. . . . .	0·15
Breadth of ear	. . . . .	0·15

The skull proves this specimen to be fully adult, as the sutures on the base of the cranium are obliterated. A small portion of the occipital has been broken off, but sufficient remains on one side to indicate that the foramen magnum has been very large; measured from the inferior border of the foramen magnum to the end of the palate anteriorly, the total length of the adult skull is only 0·45. The condyles are

large, and there is a considerable concavity or depression immediately over the temporal fossa. The most marked feature of the skull is the character of the teeth, more especially of the first upper incisor, which is short and but little, if at all, hooked, and destitute of the marked eminence at its base posteriorly, which is so distinctive of the generality of shrews. There is a slight indication of the position of the eminence on the outer side of the tooth, but no more, and the tip of the first intermediate tooth is but little below the basal portion of the first incisor, and the immediately succeeding teeth gradually diminish in size to the fourth intermediate tooth, which is well developed, and in the line of the teeth before it, and almost wholly visible externally. The anterior portions of the crowns of these three teeth are rather sharply pointed. The apex of the crown of the first molar is on a level with the base of the first incisor. The last tooth has two distinct cusps. The condyle of the lower jaw is not divided by a notch.

Inferior border of foramen magnum to tip of premaxillæ . . . . .	in.	0·45
Breadth across molars . . . . .	..	0·17
" at posterior border of infraorbital foramen . . . . .	..	0·16
" at middle of frontal contraction . . . . .	..	0·13
" external glenoid fossæ . . . . .	..	0·21
" " to auditory canal . . . . .	..	0·26
Length of upper row of teeth . . . . .	..	0·21
" of lower " " " . . . . .	..	0·14

235 *a* & *b*. Two adult males in alcohol and the skull of *a*. Utakamund, Nilgiris. Presented by Lt.-Colonel Beddome, 30th July 1877.

*c* & *d*. Two adults in alcohol. Nilgiris. Presented by Lt.-Colonel Beddome, 28th July 1879.

### 236. *Crocidura* (*P*). *travancorensis*.

*Crocidura* (*P*). *travancorensis*, *Anderson, Journ. As. Soc., Beng.*, vol. xlv, pt. 2, 1877, p. 275.

*Hab.* Southern India (Travancore).

Head more elongated before the ear than in *P. macrotis*; ears moderately developed and sparsely clad; feet seminude, with short white hairs, hardly hiding the scaly skin. Claws well developed, sharp. Tail equalling the length of the trunk without the head; not swollen at the base, tetragonal, scaly, ringed, 43 rings to the quarter inch and not obscured by the hairs, which are extremely few and short, those at the tip being longest; long white hairs interspersed.

Fur very short, dense, and soft; reddish brown above, the under surface greyish, with a warm tint, silvery in certain lights. Feet yellowish brown. Tail above concolorous with the upper surface of the body.

Length from tip of snout to vent . . . . .	in. 1·66
„ of tail . . . . .	„ 1·19
„ of hind foot . . . . .	„ 0·31
„ from tip of snout to eye . . . . .	„ 0·30
„ „ eye to year . . . . .	„ 0·14
Height of ear . . . . .	„ 0·19
Breadth of ear . . . . .	„ 0·21

The skull has the facial portion more elongated than in *C. macrotis*.

The front upper incisor is short and directed downwards, and the posterior portion of the tooth has a small tubercle on its inner side, and is large and rather sharply pointed. The second is considerably larger than the third incisor and the canine combined, and its apex reaches as far downwards as the anterior point of the first incisor. The third incisor and the canine are of equal breadth, the first of the two being the longer. The small premolar is largely visible externally, although it lies between the canine and first molar. There is a slight swelling on the outer border of the lower incisor near its free end.

Anterior border of foramen magnum to tip of premaxillæ .	in. 0·49
Breadth across maxillæ . . . . .	„ 0·18
„ behind infraorbital foramen . . . . .	„ 0·13
„ before brain case . . . . .	„ 0·15
„ external to glenoid fossæ . . . . .	„ 0·20
„ „ to tympanic . . . . .	„ 0·26
Length from condyle of lower jaw to anterior end of alveolar line from condyle of lower jaw to anterior end of alveolar line . . . . .	„ 0·25
Length of upper alveolar line . . . . .	„ 0·20
„ „ lower „ „ . . . . .	„ 0·12

236a. An adult male in alcohol and its skull. Travancore. Presented by the Rev. H. Baker, 1871. *Type*.

b. An adult in alcohol. Kalaghat, western slopes of the Nilgiris. Presented by Lt.-Colonel Beddome, 6th April 1878.

c. An adult in alcohol. Kollegál Hills. Presented by Lt.-Colonel Beddome, 25th November 1878.

(No lateral gland.)

### 237. *Crocidura rubicunda*.

*Crocidura* (P.) *rubicunda*, *Anderson, Journ. As. Soc. Beng.* vol. xlv, pt. 2, 1877, p. 277.

*Hab.* Western Bengal (Paresnáth).

Snout long and pointed, not much swollen across the moustachial region, well haired. Ears large, round, very sparsely haired; rather long white hairs on the flaps. Feet slender, covered with short, nearly white hairs, so as to obscure the skin and projecting over the yellow claws, which are rather large and curved at the points. Tail equalling the distance from the vent to the middle of the ear, measured along the side, slightly swollen at the base, round, and rather thickly clad with longish pale yellow, almost white hairs, with long white hairs intermixed. Muzzle, ears, feet and tail, pale yellowish. Fur rather long and soft, and pale rusty fawn. Under parts grey, suffused with fawn.

	♀
Length, tip of snout to vent . . . . .	in. 3.40
"    of tail . . . . .	"    2.30
"    of hind foot . . . . .	"    0.64
"    tip of snout to eye . . . . .	"    0.63
"    eye to ear . . . . .	"    0.36
Height of ear . . . . .	"    0.33
Breadth of ear . . . . .	"    0.40

The first upper incisors of this female are longer, stronger and more curved than in the adult male of *C. bidiana*, and there is no tubercle on the inside of the posterior portion of the tooth, which is not so sharply pointed as in that species. The second incisor is also a broader and more blunted tooth than in *C. bidiana*, and the third incisor is notably smaller than the canine. The premolar is largely visible externally. The lower incisors are notched in the middle, and their points are not so upwardly bent as in *C. bidiana*.

	♀
Anterior border of foramen magnum to tip of premaxillæ . . . . .	in. 0.93
Breadth across maxillæ . . . . .	"    0.23
"    behind infraorbital foramen . . . . .	"    0.20
"    before brain case . . . . .	"    0.25
"    external to glenoid fossæ . . . . .	"    0.39
"    "    to tympanic . . . . .	"    0.42
Length of upper alveolar line . . . . .	"    0.49
"    from condyle of lower jaw to anterior end of alveolar line . . . . .	"    0.52

237a. An adult female in alcohol and its skull. Paresnáth. Presented by Dr. F. Stoliczka, 1874. *Type*.

♂. An adolescent female. Locality unknown. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 6th March 1880.

238. *Crocidura subfulva*.

*Crocidura murina*, *Anderson, Journ. As. Soc. Beng.* vol. xli, 1872, p. 223.

*Crocidura* (P.) *subfulva*, *Anderson, Journ. As. Soc. Beng.* vol. xlvi, pt. 2, 1877, p. 278.

*Hab.* Kach.

Snout rather short and broad: ears moderately developed, rather flattened above and rounded posteriorly and sparsely clad with pale-coloured hairs. Feet moderately large, and tolerably well clad, with pale-coloured hairs hanging over the claws, which are yellow and strong. The tail equals the length of the trunk and is not swollen at the base, but it is rather thick throughout and somewhat abruptly tapers towards the point, and it is somewhat tetragonal. It is relatively well clad with short pale hairs which hide the rings, and at the point the hairs form an imperfect pencil, long white hairs are intermixed. The snout, ears, feet and tail are pale yellowish-brown; the tail paler on its under surface. General colour of the upper surface pale fawn; silvery grey on the under parts.

Tip of snout to vent, 1" 90; tail, 1" 30; hind foot, 0" 42.

Front upper incisors directed forwards and downwards, posterior portion moderately developed and sharply conical, a very feeble but distinct tubercle on the inside. Second incisor large, sharply pointed and nearly equalling in length the first tooth, twice as broad as the third incisor and canine. The premolar is very minute and wedged in between the canine and first molar, and is partially visible externally.

Anterior margin of foramen magnum to tip of premaxillæ . in.	0.62
Breadth across maxillæ . . . . .	0.23
" behind infraorbital foramen . . . . .	0.12
" before brain case . . . . .	0.20
" external to glenoid fossæ . . . . .	0.26
"       " to tympanic . . . . .	0.30
Length of upper alveolar line . . . . .	0.32
" from condyle of lower jaw to anterior end of alveolar line . . . . .	0.36

These are rather young shrews, but from the condition of the skull of which I have given the measurements, it is apparent that the animal does not attain to a much larger size. It might be mistaken for the young of *C. bidiana*, or *C. rubicunda*, but the teeth being complete it is evident from the measurements of the upper dental line that its teeth are considerably smaller than the teeth of either of these species.

238 *a & b*. An adolescent, and a younger female in alcohol, and their skulls. Kach. Presented by Dr. F. Stoliczka, 12th April 1872.

239. *Crocidura montana*.

*Sorex montanus*, *Kelaart, Prod. Fauna Zey.* 1852, p. 31.

*Hab.* Ceylon Highlands.

Snout long and rather broad across the moustachial region. Ears round, full, and moderately large. Feet well developed, dull brown. Lower half of limbs short haired. Claws moderately strong and curved, yellowish. Feet sparsely clad with brown hairs, generally long and white at the base of the claws. Tail shorter than the trunk and rather thickly covered with short dark brown hairs, with long pale brown or greyish hairs intermixed. Fur full, soft, and deep slaty, the grey colour being almost obscured by dull dark brown. Under parts with a silvery sheen.

*Male.*

	in.		in.		in.
Tip of snout to vent	3.70	Height of ear	0.30	Hind foot	0.74
" " " eye	0.72	Breadth of ear	0.32	Tail	2.25

Upper front incisors well developed and close together anteriorly; a very prominent tubercle on the inner side of the posterior portion forms a distinct cusp, the posterior portion itself being only feebly developed. The second incisor large and conical, nearly equalling in length the great cusp of the false molar, and exceeding the longitudinal breadth of the third incisor and canine, which are well developed, the latter being only a little larger than the former. The second premolar is wedged in between the canine and false molar, and is wholly hidden externally. The small anterior cusp of the false molar is near the base of the tooth and is feeble, and its tip is only a short way below the level of the crown of the first premolar.

	in.
Anterior border of foramen magnum to tip of premaxillæ	1.02
Breadth of maxillæ	0.40
" behind infraorbital foramen	0.22
" anterior to brain case	0.28
" external to glenoid articulation	0.40
" " to tympanic	0.50
Length of lower jaw condyle to anterior end of alveolar line	0.60
" " upper alveolar line	0.50
" " lower " "	0.33

239a. An adult male in alcohol and its skull; in very bad condition. Ceylon. Presented by H. Nevill, Esq., 26th February 1874.

240. *Crocidura pygmæoides*.

(F) *Sorex pygmaeus*, *Hodgson, Ann. and Mag. Nat. Hist.* 1845, p. 269.  
*Sorex perrottetii*, *Blyth (partim), Journ. As. Soc. Beng.* vol. xvi, 1847, p. 1276; *op. cit.* vol. xxiv, 1855, p. 34.

(P) *Sorex hodgsoni*, *Blyth, Journ. As. Soc. Beng.* vol. xxiv (1855), p. 34.  
*Sorex mieronyx*, *Blyth, Journ. As. Soc. Beng.* vol. xxiv, 1855, p. 33,  
*Ann. and Mag. Nat. Hist.* vol. xvii, 2nd ser. 1856, p. 20; *Cat. Mamm. As. Soc. Mus.* 1863, p. 85 (*partim*).

(P) *Sorex atratus*, *Blyth, Journ. As. Soc., Beng.*, vol. xxiv, 1855, p. 34.  
*Pachyura micronyx*, *Blyth, Fützingers, Sitzungsber. Akad. Wiss. Wien*, 1868, p. 171; *Anderson, Proc. Zool. Soc.*, 1873, p. 231.

*Crocidura* (P.) *pygmæoides*, *Anderson, Journ. As. Soc. Beng.* vol. xvi, pt. ii, p. 279.

*Hab.* Himalaya.

Snout rather long, narrow and pointed; well clad. Ears well developed and prominent, sparsely clad with short hairs. Feet well developed, rather long and slender, the hind foot being especially larger than in *C. macrotis*, Andr.; toes moderately long: claws strong and curved. Lower portion of both anterior and posterior limbs clad with short brown hairs. Feet rather sparsely clad with short brown hairs. Tail rather long, somewhat tetragonal, and nearly equalling the length of the trunk and half of the head, ringed, 35 rings to quarter of an inch, rather densely covered with short brown hairs, which nearly hide the rings; long white interspersed hairs. Fur rather short, soft, and silky. General colour rich, deep rusty brown. Snout pale rufous brown, feet yellowish brown. Under parts brownish, with a marked silvery sheen.

	<i>Female.</i>	in.
Length, tip of snout to vent . . . . .		1.85
"    of tail . . . . .		1.40
"    of hind foot . . . . .		0.37
"    tip of snout to eye . . . . .		0.31
"    eye to ear . . . . .		0.15
Height of ear . . . . .		0.20
Breadth of ear . . . . .		0.23

Anterior incisors well developed; posterior portion with no internal process of the cingulum; conical point slightly directed backwards. Second incisor large, broader than the conjoint third incisor and canine, which have the usual relations; premolar placed behind the canine, visible exter-



nally. The anterior cusp of the first molar large, its point almost on the same level as the point of the canine; the point of the chief cusp of the first molar is nearly on the same level as the point of the first incisor.

	in.
Anterior border of foramen magnum to tip of premaxillæ . . . . .	0.50
Breadth across maxillæ . . . . .	0.19
„ behind infraorbital foramen . . . . .	0.14
„ before brain case . . . . .	0.15
„ external to glenoid fossæ . . . . .	0.23
„ „ to tympanic . . . . .	0.27
Length of lower jaw, condyle to anterior end of alveolar line . . . . .	0.26
„ of upper alveolar line . . . . .	0.13
„ of lower „ „ . . . . .	0.13

*Sorex hodgsoni*, Blyth, was founded on a shrew so young that the skull is almost membranous and the teeth so little advanced that they had not pierced the gums, and it is impossible, therefore, to determine the characters of the dentition.

The shrew, named by Blyth *S. micronyx*, was a very young individual with the bones impartially ossified and the incisors only appearing through the gums, yet he derived the distinguishing character of the supposed species from its still imperfectly matured claws. As the claws, however, in the adult are strong and well developed, the term *micronyx* is a misnomer and cannot be accepted.

*Sorex atratus* was founded on a headless specimen.

240a. A young specimen in alcohol. Its skull, No. 257A and p. 85 of Blyth's Catalogue. Darjeeling. Presented by Major Sherwill, 1854.

b. A young male in alcohol and its skull. No. 258B of Blyth's Catalogue, p. 85. Masúri. Presented by L. C. Stewart, Esq., 1852. One of the Types of *S. micronyx*, Blyth.

e. An adult female in alcohol and a fragment of its skull. No. 258A of Blyth's Catalogue. Almorá. Presented by Major R. Wroughton, 1846. The specimen is much shrivelled, &c., and in bad condition. The specimen is marked 258 of Blyth's Catalogue.

d. An adult female in alcohol and its skull. Darjeeling. Presented by Dr. F. Stoliczka, 2nd September 1871.

e. An adult in alcohol. Mungpu, British Sikkim, Presented by G. King, Esq., M.B., 1878.

f. A headless specimen in alcohol. No. 256, p. 88 of Blyth's Catalogue. Chárápunjí. Presented by R. A. G. Frith, Esq., 1851. This specimen is transfixed on the spine of a shrub, and it was found in this condition. Type *S. atratus*.

## SUB-GENUS CROCIDURA, Wagler, 1823.

*(Lateral gland.)*241. *Crocidura rubricosa*.

*Crocidura* (C.) *rubricosa* et *kingiana*, *Anderson, Journ. As. Soc. Beng.*, vol. xlvii, pt. ii, 1877, pp. 280 281.

*Hab.* Northern Bengal (Purniah), and extending into the Himalaya (British Sikkim), Assam, Gáro Hills and Khási Hills.

Snout pyramidal, moderately broad, well clad, nostrils rounded, divided, but not much prolonged. Ears of moderate size, and sparsely clad. Limbs in their lower halves sparsely clothed, also the feet, which are, however, covered with short brown hairs, long over the claws, which are well developed, but not much curved. Tail mouse-like, equalling the distance from the vent to the angle of the mouth, somewhat tetragonal, not swollen at the base, ringed, covered with short brown hairs, the long white hairs confined to the basal third. Colour dark or reddish brown above, more rufous, on the head and snout; feet, and under surface of tail paler yellowish brown; under parts greyish brown, with a prevailing silvery sheen.

	♂
Length, tip of snout to vent . . . . . in.	3.20
"    of tail . . . . . "	2.42
"    of hind foot . . . . . "	0.60
"    tip of snout to eye . . . . . "	0.51
"    eye to ear . . . . . "	0.22
Height of ear . . . . . "	0.28
Breadth of ear . . . . . "	0.30

The skull of this species is moderately elongated, with the upper front incisors close together anteriorly, but not touching, and there is a well-defined tubercle on the inside of the posterior portion of each tooth, narrow, sharp, and conical. The second incisor is large and equals the latter. The interior cusp on the first molar is sharply defined, but wholly developed from the cingulum. There is a marked tubercle on the outer margin of the lower incisor anterior to the middle.

	♂
Anterior border of foramen magnum to premaxillæ . . . in.	0.73
Breadth across maxillæ . . . . . "	0.27
"    behind infraorbital foramen . . . . . "	0.19
"    anterior to brain case . . . . . "	0.21
"    external to glenoid fossæ . . . . . "	0.31
"    "    to tympanic . . . . . "	0.37
"    of upper alveolar line . . . . . "	0.36
"    of lower . . . . . "	0.21

241a to d. An adult male, two adolescent males, and one adolescent female, in alcohol, and their skulls. The female was impregnated, although the basi-occipital suture was perfectly intact, and her teeth surfaces unground. Sibságar, Assam. Presented by S. E. Peal, Esq., 1867. *Type*.

e. An adult female and portion of its skull (lower jaw.) Purniah. Presented by S. W. Shillingford, Esq., 28th August 1872.

f. An adult female in alcohol, and its skull. Chárapunjí. Presented by Lt.-Colonel H. H. Godwin Austen, 1870.

g. A young male in alcohol and its skull. Gáro Hills. Presented by Lt.-Colonel H. H. Godwin Austen, 1870.

h. A young female in alcohol and fragments of its skull. Názira, Assam. Presented by J. M. Foster, Esq., 1870.

i to k. Three adult males in alcohol and the skull of i. Mungpu (British Sikkim). Presented by G. King, Esq., M.B., 6th March 1877. *Type S. kingiana*. The lateral gland was so obscure in the type that I overlooked it, but other specimens have established its presence, and I have no hesitation in uniting this species with *C. rubricosa*.

l to n. Two adult males and one adult female in alcohol. The female has three pairs of inguinal teats. Mungpu, British Sikkim. Presented by J. L. Lister, Esq., 10th February 1879.

#### 242. *Crocidura fuliginosa*.

*Sorex fuliginosus*, *Blyth, Journ. As. Soc. Beng.*, vol. xxiv, 1855, p. 362; *Ann. & Mag. Nat. Hist.*, 2nd ser., vol. xvii, 1856, p. 22; *Cat. Mamm. Mus. As. Soc.* 1863, p. 84.

*Crocidura fuliginosa*, *Blyth, Anderson, Proc. Zool. Soc.* 1873, p. 231.

*Hab.* Tenasserim.

Snout moderately long, not much pointed and not densely clad. Ears rather large, seminude. Lower portion of limbs only sparsely clad: feet nearly nude, large, and broad: claws short and deep. Tail as long as the interval between the vent and eye, rounded, and rather thick at the base, finely ringed, sparsely covered with very short dark brown hairs. A few long white hairs from its root, towards its middle. Snout, ears, and tail pale yellowish-brown. Fur dense, moderately long, velvety, dark slaty at the base, the root fuliginous brown,

with inconspicuous, dull, long tips: under part scarcely, if at all, paler, with silvery reflections.

	♂, <i>juv.</i>	♀, <i>ad.</i>
Tip of snout to vent . . . . .	2.46	2.90
Hind foot . . . . .	0.50	0.60
Tail . . . . .	1.95	2.30
Tip of snout to eye . . . . .	...	3.43
Eye to ear . . . . .	...	0.25
Height of ear . . . . .	...	0.28
Breadth of ear . . . . .	...	0.30

In the female skull, the base of the incisor is much directed forwards, and the tooth is then abruptly bent downwards, the downwardly directed portion being rather short. The posterior portion of the tooth is not strongly developed, and the point is slightly directed backwards: the cingulum forms a strong ridge along the inside, but no tubercle. The second incisor is large and conically pointed, its points being nearly on the same level with the point of the chief cusp of the false molar. The third incisor and canine are more than the breadth of the second incisor. The small anterior cusp on the false incisor rises above the cingulum, but its point is above the level of the point of the canine. Two not very well marked depressions or notches occur on the lower incisors.

	♂	♀
Anterior border of foramen magnum to tip of pre-maxillæ . . . . . in.	0.80	0.76
Breadth across maxillæ . . . . . "	0.31	0.30
" behind lachrymal canal . . . . . "	0.20	0.20
" anterior to brain case . . . . . "	0.23	0.23
" external to glenoid articulation . . . . . "	0.35	0.32
" " to tympanic . . . . . "	0.42	0.41
Length from condyle of lower jaw to anterior end of alveolar line . . . . . "	0.50	0.48
" of upper alveolar line . . . . . "	0.40	0.38
" of lower " " . . . . . "	0.23	0.25

242a & b. An adult female and an adolescent male in alcohol, and the skull of *a*; Nos. 253 A & B of Blyth's Catalogue, p. 84, Tenasserim Provinces. Presented by Major Berdmore, 1855. Types of *C. fuliginosa*, Blyth.

*c.* A mounted specimen, No. 253C of Blyth's Catalogue. Presented by Major Berdmore, 1855.

*d.* A skull, No. 253D of Blyth's Catalogue. Presented by Major Berdmore, 1855.

242. *Crocidura retusa*.

*Crocidura* (Cr.) *retusa*, *Peters, Monatsber, der R. Akad. der Wissen.*  
1870, p. 585.

*Hab.* Highlands of Ceylon (Paradinia).

Snout rather long and pointed; partially haired; ears semi-nude, prominent. Limbs seminude in their lower halves; feet rather long and slender; claws well developed. Tail round, scaled, slender and tapering, almost equalling the length of the body and head. Fur moderately long, bright rusty red above, under parts pale silvery grey with a warm tint; ears, feet, and under surface of tail pale reddish—yellow.

	♂
Tip of snout to vent . . . . .	in. 2.10
Hind foot . . . . .	" 0.50
Vent to tip of tail . . . . .	" 1.95
Snout to eye . . . . .	" 0.37
Eye to ear . . . . .	" 0.16
Height of ear . . . . .	" 0.21
Breadth of ear . . . . .	" 0.24

The skull is almost fully adult, as the basi-occipital suture is partially closed. Upper anterior incisors close together, a well-marked tubercle on the inner side of the posterior portion. The third incisor and the canine are of nearly equal size. A very minute tubercle on the outer side of the first lower incisor about its middle. The lower incisors are rather short and more forwardly directed than is generally the case among shrews.

Anterior border of foramen magnum to tip of premaxilla	in. 0.60
Breadth across maxilla . . . . .	" 0.20
" behind lachrymal canal . . . . .	" 0.15
" anterior to brain case . . . . .	" 0.20
" external to glenoid articulation . . . . .	" 0.28
" " to tympanic . . . . .	" 0.30
Length from condyle to anterior end of alveolar line . . . . .	" 0.34
" of upper alveolar line] . . . . .	" 0.30
" of lower " " . . . . .	" 0.17

The specimen agrees generally with the measurements given by Prof. Peters of his type, and apparently also with the characters assigned to the dentition of *C. media*.

243a. An adult female in alcohol and its skull. Paradinia, Ceylon. Presented by W. Thwaites, Esq., 14th May 1872.

(No lateral gland.)

244. *Crocidura kelaarti*.

*Sorex kelaarti*, *Blyth, Journ. As. Soc. Beng.*, vol. xxiv, 1855. p. 32;  
*Cat. Mamm. As. Soc. Mus.*, 1863, p. 84.  
*Crocidura kelaarti*, *Anderson, Proc. Zool. Soc.*, 1873, p. 230.

*Hab.* Ceylon (Galle).

A young shrew with the very short fur of youth. Tail short; ears small, little raised above the fur; feet well developed with longish claws. Lower half of limbs and the feet seminude. General colours above and below rich rusty brown; pale yellowish-brown on the feet. Snout well haired.

The shrew is evidently extremely young, probably little more than newly born, as the teeth have evidently only been piercing the gum.

Length, tip of snout to vent	. . . . .	in. 2.70
" tip of snout to eye	. . . . .	" 0.40
Hind foot	. . . . .	" 0.60
Eye to ear	. . . . .	" 0.20
Vent to tip of tail	. . . . .	" 1.15
Height of ear	. . . . .	" 0.23
Breadth of ear	. . . . .	" 0.15

All the sutures are intact, and the premaxillary suture is anterior to the third intermediate tooth.

It may prove to be the young of some other species already known. It is curious to observe, as Blyth remarks, that the inguinal teats of this shrew, although the animal is so very young, are well developed.

244a. A young female in alcohol and its skull, No. 252A of Blyth's Catalogue, p. 84. Galle, Ceylon. Presented by Dr. Kelaart, 1854. *Type*.

245. *Crocidura myoides*.

*Sorex*<sup>1</sup> (*Crocidura*) *myoides*, *W. T. Blanford, Sc. Results, 2nd Yárkand Mission*, 1879, p. 16, pl. 1 fig. 1; pl. 1a fig. 2.

*Hab.* Ladák (Leh).

245a. An adult female in alcohol and its skull. Leh, Ladák. Dr. F. Stoliczka, 1873-74. Presented by the 2nd Yárkand Mission. Type figured and described by W. T. Blanford,

<sup>1</sup> The teeth are white, and the front upper incisors have an obscure internal process. Teeth:  $\frac{2+4}{2} + \frac{2}{2} + \frac{8}{2+6} = 28$ .

Esq., F.R.S., Scientific Results of 2nd Yarkand Mission, 1879, p. 16, pls. 1 and 1a, figs. 1 and 2.

b. A flat skin. Leh. Presented by W. H. Johnson, Esq., 31st July 1880.

### SUB-FAMILY SORICINÆ.

#### GENUS SOREX, Linnæus, 1735.

##### 246. *Sorex alpinus*.

*Sorex alpinus*, Schinz, *Fröbel's und Heer Mitthiel*. Bd. I, Neue Denkschr. I, p. 13, fig. 1.

*Amphisorex alpinus*, Duvernoy, *Mém. de la Soc. d'Hist. Nat. de Strasb.* t. ii, 3 Suppl., 1838, p. 4; *Mag. de Zool.*, 1842, p. 31, tab. 49.

*Sorex antinorii*, Bonap. *Icon. d. Faunae Ital.*, fasc. xxix.

*Corsira alpinus*, Blyth, *Cat. Mamm. As. Soc. Beng. Mus.*, 1863, p. 86 (*partim*); Jerdon, *Mamm. of Ind. (partim)*, 1867, p. 61.

*Hab.* Europe (Alpine region).

246a. A stuffed adult, No. 261A, p. 86 of Blyth's Catalogue. Mt. St. Gothard. Presented by M. Melherbe, 1849.

##### 247. *Sorex vulgaris*.

*Sorex vulgaris*, Linn., *Mus. Adolph. Frid.* p. 10, 1754; Blasius, *Naturg. Säugeth. Deutschl.*, 1857, p. 129, fig. 86.

*Hab.* Europe.

247a. An adult female in alcohol, No. 262A, p. 86 of Blyth's Catalogue.

b. An adult male in alcohol, No. 262B, p. 86 of Blyth's Catalogue. *S. leucodon*, *apud* Melherbe. France. Presented by M. Melherbe, 1854.

c. A stuffed specimen, No. 262C, p. 86 of Blyth's Catalogue. France. Presented by M. Melherbe, 1854.

d. A stuffed specimen, No. 262D, p. 86 of Blyth's Catalogue. England. Presented by Mr. Davison, 1846.

e. A skin. No history. Labelled *S. tetragonurus*. England.

f. Dental portion of a skull, No. 262F of Blyth's Catalogue, p. 86. England. Presented by Mr. Davison, 1846.

##### 248. *Sorex pygmæus*.

*Sorex pygmæus*, Pallas, *Zoor. Ross. Asiat.* t. i, p. 184.

*Hab.* Northern Europe and Asia.

248a. An adult in alcohol. No history.

## GENUS SORICULUS, Blyth, 1855.

A small shrew with red-tipped teeth, and the following dentition:  $\frac{2+4}{2} + \frac{2}{2} + \frac{2}{2} + \frac{8}{8} = 30$ . The first upper incisors with a prominent cusp at their posterior portion, and a small cusp or talon internally on the vertical portion. Lower incisors with a prominent cusp over their base. Snout moderately long, and tapering: nostrils not prominent. Ear almost completely hidden: antitragus acting as a valve. Feet moderately or well developed, scaly, partially haired. Tail mouse-like, scaly, ringed, tetragonal, no long hairs, pencillated at the tip. No lateral gland. Fur dense and velvety. Skull with a short orbito-temporal fossa, and with two articular surfaces for the lower jaw, upper zygomatic, and a lower post-glenoid.

The skull of this genus is very different in form from the skull of *Crocidura*. It is a much lighter skull and without ridges, and has more the form of the skull of *Talpa*, but without the zygomatic arch and any trace of an orbital process. The temporal fossa is very short; and the preorbital foramen is spanned by a broad arch of bone. The occipital region is forwardly tilted, but not to the same extent as in *Talpa*. There is a prominent angle immediately external to the tympanic, and from this angle a feeble ridge runs forwards to the beginning of the temporal fossa, and bears on its under surface anteriorly a facet, which looks forwards, outwards, and downwards, and which receives the upper division of the condyle of the mandible. The *foramen magnum* is very broad from above downwards. The post-glenoid process is very large, convex posteriorly and marked by a large foramen (*ovale*?). Its anterior surface is deeply concave and looks forwards and somewhat outwards, and bears an articular surface for the reception of the lower division of the condyle of the mandible, and this surface is in no way continuous with the upper surface, but widely separated from it by a deep notch. There is a minute foramen at the base of the post-glenoid process posteriorly. The posterior margin of the palate forms a thin fine convex ridge, a little behind the last molar.

The notches separating the articular surface of the divided condyle are not so deep as in *Chimarrogale*. The process of the angle is thin and moderately long, and directed backwards.



The first upper incisors are short and hooked, with a prominent cusp at their posterior portion, and a small cusp on the inner side of the vertical portion of the tooth, a little above the tip. Second, third, and fourth intermediate teeth conical, decreasing in size from before backwards. An extremely minute tooth, wedged in between the four intermediate teeth and the second premolar, and completely excluded from the general line of the teeth externally. Second premolar with one prominent external central cusp with a smaller cusp anterior to it, the former cusp being prolonged backwards as a ridge terminating as an obscure cusp. The basal portion of the second premolar internally has two pointed cusps, the anterior cusp the most downwardly prolonged, corresponding to the internal cusps occurring on the first two molars: the crown of each molar has three small external and two internal cusps connected to the internal cusps by a zigzag line. The third molar has four cusps arranged quadrangularly around a central depression with one external cusp. The first lower incisor has a *marked cusp near its base*. The third tooth has two cusps, and the molars are five-cusped, one anterior and two external and two internal, opposite to each other.

The transverse process of the atlas is not outwardly prolonged. The spinous process of the axis is large and halbert-shaped, but the remaining cervical vertebræ show no distinct spinous processes. The neural arches have considerable lateral breadth. There are well-developed hypapophyses on the 2nd and 3rd cervicals, and a trace of them on the 3rd and 4th. The transverse processes of the 3rd, 4th, 5th, and 6th cervicals overlap. The dorsal vertebræ are devoid of spinous processes, until about the 10th segment, when a trace begins to show itself and which becomes more strongly developed in the lumbar vertebræ. In *Crocidura* the first dorsal vertebræ have short spinous processes, and all of them have their processes more or less developed, whereas in *Talpa* they are, as in *Soriculus*, almost obsolete. Five vertebræ are united in the sacrum, which has a prominent keel-like crest, and, instead of a symphysis, the pubic bones are much more widely apart than in *Crocidura*. The caudal vertebræ increase in length to the 8th, and then diminish. The vertebral formula is C. 7, D. 13, L. 6, Sacral and P. Sacral 5, Caudal 17.

The shoulder girdle is rather far forwards, as in *Talpa*, and from the neck being short, the head is brought near the shoulder, but not to the marked degree as in the mole. The scapula is short and narrow as in *Crocidura*, but the humerus is relatively very much shorter and stouter than in that

genus, and approaches in this respect to the humerus of *Talpa*. The external tuberosity is hook-like and large, and there is a prominent ridge from the head of the humerus dividing the front of the bone in two, and terminating on its external margin near the middle of the bone. Opposite to this point, on the inner border of the bone, is a large, somewhat anteriorly directed process, prolonged downwards from the inner tuberosity of the head of the bone. The lower end of the bone is very broad, and the inner condyle is widely prolonged. The character of the humerus indicates a burrowing habit of life, which seems probable from the long and nearly straight claws, which have none of the hooked, grasping character of an arboreal mammal. Radius and ulna distinct. The manubrium is T-shaped with a sharp ridge down its centre. There are five mesosternal pieces. As in Shrews generally, the clavicle does not articulate with the humerus. Tibia and fibula united.

It is evident that its affinities are markedly soricine, but at the same time it shows a few in the direction of *Talpa*.

Length of vertebral column, atlas to last sacral	. . . . .	in. 3.70
" of caudal vertebrae	. . . . .	" 1.57
" of scapula	. . . . .	" 0.43
" of humerus	. . . . .	" 0.38
" of ulna	. . . . .	" 0.51
" of manus	. . . . .	" 0.40
" of os innominatum	. . . . .	" 0.40
" of femur	. . . . .	" 0.45
" of tibia	. . . . .	" 0.60
" of pes	. . . . .	" 0.60

#### 249. *Soriculus nigrescens*.

*Corsisa nigrescens*, *Gray, Ann. & Mag. Nat. Hist.*, vol. x, 1842, p. 261; *Hodgson, Cat. B. M.*, 1846, p. 17; *ibid.*, 2nd ed., 1863, p. 9; *Horsfield, Cat. Mamm. E. Ind. Co. Mus.*, 1851, p. 136.

*Sorex aterrimus*, *Blyth, Journ. As. Soc. Beng.*, vol. xii (1843), p. 928; *ibid.*, vol. xxiii, 1854, p. 933, note.

*Sorex nigrescens*, *Gray, Schreber. Säugeth.*, Snppl. Bd. v, 1855, p. 546, (*partim*).

*Soriculus nigrescens*, *Blyth, Journ. As. Soc.*, vol. xxiii, 1854, p. 733; *ibid.*, vol. xxiv, 1855, p. 36; *Ann. & Mag. Nat. Hist.*, 2nd ser., vol. xvii, p. 24; *Cat. Mamm. As. Soc. Beng.*, 1863, p. 86; *Jerdon, Mamm. of India*, 1867, p. 59.

*Sorex sikkimensis*, *Hodgson, Ann. & Mag. Nat. Hist.*, new series, vol. iii, 1849, p. 203; *Horsfield, Cat. Mamm. E. Ind. Co. Mus.*, 1851, p. 136; *Ann. & Mag. Nat. Hist.*, vol. xvi, 1855, p. 111; *Gray, Cat. Mamm. of Nepal*; *Hodgson, B. M.*, 1863, p. 8.

*Crossopus nigrescens*, (*Gray*) *Anderson, Proc. Zool. Soc.*, 1873, p. 232.

*Hab.* Himalaya (Sikkim).

Body rather abruptly terminated posteriorly; snout short,

but sharply pointed, densely haired; nostrils not deeply divided. Ear almost hidden, but rather large and generally bordered with a dense fringe of fur, like that clothing the body. Limbs short. Fore-limb with a very narrow bare area above the wrist; lower half of tibial portion of hind leg seminude. Feet strong, especially the front pair, which are rather broad, with the toes inwardly bent, with long sharp claws: the 3rd and 4th slightly exceeding the length of their respective toes. Hind feet narrower than the front feet, and with shorter claws. Upper surface of both feet scaly, sparsely clad with short brown hairs. Tail short, equalling the distance from the vent to the shoulder; somewhat tetragonal, scaly, ringed, covered with short brown hairs forming a short pencil at the tip; no long hairs. Fur moderately long, soft, and lustrous. Blackish brown, tinged with rufescent, becoming rich rufous brown in alcohol. Under surface almost concolorous with the upper surface, but of a pale reddish-brown, with distinct greyish tinge.

	♂	♀
Tip of snout to vent . . . . .	3.20	2.20
"          "    eye . . . . .	0.54	0.56
Eye to ear . . . . .	0.45	0.45
Length of ear . . . . .	0.25	0.27
Breadth of ear . . . . .	0.30	0.30
Vent to tip of tail . . . . .	1.74	1.70
Hind foot . . . . .	0.55	0.53

The incisors are moderately long and curved, the posterior portion well developed and sharply conical. The second and third incisors, and the canine, have all the same form, but the third incisor is somewhat larger than the second, and the latter larger than the canine, the tips of the canine being on nearly the same level with the point of the posterior portion of the first incisor and with the anterior cusp of the first molar. The minute premolar is in the same line with the other teeth, but wholly excluded from being visible externally. There is occasionally no trace of pigment on the teeth of adults, as it is restricted to the tips of the teeth and disappears with their points.

	♂	♀
Anterior border of foramen magnum to tip of pre-maxillaries . . . . .	in. 0.78	in. 0.79
Breadth across maxillæ . . . . .	" 0.27	" 0.30
" posterior to, and above lachrymal canal . . . . .	" 0.22	" 0.21
" anterior to expansion of brain case . . . . .	" 0.25	" 0.25
" external to tympanic . . . . .	" 0.47	" 0.48
Length of lower jaw condyle to anterior end of alveolars . . . . .	" 0.45	" 0.44
" of upper alveolar line . . . . .	" 0.40	" 0.41
" of lower " " . . . . .	" 0.21	" 0.20

249 *a to c*. Three stuffed specimens, Nos. 266 A to C, p. 87 of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill and W. Theobald, Esq., 1854-55.

*d to f*. Two adult females and one adolescent male in alcohol and the skulls of *d* and *e*, Nos. 260 D to F of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill and W. Theobald, Esq., 1854-55.

*g & h*. Two adult females in alcohol and the skull of *g*. Darjeeling. Presented by W. S. Atkinson, Esq., November, 1869.

*i*. An adult female in alcohol. Darjeeling. Presented by W. T. Blanford, Esq., 2nd September, 1871.

*j & k*. An adult male and female in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*l to n*. An adult female, an adolescent male, and an adolescent female in alcohol. No history.

*o*. A skeleton. No history.

#### 250. *Soriculus caudatus*.

*Sorex caudatus*, Hodgson, *Ann. & Mag. Nat. Hist.*, new Ser., vol. iii. 1849, p. 203; Horsfield, *Cat. Mamm. E. Ind. Co. Mus.*, 1851, p. 135; *Ann. & Mag. Nat. Hist.*, vol. xvi, 1855, p. 111; Schreber *Säugeth. Suppl.*, Bd. v, 1855, p. 566.

*Corsira* (♀) *caudata*, Blyth, *Journ. As. Soc. Beng.*, vol. xxiv, 1855, p. 37; *Ann. & Mag. Nat. Hist.*, 2nd ser., vol. xvii, 1856, p. 27.

*Corsira alpinus*, Tomes, *Ann. & Mag. Nat. Hist.*, 2nd ser., vol. 17, 1856, p. 27 (*partim*); Blyth, *Cat. Mamm. Mus. As. Soc. Beng.*, 1865, p. 86 (*partim*).

*Corsira alpina*, Jerdon, *Mamm. Brit. Ind.*, 1867, p. 61 (*partim*).

*Crossopus caudatus*, Hodgson, *Anderson, Proc. Zool. Soc.*, 1873, p. 232.

*Soriculus gracilicauda*, *Anderson, Journ. As. Soc. Beng.*, vol. xlvi, 1877, p. 282.

*Hab.* Himalaya (Sikkim).

Snout rather sharply pointed, but not very long: well haired. Ears moderately large, partially hidden and well clad with long hairs on their outer surfaces, and along their margins, and tragus, amalgamating with the general fur, so that the ears are not prominent. Limbs slender, the lower half of the ante-brachium, and of the ante-femoral portion of the limb, nearly nude. Fore feet small. Hind feet rather long and slender, with a prominent white tubercle over the distal end of the 5th metatarsal. Feet scaly above, very sparsely covered with brown hairs, fewer on the toes: claws compressed, but little pointed. Tail long and slender, tetragonal, tapering to a fine, compressed, pencillated point, very

slightly exceeding the length of the body and head. Tail rather coarsely scaly, ringed, 25 rings to quarter of an inch, sparsely covered with very short dark brown hairs, arising between the rings and with long brownish yellow hairs at the tip, forming a kind of pencil. No long white hairs. Fur long, dense, and soft; the under or hidden parts being deep slaty, the exposed portion being tipped with rufous or golden brown; under parts greyish brown. Feet pale brown.

Tip of snout to vent . . . . .	in	2.46
" " to eye . . . . .	"	0.42
Eye to ear . . . . .	"	0.30
Hind foot . . . . .	"	0.54
Vent to top of tail . . . . .	"	2.57

The posterior portion of front upper incisor conically pointed, reaching about half-way down the anterior portion: second incisor moderately large and acutely pointed: third incisor slightly larger than the canine, the tip of the latter being level with the point of the small anterior external cusp of the first molar.

This shrew was referred to by Blyth as *S. alpinus*, Schinz, from which, however, it is at once distinguished by the character of its dentition, as it has only 30 teeth, whereas *S. alpinus* has 32.

I have examined the type of this species in the India Museum. It came from Sikkim.

In its rather broad anterior extremities, it approaches *C. nigrescens*, and the character of its limbs suggests that it is partially of a burrowing habit.

250a. An adult male in alcohol and its skull, No. 261B of Blyth's Catalogue, p. 86. Darjeeling. Presented by W. T. Blanford, Esq., 1858.

b. An adult male in alcohol, and the dental portion of its skull. Sikkim. Presented by W. T. Blanford, Esq., 2nd September, 1871. Type of *C. gracilicauda*.

c & d. Two adults, in alcohol. Mungpu, British Sikkim. Presented by J. L. Lister, Esq. 10th February 1879.

## GENUS CROSSOPUS, Wagler, 1832.

### 251. *Crossopus fodiens*.

*Crossopus fodiens*, (*Pallas*) *Blasius*, *Naturg. der Säugeth. Deutschlands*, 1857, p. 120.

*Hab.* Europe (Northern), and Asia (Siberia).

251a. An adult male in alcohol, No. 263A, p. 87 of Blyth's

Catalogue. Norway. Presented by the Christiana University, 1846.

*b* & *c*. Two adults in alcohol. No history.

### SUB-FAMILY CROSSOPINÆ.

GENUS CHIMARROGALE, Anderson, 1877.

#### 252. *Chimarrogale himalaica*.

*Crossopus himalayicus*, Gray, *Ann. & Mag. Nat. Hist.*, vol. x, Dec. 1842, p. 261; *List. Mamm. B. M.*, 1843, p. 80; *Blyth, Journ. As. Soc.* vol. xxiv (1855), p. 37; *Blyth & Tomes, Ann. & Mag. Nat. Hist.*, vol. xvii, 2nd ser., pp. 25 and 26; *Jerdon, Mamm. Ind.*, 1855, p. 563.

*Sorex himalayicus*, Wagner, *Schreber. Säugeth.*, Suppl., Bd. v, 1855, p. 563.

*Crocidura himalaica*, Gray, *Anderson, Proc. Zool. Soc.*, 1873, p. 231.

*Chimarrogale himalaica*, *Anderson, Anat. & Zool. Resch. and Yunnan Expeditions*, 1878, p. 139; pl. 5, figs. 17 to 30.

*Hab.* Himalaya (Sikkim); Yunnan (Ponsee).

Body elongated; snout moderately long and pointed; broader across the moustachial area in the male than in the female. Fur soft, dense and velvety. The general colour of the upper parts is dark grey, richly washed with a dark brown, almost black, fuliginous, or blackish brown, almost obscuring the grey colour, and the fur generally has a finely dotted appearance, due to the presence of longer scattered hairs with white tips. When the fur is pulled aside, it is seen to be uniformly slaty, but all the hairs terminate in fine brown, or blackish longer brown tips, with the exception of scattered, stronger, and longer hairs, which have broad white tips. These hairs are especially numerous on the hind quarters, where they are much longer than on the other parts of the body, and they correspond to the white tipped hairs of *Nectogale*. Under surface greyish, with a silvery sheen, washed with earthy brown on the throat, and the middle of the belly. Whiskers blackish or even white. Hind feet large, but relatively smaller than in *Nectogale*: the fore limb is clothed to the wrist: the hind limb, in the lower half of the tibia, is scaly and partially clad with short hairs. The upper surfaces of the feet are naked, with the exception of the metacarpus and metatarsus, which are sparsely covered with short, flattened, stiff, adpressed hairs, almost white. The upper surfaces of the toes are scaly and bare, with the exception of from one to six broad, stiff,

rather long hairs, at the base of the claws, above. Toes ciliated along each of their sides, with a line of broad stiff hairs of equal length, forming a dense short fringe. The line, along the outer margin of the internal and external toes, is continued along the sides of the feet as a strongly ciliated line, or fringe of white hairs: the claws are yellowish, moderately long, and curved. From the vent to the tip of the tail equals the distance from the vent to nearly the eye. Tail long, quadrangular in transverse section: under surface and sides densely covered with longish adpressed, broadish, coarse, rigid hairs of the same character as those on the sides of the toes, and feet, but longer: upper surface in its two upper thirds is only sparsely covered with short strong ciliated hairs not so obscuring the scaly rings as in the lower third, where it is clad much as on the under surface and sides. The hairs on the under surface of the tail are white, and on the sides and upper surface dark brown.

The eye is small, almost hidden, and the ear almost completely so by the fur. The ear is a transversely oval slit 0.26 in length; the lower margin of the lower posterior half of the ear covered with fine microscopic hairs. The portion above the antetragus is covered on its inner surface with ordinary fur, except at a small spot at its upper extremity.

	in.
Length, tip of snout to vent . . . . .	3.83
Vent to tip of snout . . . . .	3.00
Length of hind foot . . . . .	0.87

*Measurements of skull.*

Anterior border of foramen magnum to tip of premaxillæ . . . . .	0.90
Breadth across maxillæ . . . . .	0.34
„ behind preorbital foramen . . . . .	0.26
„ at posterior end of temporal fossa . . . . .	0.28
„ at posterior end of upper articular surface from lower jaw . . . . .	0.43
„ external to tympanic . . . . .	0.55
Length of lower jaw . . . . .	0.59

Front incisors moderately large and not much curved. The posterior eminence low, and but little pointed. The intermediate teeth of nearly equal size, the middle tooth being the largest, and the third the smallest, all being conical. The central external cusp of the first molar is not very strong or long, while its rather obtuse anterior cusp is on a level with the third intermediate tooth.

It is closely allied to, if not identical with, *Sorex (Crosopus) platycephalus*, Temminck, of Japan.

252*a*. A stuffed specimen in bad condition. Sikkim. Presented by T. Jerdon, Esq., 1866.

*b*. A skin of an adult in alcohol, and its skeleton. Pensee, Kakhyen Hills, Yunnan, 3,800 feet. Presented by Dr. J. Anderson, 1868. 1st Expedition to Western China, 1868. Skeleton figured, Anat. and Zool. Researches; pl. v, pages 17—30.

*c* & *d*. An adult male and female in alcohol. Ryang, British Sikkim, 4,000 feet. Purchased for the Museum by G. King, Esq., B.M., 10th February 1879.



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[Recognised names of genera, species, and varieties are printed in italics; synonyms, in Roman characters.]

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## ERRATA.

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- Page 45.—*For* Einiger affenarten, *read* Beschreibung einiger Affenarten.  
,, 99, lines 3 and 4, *for* *Tarsidæ* and *Tarsinæ*, *read* respectively  
*Tarsiidæ* and *Tarsiinæ*.  
,, 119, *after* line 38, *insert* Genus *Cœlops*, Blyth, 1849.  
,, 123, lines 4, 5 and 6, *for* *darjelinensis*, *read* *darjelingensis*.  
,, 123, line 37, *for* *Melherbe*, *read* *Malherbe*.  
,, 140, lines 6 and 7, *for* *dascyneme*, *read* *dasycneme*.  
,, 157, line 19, *for* *Hylominæ*, *read* *Hylomyinæ*.  
,, 159, line 4, *for* 1881, *read* 1880.  
,, 176, line 38, *omit one an*.  
,, 184, line 14, *for* *Blandford*, *read* *Blanford*.  
,, 201, lines 17, 25, and 28, *for* *Melherbe* *read* *Malherbe*.  
,, 204, line 31, *for* *Corsisa*, *read* *Corsira*.





CATALOGUE  
OF  
MAMMALIA  
IN THE  
INDIAN MUSEUM,  
CALCUTTA.

*William et* BY  
W. L. SCLATER, M.A., F.Z.S.,  
DEPUTY SUPERINTENDENT OF THE INDIAN MUSEUM.

PART II.

Rodentia, Ungulata, Proboscidea, Hyracoidea, Carnivora, Cetacea,  
Sirenia, Marsupialia, Monotremata.

---

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## INTRODUCTION.

Dr. Anderson, the late Superintendent, who was the author of the first part of the Catalogue of the Mammalia, which was published in 1881, was never able to complete the work; the second half is therefore issued after a considerable number of years' delay.

It has been thought desirable to alter the form of the Catalogue somewhat from that of the first part, in which very nearly each specimen was separately described, sometimes at greater, sometimes at lesser, length. This course seemed to unduly swell the bulk of the work; it was therefore decided to approximate the form of the Catalogue somewhat more to those of the British Museum without full descriptions of each species, but with such remarks as might be thought necessary to assist the identification of the purely Indian species. A key of Genera and Species has been added, and all the Indian species, whether the Museum contains examples of them or not, are included in the Catalogue.

The synonymy has not been worked out quite completely, but all the more important references, especially those found in Indian works, are given, and every reference, except those asterisked, has been carefully verified.

The total number of species included in the Catalogue amounts to 590, of which 276 are found within the Indian Empire and 314 are exotic. These 590 species are represented by 4,872 specimens, of which 1,330 belonged to the old Asiatic Society's collection and are to be found mentioned in Mr. Blyth's Catalogue, published in 1863, and the remaining 3,542 specimens have been added since that time.

Following the introduction will be found a separate list of the type specimens possessed by the Museum, which number 55, and also a list of Donors and Contributors, both before and since the year 1863.



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SYSTEMATIC INDEX AND SUMMARY OF SPECIES  
AND SPECIMENS.

	NUMBER OF SPECIMENS.			Page.
	Asiatic Soc. Coll.	Indian Mus. Coll.	Total.	
Order RODENTIA.				
Sub-order SIMPLICIDENTATA.				
Division SCIURIMORPHA.				
Family SCIURIDÆ.				
1	10	17	27	7
2	3	39	42	8
3	8	19	27	10
4	9	3	12	11
5	4	14	18	11
6	1	1	2	12
7	4	1	5	12
8	0	2	2	12
9	6	29	35	13
10	5	47	52	15
11	5	45	50	15
12	2	0	2	17
13	2	3	5	18
14	2	1	3	18
15	11	66	77	18
16	0	1	1	19
17	1	2	3	20
18	5	10	15	20
19	0	0	0	21
20	0	1	1	21
21	0	1	1	21
22	0	4	4	21
23	5	5	10	22
24	0	1	1	22
25	7	9	16	23
26	3	7	10	23
27	3	11	14	24
28	8	13	21	25
29	3	0	3	26
30	1	0	1	26
31	3	2	5	26
32	4	37	41	27
33	0	1	1	28

	NUMBER OF SPECIMENS.			Page.	
	Asiatic Soc. Coll.	Indian Mus. Coll.	Total.		
Family SCIURIDÆ— <i>contd.</i>					
34	Sciurus vulgaris . . . . .	4	1	5	28
35	Sciurus fulvus . . . . .	0	1	1	28
36	Sciurus carolinensis . . . . .	1	6	7	29
37	Sciurus niger . . . . .	0	1	1	29
38	Sciurus hudsonius . . . . .	1	3	4	29
39	Sciurus annulatus . . . . .	0	2	2	30
40	Rhinosciurus laticaudatus . . . . .	1	0	1	30
41	Tamias striatus . . . . .	0	3	3	30
42	Xerus rutilus . . . . .	0	3	3	31
43	Xerus erythropus . . . . .	0	14	14	31
44	Xerus capensis . . . . .	1	0	1	31
45	Pteromys oral . . . . .	5	6	11	33
46	Pteromys cineraceus . . . . .	2	2	4	33
47	Pteromys alborufus . . . . .	4	7	11	34
48	Pteromys yunnanensis . . . . .	0	4	4	35
49	Pteromys magnificus . . . . .	4	3	7	35
50	Pteromys albiventer . . . . .	1	7	8	35
51	Pteromys caniceps . . . . .	2	4	6	36
52	Pteromys nitidus . . . . .	2	3	5	36
53	Sciuropterus fimbriatus . . . . .	1	7	8	37
54	Sciuropterus alboniger . . . . .	2	8	10	38
55	Sciuropterus pearsoni . . . . .	3	6	9	38
56	Sciuropterus fuscocapillus . . . . .	0	0	0	39
57	Sciuropterus sagitta . . . . .	4	0	4	39
58	Sciuropterus spaöaceus . . . . .	3	2	5	40
59	Sciuropterus volucelia . . . . .	0	2	2	40
60	Eupetaurus cineraceus . . . . .	0	2	2	40
61	Arctomys himalayanus . . . . .	2	4	6	41
62	Arctomys hodgsoni . . . . .	1	14	15	42
63	Arctomys caudatus . . . . .	1	9	10	43
64	Arctomys aureus . . . . .	0	6	6	43
65	Arctomys dichrous . . . . .	1	2	3	43
66	Arctomys marmota . . . . .	0	1	1	44
67	Arctomys monax . . . . .	0	2	2	44
Family CASTORIDÆ.					
68	Castor fiber . . . . .	1	0	1	44
Division MYOMORPHA.					
Family MYOXIDÆ.					
69	Myoxus pictus . . . . .	0	1	1	45
70	Myoxus glis . . . . .	1	0	1	45
71	Muscardinus avellenarius . . . . .	2	3	5	45

	NUMBER OF SPECIMENS.			Page.
	Asiatic Soc. Coll.	Indian Mus. Coll.	Total.	
Family MURIDÆ.				
72 <i>Hydromys chrysogaster</i>	1	0	1	45
73 <i>Hydromys fulvolarvatus</i>	1	4	5	46
74 <i>Hydromys leucogaster</i>	0	1	1	46
75 <i>Platacanthomys lasiurus</i>	4	22	26	46
76 <i>Gerbillus indicus</i>	6	26	32	47
77 <i>Gerbillus cuvieri</i>	10	23	33	47
78 <i>Gerbillus persicus</i>	0	3	3	49
79 <i>Gerbillus erythrurus</i>	0	7	7	49
80 <i>Gerbillus meridianus</i>	0	13	13	50
81 <i>Gerbillus hurrianæ</i>	0	40	40	50
82 <i>Gerbillus nanus</i>	0	9	9	51
83 <i>Gerbillus gleadowi</i>	0	2	2	52
84 <i>Gerbillus swinhoei</i>	0	0	0	52
85 <i>Gerbillus pyramidarum</i>	0	2	2	52
86 <i>Gerbillus obesus</i>	1	0	1	52
87 <i>Isomys variegatus</i>	0	1	1	53
88 <i>Nesokia hardwickii</i>	0	37	37	53
89 <i>Nesokia scullyi</i>	0	3	3	53
90 <i>Nesokia bengalensis</i>	8	97	105	53
91 <i>Nesokia kok</i>	3	12	15	53
92 <i>Nesokia bandicota</i>	3	22	25	57
93 <i>Nesokia nemorivagus</i>	0	4	4	58
94 <i>Nesokia sp?</i>	0	1	1	59
95 <i>Mus decumanus</i>	8	47	55	61
96 <i>Mus bowersii</i>	0	1	1	62
97 <i>Mus rattus</i>	5	6	11	62
98 <i>Mus alexandrinus</i>	0	19	19	62
99 <i>Mus nitidus</i>	9	39	48	63
100 <i>Mus rufescens</i>	24	133	157	63
101 <i>Mus andamanensis</i>	2	8	10	63
102 <i>Mus rubricosa</i>	0	1	1	68
103 <i>Mus concolor</i>	4	20	24	68
104 <i>Mus fulvescens</i>	2	0	2	69
105 <i>Mus jerdoni</i>	1	11	12	69
106 <i>Mus niviventer</i>	0	0	0	70
107 <i>Mus humei</i>	0	1	1	70
108 <i>Mus erythrotis</i>	1	6	7	70
109 <i>Mus blanfordi</i>	0	2	2	70
110 <i>Mus berdmorei</i>	1	0	1	71
111 <i>Mus urbanus</i>	5	89	94	71
112 <i>Mus sublimis</i>	0	1	1	73
113 <i>Mus bactrianus</i>	5	52	57	74
114 <i>Mus cervicolor</i>	3	7	10	75
115 <i>Mus arianus</i>	0	16	16	75
116 <i>Mus nitulidus</i>	0	13	13	76
117 <i>Mus mettada</i>	0	17	17	76
118 <i>Mus gleadowi</i>	0	3	3	77

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Family MURIDÆ - <i>contd.</i>					
119	Mus wagneri . . . . .	0	14	14	77
120	Mus musculus . . . . .	2	4	6	78
121	Mus sylvaticus . . . . .	3	6	9	74
122	Mus minutus . . . . .	1	0	1	78
123	Mus abyssinicus . . . . .	0	3	3	78
124	Mus pumilio . . . . .	2	0	2	79
125	Mus longipilis . . . . .	0	1	1	79
126	Mus assimilis . . . . .	0	2		79
127	Mus gouldi . . . . .	0	2	2	79
128	Leggada platythrix . . . . .	5	5	10	80
129	Leggada buduga . . . . .	11	44	55	80
130	Chirodomys gliroides . . . . .	3	2	5	82
131	Hapalomys longicaudatus . . . . .	2	1	3	82
132	Vandeleuria oleracea . . . . .	3	21	24	83
133	Golunda ellioti . . . . .	5	7	12	83
134	Uromys macropus . . . . .	0	2	2	84
135	Hapalotis apicalis . . . . .	2	0	2	84
136	Hapalotis conditor . . . . .	0	2	2	84
137	Hapalotis mitchelli . . . . .	2	1	3	85
138	Hesperomys leucopus . . . . .	0	3	3	85
139	Cricetus phæus . . . . .	0	50	50	85
140	Cricetomys gambianus . . . . .	0	1	1	87
141	Fiber zibethicus . . . . .	1	3	4	87
142	Arvicola glareolus . . . . .	8	0	8	89
143	Arvicola stoliczkanus . . . . .	0	2	2	89
144	Arvicola stracheyi . . . . .	0	1	1	90
145	Arvicola wyneei . . . . .	1	2	3	90
146	Arvicola roylei . . . . .	0	1	1	91
147	Arvicola blanfordi . . . . .	0	5	5	91
148	Arvicola blythi . . . . .	1	6	7	91
149	Arvicola amphibius . . . . .	2	6	8	92
150	Arvicola nivalis . . . . .	1	0	1	92
151	Arvicola agrestis . . . . .	2	1	3	92
152	Arvicola guentheri . . . . .	0	1	1	93
153	Arvicola sikkimensis . . . . .	0	1	1	93
154	Hypudæus lemnus . . . . .	2	0	2	93
155	Ellobius fuscocapillus . . . . .	4	4	8	94
Family SPALACIDÆ.					
156	Spalax typhlus . . . . .	3	1	4	94
157	Rhizomys sumatrensis . . . . .	4	6	10	95
158	Rhizomys erythrogenys . . . . .	1	4	5	96
159	Rhizomys pruinosus . . . . .	3	23	26	96
160	Rhizomys badius . . . . .	6	17	23	97
161	Bathyergus maritimus . . . . .	3	0	3	98
162	Bathyergus splendens . . . . .	0	3	3	98

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Family SPALACIDÆ— <i>contd.</i>				
163 <i>Georychus cœcutiens</i> . . . . .	3	0	3	98
164 <i>Georychus capensis</i> . . . . .	1	0	1	99
Family GEOMYIDÆ.				
165 <i>Geomys bursarius</i> . . . . .	0	2	2	99
Family ZAPODIDÆ.				
166 <i>Zapus hudsonius</i> . . . . .	0	1	1	99
Family DIPODIDÆ.				
167 <i>Dipus lagopus</i> . . . . .	0	7	7	100
168 <i>Dipus blanfordi</i> . . . . .	0	1	1	100
169 <i>Dipus jaculus</i> . . . . .	1	5	6	100
170 <i>Alactaga decumana</i> . . . . .	0	1	1	101
171 <i>Alactaga indica</i> . . . . .	1	2	3	101
Division HYSTRICOMORPHA.				
Family OCTODONTIDÆ.				
172 <i>Pectinator spekii</i> . . . . .	1	12	13	101
173 <i>Schizodon fuscus</i> . . . . .	0	1	1	102
174 <i>Spalacopus pœppigii</i> . . . . .	1	0	1	102
175 <i>Octodon degus</i> . . . . .	1	0	1	103
Family HYSTRICIDÆ.				
176 <i>Syntheres prehensilis</i> . . . . .	0	1	1	103
177 <i>Erethizon dorsatus</i> . . . . .	0	2	2	103
178 <i>Atherura macroura</i> . . . . .	3	3	6	104
179 <i>Atherura africana</i> . . . . .	0	1	1	104
180 <i>Hystrix cristata</i> . . . . .	0	1	1	105
181 <i>Hystrix leucurus</i> . . . . .	7	8	15	105
182 <i>Hystrix longicauda</i> . . . . .	9	9	18	106
183 <i>Hystrix yunnanensis</i> . . . . .	0	1	1	107
Family CHINCHILLIDÆ.				
184 <i>Lagostomus trichodactylus</i> . . . . .	0	1	1	108
185 <i>Cœlogenys paca</i> . . . . .	4	3	7	108
Family CAVIIDÆ.				
186 <i>Cavia porcellus</i> . . . . .	1	4	5	109
187 <i>Cavia australis</i> . . . . .	1	0	1	109
188 <i>Hydrochoerus capybara</i> . . . . .	1	1	2	109

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Sub-order <i>DUPLICIDENTATA</i> .					
Family LAGOMYIDÆ.					
189	Lagomys ladaccensis . . . . .	1	24	25	110
190	Lagomys macrotis . . . . .	0	14	14	110
191	Lagomys rufescens . . . . .	2	21	23	111
192	Lagomys roylei . . . . .	6	7	13	112
Family LEPORIDÆ.					
193	Lepus hypsibius . . . . .	1	2	3	113
194	Lepus pallipes . . . . .	0	8	8	114
195	Lepus tibetanus . . . . .	0	11	11	114
196	Lepus pamirensis . . . . .	0	2	2	114
197	Lepus stoliczkanus . . . . .	0	2	2	115
198	Lepus yarkandensis . . . . .	0	10	10	115
199	Lepus dayanus . . . . .	1	4	5	115
200	Lepus ruficaudatus . . . . .	5	7	12	116
201	Lepus nigricollis . . . . .	3	6	9	116
202	Lepus peguensis . . . . .	1	0	1	117
203	Lepus sinensis . . . . .	2	0	2	117
204	Lepus hispidus . . . . .	2	5	7	117
205	Lepus europæus . . . . .	1	0	1	118
206	Lepus cuniculus . . . . .	7	0	7	118
207	Lepus timidus . . . . .	6	3	9	118
208	Lepus ægyptius . . . . .	0	2	2	119
209	Lepus tigrensis . . . . .	0	3	3	119
210	Lepus capensis . . . . .	1	0	1	119
211	Lepus saxatilis . . . . .	1	0	1	120
212	Lepus americanus . . . . .	0	3	3	120
213	Lepus sylvaticus . . . . .	0	3	3	120
214	Lepus callotis . . . . .	0	1	1	120
Order UNGULATA.					
Sub-order ARTIODACTYLA.					
Family BOVIDÆ.					
1	Bos gaurus . . . . .	8	17	25	124
2	Bos frontalis . . . . .	5	7	12	126
3	Bos sondaicus . . . . .	5	5	10	127
4	Bos grunniens . . . . .	3	5	8	128
5	Bos bubalus . . . . .	7	13	20	129
6	Bos depressicornis . . . . .	0	4	4	130
7	Bos caffer . . . . .	2	1	3	130
8	Bos americanus . . . . .	0	3	3	131
9	Bos taurus . . . . .	0	3	3	131



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<b>Family BOVIDÆ—contd.</b>				
10 Ovis poli . . . . .	2	14	16	133
11 Ovis hodgsoni . . . . .	5	6	11	136
12 Ovis canadensis . . . . .	0	2	2	137
13 Ovis cycloceros . . . . .	5	9	14	138
14 Ovis vignei . . . . .	1	1	2	139
15 Ovis gmelini . . . . .	2	4	6	139
16 Ovis nahoor . . . . .	12	15	27	140
17 Ovis tragelaphus . . . . .	0	1	1	141
18 Capra ægagrus . . . . .	1	13	14	142
19 Capra siberica . . . . .	3	17	20	143
20 Capra sinaitica . . . . .	0	1	1	144
21 Capra falconeri . . . . .	2	7	9	145
22 Capra jemlaica . . . . .	7	2	9	146
23 Capra hylcarius . . . . .	3	4	7	146
24 Capra hircus . . . . .	1	7	8	147
25 Nemorhædus goral . . . . .	4	9	13	148
26 Nemorhædus caudatus . . . . .	0	1	1	149
27 Nemorhædus bubalina . . . . .	0	8	8	149
28 Nemorhædus sumatrensis . . . . .	5	8	13	150
29 Rupicapra tragus . . . . .	0	2	2	151
30 Haploceros montanus . . . . .	0	1	1	151
31 Budorcas taxicolor . . . . .	5	9	14	151
32 Oreas canna . . . . .	1	1	2	152
33 Strepsiceros kudu . . . . .	1	0	1	153
34 Strepsiceros imberbis . . . . .	0	2	2	153
35 Tragelaphus sylvaticus . . . . .	0	1	1	154
36 Boselaphus tragocamelus . . . . .	7	7	14	154
37 Oryx gazella . . . . .	1	0	1	155
38 Oryx beisa . . . . .	0	4	4	155
39 Oryx beatrix . . . . .	1	0	1	156
40 Oryx leucoryx . . . . .	0	2	2	156
41 Hippotragus equinus . . . . .	1	0	1	156
42 Gazella dorcas . . . . .	0	4	4	157
43 Gazella isabella . . . . .	0	4	4	157
44 Gazella spekii . . . . .	2	0	2	158
45 Gazella arabica . . . . .	8	10	18	158
46 Gazella bennettii . . . . .	1	32	33	159
47 Gazella fuscifrons . . . . .	0	1	1	160
48 Gazella subgutturosa . . . . .	4	15	19	160
49 Gazella picticaudata . . . . .	3	3	6	161
50 Gazella sømmeringi . . . . .	0	3	3	161
51 Gazella euchore . . . . .	1	0	1	162
52 Antilope cervicapra . . . . .	10	19	29	162
53 Pantholops hodgsoni . . . . .	3	4	7	163
54 Kobus ellipsiprymnus . . . . .	0	1	1	164
55 Cervicapra arundinacea . . . . .	0	1	1	164
56 Neotragus saltianus . . . . .	0	14	14	165

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Family BOVIDÆ— <i>contd.</i>				
56 Neotragus kirkii . . . . .	1	0	1	166
57 Nanotragus tragulus . . . . .	1	0	1	166
58 Nanotragus montanus . . . . .	0	1	1	166
59 Nanotragus melanotis . . . . .	1	0	1	167
60 Nanotragus oreotragus . . . . .	2	2	4	167
61 Cephalophus mergens . . . . .	1	0	1	167
62 Cephalophus natalensis . . . . .	1	0	1	168
63 Cephalophus mandoqua . . . . .	0	2	2	168
64 Tetracerus quadricornis . . . . .	9	11	20	168
65 Æpyceros melampus . . . . .	1	0	1	169
66 Alcephelus caama . . . . .	1	1	2	170
67 Connochætes gnu . . . . .	0	3	3	170
Family ANTILOCAPRIDÆ.				
68 Antilocapra americana . . . . .	0	4	4	171
Family GIRAFFIDÆ.				
69 Giraffa camelopardalis . . . . .	1	6	7	171
Family CERVIDÆ.				
70 Moschus moschiferus . . . . .	5	13	18	172
71 Cervus muntjac . . . . .	10	19	29	173
72 Cervus reevesi . . . . .	1	1	2	174
73 Cervus aristotelis . . . . .	36	27	63	176
74 Cervus swinhoei . . . . .	0	1	1	178
75 Cervus porcinus . . . . .	20	19	39	178
76 Cervus hippelaphus . . . . .	9	3	12	179
77 Cervus duvauceli . . . . .	19	10	29	179
78 Cervus schomburgki . . . . .	1	1	2	180
79 Cervus eldi . . . . .	14	2	10	180
80 Cervus axis . . . . .	16	14	30	181
81 Cervus dybowskii . . . . .	0	1	1	182
82 Cervus sika . . . . .	0	1	1	183
83 Cervus taëvanus . . . . .	1	0	1	183
84 Cervus elaphus . . . . .	5	2	7	183
85 Cervus eustephanus . . . . .	0	1	1	184
86 Cervus affinis . . . . .	2	4	6	184
87 Cervus cashmeerianus . . . . .	0	8	8	184
88 Cervus canadensis . . . . .	1	5	6	185
89 Cervus dama . . . . .	8	5	13	186
90 Alces machlis . . . . .	2	2	4	186
91 Capreolus capræa . . . . .	7	3	10	187
92 Cariacus virginianus . . . . .	3	5	8	187
93 Rangifer tarandus . . . . .	2	3	5	188

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Family TRAGULIDÆ.					
94	Tragulus memmiina . . . . .	2	9	11	189
95	Tragulus kanchil . . . . .	5	24	29	189
96	Tragulus napu . . . . .	2	9	11	190
97	Tragulus stanleyanus . . . . .	0	8	8	191
Family CAMELIDÆ.					
98	Camelus bactrianus . . . . .	0	3	3	191
99	Camelus dromedarius . . . . .	1	6	7	192
100	Auchenia glama . . . . .	1	8	9	192
Family SUIDÆ.					
101	Sus cristatus . . . . .	18	12	30	193
102	Sus andamanensis . . . . .	18	7	25	195
103	Sus scrofa . . . . .	1	2	3	195
104	Porcula salvania . . . . .	0	13	13	195
105	Babyrussa alfurus . . . . .	2	1	3	196
Family DICOTYLIDÆ.					
106	Dicotylus tajacu . . . . .	1	2	3	196
Family PHACOCHERIDÆ.					
107	Phacochærus æthiopicus . . . . .	2	0	2	197
108	Phacochærus africanus . . . . .	0	2	2	197
Family HIPPOPOTAMIDÆ.					
109	Hippopotamus amphibius . . . . .	4	1	5	197
Sub-order PERISSODACTYLA.					
Family TAPIRIDÆ.					
110	Tapirus indicus . . . . .	4	8	12	198
Family EQUIDÆ.					
111	Equus hæmionus var. indicus . . . . .	1	4	5	198
112	Equus hæmionus var. kiang . . . . .	4	1	5	199
113	Equus burchelli . . . . .	0	2	2	200
114	Equus asinus . . . . .	1	2	3	200
115	Equus caballus . . . . .	9	9	18	200

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Family RHINOCEROTIDÆ.					
116	Rhinoceros unicornis . . . . .	5	12	17	202
117	Rhinoceros sondaicus . . . . .	6	16	22	202
118	Rhinoceros lasiotis . . . . .	0	0	0	204
119	Rhinoceros sumatrensis . . . . .	7	11	18	204
120	Rhinoceros bicornis . . . . .	2	0	2	205
121	Rhinoceros simus . . . . .	1	0	1	206
Order PROBOSCIDEA.					
Family ELEPHANTIDÆ.					
1	Elephas indicus . . . . .	9	24	33	206
2	Elephas africanus . . . . .	1	3	4	208
Order HYRACOIDÆ.					
Family HYRACIDÆ.					
1	Hyrax capensis . . . . .	8	0	8	208
2	Hyrax brucei . . . . .	1	9	10	209
Order CARNIVORA.					
Sub-order FISSIPEDIA.					
Division ÆLUROIDEA.					
Family FELIDÆ.					
1	Felis leo . . . . .	4	9	13	214
2	Felis tigris . . . . .	10	20	30	216
3	Felis unciæ . . . . .	1	7	8	217
4	Felis pardus . . . . .	6	28	34	218
5	Felis nebulosa . . . . .	2	5	7	220
6	Felis marmorata . . . . .	2	7	9	221
7	Felis temmincki . . . . .	0	5	5	222
8	Felis planiceps . . . . .	1	2	3	222
9	Felis bengalensis . . . . .	5	31	36	223
10	Felis viverrina . . . . .	3	10	13	225
11	Felis rubiginosa . . . . .	0	5	5	225
12	Felis manul . . . . .	0	0	0	226
12	Felis ornata . . . . .	3	17	20	226
13	Felis shawiæ . . . . .	0	3	3	227
14	Felis chaus . . . . .	7	30	37	227
15	Felis caudata . . . . .	0	1	1	229
16	Felis lynx . . . . .	7	5	12	229
17	Felis caracal . . . . .	1	8	9	230
18	Felis concolor . . . . .	1	3	4	230

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Family FELIDÆ— <i>contd.</i>				
19 Felis yagouaroundi . . . . .	0	1	1	231
20 Felis pardalis . . . . .	1	1	2	231
21 Felis serval . . . . .	1	0	1	231
22 Felis caffra . . . . .	2	0	2	232
23 Felis catus . . . . .	1	0	1	232
24 Felis pardina . . . . .	0	1	1	232
25 Felis canadensis . . . . .	0	4	4	232
26 Felis rufa . . . . .	1	2	3	233
27 Felis domestica . . . . .	8	6	14	233
28 Cynælurus jubatus . . . . .	2	6	8	235
Family VIVERRIDÆ.				
29 Viverra zibetha . . . . .	4	9	13	236
30 Viverra civettina . . . . .	1	3	4	237
31 Viverra megaspila . . . . .	0	0	0	237
32 Viverra tangalanga . . . . .	2	7	9	237
33 Viverra civetta . . . . .	0	1	1	238
34 Viverricula malaccensis . . . . .	12	13	25	238
35 Prionodon maculosus . . . . .	0	0	0	239
36 Prionodon pardicolor . . . . .	3	4	7	240
37 Genetta vulgaris . . . . .	1	0	1	240
38 Genetta tigrina . . . . .	2	0	2	240
39 Hemigale hardwickii . . . . .	1	0	1	241
40 Arctogale trivirgata . . . . .	0	1	1	241
41 Arctogale leucotis . . . . .	6	5	11	241
42 Paradoxurus hermaphroditus . . . . .	0	15	15	243
43 Paradoxurus strictus . . . . .	0	4	4	244
44 Paradoxurus niger . . . . .	6	16	22	244
45 Paradoxurus macrodus . . . . .	4	2	6	246
46 Paradoxurus jerdoni . . . . .	0	1	1	246
47 Paradoxurus aureus . . . . .	3	1	4	247
48 Paradoxurus grayi . . . . .	9	15	24	247
49 Paradoxurus leucomystax . . . . .	3	3	6	248
50 Paradoxurus laniger . . . . .	0	0	0	249
51 Arctictis binturong . . . . .	3	10	13	249
52 Cynogale bennetti . . . . .	1	1	2	250
53 Eupleres goudoti . . . . .	0	2	2	250
54 Herpestes auropunctatus . . . . .	9	24	33	251
55 Herpestes birmanicus . . . . .	1	3	4	252
56 Herpestes mungo . . . . .	5	18	23	253
57 Herpestes ferrugineus . . . . .	1	2	3	254
58 Herpestes smithi . . . . .	1	2	3	254
59 Herpestes fuscus . . . . .	1	0	1	255
60 Herpestes fulvescens . . . . .	2	1	3	255
61 Herpestes brachyurus . . . . .	2	1	3	255
62 Herpestes vitticollis . . . . .	3	2	5	256

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		Asiatic Soc. Coll.	Indian Mus. Coll.	Total.	
Family VIVERRIDÆ— <i>contd.</i>					
63	<i>Herpestes urva</i> . . . . .	2	6	8	256
64	<i>Herpestes caffer</i> . . . . .	2	1	3	256
65	<i>Herpestes galera</i> . . . . .	1	0	1	257
66	<i>Herpestes gracilis</i> . . . . .	0	4	4	257
67	<i>Crossarchus fasciatus</i> . . . . .	1	1	2	258
Family PROTELIDÆ.					
68	<i>Proteles cristatus</i> . . . . .	1	0	1	258
Family HYÆNIDÆ.					
69	<i>Hyæna striata</i> . . . . .	4	17	21	258
70	<i>Hyæna crocuta</i> . . . . .	1	1	2	259
Division CYNOIDEA.					
Family CANIDÆ.					
71	<i>Cuon dukhunensis</i> . . . . .	5	10	15	260
72	<i>Cuon alpinus</i> . . . . .	1	0	1	261
73	<i>Canis lupus</i> . . . . .	0	11	11	262
74	<i>Canis laniger</i> . . . . .	7	2	9	262
75	<i>Canis pallipes</i> . . . . .	2	20	22	263
76	<i>Canis lagopus</i> . . . . .	2	3	5	264
77	<i>Canis aureus</i> . . . . .	9	20	29	264
78	<i>Canis mesomelas</i> . . . . .	0	1	1	266
79	<i>Canis variegatus</i> . . . . .	1	1	2	266
80	<i>Canis procyonides</i> . . . . .	0	1	1	266
81	<i>Canis familiaris</i> . . . . .	7	14	21	266
82	<i>Canis dingo</i> . . . . .	2	2	4	266
83	<i>Vulpes alopec</i> . . . . .	5	0	5	268
84	<i>Vulpes fulvus</i> . . . . .	1	2	3	268
85	<i>Vulpes montanus</i> . . . . .	6	43	49	268
86	<i>Vulpes leucopus</i> . . . . .	7	16	23	270
87	<i>Vulpes bengalensis</i> . . . . .	6	19	25	271
88	<i>Vulpes ferrillatus</i> . . . . .	3	0	3	272
89	<i>Vulpes cana</i> . . . . .	0	0	0	272
90	<i>Vulpes caama</i> . . . . .	1	0	1	273
91	<i>Vulpes virginiana</i> . . . . .	1	0	1	273
Division ARCTOIDEA.					
Family MUSTELIDÆ.					
92	<i>Mustela flavigula</i> . . . . .	7	19	26	273
93	<i>Mustela martes</i> . . . . .	1	2	3	274

	NUMBER OF SPECIMENS.			Page.	
	Asiatic Soc. Coll.	Indian Mus. Coll.	Total		
Family MUSTELIDÆ— <i>contd.</i>					
94	Mustela foina . . . . .	5	17	22	275
95	Mustela zibellina . . . . .	1	0	1	276
96	Mustela pennanti . . . . .	0	1	1	276
97	Mustela americana . . . . .	0	1	1	276
98	Putorius foetidus . . . . .	3	2	5	277
99	Putorius furio . . . . .	1	6	7	277
100	Putorius larvatus . . . . .	0	0	0	278
101	Putorius sarmaticus . . . . .	2	6	8	278
102	Putorius erminea . . . . .	8	4	12	278
103	Putorius vulgaris . . . . .	8	1	9	279
104	Putorius stoliczkanus . . . . .	0	2	2	280
105	Putorius subhemachalanus . . . . .	1	2	3	280
106	Putorius canigula . . . . .	0	2	2	280
107	Putorius alpinus . . . . .	0	5	5	281
108	Putorius kathiah . . . . .	1	5	6	281
109	Putorius strigidorsus . . . . .	0	2	2	282
110	Putorius sibericus . . . . .	2	0	2	282
111	Putorius vison . . . . .	1	2	3	282
112	Gulo luscus . . . . .	1	1	2	283
113	Galictis barbara . . . . .	0	1	1	283
114	Galictis vittata . . . . .	0	2	2	284
115	Ictonyx zorilla . . . . .	1	1	2	284
116	Helictis orientalis . . . . .	0	0	1	286
117	Helictis personata . . . . .	4	1	5	286
118	Helictis moschata . . . . .	0	2	2	286
119	Mellivora indica . . . . .	4	5	9	287
120	Meles taxus . . . . .	3	7	10	288
121	Meles lencura . . . . .	1	0	1	289
122	Meles sp. . . . .	0	1	1	289
123	Mydaus meliceps . . . . .	0	1	1	289
124	Arctonyx collaris . . . . .	6	6	12	290
125	Arctonyx taxoides . . . . .	2	0	2	291
126	Mephitis mephitica . . . . .	0	4	4	291
127	Lutra vulgaris . . . . .	12	47	59	292
128	Lutra ellioti . . . . .	8	22	30	294
129	Lutra aurobrunnea . . . . .	0	0	0	295
130	Lutra leptonyx . . . . .	9	19	28	295
131	Lutra canadensis . . . . .	0	1	1	297
132	Lutra brasiliensis . . . . .	0	1	1	297
133	Enhydra lutris . . . . .	0	2	2	297
Family PROCVONIDÆ					
134	Procyon lotor . . . . .	2	7	9	298
135	Nasua rufa . . . . .	1	5	6	298
136	Nasua nasica . . . . .	0	2	2	298
137	Cercoleptes caudivolvulus . . . . .	1	1	2	299

	NUMBER OF SPECIMENS.			Page.
	Asiatic Soc. Coll.	Indian Mus. Coll.	Total.	
Family PROCVONIDÆ— <i>contd.</i>				
138 <i>Aelurus fulgens</i> . . . . .	0	21	21	300
139 <i>Aeluropus melanoleucus</i> . . . . .	0	1	1	301
Family URSIDÆ.				
140 <i>Ursus isabellinus</i> . . . . .	6	11	17	302
141 <i>Ursus pruinus</i> . . . . .	1	1	2	302
142 <i>Ursus torquatus</i> . . . . .	2	15	17	303
143 <i>Ursus malayanus</i> . . . . .	3	12	15	304
144 <i>Ursus arctos</i> . . . . .	2	3	6	304
145 <i>Ursus japonicus</i> . . . . .	0	1	1	305
146 <i>Ursus americanus</i> . . . . .	1	1	2	305
147 <i>Ursus maritimus</i> . . . . .	2	2	4	305
148 <i>Melursus ursinus</i> . . . . .	12	9	21	306
Sub-order PINNIPEDIA.				
Family TRICHECHIDÆ.				
149 <i>Trichechus rosmarus</i> . . . . .	3	1	4	307
Family PHOCIDÆ.				
150 <i>Phoca vitulina</i> . . . . .	1	0	1	307
151 <i>Phoca groenlandica</i> . . . . .	2	0	2	308
152 <i>Phoca barbata</i> . . . . .	1	0	1	308
153 <i>Stenorhynchus carcinophagus</i> . . . . .	0	1	1	308
154 <i>Cystophora cristata</i> . . . . .	3	0	3	309
155 <i>Macrorhinus leoninus</i> . . . . .	1	0	1	309
Order CETACEA.				
Sub-order MYSTACOCETI.				
Family BALÆNIDÆ.				
1 <i>Balæna australis</i> . . . . .	1	0	1	312
2 <i>Balæna mysticetus</i> . . . . .	1	0	1	312
3 <i>Balænoptera indica</i> . . . . .	1	1	2	313
4 <i>Balænoptera blythi</i> . . . . .	0	1	1	314
5 <i>Balænoptera edeni</i> . . . . .	0	3	3	314
Sub-order ODONTOCETI.				
Family PHYSETERIDÆ.				
6 <i>Physeter macrocephalus</i> . . . . .	4	3	7	314
7 <i>Kogia breviceps</i> . . . . .	0	0	0	315



	NUMBER OF SPECIMENS.			Page.
	Asiatic Soc. Coll.	Indian Mus. Coll.	TOTAL.	
<b>Family PLATANISTIDÆ.</b>				
8 <i>Platanista gangetica</i> . . . . .	6	27	33	315
<b>Family DELPHINIDÆ.</b>				
9 <i>Monodon monoceras</i> . . . . .	1	1	2	317
10 <i>Delphinapterus leucas</i> . . . . .	1	0	1	317
11 <i>Phocæna communis</i> . . . . .	3	0	3	317
12 <i>Neomeris phocænoides</i> . . . . .	1	1	2	318
13 <i>Orcella brevirostris</i> . . . . .	2	9	11	318
14 <i>Orcella fluminalis</i> . . . . .	0	3	3	319
15 <i>Globicephalus melas</i> . . . . .	1	0	1	319
16 <i>Globicephalus indicus</i> . . . . .	2	1	3	319
17 <i>Lagenorhynchus acutus</i> . . . . .	1	0	1	321
18 <i>Lagenorhynchus electra</i> . . . . .	0	0	0	321
19 <i>Delphinus delphis</i> . . . . .	1	2	3	321
20 <i>Delphinus frithi</i> . . . . .	1	0	1	322
21 <i>Delphinus pomeogra</i> . . . . .	0	0	0	322
22 <i>Delphinus longirostris</i> . . . . .	0	0	0	322
23 <i>Tursiops tursio</i> . . . . .	2	1	3	323
24 <i>Tursiops perniger</i> . . . . .	1	0	1	323
25 <i>Prodelphinus obscurus</i> . . . . .	1	1	2	324
26 <i>Prodelphinus attenuatus</i> . . . . .	6	0	6	324
27 <i>Steno rostratus</i> . . . . .	2	1	3	324
28 <i>Sotalia gadamu</i> . . . . .	1	0	1	325
29 <i>Sotalia plumbea</i> . . . . .	0	0	0	325
30 <i>Sotalia lentiginosa</i> . . . . .	0	0	0	325
<b>Order SIRENIA.</b>				
<b>Family HALICORIDÆ.</b>				
1 <i>Halicore dugong</i> . . . . .	2	6	8	326
2 <i>Halicore australis</i> . . . . .	0	2	2	327
<b>Order EDENTATA.</b>				
<b>Family BRADYPODIDÆ.</b>				
1 <i>Cholopus didactylus</i> . . . . .	0	1	1	328
2 <i>Cholopus hoffmanni</i> . . . . .	0	1	1	328
<b>Family MYRMECOPHAGIDÆ.</b>				
3 <i>Mymecophaga jubata</i> . . . . .	1	0	1	328

	NUMBER OF SPECIMENS.			Page.
	Asiatic Soc. Coll.	Indian Mus. Coll.	TOTAL.	
<b>Family DASYPODIDÆ.</b>				
4 <i>Tatusia novemcincta</i> . . . . .	0	1	1	329
5 <i>Dasyus sexcinctus</i> . . . . .	1	3	4	329
<b>Family MANIDÆ.</b>				
6 <i>Manis pentadactyla</i> . . . . .	6	12	18	330
7 <i>Manis aurita</i> . . . . .	3	28	31	330
8 <i>Manis javanica</i> . . . . .	6	5	11	331
<b>Family ORYCTEROPODIDÆ.</b>				
9 <i>Orycteropus capensis</i> . . . . .	1	0	1	332
<b>Order MARSUPIALIA.</b>				
<b>Family MACROPODIDÆ.</b>				
1 <i>Macropus giganteus</i> . . . . .	3	5	8	333
2 <i>Macropus rufus</i> . . . . .	0	5	5	333
3 <i>Macropus ualabatus</i> . . . . .	1	3	4	333
4 <i>Macropus ruficollis</i> . . . . .	0	3	3	334
5 <i>Macropus bennettii</i> . . . . .	3	0	3	334
6 <i>Macropus dorsalis</i> . . . . .	0	1	1	334
7 <i>Macropus agilis</i> . . . . .	0	1	1	334
8 <i>Macropus thetidis</i> . . . . .	2	0	2	335
9 <i>Macropus eugenii</i> . . . . .	0	3	3	335
10 <i>Macropus billardieri</i> . . . . .	0	3	3	335
11 <i>Macropus brachyurus</i> . . . . .	1	0	1	335
12 <i>Petrogale xanthopus</i> . . . . .	1	6	7	336
13 <i>Petrogale penicillata</i> . . . . .	0	2	2	336
14 <i>Onychogale frenata</i> . . . . .	2	1	3	336
15 <i>Onychogale lunata</i> . . . . .	0	3	3	337
16 <i>Dorcopsis mulleri</i> . . . . .	1	0	1	337
17 <i>Lagostrophus fasciatus</i> . . . . .	0	2	2	337
18 <i>Aepyprymnus rufescens</i> . . . . .	0	1	1	338
19 <i>Bettongia cuniculus</i> . . . . .	1	0	1	338
20 <i>Bettongia penicillata</i> . . . . .	0	2	2	338
21 <i>Bettongia lesueuri</i> . . . . .	0	4	4	338
<b>Family PHALANGERIDÆ.</b>				
22 <i>Tarsipes rostratus</i> . . . . .	0	1	1	339
23 <i>Acrobates pygmæus</i> . . . . .	1	1	2	339
24 <i>Dromicia nana</i> . . . . .	0	1	1	339
25 <i>Petaurus australis</i> . . . . .	2	2	4	340
26 <i>Petaurus breviceps</i> . . . . .	0	4	4	340
27 <i>Petauroides volans</i> . . . . .	2	2	4	340

	NUMBER OF SPECIMENS.			Page.
	Asiatic Soc. Coll.	Indian Mus. Coll.	TOTAL.	
Family PHALANGERIDÆ— <i>contd.</i>				
28 Pseudochirus peregrinus . . . . .	0	2	2	341
29 Pseudochirus occidentalis . . . . .	0	1	1	341
30 Pseudochirus cooki . . . . .	0	1	1	341
31 Trichosurus vulpecula . . . . .	1	9	10	341
32 Trichosurus fuliginosus . . . . .	3	3	6	342
33 Trichosurus caninus . . . . .	0	1	1	342
34 Phalanger orientalis . . . . .	0	1	1	343
35 Phalanger celebensis . . . . .	0	2	2	343
36 Phascolarctus cinereus . . . . .	0	6	6	343
Family PHASCOLOMYIDÆ.				
37 Phascalomys mitchelli . . . . .	0	3	3	344
38 Phascalomys ursinus . . . . .	1	2	3	344
39 Phascalomys latifrons . . . . .	0	2	2	344
Family PERAMELIDÆ.				
40 Peragale lagotis . . . . .	0	2	2	344
41 Perameles obesula . . . . .	2	4	6	345
42 Perameles nasuta . . . . .	0	1	1	345
43 Perameles gunni . . . . .	1	1	2	345
44 Perameles bongainvillei . . . . .	0	1	1	345
Family DASYURIDÆ.				
45 Thylacinus cynocephalus . . . . .	3	0	3	346
46 Sarcophilus ursinus . . . . .	1	1	2	346
47 Dasyurus maculatus . . . . .	0	4	4	346
48 Dasyurus viverrinus . . . . .	2	4	6	347
49 Dasyurus geoffroyi . . . . .	1	3	4	347
50 Phascogale flavipes . . . . .	1	0	1	347
51 Phascogale penicillata . . . . .	0	2	2	347
52 Sminthopsis crassicaudata . . . . .	1	0	1	348
53 Myrmecobius fasciatus . . . . .	0	1	1	348
Family DIDELPHYDÆ.				
54 Didelphys marsupialis . . . . .	0	1	1	348
Order MONOTREMATA.				
Family ECHIDNIDÆ.				
1 Echidna aculeata . . . . .	3	3	6	349
Family ORNITHORHYNCHIDÆ.				
2 Ornithorhynchus anatinus . . . . .	2	5	7	349

## Summary.

ORDERS.	NUMBER OF SPECIES.			NUMBER OF SPECIMENS.		
	Indian.	Exotic.	TOTAL.	A.S.B.	I.M.	TOTAL.
Rodentia . . . . .	113	101	214	430	1,715	2,145
Ungulata . . . . .	53	68	121	410	679	1,089
Proboscidea . . . . .	1	1	2	10	27	37
Hyracoidea . . . . .	0	2	2	9	9	18
Carnivora . . . . .	83	73	156	369	876	1,245
Cetacea . . . . .	23	8	30	40	55	95
Sirenia . . . . .	1	1	2	2	8	10
Edentata . . . . .	3	6	9	18	51	69
Marsupialia . . . . .	0	54	54	37	114	151
Monotremata . . . . .	0	2	2	5	8	13
TOTAL . . . . .	276	316	592	1,330	3,542	4,872

## List of types in the Indian Museum.

No.	Description of Specimens.	Type as described.	Author.
1	Stuffed and skull . . . . .	<i>Sciurus blanfordi</i> . . . . .	Blyth.
1	Stuffed and skull . . . . .	<i>Sciurus sladeni</i> . . . . .	Anderson.
1	Skin . . . . .	<i>Sciurus alstoni</i> . . . . .	Anderson.
1	Stuffed . . . . .	<i>Sciurus quinquestriatus</i> . . . . .	Anderson.
1	Skin and skull . . . . .	<i>Sciurus layardi</i> . . . . .	Blyth.
1	Skin . . . . .	<i>Sciurus fulvus</i> . . . . .	Blanford.
1	Skin and skull . . . . .	<i>Pteromys cineraceus</i> . . . . .	Blyth.
4	Skins . . . . .	<i>Pteromys yunnanensis</i> . . . . .	Anderson.
3	Skins . . . . .	<i>Sciuropterus spadaceus</i> . . . . .	Blyth.
1	Skin and skull . . . . .	<i>Eupetaurus cineraceus</i> . . . . .	Thomas.*
1	Skin and skull . . . . .	<i>Spermophilus bactrianus</i> . . . . .	Scully.
1	Skin and skull . . . . .	<i>Arctomys aureus</i> . . . . .	Blanford.
1	Alcohol . . . . .	<i>Myoxus pictus</i> . . . . .	Blanford.*
1	Alcohol and skull . . . . .	<i>Gerbillus persicus</i> . . . . .	Blanford.
1	Alcohol and skull . . . . .	<i>Gerbillus nanus</i> . . . . .	Blanford.
1	Skin and skull . . . . .	<i>Nesokia scullyi</i> . . . . .	Wood-Mason.
1	Alcohol and skull . . . . .	<i>Mus bowersii</i> . . . . .	Anderson.
2	Skins and skulls . . . . .	<i>Mus andamanensis</i> . . . . .	Blyth.
1	Alcohol and skull . . . . .	<i>Mus rubricosa</i> . . . . .	Anderson.
3	Alcohol and skulls . . . . .	<i>Mus concolor</i> . . . . .	Blyth.
1	Skin and skull . . . . .	<i>Mus jerdoni</i> . . . . .	Blyth.
1	Alcohol . . . . .	<i>Mus erythrotis</i> . . . . .	Blyth.
1	Skull . . . . .	<i>Mus berdmorei</i> . . . . .	Blyth.
1	Alcohol and skull . . . . .	<i>Mus sublimis</i> . . . . .	Blanford.
2	Alcohol, 1 skull . . . . .	<i>Mus arianus</i> . . . . .	Blanford.†

\* Co-types in the British Museum.  
Described as *M. erythronotus*; name afterwards changed.

List of types in the Indian Museum—*contd.*

No.	Description of Specimens.	Type as described.	Author.
1	Skin, 1 alcohol and skull.	<i>Hapalomys longicaudatus</i> .	Blyth.
2	Skins and skulls .	<i>Arvicola stoliczkanus</i> .	Blanford.
2	Alcohol, 2 skulls .	<i>Arvicola blanfordi</i> .	Scully.
1	Alcohol, 1 skull .	<i>Arvicola blythi</i> .	Blyth *
2	Skins . . . . .	<i>Rhizomys erythrogenys</i> .	Anderson.
3	Stuffed . . . . .	<i>Rhizomys prunosus</i> .	Blyth.
1	Skin . . . . .	<i>Pectinator spekii</i> .	Blyth.
1	Skin. skull . . . . .	<i>Hystrix yunnanensis</i> .	Anderson.
2	Skins, 1 skull . . . . .	<i>Lepus hypsibius</i> .	Blanford.
2	Skins . . . . .	<i>Lepus stoliczkanus</i> .	Blanford.
1	Skin and skull . . . . .	<i>Lepus peguensis</i> .	Blyth.
2	Stuffed heads . . . . .	<i>Gazella spekii</i> .	Blyth.
1	Skin with head . . . . .	<i>Gazella fuscifrons</i> .	Blanford.
1	Skull . . . . .	<i>Cervus taevanus</i> .	Blyth.
1	Pr. horns . . . . .	<i>Cervus eustephanus</i> .	Blanford.
1	Skin and skeleton . . . . .	<i>Felis shawiana</i> .	Blanford.
1	Skin and skull . . . . .	<i>Viverra civettina</i> .	Blyth.
1	Stuffed and skull . . . . .	<i>Vulpes montana</i> .	Pearson.
1	Stuffed . . . . .	<i>Vulpes leucopus</i> .	Blyth.
1	Skin . . . . .	<i>Putorius stoliczkanus</i> .	Blanford.
1	Stuffed and skull . . . . .	<i>Arctonyx taxoides</i> .	Blyth.
1	Skin and skull . . . . .	<i>Lutra ellioti</i> .	Anderson.
1	Skeleton (pt.) . . . . .	<i>Balænoptera indica</i> .	Blyth.
1	Skeleton (pt.) . . . . .	<i>Balænoptera blythi</i> .	Anderson.
1	Skeleton (pt.) . . . . .	<i>Balænoptera edeni</i> .	Anderson.
1	Skeleton . . . . .	<i>Orcella fluminalis</i> .	Anderson.
1	Skeleton } . . . . .	<i>Globicephalus indicus</i> .	Blyth.
1	Skull } . . . . .		
1	Skull . . . . .	<i>Delphinus frithi</i> .	Blyth.
1	Stuffed and skull (pt.) . . . . .	<i>Delphinus perniger</i> .	Blyth.
		TOTAL NUMBER OF TYPES,—	
		55.	

\* Described by Blyth as *Phaomys leucurus*; name altered by Blanford.



# CATALOGUE OF MAMMALIA.

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## INDIAN MUSEUM.

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### PART II.

#### Order RODENTIA.

The Rodentia are Mammals characterized by the following points of structure :—a middle pair of long, curved, rootless, persistent incisors ; no canines ; three molars above and below [except *Hydromys*] ; temporal and orbital fossæ of skull confluent, the lacrymal foramen opening within it ; a distinct interparietal present ; scapula narrow, with a deep notch and a well developed acromion ; manus, five or four digits ; pes, three to five digits ; placenta deceduate and discoidal.

A general account of the classification and of the genera of the group by E. R. Alston will be found in P. Z. S., 1876, p. 61 ; it is mainly on this paper that the following key of the Indian Genera is based.

#### *Key of the Indian Genera.*

- a. Only one pair of incisors above ; skull with a true alisphenoid canal ; optic foramina rarely confluent ; bony palate well developed ; fibula never articulates with the calcaneum ; testes abdominal, descending periodically. [=Simplicidentata.]
- b. Two premolars above and below ; post-orbital processes present ; infra-orbital opening very small ; zygomatic arch mainly composed of the malar bone, not supported below by a process of the maxilla ; mandible with the angular portion springing from the lower edge of the bony covering of the lower incisor ; fibula separate through life ; upper lip cleft ; muffle small, naked ; nostrils comma-shaped ; tail cylindrical and hairy. [=Sciuridæ.]
- c. Incisors compressed.
- d. Limbs united by a flying expansion ; form slender ; tail long.

- e.* Dentition hypsodont, *i.e.*, molar teeth with vertically lengthened crowns. . . . **Eupetaurus**, p. 40.
- e*<sup>2</sup>. Dentition brachyodont, *i.e.*, molar teeth with short crowns.
- f.* An interfemoral membrane present; tail generally bushy. . . . **Pteromys**, p. 32.
- f*<sup>2</sup>. No interfemoral membrane; tail distichous.  
**Sciuropterus**, p. 37.
- d*<sup>2</sup>. Limbs free; form agile; tail long, bushy; no cheek pouches; parietals broad, anchylosed to the frontals.  
**Sciurus**, p. 4.
- c*<sup>2</sup>. Incisors not compressed; form thick-set; tail short; pollex rudimentary; parietals narrow, parallelogrammatic.  
**Arctomys**, p. 41.
- b*<sup>2</sup>. Premolars present or absent; no post-orbital processes; zygomatic arch slender, chiefly formed by the zygomatic processes of the maxillæ and squamosal bones; mandible with the angular portion springing from the lower edge of the bony covering of the lower incisor; tibia and fibula completely anchylosed in the adult; upper lip usually cleft; muffle small, naked; nostrils comma-shaped; tail cylindrical. [=*Myomorpha*.]
- f.* Lower incisors generally compressed; no premolars; infra-orbital opening generally high, wide above, narrow below, with the maxillary process forming a perpendicular plate; tail generally naked. [=*Muridæ*.]
- g.* Molars rooted.
- h.* Molars transversely laminated; incisive foramen and auditory bulla very small; palate imperforate; form myoxine; fur mixed with scattered spines; tail densely haired. . . . **Platacanthomys**, p. 46.
- h*<sup>2</sup>. Incisors narrow, upper ones grooved; molars transversely laminated; auditory bulla large; hind limb elongated; tail long and hairy. **Gerbillus**, p. 46.
- h*<sup>3</sup>. Incisors not grooved; molars generally tuberculate; tail scaly, and generally more or less naked.
- j.* Only the pollex provided with a nail, all other digits clawed.
- k.* Lower incisors broad; molars of transverse



laminæ; palate narrow; muzzle blunt; form stout; tail shorter than the head and body.

**Nesokia**, p. 53.

*k*<sup>2</sup>. Incisors narrow; molars tubercular.

**Mus**, p. 59.

*k*<sup>3</sup>. Like **Mus**, but with an extra anterior tubercle to the anterior upper molar.

**Leggada**, p. 79.

*j*<sup>2</sup>. Pollex and hallux provided with a flat nail; tail very long, with a pencil of long hairs at the tip; skull very short and rounded.

*l*. Dentition normal; incisors narrow.

**Chiropodomys**, p. 81.

*l*<sup>2</sup>. Molar teeth with cusps arranged perfectly regularly, those of the lower jaw arranged in transverse rows of three instead of two as in all other **Muridæ**; incisors broad. **Hapalomys**, p. 82.

*j*<sup>3</sup>. 1st and 5th digit of each limb with a flat nail; size small; form slender and agile

**Vandeleuria**, p. 82.

*h*<sup>4</sup>. Upper incisors grooved, otherwise as in **Mus**.

**Golunda**, p. 83.

*h*<sup>5</sup>. Upper incisors smooth; molars tuberculate; infra-orbital opening not much narrowed below, and with the perpendicular plate little developed; tail short, not scaled, sparsely haired; with large cheek-pouches.

**Cricetus**, p. 85.

*g*<sup>2</sup>. Molars rootless or semi-rooted, composed of triangular prisms placed alternately.

*m*. Infra-orbital opening murine; tail short and hairy; ear-conch present; anterior palatine foramen long. . . . **Arvicola**, p. 87.

*m*<sup>2</sup>. Infra-orbital opening small and sub-triangular; ear-conch absent; anterior palatine foramen rudimentary. . . . **Ellobius**, p. 94.

*f*<sup>2</sup>. Incisors large and broad; no premolars; molars rooted and with re-entering enamel folds, not tuberculate; infra-orbital opening sub-triangular, with no perpendicular plate; eyes very small; ears very short; tail rather short-haired. . . . **Rhizomys**, p. 95.

- f*<sup>3</sup>. Incisors compressed; one small upper premolar; infra-orbital opening very large and rounded; metatarsal bones greatly elongated; hind-feet with five digits, of which the first and fifth do not reach the ground; tail long, cylindrical and tufted. . . **Alectaga**, p. 101.
- ♂*<sup>3</sup>. One premolar above and below; molars with re-entering enamel folds and semi-rooted; no post-orbital processes to frontals; mandible with the angular portion springing from the outer side of the bony covering of the lower incisor; fibula a distinct bone throughout life; muffle hairy; fur modified into spines and quills. [=Hystricidæ.]
- n*. Spines cylindrical; tail short, covered with spines and hollow quills. . . . **Hystrix**, p. 104.
- n*<sup>2</sup>. Spines flattened and channelled; tail long, scaly, with a tuft of bristles. . . . **Atherura**, p. 104.
- α*<sup>2</sup>. Two pairs of incisors above; optic foramina confluent; no alisphenoid canal; bony palate much reduced; fibula and tibia ankylosed below and articulating with the calcaneum; testes always external. [=Duplicidentata.]
- ο*. Two premolars above and below; frontals with no post-orbital process; ears and hind limbs short; no external tail. **Lagomys**, p. 109.
- ο*<sup>2</sup>. Three premolars above, two below; frontals with two wing-like processes; ears and hind limbs elongated; tail short, bushy, and recurved . . . . **Lepus**, p. 112.

### Genus **SCIURUS**.

*Sciurus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 56 (1766).  
*Macroxus*, *Gray Ann. Mag. N. H.* (3) xx, p. 275 (1857).

The Museum collection of the squirrels of the Oriental Region is a very complete one and formed the basis of Anderson's monograph of the group in his Anatomical and Zoological Researches. In the Catalogue below Anderson has, except in one or two trifling instances, been followed, though it seems that still further reductions will have to be made in the number of species, more especially in the group of grizzled squirrels.

The synopsis or key is not intended to apply to geographical varieties of Indian species not found within the limits of the Indian empire, so that the numerous pale varieties of *Sciurus bicolor* and the curiously coloured varieties of *Sciurus ferruginens*, which are none of them found within the limits of the Indian empire, are not included in the key.

The key is more or less an artificial one and must not be taken as exhibiting the real affinities of the different species.

*Key of the Indian Species.*

- a* Squirrels of large size; length without tail more than 12 inches; skull over two inches in length; the anterior upper premolar constantly absent.
- b*. Black or dark-brown above, yellow below; outside of the shoulders and thighs, legs and feet constantly of the same colour as the back.
- c*. Ears not tufted . . . . **S. bicolor**, p. 7.
- c*<sup>2</sup>. Ears tufted . . . . **S. giganteus**, p. 8.
- b*<sup>2</sup>. Above red and black, with a yellow occipital patch; feet yellow like the under surface; ears very fully tufted.  
**S. indicus**, p. 10.
- b*<sup>3</sup>. Above black or grizzled black and white, a yellow or white occipital patch; feet black, but the outside of the limbs yellow like the under surface; ears very slightly tufted.  
**S. macrourus**, p. 11.
- a*<sup>2</sup>. Squirrels of medium size, less than 12 inches in length without the tail; never dorsally striped; skull 1·6 to 1·8 inches in length; the anterior upper premolar always present.
- d*. Dorsal surface grizzled, either gray, yellow or red and black; no ventral stripes.
- e*. Slightly smaller skull, averaging 1·6 inch.
- f*. With a black tip to the tail; ventral surface pale.  
**S. pygerythrus**, p. 11.
- f*<sup>2</sup>. Tail-tip not black; ventral surface pale; a bright red patch frequently present on the thighs (seasonal?)  
**S. lokroides**, p. 18.
- f*<sup>3</sup>. Tail-tip not black; ventral surface bright orange; a white patch of hairs behind the ear; head with a somewhat elongated muzzle compared with *S. lokroides*. . . . **S. lokriah**, p. 20.
- e*<sup>2</sup>. Skull somewhat larger, from 1·85 to 2·0 inches in length.
- g*. Tail-tip black; feet yellow; below orange.  
**S. blanfordi**, p. 12.
- g*<sup>2</sup> Tail-tip black; feet yellow; a black lateral patch

- separates the yellow ventral from the grizzled dorsal surface. . . . **S. phayrei**, p. 12.
- g*<sup>3</sup>. Below gray; during the cold weather the grizzled fur of the back is replaced by brilliant orange.  
**S. caniceps**, p. 13.
- g*<sup>4</sup>. Below dark chestnut, generally with a patch of brilliant black on the dorsal surface; probably not seasonal. . . . **S. atrodorsalis**, p. 15.
- g*<sup>5</sup>. Feet, ventral surface and upper surface of the head chestnut. . . . **S. sladeni**, p. 18.
- g*<sup>6</sup>. Below deep chestnut, above varying from yellow grizzled to almost black; tail-tip red, black, or same colour as the back. **S. erythraeus**, p. 15.
- g*<sup>7</sup>. Below white, cheeks ferrugineous; tail chestnut below; a white spot behind the ear; head with elongate muzzle resembling *S. lokriah*.  
**S. rufigenis**, p. 21.
- d*<sup>2</sup>. Ventral surface marked by five stripes, a central and two lateral nearly black, two intermediate yellowish white.  
**S. quinquestriatus**, p. 21.
- d*<sup>3</sup>. Dorsal surface not grizzled; whole squirrel entirely ferrugineous . . . . **S. ferrugineus**, p. 22.
- a*<sup>3</sup>. Squirrels of small size under eight inches in length without the tail; always marked with dorsal stripes varying in number; skull of varying shape and size, with the anterior pre-molar present (except *S. layardi*).
- h*. Median dorsal stripe black.
- j*. Larger, about seven inches in length without the tail; stripes barely reaching from the shoulders to the thighs, 5 black and 2 light ones; skull very long and narrow, 1.75 inches long by 1.05 inches across at the widest part. . . . **S. berdmorei**, p. 26.
- j*<sup>2</sup>. Smaller, about five inches in length without the tail; ears tufted with white tips; stripes varying in length and distinctness; skull very short and rounded, 1.05 long by .85 across the broadest part.  
**S. maclellandi**, p. 27.
- h*<sup>2</sup>. Median dorsal stripe white or yellow.
- k*. Rump and under side of the tail with a distinct tinge of red.

- l. Three white or reddish stripes reaching anteriorly as far as the shoulders only; ventral surface pale except the rump; skull long and narrow, 1'25 by '85 inches. . . . **S. tristriatus**, p. 25.
- l<sup>2</sup>. Lateral stripes very obscure; ventral surface chestnut; no anterior upper premolars; skull short and rounded, 1'3 by '95 inches. . . . **S. layardi**, p. 26.
- l<sup>3</sup>. Rump and under side of the tail with no traces of red.
- m. Three dorsal stripes well marked, reaching forward anteriorly to the nape; body about seven inches; fur harsh and light coloured.  
**S. palmarum**, p. 24.
- m<sup>2</sup>. Three dorsal stripes very obscure, not reaching forward anteriorly to the nape of the neck; body about five inches in length; fur very soft and rather dark . . . . **S. sublineatus**, p. 26.

### Sciurus bicolor.

#### Var. A.—typicus.

- Sciurus bicolor*, *Sparrman Götheborg Wetens. Svensk. Handl.*, i, p. 70 (1778)\*; *Horsfield Zool. Res., with plate; Muller and Schlegel, Tem. Verhandl.*, pp. 85, 88; *Blyth F. A. S. B.*, x, p. 919; *Cantor F. A. S. B.*, xv, p. 246; *Blyth F. A. S. B.*, xvi, p. 870; *Blyth Cat.*, no. 309, p. 99 [pt.]; *Anderson Anat. Zool. Res.*, p. 215; *Fentink Notes Leyd. Mus.*, v, p. 108; *Thomas P. Z. S.*, 1886, pp. 67, 75; *Anderson, F. Linn. Soc.*, xxi, p. 340; *Fentink Notes Leyd. Mus.*, xi, p. 27.
- Sciurus javensis*, *Zimmerman Geograph. Gesch.*, ii, p. 342 (1780); *Blyth F. A. S. B.*, xvi, p. 870; *Gray P. Z. S.*, 1861, p. 137.
- Sciurus albiceps*, *Desmarest N. Dict. Hist. Nat.*, x, p. 105 (1817); *Fentink Notes Leyd. Mus.*, v, p. 110.
- Sciurus leschenaltii*, *Desmarest Mamm.*, p. 335 (1820); *Horsfield Zool. Res.*
- Sciurus affinis*, *Raffles Linn. Trans.*, xiii, p. 259 (1822); *Blyth Ann. Mag. N. H.*, xx, p. 314.
- Sciurus hypoleucus*, *Horsfield Zool. Res.* (1824); *Müller and Schlegel Tem. Verhandl.*, p. 90; *Blyth F. A. S. B.*, xvi, p. 870; *id. Cat.*, no. 310, p. 99.
- Sciurus auriventer*, *Is. Geoff. St. Hil. Mag. de Zool.* (1832)\*; *id. Zool. Voy. aux. Ind. Orient. Belanger*, 1834, p. 150; *Blyth F. A. S. B.*, xvi, p. 870.
- Sciurus humeralis*, *Colon Mem. Soc. Sci. Nat. Neufcha.*, i, p. 122, pl. viii (1835).
- Sciurus ephippium*, *Müller and Schlegel Tem. Verhandl.*, p. 91, pl. xiii (1838-44); *Blyth Cat.*, no. 311, p. 100.
- Sciurus rubiventer*, *Müller and Schlegel Tem. Verhandl.*, p. 86 (1838-44).
- Macroxus bicolor*, *Gray Ann. Mag. N. H.* (3), xx, p. 276 (1867) [pt.]
- Macroxus ephippium*, *Gray Ann. Mag., N. H.* (3), xx, p. 276 (1867).

*Var. B.—giganteus.*

- Sciurus giganteus*, McClelland *P. Z. S.*, p. 150 (1839); *Anderson Anat. Zool. Res.*, p. 220; *Jentink Notes Leyd. Mus.*, v, p. 107.  
*Sciurus bicolor*, *Wagner Schreber Säugeth. Suppl.*, iii, p. 191 (1843); *Blyth J. A. S. B.*, xvi, p. 870; id. *ibid.*, xxiv, p. 472; id. *ibid.*, xxxi, p. 334; *Blyth Cat.*, p. 99, no. 309. [pt.]  
*Sciurus macruroides*, *Hodgson J. A. S. B.*, x, p. 915 (1841); *Horsfield P. Z. S.*, 1856, p. 402; *Ferdon Mamm.*, p. 168; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 35.

The Black Hill Squirrel; Bhotea, Shingsham; Lepcha, Leh-yuk; Arakan, Leng-thet; Burmese, Sheng.

*Distribution.*—The typical variety is found in Lower Burma, all through Tenasserim and the Malayan peninsula, and in the islands of Sumatra, Java and Borneo.

The variety *giganteus* is found in the Himalayas from Nepal eastward to Assam, the hills between Assam and Burma and Upper Burma.

This species varies in colour to a large extent, a fact which has been the cause of the long list of synonyms above recorded; in the list of specimens below, "a" to "l" inclusive are specimens of the typical black and yellow variety, in which the black extends down the outside of the legs and the toes are black, the ears are untufted and there is a cheek and chin spot.

The specimens "m" to "q" only differ in having the back of a decidedly more rufous tinge.

The specimens "s" to "z" differ in having the feet light-coloured, not black as in the typical form; the back varies from a light rufous to the same yellow as the ventral surface; this is the variety separated by Jentink under the name of *Sciurus albiceps*.

The specimen "r" is again curiously intermediate: from the crown of the head to the root of the tail it is a bright grizzled yellow, each hair being brown, with a bright yellow tip; the head, cheeks and throat are whitish, the end of the nose and chin alone being dark; the tail and feet are almost as dark as in the typical black and yellow variety.

The two specimens from Borneo "z" and "a<sup>2</sup>" are somewhat different again, being very dark grizzled above, but with yellowish not blackish feet.

It seems impossible therefore at present to separate into even geographical races this very varying species, except in the case of the large squirrel of the Eastern Himalayas and Assam, which forms a well-marked geographical race of *Sciurus bicolor*. It was first described by McClelland as a distinct species (*S. giganteus*) in his paper on the Mammals of Assam.

This race is at once distinguished from the true *S. bicolor* by its tufted ears; it also seems to be very constant in colour, and never varies as *S. bicolor* does.

*Var. A.—typicus.*

a.	Skin, skull	Yé, Tenasserim, 11-86	G. M. Giles.
b.	Skin	♀ Pilai, Mergui, 6-3-82	J. Anderson.
c.	Skin	♂ " " 7-3-82	J. Anderson.
d.	Skin	Thaing, Mergui, 31-1-82	J. Anderson.
e.	Skin, skull	♂ Mergui, 14-12-82	J. Anderson.
f.	Skin	Amherst, Tenasserim	J. Armstrong.
g.	Skin	" " "	J. Armstrong.
h.	Skin, skull	" " " " "	Purchased, 1877.
i.	Skin, skull	" " " " "	Purchased, 1878.
k.	Stuffed	" " " " "	No history, A.S.B.
l.	Stuffed skull	♂ Malay peninsula	W. Rutledge, 1870.
m.	Skin, skull	Tenasserim	A.S.B.
n.	Stuffed	juv. " "	Major Berdmore, A.S.B.
o.	Stuffed, skull	Pegu	W. T. Blanford, 1863, A.S.B.
p.	Stuffed	Ramree Isle, Arrakan	J. R. Abbott, 1844, A.S.B.
q.	Stuffed skull	Tenasserim	F. Jenkins, 1845, A.S.B.
r.	Skin	♂ Taping R., Perak	Mus. Coll. (Jaffa), 1889.
s.	Skin	Malacca	E. R. Alston [P.]
t.	Stuffed skull	♀ Singapore	W. Rutledge, 1872.
u.	Stuffed skull	Malay peninsula	E. Lindstedt, 1846, A.S.B.
v.	Stuffed skull	" "	R. W. G. Frith, 1846, A.S.B.
w.	Stuffed skull	Java	Mrs. Turnbull, 1857, A.S.B.
x.	Skin	Java [Horsfield]	India Mus., London,
y.	Stuffed skull	♀ Borneo	Batavian Soc. (1844) A.S.B.
z.	Skin	" "	E. R. Alston [P.]
a <sup>2</sup> .	Skin	" "	E. R. Alston [P.]
b <sup>2</sup> .	Skeleton	Tenasserim	J. Wood Mason.

*Var. B.—giganteus.*

a-h.	8 Skins and skulls	Sikkim	L. Mandelli.
j.	Skin	Sikkim	L. Mandelli.
k.	Skin	♂ nr. Darjeeling, 6000 ft.	W. G. Masson [P.]
l.	Skin	♀ " " " "	W. G. Masson [P.]
m.	Skin	Sikkim	H. J. Elwes [Ex.]
n.	Skin, skull	Darjeeling terai, 4-69	J. Anderson.
o.	Skin	Sikkim	W. T. Blanford
p.	Skin	Assam	E. F. Smith (1859), A.S.B.
q.	Skin	Garó hills, 7-69	J. Anderson.
r-v.	5 Skins and skulls.	Samagooting, Assam	J. Butler.
w.	Skin	Naga hills, Assam,	A. W. Chennell.
x.	Skin	" " "	A. W. Chennell.
y.	Skin	Telbong'o Peak, Naga hills.	H. H. Godwin Austen.
z.	Skin	Dunsiri Valley, Assam	H. H. Godwin Austen.
a <sup>2</sup> .	Skin	" " "	H. H. Godwin Austen.
b <sup>2</sup> .	Skin	Dirjunj R., N. Cachar,	H. H. Godwin Austen.
c <sup>2</sup> .	Skin	Sibsagar, Assam, 7-68	S. E. Peel.
d <sup>2</sup> .	Skin	" " 7-68	S. E. Peel.
e <sup>2</sup> .	Skin	juv. Goalpara, Assam, 8-68	H. L. Haughton.
f <sup>2</sup> .	Skin	Momein, Yunnan, 6,000 ft., 21-5-68.	J. Anderson.
g <sup>2</sup> .	Skin	" " 7-68,	J. Anderson.

<i>h</i> <sup>2</sup> . Skin	Upper Burma	C. Williams (1865).
<i>j</i> <sup>2</sup> . Skin, skull	♂ Borneo	E. R. Alston [P.]
<i>k</i> <sup>2</sup> . Skin, skull	.....	W. Rutledge.
<i>l</i> <sup>2</sup> . Stuffed	Darjeeling	Capt. Bonnavia (1844), A.S.B.
<i>m</i> <sup>2</sup> . Skull	Sibsagar, Assam, 7-68	S. E. Peel.
<i>n</i> <sup>2</sup> . Skull	Samagooting, Assam, 10-75.	J. . Butler.
<i>o</i> <sup>2</sup> . Skull		No history, A. S. B.
<i>p</i> <sup>2</sup> . Skin	♂ Darjeeling, 8,000 ft.	W. G. Masson [P.]
<i>q</i> <sup>2</sup> . Skin	"	W. A. Darling (1881)
<i>r</i> <sup>2</sup> . Skin	Rungbee, Darjeeling	J. Munro.

### Sciurus indicus.

"Bombay Squirrel," *Pennant Synop. Mamm.*, 1771, p. 281.

*Sciurus indicus*, *Erxleben Syst. Reg. Anim.*, p. 420 (1777); *Anderson Anat. Zool. Res.*, p. 222; *Fentink Notes Leyd. Mus.*, v, p. 106; *Thomas P. Z. S.*, 1886, p. 60.

*Sciurus bombayanus*, *Boddaert Elench. Anim.*, p. 117 (1785)\*.

*Sciurus maximus*, *Gmelin Syst. Nat.*, i, p. 149 (1788); *Elliot, Madr. Journ.*, x, p. 217; *Horsfield Cat. E. I. Mus.*, p. 156; *Blyth Z. A. S. B.*, xxviii, p. 287; *id. Cat.*, p. 98, no. 307; *Ferdon Mamm.*, p. 166; *McMaster Notes on Ferdon*, pp. 49, 194; *Anderson Anat. Zool. Res.*, p. 223.

*Sciurus purpureus*, *Zimmerman Spec. Geogr. Quadr.*, p. 518 (1788); *Blyth Z. A. S. B.*, xvi, p. 868.

*Sciurus elphinstonii*, *Sykes, P. Z. S.*, p. 103 (1831); *Horsfield Cat. E. I. Mus.*, p. 157; *Ferdon Mamm.*, p. 167.

*Sciurus malabaricus*, *Schinz Synop. Mamm.*, ii, p. 32 (1845); *Ferdon Mamm.*, p. 166.

The Indian Red Squirrel; Bengali, Kat beral; Hindustani, Jungli gilheri; Kols, Kondeng; Gonds, Perwarsti; Hindi, Karrat; Monghyr, Rasu or Ratuphar; Telegu, Bet-údatá; Mahratta, Shekra; Canarese, Kesannalu.

*Distribution*.—The Indian peninsula generally, south of the Gangetic plains from Cuttack to Travancore; has also been recorded from the Nepal Terai (Hodgson) and Manipur (Thomas).

<i>a</i> . Skin,	♂ nr. Cuttack	V. Ball [Ex.]
<i>b</i> . Skin	Travancore	Purchased.
<i>c</i> . Skin, skull	S. Malabar	Rev. J. Baker (1859), A.S.B.
<i>d</i> . Skin	"	Rev. J. Baker (1859), A.S.B.
<i>e</i> . Skin	Malabar	E. R. Alston [P.]
<i>f</i> . Skin	Travancore	Purchased.
<i>g</i> . Skin	Deccan [Sykes]	India Mus., London.
<i>h</i> . Skin, skull ♀		No history, A. S. B.
<i>j</i> . Skin, skull		No history A. S. B.
<i>k</i> . Skin	.....	J. Anderson.
<i>l</i> . Skin	.....	J. Anderson.
<i>m</i> . Skin	.....	Lord Northbrook.
<i>n-g</i> . 4 Skins	♂	.....
<i>r</i> . Skin	♀	.....
		W. Rutledge.
		W. Rutledge.



s. Stuffed	S. Malabar	Mrs. Turnbull, 1862, A.S.B.
t. Stuffed, skull	.....	A.S.B.
u. Stuffed	.....	Barrackpore Menagerie,
v. Stuffed, skull	.....	A.S.B. [A.S.B.]
w. Stuffed	.....	G. Sceva.
x. Stuffed	.....	W. Rutledge, 1870.
y. Skeleton, mtd.	.....	No history.
z. Skin	♂ Tenmalai, S. Arcot,	Museum Collector.
a <sup>2</sup> . Skin	♀ " " "	Museum Collector.
b <sup>2</sup> . Skin	♀ Calathorpulay, Travancore.	Museum Collector.

### Sciurus macrourus.

*Sciurus macrourus*, *Pennant Indian Zool.*, 1st ed., p. 31, pl. i (1769)\*; *Gray Illustr. Ind. Zool.*, ii, pl. xix; *Blyth J. A. S. B.*, xvi, p. 869; id. *J. A. S. B.*, xviii, p. 601; id. *J. A. S. B.*, xx, p. 165; *Horsfield Cat. E. I. Mus.*, p. 158; *Kelaart Prodr. Faun. Zeylan.*, p. 49; *Blyth J. A. S. B.*, xxiii, p. 214; id. *Cat.*, no. 313, p. 100; *Ferdon Mamm.*, p. 168; *Anderson Anat. Zool. Res.*, p. 224.

*Sciurus ceylonicus*, *Erxleben Syst. Reg. An.*, p. 416 (1777).

*Sciurus ceilonensis*, *Boddaert Elench. Anim.*, p. 117 (1785)\*.

*Sciurus maximus*, *Wagner Schreiber Säugeth. Suppl.*, iii, p. 188 (1843) [pt.]

*Sciurus bicolor*, *apud Schinz Syn. Mamm.*, ii, p. 33 (1845).

*Sciurus tennentii*, *Blyth J. A. S. B.*, xviii, p. 600 (1849); id. *J. A. S. B.*, xx, p. 165; *Kelaart Prodr. Faun. Zeylan.*, p. 50; *Blyth Cat.*, no. 312, p. 100.

*Sciurus alipes*, *Blyth J. A. S. B.*, xxviii, p. 287 (1859); *Blyth Cat.*, no. 314, p. 100.

*Sciurus zeylanicus*, *Ray apud Fentink Notes Leyd. Mus.*, v, p. 113 (1883).

The Grizzled Squirrel; Cingalese, Rookeeah or Dandoleyna.

*Distribution.*—The hill ranges of Southern India, Nilgiris, Shevaroy, and Ghauts of Travancore and Ceylon.

a. Skin	♂ Shevaroy hills	W. Daly 1889.
b. Skin	Nilgiris	R. Rollo, 1845, A.S.B.
c. Skin	Ceylon	Columbo Mus.
e. Stuffed, skull	"	E. F. Kelaart, A.S.B.
f. Stuffed, skull	"	E. F. Kelaart, A.S.B.

[2 types of *Sciurus tennentii*, Blyth.]

g. Stuffed	Ceylon	E. L. Layard, 1848, A.S.B.
h. Stuffed	"	E. L. Layard, 1848, A.S.B.
j. Stuffed	"	E. L. Layard, 1848, A.S.B.
k. Stuffed,	juv. "	E. L. Layard, 1848, A.S.B.
l. Stuffed	"	E. F. Kelaart, A.S.B.
m. Skull	"	R. Templeton, 1846, A.S.B.
n. Skin	♂ "	Zoological Gardens.

### Sciurus pygerythrus.

*Var. A.—typicus.*

*Sciurus pygerythrus*, *Is. Geoff. St. Hil. Mag. de Zool.* (1832)\*; id. *Zool. Voy. aux Ind. Orient.*, *Bélangier*, p. 145, pl. vii (1845); *Blyth J. A. S. B.*

xvi, p. 872 (note); id. *ŷ. A. S. B.*, xvii, p. 345; id. *ŷ. A. S. B.*, xxiv, p. 475; *Blyth Cat.*, no. 325, p. 103; *Blyth ŷ. A. S. B.*, xlv, *Burma List*, p. 37; *Anderson Anat. Zool. Res.*, p. 227; *Fentink Notes Leyd. Mus.*, v, p. 124.

*Sciurus flavimanus*, *Schinz Synop. Mamm.*, ii, p. 34 (1845) [pt.]  
*Sciurus caniceps pygerythrus*, *Thomas P. Z. S.*, p. 69 (1886).

*Var. B.—blanfordi.*

*Sciurus blanfordi*, *Blyth ŷ. A. S. B.*, xxxi, p. 333 (1862); id. *ŷ. A. S. B.*, xxxii, p. 73; id. *Cat.*, no. 331, p. 104; id. *ŷ. A. S. B.*, xlv, *Burma List*, p. 36; *Anderson Anat. Zool. Res.*, p. 230, pl. xviii.

*Var. C.—phayrei.*

*Sciurus pygerythrus* var., *Blyth ŷ. A. S. B.*, xvii, pt. 2, p. 345 (1848).  
*Sciurus phayrei*, *Blyth ŷ. A. S. B.*, xxiv, pp. 472, 476 (1885); id. *ŷ. A. S. B.*, xxviii, p. 275; id. *ŷ. A. S. B.*, xxxi, p. 332; id. *Cat.*, no. 330, p. 104; *Peters P. Z. S.*, 1866, p. 429; *Blyth ŷ. A. S. B.*, xlv, *Burma List*, p. 36; *Blanford ŷ. A. S. B.*, xlvii, p. 160; *Anderson Anat. Zool. Res.*, p. 230.  
*Sciurus caniceps phayrei*, *Thomas P. Z. S.*, p. 69 (1886).

*Var. D.—griseimanus.*

*Sciurus griseimanus*, *A. Milne Edwards Rev. Mag. Zool.* (2), xix, p. 195 (1867); id. *Rech. Mamm.*, p. 164; *Anderson Anat. Zool. Res.*, p. 233.  
*Sciurus inornatus* } *Gray Ann. Mag. N. H.* (3), xx, p. 282 (1867).  
*Sciurus leucopus* }  
*Sciurus caniceps griseimanus*, *Thomas P. Z. S.*, p. 69 (1886).

*Distribution.*—The typical variety is found in Lower Burma and is apparently confined to the country round Rangoon and the Pegu revenue division; it is replaced in Upper Burma by two varieties, one distinguished by its very pale yellow ventral surface, which has never been named, and the other by its larger size, and its ventral surface of the same bright red as the typical variety (*S. blanfordi*); in Siam and Cambodia a third form is found of the same size as *S. blanfordi* but with a pale yellow ventral surface and markedly pale feet (*S. griseimanus*); a fourth form (*S. phayrei*) distinguished by the possession of a lateral black streak between the grizzled dorsal and yellow ventral surfaces is confined to the country between the Sittang and Salween apparently rivers in the Tenasserim division of Lower Burma.

*Var. A.—typicus.*

a. Skin, skull	Burma	C. Williams (1865).
b. Skin	"	C. Williams (1865).
c. Skin	Rangoon	Sir J. Fayrer (1857), A.S.B.
d. Skin	"	Sir A. Phayre, A.S.B.
e. Skin	♂ "	9-1-76. J. Armstrong.
f. Skin	" "	" J. Armstrong.

g. Skin		Rangoon,	9-1-76.	J. Armstrong.
h. Skin	♂	"	"	J. Armstrong.
j. Stuffed		Lower Pegu	"	Major Berdmore (1847), A.S.B.
k. Stuffed		"	"	Sir J. Fayer (1857) A.S.B.
l. Skin		Upper Burma.		C. Williams (1865).
m. Skin, skull	♂	Sagaing, Upper Burma,		J. Anderson.
			3-10-68.	
n. Skin	juv.	"	"	J. Anderson.
			3-10-68.	
o. Skin	♀	"	"	J. Anderson.
			3-10-68.	
p. Skin	♂	Ava, Upper Burma.		J. Anderson.
			4-10-68.	
q. Skin	♀	"	"	J. Anderson.
			4-10-68.	
r. Skin, skele- ton	♀	Kabwet, Upper Burma,		J. Anderson.
			9-1-75.	
s. Alc.	juv.	Mandalay		Sir P. Sladen, 1869.

*Var. B.—blanfordi.*

a. Stuffed, skull	Ava.	W. T. Blanford (1862), A.S.B.
		[Type of <i>S. blanfordi</i> of Blyth.]
b. Skin	} ♀ Pudeepyo, Upper Burma, J. Anderson.	10-1-75.
Skeleton		

*Var. C.—phayrei.*

a. Skin, skull	Martaban	E. Blyth (1861), A.S.B.
b. Stuffed, skull	"	E. Blyth (1861), A.S.B.
c. Stuffed	"	E. Blyth (1861), A.S.B.
d. Skull	.....	No history, A.S.B.
e. Skeleton	Upper Burma.	J. Anderson.

*Var. D.—griseimanus.*

a. Skin, skull	♂ Cochin China	Paris Mus. [Ex.]
	[Jullien 1874].	
b. Skin	Cochin China, 8-67.	Paris Mus. [Ex.]

**Sciurus caniceps.**

*Sciurus* — ? Blyth *♀*. *A. S. B.*, x., p. 920 (1841).

*Sciurus caniceps*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842); *Horsfield Cat. E. I. Mus.*, p. 155; Blyth *♀*. *A. S. B.*, xlv, *Burma List*, p. 36; *Blanford ♀*. *A. S. B.*, xlvii, p. 161; *Anderson Anat. Zool. Res.*, p. 229; *Fentink Notes Leyd. Mus.*, v, p. 122; *Thomas P. Z. S.*, 1886, p. 68; *Anderson ♀*. *Linn. Soc.*, xxi, p. 340.

*Sciurus chrysonotus*, Blyth *♀*. *A. S. B.*, xvi., p. 873 (1847); *Horsfield Cat. E. I. Mus.*, p. 159; Blyth *♀*. *A. S. B.*, xxiv, p. 474; *id.* *♀*. *A. S. B.*, xxxi, p. 334; *id. Cat.*, no. 323, p. 103; *Peters P. Z. S.*, 1866, p. 429; *Blanford Ann. Mag. N. H.* (4), i, p. 152.

*Sciurus concolor*, *Blyth* *♀*. *A. S. B.*, xxiv, p. 474 (1855); id. *♀*. *A. S. B.*, xx, p. 166; id. *Cat.*, no. 324, p. 103.

*Macroxus caniceps*, *Gray Ann. Mag. N. H.* (3), xx, p. 280 (1867).

*Distribution*:—Tenasserim, from the Moulmein district in the north through the Malay peninsula to Malacca.

This species, like the other Burma squirrels, varies considerably; the specimens from about Moulmein, whence came the original type of *Sciurus chrysonotus*, have the back suffused with bright orange yellow during the breeding season, which takes place during the cold months from October to February; the specimens from Mergui further south do not seem to undergo a seasonal change, but have the sides of the neck instead of the back tinged with bright yellow; further south still the specimens from Perak have only a slight tinge of orange on the back and no cheek patches, and this form agrees very well with the specimen from Malacca, the type of *S. concolor*.

a. Skin, skull	♀	Moulmein dist.	T. H. Hood.
b. Skin	"	" "	T. H. Hood.
c. Skin	"	" "	T. H. Hood.
d. Skin	♂	" "	T. H. Hood.
e. Skin	"	" "	T. H. Hood.
f. Skin	"	" "	T. H. Hood.
g. Skin	♀	" "	T. H. Hood.
h. Skin	"	" "	T. H. Hood.
j. Skin	"	" "	T. H. Hood.
k. Skin		Mergui	Major Berdmore (1854), A.S.B.
l. Skin		Lampée, Mergui, 10-1-82	J. Anderson.
m. Skin	♀	Pilai, Mergui, 7-3-82	J. Anderson.
n. Skin	♀	Tiboo Padan, Mergui, 8-2-82	J. Anderson.
o. Skin	♀	Pilai, Mergui, 6-3-82	J. Anderson.
p. Skin	♀	Pilai " 7-3-82	J. Anderson.
q. Skin	♀	Mergui, 23-3-82	J. Anderson.
r. Skin	♀	" 13-12-81	J. Anderson.
s. Skin, skull	♂	" 13-12-81	J. Anderson.
t. Skin "	"	" 14-10-81	J. Anderson.
u. Skin		Perak	Mus. Coll., Jaffa (1889).
v. Skin		"	Mus. Coll., Jaffa (1889)
w. Skin, skull.		Malacca	G. Moxon (1847), A.S.B.

[Type of *S. concolor* of Blyth.]

x. Skin	No history	A.S.B.
y. Stuffed	Amherst, Tenasserim	J. Armstrong (1877)
z. Stuffed, skull.	" "	J. Armstrong (1877).
a <sup>2</sup> . Stuffed	Tenasserim	E. O'Reilly (1850), A.S.B.
b <sup>2</sup> . Stuffed	"	E. O'Reilly (1850), A.S.B.
c <sup>2</sup> . Stuffed	"	Rev. J. Barbe (1846), A.S.B.
d <sup>2</sup> . Stuffed	"	Rev. J. Barbe, (1846), A.S.B.

[The above four specimens were the types of *S. chrysonotus*, Blyth.]

e <sup>2</sup> .-f <sup>2</sup> . 2 Alc.	Moulmein dist.	T. H. Hood (1872)
g <sup>2</sup> .-h <sup>2</sup> . 4 Alc.	Moulmein	J. Wood Mason.

**Sciurus atrodorsalis.**

- ♀ *Sciurus flavimanus*, *Is. Geoff. St. Hil. Mag. de Zool.* (1832)\*; *id. Zool. Voy. aux Ind. Orient. Bélanger*, p. 148; *Blyth F. A. S. B.*, xvi, p. 872.
- Sciurus atrodorsalis*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842); *Blyth F. A. S. B.*, xvi, p. 872; *id. F. A. S. B.*, xvii, p. 345; *id. F. A. S. B.*, xviii, p. 602; *Horsfield Cat. E. I. Mus.*, p. 154; *Blyth F. A. S. B.*, xxiv, p. 477; *id. F. A. S. B.*, xxviii, p. 276; *id. F. A. S. B.*, xxxi, p. 333; *id. Cat. no. 334*, p. 105; *Peters P. Z. S.*, 1866, p. 428; *Blanford Ann. Mag. N. H.* (4), i, p. 152; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 36; *Blanford, F. A. S. B.*, xlvii, p. 159; *Anderson Anat. Zool. Res.*, p. 233; *Fentink Notes Leyd., Mus.*, v, p. 122 (pt.); *Thomas P. Z. S.*, 1886, p. 70.
- Sciurus hyperythrus*, *Blyth F. A. S. B.*, xxiv, p. 474 (1855); *id. F. A. S. B.*, xxxi, p. 333; *id. Cat.*, no. 321, p. 102.

*Distribution.*—This squirrel has only been found in North Tenasserim, and apparently only to the east of the Salween river; the localities given in the list below "Lower Pegu" and "east of the Irrawaddy river" are somewhat vague and do not seem to be quite reliable.

<i>a-e.</i> 5 Skins	South of Irrawaddy	T. H. Hood and Mus. Coll.
<i>f-l.</i> 6 Skins	Moulmein dist.	T. H. Hood.
<i>m-n.</i> 2 Skins ♂	" "	T. H. Hood.
<i>o-p.</i> 2 Skins ♀	" "	T. H. Hood.
<i>q-a<sup>2</sup>.</i> 11 Skins	" "	T. H. Hood.
<i>b<sup>2</sup>.</i> Skin	" "	T. H. Hood.
<i>c<sup>2</sup>.</i> Skin	" "	J. Armstrong.
<i>d<sup>2</sup>.</i> Skin	Mooleyet range, Tenas- serim.	Purchased.
<i>e<sup>2</sup>.</i> Skin	" " "	Purchased.
<i>f<sup>2</sup>.</i> Skin	" " "	J. Anderson (1870).
<i>g<sup>2</sup>.</i> Stuffed	Moulmein	S. R. Tickell, A. S. B.
<i>h<sup>2</sup>.</i> Stuffed	" "	W. S. Atkinson, A. S. B.
<i>j<sup>2</sup>.</i> Stuffed	" "	W. S. Atkinson, A. S. B.
<i>k<sup>2</sup>.</i> Stuffed	" "	J. Armstrong.
<i>l<sup>2</sup>-n<sup>2</sup>.</i> 3 Stuffed	Lower Pegu.	J. Armstrong.
<i>o<sup>2</sup>.</i> Stuffed	Tenasserim.	Major Berdmore (1852), A. S. B.

[Type of *S. hyperythrus*, Blyth.]

<i>p<sup>2</sup>-r<sup>2</sup>.</i> 3 Skeletons, skins	} ♂ Moulmein dist.	T. H. Hood.
<i>s<sup>2</sup>-v<sup>2</sup>.</i> 4 Skeletons, skins		
<i>w<sup>2</sup>.</i> Skeleton, skin	} "	T. H. Hood.
<i>x<sup>2</sup>-y<sup>2</sup>.</i> 2 Alc.		
<i>z<sup>2</sup>.</i> Stuffed	East of Irrawady	T. H. Hood.
<i>a<sup>2</sup>-b<sup>2</sup>.</i> 2 Alc.	Moulmein	W. S. Atkinson, A.S.B. No history.

**Sciurus erythræus.**

- Sciurus erythræus*, *Pallas Nov. Sp. Quad. e Glir.* p. 377 (1778); *Blyth, F. A. S. B.*, xvi, p. 872; *id., F. A. S. B.*, xxiv, p. 473; *id. Cat.*, no. 318, p. 102;

- Anderson Anat. Zool. Res.*, p. 236; *Jentink Notes Leyd. Mus.*, v. p. 119; *Thomas P. Z. S.*, 1886, p. 61.  
*Sciurus hippurus*, *apud McClelland and Horsfield P. Z. S.*, p. 151 (1839); *Horsfield Cat. E. I. Mus.*, p. 154.  
*Sciurus erythrogaster*, *Blyth F. A. S. B.*, xi, p. 970 (1842); *id. F. A. S. B.*, xvi, p. 871; *id., F. A. S. B.*, xxiv, p. 473; *id. Cat.*, no. 320, p. 102.  
*Macroxus erythrogaster*, *Gray Ann. Mag. N. H.* (3), xx, p. 283 (1867) [pt.]  
*Macroxus punctatissimus*, *Gray Ann. Mag. N. H.* (3), xx, p. 283 (1867).  
*Sciurus gordonii*, *Anderson P. Z. S.*, p. 140 (1871); *Blyth F. A. S. B.*, xlv, *Burma List*, p. 37; *Anderson Anat. Zool. Res.*, p. 240, pl. xix.

*Distribution.*—Assam from the Garo hills eastwards, Cachar, Manipur, and Upper Burma.

This species, like the other grizzled squirrels, is an exceedingly variable one, so that it is difficult to say whether it should be treated as a single or as several species; the form in the Garo hills is distinguished at once by its bright red tail of the same colour as the ventral surface (*S. erythræus* Pallas *apud Blyth*) in the list of specimens "a" to "h" and "z<sup>2</sup>." Eastwards in the Naga hills and about Samagooting the red tail-tip becomes black, specimens "j" to "u" in the list; southward a little in Cachar and Manipur the whole dorsal surface becomes very much darker, so that the extreme forms are almost black, this form was named *S. erythrogaster* by Blyth and *Macroxus punctatissimus* by Gray, the specimens are lettered from "v" to "a<sup>2</sup>"; in Assam proper, the valley of the Brahmapootra, the original Garo hill form is found without any trace of the black tail at all, specimens "b<sup>2</sup>" to "g<sup>2</sup>"; finally, in Upper Burma a form is found resembling the Assam variety, but distinguished by generally possessing a narrow median line of the same colour as the back running between the bright chestnut of the rest of the ventral surface; this was described by Anderson as a distinct species under the name of *S. gordonii*, and is represented in the list by specimens lettered "h<sup>2</sup>" to "r<sup>2</sup>." As in several of the Assam specimens there are traces of this ventral line, there does not seem to be any reason why *S. gordonii* should remain distinct.

a-b.	2 Skins, ♂	Garo hills.	J. Anderson.
	& skulls.		
c.	Skin ♂	" "	H. H. Godwin Austen.
d.	Skin ♂	Dorengo, Garo hills.	Museum Collector.
e-f.	2 Skins	.....	A. W. Chennell.
g-h.	2 Stuffed	Cherrapoonjee, Khasia hills	F. Skipwith (1857), A.S.B.
j-m.	4 Skins,	East Naga hills, 4-8-75.	H. H. Godwin Austen.
	1 skull.		
n.	Skin, skull	Dimapur, Naga hills, 19-4-	H. H. Godwin Austen.
	♂	75.	
o-p.	2 Skins		H. H. Godwin Austen.
	♀ ♂	.....	
q.	Skin	Samagooting, Assam.	J. Butler.
r-u.	4 Skins,	Naga hills.	A. W. Chennell.
	3♂ 1♀		

v. Skin	Assam	A. W. Chennell.
w. Skin, ♂ skull.	"	A. W. Chennell.
x-y. 2 Skins, ♂ 1 skull.	Sylhet	Zoological Gardens.
z. Skin	Chittagong	J. M. Lister.
a <sup>2</sup> . Stuffed	Manipur	C. S. Guthrie (1842), A. S. B.

[Type of *S. erythrogaster* of Blyth].

b <sup>2</sup> -c <sup>2</sup> . 2 Skins ♂	Dikrang, Assam	H. H. Godwin Austen.
d <sup>2</sup> . Skin	Toruputu, Duffla hills	H. H. Godwin Austen.
e <sup>2</sup> . Skin	.....	H. H. Godwin Austen.
f <sup>2</sup> -g <sup>2</sup> . 2 Skins, 2 skulls	Assam	F. Day [P.], 1876.
h <sup>2</sup> . Skin ♀	Bhamo Burma, 23-2-68	J. Anderson.
j <sup>2</sup> -k <sup>2</sup> . 2 Stuffed	" " 24-2-68	J. Anderson.
l <sup>2</sup> . Skin ♂	Sagaing, Burma, 4-10-68	J. Anderson.

[Four last are types of *S. gordonii* of Anderson.]

m <sup>2</sup> -o <sup>2</sup> . 3 Skins ♀ 3 skulls	Bhamo, Burma, 3-3-75	J. Anderson.
p <sup>2</sup> . Skin, ♂ ♀ skeleton.	Sawaddy, Burma, 31-1-75.	J. Anderson.
q <sup>2</sup> -r <sup>2</sup> . 2 Skins ♂ and skulls.	2nd Defile, Irrawad- dy, 5-3-75.	J. Anderson.
s <sup>2</sup> . Skeleton ♀	Bhamo, Burma	J. Anderson.
t <sup>2</sup> . Skeleton	East Naga hills	H. H. Godwin Austen.
u <sup>2</sup> -v <sup>2</sup> . 2 Skulls	Upper Burma	J. Anderson.
w <sup>2</sup> . Skeleton	Naga hills	H. H. Godwin Austen.
x <sup>2</sup> -y <sup>2</sup> . 2 Stuffed juv.	Assam	F. Jenkins (1847), A.S.B.
z <sup>2</sup> -2. Skin	Shillong	T. la Touche.

### Sciurus castaneiventris.

*Sciurus castaneiventris*, Gray *Ann. Mag. N. H.*, x, p. 263 (1842); *Blyth* *Proc. Zool. Acclimat. Soc. London*, xix, p. 90; *id. Cat. Mam.*, no. 322, p. 102; *Swinhoe P. Z. S.*, 1870, pp. 231, 633; *Anderson Anat. Zool. Res.*, p. 238; *Fentink Notes Leyd. Mus.*, v, p. 123.

*Sciurus griseopectus*, *Blyth Proc. Zool. Acclimat. Soc. London*, xvi, p. 873 (1847); *id. Proc. Zool. Acclimat. Soc. London*, xxiv, p. 474; *Swinhoe P. Z. S.*, 1870, p. 634; *id. P. Z. S.*, 1872, p. 818.

*Sciurus erythræus*, *apud Swinhoe P. Z. S.*, p. 357 (1862).

*Distribution*.—Western China and the islands of Formosa and Hainan.

This form does not seem in any way separable from *S. erythræus*; it more especially resembles the Assam variety of the preceding species.

a. Stuffed	China	Rajah R. Mullick (1847), A.S.B.
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[Type of *S. griseopectus* of Blyth.]

b. Stuffed, skull	Amoy, China.	R. Swinhoe (1860), A.S.B.
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### Sciurus sladeni.

*Sciurus sladeni*, *Anderson P. Z. S.*, p. 139 (1871); *Blyth F. A. S. B.*, xliv, *Burma List*, p. 37; *Anderson Anat. Zool. Res.*, p. 242, pl. xx.  
*Sciurus atrodorsalis*, *apud Fentink Notes Leyd. Mus.*, v, p. 122 (1883).

*Distribution*.—Upper Burma; the type was from Thigyain, a town on the Irrawaddy between Mandalay and Bhamo.

a. Stuffed, skull Thigyain, Upper Burma, J. Anderson.  
18-1-68.

[Type of *S. sladeni*, Anderson.]

b. Stuffed Thigyain, Upper Burma J. Anderson.  
 c-d. 2 Stuffed Upper Burma C. Williams (1864), A.S.B.  
 e. Skull Thigyain, Upper Burma, J. Anderson.  
18-1-68.

### Sciurus hippurus.

*Sciurus hippurus*, *Is. Geof. St. Hil. Etud. Zool.*, i, no. 6, pl. vi (1832)\*; *id. Zool. Voy. aux Indes orient. Bélanger*, p. 149 (1834); *Müller and Schlegel Tem. Verhandl.*, p. 92; *Cantor F. A. S. B.*, xv, p. 249 [pt.]; *Blyth F. A. S. B.*, xvi, p. 871; *id.*, *F. A. S. B.*, xxiv, p. 473; *id. Cat.*, no. 319, p. 102; *Anderson Anat. Zool. Res.*, p. 241; *Fentink Notes Leyd. Mus.*, v, p. 118; *Thomas P. Z. S.*, 1886, p. 76.

*Sciurus rufogaster*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842).

*Distribution*.—The Malay peninsula from Klang southwards, Sumatra, Java and Borneo; Müller and Schlegel also give Canton, but this is probably a mistake.

a. Skin Borneo E. R. Alston [P.]  
 b. Stuffed Malacca R. W. G. Frith (1844),  
A.S.B.  
 c. Stuffed „ R. W. G. Frith (1844),  
A.S.B.

### Sciurus lokroides.

*Sciurus lokroides*, *Hodgson F. A. S. B.*, v, p. 232 (1836); *id. F. A. S. B.*, x, p. 915; *McClelland P. Z. S.*, 1839, p. 152; *Ogilby Royle's Himal. Bot.*, p. lxxvii; *Walker Calc. Journ. N. H.*, iii, p. 266; *Blyth F. A. S. B.*, xvi, pp. 873, 877; *id. F. A. S. B.*, xviii, pt. i, p. 603; *Horsfield Cat. E. I. Mus.*, p. 153; *Blyth F. A. S. B.*, xxiv, p. 475; *Blyth Cat.*, no. 328, p. 104; *Ferdon Mamm.*, p. 169; *Blanford P. A. S. B.*, 1875, p. 198; *Anderson Anat. Zool. Res.*, p. 247; *Fentink Notes Leyd. Mus.*, v, p. 119; *Thomas P. Z. S.*, 1886, p. 61.

*Sciurus assamensis*, *Gray List Mamm. B. M.*, p. 143 (1843) [pt.]; *Horsfield Cat. E. I. Mus.*, p. 153; *Blyth F. A. S. B.*, xxiv, p. 475; *id. Cat.*, no. 326, p. 103; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 37.

*Sciurus blythii*, *Tytler Ann. Mag. N. H.* (2), xiv, p. 172 (1854).

*Macroxus similis*, *Gray Ann. Mag. N. H.* (4), xx, p. 281 (1867).

*Distribution*.—From Nepal eastwards through the Himalayas to Assam and southwards through Manipur to Arakan, Prepara Island and Upper Burma.

a. Skin Nepal, 26-2-77 J. Scully.  
 b. Skin Hetoura, Nepal, 17-12-77 J. Scully.  
 c-d. 2 Skins and skulls, Sikkim H. J. Elwes [Ex.]



<i>e-f.</i>	2 Skins	Darjeeling, 6,500 ft.	W. T. Blanford.
<i>g.</i>	Skin, skull, ♂	Sikkim	L. Mandelli.
	[black var.]		
<i>h-k.</i>	3 Skins ♂ ♂	Darjeeling, 4,000 ft.	W. G. Masson [P.]
		♀	
<i>l-n.</i>	3 Skins	Darjeeling terat	J. Anderson.
<i>o-p.</i>	2 Skins	" "	J. Anderson.
<i>q.</i>	Skin	Sikkim	J. Anderson.
<i>r.</i>	Skin, skull	Darjeeling	J. Anderson.
<i>s.</i>	Skin	"	C. S. Bonnevie (1848), A.S.B.
			Mus. Collector.
<i>t.</i>	Skin, skull	Dacca	Mus. Collector.
<i>u-v.</i>	2 Skins	Lushai country	J. Anderson.
<i>w-y.</i>	3 Skins, skull	Garo hills	H. H. Godwin Austen.
<i>x-b.</i>	3 Skins	Naga hills	A. W. Chennell.
<i>c<sup>2</sup>-f<sup>2</sup>.</i>	4 Skins ♂ ♀	" "	J. Butler.
<i>g<sup>2</sup>-j<sup>2</sup>.</i>	3 Skins, skull.	Samagooting, Assam	
<i>k<sup>2</sup>-n<sup>2</sup>.</i>	4 Skins juv.	" "	J. Butler.
<i>o<sup>2</sup>-r<sup>2</sup>.</i>	4 Skins ♂	Manipur hills	H. H. Godwin Austen.
<i>s<sup>2</sup>.</i>	Skin	Harmutti Dikrang, Assam.	H. H. Godwin Austen.
<i>t<sup>2</sup>.</i>	Skin, skull	Bhamo, Burma, 6-2-68	J. Anderson.
<i>u<sup>2</sup>-w<sup>2</sup>.</i>	3 Skins, skulls.	Arakan	Mus. Collector.
<i>x<sup>2</sup>.</i>	Skin, skull	Jergo Isle, Arakan Coast.	G. M. Giles.
<i>y<sup>2</sup>.</i>	Skin	Preparis Isle, Bay of Bengal, 3-73.	V. Ball [Ex.]
<i>z<sup>2</sup>.</i>	Skin	Preparis, Isle, Bay of Bengal	F. Stoliczka.
<i>a<sup>3</sup>-b<sup>3</sup>.</i>	2 Skins ♂	Amherst Isle, Arakan Coast.	J. Armstrong.
<i>c<sup>3</sup>.</i>	Skin	Sikkim	L. Mandelli.
<i>d<sup>3</sup>.</i>	Skin, skele- ton.	Naga hills	H. H. Godwin Austen.
<i>e<sup>3</sup>-g<sup>3</sup>.</i>	3 Stuffed	Darjeeling	E. Blyth (1851), A.S.B.
<i>h<sup>3</sup>-j<sup>3</sup>.</i>	2 Stuffed	"	C. S. Bonnevie (1848), A.S.B.
<i>k<sup>3</sup>-l<sup>3</sup>.</i>	2 Stuffed	Assam	F. Jenkins (1846), A.S.B.
<i>m<sup>3</sup>-n<sup>3</sup>.</i>	2 Stuffed	Arakan	Sir A. Phayre, A.S.B.
<i>o<sup>3</sup>.</i>	Stuffed	.....	A. Grote, A.S.B.
<i>p<sup>6</sup>.</i>	Skull	Nowakot dist., Nepal, 27-11-77	J. Scully.
<i>q<sup>3</sup>.</i>	Skull	Darjeeling	A. S. B.
<i>r<sup>3</sup>.</i>	Skull	♂ Bhootan	Dr. Pemberton.
<i>s<sup>3</sup>-v<sup>3</sup>.</i>	4 Skulls	.....	No history.
<i>w<sup>3</sup>.</i>	Skin	E. Naga hills	H. H. Godwin Austen.
<i>x<sup>3</sup>.</i>	Alc.	Cachar	N. Belletty (1872.)
<i>y<sup>3</sup>.</i>	Alc.	Preparis Isle	F. Stoliczka
<i>z<sup>3</sup>.</i>	Alc.	Darjeeling	W. T. Blanford.
<i>a<sup>4</sup>.</i>	Alc.	.....	No history.
<i>b<sup>4</sup>.</i>	Alc.	.....	No history.

### Sciurus chinensis.

*Sciurus chinensis*, *Gray List Mamm. B. M.*, p. 144 (1843); *Horsfield Cat. E. I. Mus.*, p. 159; *Swinhoe P. Z. S.*, 1870, p. 634; *Anderson Anat. Zool. Res.*, p. 254.



j. Skin,	Naga hills	H. H Godwin Austen.
n. Skin,	" "	A. W. Chennell.
l. Skin, juv.	Arakan "	Sir A. Phayre, A. S. B.
m-n. 2 Stuffed,	Nepal	Mrs. Oakes, A. S. B.
o. Skull,	... ..	No history, A. S. B.
p. Skin,	Shillong, Assam	T. la Touche.

### Sciurus rufigenis.

*Sciurus rufigenis*, *Blanford P. A. S. B.*, p. 72 (1878); id. *♀. A. S. B.*, xlvii, p. 156, pls. vii, viii; *Thomas P. Z. S.*, 1886, p. 71.

*Sciurus lokriah*, *apud Fentink Notes Leyd. Mus.*, v, p. 120 (1883).

*Distribution*.—This species has only been found hitherto on the slopes of Mt. Mooleyet to the east of Moulmein in Tenasserim at an elevation of about 5,000 ft.

[No specimens in the Museum.]

### Sciurus alstoni.

*Sciurus alstoni*, *Anderson Anat. Zool. Res.*, p. 252, pl. xxi (1878); *Fentink Notes Leyd. Mus.*, p. 118.

*Distribution*.—The type and only specimen known is said to have come from Borneo.

u. Skin	Borneo?	Purchased.
	[Type of <i>S. alstoni</i> , Anderson.]	

### Sciurus melanotis.

*Sciurus soricinus*, *Waterhouse Cat. Mamm. Mus. Zool. Soc.*, p. 46 (1838); *Anderson Anat. Zool. Res.*, p. 265; *Fentink Notes Leyd. Mus.*, v, p. 131.

*Sciurus melanotis*, *Müller and Schlegel Tem. Verhandl.*, p. 98, pl. xiv, figs. 4, 5 (1839-44).

*Distribution*.—Java, Borneo, Sumatra, and Banka.

Müller's name is the correct one for this squirrel since Waterhouse gave no description, but only named it in his catalogue of the Museum of the Zoological Society.

a. Skin	Sarawak (Wallace)	E. R. Alston [P.]
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### Sciurus quinquestriatus.

*Sciurus quinquestriatus*, *Anderson P. Z. S.*, p. 142, pl. x. (1871); *Blyth ♀. A. S. B.*, xlv, *Burma List*, p. 37; *Anderson Anat. Zool. Res.*, p. 266; *Fentink Notes Leyd. Mus.*, v, p. 123.

*Distribution*.—This species has been found only in the Kakhyen hills in Yunnan on the Burmese border.

a-b. 2 Skins, 2 skulls.	Ponsee, Kakhyen hills, 3,200 ft., 4-3-68.	J. Anderson.
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- c. Skin           Ponsee, Kakhyen hills, J. Anderson.  
3,200 ft., 18-4-68.  
d. Stuffed       Ponsee, Kakhyen hills. J. Anderson.  
3,000 ft., 24-2-68.

[Type of *S. quinquestriatus*, Anderson.]

### *Sciurus ferrugineus*.

- Sciurus finlaysoni*, *Horsfield Zool. Res.* (1824); *id. Cat. E. I. Mus.*, p. 154; *Blanford Ann. Mag. N. H.* (4), i, p. 152.  
*Sciurus ferrugineus*, *F. Cuvier Hist. Nat. Mamm., livr. lix, with plate* (1829); *Blyth J. A. S. B.*, xxxi, p. 332; *McMaster Notes on Jerdon*, pp. 49, 195; *Blyth Cat.*, no. 317, p. 101; *id. J. A. S. B.*, xlv, *Burma List*, p. 36; *Anderson Anat. Zool. Res.*, p. 243.  
*Sciurus keraudrenii*, *Lesson, Cent. Zool.*, p. 11, pl. i (1830); *Blyth J. A. S. B.*, xvi, p. 872; *id. J. A. S. B.*, xxiv, p. 474; *Horsfield Cat. E. I. Mus.*, p. 156.  
*Sciurus splendidus*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842).  
*Sciurus cinnamoneus*, *Temminck Esquis. Zool.*, p. 250 (1853).  
*Sciurus siamensis*, *Gray, P. Z. S.*, p. 478 (1859); *id. P. Z. S.*, 1861, p. 137.  
*Sciurus splendens*, *Gray P. Z. S.*, p. 137 (1861).  
*Sciurus germani*, *A. Milne Edwards Rev. Mag. Zool.* (2), xix, p. 193 (1867).  
*Sciurus bocourti*, *A. Milne Edwards Rev. Mag. Zool.* (2), xix, p. 193 (1867).  
*Sciurus leucogaster*, *A. Milne Edwards Rev. Mag. Zool.* (2), xix, p. 196 (1867).

*Distribution*.—Arakan and Pegu eastwards; is spread through Siam and Cambodia to the Island of Pulo Condor.

All the specimens in the Museum, except one of the entirely black variety [*S. germani* Milne Edw.], belong to the typical *S. ferrugineus* of a pure red colour with black feet and a white tail-tip; the various other forms of the species to which the larger number of the synonyms above have been applied are all Siamese and Cambodian forms; the types of these supposed species were examined by Anderson, who came to the conclusion that they were all accidental or geographical varieties.

- |                     |                      |                                |
|---------------------|----------------------|--------------------------------|
| a. Skin             | Arakan               | Museum Collector.              |
| b. Skin, skull      | Rangoon [H. Fielden] | E. R. Alston [P.]              |
| c-d. 2 Skins, skull | Burma                | C. Williams (1865), A.S.B.     |
| e. Skin ♂           |                      | E. R. Alston [P.]              |
| f. Skin, skull.     |                      | No history, A. S. B.           |
| g-h. 2 Stuffed.     | Arakan               | Sir A. Phayre (1845), A. S. B. |
| i-k. 2 Stuffed ♂ ♀  | Syriam, Pegu. 1-76   | J. Armstrong                   |

### *Var. germani*.

- |          |  |                  |
|----------|--|------------------|
| a. Skin. | Pulo Condor Isle,<br>Cambodia.<br>[M. Germain. Col.] | Paris Mus. [Ex.] |
|----------|--|------------------|

## Sciurus badging.

- ♂ *Sciurus notatus*, *Boddaert Elench. Anim.*, p. 119 (1785) \*
- Sciurus badging*, *Kerr Linn. Anim. Kingd.*, p. 269 (1792)\*; *Thomas P. Z. S.*, 1886, p. 76; *Fentink Notes Leyd. Mus.*, xi, p. 27.
- Sciurus plantani*, *Ljuugh Kongl. Vettens. Akad. N. Handl.*, xxii, p. 99, pl. i. (1801); *Horsfield Zool. Res., with plate*, 1824; *id. Cat., E. I. Mus.*, p. 151; *Anderson Anat. Zool. Res.*, p. 267; *Fentink Notes Leyd. Mus.*, v, p. 133.
- Sciurus gingianus*, var. "Plantane Squirrel," *Shaw Genl. Zool.*, ii, pt. i, p. 147 (1801).
- Sciurus bilineatus*, *Desmarest N. Dict. d'Hist. Nat.*, x, p. 106 (1817).
- Sciurus bivittatus*, *Desmarest Mamm. Suppl.*, p. 543 (1820); *Horsfield Zool. Res.*, 1824.
- Sciurus vittatus*, *Raffles Linn. Trans.*, xiii, p. 259 (1822); *F. Cuvier, Hist. Nat. Mamm., with plate*; *Müller and Schlegel Tem. Verhandl.* p. 94; *Cantor F. A. S. B.*, xv, p. 250; *Blyth F. A. S. B.*, xvi, p. 872, *Horsfield Cat. E. I. Mus.*, p. 152; *Blyth F. A. S. B.*, xxiv, p. 476; *id. Cat.*, no. 332, p. 104; *Anderson Anat. Zool. Res.*, p. 266.
- Sciurus nigrovittatus*, *Horsfield Zool. Res.* (1824); *Müller and Schlegel Tem. Verhandl.* p. 95; *Cantor F. A. S. B.*, xv, p. 250; *Blyth F. A. S. B.*, xvi, p. 872; *Horsfield Cat. E. I. Mus.*, p. 152; *Blyth F. A. S. B.*, xxiv, p. 476; *id. Cat.*, no. 333, p. 105.
- Sciurus griseiventer*, *Is. Geof. St. Hil. Zool. Voy. aux Indes orient. Bélanger*, p. 147 (1834).

*Distribution.*—The Malay peninsula and the Islands of Sumatra, Java and Borneo; also Canton according to Müller.

a. Skin,	♀ Taping River, Perak	Mus. Collector.
b. Skin, skull	Malacca	F. Stoliczka.
c. Skin.	Malay peninsula	Rev. F. Lindstedt, A. S. B.
d. Skin.	♂ West Java [Wallace, 1861].	Purchased.
e. Skin.	" "	Purchased.
f. Skin.	♂ Sarawak [Wallace, 1854].	Purchased.
g. Skin.	♂	E. R. Alston [P.]
h. Skin, skull.	♂	W. Rutledge.
j. Skin, skeleton	♀	Zoological Gardens.
k. Skull, skull.		A. S. B.
l-n. 3 Stuffed.	Malay peninsula.	G. Moxon, A. S. B.
o-p. 2 Stuffed.	" "	E. Lindstedt, A. S. B.
q. Skin, skeleton	♂	Zoological Gardens.

## Sciurus prevostii.

- Sciurus prevostii*, *Desmarest Mamm.*, p. 335 (1820); *Waterhouse P. Z. S.* 1842, p. 116; *Anderson Anat. Zool. Res.*, p. 269; *Fentink Notes Leyd. Mus.*, v, p. 31; *id. ibid.*, xi, p. 27; *Thomas, P. Z. S.*, 1886, p. 76.
- Sciurus rafflesii*, *Vigors and Horsfield, Zool. Journ.*, iv, p. 113, pl. iv. (1828); *Müller and Schlegel Tem. Verhandl.*, p. 93; *Cantor. F. A. S. B.*, xv, p. 248; *Blyth F. A. S. B.*, xvi, p. 871; *Temminck Esquiss. Zool.*, p. 242; *Blyth F. A. S. B.*, xxiv, p. 472; *id. Cat.*, no. 315, p. 101.
- Sciurus redimitus*, *Boon Mensch, N. Verhandl. Nederl. Inst.*, ii, p. 243, with plate (1829)\*; *Temminck Esquiss. Zool.*, p. 245; *Blyth F. A. S. B.*, xxiv, p. 472; *id. Cat.*, no. 316, p. 101.
- Sciurus rufogularis*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842).
- Sciurus rufonigra*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842).

*Sciurus erythromelas*, *Temminck Esquiss. Zool.*, p. 248 (1853).

*Sciurus prevostii*, var. *sumatrana*, var. *bangkana* and var. *bornensis*, *S. atricapillus*, and *S. erythrognys*, *Schlegel Nederl. Tijdsch.*, i, pp. 25-29, pl. i, ii (1863).

*Macroxus rafflesii*, *Macroxus sarawakensis*, *Macroxus pluto*, *Gray Ann. Mag. N. H.* (3), xx, pp. 277, 283, (1867).

*Distribution*.—The Malay peninsula, Sumatra, Banka, Billiton, Borneo and Celebes.

a. Skin		Malacca	E. R. Alston [P.]
b. Skin	♀	Matang, 9-70	E. R. Alston [P.]
c-d. 2 Skins	♂	Borneo	E. R. Alston [P.]
		and skulls.	
e. Skin, skeleton		.....	Zoological Gardens.
f. Stuffed and skull.		Malacca	A. Charlton, A. S. B.
g. Stuffed and skull.		"	R. W. G. Frith, A. S. B.
h. Stuffed		Borneo	Batavian Soc. (1844) A.S.B.
j. Alc.	♂	.....	Zoological Gardens.
k. Alc.	♀	.....	O. L. Fraser.

### *Sciurus palmarum*.

*Sciurus palmarum*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 86 (1766); *Sykes P. Z. S.*, 1831, p. 103; *Waterhouse Charlesw. Mag. N. H.*, i, 1837, p. 496; *Elliot Madr. Journ.*, x, p. 216 [pt.]; *Ogilby Royle Him. Bot.*, p. lxxvii; *Wagner Hugel's Kaschmir*, iv, p. 573; *Hutton, F. A. S. B.*, xv, p. 168; *Blyth F. A. S. B.*, xvi, 874; id. *F. A. S. B.*, xx, p. 166; *Horsfield Cat. E. I. Mus.*, p. 152; *Blyth Cat.*, no. 339, p. 106; *Ferdon Mamm.*, p. 170; *McMaster Notes on Ferdon*, pp. 50, 196; *Stoliczka F. A. S. B.*, xli, p. 228; *Rainey P. A. S. B.*, 1875, p. 159; *Blanford Persia*, p. 50; *Anderson Anat. Zool. Res.*, p. 257; *Fentink Notes Leyd. Mus.*, v, p. 138; *Murray Zool. Sind.*, p. 42; *Thomas P. Z. S.*, 1886, p. 56.

*Sciurus penicillatus*, *Leach. Zool. Misc.*, l, p. 6, pl. i (1814)\*; *Horsfield Cat. E. I. Mus.* p. 152.

The Palm squirrel; Hindustani, Gilheri; Bengali, Beral or Lakki; Mahratta, Kharri; Canarese, Alalu; Telegu, Vodata; Waddurs, Urta.

*Distribution*.—The Palm squirrel is found all over the peninsula of India from the terai region of the Himalayas southwards; westwards it has been got by Blanford at Pishin in Persian Baluchistan, and eastwards it does not seem to occur beyond Calcutta; it is also said to be absent from the east coast country about the Northern Circars and from Malabar.

a. Skin	♀	Pishin, Baluchistan,	W. T. Blanford.
		7-2-72.	
b. Skin		Bichiakoh, Nepal terai,	J. Scully.
		21-12-77.	
c-d. 2 Skins	♂	Manbhoom	Mus. Collector (1866).
e. Skin		Calcutta	E. Blyth (1842), A. S. B.
f-g. 2 Skins	♂	"	J. Anderson.
h. Skin, skull.	♂	Botanical Gardens	J. Anderson (1870).

j. Skin	nr. Chanda, C. P., 6-5-67	Museum Collector.
k. Skin, skull	Hyderabad	H. Gould (1855), A. S. B.
l. Skin	.....	E. R. Alston, [P.]
m. Stuffed	Calcutta	E. Blyth (1842), A. S. B.
n. Alc.	Rajanpur, Punjab	E. Saunders,
o. Alc.	.....	O. L. Fraser.
(white var.)		

### Sciurus tristriatus.

*Sciurus tristriatus*, *Waterhouse Charlesw. Mag. N. H.*, i, p. 496 (1837); id, *P. Z. S.*, 1839, p. 118; *Blyth J. A. S. B.*, xvi, pp. 874, 1001; id. *J. A. S. B.*, xviii, p. 601; id. *J. A. S. B.*, xx, p. 166; *Kelaart Prodr. Faun. Zeylan.*, p. 51; *Blyth Cat.*, no. 340, p. 106; *Ferdon Mamm.*, p. 171; *Anderson Anat. Zool. Res.*, p. 258; *Fentink Notes Leyd. Mus.* v, p. 137.  
*Sciurus palmarum*, *apud Elliot, Madr. Journ.*, x, p. 216 (1839) [pt.]  
*Sciurus penicillatus*, *apud Gray, List Mamm. B. M.*, p. 141 (1841).  
*Sciurus brodiei*, *Blyth J. A. S. B.*, xviii, p. 602 (1849); id. *J. A. S. B.*, xx, p. 166; id. *J. A. S. B.*, xxi, p. 350; *Layard Ann. Mag. N. H.* (2), ix, p. 335; *Kelaart Prodr. Faun. Zeylan.*, p. 53.  
*Sciurus kelaarti*, *Layard J. A. S. B.*, xviii, p. 602 (1849); *Blyth J. A. S. B.*, xx, p. 166; id. *J. A. S. B.*, xxi, p. 350; *Kelaart Prodr. Faun. Zeylan.*, p. 53.  
*Sciurus dussumierii*, *A. Milne Edwards Rev. Mag. Zool.* (2), xix, p. 226 (1867).

Cingalese, Leyna.

*Distribution*—Sikkim Himalayas, Midnapore and through Central and Southern India and Ceylon, especially in forest country; it does not appear to be found in the low country round Madras.

The specimens lettered "a," "g" and "h" in the list below from Sikkim and Travancore respectively, differ considerably from the rest of the specimens, and perhaps might be considered to form a distinct variety; the dorsal stripes which are particularly conspicuous in all the other specimens in these abovementioned ones are reduced to insignificance.

a. Skin	Sikkim	H. J. Elwes [Ex.]
b-c. 2 Skins	Midnapore, Bengal	E. Blyth, A. S. B.
d. Skin	nr. Ranchi, 18-5-70	W. T. Blanford.
e. Skin, skull	Trombay Isle, Bombay,	H. H. Godwin Austen.
	21-1-75.	
f. Skin	Kalakhul, 25-2-75.	H. H. Godwin Austen.
g-h. 2 Skins	Travancore.	Purchased.
j. Skin	Ceylon.	R. Templeton, A. S. B.
k. Skin	"	E. L. Layard (1845), A. S. B.

[The above two are types of *S. kelaarti*, Layard.]

l. Skin	Ceylon.	E. F. Kelaart (1850), A. S. B.
m. Skin	"	Columbo Museum.
n-g. 4 Skins, skull	.....	F. Day [P.]
r. Skin	.....	No history.
s. Stuffed	Ceylon	E. L. Layard, A. S. B.

[Type of *S. brodiei*, Blyth.]

t-u. 2 Stuffed	.....	No history, A. S. B.
v. Skull	.....	No history.

**Sciurus sublineatus.**

*Sciurus sublineatus*, *Waterhouse P. Z. S.*, p. 19. (1838); *Blyth J. A. S. B.*, xvi, p. 875; *Horsfield Cat. E. I. M.*, p. 151; *Blyth Cat.*, no. 342, p. 107; *Ferdon Mamm.*, p. 173; *Anderson Anat. Zool. Res.*, p. 260; *Jentink Notes Leyd. Mus.*, v, p. 136.

*Sciurus delesserti*, *Gervais Bull. Soc. Philom. (dans. l'Institut, Journ. Gen. des Soc. Sci.) 1st sect.*, no. 386 (1841)\*; *Blyth J. A. S. B.*, xi, p. 880; *Guérin Ménilville Journ. d'un Voyage dans l'Inde (Delessert)*, p. 18, pl. iii\*.

*Sciurus trilineatus*, *Waterhouse apud Blyth J. A. S. B.*, xx, p. 165 (1851) *Kelaart Prodr. Faun. Zeylan.*, p. 54.

*Distribution.*—The hills of Southern India and Ceylon.

a. Skin	Nilgiris	T. C. Jerdon (1844), A.S.B.
b. Skin	Malabar	Rev. J. Baker (1859), A.S.B.
c. Skin, skull	Ceylon	E. F. Kelaart (1857), A.S.B.

**Sciurus layardi.**

*Sciurus layardi*, *Blyth J. A. S. B.*, xviii, p. 602 (1849); *Kelaart Prodr. Faun. Zeylan.*, p. 53; *Layard Ann. Mag. N. H. (2)*, ix, p. 335; *Blyth Cat.*, no. 341, p. 107; *Ferdon Mamm.*, p. 172; *Anderson Anat. Zool. Res.*, p. 260.

*Distribution.*—Travancore hills and the highlands of Ceylon.

This squirrel is considered by Jentink to be identical with *S. tristriatus*, from which it differs however markedly in that the yellow dorsal streak extends a very much shorter distance both anteriorly and posteriorly, and the ventral surface is a bright chestnut instead of a very pale yellow, so that unless intermediate forms are found it would certainly be better to keep them apart.

a. Skin skull	Ambegamoa hills, Ceylon.	E. L. Layard (1843), A.S.B.
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[Type of *S. layardi*, Blyth.]

**Sciurus berdmorei.**

*Sciurus berdmorei*, *Blyth J. A. S. B.*, xviii, p. 603; *id. J. A. S. B.*, xxviii, p. 418; *id. J. A. S. B.*, xxxi, p. 333; *id. Cat.*, no. 338, p. 106; *id. J. A. S. B.*, xliv, *Burma List*, p. 37; *Anderson Anat. Zool. Res.*, p. 261; *Jentink Notes Leyd. Mus.*, v, p. 137, (1861); *Thomas P. Z. S.*, 1886, p. 71; *Anderson J. Linn. Soc.*, xxi, p. 340.

*Sciurus mouhotii*, *Gray P. Z. S.*, p. 137 (1861); *Blanford J. A. S. B.*, xlvii, p. 162.

*Sciurus pyrrocephalus*, *A. Milne Edwards Rev. Mag. Zool. (2)*, xix, p. 225 (1867).

*Distribution.*—Tenasserim from Martaban to Mergui; also Cambodia and Cochin China.

a-b. 2 Skins ♂ ♀	nr. Martaban, Tenasserim	E. Blyth (1861), A.S.B.
c. Skin	Thaing, Mergui, 28-1-82	J. Anderson.



d. Skin, skull	Thaing, Mergui, 31-1-82	J. Anderson
e. Skull	.....	A.S.B.

**Sciurus macclellandi.**

- Sciurus macclellandii*, *Horsfield P. Z. S.*, p. 152 (1839); *Blyth F. A. S. B.*, xvi, p. 875; *Horsfield Cat. E. I. Mus.*, p. 151; id. *Ann. Mag. N. H.* (2), xvi, p. 113; *Gray P. Z. S.*, 1861, p. 137; *Swinhoe P. Z. S.*, 1862, p. 357; *Blyth Cat.*, no. 344, p. 107; *Ferdon Mamm.*, p. 173; *Swinhoe P. Z. S.*, 1870, pp. 232, 634; id., *P. Z. S.*, 1872, p. 818; *Anderson Anat. Zool. Res.*, p. 263; *Fentink Notes Leyd. Mus.*, v, p. 139; *Thomas P. Z. S.*, 1886, pp. 61, 71.
- Sciurus pembertonii*, *Blyth F. A. S. B.*, xi, p. 887 (1842).
- Sciurus barbei*, *Blyth F. A. S. B.*, xvi, p. 875 (1847); id. *F. A. S. B.*, xviii, p. 603; id. *Cat.*, no. 343, p. 107; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 38; *Blanford F. A. S. B.*, xlvii, p. 164.
- Tamias leucotis*, *Temminck Esquis. Zool.*, p. 252 (1852).
- Sciurus rodolphii*, *A. Milne Edwards Rev. Mag. Zool.*, xix, p. 227 (1867).
- Sciurus macclellandii* var. *swinhoei*, *Milne Edwards Rech. Mamm.*, p. 308. (1868-71).

Lepcha, Kalli gangdin.

*Distribution.*—Sikkim and Assam, extending eastwards through Thibet and the Chinese provinces of Kiangsi, Fokien, and Kwangtung to Formosa and Hainan, and southwards through Manipur to Burma, Tenasserim, the Malay peninsula, Cambodia and Cochin China.

a-d. 4 Skins	Sikkim	L. Mandelli.
e-f. 2 Skins	"	H. J. Elwes [Ex.]
g. Skin	Rinok, Sikkim, 5,000 feet, 17-8-70.	W. T. Blanford
h. Skin	Darjeeling, 7,000 feet	W. G. Masson [P.]
j-k. 2 Skins	"	Mrs. Oakes A. S. B.
l-m. 2 Skins	♂ Naga hills*	H. H. Godwin Austen.
n-p. 3 Skins	East Naga hills, 4-8-75	H. H. Godwin Austen.
q. Skin	♂ nr. Peak 24, Naga hills, 2-75.	H. H. Godwin Austen
r. Skin	♂ Chota Naga hills, 16-12-75.	A. W. Chennell.
s. Skin	♀ Naga hills, 17-4-76	A. W. Chennell.
t-u. 2 Skins	Asalu, North Cachar	H. H. Godwin Austen.
v-w. 2 Skins	♀ Duffla hills, Assam	H. H. Godwin Austen.
x. Skin	Ponsee, Kakhyen hills, 3,500 ft.	J. Anderson (1868)
y-b <sup>2</sup> . 4 Skins, 2 skulls.	Moulmein	Museum. Collector.
c <sup>2</sup> -d <sup>2</sup> . 2 Skins	Yè, Tenasserim	Rev. J. Barbe (1843), A.S.B.
	[2 Types of <i>S. barbei</i> , Blyth.]	
e <sup>2</sup> . Skin	Tenasserim	Major Berdmore (1846), A.S.B.
f <sup>2</sup> . Skin	Moupin, Thibet [David, 10-69].	Paris Museum [Ex.]
g <sup>2</sup> . Skin	Miwan, E. Kiangsi [David, 9-73]	Paris Museum [Ex.]
h <sup>2</sup> . Skin	Formosa [R. Swinhoe]	E. R. Alston [P.]

$j^2-k^2$ . 2 Alc.	East of Irrawady River	T. H. Hood (1872).
$l^2-m^2$ . 2 Alc.	Samagooting, Assam	J. Butler.
$n^2$ . Alc.	Darjeeling	W. T. Blanford, A. S. B.
$o^2$ . Alc.	Sibsagar, Assam	S. E. Peel.
$p^2-q^2$ . 2 Alc.	Moulmein, Burma	J. Wood Mason.

### Sciurus insignis.

*Sciurus insignis*, *F. Cuvier Hist. Nat. Mamm., livr. xxxiv, with plate (1821)*; *Horsfield Zool. Res. with plate*; *Müller and Schlegel Tem. Verhandl.*, pp. 87, 99; *Horsfield Cat. E. I. Mus.*, p. 151; *Anderson Anat. Zool. Res.*, p. 262; *Jentink Notes Leyd. Mus.*, v, p. 136; *Thomas P. Z. S.*, 1886, p. 78.

*Distribution*.—Malay peninsula from Selangore southwards, Sumatra, Java and Borneo; Anderson gives Canton, but this is somewhat doubtful.

a. Skin, skull ♂ Malacca E. R. Alston [P].

### Sciurus vulgaris.

*Sciurus vulgaris*, *Linnaeus. Syst Nat.*, 12th ed., i, p. 86 (1766).  
*Sciurus alpinus*, *F. Cuvier Hist. Nat. Mamm., livr. xxiv, with plate (1821)*.  
*Sciurus varius*, *Pallas Zoog. Ross. As.*, i, p. 183 (1831).  
*Sciurus italicus*, *Bonaparte Icon. Faun. Ital. with plate (1838)*.  
*Sciurus europæus*, *Gray List Mam. B. M.*, p. 139 (1843); *id. Cat. Hodgs. Coll.*, 1st ed., p. 23; *Blyth Cat.*, no. 337, p. 106.  
 ? *Mustela calotus*, *Hodgson Calc. Journ. N. H.*, ii, p. 221, pl. ix (1842).  
*Sciurus calotus*, *Gray Ann. Mag. N. H. (3)*, xx, p. 272 (1867).

*Distribution*.—Europe and Northern Asia, as far south as the Caucasus, Thibet and Northern China.

a. Stuffed	England	Cornish Institution (1842), A.S.B.
b. Stuffed	"	A. D. Bartlett (1840), A.S.B.
c. Stuffed	"	W. Davison (1846), A.S.B.
d. Skull	"	A. D. Bartlett, A.S.B.
e. Alc.	♂ "	Zoological Gardens.

### Sciurus fulvus.

*Sciurus fulvus* *Blanford Ann. Mag. N. H. (4)*, xvi, p. 311 (1875); *id. Persia*, p. 49, pl. iv, fig. 1.

*Distribution*.—South Persia.

This species will probably turn out to be identical with *Sciurus syriacus* of Ehrenberg, and has in fact been already considered so by Jentink; the types, however, have not been compared, as the only specimen of *S. fulvus* is the one now in the Museum here, so that for the present it has been left as a distinct species.

a. Skin ♂ nr. Shiraz, 4,000 feet Sir O. St. John (1870).

[Type of *Sciurus fulvus*, Blanford.]

**Sciurus carolinensis.**

- Sciurus carolinensis*, *Gmelin Syst. Nat.*, i, p. 148 (1788); *Allen Monographs N. Amer. Rodents*, p. 700.  
*Sciurus pennsylvanicus*, *Ord Guthrie's Geogr.*, 2nd ed., p. 292 (1815)\*.  
*Sciurus niger*, *Godman Amer. Nat. Hist.*, ii, p. 133 (1826)\*.  
*Sciurus leucotis*, *Gapper Zool. Journ.*, v, p. 206, pl. xi (1830); *Blyth Cat.*, no. 335, p. 105.  
*Sciurus fuliginosus*, *Bachman P. Z. S.*, p. 97 (1838).  
*Sciurus vulpinus*, *DeKay New York Zool.*, i, p. 59 (1842).  
*Sciurus migratorius*, *Audubon and Bachman Quad. N. Amer.*, i, p. 265, pl. xxxv (1849)\*.

**The Grey Squirrel.**

*Distribution.*—Southern Canada; the United States east of the plains, South Mexico and Guatemala.

a. Skin	Ontario, Canada	J. H. Garnier [Ex.]
b. Skin	♂ .....	Zoological Gardens.
c. Skin	.....	Purchased.
d. Alc.	♀ North America	W. Rutledge.
e. Alc.	.....	W. Rutledge.
f. Skin, skeleton.	♀ .....	Zoological Gardens.
g. Stuffed	North Carolina	Rev. F. Fitzgerald (1852), A. S. B.

**Sciurus niger.**

- Sciurus niger*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 86 (1766); *Allen Monographs N. Amer. Rodents*, p. 717.  
*Sciurus cinereus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 86 (1766).  
*Sciurus variegatus*, *Erxleben Syst. Reg. Anim.*, p. 421 (1777).  
*Sciurus vulpinus*, *Gmelin Syst. Nat.*, i, p. 147 (1788).  
*Sciurus virginianus*, *Kerr Linn. Anim. Kingd.*, p. 259 (1792)\*.  
*Sciurus capistratus*, *Bosc Ann. Mus. Paris*, i, p. 281 (1802)\*.  
*Sciurus rufiventris*, *M'Murtrie's Cuv. An. Kingd.*, i, p. 433 (1831)\*.  
*Sciurus texianus*, *Bachman P. Z. S.*, p. 86 (1838).

**The Fox Squirrel.**

*Distribution.*—Eastern United States westward to the plains.

a. Skin	North America	J. H. Garnier [Ex.]
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**Sciurus hudsonius.**

- Sciurus vulgaris*, *apud Forster Phil. Trans.*, lxii, p. 378 (1772).  
*Sciurus hudsonius*, *Pallas Nov. Sp. Quad. e Gliv.*, p. 376 (1778); *Blyth Cat.*, no. 336, p. 105; *Allen Monographs N. Amer. Rodents*, p. 672.  
*Sciurus carolinus*, *Ord Guthrie's Geogr.*, 2nd ed., p. 292 (1815)\*.  
*Sciurus rubrolineatus*, *Desmarest Mamm.*, ii, p. 333 (1822).

**The Chikaree,**

*Distribution.*—The northern half of North America.

a. Skin	Lucknow, Ontario, 7-84	J. H. Garnier [Ex.]
b. Skin	Ontario.	J. H. Garnier [Ex.]
c. Skin	"	J. H. Garnier [Ex.]
d. Skin	N. America.	A. D. Bartlett (1842), A. S. B.

**Sciurus annulatus.**

- Sciurus annulatus*, *Desmarest Mamm.*, p. 338 (1820); *Blanford Abyssinia*, p. 278; *Fentink Notes Leyd. Mus.*, iv, p. 23.  
*Sciurus gambianus*, *Ogilby P. Z. S.*, p. 103 (1835).  
*Sciurus multicolor*, *Rüppell N. Wirbelth.*, p. 38, pl. xiii (1835).  
*Sciurus bougensis*, *Heuglin Reise N. O. Afrika*, ii, p. 59 (1877)\*.  
*Sciurus rufobrachiatus*, *apud Huet Arch. Mus. Paris* (2), iii, p. 144 (1880).

*Distribution.*—Northern Africa from Senegal to Abyssinia.

- |         |   |                 |
|---------|---|-----------------|
| a. Skin | Anseba valley, Abyssinia, 4,000 ft., 28-7-68. | W. T. Blanford. |
| b. Skin | Anseba valley, Abyssinia, 4,000 ft., 4-8-68.  | W. T. Blanford. |

**Genus RHINOSCIURUS.**

*Rhinosciurus*, *Gray List. Mamm. B. M.*, p. 195 (1843). *Type*, *R. laticaudatus*.

**Rhinosciurus laticaudatus.**

- Sciurus laticaudatus*, *Müller and Schlegel Tem. Verhandl.*, p. 100, pl. xv, figs. 1, 2, 3 (1839-44); *Cantor F. A. S. B.*, xv, p. 251; *Blyth F. A. S. B.*, xx, p. 167.  
*Rhinosciurus tupaoides*, *Gray List Mamm. B. M.*, p. 195 (1843); *Blyth F. A. S. B.*, xxiv, p. 477; *id. Cat.*, no. 345, p. 108.  
*Sciurus (Rhinosciurus) tupaoides*, *Anderson Anat. Zool. Res.*, p. 275 (1878).  
*Rhinosciurus laticaudatus*, *Fentink Notes Leyd. Mus.*, v, p. 140 (1883).  
*Sciurus (Rhinosciurus) laticaudatus*, *Thomas P. Z. S.*, p. 78 (1886).

*Distribution.*—The Malay peninsula from Klang southwards and the Island of Borneo.

- |            |                 |                        |
|------------|-----------------|------------------------|
| a. Stuffed | Malay peninsula | G. Moxon (1851) A.S.B. |
|------------|-----------------|------------------------|

**Genus TAMIAS.**

*Tamias*, *Illiger Prodr.*, p. 83 (1811). *Type*, *T. striatus*.  
*Tenotis*, *Rafinesque Am. Month. Mag.*, i, p. 362 (1817)\*.

**Tamias striatus.**

- Sciurus striatus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 87 (1766).  
*Tamias americana*, *Kuhl. Beitr. Zool.*, p. 69 (1820).  
*Sciurus (Tamias) lysteri*, *Richardson Faun. Bor. Amer.*, i, p. 181, pl. xv (1829).  
*Tamias striatus*, *Baird. N. Amer. Mamm.*, p. 292, pl. xlvi, fig. 2 (1857)\*;  
*Allen Monographs N. Amer. Rodents*, p. 782.

The Chipmunk.

*Distribution.*—Canada and the States east of the Rocky Mountains.

- |               |         |                     |
|---------------|---------|---------------------|
| a.-b. 2 Skins | Ontario | J. H. Garnier [Ex.] |
| c. Skin       | .....   | No history.         |

Genus **XERUS**.

*Xerus*, *Hempr. and Ehr., Symb. Phys.* (1832).

***Xerus rutilus*.**

*Sciurus rutilus*, *Cretzschmar Rüppell's Atlas*, p. 59, pl. xxiv, (1826); *Blanford Abyssinia*, p. 278; *Fentink Notes Leyd. Mus.*, iv, p. 41.

*Sciurus brachyotus*, *Hempr. and Ehr. Symb. Phys.*, pl. ix (1832).

*Sciurus simplex*, *Lesson Hist. Nat. Mamm.*, v, p. 402 (1836).

*Xerus rutilus*, *Gray List. Mamm. B. M.*, p. 144 (1843).

*Xerus dabagala* *Heuglin Peters. Mitth.*, p. 17 (1861).

*Xerus flavus*, *A. Milne Edwards Rev. Mag. Zool.*, p. 229 (1867).

*Xerus fuscus* *Huet Arch. Mus. Paris* (2), iii, p. 139, pl. vi, fig., i (1880).

*Distribution*.—Abyssinia and Somali land across to Gaboon?

- |          |                          |            |         |                 |
|----------|--------------------------|------------|---------|-----------------|
| a. Skin  | Lower Sooroo, Abyssinia, | 1,500 ft., | 12-1-68 | W. T. Blanford. |
| b. Skin  | "                        | "          | 1-6-68  | W. T. Blanford. |
| c. Skin. | Annesley Bay, Massowah   |            | 4-1-68  | W. T. Blanford. |

***Xerus erythropus*.**

*Sciurus erythropus*, *Et. Geoff. St. Hit. Cat. Mamm. Mus. Hist. Nat.*, p. 178 (1803)\*; *Fentink Notes Leyd. Mus.*, iv, p. 43.

*Sciurus albovittatus*, *Desmarest N. Dict. Hist. Nat.*, x, p. 110 (1817).

*Sciurus leuco-umbrinus*, *Rüppell N. Wirbelth.*, p. 38 (1835); *Blanford Abyssinia*, p. 279.

*Sciurus pyrrhopus* *apud Wagner Schreb. Säugeth. Suppl.*, iii, p. 215 (1843).

*Xerus congicus*, *apud Temminck Esquis. Zool.*, i, p. 125 (1853).

*Xerus setosus*, *Gray Ann. Mag. N. H.* (3), xx, p. 333 (1867) [pt.].

*Distribution*.—Africa from Senegal to Abyssinia and from Egypt to Zanzibar.

- |             |   |                       |           |            |          |                 |
|-------------|---|-----------------------|-----------|------------|----------|-----------------|
| a. Skin     | ♀ | Adigrat-Tigré,        | Abyssinia | 8,000 ft., | 3-4-68.  | W. T. Blanford. |
| b. Skin     | ♂ | Adigrat-Tigré,        | "         | 8,000 ft., | 31-3-68. | W. T. Blanford. |
| c. Skin     |   | Senafé-Tigré          | "         | 7,500 ft., | 25-2-68. | W. T. Blanford. |
| d. Skin     | ♀ | Adigrat-Tigré         | "         | 8,000 ft., | 5-5-68.  | W. T. Blanford. |
| e. Skin     | ♀ | Bedjuk, Anseba valley | "         | 4,200 ft., | 16-7-68. | W. T. Blanford. |
| f. Skin     | ♂ | Bedjuk, Anseba valley | "         | 4,200 ft., | 15-7-68. | W. T. Blanford. |
| g. Skin     | ♀ | Senafé-Tigré          | "         | 7,500 ft., | 27-3-68. | W. T. Blanford. |
| h. Skin     | ♂ | Adigrat-Tigré         | "         | 8,000 ft.  | 21-4-68. | W. T. Blanford. |
| j. Skin     |   | Adigrat               | "         | 8,000 ft., | 5-4-68.  | W. T. Blanford. |
| k. Skin     | ♂ | Adigrat-Tigré         | "         | 8,000 ft., | 4-5-68.  | W. T. Blanford. |
| l. Skin     | ♀ | Senafé                | "         | 7,500 ft., | 25-2-68. | W. T. Blanford. |
| m. Skin     |   | Abyssinia             |           |            |          | W. T. Blanford. |
| n. Skin     |   | "                     |           |            |          | W. T. Blanford. |
| o. Skeleton |   | "                     |           |            |          | W. T. Blanford. |

***Xerus capensis*.**

*Sciurus capensis*, *Kerr Linn. Anim. Kingd.*, p. 266 (1792)\*; *Fentink Notes Leyd. Mus.*, iv, p. 48.

*Sciurus namaquensis*, *Lichtenstein Cat. Rerum Nat. Rariss*, p. 2 (1793)\*.

*Sciurus levaillanti*, *Kuhl Beitr. Zool.*, p. 67 (1820).

*Sciurus ocellaris*, *Smith Zool. Journ.*, iv, p. 439 (1829).

*Sciurus setosus*, *Smuts Enum. Mamm. Capens.*, p. 33 (1832); *Blyth Cat.*, no. 346, p. 108.

*Distribution*.—South Africa.

a. Stuffed                      South Africa                      E. L. Layard (1859), A.S.B.

### Genus PTEROMYS.

*Pteromys*, *G. Cuvier Tableau Gen. in Leçons d'Anat. Comp.*, i, tabl. 1 (1800)\*.

The following key is constructed to enable the reader to distinguish the typical forms only. All the species of this genus resemble one another so closely and so run into one another that it is impossible to construct a key into which every specimen will fit.

#### *Key of the Indian Species.*

- a. Dorsal surface dark brown or black; no tinge of reddish.
- b. Hairs of dorsal surface but slightly tipped with white. **P. oral**, p. 33.
- b<sup>2</sup>. Hairs strongly tipped with white, giving the dorsal surface a hoary grizzled appearance. **P. cineraceus**, p. 33.
- a<sup>2</sup> Dorsal surface with a reddish or yellowish tinge, never black or brown.
- c. No shoulder patch; dorsal surface comparatively uniform.
- d. Fur of dorsal surface red, with well-developed white tips producing a hoary red appearance; tail longer than head or body. **P. alborufus**, p. 34.
- d<sup>2</sup>. Fur of dorsal surface dark maroon with but slight traces of the white tips to the hairs. **P. yunnanensis**, p. 35.
- d<sup>3</sup>. Dorsal fur grizzled gray, more reddish on the parachute, tail shorter than the head and body together, body about 16, tail about 12 inches. **P. albiventer**, p. 35.
- c<sup>2</sup>. Dorsal fur generally dark maroon and forming a strong contrast to that of the shoulders and parachute, which is yellow, usually but slight traces of grizzling. **P. magnificus**, p. 35.
- c<sup>3</sup>. Resembling *P. albiventer*, but somewhat smaller (body about 13, tail about 13 inches), with the top of the head

of a pure grey colour, contrasting with the colour of the rest of the body. . . . *P. caniceps*, p. 36.

### *Pteromys oral*.

#### *Var. A.—typicus.*

- Sciurus petaurista*, *Pallas Miscell.*, p. 54, pl. vi. figs. 1, 2 (1766) [pt.]\*.  
*Pteromys petaurista*, *Müller and Schlegel Tem. Verhandl.*, p. 106 (1839-44);  
*Blyth F. A. S. B.*, x, p. 919; id. *F. A. S. B.*, xvi, p. 865; *Horsfield Cat. E. I. Mus.*, p. 159; *Blyth F. A. S. B.*, xxviii, pp. 276, 286; id. *Cat.*, no. 291, p. 94; *Ferdon Mamm.*, p. 174.  
*Pteromys philippensis*, *apud Elliot Madras Journ.*, x, p. 217 (1839).  
*Pteromys oral*, *Tickell Calc. Journ. N. H.*, ii, p. 401, pl. xi (1842); *Blyth F. A. S. B.*, xi, p. 451; id. *F. A. S. B.*, xx, p. 165; *Kelaart Prodr. Faun. Zeylan*, p. 55; *Anderson Anat. Zool. Res.*, p. 279.  
*Pteromys griseiventer*, *Gray List Mamm. B. M.*, p. 133 (1843); *Blyth F. A. S. B.*, xxviii, p. 277.

#### *Var. B.—cinereus.*

- Pteromys petaurista*, *apud Walker Cal. Journ. N. H.*, iii, p. 266 (1843); *Horsfield Cat. Mamm. E. I. Mus.*, p. 159 [pt.]  
*Pteromys petaurista* var. *cinereus*, *Blyth F. A. S. B.*, xvi, p. 865 (1847).  
*Pteromys cinereus*, *Blyth F. A. S. B.*, xxviii, p. 276 (1859); id. *Cat.*, no. 292, p. 94; id. *F. A. S. B.*, xlv, *Burma List*, p. 35; *Blanford F. A. S. B.*, xlvii, p. 165; *Anderson Anat. Zool. Res.*, p. 281; *Thomas P. Z. S.*, 1886, p. 67.

*Distribution.*—The typical variety is found all over the peninsula of India and Ceylon wherever there are forests; it is specially abundant in the Malabar country. The var. *cinereus* is apparently only found in Arakan.

This species including *P. cinereus* and the following ones, namely, *P. alborufus*, *P. yunnanensis*, *P. magnificus*, *P. albiventer* and *P. caniceps*, all seem very closely allied to one another, and it is perhaps more as a matter of convenience than as a representation of their true relationship to one another that they should be kept separate; as far as their skulls are concerned it is impossible to separate them, and although typical specimens of these several so-called species are easily distinguished from one another, there are in the Museum collections intermediate forms between most of them.

The prevailing colour of *Pteromys oral* is dark brown or black, with only slight traces of white tips to the dorsal fur. These white tips are much more developed in *P. cinereus*, the typical forms of which seem to be confined to Arakan. Southwards in Burma and Tenasserim, and northwards in Assam, the dark brown or black ground colour is replaced by bright red, and this variety seems to correspond to the species described by Milne Edwards from Moupin in Thibet (*P. alborufus*). The species described by Anderson from Momien in Yunnan resembles *P. alborufus*, but is

of a darker colour and has lost the white tips to the fur; this form is also distinguished by its long and very dark tail.

*Pteromys magnificus* from Nepal and Sikkim seems at first to be a well marked species with its very dark maroon dorsal surface, with hardly any trace of the white tips to the fur; there is however a specimen (*P. magnificus*, "g" in the list below) which is quite intermediate between the typical *P. magnificus* and the typical *P. alborufa*; in this specimen the maroon of the back is much lighter and the white tips to the fur producing the grizzled appearance so characteristic of *P. alborufa* are present, though in not so marked a form.

*Pteromys caniceps* seems constantly smaller than *P. magnificus* and *P. albiventer*, and since the skulls in the Museum are all immature, there is a strong suspicion that this will turn out to be the young of *P. magnificus* or of *P. albiventer*, but this will have to be proved by further investigations.

In *Pteromys albiventer* the contrast between the colour of the back and the colour of the parachute is not so marked as in *P. magnificus*: the shoulders, however, are somewhat yellow and traces of the white tips to the fur begin to appear: this latter feature is most marked in the Kashmir and Gilgit specimens.

*Var. A.—typicus.*

a-b. 2 Skins and skull.	Travancore	Purchased.
c. Skin	Ceylon	Columbo Museum.
d-e. 2 Skins ♀ and skeletons.	.....	W. Rutledge.
f. Stuffed	Travancore	Marquis of Tweedale (1846), A.S.B.
g. Stuffed juv.	Midnapore	P. Homfray (1843), A.S.B.
h-k. 3 Skulls	.....	A.S.B.
l. Alc. juv.	Manbhoom	W. Theobald.

*Var. B.—cineraceus.*

a. Skin and skull.	♂ Arakan	Sir A. Phayre (1844), A.S.B.
[Type of <i>Pteromys cineraceus</i> , Blyth.]		
b. Skin skull.	♂ Arakan	Museum Collector (1871).
c. Skin juv.	"	Sir A. Phayre (1844), A.S.B.
d. Stuffed ♀	.....	W. Rutledge (1870).

***Pteromys alborufus.***

*Pteromys alborufus*, *A. Milne Edwards Comptes Rend.*, lxx, p. 342 (1870); id. *Rech. Mam.*, p. 298, pls. xva, fig. 1, and xlv; *Anderson Anat. Zool. Res.*, p. 284.

*Distribution.*—Assam and Burma southwards to Tenasserim; also obtained from Moupin in Eastern Thibet.



a. Skin	Assam	F. Day.
b. Skin	Naga hills	H. H. Godwin Austen.
c. Skin skull,	Samagooting, Assam	J. Butler (1872).
d. Skin juv.	Cherrapoonjee, Assam	J. W. Laidlay (1847), A.S.B.
e. Skin	Pegu	Rev. J. Barbe, A.S.B.
f. Skin ♀	Mergui, 21-1-82	J. Anderson.
g. Skin, skeleton	Arakan	Zoological Gardens.
h. Skin	.....	No history.
j. Stuffed ♂	Arakan P	Sir A. Phayre (1844), A.S.B.
k. Stuffed j	Tenasserim	Rev. J. Barbe (1844), A.S.B.
l. Alc.	Lampnee, Mergui,	J. Anderson.
	13-1-82.	

### Pteromys yunnanensis.

*Pteromys yunnanensis*, *Anderson Ann. Mag. N. H.* (4), xvi, p. 282, (1875); id. *Anat. Zool. Res.*, p. 282, pl. xxii.

*Distribution.*—Has been got hitherto only from Momien in Yunnan.

a-d. 4 Skins, Momien, Yunnan, J. Anderson:  
5,000 ft., 6-68.

[Types of *Pteromys yunnanensis*, Anderson.]

### Pteromys magnificus.

*Sciuropterus nitidus*, *apud Hodgson, P. Z. S.*, p. 98 (1835).

*Pteromys magnificus*, *Hodgson F. A. S. B.*, v, p. 231 (1836); *Is. Geoff. St. Hil. Jacquemont Voyage, Zool.* p. 65; *Gray Cat. Hodgs. Coll. B. M.*, 1st ed., p. 22; *Blyth F. A. S. B.*, xvi, p. 866; *Horsfield Cat. E. I., Mus.*, p. 161; *Blyth F. A. S. B.*, xxviii, p. 277; id. *Cat.*, no. 294, p. 95; *Ferdon Mamm.*, p. 177; *P. L. Sclater P. Z. S.*, 1872, p. 635, pl. 1; *Anderson Anat. Zool. Res.*, p. 285.

*Sciuropterus nobilis*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842).

*Sciuropterus chrysothryx*, *Hodgson F. A. S. B.*, xiii, p. 67, with plate (1844).

*Pteromys nobilis*, *Gray Cat. Hodgs. Coll. B. M.*, p. 22 (1846); *Blyth F. A. S. B.*, xvi, p. 866; *Horsfield Cat. E. I., Mus.* p. 160; *Blyth F. A. S. B.*, xxviii, p. 277.

*Distribution.*—Himalayas from Nepal to Sikkim; has also been got on the Khasia hills.

a. Skin	Nepal (Hodgson)	India Mus., London.
b. Skin, skull	Sikkim	L. Mandelli.
c. Skin, juv.	"	L. Mandelli.
d. Skin	Cherrapoonjee, Assam	F. Skipwith, A.S.B.
e. Stuffed	Darjeeling	A. Campbell, A.S.B.
f. Stuffed	.....	Purchased, A.S.B.
g. Stuffed	Darjeeling	W. Earle (1848), A.S.B.

### Pteromys albiventer.

*Pteromys albiventer*, *Gray Illustr. Ind. Zool.*, ii, pl. xviii (1834); *Gray P. Z. S.*, 1836, p. 88; id. *Charlesw. Mag. N. H.*, i, 1837, p. 584; *Wagner Hugel's Kaschmir*, iv, p. 573; *Blyth F. A. S. B.*, xvi, p. 865; *Horsfield Cat. E. I. Mus.*, p. 162; *Anderson Anat. Zool. Res.*, p. 286.

*Pteromys inornatus*, *Is. Geoff. St. Hil. in Jacquemont Voyage, Zool.*, p. 62, pl. iv (1844); *Wagner Hugel's Kaschmir*, iv, p. 573; *Blyth F. A. S. B.*, xxviii, pp. 277, 287; *id. Cat.*, no. 293, p. 95; *Ferdon Mamm.*, p. 176; *Lydekker F. A. S. B.*, xlv, p. 285; *Blanford Yarkand Mammals*, p. 33.

*Distribution.*—The North-west Himalayas from Ladak to Nepal.

a. Skin, skull	Ladak	J. Biddulph.
b. Skin	Sonamarg, Kashmir, 18-8-72.	F. Stoliczka.
c. Skin, skull	Kashmir	J. E. T. Aichison.
d-f. 3 Skins	.....	Purchased.
g. Stuffed	Simla	J. N. Thomas (1845), A.S.B.
h. Alc.	Katmandu, Nepal	Museum Collector (1871).

### *Pteromys caniceps*.

*Sciuropterus caniceps*, *Gray Ann. Mag. N. H.*, x, p. 262 (1842); *Blyth F. A. S. B.*, xvi, p. 866; *id. F. A. S. B.*, xxviii, p. 278; *id. Cat.*, no. 296, p. 96; *Ferdon Mamm.*, p. 178.

*Pteromys caniceps*, *Gray Cat. Hodgs. Coll. B. M.*, 1st. ed., p. 21; *Horsfield Cat. E. I. Mus.*, p. 160; *Anderson Anat. Zool. Res.*, p. 287.

*Sciuropterus senex*, *Hodgson Calc. Journ. N. H.*, iv, p. 293 (1844); *id. F. A. S. B.*, xiii, p. 68, with plate.

*Distribution.*—Himalayas from Gurwhal to Sikkim.

u. Skin	Landour, N. W. Hima- layas.	L. C. Stewart (1854), A.S.B.
b-d. 3 Skins	Sikkim	L. Mandelli.
e. Skin	Gumphar, Darjeeling, 2,000 ft.	J. Knight.
f. Stuffed	Darjeeling	Mrs. Oakes (1842), A.S.B.

### *Pteromys nitidus*.

*Sciurus petaurista*, *Pallas Miscell. Zool.*, p. 56 (1766) [pt.]\*.

*Pteromys nitidus*, *Desmarest N. Dict. Hist. Nat.*, xxvii, p. 403 (1818); *Gray Illustr. Ind. Zool.*, ii, pl. xvii; *Müller and Schlegel Tem. Verhandl.*, pp. 107, 112; *Is. Geoff. St. Hil. Jacquemont Voyage, Zool.*, p. 65; *Cantor, F. A. S. B.*, xv, p. 252; *Blyth F. A. S. B.*, xvi, p. 866; *Brandt Mem. Acad. St. Peters.* (6), vii, p. 298\*; *Horsfield Cat. E. I. Mus.*, p. 162; *Blyth F. A. S. B.*, xxxviii, p. 277; *id. Cat.*, no. 295, p. 96; *Zebebor Säugeh. Novara*, p. 25; *Anderson Anat. Zool. Res.*, p. 290; *Thomas P. Z. S.*, 1886, p. 73; *Jentink Notes Leyd. Mus.*, xi, p. 26; *Thomas P. Z. S.*, 1889, p. 230.

*Pteromys melanotis*, *Gray P. Z. S.*, p. 88 (1836); *id. Charlesw. Mag. N. H.*, i., p. 584; *Horsfield Cat. E. I. Mus.*, p. 162; *Blyth F. A. S. B.*, xxviii, p. 277; *Anderson Anat. Zool., Res.*, p. 292.

*Pteromys melanopsis*, *Motley and Dillwyn Contrib. Nat. Hist. Labuan*, p. 2, (1855).

*Pteromys grandis*, *Swinhoe P. Z. S.*, p. 358, pl. xlv (1862); *id. P. Z. S.*, 1870, p. 634.

*Distribution.*—The Malay peninsula from Klang in Selangore

southwards, the islands of Sumatra, Java and Borneo, also Siam and Formosa.

a-b. 2 Skins	Siam [Finlayson]	India Mus., London.
c. Stuffed	Malacca	Rev. F. Lindstedt (1845), A.S.B.
d. Stuffed juv.	"	Rev. F. Lindstedt (1845), A.S.B.
e. Stuffed	.....	W. Rutledge (1872).

### Genus SCIUROPTERUS.

Sciuropterus, *F. Cuvier Mem. Mus. Paris*, x, p. 116 (1823).

#### *Key of the Indian Species.*

- a. Larger forms, length without tail more than 7.5 inches.
- b. Pale grayish above; outer edge of hind-foot provided with a thick brush of hairs extending from the tarsal joint to the base of the 5th toe; skull long and narrow, 1.95 inches long by 1.55 inches broad. **S. fimbriatus**, p. 37.
- b<sup>2</sup>. Rather darker above; no brush to the hind-feet, which are much smaller than in *S. fimbriatus*; skull smaller and broader, 1.45 inches long by 1.15 inches broad.  
**S. alboniger**, p. 38.
- b<sup>3</sup>. Grayish above, with black tufts of hair at the base of the posterior margin and the external surface of the upper angle of the ear; teeth ridged. **S. fuscocapillus**, p. 39.
- b<sup>4</sup>. Above rufus; tail short, 5 inches; ears with tufts of long hair at the anterior and posterior angles of the ear-conch; tail rather bushy. **S. pearsoni**, p. 38.
- b<sup>5</sup>. Resembling the last in size, but of a lighter grayish colour, with markedly distichous tail and no ear tufts.  
**S. sagitta**, p. 39.
- a<sup>2</sup>. Much smaller, about 5½ inches long with tail; above rufus; tail above brown, below at base rufous.  
**S. spadaceus**, p. 40.

### Sciuropterus fimbriatus.

*Sciuropterus fimbriatus*, *Gray Charlesw. Mag. N. H.*, i, p. 584 (1837); *id. P. Z. S.*, 1837, p. 67; *Blyth F. A. S. B.*, xvi, p. 866; *Horsfield Cat. E. I. Mus.*, p. 163; *Blyth F. A. S. B.*, xxviii, p. 278; *id. Cat.*, no. 298, p. 96; *Ferdon Mamm.*, p. 178; *Scully P. Z. S.*, 1881, p. 204; *id. Ann. Mag. N. H.* (5), viii, p. 98.

*Pteromys leachii*, *Gray P. Z. S.*, p. 88 (1836); *id. Charlesw. Mag. N. H.*, i, p. 584.

*Pteromys fimbriatus*, *Anderson Anat. Zool. Res.*, p. 296 (1878).

*Distribution*.—North-west Himalayas from Gilgit to Kumaon.

a. Skin, skull	Chitral, 5,000 ft.	G. M. Giles.
b. Skin	juv. ♀ Nultar valley, Gilgit, 1-8-79.	J. Scully.
c. Skin, skull	♂ Nultar valley, Gilgit, juv. 5-8-79.	J. Scully.
d. Skin, skull	♀ Chaprot, Gilgit, 30-7-79	J. Scully.
e. Skin	Gilgit, 6,000 ft., 6-8-80	J. Scully.
f. Skin	Ladak	J. Biddulph.
g. Skin	Kashmir	J. E. T. Aichison.
h. Skin	nr. Simla	L. C. Stewart (1854), A.S.B.

### Sciuropterus alboniger.

*Sciuropterus alboniger*, *Hodgson* *♀. A. S. B.*, v, p. 231 (1836); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 22; *Blyth* *♀. A. S. B.*, xvi, p. 866; *Horsfield Cat. E. I. Mus.*, p. 163; *Blyth* *♀. A. S. B.*, xxviii, p. 278; *id. Cat.*, no. 302, p. 97; *Ferdon Mamm.*, p. 179; *Anderson Anat. Zool. Res.*, p. 298; *Thomas P. Z. S.*, 1886, p. 59.

*Sciuropterus turnbulli*, *Gray P. Z. S.*, p. 68 (1837); *id. Charlesw. Mag. N. H.*, i, p. 584.

*Distribution.*—Himalayas, Nepal to Bhootan, Assam, Yunnan and Cambodia.

a. Skin.	Darjeeling	Mrs. Oakes (1842) A.S.B.
b. Skin, skeleton and viscera in alc.	Garó hills	H. L. Haughton (1867).
c. Skin.	Cachar hills	Museum Collector.
d-e. 2 Skins	Momien, Yunnan, 6-68	J. Anderson (1870).
g-h. 2 Skins	♂ ♀	W. Rutledge.
j. Stuffed	Darjeeling	J. Grace (1853) A.S.B.
k. Skull	Naga hills	A. W. Chennell.
l. Skin	Shillong	T. la Touche.

### Sciuropterus pearsoni.

*Sciuropterus pearsonii*, *Gray Ann. Mag. N. H.*, x, p. 263 (1842); *Thomas P. Z. S.* 1886, p. 60.

*Pteromys sagitta*, *apud Walker, Cal. Journ N. H.*, iii, p. 266 (1843).

*Pteromys (Sciuropterus) setosus*, *Temminck and Schlegel Faun. Japon. Mamm.*, p. 49 (1847).

*Sciuropterus villosus*, *Blyth* *♀. A. S. B.*, xvi, p. 866 (1847); *id. ♀. A. S. B.*, xxviii, p. 278; *id. Cat.*, no. 303, p. 97; *Ferdon Mamm.*, p. 179.

*Pteromys pearsonii*, *Horsfield Cat. E. I. Mus.*, p. 162 (1851); *Anderson Anat. Zool. Res.*, p. 293.

*Sciuropterus kaleensis*, *Swinhoe P. Z. S.*, p. 359 (1862); *id. P. Z. S.* 1870, p. 634.

*Distribution.*—Sikkim, Assam, Manipur and Yunnan; it has been also recorded from Formosa and Sumatra.

a. Skin	Assam	A. W. Chennell.
b. Skin	Naga hills	H. H. Godwin Austen.

e. Skin	Cachar	Mus. Collector (1867).
d. Skin	Momien, Yunnan 6,000 ft., 6-68.	J. Anderson.
e-f. 2 Stuffed	North Assam.	F. Bonynge (1845), A.S.B.

[2 Types of *Sciuropterus villosus* of Blyth].

g. Skull	Darjeeling	W. Theobald (1852), A.S.B.
h-j. 2 Alc	Ponsee, Yunnan	J. Anderson (1868).

### *Sciuropterus fuscocapillus.*

*Sciuropterus fuscocapillus*, *Blyth F. A. S. B.*, xvi, p. 867 (1847); id. *F. A. S. B.*, xxviii, pp. 278, 286; id. *Cat. no. 297*, p. 96; *Ferdon Mamm.*, p. 180.  
*Sciuropterus layardi*, *Kelaart Journ. Ceylon As. Soc.*, v, p. 215 (1850); *Blyth F. A. S. B.*, xx, p. 165; *Kelaart Prodr. Faun. Zeylan.*, p. 56; *Blyth F. A. S. B.*, xxviii, p. 278.  
*Pteromys fuscocapillus*, *Anderson Anat. Zool. Res.*, p. 294 (1878).

*Distribution.*—The Nilgiri hills, Travancore and the highlands of Ceylon.

[No specimen in the Museum.]

### *Sciuropterus sagitta.*

*Sciurus sagitta*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 88 (1766).  
*Pteromys horsfieldii*, *Waterhouse P. Z. S.*, p. 87 (1837); *Anderson Anat. Zool. Res.*, p. 299.  
*Pteromys aurantiacus*, *Wagner Munch. Gel. Anz.*, xii, p. 438 (1841).  
*Sciuropterus horsfieldii*, *Cantor F. A. S. B.*, xv, p. 253 (1846); *Blyth F. A. S. B.*, xvi, p. 867; id. *F. A. S. B.*, xxviii, p. 278.  
*Sciuropterus sagitta*, *Müller and Schlegel Tem. Verhandl.*, pp. 109, 113 (1839-44); *Blyth F. A. S. B.*, xxiii, p. 731; id. *ibid.*, xxiv, p. 187; *Thomas, P. Z. S.*, 1886, p. 75.  
*Sciuropterus phayrei*, *Blyth F. A. S. B.*, xxviii, p. 278 (1859); id. *Cat.*, no. 304, p. 97; *McMaster Notes on Ferdon*, p. 53; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 35.

*Distribution.*—Burma, Pegu and Tenasserim, Malay peninsula, Cambodia, and the islands of Java and Banka.

The above synonymy is given under the authority of Anderson, who identified *S. phayrei* with *S. horsfieldii* of Waterhouse, and of Thomas, who identifies *S. horsfieldii* with *S. sagitta* of Linnæus, but it does not seem unlikely that *S. phayrei* may be really an independent species: it certainly seems much smaller than the common squirrel, to which as to size *S. sagitta* is compared by Linnæus.

a-b. 2 Skins	Burma	Sir A. Phayre and Major Berdmore.
c-d. 2 Stuffed	„	Sir A. Phayre and Major Berdmore.

[Types of *S. phayrei*, Blyth.]

**Sciuropterus spadaceus.**

*Sciuropterus spadaceus*, *Blyth Z. A. S. B.*, xvi, p. 867 (1847); id. *Z. A. S. B.*, xxviii, p. 278; id. *Cat.*, no. 305, p. 97; id. *Z. A. S. B.*, xlv, *Burma List*, p. 35.  
*Pteromys spadaceus*, *Anderson Anat. Zool. Res.*, p. 300 (1878).

*Distribution.*—Only known from Arakan.

It has been supposed by Thomas that this species is identical with *S. lepidus* of Horsfield, but until further evidence can be adduced by the comparison of specimens it may as well remain distinct.

<i>a-c.</i> 3 Skins	Arakan	Sir A. Phayre. A.S.B.
	[Types of <i>S. spadaceus</i> , Blyth.]	
<i>d.</i> Skin	Moulmein	J. Davis,
<i>e.</i> Alc.	Burma	J. Wood Mason (1872).

**Sciuropterus volucella.**

*Sciurus volans*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 88 (1766) [pt.].  
*Sciurus volucella*, *Pallas Nov. Sp. Quad. e Glir.*, pp. 351, 353 (1788).  
*Sciurus hudsonius*, *Gmelin Syst. Nat.*, i, p. 153 (1788).  
*Sciurus sabrinus*, *Shaw Genl. Zool.*, ii, pt. i, p. 157 (1801).  
*Sciuropterus volucella*, *Lesson Man. Mamm.*, p. 242 (1827); *Blyth Z. A. S. B.*, xxviii, p. 278; id. *Cat.*, no. 306, p. 98; *Allen Monographs N. Amer. Rodents*, p. 655.  
*Pteromys oregonensis*, *Bachman Journ. Acad. N. Sci. Phila.* (i), viii, p. 101 (1839).  
*Pteromys alpinus*, *Wagner Schreb. Säugeth. Suppl.*, iii, p. 230 (1843).

*Distribution.*—The whole of North America southwards to Guatemala.

<i>a.</i> Skin	Ontario, Canada	J. H. Garnier [Ex.]
<i>b.</i> Skull	Upton, Maine, U. S. A.	W. Theobald.

**Genus EUPETAURUS.**

*Eupetaurus*, *Thomas Z. A. S. B.*, lvii, p. 257 (1888). *Type* *E. cineraceus*.

**Eupetaurus cineraceus.**

*Eupetaurus cineraceus*, *Thomas Z. A. S. B.*, lvii, p. 258, pls. xxii, xxiii (1888).

*Distribution.*—Thibet; has been procured at Gilgit and also in Eastern Thibet north of Sikkim.

<i>a.</i> Skin and skull	Gilgit valley	G. M. Giles.
	[Co-type of <i>E. cineraceus</i> , Thomas.]	
<i>b.</i> Skin and skull	.....	Purchased.

## Genus SPERMOPHILUS.

Spermophilus, *F. Cuvier Mem. Mus., Paris*, vi, p. 293 (1822).

## Spermophilus bactrianus.

Spermophilus bactrianus, *Scully Z. A. S. B.*, lvi, p. 70 (1887).

*Distribution.*—Afghan Turkestan.

u. Skin, skull ♀ Khamiab, Oxus R., C. E. Yate.  
12-6-86.

[Type of *Spermophilus bactrianus*, Scully.]

## Genus ARCTOMYS.

Arctomys, *Schreber Säugeth.*, iv, p. 721 (1792).

In the following catalogue of the Marmots of Central Asia, Blanford's paper (*J. A. S. B.*, xlv, p. 113) has been followed. All the species found in Central Asia are represented in the Museum collections with the exception of *Arctomys robustus* of Milne Edwards (see below under *A. himalayanus*).

*Key of the Indian Species.*

- a. Tail less than one-third of the length of the head and body; colour grayish yellow with diffused black tips to the hairs; length 22 to 24 inches. **A. himalayanus**, p. 41.
- a<sup>2</sup>. Tail one-third or more than one-third of the head and body.
- b. Smaller, length 14 to 16 inches; colour grayish yellow. **A. hodgsoni**, p. 42.
- b<sup>2</sup>. Larger, length about 25 inches; colour rufous yellow with a black patch on the back and ferrugineous below. **A. caudatus**, p. 43.

**Arctomys himalayanus.**

*Arctomys himalayanus*, *Hodgson Z. A. S. B.*, x, p. 777, with plate (1841); id. *Z. A. S. B.*, xi, p. 287; *Blanford Z. A. S. B.*, xlv, p. 121; *Lydekker Z. A. S. B.*, xlvi, p. 285; *Blanford Yarkand Mammals*, p. 36, pls. xii, xiii, *Lydekker Z. A. S. B.*, xlix, p. 7; *Buchner Wiss. Result. Przewalski Reisen Rodentia*, p. 25.

*Arctomys himalayanus potius tibetensis hodie*, *Hodgson Z. A. S. B.*, xii, p. 409 (1843).

*Arctomys bobac apud Gray*, *List Mamm. B. M.*, p. 148 (1843); id. *Cat. Hodgk. Coll. B. M.*, 1st ed., p. 23; *Blyth Z. A. S. B.*, xvi, p. 875; *Horsfield Cat. E. I. Mus.*, p. 164; *Blyth Cat.*, no. 348, p. 108; *Ferdon Mamm.*, p. 181; *Anderson P. Z. S.*, 1871, p. 560.

*Arctomys tataricus*, *Jameson L'Institut.*, xv, p. 384 (1847)\*.

*Arctomys tibetanus*, *Adams P. Z. S.*, p. 521 (1858).

*Distribution.*—The Himalayas and Thibet from Western Ladak eastwards, the Kuenlun Mountains south of Yarkand, and the

Keria Mountains, which form the barrier between the valley of Tarim and the plateau of north Tibet.

*Arctomys robustus* of Milne Edwards (Rech. Mamm., p. 309) was given by Blanford in his paper on Himalayan Marmots as a synonym of *A. himalayanus*; Buchner in his accounts of Przewalski's Mammals holds a contrary opinion and distinguishes *A. robustus* by its larger size, its darker back and sides, and the patch of rusty brown at the sides of the snout and round the ears; none of these characters are very decisive ones, but for the present *A. robustus* is left separate.

<i>a-b.</i> 2 Skins, skulls.	♂	Kitchik Yilak, Sanju Pass, Kuenlun Mts., 17-9-70.	G. Henderson.
<i>c.</i> Skin		Changchenmo valley, Ladak.	R. Lydekker.
<i>d.</i> Skin		Tibet	B. H. Hodgson (1845), A.S.B.
<i>e.</i> Skin	juv.	"	B. H. Hodgson (1845), A.S.B.
<i>f.</i> Stuffed, skull.	♀	Kitchik Yilak, Sanju Pass, Kuenlun Mts., 17-9-70.	G. Henderson.

### *Arctomys hodgsoni*.

*Arctomys hemachalanus*, Hodgson *J. A. S. B.*, xii, p. 410 (1843); *Ferdon Mamm.*, p. 182; *Blanford J. A. S. B.*, xlv, p. 122.

*Arctomys tibetanus*, *apud Gray Cat. Hodgs. Coll.*, 1st ed., p. 24 (1846); *Horsfield Ann. Mag. N. H.* (2), xvi, p. 113.

*Arctomys bobac*, *apud Blyth, Cat.*, no. 348, p. 108 (1863) [pt.]

*Arctomys hodgsoni*, *Blanford Yarkand Mammals*, p. 35 (1876).

*Distribution.*—Himalayas of Nepal, Sikkim and Bhootan.

Blanford's name has been adopted in preference to *A. hemachalanus*, which is synonymous with *A. himalayanus* and cannot therefore stand.

It is a curious fact that no truly feral example of this species has yet been obtained; all the specimens mentioned below were caged.

<i>a.</i> Skin juv.	♂	Bhootan	J. Wood Mason.
<i>b.</i> Skin, skele- ton.	♂	"	W. Rutledge [P.]
<i>c.</i> Skin, skele- ton.	♀	"	W. Rutledge [P.]
<i>d-e.</i> 2 Skins, 2 skulls.	♂	.....	W. Rutledge.
<i>f-j.</i> 4 Skins, 4 skulls.	♀	.....	W. Rutledge.
<i>k.</i> Stuffed		.....	G. A. Bushby (1848), A. S. B.
<i>l.</i> Skeleton	♂	.....	W. Rutledge.
<i>m.</i> Skeleton		Darjeeling	Mrs. Turnbull.
<i>n.</i> Skin, skele- ton.	♀	.....	Zoological Gardens.
<i>o.</i> Alc.	♀	.....	W. Rutledge.
<i>p.</i> Skeleton	♂	.....	W. Rutledge.



**Arctomys caudatus.**

*Arctomys caudatus*, *Is. Geoff. St. Hil. Jacquemont Voyage, Zool.*, p. 66, pl. v (1844); *Wagner Hugel's Kaschmir*, iv, p. 573; *Blanford F. A. S. B.*, xliv, p. 122; id. *Yarkand Mamm.*, p. 37, pls. xiii, xiiia; *Lydekker F. A. S. B.*, xlix, p. 7; *Scully P. Z. S.*, 1881, p. 204; id. *Ann. Mag. N. H.* (5), viii, p. 98.

*Arctomys bobac*, *apud Adams, P. Z. S.*, p. 521 (1858); *Blyth Cat.*, no. 348, p. 108; *Ferdon Mamm.*, p. 182.

*Arctomys tibetana*, *apud Falconer Palæont. Memoirs*, i, p. 583 (1868).

*Arctomys hemachelana*, *apud Anderson, P. Z. S.*, p. 561 (1871).

The Red Marmot; Drowne or Drim of Kashmir; Pyā of Ladak, *Distribution*.—The north-western parts of Kashmir in the Deosai, Dras, and Astor districts.

- |                  |  |                       |
|------------------|--|-----------------------|
| a. Skin, skull ♀ | Matayon, Zogi-la Pass, G. Henderson.†<br>nr. Dras, Kashmir,<br>20-6-70.            |                       |
| b. Skin, skull ♀ | Donkun, Astor distr., J. Scully.<br>Kashmir, 11,000 ft.,<br>20-5-80.               |                       |
| c. Skin          | juv. Deosai plain, N. W. J. Scully.<br>Kashmir, 12,000 ft.<br>7-80. [J. Biddulph.] |                       |
| d-h. 5 Skins     | Kashmir  | J. E. T. Aitchison.   |
| j. Skin          |  | T. C. Jerdon.         |
| k. Skull         |  | T. Brownlow, A. S. B. |

**Arctomys aureus.**

*Arctomys aureus*, *Blanford F. A. S. B.*, xliv, pp. 106, 123; id. *Yarkand Mamm.*, p. 33, pls. xi, xia.

? *Arctomys caudatus*, *apud Severtzoff Ann. Mag. N. H.* (4), xviii, p. 50 (1876).

*Distribution*.—The Pamir and country between the Pamir and Yarkand.

- |                |   |               |
|----------------|---|---------------|
| a. Skin, skull | Kaskasu Pass, between<br>Pamir and Yarkand,<br>13,000 ft., 15-5-74.<br>[Type of <i>A. aureus</i> , Blanford.] | F. Stoliczka. |
| b-c. 2 Skins   | Kaskasu Pass, between<br>Pamir and Yarkand,<br>13,000 ft., 15-5-74.   | F. Stoliczka. |
| d. Skin, skull | Little Pamir, 13,000 ft.,<br>5-86.  | G. M. Giles.  |
| e-f. 2 Skulls  | Kaskasu Pass.   | F. Stoliczka. |

**Arctomys dichrous.**

*Arctomys dichrous*, *Anderson Ann. Mag. N. H.* (4), xvi, p. 283 (1875); id. *F. Linn. Soc.*, xii, p. 579, pl. xxxi; *Blanford Yarkand Mammals*, p. 36;

† See Henderson and Hume, Lahore to Yarkand, p. 83.

*Buchner Wiss. Result. Przewalski Reisen Rodentia*, p. 40, pls. iii, iv, figs. 11-14.

*Arctomys baibacina*, *apud Severtzoff Ann. Mag. N. H.* (4), xviii, p. 50 (1876).

*Distribution*.—Hills north of Kabul (Anderson), Thian Shan (Severtzoff) and the Juldus valley (Przewalski).

a. ♀ Skull Afghanistan. Sir A. Burns, A.S.B.  
b-c. 2 Skulls juv. Kabul? J. Anderson.

### **Arctomys marmota.**

*Mus marmota*, *Linnæus Syst. Nat.*, 12th ed., i, p. 81 (1766).

*Arctomys marmota*, *Schreber Säugeth.*, iv, p. 722 (1792); *Blasius Säugeth. Deutsch.*, p. 280.

*Marmota alpina*, *Blumenbach Handb. Naturges.*, 12th ed., p. 70 (1830).

*Distribution*.—The higher regions of the Alps, Pyrennees and Carpathians.

a. Stuffed ..... Mrs. Turnbull (1867).

### **Arctomys monax.**

*Mus monax*, *Linnæus Syst. Nat.*, 12th ed., i, p. 81 (1766).

*Arctomys monax*, *Schreber Säugeth.*, iv, p. 737 (1792); *Allen Monographs N. Amer. Rodents*, p. 911.

*Arctomys empetra*, *Sabine Linn. Trans.*, xiii, p. 584 (1822).

*Distribution*.—North America from Hudson's Bay to the Carolinas and from the Atlantic to Minnesota.

a-b. 2 Skins Ontario, Canada J. H. Garnier [Ex.]  
c. Skin, skull ♀ ..... W. Rutherford.

### **Genus CASTOR.**

*Castor*, *Linnæus Syst. Nat.*, 12th ed., i, p. 78 (1766).

### **Castor fiber.**

*Castor fiber*, *Linnæus Syst. Nat.*, 12th ed., i, p. 78 (1766); *Allen Monographs N. Amer. Rodents*, p. 433.

*Castor canadensis*, *Kuhl Beitr. Zool.*, p. 64 (1820).

*Castor americanus*, *Richardson Back's Arctic Exped.*, p. 494 (1836)\*.

*Castor europæus*, *Owen Brit. Foss. Mamm.*, p. 190 (1846); *Blyth Cat.*, no. 404, p. 123.

The Beaver.

*Distribution*.—Europe, Siberia and North America, though now extinct in the greater part of Europe and also in the Eastern States of North America.

a. Stuffed Norway. Christiania University  
(1844), A. S. B.

Genus **MYOXUS**.

*Myoxus*, *Schreber Säugeth.*, iv, p. 824 (1792).

***Myoxus pictus*.**

*Myoxus pictus*, *Blanford Ann. Mag. N. H.* (4) xvi, p. 311 (1875); id. *Persia*, p. 51, pl. iv, fig. 2.

*Distribution*.—Persia north of Ispahan.

a. Alc. ♂ Kohrud, N. of Ispahan, W. T. Blanford,  
7,000 ft.

[Co-type of *M. pictus*, Blanford.]

***Myoxus glis*.**

*Sciurus glis*, *Linnæus Syst. Nat.*, 12th ed., i, p. 87 (1766).

*Mus glis*, *Pallas Nov. Sp. Quad. e Glir.*, p. 88 (1778).

*Myoxus glis*, *Zimmerman Geogr. Geschichte.*, ii, p. 351 (1780); *Blasius Säugeth Deutsch*, p. 292; *Blyth Cat.*, no. 350, p. 109.

*Glis esculentus*, *Blumenbach Handb. Naturges.*, 12th ed., p. 67 (1830).

*Distribution*.—Central and Southern Europe.

a. Stuffed. France A. Malherbe (1854), A.S.B.

Genus **MUSCARDINUS**.

*Muscardinus*, *Kaup Entw. Europ. Thierw.*, p. 139 (1829)\*.

***Muscardinus avellanarius*.**

*Mus avellanarius*, *Linnæus Syst. Nat.*, 12th ed., i, p. 83 (1766).

*Myoxus muscardinus*, *Schreber Säugeth*, iv, p. 835 (1792).

*Myoxus avellanarius*, *Desmarest Mamm.*, p. 295 (1820); *Blasius Säugeth. Deutsch.*, p. 297; *Blyth Cat.*, no. 351, p. 109.

*Muscardinus avellanarius*, *Kaup Entw. Europ. Thierw.*, p. 139 (1829)\*.

*Distribution*.—The whole of Europe, including the British Islands.

a-b. 2 Stuffed. England. A. D. Bartlett (1843), A.S.B.  
c-e. 3 Alc. ♂ ♀ " A. D. Bartlett (1865).

Genus **HYDROMYS**.

*Hydromys*, *Et. Geoff. St. Hil. Ann. Mus., Paris*, vi, p. 81 (1805).

***Hydromys chrysogaster*.**

*Hydromys chrysogaster*, *Et. Geoff. St. Hil. Ann. Mus., Paris*, vi, p. 81, pl. xxxvi (1805); *Gould Mamm. Austr.*, iii, pl. xxiv; *Blyth Cat.*, no. 398, p. 121; *Collett. Zool. J. B.*, ii, p. 841.

*Distribution*.—Queensland, New South Wales and Tasmania.

a. Stuffed. Tasmania. C. G. T. Lloyd (1860), A.S.B.

### **Hydromys fulvolavatus.**

*Hydromys fulvolavatus*, *Gould Mamm. Austr.*, iii, pl. xxv (1863).

*Hydromys leucogaster*, *apud Blyth, Cat.*, no. 399, p. 122 (1863).

*Distribution*.—Southern and South-eastern Australia.

a-b.	2 Stuffed	Port Philip, Melbourne	Mr. Benson (1849), A.S.B.
c-d	2 Skins	South Australia	Adelaide Mus. [Ex.]
e.	Skin	Australia	Adelaide Mus. [Ex.]

### **Hydromys leucogaster.**

*Hydromys leucogaster*, *Et Geoff. St. Hil. Ann. Mus., Paris*, vi, p. 81, pl. xxxvi (1805); *Gould Mamm. Austr.*, iii, pl. xxvi.

*Distribution*.—Australia, New South Wales, and Queensland.

u. Alc. Queensland Brisbane Mus. [Ex.]

## **Genus PLATACANTHOMYS.**

*Platacanthomys*, *Blyth Z. A. S. B.*, xxviii, p. 288 (1859). *Type*, *P. lasiurus*.

### **Platacanthomys lasiurus.**

*Platacanthomys lasiurus*, *Blyth Z. A. S. B.*, xxviii, p. 289 (1859); *id. Cat.*, no. 349, p. 109; *Peters P. Z. S.*, 1865, p. 397, pl. xx; *Ferdon Mamm.* p. 210.

*Distribution*.—South Malabar and Travancore.

a-m.	12 Skins	Travancore	Rev. H. Baker (1870).
n-g.	4 Stuffed	South Malabar	Rev. H. Baker, (1859) A.S.B.
r.	Skeleton	Travancore	Rev. H. Baker.
	mtd.		
s.	Skeleton	"	Rev. H. Baker.
	impf.		
t-u.	2 Alc. 2 skulls	"	Rev. H. Baker.
v-a <sup>2</sup> .	6 Alc. ♂ ♀	Trevandrum	H. S. Ferguson.
	and 4 juv.		

## **Genus GERBILLUS.**

*Gerbillus*, *Desmarest N. Dict. d'Hist. Nat.*, 1st ed., xxiv, p. 22 (1804)\*.

*Meriones*, *Illiger. Prodr.*, p. 82 (1811).

*Rhombomys*, *Wagner Schreber Säugeth. Suppl.*, iii, p. 485 (1843).

*Psammomys*, *Cretzschmar Rüppell's Atlas*, p. 56 (1826). *Type*, *G. obesus*.

*Key of the Indian species.*

- a.* Larger, head and body 5 to 7 inches in length.
- b.* With large ears; tail dark banded above and below; above rufous brown, below white; feet naked below; outer wall of the antorbital foramen rounded and projecting in front; bullæ moderate. . . . . **G. indicus**, p. 47.
- b.*<sup>2</sup> Ears moderate; tail dark banded above, light below; feet thickly haired anteriorly; outer wall of antorbital foramen perpendicular; bullæ much inflated.  
**G. erythrurus**, p. 49.
- b.*<sup>3</sup> Ears very small; tail concolorous with the body, with a dusky terminal pencil; above sandy yellow, below lighter, but not white; feet anteriorly haired, posteriorly naked; bullæ moderate. . . . . **G. hurrianæ**, p. 50.
- a.*<sup>2</sup> Smaller, head and body 3 to 4 inches in length.
- c.* Tail without hair, more than  $1\frac{1}{2}$  times head and body.
- d.* Proximal half of the sole naked; six distinct planta pads. . . . . **G. nanus**, p. 51.
- d.*<sup>2</sup> Sole hairy throughout; no distinct pads.  
**G. gleadowi**, p. 52.
- c.*<sup>2</sup> Tail without hair, shorter than the head and body.  
**G. swinhoei**, p. 52.

**Gerbillus indicus.**

- Dipus indicus*, *Hardwicke Linn. Trans.*, viii, p. 279, pl. vii (1804).  
*Gerbillus indicus*, *Desmarest N. Dict. d'Hist. Nat.*, xiii, p. 109 (1817);  
*Elliot Madras Journ.*, x, p. 211; *F. Cuvier Trans. Zool. Soc.*, ii, p. 143, pl. xxv, figs. 15-19; *Hutton and Blyth J. A. S. B.*, xv, p. 137; id. *J. A. S. B.*, xx, p. 167; id. *J. A. S. B.*, xxi, p. 350; *Horsfield Cat. Mamm. E. I. Mus.*, p. 150; *Kelaart Prodr. Faun. Zeylan.*, p. 69; *Blyth J. A. S. B.*, xxxii, p. 327; *Adams P. Z. S.*, 1858, p. 520; *Blyth Cat.*, no. 353, p. 110; *Ferdon Mamm.* p. 185; *Blanford Persia*, p. 63.  
*Gerbillus cuvieri*, *Waterhouse P. Z. S.*, p. 56 (1838); *Hutton and Blyth J. A. S. B.*, xv, p. 139.  
*Gerbillus hardwickii*, *Gray List Mamm. B. M.*, p. 132 (1843).

*Distribution.*—Found throughout India from the Himalayas southward, including Ceylon, in sandy and dry places; extending eastwards as far as Lower Bengal only and westwards to Baluchistan (Blanford).

The southern form is distinguishable as a well marked geographical race, which was described by Waterhouse in 1838 as *G. cuvieri*; it is distinguished from *G. indicus* by its longer tail,

its longer tarsus, and by the colour of the tarsus, which is blackish; the differences of the tarsus and tail of the two races are shown in the accompanying measurements. It is not easy to separate the synonymy of the two races, as the southern variety has been almost entirely overlooked hitherto; this was in consequence of the fact that Blyth's specimens from Midnapur, which he naturally

Lettering of specimen.		Tarsus.	Tail with hairs.	Body and head.
Northern race var. <i>typicus</i> .	<i>t.</i> Allahabad.	1'07	6'80	6'0
	<i>u.</i> Berhampore	1'10	6'75	6'5
	<i>p.</i> Baluchistan	1'05	6'80	5'75
Southern race var. <i>cuvieri</i> .	<i>oo.</i> Columbo .	1'25	8'30	6'25
	<i>dd.</i> Poona .	1'25	8'50	6'50
Inter-mediate.	<i>v.</i> Goona .	1'07	7'20	6'0
	<i>bb.</i> Banda .	1'20	7'10	6'50

considered belonged to the northern race, were really more nearly allied to the southern race. As will be seen by the accompanying table, the varieties run into one another in the Central Provinces.

#### *Var A.—typicus.*

<i>a-b.</i> 2 Skins	♀	Pishin, Persian Baluchistan, 10-2-72.	W. T. Blanford.
<i>c-d.</i> 2 Skins, 2 skulls.		Agra district	Agra Museum.
<i>e-g.</i> 3 Skins, 1 skull.		Maunbhoom	Mus. Collector (1866).
<i>h-l.</i> 4 Skins juv.		"	Mus. Collector (1866).
<i>m.</i> Skin	♂	" 12-64	R. C. Beavan.
<i>n.</i> Skin		Berhampore	W. Theobald, A.S.B.
<i>o-q.</i> 3 Alc. ♂ ♂ ♀		Pishin, Baluchistan, 700 feet.	W. T. Blanford.
<i>r.</i> Alc.	♀	Rajanpur, Punjab	E. Saunders.
<i>s.</i> Alc. juv.	♀	Cutch	F. Stoliczka.
<i>t.</i> Alc.	♀	Allahabad	J. Cockburn (1872).
<i>u.</i> Alc. 1 skull	♀	Berhampore, Bengal	W. Theobald, A.S.B.
<i>v.</i> Skeleton mtd.		Berhampore	W. Theobald, A.S.B.
<i>w-x.</i> 2 Skulls		...	A.S.B.
<i>y.</i> Skull		Berhampore	A.S.B.
<i>z.</i> Skull	♂	Pishin, Baluchistan	W. T. Blanford.
<i>a<sup>2</sup>-b<sup>2</sup>.</i> 2 Alc.	♂ ♀	Sitapur, Oude	A. Barclay.
<i>c<sup>2</sup>-d<sup>2</sup>.</i> 2 Alc.	juv.	"	A. Barclay.
<i>e<sup>2</sup>.</i> Alc.		Gulistan, Afghanistan	J. A. Murray.
<i>f<sup>2</sup>.</i> Alc.	♀	Kirta	J. A. Murray.
<i>g<sup>2</sup>.</i> Alc.	juv.	Beebeenanee, Beluch	J. A. Murray.

#### *Var B.—cuvieri.*

<i>1-b.</i> 2 Skins, 2 skulls.		Nilgiris, Madras	R. H. Beddome.
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<i>c-d.</i>	2 Skins, 2 skulls juv.	Trichinopoly, Madras	R. H. Beddome.
<i>e-f.</i>	2 Alc.	Goonna, C. I.	A. Barclay.
<i>g.</i>	Alc. ♂	Banda dist., N.-W.P.	J. Cockburn.
<i>h.</i>	Alc. juv.	Karachi?	Karachi Mus.
<i>k.</i>	2 Alc. ♂ ♀	Poona	G. W. Vidal.
<i>f-o.</i>	4 Alc. juv. ♀	Codur Hills, Madras	R. H. Beddome.
<i>p-q.</i>	2 Alc. juv. ♀	Madras	G. Bidie.
<i>r-s.</i>	2 Alc.	Madras?	Madras Mus.
<i>t-w.</i>	4 Skulls ♀ 3 juv.	Columbo	J. Anderson (1872).
<i>x-b<sup>2</sup>.</i>	5 Stuffed	Midnapore Jungles	E. Blyth A.S.B.
<i>c<sup>2</sup>.</i>	Stuffed	Midnapore	Dr. Young (1848) A.S.B.
<i>d<sup>2</sup>-e<sup>2</sup>.</i>	2 Stuffed	South India.	Sir W. Elliot (1843) A.S.B.
<i>f-g<sup>2</sup>.</i>	2 Stuffed	Ceylon	E. L. Layard (1858) A.S.B.
<i>h<sup>2</sup>.</i>	Skull	Columbo	J. Anderson (1872).

### Gerbillus persicus.

*Gerbillus persicus*, *Blanford Ann. Mag. N. N.* (4), xvi, p. 312 (1875); *id. Persia*, p. 66, pl. vii, fig. 1.

*Distribution.*—Persian plateau north and south.

This species is allied to *G. indicus*; it is distinguished by its dusky greenish soles, the absence of the dark line below the tail, and by its skull. In *G. indicus* the part of the skull above the foramen magnum when viewed from behind exceeds in height the vertical extent of the foramen magnum itself; in *G. persicus* the reverse holds good. The specimen "c" in the list below has a hairy tarsus and is doubtfully referred to *G. persicus*.

<i>a.</i>	Alc. skull	Kohrud, N. of Ispahan	W. T. Blanford.
			[Type of the <i>G. persicus</i> , Blanford.]
<i>b.</i>	Alc. juv.	Karman, S. Persia	W. T. Blanford.
<i>c.</i>	Alc. skull juv.	" " "	W. T. Blanford.

### Gerbillus erythrurus.

*Gerbillus erythrurus*, *Gray Ann. Mag. N. H.*, x, p. 266 (1842); *Hutton J. A. S. B.*, xv, p. 139; *Horsfield Cat. E. I. Mus.*, p. 150; *Blanford Persia*, p. 70; *Danford and Alston, P. Z. S.*, 1880, p. 60. *Gerbillus* sp., *Scully J. A. S. B.*, lvi, p. 71 (1887).

*Distribution.*—Afghan Turkistan and Afghanistan proper extending south to Kandahar and west to South Persia.

There seems to be no reason why the Balkh Gerbille should not be referred to *G. erythrurus*; the skin agrees very well with those of this species in the Museum and the skull has the same extraordinarily inflated tympanic bulla so characteristic of *G. erythrurus*, and also resembles it in other respects.

<i>a.</i>	Skin and skull ♂	Shiraz, 4,720 ft.	Sir O. St. John.
<i>b.</i>	Skin	Afghanistan (Griffiths)	India Mus., London.

- c. Skin, skull ♀ Balkh, Afghan Turkes- C. E. Yate.  
tan, 4-7-86.  
d-e. 2 Stuffed, 1 Shiraz, 4,720 ft. Sir O. St. John.  
skull.  
f-g. 2 Alc. ♂ Muskaff, Beluchistan J. A. Murray.

### Gerbillus meridianus.

- Mus meridianus, *Pallas Reise*, ii, p. 702 (1773)\*.  
Mus longipes, *Pallas Nov. Sp. Quad. e Gliv.*, pp. 88, 314, pl. xviiiB (1778).  
Dipus longipes, *Schreber Säugeth.*, iv, p. 856 (1792).  
Dipus meridianus, *Pallas Zoogr. Ross. As.*, p. 182 (1831).  
Meriones meridianus, *Lichtenstein in Evers. Reise nach Buchara*, p. 122 (1823); *Radde Zool. J. B.*, iv, p. 1047.  
Rhombomys meridianus, *Wagner Schreb. Säugeth. Suppl.*, iii, p. 492 (1843).  
Meriones fulvus, *Eversmann Bull. Nat. Mosc.*, xxi, pt. 1, p. 195 (1848).  
Gerbillus brevicaudatus, *apud A. Milne Edwards, Ann. Sci. Nat.* (5), vii, p. 377 (1867).  
Gerbillus psammophilus, *Milne Edwards Rech. Mamm.*, p. 144, pl. xa, fig. 1, pl. xi, figs. 3, 4 (1868).  
Gerbillus cryptorhinus, *Blanford J. A. S. B.*, xlv, p. 108 (1875); id. *Yarkand Mamm.*, p. 56, pls. x, xv, fig. 5.  
Gerbillus meridianus, *Büchner Wiss. Result. Przewalski Reisen Rodentia*, p. 57 (1889).

*Distribution.*—The whole desert region of Central Asia from the north of Peking to Yarkand; also the country round the Caspian sea.

The above synonymy is copied from Büchner's account of Przewalski's Mammals; Büchner believes that the curious semi-circular flap over the nose which was the character chiefly relied on by Blanford in distinguishing the Yarkand species, *G. cryptorhinus*, is purely artificial and can be easily produced by immersing the fresh animal in alcohol (cf. *Lataste Actes Soc. Linn. Bordeaux*, xxxix, p. 267, 1885); he therefore identifies *G. cryptorhinus* with *M. meridianus* of Pallas.

- |                        |   |               |
|------------------------|---|---------------|
| a. Skin                | Kargalik, Yarkand                               | F. Stoliczka. |
|                        | [Type of <i>G. cryptorhinus</i> , Blanford.]    |               |
| b-e. 4 Skins, 2 skulls | Kargalik, Yarkand,                              | F. Stoliczka. |
|                        | 5-11-73.  |               |
| f. Skin                | Yarkand, 20-5-74                                | F. Stoliczka. |
| g-j. 3 Skins           | Yangihissar, Yarkand,                           | F. Stoliczka. |
|                        | 4-74.   |               |
| k. Skin                | Yarkand   | F. Stoliczka. |
| l. Alc. skull          | Yarkand   | F. Stoliczka. |
|                        | [Co-type of <i>G. cryptorhinus</i> , Blanford]. |               |
| m-n. 2 Alc.            | Turkestan                                       | C. Ellis.     |

### Gerbillus hurrianæ.

- Gerbillus hurrianæ*, *Ferdon Mamm.*, p. 186 (1867); *Blanford Persia*, p. 68; *Murray Zool. Sind*, p. 43.  
*Gerbillus erythrourus*, *apud Ferdon Mamm.*, p. 185 (1867).



*Distribution.*—Afghanistan and Baluchistan, extending eastwards into Sind and the Punjab as far as Agra.

a. Skin	Afghanistan (Griffith)	India Mus., London.
b. Skin	♀ Dasht, Baluchistan, 30-1-72.	W. T. Blanford.
c-d. 2 Skins	♀ Bahu Kalat, Baluchistan, 2-2-72.	W. T. Blanford.
e-f. 2 Skins	N. W. of Sehwan, Sind, 14-2-75.	W. T. Blanford.
g. Skin	Hissar dist., Punjab	T. C. Jerdon.
h-j. 2 Skins	Agra dist., N.-W. P.	Agra Mus.
k-l. 2 Alc. 1 skull	♂ Dasht R., Baluchistan	W. T. Blanford.
	♀	
m. Alc. skull	♂ " " "	W. T. Blanford.
n. Alc.	♂ Pishin, Baluchistan	W. T. Blanford.
o-g. 3 Alc.,	♀ Karachi	Karachi Museum.
	1 skull.	
r-s. 2 Alc.	♂ " "	Karachi Museum.
	1 skull.	
t-u. 2 Alc.	♂ ♀ " "	Karachi Museum.
v-y. 4 Alc.	♀ ♂ Khirabad nr. Attock, Punj.	A. Barclay.
	2 juv.	
z. Stuffed	Agra dist.	A. C. Carlyle (1870).
a <sup>2</sup> . Stuffed juv.	" "	Agra Mus. (1870).
b <sup>2</sup> . Skeleton	♀ Sind	W. T. Blanford.
c <sup>2</sup> -e <sup>2</sup> . 3! Alc. 1 skull	Thar and Parkar district, Sind.	J. A. Murray.
f <sup>2</sup> . Skin	Beebeenanee, Baluch.	J. A. Murray.
g <sup>2</sup> . Alc.	♀ Sibi	J. A. Murray.
h <sup>2</sup> -j <sup>2</sup> . 2 Alc.	Thar and Parkar dist., Sind.	J. A. Murray.
k <sup>2</sup> -l <sup>2</sup> . 2 Alc.	♀ ♂ Sibi	J. A. Murray.
m <sup>2</sup> . Alc.	♂ Beebeenanee	J. A. Murray.
n <sup>2</sup> -p <sup>2</sup> . 3 Alc.	Jeysulmere, Rajpt., 23-2-90.	N. Belletty.

### Gerbillus nanus.

*Dipus gerbillus*, *Blanford Abyssinia*, p. 284 (1870).

*Gerbillus nanus*, *Blanford Ann. Mag. N. H.* (4), xvi, p. 312 (1875); *id. Persia*, p. 72, pl. v, fig. 1.

*Distribution.*—Baluchistan and Abyssinia.

Mr. Thomas has kindly examined the Abyssinian specimens named by Blanford, *Dipus gerbillus* Oliv., and has pronounced them indistinguishable from *Gerbillus nanus* of Persia also discovered and named by Blanford.

a. Alc. skull Saman, Dasht, Baluchis- W. T. Blanford.  
tan.

[Type of *G. nanus*, Blanford.]

b-e. 4 Alc. & skulls Zoulla, Annesley Bay, W. T. Blanford.  
2 ♂ 2 ♀ Abyssinia.

<i>f-g.</i> 2 Skins	♂	Zoulla, Annesley Bay, Abyssinia	W. T. Blanford.
<i>h.</i> Alc.	♂	Gulistan, Afghanistan	J. A. Murray.
<i>j.</i> Alc.	♀	Muskaff, Baluchistan	J. A. Murray.

### **Gerbillus gleadowi.**

*Gerbillus gleadowi*, *Murray Ann. Mag. N. H.* (5) xvii, p. 246 (1886).

*Distribution.*—Sind and Rajputana.

The first examples of this species were collected in the Rohri District of Upper Sind; the species appears to be closely allied to *G. nanus* from which it differs chiefly in having hairy instead of naked palms and soles.

<i>a-b.</i> 2 Alc.	Rajputana	N. Belletty.
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### **Gerbillus swinhoei.**

*Gerbillus swinhoei*, *Scully Ann. Mag. N. H.* (5) viii, p. 228 (1881).

*Distribution.*—Afghanistan, between Kandahar and the Khojak Pass.

This species resembles *G. nanus* of Blanford; it seems however to be distinguished by its tail, which is much shorter, 3·1 inch, instead of 4·5 as in *G. nanus*, and by possessing a black pencil which is not present in the other species.

[No specimens in the Museum.]

### **Gerbillus pyramidarum.**

*Dipus pyramidarum*, *Et. Geoff. St. Hil. Cat. Mamm. Mus. Paris*, p. 202 (1803)\*.

*Gerbillus pyramidarum*, *F. Cuvier Trans. Zool. Soc.*, ii, p. 141, pl. xxv, fig. 6-9 (1841); *Lataste Act. Soc. Linn. Bordeaux* (4) ix, p. 260.

*Distribution.*—Egypt.

<i>a.</i> Alc., skull	♀	Heluan, Egypt	Purchased.
<i>b.</i> Alc.	juv.	„ „	Purchased.

### **Gerbillus obesus.**

*Psammomys obesus*, *Cretzschmar, Rüppell's Atlas*, p. 58, pls. xxii, xxiii, (1826); *Blyth Cat.* no. 355, p. 111.

*Gerbillus robustus*, *Loche Cat. Mamm. Ois. Alg.*, sp. 57 (1858)\*.

*Gerbillus savii*, *Loche Expl. sc. de l'Alg. Mamm.*, sp. 62 (1867)\*.

*Gerbillus elegans*, *Heuglin Reise N. O. Afrika*, ii, p. 80 (1877)\*.

*Psammomys rouderei*, *Lataste, Le Nat.*, p. 492 (1881).

*Meriones obesus*, *Lataste Act. Soc. Linn. Bordeaux* (4) ix, p. 269 (1885).

*Distribution.*—North Africa, from Algeria to Egypt and possibly southwards to Senaar and Senegal.

<i>a.</i> Stuffed	Egypt	E. Rüppell, A.S.B.
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Genus **ISOMYS**.

*Isomys*, *Sundeval Kongl. Vetens. Akad. Handl.* (1842)\*.

**Isomys variegatus.**

*Mus variegatus*, *Is. Geoff. St. Hil. Descrip. Egypt Nat. Hist.* (1813)\*  
*Schinz Synop. Mamm.*, ii, p. 157.

*Isomys variegatus*, *Sundeval Kongl. Vetens. Akad. Handl.* (1842)\*.

*Distribution.*—North-East Africa.

a. Alc. ♂ Cairo, Egypt Purchased.

Genus **NESOKIA**.

*Nesokia*, *Gray Ann. Mag. N. H.*, x, p. 265 (1842); *Type*, *N. hardwickii*.  
*Spalacomys*, *Peters Abhand. Akad. Berlin*, p. 139 (1860). *Type*, *N. hardwickii*.

The genus was first put into its present form by Anderson (J. A. S. B., xlvii, p. 214), the number of species, however, recognised by Anderson were subsequently considerably reduced by Thomas (P. Z. S., 1881, p. 521), and it is the latter author who has been followed in compiling this catalogue.

*Synopsis of Indian species.*

- a. Anterior palatine foramen shorter than the molar series; mammæ, 8; tail, about equal to body without head; head and body, 6 to 7 inches long. **N. hardwickii**, p. 53.
- a<sup>2</sup>. Anterior palatine foramen equal to the molar series and considerably narrowed posteriorly; mammæ, 14-18; head and body 7 to 8 inches long. **N. bengalensis**, p. 55.
- a<sup>3</sup>. Anterior palatine foramen as in *N. bengalensis*, but rather more open behind; mammæ, 12.
- b. Head and body about 12 inches; back with long harsh black piles. **N. bandicota**, p. 57.
- b<sup>2</sup>. Head and body 9 to 11 inches; black piles not so numerous or conspicuous. **N. nemorivagus**, p. 58.

**Nesokia hardwickii.**

*Arvicola indica*, *Gray Illustr. Ind. Zool.*, i, pl. xi (1832) [*nec Mus indicus* *Bech.*]

*Mus hardwickii*, *Gray Charlesw. Mag. N. H.*, i, p. 585 (1837); *Blyth Z. A. S. B.*, xxxiv, p. 193.

*Nesokia hardwickii*, *Gray Ann. Mag. N. H.*, x, p. 265 (1842); *Ferdon Mamm.*, p. 190; *Thomas P. Z. S.*, 1886, p. 56; *Radde Zool.*, *Z. B.*, iv, p. 1035.

- Mus huttoni*, *Blyth F. A. S. B.*, xv, p. 139 (1846).  
*Nesokia griffithii*, *Horsfield Cat. E. I. Mus.*, p. 145 (1851); *Blyth F. A. S. B.*, xxxii, p. 332.  
*Nesokia huttoni*, *Blyth F. A. S. B.*, xxxii, p. 332 (1863); *Blanford Persia*, p. 59, pl. vi, fig. 1.  
*Spalacomys indica*, *Peters Abhandl. Akad. Berlin*, p. 143, pl. ii, fig. 1, [skull] (1860).  
*Mus (Nesokia) hardwickii*, *Anderson F. A. S. B.*, xlvii, p. 221 (1878); *Thomas P. Z. S.*, 1881, p. 524; *Murray Zool. Sind*, p. 44.  
*Mus (Nesokia) huttoni*, *Anderson F. A. S. B.*, xlvii, p. 223 (1878).

*Distribution*.—The north-western part of India, extending westwards through Sind to Baluchistan, Afghanistan and Transcaspia, and eastwards as far as Purneah in Bengal.

An examination of the examples of this species in the Indian Museum shows that it is not possible to separate the two so-called species *Nesokia hardwickii* and *Nesokia huttoni* even as geographical races; of the specimens in the Museum from Sind, some have the soft fur of the typical *N. huttoni* form, some the harsh fur of *N. hardwickii*; it is perhaps possible that this character may be due to the season, and that the animal acquires the soft woolly fur in the winter and the harsh fur in the summer; in the localities where this species is found, the extremes of heat and cold are very great, and this would perhaps favour this suggestion.

a. Skin, skull	Fatehgarh, N.-W. P.	A. Anderson, 1872.
b-d. 3 Skins, 2 skulls.	Sitapur, Oudh	A. Barclay.
e. Alc., skull ♂	Shahbandar, Sind, 3-5-76.	W. T. Blanford.
f. Alc., skull ♀	Khipra, Thar dist., Sind.	W. T. Blanford.
g-j. 3 Alc. ♀	Karachi	Karachi Mus. [Ex.]
k-u. 11 Alc., 7 skulls 1 ♂ 10 ♀	Fatehgarh, N.-W. P.	A. Anderson, 1872.
v. Alc., skull ♀	Purneah, Bengal	J. Anderson.
w. Alc. ♀	Karachi	Karachi Mus.
x. Skin, skull ♂	Kalagan, Baluchistan, 12-3-72.	W. T. Blanford.
y. Skin, skull	Umballa, Pjb.	R. C. Tytler.
z. Stuffed, skull	Umballa, Pjb.	R. C. Tytler.
a <sup>2</sup> -d <sup>2</sup> . 4 Alc., 1 skull ♂ ♂ ♀ ♀	Dakka, Afghan	A. Barclay.
e <sup>2</sup> . Alc. ♀	Thal, Kurram Valley, Afghan.	A. Barclay.
f <sup>2</sup> . Alc. ♀	Hassan Abdal, Rawal- pindi, Pjb.	A. Barclay.
g <sup>2</sup> . Alc. ♀	Quetta	Sir O. St. John.
h <sup>2</sup> -m <sup>2</sup> . 5 Alc 1 skull 3 ♂ 2 ♀ juv.	Kalagan, Baluchistan	W. T. Blanford.

### *Nesokia scullyi*.

- Nesokia scullyi*, *Wood Mason, P. A. S. B.*, p. 80 (1876); *Anderson F. A. S. B.*, xlvii, p. 224; *Blanford Yarkand Mammals.*, p. 49, pl. viiia, and xa, fig. 2.

† *Nesokia brachyura*, *Büchner Result. Wiss. Przewalski Reisen, Rodentia* p. 82, pls. x, xi, fig. 1-9 (1889).

*Distribution*.—Has been found hitherto only in Kashgaria, at Sanju to the south of Yarkand.

This species is distinguished from *Nesokia hardwickii* only by its much longer hind-foot and its somewhat larger skull; another species has been recently described by Buchner (see above) as *Nesokia brachyura*; it is distinguished from *N. scullyi* and *N. hardwickii* by its size, its very short tail and its small hind-foot, notwithstanding this it is very possible that they would be found to be the same species on comparison of the types.

a. Skin, skull ♂ Sanju, E. Turkestan, J. Scully.  
11-8-75.

[Type of *N. scullyi*, Wood Mason.]

b-c. 2 Skins E. Turkestan C. Ellis.

### *Nesokia bengalensis*.

*Var. A.—typicus.*

- Arvicola bengalensis*, *Gray Illustr. Ind. Zool.*, ii, pl. xxi (1833-4).  
*Mus daccaensis*, *Tytler Ann. Mag. N. H.* (2), xiv, p. 173 (1854).  
*Mus tarayensis*, *Horsfield Ann. Mag., N. H.* (2), xvi, p. 112 (1855); *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 10.  
*Mus plurimammis*, *Horsfield Ann. Mag., N. H.* (2), xvi, p. 112 (1855); *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 10; *Blyth J. A. S. B.*, xxxiv, p. 193; *Ferdon Mamm.*, p. 196.  
*Mus morungensis*, *Horsfield Ann. Mag., N. H.* (2), xvi, p. 112 (1855); *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 10.  
*Nesokia indica*, *apud Blyth J. A. S. B.*, xxxii, p. 328 (1863); *Blyth Cat. no. 360*, p. 112; *Ferdon Mamm.*, p. 187; *Theobald P. A. S. B.*, 1866, p. 240; *Swinhoe P. Z. S.*, 1870, p. 635; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 38.  
*Mus (Nesokia) blythianus*, *Anderson J. A. S. B.*, xlvii, p. 227, pl. xiii, figs. a-d (1878).  
*Mus (Nesokia) barclayanus* *Anderson J. A. S. B.*, xlvii, p. 229, pl. xiii, figs. i-l (1878); *Blanford Yarkand Mamm.*, p. 46, pl. xa, fig. 1.  
*Mus (Nesokia) bengalensis*, *Thomas P. Z. S.*, p. 526 (1881); *Murray Zool. Sind*, p. 44; *Anderson Journ. Linn. Soc.*, xxi, p. 341.

*Var. B.—kok.*

- Mus kok*, *Gray Charlesw. Mag. N. H.*, i, p. 585 (1837) *Kelaart Prodr. Faun. Zeylan.*, p. 66.  
*Mus (Neotoma) providens*, *Elliot Madr. Journ.*, x, p. 209 (1839).  
*Mus dubius*, *Kelaart Journ. Ceylon As. Soc.*, v, p. 217 (1850).  
*Mus hardwickii*, *apud Kelaart Prodr. Faun. Zeylan.*, p. 65 (1852).  
*Mus (Nesokia) providens*, *Anderson J. A. S. B.*, xlvii, p. 225, pl. xiii, figs. e-h (1878).

The Mole Rat; Canarese, Kok; Telegu, Golatta koku; Bengali, Yenkrui.

*Distribution.*—This rat is found over the whole of India, from Kashmir and Sind in the north-west and from Cachar in the north-east southwards; it is also recorded from Ceylon and Tenasserim, and probably occurs throughout Burma.

Anderson considered that the forms from North-Western India and from Southern India and Ceylon, were both specifically distinct from the form found in Bengal and Cachar; Thomas has shewn rightly that there are no reasonable grounds for such subdivision. As, however, the southern form is considerably smaller, it has been kept separate both in the synonymy and list as a geographical race.

*Var. A.—typicus.*

a.	Skin	Srinagar, Kashmir.	F. Stoliczka.
b.	Skin, skull	" " 4-8-73	F. Stoliczka.
c.	Skin	" " 2-8-73	F. Stoliczka.
d.	Skin	" " 2-8-73	F. Stoliczka.
e.	Skin	" " 2-8-73	F. Stoliczka.
f.	Skin, skull	Agra, N.-W. P.	A. C. Carlhyle, 1870.
g.	Skin, skull	Ahmednagar, Bm.	?
h.	Skin, skull	♂ Manbhoom, 28-12-64	R. C. Beavan
j.	Skin, skull	" "	Mus. Coll., 1866.
k.	Skin, skull	♂ Calcutta, 1-6-76	O. L. Fraser.
l.	Skin, skull	" " 30-5-76	O. L. Fraser.
m.	Skin, skull	" " 7-6-76	O. L. Fraser.
n.	Skin, skull	♀ " 5-5-76	O. L. Fraser.
o.	Skin, skull	♂ " 31-5-76	O. L. Fraser.
p.	Skin, skull	Gauhāti 7-70	Mus. Coll.
q.	Skin, skull	Cachar	Mus. Coll., 1867.
r.	Skin	" "	Mus. Coll., 1867.
s.	Skin	" "	Mus. Coll., 1867.
t.	Skin	♀ Mergui 14-12-81	J. Anderson.
u.	Skin, skull	♂ " 17-12-81	J. Anderson.
v.	Skin, skull	♀ " 14-12-81	J. Anderson.
w.	Skin, skull	♂ " 14-12-81	J. Anderson.
x.	Skin	♂ " 17-12-81	J. Anderson.
y.	Skin, skull	♀ " 12-12-81	J. Anderson.
z.	Skin, skull	♂ " 13-12-81	J. Anderson.
a <sup>2</sup> .-b <sup>2</sup> .	2 Stuffed, 2 skulls.	Manbhoom	Mus. Coll.
c <sup>2</sup> .-e <sup>2</sup> .	3 Stuffed	Calcutta	E. Blyth, A.S.B.
f <sup>2</sup> .-j <sup>2</sup> .	4 Stuffed	Midnapore	E. Blyth, A.S.B.
k <sup>2</sup> .	Stuffed, skull	Botanical Gds., Calcutta, 1-69.	J. Anderson.
l <sup>2</sup> .	Stuffed, skull	Botanical Gds., Calcutta, 1-69.	J. Anderson.
m <sup>2</sup> .	Skull	Howrah, Calcutta	J. F. Simmons.
n <sup>2</sup> .	Alc. skull	♀ Khairpur, Sind	W. T. Blanford.
o <sup>2</sup> .-e <sup>3</sup> .	17 Alc., 6 skulls.	Fattehgarb, N.-W.P.	A. Anderson.
f <sup>3</sup> .	Alc.	♀ Banda Dist., N.-W.P.	J. Cockburn.
g <sup>3</sup> .-h <sup>3</sup> .	2 Alc., 2 skulls.	♀ Ghazipur, N.-W.P.	H. Whitwell.

[Types of *N. barclayana*, Anderson.]

<i>j</i> <sup>3</sup>	Alc., skull, ♂	Goona, C. I.	A. Barclay.
<i>k</i> <sup>3</sup> - <i>p</i> <sup>3</sup>	6 Alc., 2 ♂ 4 ♀	" "	A. Masters.
<i>q</i> <sup>3</sup> - <i>s</i> <sup>3</sup>	3 Alc. ♀ ♂ ♂	Sitapur Oudh	A. Barclay.
<i>t</i> <sup>3</sup>	Alc. skull ♂	Purneah	Mus. Coll. (1872)
<i>u</i> <sup>3</sup>	Alc., skull ♂	Calcutta	J. Anderson.
<i>v</i> <sup>3</sup>	Alc., skull ♂	"	E. Blyth, A.S.B.
<i>w</i> <sup>3</sup> - <i>y</i> <sup>3</sup>	3 Alc., 2 skull, ♂ ♀ ♂	"	Purchased
<i>z</i> <sup>3</sup>	Alc.	"	Mus. Coll.
<i>a</i> <sup>4</sup> - <i>j</i> <sup>4</sup>	10 Alc., 1 skull,	Zoological Gardens, Calcutta.	Babu Sanyal.
<i>k</i> <sup>4</sup>	Alc. ♀	Zoological Gardens, Calcutta.	J. Anderson.
<i>l</i> <sup>4</sup> - <i>m</i> <sup>4</sup>	2 Alc. ♂	Alipur nr. Calcutta	J. Anderson.
<i>n</i> <sup>4</sup> - <i>q</i> <sup>4</sup>	4 Alc., 2 skulls ♀ ♂ ♀ ♀	Botanical Gardens, Calcutta.	J. Anderson.
<i>r</i> <sup>4</sup> - <i>s</i> <sup>4</sup>	2 Alc. ♂	Kututangra nr. Calcutta.	Mus. Coll.
<i>t</i> <sup>4</sup>	Alc.	Bogdanga, nr. Calcutta.	Mus. Coll.
<i>u</i> <sup>4</sup> - <i>w</i> <sup>4</sup>	3 Alc., 1 skull ♂	Dacca, Bengal	N. Belletty.
<i>x</i> <sup>4</sup>	Alc. ♂	Cherrapoonjee, Assam	J. H. Bourne.
<i>y</i> <sup>4</sup>	Alc.	Silcuri, Cachar	J. Wood Mason (1881).
<i>z</i> <sup>4</sup> - <i>c</i> <sup>4</sup>	4 Alc. ♀ 3 juv.	Hailakandi, Cachar	C. H. Dreyer.
<i>d</i> <sup>5</sup>	Alc., skull ♀	Moulmein	Mus. Collector, 1872.
<i>e</i> <sup>5</sup>	Alc., skull ♂	Calcutta	Purchased.

*Var. B.—kok.*

<i>a</i> .	Skin, skull ♀	Nilgiri hills	R. H. Beddome.
<i>b-c</i> .	2 Stuffed 2 skulls.	South India	Sir W. Elliot (1842), A.S.B.
<i>d-j</i> .	6 Alc. 3 ♂ 3 ♀	Madras	G. Bidie.
<i>k-m</i> .	3 Alc.	Madras Pres.	G. Bidie.
<i>n</i> .	Alc., skull juv.	Trichinopoly	R. H. Beddome.
<i>o</i> .	Alc. skull ♂	Nilgiris	R. H. Beddome.
<i>p</i> .	Stuffed, skull	Ceylon	E. F. Kelaart (1855), A.S.B.

**Nesokia bandicota.**

*Mus bandicota*, *Bechstein Allgem. Uebers. der vierfüssige Thiere*, ii, p. 713, (1800)\*; *Blyth J. A. S. B.*, xx, p. 167; *Horsfield Cat. E. I. Mus.*, p. 140; *Blyth J. A. S. B.*, xxxii, p. 333; id. *Cat.*, no. 359, p. 112; *Adams, P. Z. S.*, 1858, p. 520; *Ferdon Mamm.*, p. 193.

*Mus indicus*, *Bechstein Allgem. Uebers. der vierfüssige Thiere*, ii, p. 714 (1800)\* [*nec Geoff.*]

*Mus malabaricus*, *Shaw Genl. Zool.*, ii, pt. 1, p. 54 (1801).

*Mus perchal*, *Shaw Genl. Zool.*, ii, pt. 1, p. 54 (1801).

*Mus giganteus*, *Hardwicke Linn. Trans.*, vii, p. 306, pl. xviii (1804); *Sykes P. Z. S.*, 1831, p. 103; *Gray P. Z. S.*, 1832, p. 40; *Kelaart Prod. Faun. Zeylan.*, p. 58.

*Mus (Neotoma) giganteus* *Elliot, Madras Journ.*, x, p. 209 (1839).

*Mus (Nesokia) giganteus*, *Anderson J. A. S. B.*, xlvii, p. 232, pl. xiv, figs. a-d (1878).

*Mus (Nesokia) bandicota*, *Thomas, P. Z. S.*, p. 528 (1881); *Murray Zool. Sind*, p. 45; *Thomas P. Z. S.*, 1886, p. 56.

The Bandicoot or Pig Rat; Sanscrit, Indur; Hind., Ghous or Ghus; Canarese, Heggim; Telegu, Pandikoku; Singalese, Oora Meeyo.

*Distribution.*—This rat is apparently restricted to the Indian peninsula strictly speaking (*i.e.*, south of the great alluvial plains); it also occurs commonly in Ceylon; it has frequently been reported from Calcutta, but on investigation it is usually found to be the large *Mus decumanus* or perhaps the rarer *Nesokia nemorivagus* that has been mistaken for the true bandicoot.

a.	Skin	♀	Bradachellum S. of, W. T. Blanford.	
			Godavery dist. 7-2-71.	
b.	Skin		Ceylon (J. Mortimer, Columbo Mus.	
			29-10-81).	
c.	Skin	juv.	Ceylon	E. F. Kelaart, A.S.B.
d-e.	2 Stuffed,	1	Manhoom	Mus. Coll., 1886.
	skull.			
f-g.	2 Stuffed,	1	Ceylon	E. F. Kelaart, A.S.B.
	skull.			
h.	Alc.	juv.	Goona, C. I.	A. Barclay.
j.	Alc., skull	♂	" "	A. Barclay.
k-n.	4 Alc	♂	Madras	G. Bidie.
o-p.	2 Alc.	♀	"	G. Bidie.
q-t.	4 Alc.	juv.	"	G. Bidie.
u.	Alc.	♂	.....	Zoological Gardens.
v-x.	3 Skulls	♂	Goona	A. Barclay.
y-z.	2 Skulls	♀	"	A. Barclay.

### *Nesokia nemorivagus.*

*Mus nemorivagus*, *Hodgson* *ŷ. A. S. B.*, v, p. 234 (1836); *id. Ann. Mag. N. H.*, xv, p. 266; *Horsfield Cat. E. I. Mus.*, p. 141.

*Mus setifer*, *Horsfield Zool. Res.*, with plate (1824); *id. Cat. E. I. Mus.*, p. 142.

*Mus macropus*, *Hodgson Ann. Mag. N. H.*, xv, p. 268 [juv.] (1845).

*Mus bandicota*, *apud Cantor* *ŷ. A. S. B.*, xv, p. 253 (1846); *Blyth* *ŷ. A. S. B.*, xlv, *Burma List*, p. 39; *Swinhoe P. Z. S.*, 1870, p. 635.

*Nesokia hydrophila*, *apud Gray Cat. Hodgs. Coll.*, 1st ed., p. 19; [*nec Hodgs.*] 1847.

*Mus (Nesokia) elliotanus*, *Anderson* *ŷ. A. S. B.*, xlvii, p. 231, pl. xiv, figs. e-h (1878).

*Mus (Nesokia) nemorivagus*, *Thomas P. Z. S.*, p. 528 (1881).

*Distribution.*—This form seems to replace *Nesokia bandicota* in Nepal, Sikkim, Bengal and Assam; it is also recorded from Formosa, and probably extends through Burma to the Malay Peninsula and some of the islands.

a.	Alc. skull	♂	Purneah, 28-5-72	J. Anderson.
b.	Alc. skull	♀	juv. " "	J. Anderson.
c.	Alc. skull	♂	Alipur nr. Calcutta	J. Anderson.

[The above three are co-types of *Mus (Nesokia) elliotanus*, Anderson.]

d.	Alc. skull	♂	Sibsagar, Assam	S. E. Peal.
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**Nesokia sp ?**

Nesokia sp ? *Anderson* *J. A. S. B.*, xlvii, p. 225 (1878).

*Distribution.*—Muscat.

a. Alc. skull ♀ juv. Muscat, Persian Gulf, J. E. T. Aitchison.  
6-4-72.

**Genus MUS.**

Mus, *Linnaeus Syst. Nat.*, 12th ed., i, p. 79 (1766).

In the following account of the Indian rats and mice Thomas' paper (*P. Z. S.*, 1881) has been followed with such additions as are necessary to include the few Assamese and Burmese forms not found in India proper. The key is also founded on Thomas' key.

*Key of the Indian Species.*

- a. Hind-foot with six well defined foot-pads.
- b. Large four to nine inches in length, except *M. erythrois*; proximal hind-foot pad elongated.
- c. Whole tail covered with short hairs, upper side of tail dark; mammæ 8 to 12 in number.
- d. Tail dark above and below.
- e<sup>1</sup>. Tail shorter than the head and body; 10 to 12 mammæ; hind-foot 1.5 to 1.7 in. ***M. decumanus***, p. 61.
- e<sup>2</sup>. Tail longer than the head and body.
- f. Anterior edge of zygoma-root with a rounded angle above; 10 to 12 mammæ.
- g. Large, head and body about 9 inches. ***M. bowersii***, p. 62.
- g<sup>2</sup>. Medium, head and body from 5 to 8 inches; hind-foot, 1.2 to 1.4 in. ***M. rattus* and its allies**, p. 62.
- g<sup>3</sup>. Small, head and body between 4 and 5 inches; hind-foot, .90 in. ***M. concolor***, p. 68.
- f<sup>2</sup>. Anterior edge of zygoma-root nearly perpendicular; hind-foot .95 to 1.05. ***M. fulvescens***, p. 69.
- d<sup>2</sup>. Tail sharply bicolor, dark above, white below; mammæ 8 in number.

- h*. Back rufous; tail much longer than the head and body; hind-foot; 1'0 to 1'15. **M. jerdoni**, p. 69.
- h*<sup>2</sup>. Back yellowish grey; tail as long as head and body; hind-foot, 1'c. **M. niviventer**, p. 70.
- h*<sup>3</sup>. Back grizzled grey; rufous on rump; tail shorter than the head and body; ears tufted; hind-foot, about 1'0. **M. humei**, p. 70.
- h*<sup>4</sup>. Like *M. humei* but smaller, with tail longer than the head and body; head and body 2'85 inches; hind-foot, '68. **M. erythrotis**, p. 70.
- c*<sup>2</sup>. Distal third of tail pure white, with longer hairs.
- j*. Proximal part of tail unicolorous; six mammæ; hind-foot, 1'2; tail longer than the head and body. **M. blanfordi**, p. 70.
- j*<sup>2</sup>. Proximal part of tail bicolor; hind-foot, 1'45; tail shorter than the head and body. **M. berdmorei**, p. 71.
- b*<sup>2</sup>. Small 2 to 4 inches in length; last hind-foot pad circular.
- k*. Anterior edge of zygoma root perpendicular or rounded.
- l*. Ten mammæ.
- m*. Tail as long as or longer than the head and body.
- n*. Below dark, like the back; zygomatic arches arched normally; hind-foot, '62 to '70. **M. urbanus**, p. 71.
- n*<sup>2</sup>. Below dark like the back; zygomatic arches incurved; hind-foot, '83. **M. sublimis**, p. 73.
- n*<sup>3</sup>. Below white; zygomatic arches normal; hind-foot, '65 to '75. **M. bactrianus**, p. 74.
- m*<sup>2</sup>. Tail shorter than the head and body. **M. cervicolor**, p. 75.
- l*<sup>2</sup>. Six mammæ; tail about as long as the head and body; hind-foot, '82 to '88. **M. arianus**, p. 75.
- k*<sup>2</sup>. Anterior edge of zygoma-root slanting forwards; tail rather longer than the head and body; hind-foot '75 to '80. **M. nitulidus**, p. 76.
- a*<sup>3</sup>. Hind-foot with only 4 or 5 properly developed foot-pads.

*o.* Larger, head and body, 4 to 5 inches; hind-foot, 1·0; generally five pads on hind foot; mammæ 8 in number.

**M. mettada**, p. 76.

*o.*<sup>3</sup> Smaller, head and body, 3 to 4 inches; hind-foot 70; generally four pads on hind-foot; mammæ 6 in number.

**M. gleadowi**, p. 77.

### Mus. decumanus.

*Mus decumanus*, *Pallas Nov. Spec. Quad. e Glir.*, p. 91 (1778); *Elliot Madr. Journ.*, x, p. 212; *Cantor F. A. S. B.*, xv, p. 254; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 17; *Horsfield Cat. E. I. Mus.*, p. 140; *Kelaart Prodr. Faun. Zeylan.*, p. 59; *Blyth F. A. S. B.*, xxxii, p. 335; *id. Cat. no. 361*, p. 113; *Ferdon Mamm.*, p. 195; *Stoliczka, F. A. S. B.*, xli, p. 228; *Blanford Persia*, p. 53; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 39; *Thomas P. Z. S.*, 1881, p. 532; *Murray Zool. Sind*, p. 46; *Radde Zool. F. B.*, iv, p. 1033.

*Mus decumanoides*, *Hodgson, F. A. S. B.*, x, p. 915 (1841) [pt.]

*Mus brunneus*, *Hodgson Ann. Mag. N. H.*, xv, p. 266 (1845); *Horsfield Cat. E. I. Mus.*, p. 142; *Blyth F. A. S. B.*, xxxiv, p. 193; *Ferdon, Mamm.*, p. 198. [pt.]

The Norway or Brown Rat; Canarese, Manei ilei; Hind., Choocha or Ghurka chooha; Malay, Tikus; Singalese, Gaval Meeyo; Bengalee, Demsa indur.

*Distribution.*—This almost universally distributed rat has not apparently made its way very far from the coast as yet. With the exception of some from Samagooting in Assam, and the identification of these seems a little doubtful, all our specimens are from sea coast towns

<i>a.</i> Skin	♂	Bushire, Persian Gulf	W. T. Blanford.
<i>b.</i> Skin, skull	♂	Calcutta, 3-6-76	O. L. Fraser.
<i>c.</i> Skin, skull	♀	" 8-5-76	O. L. Fraser.
<i>d-f.</i> 3 Skins, skulls	♀ ♀ ♂	" "	O. L. Fraser.
<i>g-j.</i> 3 Skins, 2 skulls.	♂	Samagooting, Assam	J. Butler, 1872.
<i>k.</i> Alc.	♀	Gwadar, Baluchistan	W. T. Blanford.
<i>l.</i> Alc., skull	♀	Karachi	Karachi Mus.
<i>m.</i> Alc.	♂	Sind	Karachi Mus.
<i>n.</i> Alc.	♂	Sind	J. A. Murray.
<i>o.</i> Alc.	♂	Karachi	J. A. Murray.
<i>p.</i> Alc.	♀	.....	Karachi Mus.
<i>q.</i> Alc., skull	♂	Kyd Street, Calcutta	O. L. Fraser.
<i>r.</i> Alc., skull	♂	Wood Street, Calcutta	J. Waterhouse.
<i>s.</i> Alc.	♂ juv.	Park Street, Calcutta	J. Wood Mason, 1870.
<i>t.</i> Alc., skull	♂	Calcutta	J. Anderson.
<i>u.</i> Alc.	juv.	"	J. Anderson.
<i>v.</i> Alc., skull	♀	"	O. L. Fraser.
<i>w.</i> Alc., skull	♂	"	Purchased.
<i>x.</i> Alc.	♀	"	Purchased.
<i>y.</i> Alc., skull	♀	"	Purchased.

<i>a.</i> Alc.	♀	Calcutta	Purchased.
<i>a</i> <sup>2</sup> . Alc.	♂	Zoological Gardens Calcutta.	J. Anderson.
<i>b</i> <sup>2</sup> . Alc.	♀	" "	J. Anderson.
<i>c</i> <sup>2</sup> . Alc.	♀	Calcutta	J. Anderson.
<i>d</i> <sup>2</sup> . Alc.	juv.	[with distorted teeth]	J. Morgan (1862), A.S.B.
<i>e</i> <sup>2</sup> - <i>f</i> <sup>2</sup> . Alc.,	2 skulls.	Madras	Madras Mus.
<i>g</i> <sup>2</sup> . Alc., skull	♂	Andaman Isles	G. E. Dobson.
<i>h</i> <sup>2</sup> - <i>j</i> <sup>2</sup> . Alc.	♂	London	A. D. Bartlett.
	1 skull.		
<i>k</i> <sup>2</sup> - <i>m</i> <sup>2</sup> . Alc.	♀	London	A. D. Bartlett.
	1 skull.		
<i>n</i> <sup>2</sup> - <i>p</i> <sup>2</sup> . Alc.	♂	Calcutta	E. Blyth, A.S.B.
	2 juv.		
<i>q</i> <sup>2</sup> . Stuffed	♂	"	E. Blyth, A.S.B.
<i>r</i> <sup>2</sup> . Stuffed	♂	"	W. Rutledge, 1870.
	[albino].		
<i>s</i> <sup>2</sup> . Stuffed skull		"	Mus. Coll., 1873.
	[albino].		
<i>t</i> <sup>2</sup> - <i>u</i> <sup>2</sup> . Alc.	♂	Andaman Isles	R. C. Tytler, 1874.
	1 skull		
[Types of <i>Mus tytleri</i> , Tytler.]			
<i>v</i> <sup>2</sup> . Stuffed		China	R. Swinhoe, A.S.B.
<i>w</i> <sup>2</sup> . Skull		.....	A.S.B.
<i>x</i> <sup>2</sup> - <i>y</i> <sup>2</sup> . Alc.	♂ juv.	Andamans	J. Anderson, 1867.
<i>z</i> <sup>2</sup> . Skelet. mtd.		.....	No history, A.S.B.
<i>a</i> <sup>3</sup> . Skin		Deccan (Sykes)	India Mus., London.
<i>b</i> <sup>3</sup> . Alc.	♀	Kobe, Japan, 3-7-84	J. Anderson.
<i>c</i> <sup>3</sup> - <i>d</i> <sup>3</sup> . Alc.	♀ ♂	Yezo, Japan, 9-84	J. Anderson.
<i>e</i> <sup>3</sup> . Alc.	juv.	Kiga, Japan, 5-84	J. Anderson.

### *Mus bowersii*.

*Mus bowersii*, *Anderson Anat. Zool. Res.*, p. 304, pl. xvii (1878); *Thomas P. Z. S.*, 1886, p. 62.

*Distribution*.—Kakhyen hills near Bhamo in Upper Burma, also recorded from Munipur by Thomas.

*a.* Alc., skull ♀ Hotha, Kakhyen hills J. Anderson.

[Type of *Mus bowersii*, Anderson.]

### *Mus rattus*.

*Var. A—typicus*.

*Mus rattus*, *Linnaeus Syst. Nat.* 12th ed., i, p. 83 (1766); *Elliot Madras Journal*, x, p. 212; *Kelaart Prodr. Faun. Zeylan.*, p. 58; *Blyth J. A. S. B.*, xxxii, p. 338; *id. Cat.* no. 362, p. 113; *Ferdon Mamm.*, p. 194; *Blanford Persia*, p. 53.

*Var. B—alexandrinus*.

*Mus alexandrinus*, *Is. Geoff. St. Hil. Descript. de l'Egypte Hist. Nat.*, ii.

- p. 733, *Atlas*, pl. v, fig. 1 (1812); *Scully P. Z. S.*, 1881, p. 204; *Thomas P. Z. S.*, 1881, p. 533; *Murray Zool. Sind*, p. 46.  
 Mus asiaticus, *Gray Charlesw. Mag. N. H.*, i, p. 585 (1837); *Blyth F. A. S. B.*, xxxiv, p. 193.  
 Mus arboreus, *Horsfield Cat. E. I. Mus.*, p. 141 (1851).  
 ? Mus crassipes, *Blyth F. A. S. B.*, xxviii, p. 295 (1859); *Ferdon Mamm.* p. 204.

#### Var. C—nitidus.

- Mus nitidus, *Hodgson Ann. Mag. N. H.*, xv, p. 267 (1845); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 18; *Blyth F. A. S. B.*, xxxii, p. 343; *id. Cat.* no. 368, p. 116; *Ferdon Mamm.*, p. 201.  
 Mus pyctoris, *Hodgson Ann. Mag. N. H.*, xv, p. 267 (1845); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 17.  
 ? Mus rattoides, *Hodgson Ann. Mag. N. H.*, xv, p. 267 (1845).  
 Mus horeites, *Hodgson Ann. Mag. N. H.*, xv, p. 268 (1845).  
 Mus aequicaudalis, *Hodgson Ann. Mag. N. H.* (2) iii, p. 203 (1849); *Horsfield Cat. E. I. Mus.*, p. 144; *Gray Cat. Hodgs. Coll.*, 2nd. ed., p. 10.  
 Mus alexandrinus nitidus, *Thomas P. Z. S.*, p. 533 (1881).

#### Var. D—rufescens.

- Mus indicus, *Desmarest Mamm.*, ii, p. 299 (1822) [*nec Bechstein*].  
 Mus rufescens, *Gray Charlesw. Mag. N. H.*, i, p. 585 (1837); *Cantor F. A. S. B.*, xv, p. 254; *Blyth F. A. S. B.*, xx, p. 168; *id. F. A. S. B.*, xxxii, p. 340; *id. Cat.* no. 367, p. 115; *Ferdon Mamm.*, p. 199; *Anderson F. Linn. Soc.*, xxi, p. 340.  
 Mus flavescens, *Elliot Madras Journ.*, x, p. 214 (1839); [*nec Waterhouse*] *Kelaart Prodr. Faun. Zeylan.*, p. 61; *Horsfield Cat. E. I. Mus.*, p. 142.  
 Mus decumanoides, *Hodgson F. A. S. B.*, x, p. 915 (1841) [pt.]  
 Mus brunneusculus, *Hodgson Ann. Mag. N. H.*, xv, p. 267 (1845); *Horsfield Cat. E. I. Mus.*, p. 143.  
 Mus nemoralis, *Blyth F. A. S. B.*, xx, p. 168 (1851); *Kelaart Prodr. Faun. Zeylan.*, p. 63; *Blyth F. A. S. B.*, xxxii, p. 340; *id. F. A. S. B.*, xxxiv, p. 193.  
 Mus tetragonurus, *Kelaart Journ. Ceylon As. Soc.*, v, p. 217 (1850).  
 Mus kandianus, *Kelaart Journ. Ceylon As. Soc.*, v, p. 212 (1850); *Blyth F. A. S. B.*, xx, p. 169.  
 Mus ceylonus, *Kelaart Journ. Ceylon As. Soc.*, v, p. 213 (1850); *id. Prodr. Faun. Zeylan.*, p. 61.  
 Mus robustulus, *Blyth F. A. S. B.*, xxviii, p. 294 (1859); *id. F. A. S. B.*, xxxii, p. 342; *id. Cat.* no. 364, p. 114; *Theobald P. A. S. B.*, 1866, p. 240; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 39; *Blanford F. A. S. B.*, xlvii, p. 165.  
 ? Mus infralineatus, *Elliot, Blyth F. A. S. B.*, xxxii, p. 348 (1863); *id. Cat.* no. 371, p. 116.  
 Mus sladeni, *Anderson Anat. Zool. Res.*, p. 305 (1878).  
 Mus yunnanensis, *Anderson Anat. Zool. Res.*, p. 306 (1878).  
 Mus alexandrinus rufescens, *Thomas, P. Z. S.*, p. 533 (1881).  
 Mus rattus rufescens, *Thomas P. Z. S.*, pp. 57, 71 (1886).

#### Var. E—andamanensis.

- Mus andamanensis, *Blyth F. A. S. B.*, xxix, p. 103 (1860); *id. F. A. S. B.*, xxxii, p. 340; *id. Cat.* no. 363, p. 114.  
 ? Mus palmarum, *Zebeor Säugeth. Novara Reise*, p. 26 (1868).

The Black Rat or Tree Rat ; Bengalee, Gachua indur ; Singalese, Ghasmeeyo.

*Distribution.*—The typical Black Rat is found all over Northern Europe and Western Asia ; it has been, however, almost entirely displaced by the Brown Rat (*Mus decumanus*) in England and on those parts of the continent which are within easy access of the sea ; it is also found in most of the seaport towns all over the world, but here also the Brown Rat struggles for existence with it.

The Alexandrine Rat (*Mus rattus alexandrinus*) is merely a southern variety of the Black Rat, distinguished by its softer and reddish or greyish fur, and usually by its white belly ; it is found in southern Europe, Egypt and Palestine and specimens identical with it have been got from Gilgit.

The Tree Rat (*Mus rattus rufescens*) is a smaller variety of the Alexandrine Rat and is spread all over India, Ceylon, Assam and Burma, extending as far south as Mergui at any rate.

The Hill Rat (*Mus rattus nitidus*) is a rather short-tailed variety which is found in Nepal and Sikkim only.

The Andamanese variety of *Mus rattus* is distinguished from the ordinary *Mus rattus rufescens* of India by its spiny fur, a character which has been shown by Thomas not to be of even specific value, and also by its slightly larger size as is shown by the following measurements taken from the two original skins:—head and body : 7·10 to 7·30 ; tail, 6·65 ; hind-foot, 1·40 ; a typical *Mus rattus rufescens* measures, head and body, 5·70 ; tail, 6·70 ; hind-foot, 1·20.

No distinction except that of size can be found between the skulls of the several varieties of *Mus rattus*, and it is often difficult without a knowledge of the locality to say to which variety a particular individual of this species should be referred so much do they run into one another.

*Var. A.—typicus.*

a. Skin	♂	Resht on Caspian sea	Sir O. St. John.
b. Skin	♀	" "	Sir O. St. John.
c. Skin	♂	" "	Sir O. St. John.
d. Skin		England	Oxford Mus. Ex.
e. Skin		"	Oxford Mus. Ex.
f. Skin		"	Oxford Mus. Ex.
g-h. 2 Stuffed		From a ship in the Hooghly.	Capt. Godfrey, A.S.B.
j-l. 3 Stuffed		France	A. Malherbe (1849), A.S.B.

*Var. B.—alexandrinus.*

a. Skin, skull		Gilgit	4-78	J. Biddulph.
b. Skin, skull		Chitral	5,000 ft., 23-10-85	G. M. Giles.
c. Skin	♂	Gilgit,	17-4-79	J. Scully.
d. Skin, skull	♂	"	10-5-79	J. Scully.
e. Skin	♂	"	15-8-79	J. Scully.

f. Skin	♂	Gilgit, 9-11-79	J. Scully.
g. Skin	♀	" 16-4-79	J. Scully.
h. Skin	♀	" 8-4-79	J. Scully.
j. Skin	juv.	" 15-8-79	J. Scully.
k-o. 5 Alc.	1 skull	Galari, Alexandria	J. Hand.
p. Alc.		Dead Sea, Palestine (Tristram).	Brit. Mus. [Ex.]
q. Alc.		Kashmir	Brit. Mus. [Ex.]
r. Alc.	♀	Gilgit	J. Scully.
s. Alc. juv.	♂	"	J. Scully.
t. Skin juv.	♂	"	J. Scully.

*Var C.—rufescens.*

a. Skin, skull		Agra.	A. C. Carlyle.
b. Skin, skull		Khandala, Bm.	Mus. Coll.
c, d. 2 Skins,		Chanda, C. P., 16-12-69	W. T. Blanford.
1 skull.			
e. Skin	♂	" " 18-12-69	W. T. Blanford.
f. Skin	♂	nr. Chanda, C. P., 20-1-70	W. T. Blanford.
g. Skin, skull		nr. Chanda, C. P., 23-1-70	W. T. Blanford.
h. Skin, skull		Singhbhoom	V. Ball, 1868.
j, k. 2 Skins		Manbhoom, 1-65	R. C. Beavan
l-o. 4 Skins,		Manbhoom	Mus. Coll., 1866.
2 skulls.			
p. Skin, skull		Gauhati, Assam, 7-70	Mus. Coll.
q. Skin.		Munipur	R. D. Oldham,
r-s. 2 Skins,		Naga hills	A. W. Chennell.
1 skull.			
t. Skin, skull		" "	H. H. Godwin Austen.
u. Skin, skull	♂	Mergui, 13-12-81	J. Anderson.
v. Skin	♀	" 19-12-81	J. Anderson.
w. Skin		" 6-2-80	J. Anderson.
x. Skin		" 16-2-82	J. Anderson.
y. Skin		" 6-2-82	J. Anderson.
z-a <sup>2</sup> . 2 Alc.,	♂	Rajanpur Pjb.	E. Saunders.
2 skulls.			
b <sup>2</sup> -c <sup>2</sup> . 2 Alc.	♀	" "	E. Saunders.
d <sup>2</sup> -e <sup>2</sup> . 2 Alc.,	♂	Karachi	Karachi Mus. [Ex.]
1 skull			
f <sup>2</sup> . Alc.	♂	Sind	Karachi Mus. [Ex.]
g <sup>2</sup> . Alc. ♂ juv.		"	Karachi Mus. [Ex.]
h <sup>2</sup> -l <sup>2</sup> . 4 Alc.,		Fattehgarh, N.-W. P.	A. Anderson.
3 skulls	♂		
m <sup>2</sup> -t <sup>2</sup> . 8 Alc.,		" "	A. Anderson.
2 skulls	♀		
u <sup>2</sup> . Alc., skull	♂	Ghazipur	H. Whitwell.
v <sup>2</sup> . Alc.	♀	Sitapur, Oude	A. Barclay.
w <sup>2</sup> -z <sup>2</sup> . 4 Alc.,	♂	Benares, 1-71	Mus. Coll.
2 skulls.			
a <sup>3</sup> . Alc., skull	♀	Chanda, C. P., 1867	Mus. Coll.
b <sup>3</sup> -c <sup>3</sup> . 2 Alc.	♂ ♀	Goona, C. l.	A. Masters.
d <sup>3</sup> -g <sup>3</sup> . 4 Alc.	♀ 3 ♂	Poona dist., Bm.	G. W. Vidal.
h <sup>3</sup> -k <sup>3</sup> . 3 Alc.,	♂ ♀ ♀	Madras	Madras Mus. [Ex.]
3 skulls.			
l <sup>3</sup> -o <sup>3</sup> . 4 Alc.	♂	"	G. Bidie.

$p^3$ .	Alc.	♀	Madras	G. Bidie.
$q^3$ .	Alc.	♂ juv.	"	G. Bidie.
$r^2-l^3$ .	3 Alc.	♂ ♀ ♂	"	G. Bidie.
$w^3-w^3$ .	3 Alc.	♂ ♀ ♀	Ceylon	J. Anderson.
		3 skulls.		
$x^3-a^4$ .	4 Alc.	4 skulls	Nepal	Mus. Coll.
$b^4-c^4$ .	2 Alc.	1 skull	Calcutta	E. Blyth, A.S.B.
		♀ & juv.		
$d^4-e^4$ .	2 Alc.	♀	"	J. Anderson.
		1 skull.		
$f^4-j^4$ .	4 Alc.	♂	"	Purchased.
		1 skull.		
$k^4-l^4$ .	2 Alc.	♀	Wood St., Calcutta	J. Waterhouse.
$m^4$ .	Alc., skull	♀	Kyd St., Calcutta	Mus. Coll.
$n^4$ .	Alc.	♀	Dhappa, Calcutta, 1-81	Mus. Coll.
$o^4$ .	Alc.	♂	"	R. deCruz.
$p^4-r^4$ .	3 Alc.,		Botanical Gardens,	J. Anderson.
		1 skull juv.	Calcutta.	
$s^2-t^4$ .	2 Alc.,	♂	Zoological Gardens,	J. Anderson.
		1 skull.	Calcutta.	
$u^4-v^4$ .	2 Alc.	♀	Zoological Gardens,	J. Anderson.
			Calcutta.	
$w^4$ .	Alc.	♂ juv.	Zoological Gardens,	J. Anderson.
			Calcutta.	
$x^4-y^4$ .	2 Alc.,		Samagooting, Assam	J. Butler.
		1 skull ♂ ♀		
$a^4$ .	Alc., skull	♀	Narainpur	"
$a^5$ .	Alc., skull	♀	Kashia Hills	"
$b^5$ .	2 Alc.,	♀	Cherrapoonjee	"
		1 skull.		
$c^5-d^5$ .	Alc.	juv.	"	"
$e^5$ .	5 Alc.	juv.	"	"
$f^5$ .	Alc., skull	♂	Pegu	"
$g^5$ .	Alc., skull,	♂	Lower Pegu	"
$h^5$ .	Alc., skull,	♂	Shwegyin, Tenasse-	"
			rim.	"

[Type of *Mus robustulus*, Blyth.]

$j^5$ .	Alc.	♀ juv.	Shwegyin, Tenasserim	rim.	Major Berdmore.
$k^5-m^5$ .	3 Alc.,	♀	"	"	Major Berdmore.
		2 skulls.			
$n^5$ .	Alc.	♀	Taing, Mergui		J. Anderson.
$o^5$ .	Alc.	♂	Hotha, Yunan		J. Anderson.
$p^5-r^5$ .	3 Alc.,	♀	Hotha, Yunan		J. Anderson.
		1 skull.			
$s^5-v^5$ .	4 Alc.	♀ juv.	Hotha, Yunan		J. Anderson.
		2 skulls.			

[The above eight specimens are types of *Mus sladeni*, Anderson.]

$w^5$ .	Alc., skull	♂	Momein, Yunnan		J. Anderson.
$x^5-y^5$ .	2 Alc.,	♂ ♀	Hotha, Yunnan		J. Anderson.
		1 skull			

[The above three are types of *Mus yunnanensis*, Anderson.]

$a^5$	Stuffed,	♂	nr. Chanda, C. P.		W. T. Blanford.
	skull,				



a <sup>6</sup> . Stuffed skull	Singhbhoom	Mus. Coll., 1869.
b <sup>6</sup> -c <sup>6</sup> . 2 Stuffed, 2 skulls.	Manbhoom	Mus. Coll.
d <sup>6</sup> -e <sup>6</sup> . 2 Stuffed	nr. Calcutta	E. Blyth, A.S.B.
f <sup>6</sup> . Stuffed	"	India Mus., London.
g <sup>6</sup> -j <sup>6</sup> . 5 Stuffed	"	E. Blyth, A.S.B.
m <sup>6</sup> -p <sup>6</sup> . 4 Stuffed	.....	No history, A.S.B.
q <sup>6</sup> -r <sup>6</sup> . 2 Stuffed	Ceylon	E. F. Kelaart (1851), A.S.B.
	[Types of <i>Mus. nemoralis</i> ,	Blyth.]
s <sup>6</sup> . Stuffed, skull.	Trincomali, Ceylon	E. F. Kelaart (1851), A.S.B.
t <sup>6</sup> . Stuffed, skull.	Newera Elia, Ceylon, (1851)	E. F. Kelaart (1885), A.S.B.
u <sup>6</sup> -x <sup>6</sup> . 4 Stuffed	Shwegyin, Tenasse- rim.	Major Berdmore, A.S.B.
y <sup>6</sup> -z <sup>6</sup> . 2 Skins 1 skull.	Manbhoom	Mus. Coll., 1866.
a <sup>7</sup> . Skin, skull	Malacca	Rev. F. Lindstedt, A.S.B.
b <sup>7</sup> . Skin	Pinang (Cantor)	India Mus., London.
c <sup>7</sup> . Skin, skull	South India	Sir W. Elliot (1841), A.S.B.
	[? Type of <i>Mus. infralineatus</i> ,	Elliot MSS.]
d <sup>7</sup> -f <sup>7</sup> . 3 Alc. ♂ ♀	? Newera Elia, Ceylon	E. F. Kelaart (1851).
g <sup>7</sup> . Alc. juv.	Jeysulmere, Rjpt.	N. Belletty.

*Var. D.—nitidus.*

a. Alc., skull ♀	Nepal	Mus. Coll.
b. Alc., skull ♂	"	Mus. Coll.
c. Alc., skull ♂	"	Mus. Coll.
d. Alc., skull ♂	Darjeeling, 22-1-72	J. Gammie.
e-f. 2 Alc., ♂	"	G. King.
g-j. 3 Alc., ♀	"	G. King.
k. Alc., juv.	"	G. King.
l-m. 2 Alc., ♂	Rungbee, Darjeeling	G. King.
n-o. 2 Alc. ♀	"	G. King.
p-r. 3 Alc. ♀	"	G. King.
s. Alc. ♂	"	G. King.
t-u. 2 Alc., ♀	"	G. King.
v-y. 4 Alc. ♂ juv.	"	G. King.
z-c <sup>2</sup> . 4 Alc. ♀ juv.	"	G. King.
d <sup>2</sup> . Alc. ♂	"	G. King.
e <sup>2</sup> -f <sup>2</sup> . 2 Alc., ♂ ♀	Sibsagar, Assam	S. E. Peal.
g <sup>2</sup> -h <sup>2</sup> . 2 Alc. juv.	"	S. E. Peal.
j <sup>2</sup> . Alc., skull ♂	Munipur	R. D. Oldham.
k <sup>2</sup> . Alc., skull ♂	Ling Ling, Bt. Sikkim.	T. Johnston.
l <sup>2</sup> -m <sup>2</sup> . 2 Stuffed	Darjeeling	W. S. Sherwill, A.S.B.
n <sup>2</sup> -r <sup>2</sup> . 5 Stuffed	"	T. C. Jerdon, A.S.B.

s <sup>2</sup> . Alc., skull ♂	Ling Ling, Bt. Sikkim	T. Johnston.
juv.		
t <sup>2</sup> -q <sup>2</sup> . 2 Skins	Landour, nr. Mussoorie	L. C. Stewart, A.S.B.
w <sup>2</sup> -x <sup>2</sup> . 2 Alc. ♂ ♀	Darjeeling	W. G. Masson.
2 skull.		

*Var. E.—andamanensis.*

a-b. 2 Skin, skull	Andamans	Capt. Hodge (1860), A.S.B
	[Types of <i>Mus andamanensis</i> , Blyth.]	
c. Alc., head only	Andamans	B. Smith (1863).
d-e. 2 Alc., ♀	Andamans	G. E. Dobson.
2 skulls.		
f-h. 3 Alc., ♂ ♂ ♀	Barren Island, Bay of Bengal.	F. R. Mallet.
1 skull.		
j-k. 2 Alc., ♂ ♀	South Brother, Andamans.	T. Cadell.
1 skull.		

**Mus rubricosa.**

*Mus rubricosa*, *Anderson Anat. Zool. Res.*, p. 306 (1878).

*Distribution.*—Kakhyen hills of Upper Burma.

This species is closely allied to *M. rattus nitidus*; it seems to be distinguished only by its very dark ventral surface; whether this is a constant character or not, can only be proved by further specimens.

a. Alc. skull ♂	Hotha, Yunnan	J. Anderson.
	[Type of <i>M. rubricosa</i> , Anderson.]	

**Mus concolor.**

*Mus concolor*, *Blyth Z. A. S. B.*, xxviii, p. 295 (1859); *id. Z. A. S. B.*, xxxii, pp. 73, 344; *id. Cat. n. 370*, p. 116; *id. Z. A. S. B.*, xlv, *Burma List*, p. 40; *Anderson Four. Linn. Soc.*, xxi, p. 341.

*Distribution.*—Burma, Upper and Lower, extending southwards to Mergui and the Malay peninsula.

A very closely allied species *Mus ephippium* of Jentink (*Notes Leyd. Mus.*, ii, p. 15) has been recorded from Sumatra and Kina Balu in Borneo.

a. Skin	Malacca.	R. W. G. Firth (1846), A.S.B.
b. Skin ♂	Mergui, 17-12-81	J. Anderson.
c. Skin ♀	" "	J. Anderson.
d. Skin	" "	J. Anderson.
e. Alc. ♂	Shwegyin dist., Tenasserim.	Major Berdmore (1859), A.S.B.
f. Alc., skull ♀	Shwegyin dist., Tenasserim.	Major Berdmore (1859), A.S.B.

g. Alc. juv. Shwegyin Dist., Major Berdmore (1859),  
Tenasserim. A.S.B.

[3 Types of *Mus concolor*, Blyth.]

h-l. 4 Alc.,	♂	Moulmein	T. H. Hood (1872).
3 skulls.			
m. Alc.	♀	"	T. H. Hood (1872).
n-o. 2 Alc.,	♂ ♀	Mt. Mooleyit, Tenas.	Tenasserim Expd. (1877).
1 skull.			
p-s. 4 Alc.,	♂	Mergui, 12-81	J. Anderson.
t. Alc.	♂	Taing, Mergui, 1-82	J. Anderson.
u-x. 4 Alc.,	♀	Mergui, 12-81	J. Anderson.
1 skull.			
y. Alc., skull	♂	" "	J. Anderson.

### *Mus fulvescens*.

*Mus fulvescens*, *Gray Cat. Hodgs. Coll.*, 1st ed., p. 18 (1846); *Thomas P. Z. S.*, 1881, p. 537.

*Mus caudator*, *Hodgson Ann. Mag. N. H.* (2), iii, p. 203 (1849); *Horsfield Cat. E. I. Mus.*, p. 144; *Blyth J. A. S. B.*, xxxiv, p. 193; *Ferdon Mamm.*, p. 201; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 40.

*Mus cinnamoneus*, *Blyth J. A. S. B.*, xxviii, p. 294 (1859), [*nec Pictet*]; id. *J. A. S. B.*, xxxii, p. 341; id. *Cat. no. 366*, p. 115.

*Distribution*.—Nepal and Sikkim Himalayas extending to the Tenasserim hills.

a. Skin, skull	Shwegyin, Tenasserim	Major Berdmore (1859), A. S. B.
b. Alc., skull	Shwegyin, Tenasserim	Major Berdmore (1859), A. S. B.

[Types of *Mus cinnamoneus*, Blyth.]

### *Mus jerdoni*.

*Leggada jerdoni*, *Blyth J. A. S. B.*, xxxii, p. 350 (1863); id. *Cat. no. 393*, p. 121; *Ferdon Mamm.*, p. 209.

*Mus octomammis*, *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 10 (1863).

*Mus jerdoni*, *Thomas, P. Z. S.*, p. 537 (1881).

*Distribution*.—Sikkim and Assam hills; Java (Thomas) and probably the intervening countries.

a. Alc., skull	♂	Darjeeling	W. G. Masson.
b-c. 2 Alc.	juv.	"	W. G. Masson.
d-e. 2 Alc.	juv.	"	W. G. Masson.
f-g. 2 Alc.	♂ ♀	Cherrapoonjee, Assam, 12-7-71.	J. H. Bourne.
h. Alc.	♀ juv.	"	J. H. Bourne.
j-l. 3 Alc.	juv.	"	J. H. Bourne.
m. Skin, skull		Darjeeling,	T. C. Jerdon, A. S. B.
	juv.		

[Type of *Leggada jerdoni*, Blyth.]



*Distribution.*—Southern India, Cuddapah district and Shevaroy hills.

*a-l.* 2 Skins, Shevaroy hills, Mdr. W. Daly.  
2 skulls.

### Mus berdmorei.

*Mus berdmorei*, *Blyth* *J. A. S. B.*, xx, p. 173 (1851); *id.* *J. A. S. B.* xxxii, p. 343; *Thomas P. Z. S.*, 1886, p. 62.

*Distribution.*—Munipur and Mergui.

This species was first described by Blyth from a single specimen from Mergui; but he afterwards merged the species with his *Mus robustulus* which is doubtless the same as *Mus rattus rufescens*; Thomas (*supra*) has resurrected Blyth's old name for a peculiar rat forming part of the Hume Munipur Collection, which rat, according to Thomas, agrees remarkably with the original description of Blyth.

The skull, which is still in the collection, agrees with Thomas' description of the skull of the Munipur specimen, the flat skin has unfortunately disappeared.

This rat is allied to *Mus blanfordi* and to *Mus confucianus* of Milne Edwards, from China, all of which are distinguished by their parti-coloured tails with the terminal half white.

*a.* Skull Mergui Major Berdmore.

[Type of *Mus berdmorei* of Blyth.]

### Mus urbanus.

- Mus musculus*, *apud Elliot Madr. Journ.*, x, p. 214 (1839); *Cantor* *J. A. S. B.*, xv, p. 254  
*Mus nipalensis*, *Hodgson* *J. A. S. B.*, x, p. 915 (1841) [*sine descr.*]; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 19.  
*Mus dubius*, *Hodgson* *J. A. S. B.*, x, p. 915 (1841) [*sine descr.*]; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 19; *Hodgson Ann. Mag. N. H.*, xv, p. 268; *Horsfield Cat. E. I., Mus.*, p. 143.  
*Mus manei*, *Gray List Mamm., B. M.*, p. 111 (1843) [*sine descr.*]; *Blyth* *J. A. S. B.*, xx, p. 172; *Kelaart Prodr. Faun. Zeylan.*, p. 64.  
*Mus urbanus*, *Hodgson, Ann. Mag. N. H.*, xv, p. 269 (1845); *Blyth* *J. A. S. B.*, xxxii, p. 345; *id. Cat. no. 380*, p. 118; *Gray Cat. Hodgs. Coll.* 2nd ed., p. 10; *Ferdon Mamm.*, p. 203; *Stoliczka* *J. A. S. B.*, xli, p. 228; *Thomas P. Z. S.*, 1881, p. 544; *Murray Zool Sind.*, p. 46.  
*Mus homourus*, *Hodgson Ann. Mag. N. H.*, xv, p. 268 (1845); *Blyth* *J. A. S. B.*, xxviii, p. 295; *id. J. A. S. B.*, xxxii, p. 346; *id. Cat. no. 379*, p. 118; *Ferdon Mamm.*, p. 204.  
*Mus darjeelingensis*, *Hodgson Ann. Mag. N. H.*, (2) iii, p. 203 (1849) [*sine descr.*]; *Horsfield Cat. E. I. Mus.* p. 143; *Blyth* *J. A. S. B.*, xxxii, p. 348; *id. J. A. S. B.*, xxxiv, p. 193; *Ferdon Mamm.*, p. 205.  
*Mus tytleri*, *Blyth* *J. A. S. B.*, xxviii, p. 296 (1859); *id. J. A. S. B.*, xxxii, p. 346; *Ferdon Mamm.*, p. 205.  
*Mus rama*, *Cantor apud Blyth* *J. A. S. B.*, xxxiv, p. 194 (1865).

*Mus kakhensis*, *Anderson Anat. Zool. Res.*, p. 307 (1878).

*Mus vicolorum*, *Anderson Anat. Zool. Res.*, p. 308 (1878).

*Distribution.*—The whole of India and Ceylon, except in Sind and the Punjab, where it is replaced by the next species, *Mus bactrianus*; it extends into the Himalayas and over Assam, Cachar, Burma, the Andamans and Nicobars; Thomas also gives Malacca.

This species is very doubtfully distinct from the almost universally distributed *Mus musculus*; it has however been treated by Thomas (*l.c.*) as a distinct species, and it has accordingly been left so for the present; Blyth states that *Mus musculus* has larger ears, smaller eyes, and broader paws, and the tail one-fourth shorter; none of these differences seem to hold good for a large number of specimens.

<i>a-b.</i>	2 Alc.	♀ ♂	Calcutta	J. Anderson.
<i>c-d.</i>	2 Alc., 2 skulls	♀ ♂	Darjeeling	G. King.
<i>e.</i>	Alc., skull	♀	"	J. Anderson.
<i>f-g.</i>	2 Alc.	♂ ♀	"	W. Masson.
<i>h-k.</i>	3 Alc., 1 skull	♂	Ling Ling, Brit. Sikkim	T. Johnston (in jungle).
		♂ 2 juv.		
<i>l.</i>	Alc.	♂	" " "	T. Johnston (in jungle).
<i>m.</i>	Alc., skull	♂	Karachi	Karachi Mus. [Ex.]
<i>n-q.</i>	4 Alc., 1 skull	♂, ♀, juv.	Fattehgarh, N.-W. P.	A. Anderson.
<i>r.</i>	Alc.	juv.	Banda Dist., N.-W. P.	J. Cockburn.
<i>s-u.</i>	3 Alc., 1 skull	♂ ♀ ♀	Benares, N.-W. P., 10-1-71.	Mus. Coll.
<i>v-w.</i>	2 Alc.	♂	Khandala, Bm.	G. W. Vidal.
<i>x-y.</i>	2 Alc., 1 skull	♂ ♀	Collagelly hills, Trichi. dist., Md.	R. H. Beddome.
<i>s.</i>	Alc.	♂	Madras	G. Bidie.
<i>a<sup>2</sup>-b<sup>2</sup>.</i>	2 Alc.	♀	"	G. Bidie.
<i>c<sup>2</sup>.</i>	Alc.	juv.	"	G. Bidie.
<i>d<sup>2</sup>.</i>	Alc., skull	♂	"	W. Davison.
		juv.		
<i>e<sup>2</sup>-f<sup>2</sup>.</i>	2 Alc., 1 skull	♂	Vizagapatam, Md.	Mus. Coll.
<i>g<sup>2</sup>-j<sup>2</sup>.</i>	3 Alc., 1 skull	♀ ♀ ♀	Ceylon	E. F. Kelaart.
<i>k<sup>2</sup>-m<sup>2</sup>.</i>	3 Alc., 2 skulls	♂ ♀ ♀	Raniganj, Bg.	Purchased.
<i>n<sup>2</sup>-p<sup>2</sup>.</i>	3 Alc., 2 skulls	♂ ♀ ♀	Purneah, Bg.	J. Anderson.
<i>q<sup>2</sup>-s<sup>2</sup>.</i>	3 Alc.	♂ ♂ ♀	Calcutta	E. Blyth.
		juv.		
<i>t<sup>2</sup>-v<sup>2</sup>.</i>	3 Alc.	♂	"	J. Anderson.
		2 juv.		
<i>w<sup>2</sup>.</i>	Alc.	♀	"	R. deCruz.
<i>x<sup>2</sup>-z<sup>2</sup>.</i>	3 Alc.	♂	"	Mus. Coll.
<i>a<sup>3</sup>-b<sup>3</sup>.</i>	2 Alc.	♀ ♂	Dhappa, Calcutta	Mus. Coll. (1881).
<i>c<sup>3</sup>-e<sup>3</sup>.</i>	3 Alc., 2 skulls	♂ ♀ juv.	Botanical Gardens, Calcutta.	J. Anderson.
<i>f<sup>3</sup>.</i>	Alc.	♂	Kututangra (on cocoanut trees), Calcutta.	Mus. Coll.

$g^3-h^3$ .	2 Alc.	♂	Dacca	N. Belletty.
$j^3$ .	Alc.	♂	Haldibari, Bg.	Purchased.
$k^3-l^3$ .	2 Alc., 2 skulls	♂ ♀	Goalpara, Assam	H. L. Haughton (1868).
$m^3$ .	Alc., skull	♀	Sibsagar, Assam	S. E. Peal.
$n^3$ .	Alc.	juv.	Garo Hills	Capt. Williamson.
$o^3$ .	Alc., skull	♂	Khasia Hills	H. H. Godwin Austen (1870).
$p^3-q^3$ .	2 Alc.	♀ ♂	Silcuri, Cachar	J. Wood Mason.
$r^3$ .	Alc.	♀	Cachar	Mus. Collector (1867).
$s^3-t^3$ .	4 Alc.	♂ 3 ♀	"	M. J. Ogle.
$w^2-x^3$ .	2 Alc.	♀	Chittagong Hill Tracts	J. T. Jarbo.
$y^3$ .	Alc.	♂	Andamans	Capt. Hodge, A.S.B.
$z^3$ .	Alc., skull	♂	"	J. Homfray.
$a^4-b^4$ .	2 Alc., skull	♂ ♀	"	G. E. Dobson.
$c^4-f^4$ .	4 Alc., 1 skull	♂ ♀ 2 juv.	"	J. Wood Mason.
$g^4-h^4$ .	2 Alc.	♀ juv.	Nicobars	F. A. de Roeppstroff.
$j^4$ .	Alc., skull	♂	Ponsee, Kakhyen hills, Burma.	J. Anderson.

[Type of *Mus* of *kakhyensis*, Anderson.]

$k^4-l^4$ .	2 Alc., 2 skulls	♀	Ponsee Kakhyen hills, Burma.	J. Anderson.
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[Types of *Mus vicolorum*, Anderson.]

$m^4-o^4$ .	3 Stuffed		Calcutta	E. Byth, A.S.B.
$p^4$ .	Skin		Sirguja, 6-71	V. Ball.
$q^4$ .	Alc., skull	♂	Burma	J. Wood Mason.
$r^4$ .	Alc., skull	♀	"	Major Berdmore, A.S.B.
$s^4-t^4$ .	2 Alc.		Nicobars, 7-81	H. H. Godwin Austen.

### Mus sublimis.

*Mus crassipes*, *apud Blanford* *F. A. S. B.*, xliv, p. 108 (1875).

*Mus sublimis*, *Blanford Yarkand Mammals*, p. 51 (1879); *Scully Ann. Mag. N. H.* (5), viii, p. 99.

*Distribution*.—This mouse has only been found in the higher regions of Central Asia, once by Stoliczka, west of the Pankong Lake in Ladak, at 13,000 feet, and once by Colonel Biddulph in the Astor district of Kashmir, at a height of 11,000 feet.

The species is nearly allied to *Mus urbanus*, but differs in having a slightly longer hind-foot with the tubercles very far apart; the skull differs from that of *M. urbanus* and *M. bactrianus* in having the zygomatic arches incurved, the palate also is peculiar, the posterior nasal opening being particularly wide, and the pterygoid short and very considerably thickened.

$u$ .	Alc., skull	♀	Tanksee W. of Pankong Lake, Ladak, 13,000 ft.	F. Stoliczka.
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[Type of *Mus sublimis*, Blanford.]

**Mus bactrianus.**

*Mus bactrianus*, *Blyth* *Œ. A. S. B.*, xv, p. 140 (1846); *id.* *Œ. A. S. B.*, xxxii, p. 347; *id.* *Œ. A. S. B.*, xxxiv, p. 193; *Ferdon Mamm.*, p. 205; *Blanford Persia*, p. 56, pl. v, fig. 2; *id.* *Œ. A. S. B.*, xlvi, p. 324; *Danford and Alston P. Z. S.*, 1880, p. 61; *Scully Ann. Mag. N. H.* (5), viii, p. 228; *Thomas P. Z. S.*, 1881, p. 546; *Murray Zool. Sind.*, p. 47; *Scully Œ. A. S. B.*, lvi, p. 72; *Radde Zool. Œ. B.*, iv, p. 1033.

*Mus gerbillinus*, *Blyth* *Œ. A. S. B.*, xxii, p. 410 (1853); *id.* *Cat.* no. 382, p. 119.

*Mus theobaldi*, *Blyth* *Œ. A. S. B.*, xxii, p. 583 (1853).

*Distribution.*—The Punjab and Sind, extending northwards to the Himalayas, at Simla and to Ladak, and westward through Afghanistan and Baluchistan to the Euphrates, Palestine and Egypt.

This species seems to replace the last in desert and dry countries, it resembles it in every particular except in its very pale colour and distinctly white ventral surface.

a. Skin	♂	Shiraz, 6-69.	Sir O. St. John.
b. Skin		Mashish, nr. Karman, S. E. Persia, 20-5-72.	W. T. Blanford.
c. Skin	♂	Maimanah, 4-4-86.	C. E. Yate.
d. Skin		Pind Dadan Khan	W. Theobald, A.S.B.
[Type of <i>Mus gerbillinus</i> , Blyth.]			
e-g. 3 Alc.	♂ ♀ ♀	Pishin, Baluchistan	W. T. Blanford.
h-m. 5 Alc.	♂ 4 ♀	Kalagan, Baluchistan	W. T. Blanford.
n-p. 3 Alc.	♀	Bampur, Beluchistan	W. T. Blanford.
q-t. 4 Alc.	2 ♂ 2 ♀	nr. Karman, S. Persia	W. T. Blanford.
u v. 2 Alc.	♂ ♀	Kohat, Punjab	M. J. Ogle.
w-x. 2 Alc.	♀	Rajanpur, Punjab	E. Saunders.
y-c <sup>2</sup> . 5 Alc.	♂	Shahpur, Punjab	G. Henderson.
d <sup>2</sup> f <sup>2</sup> . 3 Alc., 1 skull	♂ ♀ juv.	Pind Dadan Khan, Punjab	W. Theobald, A.S.B.
g <sup>2</sup> -k <sup>2</sup> . 4 Alc.	2 ♂ 2 ♀	Karachi	Karachi Mus.
l <sup>2</sup> -m <sup>2</sup> . 2 Alc.	♂	"	Karachi Mus. [Ex.]
n <sup>2</sup> . Alc.	♀	Clifton, Karachi	Karachi Mus. [Ex.]
o <sup>2</sup> . Alc.	♂	Acacia Forest, Kotri, Sind.	Karachi Mus. [Ex.]
p <sup>2</sup> -q <sup>2</sup> . 2 Alc.	♂ ♀	Sind	Karachi Mus.
r <sup>2</sup> . Alc.	♂	Kotri, Sind	J. Scully.
s <sup>2</sup> . Alc.	♀	Pir Pinjal	W. Theobald, A.S.B.
t <sup>2</sup> -w <sup>2</sup> . 4 Alc.	3 ♂ 1 ♀	Ladak	G. Henderson.
x <sup>2</sup> -a <sup>3</sup> . 4 Alc.	2 ♂ 2 ♀	Simla	R. A. Sterndale.
b <sup>3</sup> . Skull	♂	Bampur, Baluch.	W. T. Blanford.
c <sup>3</sup> . Skin		Suleiman Mts., 10-74	V. Ball.
d <sup>3</sup> . Alc.	♀	Jerusalem	J. Anderson.
e <sup>3</sup> . Alc., skull	♀	nr. Attock	A. Barclay.
f <sup>3</sup> . Alc.	♀	Bebenanee, Baluch.	J. A. Murray.
g <sup>3</sup> . Alc., skull	♂	Karnak, Egypt	J. Anderson.



**Mus cervicolor.**

*Mus cervicolor*, *Hodgson Ann. Mag. N. H.*, xv, p. 268 (1845); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 19; *Ferdon Mamm.*, p. 206. [pt.]; *Thomas P. Z. S.*, 1881, p. 547; id. *P. Z. S.*, 1886, p. 65.

*Mus strophiatatus*, *Hodgson Ann. Mag. N. H.*, xv, p. 268 (1845); *Blyth F. A. S. B.*, xxxii, p. 349; id. *F. A. S. B.*, xxxiv, p. 193.

*Mus cunicularis*, *Blyth F. A. S. B.*, xxiv, p. 721 (1855); id. *F. A. S. B.*, xxxii, p. 348; id. *Cat. no.* 384, p. 119.

*Distribution*.—Nepal and the Eastern Himalayas, extending through Assam and Manipur.

There does not seem to be any true distinction between this species and *Leggada buduga*; Thomas (*l. c.*) allows that they are nearly allied but asserts that they can be distinguished by the length of their ears; this distinction does not seem to hold good when measurements of many individuals are taken. As this catalogue has been founded on Thomas' monograph on the Indian Mice, the two species have been kept apart, being merely distinguished by their geographical origin.

a-c. 3 Alc., 1 skull Khasia Hills F. Skipwith (1855), A.S.B.  
2 ♂ 1 ♀

[Types of *Mus cunicularis*, Blyth.]

d-e. 2 Alc., 1 skull Garo Hills N. Belletty (1870).

f. Alc., skull ♀ Dacca N. Belletty (1870).

g-h. 2 Alc., 2 ♂ Cachar Mus Coll,  
skulls ♂ ♀

j. Alc., skull ♂ Narainpur, Assam H. H. Godwin Austen.

juv.  
k. Alc., skull ♂ Hailakandi, Cachar C. H. Dreyer.  
juv.

**Mus arianus.**

*Mus sylvaticus*, *apud Filippi Viaggio Persia*, p. 344 (1865).

*Mus erythronotus*, *Blanford Ann. Mag. N. H.* (4) xvi, p. 311 (1875); id. *Persia*, p. 54, pl. v, fig. 3; id. *Yarkand Mammals*, p. 54; id. *F. A. S. B.*, xlvi, p. 97 [*nec. Temminck*].

*Mus arianus*, *Blanford Ann. Mag. N. H.* (5), vii, p. 162 (1881); *Scully P. Z. S.*, 1881, p. 205; *Thomas P. Z. S.*, 1881, p. 548; *Buchner Wiss. Result. Przewalski Reisen, Rodentia*, p. 90.

*Distribution*.—Northern Persia, Gilgit, and the Pamir, extending to the Thian Shan (Przewalsky).

This species is closely allied to *Mus sylvaticus* which it seems to replace in Asia; the distinctions between the two species are clearly pointed out by Thomas (*l. c.*) and the persistence of these differences seem to be confirmed by the examination of the specimens in the Indian Museum.

a. Skin	Kashgar, 14-2-74 (Biddulph).	F. Stoliczka.
b-e. 4 Skins, 2 skulls.	Panjah, Wakhan, 4-74	F. Stoliczka.
f-g. 2 Skins, 1 skull.	Gilgit	J. Biddulph.
h. Skin, skull juv.	Hunza	J. Biddulph.
j-k. 2 Skins, 2 skulls.	Chitral, 10-85, 5,000 ft.	G. M. Giles.
l. Skin, skull	Gilgit, 1-86, 6,000 ft.	G. M. Giles.
m. Skin ♂	" 8-79	J. Scully.
n. Skin	" 2-79	J. Scully.
o-p. 2 Alc., 1 skull.	♂ Kohrud N. of Ispahan	W. T. Blanford.
[Types of <i>Mus erythronotus</i> , Blanford.]		
q. Alc.	♀ Gilgit	J. Scully.

### *Mus nitulidus.*

*Mus nitulidus*, *Blyth* *Œ. A. S. B.*, xxviii, p. 294 (1859); *id.* *Œ. A. S. B.*, xxxii, p. 347; *id.* *Cat.* no. 381, p. 119; *id.* *Œ. A. S. B.*, xliv, *Burma List*, p. 40; *Thomas P. Z. S.*, 1881, p. 550.

*Distribution.*—District of Shwegyin in Burma and Sikkim, and probably the intervening country.

The type of this species is missing; it perhaps disappeared during the transference of the Asiatic Society's collections to the present Museum; it is therefore impossible ever to be certain as to whether Thomas' identification of this species is correct or not. The following specimens agree fairly well with Thomas' description:—

a. Alc., skull ♂	Darjeeling	G. King.
b-e. 4 Alc., 1 skull	Rungbee, Darjeeling	G. King.
f-h. 3 Alc., 1 skull	♂ " "	G. King.
j-n. 5 Alc. juv.	♀ " "	G. King.

### *Mus mettada.*

*Golunda mettada*, *Gray Charlesw., Mag. N. H.*, i., p. 586 (1837); *Horsfield Cat. E. I. Mus.*, p. 144; *Blyth* *Œ. A. S. B.*, xxxii, p. 352; *Ferdon Mamm.*, p. 213.

*Mus lanuginosus*, *Elliot Madras Journ.*, x, p. 212 (1839).

*Mus mettada*, *Blanford* *Œ. A. S. B.*, xlvi, p. 290, pl. i, figs. 1-9 (1877); *Thomas P. Z. S.*, 1881, p. 550; *Murray Zool. Sind.*, p. 47.

*Distribution.*—This species seems to be confined to the western and southern parts of India, extending eastward as far as the North-West Provinces only.

a-c. 3 Alc., 2 skulls	Etawah dist., N.-W. P.	A. Anderson.
♂ 2 ♀		

d. Alc, head and foot only.	Banda dist., N.-W. P.	J. Cockburn.
e. Alc. ♀ juv.	Karachi	Karachi Mus.
f-l. 6 Alc. ♂	Sind	J. A. Murray.
	5 juv.	
m-o. 3 Alc. ♂ 2 ♀	Madras Pr.	G. Bidie.
p-r. 3 Alc. ♂	.....	No history.
	juv.	

### Mus gleadowi.

*Mus gleadowi*, Murray P. Z. S., p. 809, pl. li (1885).

*Distribution.*—Western India; the type was described from Karachi, and the Indian Museum has specimens from Goona and Kutch.

This species seems to be very closely allied to *M. mettada*, from which it is however distinguished by its considerably smaller size and by its very much shorter and narrower tarsus; this species too seems never to possess more than 4 pads on the hind-foot, while all the specimens of *M. mettada* in the Museum possess the proximal 5th pad.

The measurements of the three specimens compare very well with the measurements given by Blanford in a note appended to the original description, *i.e.*:—Head and body, 3.40; tail, 2.80; hind-foot, .70; forearm and hand, .80; ear conch, .61; auditory meatus to muzzle, .91.

a-b. 2 Alc. ♂	Goona, C. I.	A. Barclay.
c. Alc., skull. ♂	Kutch	F. Stoliczka.

### Mus wagneri.

*Mus wagneri*, Eversmann Bull. Nat. Mosc., xxi, pt. 1, p. 191, pl. i, fig. 1 (1848); Buchner Wiss. Result. Przewalski Reise, Rodentia, p. 88.

*Mus sylvaticus*, apud Brandt Lehmann's Reise nach Buchara, p. 305 (1852)\*.

*Mus pachycercus*, Blanford Z. A. S. B., xlv, p. 108 (1875); *id.*, Yarkand Mamm., p. 53, pl. ix, fig. 2, pl. xb, fig. 4.

*Distribution.*—The house-mouse of Central Asia, described as a new species by Blanford, has been since identified by Buchner (*l.c.*) as a species of Eversmann's, described long ago from a specimen collected on the steppes between the Volga and the Ural. It has been got by Przewalsky from a large number of localities throughout Turkestan and Mongolia, and seems to be the common house-mouse of all Central Asia.

a-d. 4 Skins	Yarkand, 11-73	F. Stoliczka.
e. Skin	Sanju, 10-73	F. Stoliczka.
f-g. 2 Skins	Kargalik, 11-73	F. Stoliczka.
h. Skin, skull.	" 5-74	F. Stoliczka.
j. Skin	Yangihissar, 4-74	F. Stoliczka

<i>k.</i> Skin	.....	F. Stoliczka.
<i>l-m.</i> 2 Alc., 1 skull	Yarkand, 11-73	F. Stoliczka.
	♂	
[Types of <i>Mus pachycercus</i> , Blanford.]		
<i>n.</i> Alc.	♀ Eastern Turkestan	J. Scully.
<i>p o.</i> Skin, skull	Resht, Caspian	W. T. Blanford.

### Mus musculus.

*Mus musculus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 83 (1766); *Blasius Säugeth. Deutschl.*, p. 320; *Blyth Cat.* no. 378, p. 118.

*Distribution.*—Cosmopolitan, if as Thomas (*Encycl. Brit.*, xvii, p. 5) believes to be the case, *Mus urbanus* is indistinguishable from this species; the original home of *Mus musculus* was probably in India.

<i>a.</i> Stuffed	England	Mr. Kirtland (1845), A. S. B.
<i>b.</i> Stuffed	N. Carolina, U. S. A.	Rev. F. Fitzgerald (1852), A. S. B.
<i>c-d.</i> 2 Alc., 1 skull	London	A. D. Bartlett.
	♂	
<i>e-f.</i> 2 Alc., 1 skull	„	A. D. Bartlett.
	♀	

### Mus sylvaticus.

*Mus sylvaticus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 84 (1766); *Blasius Säugeth. Deutschl.*, p. 322; *Blyth Cat.* no. 373, p. 116.

*Distribution.*—The whole of Europe, eastwards it is replaced by *Mus arianus*.

<i>a-d.</i> 4 Alc., 1 skull	London	A. D. Bartlett.
	♂	
<i>e-f.</i> 2 Alc., 1 skull	„	A. D. Bartlett.
	♀	
<i>g.</i> Stuffed	Switzerland	A. Malherbe (1842), A. S. B.
<i>h-j.</i> 2 Stuffed	England	A. D. Bartlett, A. S. B.

### Mus minutus.

*Mus minutus*, *Pallas Nov. Spec. Quad. e Glir.*, p. 345 (1778); *Blasius Säugeth. Deutschl.* p. 326; *Blyth Cat.* no. 375, p. 117.

*Mus messorius*, *Shaw Genl., Zool.*, ii, pt. 1, p. 62 (1801).

*Mus soricinus*, *pendulinus et parvulus Hermann Obs. Zool.*, i, pp. 57, 61, 62 (1804).

*Mus pratensis*, *Ocksay Nova Acta Acad. Zeop. Caro.*, xv, pt. 2, p. 243, pl. lxxviii (1831).

*Distribution.*—The Palaearctic region.

<i>a.</i> Alc.	♂ England	H. E. Strickland (1844), A.S.B.
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### Mus abyssinicus.

*Mus abyssinicus*, *Rüppell Mus. Senck.* iii, p. 104, pl. vii fig. i (1845); *Blanford Abyssinia*, p. 283.

*Distribution.*—Abyssinia.

- a.* Stuffed                      Wandash Pass, Abyssinia, W. T. Blanford.  
4-68.  
*b-c.* 2 Skins                      Wandash Pass, Abyssinia    W. T. Blanford.  
4-68.

**Mus pumelio.**

*Mus pumelio*, *Sparrman Kongl. Vetens. Akad. Handl.*, v, p. 236, pl. vi, (1784); *A. Smith S. African Zool*, pl. xlvi, fig. 1; *Blyth Cat.* no. 388, p. 120.

*Distribution.*—South Africa.

- a-b.* 2 Stuffed                      South Africa                      E. L. Layard.

**Mus longipilis.**

*Mus longipilis*, *Gould Mamm. Australia*, iii, pl. xliii (1863).

*Distribution.*—New South Wales, Australia

- u.* Skin                      Australia.                      Melbourne Mus. [Ex.]

**Mus assimilis.**

*Mus assimilis*, *Gould P. Z. S.*, p. 241 (1857); *id. Mamm. Austr.*, iii, pl. xv.

*Distribution.*—New South Wales to Western Australia.

- a-b.* 2 Skins                      Western Australia                      No history.

**Mus gouldi.**

*Mus gouldi*, *Waterhouse Zool. Voy. Beagle Mamm.* (1840)\*; *Gray List Mamm. B. M.*, p. 111; *Gould Mamm. Austr.*, iii, pl. xix; *Blyth Cat.* no. 399, p. 116.

*Mus. grayii*, *Gray App. Grey's Travels Austr.*, ii, p. 410 (1841).

*Distribution.*—Australia.

- a.* Stuffed                      Australia                      Sydney Institution  
(1846), A.S.B.  
*b.* Skin                      Plains of West Australia                      Brit. Mus. [Ex.]

**Genus LEGGADA.**

*Leggada*, *Gray Charlesw. Mag. N. H.*, i, p. 586 (1837);  
*Nannomys*, *Peters Monatsber. Akad. Berlin*, p. 480 (1876).

Two species only are found in the Indian Empire; three others have been described from Africa.

*Key of the Indian Species.*

a. Larger, 3 to 4 inches; tail as long as the body only; extra cusp on the anterior molar well developed.

**L. platythrinx**, p. 80.

a<sup>2</sup>. Smaller, 2 to 3 inches; tail about equal to the head and body; extra cusp on the anterior molar variable.

**L. buduga**, p. 80.

**Leggada platythrinx.**

Mus platythrinx, *Bennett P. Z. S.*, p. 121 (1832); *Elliot Madras Journ*, x, p. 215.

Leggada platythrinx, *Gray Charlesw. Mag. N. H.*, i, p. 586 (1837); *Blyth J. A. S. B.*, xxxii, p. 350; id. *Cat.* no. 395, p. 121; *Ferdon Mamm.*, p. 207.

Mus spinulosus, *Blyth J. A. S. B.*, xxiii, p. 734 (1854).

Leggada spinulosa, *Blyth J. A. S. B.*, xxxii, p. 349 (1863); id. *Cat.* no. 394, p. 121; *Ferdon Mamm.*, p. 208.

Mus (Leggada) platythrinx, *Thomas P. Z. S.*, p. 553 (1881).

*Distribution.*—This rat seems to have much the same distribution as *Mus mettada*, being confined to Western, Central and Southern India.

a-b. 2 Skins	South India	Sir W. Elliot, A.S.B.
c-d. 2 Skins	S. Malabar	Rev. J. Baker, A.S.B.
e. Alc. and skull ?	Punjab	W. Theobald (1854), A.S.B.

[Type of *Mus spinulosus*, Blyth.]

f. Alc., skull ♀	Khandala, Bm.	H. M. Phipson.
g. Alc., skull ♀	Bhandara, C.P., 26-9-70.	W. T. Blanford.
h. Alc. ♂	Collagelly Hills, Mdr.	R. H. Beddome.
j. Alc. ♀	Clifton, Karachi.	Karachi Mus. [Ex.]
k. Alc. ♂	Khandala, Bm.	H. M. Phipson.

**Leggada buduga.**

Leggada booduga, *Gray Charlesw. Mag. N. H.*, i, p. 586 (1837).

Mus lepidus, *Elliot Madr. Journ.*, x, p. 216 (1839).

Mus tricolor, *Blyth J. A. S. B.*, xx, p. 172 (1851); id. *J. A. S. B.*, xxxii, p. 349; id. *Cat.* no. 386, p. 119; *Ferdon Mamm.*, p. 206.

Mus albidiventris, *Blyth J. A. S. B.*, xxi, p. 351 (1852).

Mus fulvidiventris, *Blyth J. A. S. B.*, xxi, p. 351 (1852); id. *J. A. S. B.*, xxxii, p. 349; id. *Cat.* no. 383, p. 119.

Mus cervicolor, *apud Kelaart Prodr. Faun. Zeylun.*, p. 64 (1852); *Blyth J. A. S. B.*, xxxii, p. 349; id. *Cat.* no. 384, p. 119; *Ferdon Mamm.*, p. 206. [pt.]

Leggada lepida, *Blyth J. A. S. B.*, xxxii, p. 350; id. *Cat.* no. 396, p. 121; *Ferdon Mamm.*, p. 209.

Mus beavani, *Peters P. Z. S.*, p. 559 (1866); *Blyth J. A. S. B.*, xlv *Burma List*, p. 40.

Mus (Leggada) buduga, *Thomas P. Z. S.*, p. 553 (1881).

*Distribution.*—All over India except in the Punjab, Himalayas, and Assam, in which latter it is replaced by the closely allied *Mus cervicolor*.

<i>a-b.</i>	2 Skins	nr. Calcutta	E. Blyth, A.S.B.
<i>c-f.</i>	4 Skins	Midnapore jungles	E. Blyth, A.S.B.
<i>g.</i>	Skin, skull	N. of Chanda, C. P.,	W. T. Blanford.
		1-2-67.	
<i>h.</i>	Skin and skull.	Sirguja, Chota Nagpur	V. Ball, 1871.
<i>j.</i>	Skin	South India	Sir. W. Elliot, 1843, A.S.B.
		[Typical of <i>Mus lepidus</i> , Elliot.]	
<i>k.</i>	Skin	South Malabar	Rev. J. Baker, A.S.B.
<i>l.</i>	Skin	Trincomali	E. F. Kelaart, A.S.B.
		[Type of <i>Mus fuvidiventris</i> , Blyth.]	
<i>m.</i>	Alc., skull ♂	Fattehgarh, N.-W.P.	A. Anderson.
<i>n-p.</i>	3 Alc. ♂	Etawah, N.-W.P.	A. Anderson.
<i>q-r.</i>	2 Alc. ♂	Banda dist., N.-W.P.	J. Cockburn.
<i>s.</i>	Alc., skull ♂	Allahabad, N.-W.P.	J. Cockburn.
<i>t-u.</i>	2 Alc. ♂ ♀	Bhandara, C. P.	W. T. Blanford.
<i>v w.</i>	2 Alc. ♂ juv.	Karachi	Karachi Mus. [Ex.]
<i>x.</i>	Alc., skull ♀	Poona, Bm.	F. Stoliczka.
<i>y.</i>	Alc., skull ♀	Shevaroy Hills, Mdr.	F. Stoliczka.
<i>z.</i>	Alc. ♀	Madras	G. Bidie.
<i>a<sup>2</sup>.</i>	Alc., skull ♂	"	J. Anderson.
<i>b<sup>2</sup>-c<sup>2</sup>.</i>	2 Alc., ♂	"	Madras Mus. [Ex.]
	1 skull.		
<i>d<sup>2</sup>-e<sup>2</sup>.</i>	2 Alc., ♀	"	Madras Mus. [Ex.]
	1 skull.		
<i>f<sup>2</sup>.</i>	Alc. juv.	"	Madras Mus. [Ex.]
<i>g<sup>2</sup>-h<sup>2</sup>.</i>	2 Alc., ♂	Trichinopoly dist.	R. H. Beddome.
	2 skulls.		
<i>j<sup>2</sup>-k<sup>2</sup>.</i>	2 Alc. ♂	Hills, 4,000 ft., Ganjam dist.	R. H. Beddome.
<i>l<sup>2</sup>-m<sup>2</sup>.</i>	2 Alc. ♂ ♀	Lower forests, Ganjam dist.	R. H. Beddome.
<i>n<sup>2</sup>-o<sup>2</sup>.</i>	2 Alc. ♂	Calcutta	E. Blyth, A.S.B.
		[with "a"-"f," see above, types of <i>Mus. terricolor</i> , Blyth.]	
<i>p<sup>2</sup>-q<sup>2</sup>.</i>	2 Alc. ♀	Calcutta	E. Blyth.
<i>r<sup>2</sup> s<sup>2</sup>.</i>	2 Alc. ♀ juv.	Garden Reach, Calcutta	Mus. Coll.
<i>t<sup>2</sup>-w<sup>2</sup>.</i>	4 Alc., 2 skulls	Bodanga, nr. Calcutta	Mus. Coll.
	♂ 3 ♀		
<i>x<sup>2</sup>-y<sup>2</sup>.</i>	2 Alc. ♂ ♀	Bally, nr. Calcutta	Mus. Coll.
<i>z<sup>2</sup>-b<sup>3</sup>.</i>	3 Alc. ♂ 2 juv.	" "	Mus. Coll.
<i>a<sup>3</sup> p<sup>3</sup> c<sup>3</sup>.</i>	Skin, skull.	Manbhoom	Mus. Coll., 1866.
<i>d<sup>3</sup>.</i>	Alc. ♂	nr. Calcutta	E. Blyth.
<i>e<sup>3</sup>.</i>	Alc. ♀	Dhappa, Calcutta	Mus. Coll.

Genus **CHIROPODOMYS.**

*Chiropodomys*, *Peters Monatsber. Akad. Berlin*, p. 448 (1868). *Type*, *C. penicillatus*.

**Chiropodomys gliroides.**

*Mus gliroides*, *Blyth* *ŷ. A. S. B.*, xxiv, p. 721 (1855); id. *ŷ. A. S. B.*, xxxii, p. 345; id. *Cat.* no. 390, p. 120.

*Mus peguensis*, *Blyth* *ŷ. A. S. B.*, xxviii, p. 295 (1859); id. *ŷ. A. S. B.*, xxxii, p. 345; id. *Cat.* no. 372, p. 116; id. *ŷ. A. S. B.*, xxxiv, p. 193; id. *ŷ. A. S. B.*, xlv, *Burma List*, p. 40.

*Chiropodomys penicillatus*, *Peters Monatsber. Akad. Berlin*, p. 448, pl. i (1868); *Lütken P. Z. S.*, 1886, p. 418; *Doria Ann. Mus. (Genoa)*, (2), iv, p. 631.

*Chiropodomys gliroides*, *Thomas P. Z. S.*, p. 78 (1886); id. *P. Z. S.*, 1889, p. 235.

*Distribution.*—Assam, Burma, the Malay peninsula, Java, Borneo and the Philippine Islands; it probably also occurs in Sumatra and other islands of the East Indies, but has only been recorded from the places above mentioned.

The unique type of *Mus gliroides* of Blyth has unfortunately disappeared from the Museum, so that it is not possible to be absolutely sure as to whether *Mus peguensis* is identical with it or not, there seems, however, to be no reasonable doubt on the subject; there is in the Museum a mouse from Cherrapoonjee whence the type specimen originally came which entirely agrees with the description of *Mus gliroides*, and this specimen is certainly identical with *Mus peguensis*.

- |                |   |                        |                          |
|----------------|---|------------------------|--------------------------|
| a. Skin, skull |   | Sitang Valley, Burma   | Major Berdmore, A. S. B. |
| b. Alc., skull | ♂ | Cherrapoonjee, 12-7-71 | J. H. Bourne.            |
| c. Alc., skull | ♀ | Munipur                | R. D. Oldham.            |
| d. Alc., skull | ♀ | Sitang Valley, Burma   | Major Berdmore, A. S. B. |

[With "a" the type of *Mus peguensis*, Blyth.]

- |               |   |                |                        |
|---------------|---|----------------|------------------------|
| e. Alc. skull | ♀ | Sitang Valley? | Major Berdmore, A.S.B. |
|---------------|---|----------------|------------------------|

**Genus HAPALOMYS.**

*Hapalomys*, *Blyth* *ŷ. A. S. B.*, xxviii, p. 296 (1859). *Type*, *H. longicaudatus*

***Hapalomys longicaudatus.***

*Hapalomys longicaudatus*, *Blyth* *ŷ. A. S. B.*, xxviii, p. 296 (1859); id. *ŷ. A. S. B.*, xxxii, p. 353; id. *Cat.* no. 358, p. 112; id. *ŷ. A. S. B.*, xlv, *Burma List*, p. 38.

*Distribution.*—Is known only from the three specimens mentioned below procured in Tenasserim.

- |               |   |                      |                          |
|---------------|---|----------------------|--------------------------|
| a. Skin       | ♂ | Sitang Valley, Burma | Major Berdmore, A. S. B. |
| b. Alc. skull | ♀ | " "                  | Major Berdmore, A. S. B. |

[Types of *Hapalomys longicaudatus*, Blyth.]

- |         |   |                    |                   |
|---------|---|--------------------|-------------------|
| c. Alc. | ♀ | Mita, Tavoy, Burma | Museum Collector. |
|---------|---|--------------------|-------------------|



## Genus VANDELEURIA.

Vandeleuria, *Gray Ann. Mag. N. H.*, x, p. 265 (1842) *Type*, *V. oleracea*.

## Vandeleuria oleracea.

- Mus oleraceus*, *Bennett P. Z. S.*, p. 121 (1832); *Elliot Madras Journ.*, x, p. 214; *Blyth F. A. S. B.*, xxviii, p. 295; id. *F. A. S. B.*, xxxii, p. 344; id. *Cat.* no. 389, p. 120; *Ferdon Mamm.*, p. 202.  
*Mus dumecolus*, *Hodgson F. A. S. B.*, x, p. 915 (1841).  
*Vandeleuria oleracea*, *Gray Ann. Mag. N. H.*, x, p. 265 (1842).  
*Mus (Vandeleuria) dumeticola*, *Hodgson Ann. Mag. N. H.*, xv, p. 268 (1845).  
*Mus povensis*, *Hodgson Ann. Mag. N. H.*, xv, p. 269 (1845).  
*Mus nilagiricus*, *Ferdon Mamm.*, p. 203 (1867).  
*Mus badius*, *Blyth F. A. S. B.*, xxviii, p. 295; id. *F. A. S. B.*, xxxii, p. 344; id. *Cat.* no. 391, p. 120; id. *F. A. S. B.*, xliv, *Burma List*, p. 41.  
*Mus (Vandeleuria) oleraceus*, *Anderson Anat. Zool. Res.*, p. 309 (1878); *Thomas P. Z. S.*, 1881, p. 556; id. *P. Z. S.*, 1886, p. 65.

*Distribution.*—The whole of India from the Himalayas to the South, extending eastwards through Assam to Burma; recently it was received from Ceylon with a collection of rats and mice sent to the Indian Museum for identification.

a.	Skin	Naga Hills	J. Butler, 1873.
b.	Skin	♂ Katmandu, Nepal,	J. Scully.
		22-11-77.	
c-d.	2 Alc. 1 skull	Katmandu, Nepal, Mus. Coll.	
		♂ ♀	10-1-70.
e-f.	2 Alc.	♂ ♀ Ling Ling, nr. Kurseong, T. Johnston.	
		Bt. Sikkim.	
g.	Alc.	♀ Darjeeling	G. King.
h-j.	2 Alc. 1 skull	Allahabad	J. Cockburn.
		♂ ♀	
k.	Alc.	♀ Banda dist., N.-W. P.	J. Cockburn.
l.	Alc. skull	♂ S. E. Berar, 4-8-70	W. T. Blanford.
m.	Alc.	♂ Khandala, Bm.	G. W. Vidal.
n-q.	4 Alc., 3 skulls	Lodang, Godavery	W. T. Blanford.
		dist., 27-7-71.	
r-t.	♂ 2 ♀ 1 juv.	♀ Cherrapoonjee, Assam,	J. H. Bourne.
		12-7-71.	
u.	Alc. skull	♀ Nampoung, Yunnan	J. Anderson, 1875.
		Frontier.	
v.	Alc. skull	♀ Burma, 10-72	W. Theobald.
w-x.	2 Stuffed	South India	Sir W. Elliot, A. S. B.
y.	1 Stuffed	Assam	F. Jenkins, A. S. B.

## Genus GOLUNDA.

*Golunda*, *Gray Charlesw. Mag. N. H.*, i, p. 586 (1837). *Type*, *G. ellioti*.

*Golunda ellioti*.

*Golunda ellioti*, *Gray Charlesw. Mag. N. H.*, i, p. 586 (1837); id. *List Mamm. B. M.*, p. 113; *Blyth F. A. S. B.*, xxxii, p. 350; id. *Cat.* no. 397,

- p. 121; *Ferdon Mamm.*, p. 212; *Blanford Z. A. S. B.*, xlv, p. 165, pl. x; id. *ibid.*, xlvi, p. 292, pl. i, fig. 10.  
*Mus hirsutus*, *Elliot Madras Journ.*, x, p. 213 (1839).  
*Mus coffæus*, *Kelaart Journ. Ceylon As. Soc.*, v, p. 214 (1850); id. *Prodr. Faun. Zeylan.*, p. 67.  
 ? *Golunda newera*, *Kelaart Prodr. Faun. Zeylan.*, p. 67 (1852).  
*Pelomys watsoni*, *Blanford P. A. S. B.*, p. 181 (1876).

*Distribution.*—The western and southern parts of India and Ceylon; it is recorded from Sind by Blanford.

a-c.	Alc. ♂ ♀ juv.	Goonna, C. I.	A. Barclay.
d.	Alc., skull ♀	Madras	J. Anderson.
e-f.	2 Alc. juv.	.....	Madras Museum.
g-j.	3 Alc. ♀ 2 juv.	South India	Sir W. Elliot, A. S. B.
k.	Skin	Satpura Hills, C. P.	V. Ball.
l.	Skin, skull	2-3-74. South India	Sir W. Elliot, A. S. B.
m.	Skin	Ceylon	E. F. Kelaart, A. S. B.

### Genus UROMYS.

- Uromys*, *Peters Monatsber. Akad. Berlin.*, p. 343 (1867). *Type*, *U. macropus*.  
*Gymnomys*, *Gray P. Z. S.*, p. 597 (1867). *Type*, *U. macropus*.

### *Uromys macropus*.

- Mus macropus*, *Gray P. Z. S.*, p. 221 (1866).  
*Uromys macropus*, *Peters Monatsber. Akad. Berlin*, p. 344, with plate (1867); *Collett Zool. Z. B.*, ii, p. 840.  
*Hapalotis caudimaculata*, *Kreff P. Z. S.*, p. 316 (1867).  
*Gymnomys macropus*, *Gray P. Z. S.*, p. 597 (1867).

*Distribution.*—Northern territory and N. Queensland, Australia.

- a-b. 2 Alc. ♂ ♀ Cardwell, Queensland, Brisbane Mus. [Ex.]  
 2 skulls. 9-80.

### Genus HAPALOTIS.

- Hapalotis*, *Lichtenstein Darstel.* pl. xxix (1829). *Type*, *H. albipes*.

### *Hapalotis apicalis*.

- Hapalotis apicalis*, *Gould P. Z. S.*, p. 126 (1851); *Gould Mamm. Austr.*, iii, pl. ii; *Blyth Cat.* no. 356, p. 111.

*Distribution.*—South Australia.

- a-b. 2 Stuffed South Australia Melbourne Mus., A. S. B.

### *Hapalotis conditor*.

- Mus conditor*, *Gould Sturt's Narr. Expd. Centr. Austr.*, i, p. 120; ii, app., p. 7\*.

*Hapalotis conditor*, *Gould Mamm. Austr.*, iii, pl. vi (1863).

*Distribution*.—Australia.

a-b 2 Skins      Gwaler ranges,      No history.  
                                South Australia.

### *Hapalotis mitchelli*.

*Dipus mitchellii*, *Ogilby Linn. Trans.*, xviii, p. 130 (1841).

*Hapalotis mitchellii*, *Gould P. Z. S.*, p. 151 (1840); *Gray App. Grey's Travels, Austr.*, ii, p. 404\*; *Gould Mamm. Austr.*, pl. ix; *Blyth Cat.* no. 357, p. 111.

*Hapalotis gouldii*, *Gray App. Grey's Travels, Austr.*, ii, p. 404 (1841)\*.

*Distribution*.—Australia.

a. Skin      Western Australia      No history.  
c-d. Stuffed      South Australia      Melbourne Mus., 1861, A.S.B.

### Genus HESPEROMYS.

*Hesperomys*, *Waterhouse Zool. Voy. Beagle*, p. 75 (1839)\*.

### *Hesperomys leucopus*.

*Mus sylvaticus*, var. *Erxleben Syst. Reg. Anim.*, i, p. 390 (1775).

*Mus agrarius*, var. *americanus*, *Kerr Linn. Anim. Kingd.*, p. 231 (1792)\*.

*Musculus leucopus*, *Rafinesque Am. Month. Mag.*, iii, p. 446 (1818)\*.

*Hesperomys leucopus*, *Leconte P. Acad. N. Sci. Philad.*, vi, p. 412 (1854); *Coues Monographs N. Amer. Rodents*, p. 51.

*Distribution*.—North America, from the Arctic regions to the northern parts of Mexico.

a-b. 2 Skins      Huron County Out., J. H. Garnier [Ex.]  
                                Canada.  
c. Skin, skull ♂      Gainsville Flor., U.S.A. Brit. Mus. [Ex.]  
                                (F.M Chapman,  
                                14-2-89).

### Genus CRICETUS.

*Cricetus*, *Pallas Zoog. Ross. As.*, i, p. 160 (1811).

### *Cricetus phæus*.

*Mus phæus*, *Pallas Nov. Spec. Quad. e Glir.*, p. 261 (1778).

*Cricetus phæus*, *Pallas Zoog. Ross. As.*, i, p. 163 (1811); *Blanford Persia*, p. 58; id. *Yarkand Mammals*, p. 44; id. *J. A. S. B.*, xlviii, p. 96; *Danford and Alston P. Z. S.*, 1880, p. 61; *Scully P. Z. S.*, 1881, p. 205; *Thomas Linn. Trans.* (2), v, p. 59; *Radde Zool. J. B.*, iv, p. 1032.

*Cricetus isabellinus*, *Filippi Viaggio Persia*, p. 344 (1865); *Blanford Persia*, p. 59; *Scully P. Z. S.*, 1881, p. 205.

*Cricetus fulvus*, *Blanford* *♀*. *A. S. B.*, xlv, p. 108 (1875); id. *Yarkand Mammals*, p. 45, pl. ix, fig. 1, pl. xb, fig. 3; id *♀*. *A. S. B.*, xlviii, p. 96; *Scully P. Z. S.*, 1881, p. 205.

*Distribution*.—Central Asia extending westwards to the Caspian and Asia Minor; it has been obtained within the limits of the Indian Empire at Gilgit only.

The three so-called species, *Cricetus phæus*, *C. fulvus*, and *C. isabellinus* do not differ from one another except in size, and even this distinction breaks down when a large series of skins and specimens in alcohol are examined; below are given the measurements in inches of four specimens, the first "g" named isabellinus by Scully, the second "k" fulvus of Scully, the third "h" phæus of Scully; it is, however, due to Scully to add that he himself in his paper was evidently of opinion that the three forms could not be specifically distinguished from one another:—

	"g"	"k"	"h"	"d"
Head and body	4'57	4'30	3'55	4'00
Tail	1'20	1'30	1'20	1'90
Hind-foot	65	67	62	60
Muzzle to ear	1'10	1'05	95	98

a-c. 3 Alc., ♂ 1 skull.	Kohrud, North Persia	W. T. Blanford.
d. Alc., skull ♀	" " "	W. T. Blanford.
e-f. 2 Alc. ♂ ♀	Shiraz	W. T. Blanford.
g-j. 3 Alc. ♂ ♀	Gilgit	J. Scully.
h. Alc. ♀	.....	J. Scully.
l-m. 2 Alc. juv.	.....	J. Scully.
n-q. 4 Skins, ♂ 3 ♀ 1 skull.	Kohrud, North Persia, 20-7-72, 7,000 feet.	W. T. Blanford.
r-t. 3 Skins, ♂ ♀ 1 skull.	Shiraz, Persia	Museum Collector.
u. Skin	Mashish, South Persia	W. T. Blanford.
v-w. 2 Skins, 1 skull	Panjah Wakhan, 4-74	F. Stoliczka.
x. Skin, skull	Sirikol, 1-4-74	F. Stoliczka.
y. Skin	Kashgar, 17-12-73	F. Stoliczka.

[Type of *Cricetus fulvus*, Blanford.]

z. Skin	North of Sanju Pass	F. Stoliczka.
a <sup>2</sup> . Skin	Sirikol, 1-4-74	F. Stoliczka.
b <sup>2</sup> . Skin, skull.	♀ Panjah, 21-4-74	F. Stoliczka.
c <sup>2</sup> -d <sup>2</sup> . 2 Skins	Yarkand, 20-5-74	F. Stoliczka.
e <sup>2</sup> . Skin	Yangihissar, 4-74	F. Stoliczka.
f <sup>2</sup> -j <sup>2</sup> . 4 Skins	♂ Nultar valley, Gilgit, 7-79.	J. Scully.
k <sup>2</sup> -l <sup>2</sup> . 2 Skins	♀ " " 7-79	J. Scully.
m <sup>2</sup> -n <sup>2</sup> . 2 Skins	♂ Yarkand, 4-75.	J. Scully.
o <sup>2</sup> . Skull	Kohrud, North Persia	W. T. Blanford.
p <sup>2</sup> . Skeleton	♂ " " "	W. T. Blanford.

♀ <sup>2</sup> . 2 Skulls	Yarkand Exped.	F. Stoliczka.
♀ <sup>2</sup> . Alc. skull ♀	Sarikol, 4-4-74.	F. Stoliczka.

[With "y" a co-type of *C. fulvus*, Blanford.]

♂ <sup>2</sup> -♀ <sup>2</sup> . 2 Alc.	♂ ♀	.....	F. Stoliczka.
♀ <sup>2</sup> . Alc. skull	♀	Quetta.	Sir O. St. John.
♀ <sup>2</sup> -♂ <sup>2</sup> . 5 Skins		Gilgit, 4-78.	J. Biddulph.

### Genus CRICETOMYS.

*Cricetomys*, *Waterhouse P. Z. S.*, p. 2 (1840). *Type*, *C. gambianus*.

### *Cricetomys gambianus*.

*Cricetomys gambianus*, *Waterhouse P. Z. S.*, p. 2 (1840); *Thomas P. Z. S.* (1888), p. 10.

*Distribution*.—Western and Central Africa.

a. Skin	♀	Gadda Monbattu,	Brit. Mus. [Ex.]
		C. Africa (Emin Pasha,	
		8-2-84.)	

### Genus FIBER.

*Fiber G. Cuvier Tableau Gen. in Leçon d'Anat. Comp.*, 1st ed. (1800)\*.  
*Type*, *F. zibethicus*.

### *Fiber zibethicus*.

*Castor zibethicus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 79 (1766).  
*Fiber zibethicus*, *G. Cuvier Regne Anim.*, 1st ed., i, p. 192 (1817); *Blyth Cat.* no. 405, p. 123; *Coues Monographs N. Amer. Rodents*, p. 254.  
*Ondatra zibethicus*, *Lesson Man. Mamm.*, p. 286 (1827).

*Distribution*.—North America.

a. Skin	Huron Co. Ont., Canada.	J. H. Garnier [Ex.]
b. Skull	Upton, Maine, U.S.A.	W. Theobald.
c. Skull	Massachussetts, U.S.A.	W. Theobald.
d. Stuffed	N. America	E. Rüppell (1855), A.S.B.

### Genus ARVICOLA.

*Microtus*, *Schrank Faun. Boic.*, i, p. 66 (1789)\*.  
*Arvicola*, *Lacépède Tableau*, p. 10 (1803)\*.  
*Lemmus*, *Tiedemann Zool.*, i, p. 473 (1808).  
*Hypudæus*, *Illiger Prodr.*, p. 87 (1811).  
*Myodes*, *Pallas, Zoog. Ross. As.*, i, p. 172 (1831).  
*Brachyurus*, *Fischer Zoognosie*, 3rd ed., viii, p. 55 (1814)\*.  
*Phaiomys*, *Blyth J. A. S. B.*, xxxii, p. 89 (1863). *Type*, *A. blythii*.  
*Neodon*, *Hodgson Ann. Mag. N. H.* (2), iii, p. 203 (1849). *Type*, *A. sikimensis*.

The oldest name for this genus is undoubtedly *Microtus*, a name which has recently been re-discovered by Lataste who has paid considerable attention to this group of Mammals; this same author has recently proposed a new set of subgenera for the Palæartic species which do not seem to differ very essentially from those proposed by Blasius, and since Lataste has not taken the Himalayan forms into consideration and Blanford's excellent paper on the Himalayan forms was founded on Blasius' scheme, this latter has been adopted in the catalogue of the specimens enumerated below.

The Himalayan voles are scarce in collections owing doubtless to the fact that they only occur in very remote and inaccessible places and at great heights above the sea, and it seems probable that the number of species may be reduced when a larger number of specimens are obtained.

The following synopsis of the Indian species is adopted from Blanford's paper before quoted.

*Key of the Indian Species.*

- a.* The anterior upper molar has three angles in, and outside, the 2nd two inside and three out. The ant. lower m. has normally seven spaces.
- b.* The post. upper m. terminates in a narrow longitudinal process. [=Sub-genus *Alticola*].
- c.* The post. upper m. has two strong internal angles and four weak outer angles; thumb rudimentary and clawless.
- d.* The post. lobe of the post. upper m., behind the second inner angle, is less than half the length of the tooth.  
**A. stoliczkanus**, p. 89.
- d*<sup>2</sup>. The post. lobe of the post. upper m., behind the second inner angle, is half the length of the tooth.  
**A. stracheyi**, p. 90.
- c*<sup>2</sup>. The post. upper m. has two internal and two external angles, the thumb is clawed and the ears are short.  
**A. wynnei**, p. 90.
- c*<sup>3</sup>. The post. upper m. has three angles on either side; the thumb is clawed.
- e.* In the ant. upper m. the first inner angle is proximal to the first outer; ears short.  
**A. roylei**, p. 91.
- e*<sup>2</sup>. In the ant. upper m. the first inner angle is distal to the first outer; ears large and projecting; tail half the length of head and body.  
**A. blanfordi**, p. 91.

*b*<sup>2</sup>. The post. upper m. does not terminate behind in a longitudinal process, but is somewhat transversely elongated; thumb clawed and ears small. [=Sub-genus *Paludicola*].

*f*. The post. upper m. has three external angles and the first lower m. four. **A. blythi**, p. 91.

*a*<sup>2</sup>. The ant. upper m. has four angles inside and three out, the 2nd three inside and out; the ant. lower m. with normally nine spaces; thumb clawed; ears projecting.  
[=Sub-genus *Neodon*]. **A. sikimensis**, p. 93.

#### Sub-genus MYODES.

#### *Arvicola glareolus*.

*Mus glareolus*, *Schreber Säugeth., Atlas*, pl. cxcx (1792).

*Mus rutilus*, var. *Pallas Nov. Spec. Quad. e Glir.*, p. 246 (1774).

*Arvicola fulvus*, *Millet Faune de Maine et Loire* (1828)\*.

*Arvicola riparia*, *Yarrell, P. Z. S.*, p. 109 (1832).

*Lemmus rubidus*, *Baillon Mem. Soc. Abbeville* (1830)\*.

*Hypudacus hercynicus*, *Mehlis Isis*, p. 874, pl. vii, fig. 8 (1831).

*Arvicola rufescens*, *Selys-Longchamps Campagnols de Liège*, p. 13, pl. iv (1836).

*Hypudius nageri*, *Schinz Synops. Mamm.*, ii, p. 237 (1845).

*Arvicola glareolus*, *Blasius Säugeth. Deutschl.*, p. 337 (1857); *Blyth Cat.* no. 408, p. 124.

*Arvicola bicolor*, *Fatio Rev. Mag. Zool.* (2), xiv, p. 257, pl. xii (1862).

*Distribution*.—Central Europe from England to Russia.

<i>a-c</i> . 3 Skins, 1 skull	France.	A. Malherbe (1842), A.S.B
<i>d</i> . Alc. and skull ♂	Norway.	Christiania Univ. (1846), A.S.B.
<i>e-h</i> . 4 Skins and skulls.	England.	Sir W. Jardine, A.S.B.

#### Sub-genus ALTICOLA.

#### *Arvicola stoliczkanus*.

*Arvicola stoliczkanus*, *Blanford F. A. S. B.*, xlv, p. 107 (1875); id. *Yarkand Mamm.*, p. 42, pl. viii, fig. 1, pl. xb, fig. 2; id. *F. A. S. B.*, l, p. 97.

*Distribution*.—Only known from the two specimens mentioned below from the Kuenlun mountains in Northern Ladak.

<i>a</i> . Skin, skull	Aktagh, Yarkand R., 13-10-73.	F. Stoliczka.
<i>b</i> . Skin.	Nubra Valley	Dr. Bellew.

[Co-types of *A. stoliczkanus*, Blanford.]

**Arvicola stracheyi.**

*Arvicola stracheyi*, *Thomas Ann. Mag. N. H.* (5), vi, p. 332 (1880);  
*Blanford Z. A. S. B.*, 1, p. 98, pl. i, fig. c.

*Distribution.*—The type specimen was procured by General Strachey in the Kumaon, and the specimen catalogued below was procured in the Kangra district in the Punjab Himalayas; no other specimen has been recorded.

The only specimen in the collection, which was obtained from the stomach of a snake (*Halys himalayanus*) is a young one as is proved by the teeth; it agrees best with the description given of *A. stracheyi* but differs even from this in certain particulars; the ventral surface is brown like the dorsal surface, whereas in *A. stracheyi* the ventral surface is said to be gray; the ears are but sparsely covered with hair except at their tips where the hair certainly is thicker; the tail is also the same colour as the body; with these exceptions the specimen is in entire harmony with the description of *A. stracheyi* given by Blanford (*l. c.*); there does not therefore seem to be any justification for describing a new species.

The following are the measurements:—head and body, 3·2; tail, ·77; tarsus, ·55.

There are only five tarsal pads as is *A. wynnei*, one at the base of each toe and one proximal one on the inner side, at the edge of the hairs which cover the posterior portion of the tarsus.

a. Alc. skull. ♂ Dharmsala, Himalayas, H. Mostyn Clark.  
16,000 ft.

**Arvicola wynnei.**

*Arvicola wynnei*, *Blanford Z. A. S. B.*, xlix, p. 244 (1880); id. *Z. A. S. B.*, 1, p. 99, pl. i, fig. b.  
*Arvicola roylei*, *apud Blyth Z. A. S. B.*, xxxii, p. 89 (1863); id. *Cat.* no. 410, p. 125.

*Distribution.*—Only known with certainty from Murree in the North-West Himalayas, and from Sonemarg in Kashmir.

The specimen below is said in Blyth's Catalogue to have come from Pind Dadun Khan in the Punjab; a reference, however, to *J. A. S. B.*, xxxii, p. 89, shows that the specimen came from the "Bala" Pass, probably the same as the Babeh Pass in Spiti; this specimen was identified by Blyth with *A. roylei* of Gray; the skull on examination, however, shows that it is certainly not *A. roylei*, but one of those forms in which the posterior upper molar possesses two, not three, internal angles, and as the thumb is distinctly clawed, it must be identified rather with *A. wynnei* than with *A. stracheyi* or *A. stoliczkana* which are the other two forms in which the posterior upper molar has two internal angles.

a. Skin, skull "Bala Pass" W. Theobald (1853), A.S.B.



- b. Alc., skull ♀ ..... No history.  
 c. Skin, skull nr. Sonemarg, Kashmir F. Stoliczka.

### Arvicola roylei.

*Arvicola roylei*, Gray *Ann. Mag. N. H.*, x, p. 265 (1842); *Ferdon Mamm.*, p. 216?; *Blanford Z. A. S. B.*, 1, p. 102, pl. i, fig. d.

*Distribution.*—The type and only other specimen known were both obtained in Kashmir.

The specimen catalogued below agrees fairly well with the description of *A. roylei* as given by Blanford (*l. c.*), unfortunately the hinder part of the skull is wanting and with it the posterior upper molar which is so important for the discrimination of the species of this genus; it is not therefore absolutely certain that the specimen should be referred to this species.

- a. Skin, skull Chamba, Kashmir J. Anderson.

### Arvicola blanfordi.

*Arvicola blanfordi*, Scully *Ann. Mag. N. H.* (5), vi, p. 399 (1880); *id. P. Z. S.*, 1881, p. 206; *Blanford Z. A. S. B.*, 1, p. 104, pl. i, fig. e.

*Distribution.*—This species has only been found in the Gilgit district at an elevation of from 9,000 to 10,000 feet.

- a-b. 2 Alc., ♂ ♀ Gilgit, 7-79. J. Scully.  
 2 skulls.

[Co-types of *A. blanfordi*, Scully.]

- c-d. 2 Skins ♂ Nultar Valley, Gilgit, J. Scully.  
 18-7-79.

- e. Skin skull " " " J. Scully.

### Sub-genus PALUDICOLA.

### Arvicola blythi.

*Phaiomys leucurus*, Blyth *Z. A. S. B.*, xxxii, p. 89 (1863); *Theobald Z. A. S. B.*, xxxi, p. 519; *Blyth Cat.* no. 412, p. 125. [*nec Gerbe.*]  
*Arvicola blythi*, *Blanford Z. A. S. B.*, xlv, p. 107 (1875); *id. Yarkand Mammals*, p. 39, pl. viii, fig. 2, pl. xb, fig. 1; *id. Z. A. S. B.*, 1, p. 106, pl. ii, fig. b.

*Distribution.*—Western Thibet.

- a. Alc. skull. ♂ Tsomoriri, Western W. Theobald, A.S.B.  
 Ladak, 14,000 ft. 17-8-61.

[Type of *Phaiomys leucurus*, Blyth.]

b. Alc., skull	♂ Tanksee, Thibet, 13,000, ft. 17-9-73.	F. Stoliczka.
c. Alc.	♂ Pankong Lake, Thibet, 20-9-73.	F. Stoliczka.
d-e. 2 Skins.	Tanksee, 17-9-73	F. Stoliczka.
f. Skin.	Pankong Lake, Thibet, 20-9-73.	F. Stoliczka.
g. Skin, skull.	Yarkand Exped.	F. Stoliczka.

### Arvicola amphibius.

- Mus amphibius, *Linnaeus Syst. Nat.*, 12th ed., i, p. 82 (1766).  
 Mus terrestris, *Linnaeus Syst. Nat.*, 12th ed., i, p. 82 (1766).  
 Lemnus schermaus, *F. Cuvier. Dict. Sci. Nat.*, vi, p. 307 (1817).  
 Arvicola argentoratensis, *Desmarest Mamm.*, p. 281 (1820).  
 Arvicola pertinax, *Savi. Mem. scientif. Pisa* (1828)\*.  
 Arvicola ater, *Macgillivray Mem. Wern. Soc.*, vi, p. 424 (1832).  
 Arvicola monticola, *Selys-Longchamps Rev. Zool. Soc. Cuv.*, p. 249 (1838).  
 Arvicola musignani, *Selys-Longchamps Rev. Zool. Soc. Cuv.*, p. 8 (1839).  
 Arvicola destructor, *Savi Giorn. Lett. Pisa*, p. 102 (1839)\*.  
 Arvicola amphibius, *Blasius Säugeth. Deutsch.*, p. 344 (1857); *Blyth Cat.*  
 no. 406, p. 124.

#### The Water Rat.

*Distribution.*—The whole Palæartic region.

a. Skin	.....	R. C. Tytler, A.S.B.
b.c. 2 Skins and skulls.	Cambridgeshire	Brit. Mus. [Ex.]
d. Alc., skull	♀ Norway	Christiania Univ. (1856), A.S.B.
e-f. 2 Stuffed	England	A. D. Bartlett (1842), A.S.B.
g. Stuffed	.....	Montrose Museum, A.S.B.
h. Skeleton mtd.	England	J. H. Gurney (1860), A.S.B.

### Arvicola nivalis.

- Arvicola nivalis, *Martins Rev. Zool. Soc. Cuv.*, p. 331 (1842); *Blasius Säugeth. Deutsch.*, p. 359; *Blyth Cat.*, no. 407, p. 124.  
 Hypudaeus alpinus, *Wagner Schreber Säugeth., Suppl.*, iii, p. 576 (1843).  
 Arvicola lebrunii, *Crespon, Faune Merid.*, i, p. 77 (1844)\*.  
 Arvicola leucurus, *Gerbe Rev. Mag. Zool.*, p. 260, pl. xi (1852)\*.  
 Hypudaeus petrophilus, *Wagner, Münch Gel. Anz.*, p. 307 (1853).

*Distribution.*—The Alpine regions of Europe, including the Pyrenees.

a. Skin	Mt. St. Gothard	A. Malherbe, A.S.B.
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#### Sub-genus AGRICOLA.

### Arvicola agrestis.

- Mus agrestis, *Linnaeus Faun. Suec.*, p. 11, no. 30 (1761).  
 Mus gregarius, *Linnaeus Syst. Nat.*, 12th ed., i, p. 84 (1766).

- Lemnus insularis*, Nilsson Kongl. Vetens. Akad. Oefvers., p. 34 (1844)\*.  
*Arvicola baillonii*, Selys-Longchamps Act. Congrès Turin (1840)\*.  
*Arvicola neglecta*, Fenyns. Ann. Mag. N. H., vii, p. 270 (1841).  
*Arvicola brittanicus*, Selys-Longchamps Rev. Zool. Soc. Cuv., p. 307 (1847).  
*Arvicola arvalis*, apud Blyth Cat., no. 409, p. 125 (1863).

*Distribution*.—Northern Europe.

- |                |         |                               |
|----------------|---------|-------------------------------|
| a. Skin, skull | England | A. D. Bartlett (1843), A.S.B. |
| b. Alc.        | London  | A. D. Bartlett.               |
| c. Skin, skull | England | A. D. Bartlett, A.S.B.        |

#### Sub-genus ARVICOLA.

#### *Arvicola guentheri*.

- Arvicola guentheri*, Danford and Alston P. Z. S., p. 62, pl. v (1880);  
 Scully *J.* A. S. B., lvi, p. 72.  
 ♀ *Arvicola leucura*, Sewertzoff Turkest. Faun., p. 82 (1873); id. Ann. Mag.  
 N. H. (4) xviii, p. 52 [nec Gerbe.]

*Distribution*.—The type was obtained at Marash in the Taurus of Asia Minor; the specimen in the collection is from Afghan-Turkistan, the species is therefore probably to be found in the intervening country.

- |                |                  |             |
|----------------|------------------|-------------|
| a. Skin, skull | Afghan-Turkestan | C. E. Yate. |
|----------------|------------------|-------------|

#### Sub-genus NEODON.

#### *Arvicola sikimensis*.

- Neodon sikimensis*, Hodgson Ann. Mag. N. H. (2), iii, p. 203 (1849);  
 id. Cat. E. I. Mus., p. 145; Gray Cat. Hodgs. Coll., 2nd ed., p. 11;  
 Blyth Cat. no. 411, p. 125; Ferdon Mamm., p. 217.  
*Arvicola* ? *thricolis* (thricotis), Gray Cat. Hodgs. Coll., 2nd ed., p. 10.  
*Arvicola sikimensis*, Blanford *J.* A. S. B., l, p. 110, pl. i, fig. a (1881).

*Distribution*.—Sikkim from 7,000 to 10,000 ft. in the forests.

- |                  |            |          |
|------------------|------------|----------|
| a. Alc., skull ♂ | Darjeeling | G. King. |
|------------------|------------|----------|

### Genus HYPUDAEUS.

*Hypudaeus*, Illiger Prodr., p. 87 (1811).

#### *Hypudaeus lemnus*.

- Mus lemnus*, Linnæus Syst. Nat., 12th ed., i, p. 80 (1766).  
*Hypudaeus lemnus*, Illiger Prodr., p. 87 (1811); Blyth Cat. no. 413,  
 p. 126.  
*Lemnus norvegicus*, Desmarest Mamm., p. 287 (1820).

The Lemming.

*Distribution.*—Scandinavia.

a-b. 2 Stuffed Norway

Christiania University, A.S.B.

### Genus ELLOBIUS.

Ellobius, *Fischer Zoognosia*, iii, p. 72 (1814)\*. *Type*, *E. talpinus*.

Myospalax, *Blyth F. A. S. B.*, xv, p. 141 (1846). *Type*, *E. fuscocapillus*.

### Ellobius fuscocapillus.

Georychus fuscocapillus, *Blyth, F. A. S. B.*, x, p. 928 (1841); id. *F. A. S. B.*, xi, p. 887.

Myospalax fuscocapillus, *Blyth F. A. S. B.*, xv, p. 141 (1846); id. *Cat.* no. 414, p. 126.

Ellobius fuscocapillus, *Blanford F. A. S. B.*, l, p. 119, pl. ii, fig. d (1881); *Thomas Linn. Trans.* (2), v, p. 59.

Ellobius intermedius, *Scully, F. A. S. B.*, lvi, p. 73 (1887).

The Quetta Mole.

*Distribution.*—Afghanistan, has been obtained from various places in Afghan-Turkistan and from Quetta.

Thomas, after examining the Afghan boundary specimens of *Ellobius*, has come to the conclusion that the characters whereby it was distinguished as a separate species by Scully do not hold good when a considerable number of specimens are examined; *E. intermedius* has therefore been merged with *E. fuscocapillus*.

Besides the original type of the genus, *E. talpinus*, a second Central Asiatic species has recently been described, *Ellobius tancrei* from the Altai by Blasius (*Zool. Anz.*, vii, p. 197).

a-d. 4 Skins, Quetta T. Hutton (1846), A.S.B.  
1 skull.

e. Skin, skull ♀ Killa; Wali, Herat, 5-86 C. E. Yate.

[Type of *Ellobius intermedius*, Scully.]

f. Skin, skull ♂ Killa Wali, Herat, 5-86 C. E. Yate.

g. Skin ♂ Bokum, Herat, 5-86 C. E. Yate.

h. Alc. ♀ Gulran, Herat J. E. T. Aichison.

### Genus SPALAX.

Spalax, *Guldenstadt Nov. Comm. Acad. Petrop.*, xiv, pt. i, p. 409 (1770).

### Spalax typhlus.

*Mus typhlus*, *Pallas Nov. Sp. Quad. e Glir.*, p. 154 (1778).

Spalax microphthalmos, *Guldenstadt Nov. Comm. Acad. Petrop.*, xiv, pt. i, p. 411 (1770).

Spalax pallasii, *Nordmann Bull. Acad., St. Peters.* v, p. 200 (1835)\*

*Spalax xanthodon*, Nordmann in Demidoff *Voyage dans la Russie*.  
*Spalax typhlus*, Blasius *Säugeth. Deutsch.*, p. 400 (1857); *Blyth Cat.* no. 415, p. 126; *Radde Zool. F. B.*, iv, p. 1044.

*Distribution*.—South-Eastern Europe and Western Asia, extending to the eastern shores of the Caspian Sea, and to Mesopotamia and Syria.

a. b.	2 Alc. 1 skull ♂ and juv.	Hungary	Hungarian Mus., A.S.B.
c.	Skin	Sarepta, Russia	Brit Mus. [Ex.]
d.	Stuffed	Beyrout	J. C. Parker (1855), A.S.B.

## Genus RHIZOMYS.

*Rhizomys*, Gray *P. Z. S.*, p. 95 (1831); *Type*, *R. sinensis*.  
*Nyctocletes*, Temminck *Monogr. Mamm.*, ii, p. 42 (1835-41); *Type*, *R. sumatrensis*.

Anderson has monographed this genus in his *Anatomical and Zoological Researches*, and his account, which is illustrated by plates of several of the species, is so complete that there is nothing additional to be added; representatives of all the species except *Rhizomys minor* from Siam and *Rhizomys sinensis* from China, will be found catalogued below.

### *Key of the Indian Species.*

- a. Somewhat larger, head and body from 9 to 12 inches in length.  
 b. Fur soft, thick and brown with longer white-banded hairs causing a grizzled appearance; sides of the face pale.  
     **R. pruinosus**, p. 96.  
 b.<sup>2</sup> Fur harsh, no under fur, with a dark median streak on the top of the head; cheeks and sides of the head bright red.  
     **R. erythrogenys**, p. 96.  
 a.<sup>2</sup> Somewhat smaller, head and body about 7 inches in length, fur very soft and thick, the basal two-thirds uniformly gray the apical third bright chestnut, most intense on the head.  
     **R. badius**, p. 97.

### *Rhizomys sumatrensis.*

*Mus sumatrensis*, Raffles *Linn. Trans.*, xiii, p. 258 (1822).

*Rhizomys sumatrensis*, Gray *P. Z. S.*, p. 95 (1831); Cantor *F. A. S. B.*, xv, p. 255; *Blyth Cat.* no. 400, p. 122; id. *F. A. S. B.*, xlv, *Burma List*, p. 41; Anderson *Anat. Zool. Res.*, p. 322.

*Spalax javanus*, G. Cuvier *Regne Anim.*, 2nd ed., i, p. 211 (1829).

*Nyctocletes dekan*, Temminck *Monogr. Mamm.*, ii, p. 44, pl. xxxiii (1835-41); Gervais *Voyage Bonite Zool.*, i, p. 54, pls. x, xi, figs. 1-3\*.

*Rhizomys cinereus*, M'Clelland, *Calc. Journ. N. H.*, ii, p. 456 (1842).

*Rhizomys dekan*, *Schinz Synops. Mamm.*, ii, p. 123, (1845) [pt.]; *Jentink Notes Leyd. Mus.*, xi, p. 28.

*Distribution*.—The Malay peninsula and Sumatra (Jentink); there is no record of its occurrence in Tenasserim; the species occurring there being *R. erythrogenys*.

a. Skin	♂	Malacca	India Mus., London
b. Skin		Alma Tapioca Estate, Wellesley Prov.	W. Davison.
c. Skin skeleton.	♂	.....	W. Rutledge.
d-e. 2 Stuffed, 1 skull.		Malacca	Messrs. Frith and Lindstedt, A.S.B.
f-g. 2 Stuffed		„	Messrs. Frith and Lindstedt, A.S.B.
h-j. 2 Alc.	♀	.....	Zoological Gardens.
k. Skin	juv.	Malacca (Cantor)	India Mus., London.

### *Rhizomys erythrogenys*.

*Rhizomys erythrogenys*, *Anderson P. A. S. B.*, p. 148 (1877); id. *Anat. Zool. Res.*, p. 324, pl. xiii a; id. *J. Linn. Soc.*, xxi, p. 341.

Red-cheeked Bamboo Rat; Pwai of Tenasserim.

*Distribution*.—Shan States of Upper Burma and Mergui.

This species resembles *R. sumatrensis*, from which it is distinguished by its red cheeks, the dark occipital line extending forwards to between the eyes, and the absence of any trace of the white mark characteristic of the young and adolescent *R. sumatrensis*; the skull is intermediate in character between *R. sumatrensis* and *R. badius*.

a. Skin in bad condition and skele- ton.	}	Salween Hill Tracts (A. H. Hildebrand)	Zoological Gardens.
b. Stuffed			
[Co-types of <i>R. erythrogenys</i> , Anderson.]			
c-d. 2 Skins, ♂ juv. 2 skele- ♀ juv. tons.		Mergui, 1-82	J. Anderson.
e. Alc., skull juv.		Mergui	J. Anderson.

### *Rhizomys pruinus*.

*Rhizomys pruinus*, *Blyth J. A. S. B.*, xx, p. 519 (1851); id. *Cat. no. 401*, p. 122; id. *J. A. S. B.*, xliv, *Burma List*, p. 41; *Anderson Anat. Zool. Res.*, p. 325, pls. xiii, xvi.

Bamboo Rat.

*Distribution*.—This species is found in the Kashia and Naga hills of Assam, whence it extends through the Manipur hills to the

Kakhyen hills in Upper Burma where it was procured by Anderson.

a-c.	3 Skins	Kashia hills, Assam	T. laTouche.
d.	Skin ♀	Naga hills	A. W. Chennell.
e.	Skin	Tellizo Peak, Naga hills	H. H. Godwin Austen.
f.	Skin, skeleton.	" "	H. H. Godwin Austen.
g.	Skin, skeleton ♂ juv.	Iril R., Manipur	H. H. Godwin Austen.
h.	Skin, skeleton ♂	Pouline, Kakhyen hills, 17-2-75	J. Anderson.
j.	Skin, skeleton ♀	Pouline, Kakhyen hills, 17-2-75	J. Anderson.
k.	Skin, skeleton mtd. ♀	nr. Tsitkaw, Kakhyen hills, 2-75	J. Anderson.
l-n.	3 Stuffed	Cherrapoonjee, Assam	F. Skipwith, A. S. B.

[Types of *Rhizomys pruinosus*, Blyth.]

o-p.	2 Alc. ♂	Ponsee, Kakhyen hills	J. Anderson.
q-t.	4 Alc. ♀	" "	J. Anderson.
u-y.	5 Alc. juv.	Kakhyen hills	J. Anderson.
s.	Viscera in alc.	" "	J. Anderson.
a <sup>2</sup> .	Skull juv.	" "	J. Anderson.

### *Rhizomys badius*.

*Rhizomys badius*, *Hodgson Calc. Journ. N. H.*, ii, p. 60 (1842); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 24; *Blyth Z. A. S. B.*, xii, p. 925; *Horsfield Cat. E. I. Mus.*, p. 165; *Blyth Cat.* no. 402, p. 122; *Ferdon Mamm.*, p. 214; *Anderson Anat. Zool. Res.*, p. 329, pls. xiv, xvi; *Thomas P. Z. S.*, 1886, pp. 65, 71.

*Rhizomys castaneus*, *Blyth Z. A. S. B.*, xii, p. 1007 (1843); *id. Cat.* no. 403, p. 123; *Blanford Z. A. S. B.*, xxxvi, p. 198; *Blyth Z. A. S. B.*, xlvii, p. 165.

*Distribution*.—This species has a somewhat wider range than the last. It is found in the Himalayas from Nepal eastwards and extends through Assam, Manipur, Arakan, and Burma, but does not seem to be found further south than the northern part of Tenasserim.

a.	Skin	Nepal (Hodgson)	India Museum, London.
b-c.	2 Skins	Naga hills	J. Butler.
d.	Skin ♂	" "	A. W. Chennell.
e-f.	2 Skins ♀	Tsitkaw, Kakhyen hills	J. Anderson.
g.	Skin	" "	J. Anderson.
h.	Skin, skeleton.	Chenga, Darjeeling ?	Zoological Gardens.
j-k.	2 Stuffed, 1 skull.	Sikkim Terai	W. T. Blanford, A. S. B.
l-m.	2 Stuffed, skelet. mtd.	Arakan	Sir A. Phayre (1843), A. S. B.

[Types of *Rhizomys castaneus*, Blyth.]

n.	Stuffed	Prome, Pegu	W. T. Blanford, A. S. B.
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<i>v.</i>	Skeleton mtd	nr. Bhamo	J. Anderson.
		♀	
<i>p.</i>	Skeleton	.....	Zoological Gardens.
<i>q-r.</i>	2 Alc.	♂ ♀ Sikkim	G. King.
<i>s.</i>	Alc.	♂ Lingling, Et. Sikkim	T. Johnston.
<i>t.</i>	Alc.	♂ Cherrapoonjee, Assam	H. H. Godwin Austen.
<i>u.</i>	Alc., skull	♂ Cachar	J. Wood Mason.
<i>v.</i>	Alc.	♀ Munipur	Col. Johnston.
<i>w.</i>	Alc.	♂ Kakhyen hills	J <sup>o</sup> Anderson.
<i>x.</i>	Alc.	♀ Shwegyin, Tenasserim	Major Berdmöre, A. S. B.

### Genus BATHYERGUS.

*Bathyergus*, *Illiger Prodr.*, p. 86 (1811). *Type*, *B. maritimus*.

#### *Bathyergus maritimus*.

*Mus maritimus*, *Gmelin Syst. Nat.*, i, p. 140 (1788).

*Mus suillus* *Schreber Säugeth.*, iv, p. 715, pl. ccivb. (1792).

*Bathyergus maritimus*, *Illiger Prodr.*, p. 86 (1811); *Blyth Cat.* no. 416, p. 126.

*Distribution*.—South Africa.

*a-c.* 3 Stuffed ..... W. S. Sherwill, A.S.B.

#### *Bathyergus splendens*.

*Bathyergus splendens*, *Rüppell N. Wirbelth.*, p. 36, pl. xii (1835); *Blanford Abyssinia*, p. 279.

*Distribution*.—North-East Africa (Abyssinia).

*a-b.* 2 Skins ♂ ♀ Lake Ashangi, Abyssinia. W. T. Blanford.

*c.* Skeleton Lake Ashangi, Abyssinia. W. T. Blanford.

### Genus GEORYCHUS.

*Georychus*, *Illiger Prodr.*, p. 87 (1811). *Type*, *G. capensis*.

#### *Georychus cæcutiens*.

*Bathyergus cæcutiens*, *Brants Muizen*, p. 37 (1827).

*Bathyergus hottentottus*, *Lesson et Garnot Bull. Sci. Nat.*, viii, p. 96 (1826).

*Georychus cæcutiens*, *Schinz Synops. Mamm.*, ii, p. 127 (1845); *Blyth Cat.* no. 418, p. 127

*Distribution*.—South Africa.

*a-c.* 3 Stuffed ..... W. S. Sherwill and E. L. Layard, A. S. B.



**Georychus capensis.**

*Mus capensis*, Pallas *Nov. Sp. Quad. e Glir.*, p. 172 (1778).

*Georychus capensis*, Illiger *Prodr.*, p. 87 (1811); *Blyth Cat.*, no. 417, p. 127.

*Distribution.*—South Africa.

a. Skin ..... E. L. Layard (1860), A. S. B.

**Genus GEOMYS.**

*Geomys*, Rafinesque, *Am. Month. Mag.*, ii, p. 45 (1817)\*.

*Diplostoma*, Rafinesque, *Am. Month. Mag.*, ii, p. 45 (1817)\*.

*Saccophorus*, Kuhl *Beitr. Zool.*, p. 65 (1820). *Type*, *G. bursarius*.

*Pseudostoma*, Say *Long's Exped. Rock. Mts.*, i, p. 406 (1823)\*.

*Ascomys*, Lichtenstein *Abhand. Akad. Berlin*, 1822-3, p. 20 (1825). *Type*, *G. bursarius*.

**Geomys bursarius.**

*Mus bursarius*, Shaw *Linn. Trans.*, v, p. 227, pl. viii (1800).

*Geomys cinereus*, Rafinesque *Am. Month. Mag.*, ii, p. 45 (1817)\*.

*Saccophorus bursarius*, Kuhl. *Beitr. Zool.*, p. 65 (1820).

*Pseudostoma bursarius*, Say *Long's Exped. Rock. Mts.*, i, p. 406 (1823)\*.

*Ascomys canadensis*, Lichtenstein *Abhand. Akad. Berlin*, 1822-3, p. 13 (1825).

*Geomys bursarius*, Richardson *Ann. Rep. B. Assoc.*, vi, p. 150 (1837); *Coues Monographs N. Amer. Rodents.*, p. 612.

*Geomys drummondii*, Richardson *Ann. Rep. B. Assoc.*, vi, p. 157 (1837).

*Geomys oregonensis*, Leconte *P. Acad. N. Sci. Philad.*, vi, p. 160 (1854).

*Geomys breviceps*, Baird *P. Acad. N. Sci. Philad.*, vii, p. 335 (1856).

The Pocket Gopher.

*Distribution.*—Central States of North America, the valley of the Mississippi in a board sense.

a-b. 2 Skins ♂ ♀ Texas, 2-84 J. H. Garnier [Ex.]

**Genus ZAPUS.**

*Zapus*, Coues *Bull. U. S. Geol. Surv. Terr.* (2), no. 5, p. 253 (1876) *Type*, *Z. hudsonius*.

**Zapus hudsonius.**

*Dipus hudsonius*, Zimmermann *Geogr. Geschichte*, ii, p. 358 (1780).

*Dipus canadensis*, Davies *Linn. Trans.*, iv, pl. viii, figs. 5-6, p. 157 (1798).

*Dipus americanus*, Barton *Trans. Amer. Philos. Soc.*, iv, p. 115 (1799).

*Dipus labradorius*, Turton, *Syst. Nat.*, i, p. 99 (1806)\*.

*Meriones microcephalus*, Harlan *P. Z. S.*, p. 1 (1839).

*Meriones accadians*, Dawson *Edin. Philos. Journ.*, iii, p. 2, pl. i (1856).

*Zapus hudsonius*, Coues *Bull. U. S. Geol. Surv. Terr.* (2), no. 5, p. 254 (1876); *id. Monographs N. Amer. Rodents.*, p. 467.

*Distribution.*—North America generally from lat. 62° southwards.

a. Alc. Pelee Ont., Canada J. H. Garnier [Ex.]

### Genus DIPUS.

*Dipus Schreber, Säugeth.*, iv, p. 840 (1792).

### *Dipus lagopus.*

*Dipus lagopus*, *Lichtenstein, Eversmann Reise nach Buchara*, p. 121 (1823); *Brandt Bull. Acad. St. Petersb.*, ii, p. 218\*; *Blanford Yarkand Mamm.*, p. 58; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 56.

*Distribution.*—Western and Eastern Turkistan.

a. Skln, skull	Yarkand, 20-5-74	F. Stoliczka.
b. Skin	Yangihissar, 4-74	F. Stoliczka.
c. Skin	Koshtak, 2-4-73	F. Stoliczka.
d. Skin, skull	♂ Yarkand, 28-7-75	J. Scully.
e-f. 2 Skins, 1 skull	Kilian, Turkestan	C. Ellis.
g. Alc.	♂ Turkestan	C. Ellis.

### *Dipus blanfordi.*

*Dipus macrotarsus*, *apud Blanford, Persia*, p. 74 (1876).

*Dipus blanfordi*, *Murray Ann. Mag. N. H.* (5), xiv, p. 98 (1884).

*Distribution.*—Persia generally.

The specimen below was identified with considerable doubt by Blanford with *Dipus macrotarsus* of Wagner; since that time several more specimens exhibiting the peculiar colouration of Blanford's specimen have been procured for the Karachi Museum, and Murray has given the species a new name; whether it will really turn out to be distinct from the true *D. microtarsus* which was got from Sinai, can only be settled by a comparison of the specimen below with Wagner's type now probably in the Berlin Museum.

a. Alc., skull Kam nr. Teheran W. T. Blanford.

### *Dipus jaculus.*

*Mus jaculus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 85 (1766).

*Dipus gerboa*, *Olivier Bull. Soc. Philom.*, ii, p. 121 (1800)\*.

*Dipus bipes*, *Lichtenstein Verzeich. Doublett. Mus. Berlin*, p. 5 (1823)\*.

*Dipus ægyptius*, *Lichtenstein Darstell.*, pl. xxii (1827); *Brandt Mem. Acad. St. Petersb.*, ii, p. 217\*;

*Lataste Ann. Mus. Genoa*, xviii, p. 672.

*Dipus mauritanicus*, *Duvernoy Mem. Soc. Strasburg*, iii, pt. 2, p. 30, pls. iii, iv (1842); *Blyth Cat.*, no. 351, p. 110.

*Distribution.*—From North Arabia westwards through Lower Egypt as far as the province of Oran in Algeria.

The specific name *ægyptius* was first used by Hasselquist, a pre-Linnæan writer and is therefore incorrect; as is pointed out by Thomas (*Ann. Mag. N. H.* (5), viii, p. 14), the proper name for this species is *Dipus jaculus* of Linnæus.

*a-d.* 4 Alc., 1 skull nr. Alexandria, Egypt Purchased.

2 ♂ 2 ♀  
*e.* Alc., skull ♂ Heluan, Egypt Purchased.  
*f.* Stuffed, skull Algeria A. Malherbe, A.S.B.

### Genus ALACTAGA.

*Alactaga*, *F. Cuvier Trans. Zool. Soc.*, ii, p. 131 (1841). *Type*, *A. arundinis*.  
*Scirtetes*, *Wagner Archiv f. Natur.*, vii, pt. 1, p. 119 (1841).

### *Alactaga decumana*.

*Mus jaculus*, *apud Pallas Nov. Sp. Quad. e Glir.*, p. 275, pl. xx., (1778).

*Dipus jaculus*, *Gmelin Syst. Nat.*, i, p. 157 (1788) [pt.]; *Brandt Bull. Acad. St., Peters.*, ii, p. 220\*.

*Dipus spiculum*, *Lichtenstein Abhand. Akad. Berlin.*, 1825, p. 154, pl. vii (1828).

*Dipus decumana*, *Lichtenstein Abhand. Akad. Berlin*, 1825, p. 154, pl. vi (1828); *Blanford Persia*, p. 78.

*Dipus vexillarius*, *Eversmann Bull. Nat. Mosc.*, p. 42 (1840).

*Distribution*.—Central Asia extending southwards to Bushire.

*a.* Skin, skull. nr. Bushire Sir O. St. John.

### *Alactaga indica*.

*Alactaga indica*, *Gray Ann. Mag. N. H.*, x, p. 262 (1842); *Hutton F. A. S. B.*, xv, p. 137; *Horsfield Cat. E. I. Mus.*, p. 149; *Blanford Persia*, p. 77; *P. L. Sclater, P. Z. S.*, 1880, p. 538; *Thomas Linn. Trans.* (2) v, p. 60.

*Alactaga bactriana*, *Blyth Cat.* no. 352, p. 110 (1863).

*Distribution*.—Afghanistan from the Simkoh hills southwards to Baluchistan and eastwards to Shiraz.

*a.* Alc., skull Katru, nr. Shiraz W. T. Blanford.  
*b.* Skin Afghanistan (Griffith) India Mus., London.  
*c.* Stuffed Afghanistan Old Collection, A. S. B.

### Genus PECTINATOR.

*Pectinator*, *Blyth F. A. S. B.*, xxiv, p. 294, (1855). *Type*, *P. spekii*.

### *Pectinator spekii*.

*Pectinator spekii*, *Blyth F. A. S. B.*, xxiv, p. 294 (1855); *Heuglin Nova Acta Acad. Leop. Caro.* (3), viii, 1861, p. 1, pl. ii; *Blyth Cat.* no. 427, p. 130; *Blanford Abyssinia*, p. 281.

*Distribution.*—North-east Africa, the Somali country and Abyssinia.

a. Skin	Somali country	J. H. Speke, A. S. B.
	[Type of <i>Pectinator spekii</i> , Blyth.]	
b. Skin	Senafe Pass, Abyssinia, 2-68.	W. T. Blanford.
c-d. 2 Skins	Undul weles, Abyssinia, 4-68.	W. T. Blanford.
e-f. 2 Skins	Sooroo Pass, Abyssinia, 6-68.	W. T. Blanford.
g. Skin	Abyssinia	W. T. Blanford.
h-l. 4 Alc.	Undul weles, Abyssinia	W. T. Blanford.
m. Skeleton	Abyssinia	W. T. Blanford.
n. Skeleton in alc.	in „	W. T. Blanford.

### Genus SCHIZODON.

*Schizodon*, Waterhouse *P. Z. S.*, p. 91 (1841). *Type*, *S. fuscus*.

### *Schizodon fuscus*.

*Schizodon fuscus*, Waterhouse *P. Z. S.*, p. 91 (1841); id. *Nat. Hist. Mamm.*, ii p. 265.

*Distribution.*—Chili.

a. Stuffed	Chili	Brit. Mus. [Ex.]
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### Genus SPALACOPUS.

*Spalacopus*, Wagler *Isis.*, p. 1219 (1832). *Type*, *S. poeppigii*.

*Poephagomys*, F. Cuvier *Ann. Sci. Nat.* (2), i, p. 321 (1834). *Type*, *S. poeppigii*.

*Psammoryctes*, Poeppig *Archiv. f. Natur.*, i, pt. 1, p. 252 (1835). *Type*, *S. poeppigii*.

### *Spalacopus poeppigii*.

*Spalacopus poeppigii*, Wagler *Isis.*, p. 1219 (1832); Waterhouse *Nat. Hist. Mamm.*, ii, p. 269, pl. ix, fig. i; Blyth *Cat.* no. 420, p. 127.

*Poephagomys ater*, F. Cuvier *Ann. Sci. Nat.* (2), i, p. 321, pl. xiii (1834).

*Psammoryctes noctivagus*, Poeppig *Archiv. f. Natur.*, i, pt. 1, p. 252 (1835)

*Distribution.*—Chili.

u. Stuffed	Chili	C. T. Eyton (1849), A. S. B
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### Genus OCTODON.

*Octodon*, Bennett, *P. Z. S.*, p. 46 (1832). *Type*, *O. degus*.

*Dendrobius*, Meyen *Nova Acta Acad. Leop. Caro.*, xvi, p. 600 (1833). *Type*, *O. degus*.



Genus **ATHERURA**.

*Atherura*, G. Cuvier *Regne Anim.*, 2nd ed., i, p. 215 (1829). *Type*, *A. macroura*.

The skull of the African species of *Atherura* is distinguishable at once from that of the Asiatic species by the fact that the posterior nasal opening is in the former species opposite the last molar, whereas in the latter, it is extended forward to opposite the penultimate molar.

Besides the two species mentioned below, there is a third, the true *A. fasciculata* of Shaw, found only in Siam, in which the caudal bristles are simple and flattened, and not twisted and irregularly dilated.

***Atherura macroura***.

*Hystrix macroura*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 77 (1766).

*Atherura fasciculata*, *apud G. Cuvier Regne Anim.*, 2nd ed., i, p. 215 (1829); Cantor *F. A. S. B.*, xv, p. 257; Gray *P. Z. S.*, 1847, p. 104; Horsfield *Cat. E. I. Mus.*, p. 147; Blyth *Cat.* no. 424, p. 129; P. L. Sclater *P. Z. S.*, 1871, p. 236; Blyth *F. A. S. B.*, xlv, *Burma List*, p. 43; Anderson *F.*, *Linn. Soc.*, xxi, p. 341.

*Atherura macroura*, *Waterhouse Nat. Hist. Mamm.*, ii, p. 472; Blyth *F. A. S. B.*, xx, p. 519; Gunther *P. Z. S.*, 1876, p. 742; Thomas *P. Z. S.*, 1886, p. 71.

## Brush-tailed Porcupine.

a-b. 2 Skins, ♂ ♀ Tiboo Padan, Mergui, J Anderson.  
2 skeletons. 7-2-82.

c. Skin

d. Stuffed, skull Tipperah

e. Stuffed, skull Malacca

f. Skeleton, .....  
mtd.

No history, A. S. B.

R. W. G. Frith, A. S. B.

Rev. F. Lindstedt, A. S. B.

Zoological Gardens.

***Atherura africana***.

*Atherura africana*, *Gray Ann. Mag., N. H.*, x, p. 261 (1842); *Waterhouse Nat. Hist. Mamm.*, ii, p. 476; Gunther *P. Z. S.*, 1876, p. 742.

*Distribution*.—Western Africa.

a. Skin, skull, ..... W. Rutledge.  
and bones ♂

Genus **HYSTRIX**.

*Hystrix* *Linnaeus, Syst. Nat.*, 12th ed., i, p. 76 (1766). *Type*, *H. cristata*.

*Acanthion*, *F. Cuvier Mem. Mus. Paris*, ix, p. 431 (1822). *Type*, *H. longicauda*.

*Edocephalus*, *Gray P. Z. S.*, p. 308 (1866). *Type*, *H. cristata*.

*Acanthocheirus*, *Gray P. Z. S.*, p. 310 (1866). *Type*, *H. longicauda*.

*Key of Indian Species.*

- a. Crest well developed; skull with enormously inflated nasal region; the frontal processes of the premaxillae wide, truncated, and extending back as far as the nasals.  
**H. leucurus**, p. 105.
- a<sup>2</sup>. Crest but slightly if at all developed; skull with the nasals not inflated, and the nasals extending further back than the frontal processes of the premaxillae.
- b. Nasal bones expanded behind and extending back to a level with the middle of the orbits; frontal processes of the premaxillae narrow and almost pointed.  
**H. longicauda**, p. 106.
- b<sup>2</sup>. Nasal bones of equal width throughout, and hardly extending backwards to a level with the lacymal bones; frontal processes of the premaxillae wide and truncated.  
**H. yunnanensis**, p. 107.

**Hystrix cristata.**

*Hystrix cristata*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 76 (1766); *Brandt Mamm. Exot. Nov.*, p. 35, pl. viii, figs. 1-2; *Waterhouse Nat. Hist. Mamm.*, ii, p. 448, pl. xx, fig. 1; *P. L. Sclater P. Z. S.*, 1871, p. 233; *Danford and Alston P. Z. S.*, 1877, p. 281.  
*Acanthion cuvieri*, *Gray P. Z. S.*, p. 102 (1847).  
*Œdocephalus cuvieri*, *Gray P. Z. S.*, p. 308 (1866).

The European Porcupine.

*Distribution*—Southern Europe and Northern Africa, ranging as far as Zanzibar?

a. Stuffed, skele-      Zanzibar?      Zoological Gardens.  
ton                      ♀

**Hystrix leucurus.**

*Hystrix leucurus*, *Sykes P. Z. S.*, p. 103 (1831); *Elliot Madras Journ.*, x, p. 218; *Gray P. Z. S.*, 1847; p. 100; *Horsfield Cat. E. I. Mus.*, p. 146; *Kelaart Prodr. Faun. Zeylan.*, p. 70; *Adams P. Z. S.*, 1858, p. 520; *Blyth Cat. no. 421*, p. 128; *Gray P. Z. S.*, 1866, p. 308; *Ferdon Mamm.*, p. 218; *McMaster Notes on Ferdon*, p. 55; *P. L. Sclater, P. Z. S.*, 1871, p. 233; *Stoliczka F. A. S. B.*, xli, p. 228; *Murray Zool. Sind*, p. 48; *Thomas P. Z. S.*, 1886, p. 57.

*Hystrix cristata*, *apud Gray Illustr. Ind. Zool.*, ii pl. xiv (1834); *Hutton F. A. S. B.*, xv, p. 136; *Blanford Persia*, p. 80.

*Hystrix hirsutirostris*, *Brandt Mamm. Exot. Nov.*, p. 39, pl. viii, figs. 3-6 (1835); *Waterhouse Nat. Hist. Mamm.*, ii, p. 454, pl. xx, fig. 2; *Wagner Hugel's Kaschmir*, iv, p. 573; *Blyth F. A. S. B.*, xxi, p. 351.

*Hystrix zeylonensis*, *Blyth F. A. S. B.*, xx, p. 171 (1851).

*Hystrix malabarica*, *P. L. Sclater P. Z. S.*, p. 353, pl. xvi (1865); *Gray P. Z. S.*, 1866, p. 308.

The Indian Crested Porcupine; Sahi, Sayal, Sirsel, Hind.; Saori, Guzerat; Salendra, Mahrathi; Yed, Canarese; Yeddu-pandi, Tamil; Heetava, Cingalese.

*Distribution*.—India from Sind and the Himalayas southwards to Ceylon; Baluchistan; eastwards not extending to Lower Bengal.

The Baluchistan skull (c.f. Blanford's Persia) seems to agree much better with the Indian skulls than with that of *H. cristata*, of which however there is only one specimen in the Museum, the skull of which exactly agrees with the skull of *H. cristata* as figured in Waterhouse's Mammalia, being distinguished from *H. leucura* by its posteriorly broadened nasals and by its much narrower nasal process of the premaxillae.

a-b.	2 Skins	Jemper, Sind	Karachi Mus. [Ex.]
c.	Skin, juv.	" "	Karachi Mus. [Ex.]
d.	Skin	Ceylon?	Zoological Gardens.
e.	Staffed, juv.	"	E. F. Kelaart, A.S.B.

[Type of *Hystrix zeylonensis*, Blyth.]

f.	Skin juv.	.....	A.S.B.
g.	Skull	Pind Dadan Khan	W. Theobald, A.S.B.
h.	Skull	Ceylon	E. F. Kelaart, A.S.B.
j.	Skull	"	E. L. Layard, A.S.B.
k.	Skull	Allahabad	J. Cockburn.
l.	Skull	No history	A.S.B.
m.	Skin, skull ♀	Jalk, Baluchistan, 15-3-72.	W. T. Blanford.
n.	Skin ♂	Agra dist.	Agra Mus.
o.	Skin of head	South India	Sir W. Elliot, A.S.B.
p.	Alc. juv.	.....	W. Rutledge.

### *Hystrix longicauda*.

*Hystrix longicauda*, Marsden *Hist. Sumatra*, 3rd ed., p. 118, pl. xiii (1810); *Raffles Linn Trans.*, xiii, p. 258; *Cantor F. A. S. B.*, xv, p. 256; *Blyth Cat.* no 423, p. 129 [pt.]; *Ferdon Mamm.*, p. 221 [pt.]; *McMaster Notes on Ferdon*, p. 56; *P. L. Sclater, P. Z. S.*, 1871, p. 234; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 42.

*Hystrix fasciculata*, Müller *Over de Zoogdieren in Tem. Verhandl.*, p. 36 (1839).

*Acanthion hodgsonii*, Gray *P. Z. S.*, p. 101 (1847); id. *P. Z. S.*, 1866, p. 310.

*Hystrix alophus*, Hodgson, *F. A. S. B.*, xvi, p. 771, pl. xxxii (1847); *Gray Cat. Hodg. Coll.*, 2nd ed., p. 11.

*Hystrix hodgsoni*, Waterhouse *Nat. Hist. Mamm.*, p. 461, pl. xx, fig. 3 (1848).

*Hystrix bengalensis*, Blyth *F. A. S. B.*, xx, p. 170 (1851); *Blyth Cat.* no. 422, p. 128; *Ferdon Mamm.*, p. 220.

*Acanthochærus grotei*, Gray *P. Z. S.*, p. 310, pl. xxxi (1866).

The Crestless Porcupine; Sajru, Bengal; Anchotia Dumsi, Nepal; Sathung, Lepch; Phyoo, Tenasserim.

*Distribution*.—Himalayas from Nepal eastwards, Lower Bengal,



Assam, Burma and the Malay peninsula, extending to the islands of Sumatra and Borneo.

All the skulls in the Museum of the crestless type of Porcupine with one exception are of the type figured by Waterhouse (*l. c.*) distinguished by their long posteriorly rounded and expanded nasal bones, the other type figured by Waterhouse as *H. javanica* is distinguished by its short truncated nasals which do not reach as far back as the level of the lacrymal bone; there is one skull of this type in the Museum—see below under *H. yunnanensis*; there does not seem to be any real difference between the three so-called species *H. longicauda*, *H. bengalensis* and *H. hodgsoni*, unless it is that in the last named there is no trace of a crest, whereas a small crest is present in *H. bengalensis* and *H. longicauda*; the skulls of these species vary enormously and no distinctions can be found which do not break down when a series are examined.

<i>a.</i> Skin, skull	Nepal Valley, 4-78	J. Scully.
<i>b.</i> Skin, skull	Nepal	B. H. Hodgson, A.S.B.
<i>c.</i> Skin, skull	Darjeeling	E. Blyth (1832) A.S.B.
<i>d.</i> Skin, skull	Sikkim	L. Mandelli.
<i>e.</i> Skin, juv	Arakan	L. Mandelli, A.S.B.
<i>f.</i> Stuffed skull	.....	E. Lindstedt, A.S.B.

[Type of *H. bengalensis*, Blyth.]

<i>g.</i> Stuffed, juv.	.....	A.S.B.
<i>h.</i> Stuffed skull,	Malacca	A.S.B.
<i>j.</i> Stuffed skull,	.....	Rajah R. Mullick
		29-12-71
<i>k.</i> Skeleton, mtd.	.....	Rajah R. Mullick, A.S.B.
<i>l.</i> Skeleton ♂	.....	Babu H. M. Roy, A.S.B.
<i>m.</i> Skeleton	.....	No history.
<i>n.</i> Skull	Assam	F. Jenkins, A.S.B.
<i>o-s.</i> 5 Skulls	.....	No history.

### ***Hystrix yunnanensis.***

*Hystrix yunnanensis*, *Anderson Anat. Zool. Res.*, p 332 (1878).

*Distribution.*—Kakhyen hills of Upper Burma.

The skull of this species, as is pointed out by Anderson, (*l. c.*) resembles very closely that of *H. javanica*, described and figured by Waterhouse (*Mamm.*, ii, p. 465, pl. xx, fig. 4), the great feature of the skull being the short nasals which do not extend back as far as the anterior level of the lacrymal bones and the consequent increase in size of the frontals. Günther (*P. Z. S.*, 1876, p. 737) has described a species of *Hystrix* from Borneo as *H. crassispinus*, the skull of which (woodcut fig. 1), also agrees very closely with the Yunnan skull; the Borneo species, judging from the plate, does not appear to be crested, in this resembling *H. javanica*, but it is distinguished by its very large and thick spines, some of which

are twice as thick as an incisor tooth; the Yunnan species on the other hand, has a small crest and the spines are of a moderate size, at least none are as large as the incisor teeth.

The skull of *H. javanica*, which was figured by Cuvier (*Mem. Mus. Paris*, ix, pl. ix, figs. 3-4) seems to be of the same type as *H. longicauda* with posteriorly extended and swollen nasals.

- a. Skin, skull Kakhyen hills J. Anderson.  
[Type of *Hystrix yunnanensis*, Anderson.]

### Genus LAGOSTOMUS.

*Lagostomus*, *Brookes Linn. Trans.*, xvi, p. 102 (1828).

#### *Lagostomus trichodactylus*.

*Lagostomus trichodactylus*, *Brookes Linn. Trans.*, xvi, p. 102, pl. ix (1828);  
*Waterhouse Nat. Hist. Mamm.*, ii, p. 212.

The Viscacha.

*Distribution*.—The open plains of the southern part of South America.

- a. Skeleton ..... W. Rutledge.

### Genus CŒLOGENYS.

*Cœlogenus*, *F. Cuvier Ann. Mus., Paris*, x, p. 203 (1807).  
*Cœlogenys*, *Illiger Prodr.*, p. 92 (1811).

#### *Cœlogenys paca*.

*Mus paca*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 81 (1866).

*Cœlogenus subniger* } *F. Cuvier Ann. Mus., Paris*, x, p. 206, pl. ix (1807).  
*Cœlogenus fulvus* }

*Cœlogenys paca*, *Blyth Cat. no. 420*, p. 128 (1863); *Alston Biol. Centr. Amer. Mamm.*, p. 174.

*Distribution*.—From Vera Cruz in Mexico southwards through Central and South America to Paraguay.

- |                  |                |                  |
|------------------|----------------|------------------|
| a. Skin          | .....          | No history.      |
| b. Skin          | .....          | W. Rutledge.     |
| d. Stuffed       | South America. | E. Blyth, A.S.B. |
| e. Stuffed       |                | Purchased.       |
| f. Skeleton mtd. |                | E. Blyth, A.S.B. |
| g-h. 2 Skulls    |                | E. Blyth, A.S.B. |

### Genus CAVIA.

*Cavia*, *Pallas Miscell. Zool.*, p. 30 (1766)\*.

**Cavia porcellus.**

*Mus porcellus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 79 (1766).

*Cavia cobaya*, *Gmelin Syst. Nat.*, i, p. 122 (1788); *Blyth Cat.* no. 426, p. 129; *Waterhouse Nat. Hist. Mamm*, ii, p. 185.

The Guinea Pig.

*Distribution.*—South America, only known domesticated.

a. Skin	♀	.....	Purchased.
b. Skin, skull	♂	.....	Purchased.
c. Skin	♂	.....	Zoological Gardens.
d. Stuffed		.....	A. D. Bartlett (1849), A.S.B.
e. Skeleton	♀	.....	W. Rutledge.

**Cavia australis.**

*Cavia australis*, *Is. Geoff. St. Hil. Mag. de Zool.*, iii, pl. 129\*; *Blyth Cat.* no. 425, p. 129.

*Kerodon kingii*, *Bennett P. Z. S.*, p. 190 (1835).

*Distribution.*—Patagonia.

a. Stuffed	.....	C. T. Eyton, A.S.B.
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**Genus HYDROCHÆRUS.**

*Hydrochærus*, *Erxleben Syst. Regn. Anim.*, p. 191 (1777).

**Hydrochærus capybara.**

*Hydrochærus capybara* *Erxleben Syst. Regn. Anim.*, p. 193 (1777).

*Distribution.*—South America from Guiana to Paraguay.

a. Skeleton mtd.	.....	W. Rutledge.
b. Skull	.....	E. Blyth, A.S.B.

**Genus LAGOMYS.**

*Lagomys*, *Cuvier Regne Anim.*, 2nd ed., i, p. 218 (1829).

*Key of the Indian Species.*

- a. Larger forms generally over 7 inches in length.
- b. Fur sandy rufous; skull very narrow between the orbits.
- c. Ear long about 1 inch; no white nuchal patch; skull with the anterior palatine foramen divided into an anterior and posterior portion by the inwardly projecting palatal plates of the premaxillae. **L. ladacensis**, p. 110.
- c<sup>2</sup>. Ear shorter, only about .75 inch; a large conspicuous white

patch at the back of the neck; the anterior palatine foramen not divided as above.

**L. rufescens**, p. 111.

♂<sup>2</sup>. Fur grayish; skull not contracted between the orbits, but with a pair of foramina at the narrowest point at the anterior ends of the frontal bones; the anterior palatine foramen not divided. **L. macrotis**, p. 110.

a<sup>2</sup>. Smaller, generally under 7 inches in length; fur very long, soft, and rufous; skull broad between the orbits; and the anterior palatine foramen not divided. **L. roylei**, p. 112.

**Lagomys ladacensis.**

*Lagomys curzoniæ*, *apud Stoliczka* *J. A. S. B.*, xxxiv, p. 108 (1865); *Anderson P. Z. S.*, 1871, p. 562.

*Lagomys ladacensis*, *Günther Ann. Mag. N. H.* (4), xvi, p. 231 (1875); *Blanford J. A. S. B.*, xlv, p. 110; id. *Yarkand Mammals*, p. 71, pl. vi fig. i, pl. vii, fig. 2, pl. viia, fig. 1.

*Distribution*.—The higher regions of Eastern Ladak from 15,000 feet to 19,000 feet.

a-d.	4 Skins ♀	Chagra, Ladak, 15-7-70	G. Henderson.
e.	Skin	" " 7-10-70	G. Henderson.
f-g.	2 Skins ♀ and juv.	Luksung, Ladak, 24-6-70	G. Henderson.
h-k.	3 Skins ♂	" " 7-70	G. Henderson.
l.	Skin	Ladak	G. Henderson.
m.	Skin, skull	Chagra, Ladak, 21-9-73	F. Stoliczka.
n-o-p.	3 Skins	Rimdi, Ladak, 17,000 feet, 22-9-73.	F. Stoliczka.
q.	Skin	Kaziljilga, Ladak	F. Stoliczka.
r-s.	2 Skins, 1 skull.	Gogra, Ladak.	F. Stoliczka.
t.	Skin	Ladak?	F. Stoliczka.
u-v.	2 Skins ♂ ♀	Kizitlagh Karakorum Pass, 17,500 ft. 24-7-83	C. Ellis.
w.	Skin, skull	Karakorum Brangsa, 23-7-83.	C. Ellis.
x.	Skeleton	Rimdi, Ladak 17,000 ft. 22-9-73.	F. Stoliczka.
y.	Stuffed	Ladak	F. Stoliczka (1864), A.S.B.
z.	Alc.	Ladak	G. Henderson.

**Lagomys macrotis.**

*Lagomys macrotis*, *Günther Ann. Mag. N. H.* (4), xvi, p. 231 (Sept. 1875); *Blanford Yarkand Mammals*, p. 75; *Scully Ann. Mag. N. H.* (5), viii, p. 100; id. *P. Z. S.*, 1881, p. 207.

*Lagomys auritus*, *Blanford J. A. S. B.*, xlv, p. 111 (Oct. 1875); id. *J. A. S. B.*, xlvi, p. 326; id. *Yarkand Mammals*, p. 74, pl. vi, fig. 2, pl. viia, fig. 2.

*Lagomys griseus*, *Blanford J. A. S. B.*, xlv, p. 111 (Oct. 1875); id. *Yarkand Mammals*, p. 77, pl. vii, fig. 1, pl. viia, fig. 3.

*Distribution.*—Ladak more especially the western part; has a somewhat more extended distribution than the last species.

The additional number of specimens received since the publication of Blanford's Yarkand Mammals confirms what Blanford hinted at in that work that *Lagomys macrotis*, *L. auritus* and *L. griseus* are conspecific. There is no distinction to be found between the skulls of these three so-called species, and the colour and degree of harshness of the fur varies considerably in each individual.

a. Skin and skull.	Lukong, Pankong Lake, F. Stoliczka. Ladak, 19-9-73.	
[Type of <i>Lagomys auritus</i> , Blanford.]		
b. Skin and skeleton.	Lukong	F. Stoliczka.
c-d. 2 Skins, 1 skull	S. of Sanju Pass Kuenlun Mts., 22-10-73.	F. Stoliczka.
[Type of <i>Lagomys griseus</i> , Blanford.]		
e. Skin, skull	Duba, Kuenlun Mts. ? 6-6-74.	F. Stoliczka.
f. Skin	Above Kharbu, Ladak. 14,000 ft., 22-8-73	F. Stoliczka.
g. Skin	Leh, Ladak, 21-9-73	F. Stoliczka.
h-j. 2 Skins	" " 27-9-73-	F. Stoliczka.
k. Skin	" " 30-9-73.	F. Stoliczka.
l. Skin, skull ♀	Kishengunga Valley, Kashmir, 7,500 ft., 21-5-76.	J. Biddulph.
m. Skin	Gilgit dist., 10,000 ft., 23-6-76.	J. Biddulph.
n. Skin	♂ Gilgit, 12,000 ft.	J. Scully.
o. Skin, skull	Dayoor, Gilgit, 7,500 ft.	J. Scully.

### *Lagomys rufescens.*

*Lagomys rufescens*, Gray *Ann. Mag. N. H.*, x, p. 266 (1842); *Hutton and Blyth* *J. A. S. B.*, xv, p. 140; *Waterhouse Nat. Hist. Mamm.*, ii, p. 20; *Horsfield Cat. E. I. Mus.*, p. 149; *Blyth Cat.* no 440, p. 133; *Blanford Persia*, p. 83 pl. vi, fig. 2; *Scully J. A. S. B.*, lvi, p. 76; *Murray Ann. Mag. N. H.* (5) xiv, p. 100; *Radde Zool. J. B.*, iv, p. 1053.

*Distribution.*—Persia and Afghanistan extending to Afghan-Turkestan and parts of Transcaspia.

a-b. 2 Skins ♂	Kohrud, Persia, 9,000 ft., 7-72.	W. T. Blanford.
c-e. 3 Skins ♀	Kohrud, Persia, 9,000 ft., 7-72.	W. T. Blanford.
f-h. 3 Skins ♀	Kohrud, Persia, 9,000 ft., 7-72.	W. T. Blanford.

<i>j.</i>	Skin, skull.	♂	Sika Ram Mt., Kurrum Valley, 11,000 to 12,000 ft.	J. E. T. Aitchison.
<i>k-l.</i>	2 Skins, 1 skull.	♂ ♀	Shadian, Afghan Turkistan, 8-86.	C. E. Yate.
<i>m.</i>	Skeleton	♂	Kohrud, Persia.	W. T. Blanford.
<i>n.</i>	Stuffed		Kandahar	T. Hutton (846), A.S.B.
<i>o-p.</i>	2 Alc.	♂	Kohrud, Persia	W. T. Blanford.
<i>q-t.</i>	4 Alc.	♀	" "	W. T. Blanford.
<i>u.</i>	Alc.	juv.	" "	W. T. Blanford.
<i>v-w.</i>	2 Skulls		" "	W. T. Blanford.
<i>x.</i>	Skull		Kandahar	T. Hutton (1846), A.S.B.

### Lagomys roylei.

*Lagomys roylei*, *Ogilby Royle's Himal. Bot.*, p. lxi, pl. iv (1839); *Is. Geoff. St. Hil. Jacquemont Voyage*, iv, p. 62; *Waterhouse Nat. Hist. Mamm.*, ii, p. 26; *Wagner Hugel's Kaschmir*, iv, p. 575; *Adams P. Z. S.*, 1858, p. 520; *Blyth Cat.* no. 439, p. 133; *Ferdon Mamm.*, p. 226; *Blanford F. A. S. B.*, xli, p. 35; *Lydekker F. A. S. B.*, xlvi, p. 286; *Scully Ann. Mag. N. H.* (5) viii, p. 100.

*Lagomys hodgsonii*, *Blyth F. A. S. B.*, x, p. 816, figure on p. 844 (1841); *Waterhouse Nat. Hist. Mamm.*, ii, p. 23.

*Lagomys nepalensis*, *Hodgson F. A. S. B.*, x, p. 854, figure on p. 816 (1841); *id. F. A. S. B.*, xi, p. 289; *Waterhouse Nat. Hist. Mamm.*, ii, p. 24; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 21; *Horsfield Cat. E. I. Mus.*, 148; *Günther Ann. Mag. N. H.* (4) xvi, p. 230.

*Distribution.*—The Himalayas generally from Kashmir to Sikkim.

Two other species of *Lagomys*, allied to *L. roylei*, have been described, whether they are identical with *L. roylei* cannot be decided without an examination of the types; one is *L. curzoniæ* of Hodgson (*J. A. S. B.*, xxvi, p. 207) procured from the Chumbi Valley of Thibet; this is asserted by Günther (*Ann. Mag. N. H.* (4), xvi, p. 230) to be quite distinct from the other Himalayan species, the other is *L. tibetanus* of Milne Edwards from Moupin in Thibet, and this seems to be closely allied to *L. roylei*.

<i>a.</i>	Skin, skull	Mataian, Dras valley, Kashmir, 12,000 ft., 15-8-73.	F. Stoliczka.
<i>b.</i>	Skin, skull	Deosai plain, Kashmir (Biddulph) 11,000 to 12,000 ft.	J. Scully.
<i>c.</i>	Skin	Sango-Pir, above Astor, Kashmir, 15,000 t.	G. M. Giles.
<i>d.</i>	Skin, skull	Kashmir	J. E. T. Aitchison.
<i>e.</i>	Skin, skull	Nepal (Hodgson)	India Mus., London.
<i>f-l.</i>	6 Stuffed	.....	A.S.B.
<i>m-n.</i>	2 Alc. 1 skull	Native Sikkim	W. T. Blanford.

### Genus LEPUS.

*Lepus*, *Linnaeus, Syst. Nat.*, 12th ed., i, p. 77 (1766).

*Caprolagus*, *Blyth F. A. S. B.*, xiv, p. 248 (1845). *Type*, *L. hispidus*.

*Key of the Indian Species.*

- a.* Ears longer than the head.
- b.* Fur distinctly curly; tail white.
- c.* Rump grayish; ears posteriorly brown.  
**L. hypsibius**, p. 113.
- c*<sup>2</sup>. Rump french gray, contrasting strongly with the colour of the back; ear posteriorly white. **L. pallipes**, p. 114.
- b*<sup>2</sup>. Fur straight; tail never wholly white.
- d.* Tail black above; nape never black.
- e.* Fur very soft and thick; ear about 4·5 inches; tarsus about 4·75 inches in the dry skin; nasals rounded or truncated posteriorly; posterior wing of postorbital process of the frontal bone free. **L. tibetanus**, p. 114.
- e*<sup>2</sup>. Fur not so soft; ear about 5·5 inches; tarsus 4·25 inches; nasals as in *L. tibetanus*; posterior wing of postorbital process of the frontal bone meeting the squamosal.  
**L. dayanus**, p. 115.
- e*<sup>3</sup>. Fur coarse; ear about 4 inches; tarsus 4·25 inches; nasals acutely pointed posteriorly and externally; posterior wing of postorbital process free.  
**L. peguensis**, p. 117.
- d*<sup>2</sup>. Tail and nape black. **L. nigricollis**, p. 116.
- d*<sup>3</sup>. Tail red above. **L. ruficaudatus**, p. 116.
- a*<sup>2</sup>. Ears shorter than the head; fur very coarse.  
**L. hispidus**, p. 117.

**Lepus hypsibius.**

*Lepus oistolus*, *apud Adams P. Z. S.*, p. 520 (1858).

*Lepus pallipes*, *apud Blyth Cat.* no. 433, p. 131 (1863); *Blanford* *♀ A. S. B.*, xliv, p. 109.

*Lepus hypsibius*, *Blanford* *♀ A. S. B.*, xliv, p. 214 (1875); *id. Yarkand Mammals*, p. 60, pl. iii, fig. i, pl. iva, fig. i.

*Distribution.*—Northern Ladak.

*a.* Skin Pamzal, Changchemno F. Stoliczka.  
Valley, Ladak, 29-8-73.

*b.* Skin, skull Kium, N. Ladak F. Stoliczka.

[Co-types of *Lepus hypsibius*, *Blanford*.]

*c.* Skin West Thibet ? E. Smyth, A. S. B.

**Lepus pallipes.**

*Lepus pallipes*, *Hodgson* *J. A. S. B.*, xi, p. 288, pl. ii (1842); *Waterhouse Nat. Hist. Mamm.*, ii, p. 62; *Cunningham Ladak*, p. 203; *Horsfield P. Z. S.*, 1856, p. 401; *Blanford, P. A. S. B.*, 1875, p. 198; id. *Yarkand Mammals*, p. 62; pl. iii, fig. 2.

♀ *Lepus oiostolus*, *Hodgson* *J. A. S. B.*, ix, p. 1186 (1840); id. *J. A. S. B.*, xi, p. 288.

♀ *Lepus tibetanus*, *apud Anderson P. Z. S.*, p. 563 (1871); *Blanford J. A. S. B.*, xli, p. 34.

*Distribution.*—Thibet from the north of Sikkim extending westwards to Eastern Ladak.

a. Skin, skull	Thibet, north of Sikkim	L. Mandelli.
b. Skin	Nepal (Hodgson)	India Mus., London.
c. Skin juv. ♀	Karakash, 1-8-70	G. Henderson.
d. Skin juv. ♂	Gogra hot springs, Ladak, 7-70.	G. Henderson.
e-f. 2 Skins juv.	♀ Ladak	G. Henderson.
g. Skin	♀ Ladak	F. Stoliczka.
h. Skin ♂	nr. Balakchi, Kuenlun Mts., 26-8-75.	J. Scully.

**Lepus tibetanus.**

"Hare of Little Thibet," *Vigne Travels in Kashmir*, ii, p. 268.

*Lepus tibetanus*, *Waterhouse P. Z. S.*, p. 7 (1841); id. *Nat. Hist. Mamm.*, ii, p. 58; *Gunther Ann. Mag. N. H.* (4), xvi, p. 228; *Blanford Yarkand Mammals*, p. 63, pl. iv, fig. 2; *Scully P. Z. S.*, 1881, p. 207; *Thomas Linn. Trans.*, (2) v, p. 61.

*Lepus lehmanni*, *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 169; *Scully J. A. S. B.*, lvi, p. 76; *Radde Zool. J. B.*, iv, p. 1054.

*Lepus biddulphi*, *Blanford J. A. S. B.*, xlvi, p. 324 (1877).

*Distribution.*—Ladak from the Nubra Valley westward through Gilgit and Afghan and Russian-Turkestan and North Persia.

a-b. 2 Skin 2 skulls	Nubra Valley, Ladak, 10-73.	Dr. Bellew.
c. Skin, skull ♂	Chaprot, Gilgit, 17-2-80	J. Scully.
d. Skin, skull ♀	Niltar Valley, Gilgit, 29-7-79.	J. Scully.
e-f. 2 Skins, 1 skull.	♀ Gakuch, Gilgit, 25-5-79	J. Scully.
g. Skin ♀	Gilgit, 30-1-80	J. Scully.
h. Skin juv.	Manugar nullah, Gilgit, 9,000 ft., 2-4-79.	J. Scully.
j. Skin, skull	Yassin, Gilgit, 7,000 ft., 9-76	J. Biddulph.

[Type of *Lepus biddulphi*, Blanford.]

k. Skin	Hindu Kush	C. E. Yate.
l. Skin juv. ♂	Gulran, Afghan-Turkis- tan.	J. E. T. Aichison.

**Lepus pamirensis.**

*Lepus pamirensis*, *Günther Ann. Mag. N. H.* (4), xvi, p. 229 (1875)



*Blanford* *J. A. S. B.*, xliv, p. 110; id. *Yarkand Mammals*, p. 67, pl. v, fig. 1, pl. va, fig. 1.

*Distribution*.—The Pamir.

*a-b.* 2 Skins Lake Sarikul, Pamir F. Stoliczka.

### *Lepus stoliczkanus*.

*Lepus stoliczkanus*, *Blanford* *J. A. S. B.*, xliv, p. 110 (1875); id. *Yarkand Mammals*, pl. v, fig. 2, pl. va, fig. 2.

*Distribution*.—Mountains north of Kashgar.

There does not seem to be any very great distinction between this species, *L. pamirensis* and *L. tibetanus*, either in the skins or skulls, and when more specimens are procured, it will probably be found that they are all identical with one another.

*a-b.* 2 Skins Jigda, Altum Artush, F. Stoliczka.  
n. of Kashgar, 26-2-74.

[Types of *Lepus stoliczkanus*, *Blanford*.]

### *Lepus yarkandensis*.

*Lepus yarkandensis*, *Günther Ann. Mag. N. H.* (4), xvi, p. 229 (1875); *Blanford* *J. A. S. B.*, xliv, p. 109; id. *Yarkand Mammals*, p. 65, pl. iv, fig. 1, pl. iva, fig. 2.

*Distribution*.—The plains of Eastern Turkestan round Yarkand and Kashgar.

<i>a-b.</i> 2 Skins	Katti-ilak, Fyzabad, E. Turkestan, 1-3-74	F. Stoliczka.
<i>c.</i> Skin	Yangihissar, 2-12-73	F. Stoliczka.
<i>d-e.</i> 2 Skins	Yarkand, 22-4-73	F. Stoliczka.
<i>f.</i> Skin	Beshkant, Yarkand 2-75	J. Scully.
<i>g.</i> Skin juv.	Yarkand, 5-6-75	J. Scully.
<i>h.</i> Skin juv. ♂	" 31-5-75	J. Scully.
<i>j.</i> Skin juv.	Hassan Borgha, E. Tur- kistan, 2,350 ft., 19-6- 83.	C. Ellis.
<i>k.</i> Skeleton	Katti-ilak, Fyzabad, E. Turkestan.	F. Stoliczka.

### *Lepus dayanus*.

? *Lepus* sp., *Hutton* *J. A. S. B.*, xv, p. 141.

*Lepus dayanus*, *Blanford P. Z. S.*, p. 663 (1874); *Murray Zool. Sind*, p. 50.

*Lepus craspedotis*, *Blanford Ann. Mag. N. H.* (4), xvi, p. 313 (1875); id. *Persia*, p. 80, pl. viii; *Murray Zool. Sind*, p. 49.

*Lepus joongshaiensis*, *Murray Zool. Sind*, p. 51 (1884).

*Distribution*.—Throughout Sind and Baluchistan.

There does not seem to be any distinctions of importance between the Sind and Baluchistan hares, and the description of the third species, *L. joongshaiensis*, agrees entirely with the type of *L. craspedotis* and a specimen labelled *L. dayanus* in the Indian Museum.

- a. Skin, skull ♀ Pishin, Baluchistan, W. T. Blanford.  
8-2-72.  
[Type of *Lepus craspedotis*, Blanford.]
- b. Skin, skull Nara Nai w. of Sehwan, W. T. Blanford.  
Sind, 11-2-75.
- c. Head juv. Chaman, S. Afghanistan J. A. Murray.  
d. Skull juv. " " J. A. Murray.  
e. Skull Kandahar " T. Hutton, A. S. B.

### *Lepus ruficaudatus*.

*Lepus ruficaudatus*, *Is. Geoff. St. Hil. Dict. Class. H. N.*, ix, p. 381 (1826); *id. Voy. aux Indes Orient., Belanger*, p. 156; *Ogilby Royle's Himal. Bot.*, p. lxviii; *Waterhouse Nat. Hist. Mamm.*, ii, p. 74; *Blyth J. A. S. B.*, xi, p. 100; *id. J. A. S. B.*, xxviii, p. 291; *id. Cat. no. 434*, p. 131; *Ferdon Mamm.*, p. 224; *McMaster Notes on Ferdon*, p. 57; *Stoliczka, J. A. S. B.*, xli, p. 228; *Thomas P. Z. S.*, 1886, p. 57.

*Lepus orientalis*, *Brown Bengal Sporting Mag.* (1836)\*.

*Lepus macrotus*, *Hodgson J. A. S. B.*, ix, p. 1183 (1840); *Gray Cat. Hodg. Coll.*, 1st ed., p. 20; *Wagner Hügel's Kaschmir*, iv, p. 574, with plate; *Adams P. Z. S.*, 1858, p. 520.

*Lepus tytleri*, *Tytler Ann. Mag. N. H. (2)*, xiv, p. 176 (1854); *Blyth, J. A. S. B.*, xxii, p. 415; *id. J. A. S. B.*, xxiv, p. 471.

The Indian Hare; Khargosh, Hind.; Kharra, Central India; Sasru, Lamma, Hind.; Molol, Gonds.

*Distribution*.—Northern India, from the Punjab to Bengal, extending from the lower ranges of the Himalayas to the Taptee and Godavery Rivers.

- u. Skin ♂ Agra dist. Agra Mus.  
b-c. 2 Skins Manbhoom R. C. Beavan (1865).  
d. Skin juv. " Mus. Coll (1866).  
e. Skin Thankot, Nepal, 9-12-77 J. Scully.  
f. Skin Naga Hills A. W. Chennell.  
g. Skeleton [Calcutta bazaar] Purchased.  
h. Stuffed " " Purchased, A. S. B.  
j-k. 2 Stuffed juv. " " Purchased, A. S. B.  
l. Stuffed juv. Alipore, Calcutta A. Grote, A. S. B.  
m. Skeleton mtd. [Calcutta bazaar.] Purchased, A. S. B.

### *Lepus nigricollis*.

*Lepus nigricollis*, *F. Cuvier, Dict. Sci. Nat.*, xxvi, p. 307 (1823); *Sykes P. Z. S.*, 1831, p. 103; *F. Cuvier, Nat. Hist. Mamm.* (1837)\*; *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 37; *Elliot Madras Journ.*, x, p. 218; *Waterhouse Nat. Hist. Mamm.*, ii, p. 72; *Blyth J. A. S. B.*, xx, p. 172;

*Horsfield Cat. E. I. Mus.*, p. 147; *Kelaart Prodr. Faun. Zeylan.*, p. 72; *Adams P. Z. S.*, 1858, p. 520; *Zebebor Säugeth. Novara Reise*, p. 31; *Blyth Cat.* no. 437, p. 132; *Ferdon Mamm.*, p. 225; *McMaster Notes on Ferdon*, pp. 57, 66.

*Lepus melanauchen*, *Temminck and Schlegel Faun. Jap. Mamm. Discour. Prelim.*, p. xiii (1835)\*.

The Black-naped Hare; Malla, Canarese; Sassa, Mahr.; Musal, Tamil; Kundeli, Tel.; Hava, Cingalese.

*Distribution*.—Southern India; from the Taptee and Godavery rivers southwards; Ceylon, Sumatra, Java, and Mauritius where perhaps introduced by human agency.

a. Skin	Bangalore	Mus Coll., Jaffa.
b. Skin	♂ Tenmalai, S. Arcot dist.	Mus Coll., Jaffa.
c. Skin	South India	Madras Mus. (1863).
d. Skin	Ceylon	Columbo Mus.
e. Skin	Ceylon	R. Templeton (1849), A.S.B.
f-g. 2 Skins, 1 skull	...	No history.
h. Stuffed	Java	Batavian Soc. (1844), A.S.B.
j. Stuffed	Mauritius	Batavian Soc. (1844), A.S.B.

### *Lepus peguensis*.

*Lepus peguensis*, *Blyth J. A. S. B.*, xxiv, p. 471 (1855); *id. Cat.* no. 435, p. 132; *id. J. A. S. B.*, xliiv, *Burma List*, p. 43.

*Distribution*.—The open country of Upper Pegu in Burma.

a. Skin, skull	Upper Pegu	Sir A. Phayre, A. S. B.
	[Type of <i>Lepus peguensis</i> , Blyth.]	

### *Lepus sinensis*.

*Lepus sinensis*, *Gray Illustr. Ind. Zool.*, ii, pl. xx (1834); *Waterhouse Nat. Hist. Mamm.*, ii, p. 80; *Blyth J. A. S. B.*, xxx, p. 90; *id. Cat.* no. 436, p. 132; *Swinhoe P. Z. S.*, 1862, p. 359; *id. P. Z. S.*, 1870, p. 639.

*Distribution*.—China, from Peking to Canton and the Island of Formosa.

a-b. 2 Stuffed, 1 skull,	Amoy, China	R. Swinhoe (1861), A. S. B.
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### *Lepus hispidus*.

*Lepus hispidus*, *Pearson Bengal Sporting Mag.*, p. 131 (1843)\*; *McClelland P. Z. S.*, 1839, p. 152; *Hodgson J. A. S. B.*, xvi, p. 572, pl. xiv; *Waterhouse Nat. Hist. Mamm.*, ii, p. 78; *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 11; *Blyth Cat.* no. 438, p. 133; *Ferdon Mamm.*, p. 226.

*Caprolagus hispidus*, *Blyth J. A. S. B.*, xiv, p. 247, with two plates (1845); *Horsfield Cat. E. I. Mus.*, p. 148; *Tytler Ann. Mag. N. H.* (2), xiv, p. 175.

*Distribution.*—The Terai at the base of the Himalayas from Nepal to Assam, extending southwards to Dacca; said to be found in the Rajmahal hills.

A closely allied species (*Lepus netcheri*) has recently been described by Schlegel (Notes Leyd. Mus., ii, p. 59) from Sumatra.

a-c. 3 Skins	Dacca	F. B. Simson (1870).
d. Head and skull.	„	F. B. Simson (1870).
e. Skin	„	F. Buckland.
f. Stuffed and skull.	Assam.	F. Jenkins, A. S. B.
g. Skeleton	Rajmahal?	W. S. Sherwill, A. S. B.

### *Lepus europæus.*

*Lepus europæus*, Pallas Nov. Sp. Quad. e Glir., p. 30 (1778).

*Lepus timidus*, apud Desmarest Mamm., ii, p. 347 (1820); Waterhouse Nat. Hist. Mamm., ii, p. 39; Blasius Säugeth. Deutsch., p. 412; Blyth Cat. no. 430, p. 130.

The Hare.

*Distribution.*—Europe generally, except the more northern parts.

a. Stuffed	England	A. D. Bartlett, A. S. B.
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### *Lepus cuniculus.*

*Lepus cuniculus*, Linnæus Syst. Nat., 12th ed., i, p. 77 (1766); Waterhouse Nat. Hist. Mamm., ii, p. 64; Blyth Cat. no. 432, p. 131.

The Rabbit.

*Distribution.*—Southern and Western Europe and North Africa; has been introduced into many places, such as the Falkland Islands, Australia and New Zealand.

a-b. 2 Stuffed	England	A. D. Bartlett, A.S.B.
c. Stuffed	[Lop-eared var.]	Rajab R. Mullick, A.S.B.
d-g. 4 Skulls	.....	A. D. Bartlett, A.S.B.

### *Lepus timidus.*

*Lepus timidus*, Linnæus Syst. Nat., 12th ed., i, p. 77 (1766); Allen Monographs N. Amer. Rodents, p. 288.

*Lepus variabilis*, Pallas Nov. Sp. Quad. e Glir., pp. 1, 30 (1778); Waterhouse Nat. Hist. Mamm., ii, p. 51; Blasius Säugeth. Deutsch., p. 420; Blyth Cat. no. 341, p. 131.

*Lepus arcticus*, Leach in Ross' Voyage, 2nd ed., append., p. 151 (1819)\*.

*Lepus glacialis*, Leach in Ross' Voyage, 2nd ed., append., p. 170 (1819)\*.

*Lepus albus*, Fenyns Brit. Vert. Anim., p. 35 (1835).

*Lepus hibernicus*, Bell Brit. Quad., 1st ed., p. 341 (1837)\*.

*Lepus borealis*

*Lepus canescens* } Nilsson Kongl. Vetens. Akad. Oefvers, p. 133 (1847)\*.

## The Polar Hare.

*Distribution.*—The northern regions of both hemispheres, Scotland and Ireland, and the Alps and elevated regions of Central Europe.

a. Skin (summer).	Norway	Christiania Univ., A.S.B.
b. Skin (winter).	Scotland	Sir W. Jardine, A.S.B.
c. Stuffed (winter).	Norway	Christiania Univ., A.S.B.
d. Stuffed (winter).	Scotland	Sir W. Jardine, A.S.B.
e. Stuffed (summer) and skull.	Ireland	A. D. Bartlett, A.S.B.
f. Stuffed (winter).	No history	A.S.B.
g-j. 3 Skulls	.....	A. D. Bartlett.

## Lepus ægyptius.

*Lepus ægyptius*, *Is. Geoff. St. Hil. Descrip. Egypt. Hist. Nat.*, ii, p. 739, *Atlas*, pl. vi, fig. 2 (1812); *Waterhouse Nat. Hist. Mamm.*, ii, p. 85; *Blanford Abyssinia*, p. 273.

*Lepus ægyptiacus*, *Hempr & Ehr. Symb. Phys.*, pl. xv, fig. i (1828).

*Lepus habessinicus*, *Brehm Habesch.*, p. 64 (1863)\*.

*Distribution.*—North-East Africa.

a. Skin	♂	Koomeylee, Abyssinia,	W. T. Blanford.
		400 ft.,	2-6-68.
b. Skin	♀	Zoulla, Annersley Bay,	W. T. Blanford.
		Abyssinia,	6-2-68.

## Lepus tigrensis.

*Lepus tigrensis*, *Blanford Ann. Mag. N. H.* (4), iv, p. 330 (1869); *id. Abyssinia*, p. 275.

*Lepus abyssinicus*, *apud Lefebre Voyage Abyssinie*, vi, *Atlas*, pl. v, fig. i.\*

*Distribution.*—Hill country of Abyssinia.

a-b. 2 Skins		Takonda, Abyssinia,	W. T. Blanford.
		7,500 ft.,	27-1-68.
c. Skin		nr. Tigré, Abyssinia,	W. T. Blanford.
		7,500 ft.,	1-3-68.

## Lepus capensis.

*Lepus capensis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 76 (1766); *Waterhouse Nat. Hist. Mamm.*, ii, p. 95; *Blyth Cat.* no. 429, p. 130.

*Lepus ochropus*, *Wagner, Schreber's Säugeth. Suppl.*, iv, p. 96 (1844).

*Distribution.*—South Africa.

a. Stuffed	South Africa	E. L. Layard, A.S.B.
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**Lepus saxatilis.**

*Lepus saxatilis*, *F. Cuvier Dict. Sci. Nat.*, xxvi, p. 309 (1823); *Waterhouse Nat. Hist. Mamm.*, ii, p. 92; *Blyth Cat.* no. 428, p. 130.

*Lepus rufinucha*, *A. Smith, Zool. Journ.*, iv, p. 440 (1829).

*Lepus longicaudatus*, *Gray Charlesw. Mag. N. H.*, i, p. 586 (1837).

*Lepus fumigatus*, *Wagner Schreber Säugeth. Suppl.*, iv, p. 98 (1844).

*Distribution.*—South Africa.

a. Stuffed                      South Africa                      E. L. Layard, A.S.B.

**Lepus americanus.**

*Lepus americanus*, *Erxleben Syst. Reg. Anim.*, p. 330 (1777); *Allen Monographs N. Amer. Rodents*, p. 304.

*Lepus hudsonius*, *Pallas Nov. Sp. Quad. e Glir.*, p. 30 (1778).

*Lepus virginianus*, *Harlan Faun. Amer.*, p. 196 (1825)\*.

*Lepus borealis*, *Schinz Synop. Mamm.*, ii, p. 286 (1845).

*Lepus washingtoni*, *Baird P. Acad. Nat. Sci. Philad.*, vii, p. 333, pl. xv, (1856).

*Lepus bairdi*, *Hayden Amer. Nat.*, iii, p. 115 (1869)\*.

The Varying Hare.

*Distribution.*—The wooded portion of the northern half of North America.

a. Skin (winter).                      Lucknow Ont., Canada                      J. H. Garnier [Ex.]  
25-12-84.

b. Skin (winter).                      Gatineau R. Queb.,                      J. H. Garnier [Ex.]  
Canada.

c. Skull                      Massachusetts, U.S.A.                      W. Theobald.

**Lepus sylvaticus.**

*Lepus nanus*, *Schreber Säugeth.*, iv, p. 881 (1792) [in part.]

*Lepus americanus*, *apud Desmarest Mamm.*, ii, p. 351 (1822).

*Lepus sylvaticus*, *Bachman ꝯ. Acad. Nat. Sci. Philad.*, vii, p. 403 (1837); *Allen Monographs North Amer. Rodents*, p. 328.

*Lepus nuttalli*, *Bachman ꝯ. Acad. Nat. Sci. Philad.*, vii, p. 345, pl. xxii (1837).

*Lepus bachmani*, *Waterhouse P. Z. S.*, p. 103 (1838).

*Lepus artemesia*, *Bachman ꝯ. Acad. Nat. Sci. Philad.*, viii, p. 94 (1839).

*Lepus auduboni*, *Baird N. Amer. Mamm.*, p. 608, pl. xiii (1857)\*.

Wood Hare or Wood Rabbit.

*Distribution.*—The greater part of the southern half of North America.

a. Skin                      Noces, Texas, 3-84                      J. H. Garnier [Ex.]

b. Skin                      Texas                      J. H. Garnier [Ex.]

c. Skull                      Massachusetts                      W. Theobald.

**Lepus callotis.**

*Lepus callotis*, *Wagler Nat. Syst. Amphib.*, p. 23 (1830); *Allen Monographs N. Amer. Rodents*, p. 350.

*Lepus nigricaudatus*, Bennett P. Z. S., p. 41 (1833).

*Lepus texianus*, Waterhouse Nat. Hist. Mamm., ii, p. 136 (1848).

The Jackass Hare.

*Distribution*.—Southern parts of the United States and Mexico to the isthmus of Tehuantepec.

a. Skin                      Nuces Valley, Texas, 2-84 J. H. Garnier [Ex.]

## Order UNGULATA.

Placental Mammals with no clavicles; with limbs for progression only; the 1st digits of all recent forms wanting; unguis phalanges hoofed; metacarpals and metatarsals vertically elongated or sharply inclined; teeth covered with enamel and molars generally complex.

### *Key of the Indian Genera.*

- a. Digits of manus and pes equal or even in number; the 3rd digit of each foot asymmetrical in itself, but forms with the 4th digit a symmetrical pair; no 3rd trochanter to the femur, posterior premolars smaller and simpler than the molars; stomach complex; caecum small; horns when present paired.  
[=Artiodactyla.]
- b. Ulna and fibula incomplete, confluent with radius and tibia, manus and pes functionally didactyle; incisors rarely present in the upper jaw; lower canines incisiform; premolars and molars with uni- or bicrescentic ridges; stomach complex, four-chambered and ruminating.  
[=Selenodontia.]
- c. Horns generally present; the third and fourth metacarpals and tarsals fused to form a cannon bone; digits two and five, incomplete and wanting.  
[=Cotylophora.]
- d. Horns hollow and persistent; digits two and five represented by hoofs only; no upper canines; gall bladder present.  
[=Bovidæ, see key below.]
- d<sup>2</sup>. Horns solid and deciduous; digits two and five have distinct metacarpals and phalanges; no gall bladder.  
[=Cervidæ.]
- e. Horns small; upper canines well-developed; distal tarsal elements all united except an ectocuneiform.  
**Cervulus**, p. 172.

e<sup>2</sup>. Horns generally large; the navicular and cuboid elements of the tarsus usually distinct; canines only moderately developed. . . . **Cervus**, p. 174.

e<sup>3</sup>. Horns absent; canines very large.

**Moschus**, p. 171.

c<sup>2</sup>. Horns absent; 3rd and 4th metacarpals unite late or not at all; 2nd and 5th digits complete on each foot; canines present in both jaws; placenta diffuse.

**Tragulus**, p. 188.

b<sup>2</sup>. Non-ruminant hornless forms with tarsals and carpals, ulna and fibula distinct and complete; manus and pes tetradactyle; incisors present in upper jaw, molars with tuberculate or transversely ridged crowns; canines present in both jaws; stomach simple; placenta diffuse.

[=Bunodontia.]

**Sus**, p. 192.

a<sup>2</sup>. Digits of the pes odd in number; median or 3rd digit symmetrical bilaterally; femur with a 3rd trochanter; tympanic bone small and solid; stomach simple, cæcum long; no gall bladder; placenta diffuse; horns when present unpaired.

[=Perissodactyla.]

e. Forms with soft hairy skin; nose probosciform; radius and ulna, tibia and fibula complete, the two latter distinct; manus with four, pes with three digits.

**Tapirus**, p. 198.

e<sup>2</sup>. Forms with thick skin and scanty hair; radius and ulna, tibia and fibula complete; manus and pes tri-dactyle; orbits incomplete; canines absent; one or two coreless epidermic mesial horns on the snout formed of fused hair. . . . **Rhinoceros**, p. 201.

e<sup>3</sup>. Specialized forms; ulna and fibula incomplete distally, confluent proximally with the radius and tibia; 3rd digit on each foot functional only, the 2nd and 4th rudimentary and represented by splint bones; orbits complete. . . . **Equus**, p. 198.

*Key of the Genera of Indian Bovidae.*

a. Horns always present in both sexes, and set wide apart; occipital and frontal planes form an acute angle; muffle large; no antorbital pits; four mammæ; large and massive animals.

**Bos**, p 123.



- a*<sup>2</sup>. Horns present in both sexes, but often markedly smaller in the females, set with their bases close to one another; the occipital and frontal planes form an acute angle.
- b*. Horns wrinkled and forming circles; no muffle; small feet pits on all four feet; antorbital pits present (except *O. nahoor*); basioccipital oblong with the posterior tubercles larger (except *O. nahoor*); four mammæ. **Ovis**, p. 131.
- b*<sup>2</sup>. Horns smooth and angular; no muffle; no antorbital pits; feet-pits if present, only on the fore-feet; basioccipital wider in front, and the anterior tubercles larger; two mammæ (except *C. jemlaica*). . . . **Capra**, p. 142.
- b*<sup>3</sup>. Horns rounded and small; a small muffle present; antorbital pits present; feet-pits large; four mammæ.  
**Nemorhædus**, p. 147.
- a*<sup>3</sup>. Horns not always present in the females, placed on the crest of the frontals but generally some way apart at their bases; the frontal and occipital planes hardly form an angle but a rounded surface; generally four mammæ; antorbital pits always present.
- c*. Horns smooth, in males only; muffle present; mammæ four in number.
- d*. Of large size; horns short recurved; a short erect mane, and a throat tuft in the male. . **Boselaphus**, p. 154.
- d*<sup>2</sup>. Of small size; horns four in number; canines present in the males. . . . **Tetracerus**, p. 168.
- c*<sup>2</sup>. Horns ringed; no muffle; mammæ two in number.
- e*. Horns straight, long, annulated, in males only; no muffle; no canines. . . . **Antilope**, p. 162.
- e*<sup>2</sup>. Horns ringed, generally lyrate; if present in female, small.
- f*. An intermaxillary pouch present; no horns in females; no knee tufts. . **Pantholops**, p. 163.
- f*<sup>2</sup>. No intermaxillary pouch; females often horned; knee tufts generally present. **Gazella**, p. 157.
- c*<sup>3</sup>. Horns gnu-like, spinging close together; muzzle bovine, no antorbital pits or feet-pits. . **Budorcas**, p. 151.

Genus **BOS**.

*Bos* *Linnaeus Syst. Nat.*, 12th ed., i, p. 98 (1766).  
*Bison*, *H. Smith Griffith An. Kingd.*, v, p. 373 (1827).

- Bubalus, *H. Smith Griffith An. Kingd.*, v, p. 371 (1827).  
 Anoa, *H. Smith Griffith An. Kingd.*, v, p. 355 (1827).  
 Bibos, *Hodgson J. A. S. B.*, vi, p. 499 (1837). *Type*, *B. gaurus*.  
 Poepagus, *Gray List Mamm. B. M.*, p. 153 (1843). *Type*, *B. grunniens*.  
 Gavaeus, *Hodgson J. A. S. B.*, xvi, p. 706 (1847). *Type*, *B. frontalis*.  
 Zebus, *Blyth J. A. S. B.*, xxix, p. 283 (1860). *Type*, *B. indicus*.

*Key of the Indian Species.*

- a. With smooth flattened horns never exceeding 3 feet in length ; legs white ; hair always short ; frontal bones concave.
- b. White of hind legs extends to rump, forming an anal patch ; tail long ; premaxillary bones reach and touch the nasals ; dorsal ridge not marked. . . . . *B. sondaicus*, p. 127.
- b<sup>2</sup>. White colour confined to the legs, premaxillary bones do not reach the nasals ; dorsal ridge marked.
- c. No dewlap ; tail long ; skull elongated. . . . . *B. gaurus*, p. 124.
- c<sup>2</sup>. Dewlap present ; tail short ; skull markedly triangular. . . . . *B. frontalis*, p. 126.
- a<sup>2</sup>. Horns cylindrical ; nose hairy ; no dewlap, hump or dorsal ridge ; body clothed in parts with very long hair ; frontals convex. . . . . *B. grunniens*, p. 128.
- a<sup>3</sup>. Horns very large and flattened, generally exceeding 3 feet in length ; body very sparsely covered with hair ; hoofs very large ; thirteen pairs of ribs. . . . . *B. bubalus*, p. 129.

**Bos gaurus.**

- "Gaour," *Geoffroy St. Hil. Mem. Mus. Paris.*, ix, p. 71 (1822).  
 Bos—sp. "Gour of India" *Traill Edin. Philos. Journ.*, xi, p. 334 (1824).  
 Bos gaurus, *H. Smith Griffith An. Kingd.*, iv, p. 399 (1827) ; *Evans J. A. S. B.*, vi, p. 223 ; *Pearson* *ibid.*, p. 225 ; *Blyth J. A. S. B.*, xi, p. 444 ; *Cantor, J. A. S. B.*, xv, p. 272 ; *Blyth J. A. S. B.*, xxxi, p. 336 ; *Blanford J. A. S. B.*, xxxvi, p. 192 ; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 47 ; *McMaster Notes on Ferdon*, p. 128 ; *Pollok Sport in Brit. Burma*, i, p. 99 ; *Nevell Taprobanian*, iii, p. 5 ; *Inverarity J. Bomb. Soc.*, iv, p. 294.  
 Bos gour and gayæus, *Hardwicke Zool. Journ.*, iii, p. 233 (1828).  
 Bibos subhemachalus, *Hodgson J. A. S. B.*, vi, p. 499 (1837).  
 Bibos cavifrons, *Hodgson J. A. S. B.*, vi, p. 745 (1837) ; *Elliot Madr. Journ.*, x, p. 227, pls. v, vi ; *Hodgson J. A. S. B.*, x, pp. 449, 912 ; *Horsfield Cat. E. I. Mus.*, p. 181.  
 Bibos gaurus, *Gray Cat. Hodgs. Coll.*, 1st ed., p. 24 (1846) ; *id. Cat. Mamm. B. M.*, iii, p. 32 ; *P. L. Sclater, P. Z. S.*, 1889, p. 447.

Bibos asseel, *Horsfield Cat. E. I. Mus.*, p. 181 (1851).  
 Bibos frontalis, *apud Thompson, P. Z. S.*, p. 96 (1852).  
 Gavæus gaurus, *Blyth Z. A. S. B.*, xxix, p. 282 (1860); *Blyth Cat.*, p. 161;  
*Jerdon Mamm.*, p. 301; *Maingay P. A. S. B.*, 1868, p. 194; *Sterndale  
 Mamm. Ind.*, p. 481.

The Bison or Gaur; Gaur or Gourigai, Hind.; Gaviya, Mahrathi; Jungli Khoolga, Deccan; Kar-kona, Canarese; Bod at Seone; Banparra at Mundlah; Vanago, Bengali; Katuyeni, Tamil; Ranpado, Guzerati; Ran Hila, Bheels; Pyoung, Burma.

*Distribution.*—The peninsula of India in forest tracts, from the Vindhyan Hills along the north of the Nerbudda (Jerdon); southward through Kandeish and the Western Ghats to Tinnevely (Elliot); eastward through the Central Provinces and Chota Nagpore almost to Midnapore (Jerdon); the Nepal terai (Hodgson); Assam; Tipperah and Chittagong Hills; southwards through Burma (Blyth) to Malay peninsula (Cantor and Maingay) but not recorded from any of the Islands.

It doubtless formerly occurred in Ceylon, since the Guavera of Knox's description of Ceylon is doubtless the Gaur, and Major Forbes (Journal of Eleven Years' residence in Ceylon, ii, p. 159) asserts that it was only at the beginning of the present century that it was exterminated.

a. Skull, horns	.....	W. T. Blanford (1868).
b. Skull, horns ♀	Assam	F. Jenkins (1844), A.S.B.
c. Skull, horns	... "	No history.
d. Skull, horns	Gauhati, Assam	F. T. Pollok (1870).
e. Skull, horns ♂	Chybasa.	S. R. Tickell (1840), A.S.B.
f. Skull, horns	Malacca	Dr. Maingay, (1863).
g. Skull, horns	Gauhati, Assam	F. T. Pollock (1870).
h. Skull, horns ♂	Burma	Sir A. Phayre, A.S.B.
j. Skull, horns ♂	.....	C. S. Guthrie (1862), A.S.B.
k. Skull, horns ♀	Tipperah hills	Rev. J. Barbe, (1846) A.S.B.
l. Frontlet ♂	Chittagong hill tracts	J. T. Jarbo (1879).
m. Skull, horns	Chittagong dist.	J. A. Campbell (1879).
n. Frontlet ♂	Chittagong hill tracts	J. T. Jarbo (1879).
o. Skull, horns	Chittagong hill tracts	J. T. Jarbo (1879).
p. Skeleton, juv. skin. ♂	.....	Zoological Gardens (1883).
q. Skeleton, juv. skin. ♀	.....	Zoological Gardens (1883).
r. Stuffed ♀	Chanda	W. T. Blanford (1867).
s. Stuffed ♂	Chota Nagpore	A. A. Kinloch (1883). A.S.B.
t. Skeleton ♂	.....	
u. Skeleton ♀	Chota Nagpore	Major Ousley (1840).
Skull, horns	.....	Purchased, 1847, A.S.B.
w. Skull and ♀ skin of head.	Bhutan Doears	A. A. Kinloch, 1882.
x. Skull and horns.	Chittagong hill tracts	J. T. Jarbo, 1881.
y. Pr. of horns ♂	.....	No history, A.S.B.

**Bos frontalis.**

- Bos frontalis*, Lambert *Linn. Trans.*, vii, pp. 57 and 302, pl. iv (1804); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 24; *P. L. Sclater P. Z. S.*, 1866, p. 1, pl. i; *Blanford F. A. S. B.*, xxxvi, p. 192; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 48; *Pollok Sport in Brit. Burma*, i, p. 104; *Farbo P. Z. S.*, 1883, p. 143; *Sterndale Mamm. Ind.*, p. 486.
- Bos gavæus*, *Colebrooke As. Res.*, viii, p. 487, with plate (1805); *Hodgson F. A. S. B.*, x, p. 453.
- Bibos frontalis*, *Gray List Mamm. B. M.*, p. 151 (1842); *id Cat. Mamm. B. M.*, iii, p. 31.
- Bos sylhetanus*, *F. Cuvier Hist. Nat. Mamm.*, livr. 41, 42, with plate (1824); [hybrid with *B. taurus*].
- Gavæus frontalis*, *Hodgson F. A. S. B.*, xvi, p. 706 (1847); [*Blyth Cat.*, p. 162; *Horsfield Cat. E. I. Mus.*, p. 179; *Blyth F. A. S. B.*, xxix, p. 294; *id. ibid.*, xxxi, p. 338.

The Gayal; Gavaye, Hind.; Gayal, Beng.; Shio of the Mughs of Chittagong; Mithana or Mithun of the Kookies; Johnguna, Burma.

*Distribution*—From Akyab northwards through the Arakan and Chittagong hills, extending through Tipperah and Manipur to the Naga hills; also found in the Duffla hills north of the Brahma-pootra.

The Gayal is distinguished from the Gaur (*B. gaurus*) by its heavier and more clumsy build, by the possession of a well-developed dewlap and shorter tail; the horns of the Gayal are horizontal and very nearly straight; they are quite black, contrasting with the greenish horns of the Gaur; the skull too of the Gayal contrasts strongly with that of the Gaur by its very much more triangular shape; the concavity of the frontal bones, which is so marked a feature in the Gaur's skull, exists also in the Gayal though not nearly in so marked a way; in the median line of the skull between the horns there is in the Gaur a distinct ridge which is quite unrepresented in the Gayal.

The Banteng (*Bos sondaicus*) is at once distinguished from the Gayal and the Gaur by the extension of the white of the hind legs up to the rump; it has a moderate dewlap and a long tail, and the dorsal ridge so conspicuous a feature of the Gaur and Gayal is much less developed in the Banteng.

The Gayal is always found in a semi-domestic state belonging to different villages of the numerous hill tribes on the Assam frontier, such as the Nagas and Kookies; they roam about the forest all day but always return to the hill tribes' villages at night, and there is considerable doubt as to whether the Gayal ever occurs in a true feral state.

The older writers seem to have had no doubt on the subject. Colebrooke (see above) says it is found wild in the Chittagong, Tipperah and Sylhet hills, and he also mentions that the animal is brown and has a well-developed dewlap, thus showing that he was not confusing the Gayal with the Gaur which also occurs in the

same country, and one of whose distinguishing features is the absence of a dewlap; Blyth in his earlier writings also seems to have believed in the wild Gayal; later, however, (Mammals of Burma) he seems to have come to the conclusion that the Gayal was a purely domestic race, in which view he is supported by Jarbo and Anderson.

a.	Skull, horns	.....	No history.
b.	Skull, horns	.....	No history.
c.	Skull, juv. ♂ horns.	.....	E. Blyth, 1857, A.S.B.
d.	Skull, horns ♂	.....	W. Hodge, 1870.
e.	Skull, horns ♂	.....	R. W. G. Frith, 1850, A.S.B.
f.	Skull, horns. juv. (hybrid)	.....	R. W. G. Frith, 1851, A.S.B.
g.	Skeleton, ♀ skin.	.....	Zoological Gardens, 1880.
h.	juv. Skeleton ♀ (hybrid)	Chittagong	Zoological Gardens, 1878.
j.	Stuffed juv.	.....	W. Rutledge.
k.	Skull, horns (dom. var.)	.....	E. Blyth, 1857, A.S.B.
l.	Skin, skull ♀	.....	Zoological Gardens, 1889.
m.	Skin, skull	.....	No history, A.S.B.

### Bos sondaicus.

"Banteng" *Raffles Hist. of Java*, i., p. 111 (1817).

*Bos leucopymnus*, *Quoy et Gaimard Astrolobe Zoologie*, i., p. 140 (1830) [hybrid with *B. taurus*].

*Bos sondaicus*, *Schlegel and Müller Tem. Verhandl.*, p. 195, pls. xxxv to xxxix (1840); *Blyth F. A. S. B.*, xi, p. 445; *Blyth F. A. S. B.*, xxxi, p. 336; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 48; *Pollok Sport in Brit. Burma*, i, p. 105.

*Bibos banteng*, *Gray Knowsley Menagerie*, p. 48 (1850)\*; *Horsfield Cat. E. I. Mus.*, p. 183; *Gray Cat. Mamm. B. M.*, iii, p. 35.

*Gavæus sondaicus*, *Blyth, F. A. S. B.*, xxix, p. 296 (1860); *id. Cat.*, p. 160; *McMaster Notes on Ferdon*, p. 131; *Sterndale Mamm. Ind.*, p. 488.

The Banteng; Tsoing, Burmese.

*Distribuiton*.—From Arrakan (Blyth) southwards though Burma (Pollok) to the Malay peninsula, and in the Islands of Java, Bali (Raffles) and Borneo (Müller).

The horns of the Banteng are more rounded in section than those of the Gaur and Gayal, and their circumference is much less in proportion to their length as will be seen by the table of measurements below; the colour of the horns are greenish with black tips. The skull is long, resembling that of the Gaur in general shape rather than that of the Gayal; the forehead is much flatter than that of the Gayal and Gaur, and the premaxillary bones reach and touch the nasals, while in the Gour and Gayal there is a gap of about an inch between these two bones.

*Measurements in inches of Skulls and Horns of adult Gaur, Gayal and Banteng.*

	Gaur.	Gayal.	Banteng.
Across the forehead from the bases of the horns .	9	11	11½
From frontoparietal ridge to tip of nasals . . .	19	15	14½
Across from orbit to orbit .	11	9½	8½
Horns, circumference at base . . . . .	17	16½	11½
Horns, outside curve .	31	16	20
„ inside curve . . .	22	15	16
<i>a.</i> Skull and horns. Java ?		Prince Henry of the Netherlands, 1837, A.S.B.	
<i>b.</i> Skull and horns. Java		Batavian Soc., 1844, A.S.B.	
<i>c.</i> Skull and horns. Upper Pegu		Sir A. Phayre, 1849, A.S.B.	
<i>d.</i> Skull and horns. Upper Pegu		Sir A. Phayre, 1849, A.S.B.	
<i>e.</i> Skull and ♂ horns. juv. ....		Zoological Gardens, 1885, A.S.B.	
<i>f.</i> Skin, ske-leton. juv. ....		W. Rutledge, 1881.	
<i>g.</i> Skin, ske-leton. ♂ ....		Zoological Gardens, 1885.	
<i>h.</i> Skull and ♂ horns. ....		Sir A. Phayre, A.S.B.	
<i>j.</i> Skin, ske-leton. juv. Pegu		W. Rutledge, 1881.	
<i>k.</i> Skin, ske-leton. juv. ....		W. Rutledge, 1881.	

### Bos grunniens.

*Bos grunniens*, *Linnaeus Syst. Nat.*, 12th ed., p. 99 (1766); *Radde Ost Siberien*, p. 272; *Sewertzoff Ann. Mag. N. H.* (4), xviii, p. 336; *Kinloch Large Game Shooting*, ii, p. 5, with plate.

*Bos poepagus*, *H. Smith in Griffith An. Kingd.*, iv, p. 404 (1827); *Pallas Zoog. Ross. As.*, p. 248, pl. xxii; *Hutton and Blyth Z. A. S. B.*, xv, p. 143.

*Bison poepagus*, *Hodgson Z. A. S. B.*, x, pp. 449, 912 (1841); *Gray. Cat. Hodgs. Coll.*, 1st ed., p. 25; *Hodgson Z. A. S. B.*, xvi, p. 708.

*Poepagus grunniens*, *Gray List Mamm. B. M.*, p. 153 (1843); *Blyth Cat.*, p. 158; *Horsfield Cat. E. I. Mus.*, p. 184; *Gray P. Z. S.*, 1853, pl. xxxv, p. 191; *id. Cat. Mamm. B. M.*, iii, p. 40; *Adams P. Z. S.*, 1858, p. 529; *Sterndale Mamm. Ind.*, p. 489.

The Yak; Donkh, Tibetan; Bunchowr, Hind.

*Distribution.*—The Mountains of Central Asia, seldom descending much below 6,000 ft. Hodgson describes it as being found from the Altai to the Himalayas.

The domestic variety is found in Transbaikalia (Radde), Turkestan (Severtzoff), and all through Mongolia and Thibet whence it is used for bringing merchandize across the high passes of the Himalayas to India.

The wild variety is recorded by Horsfield as having been shot by Captain (now General) Strachey in Ladak. Adams also gives an account of shooting wild yaks on the southern slopes of the Karakorum Mountains, *i.e.*, in Ladak; Kinloch gives the valley of the Chang Chenmo as the most likely locality for a sportsman to kill yak; Przewalsky records wild yaks on the northern part of the Thibetan plateau and they probably occur all over the higher parts of Thibet.

a. Skull and horns	.....	No history, A.S.B.
b. Skull and horns	Sikkim	W. Rutledge, 1870.
c. Skeleton ♀ (dom. var.)	.....	Rajah R. Mullick.
d. Skeleton ♀ (dom. var.)	.....	Rajah R. Mullick.
e. Stuffed ♂ (wild var.)	.....	E. Smyth, 1862, A.S.B.
f. Skull and horns	.....	No history, A.S.B.
g. Skull and horns (wild var.)	.....	Purchased at Almora, 1888.
h. Skull and horns (dom. var.)	.....	W. Rutledge, 1889.

### Bos bubalus.

*Bos bubalis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 99 (1766).

*Bos bubalus*, *Gmelin Syst. Nat.*, i, p. 206 (1788); *Hutton J. A. S. B.*, xv, p. 142.

*Bos arnee*, *Kerr Linn. Anim. Kingd.*, p. 336 (1792)\*; *Cantor J. A. S. B.*, xv, p. 273; *Gray P. Z. S.*, 1855, pl. xl [horns] p. 17.

*Bos buffelus*, *Blumenbach Handb. Naturges.*, 10th ed., p. 121 (1821)\*; *Blanford J. A. S. B.*, xxxvi, p. 195.

*Bubalus arna*, *Hodgson J. A. S. B.*, x, pp. 469, 912 (1841); *Jerdon Mamm.*, p. 307; *Hodgson J. A. S. B.*, xvi, p. 709; *Horsfield Cat. E. I. Mus.*, p. 179; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 49; *Sterndale Mamm. Ind.*, p. 490.

*Bubalus buffelus*, *Gray List Mamm. B. M.*, p. 152 (1843); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 25; *Hodgson J. A. S. B.*, xvi, p. 709; *Blyth J. A. S. B.*, xx, p. 175; *Horsfield Cat. E. I. Mus.*, p. 178; *Kelaart Prodr. Faun. Zeylan.*, p. 87; *Gray Cat. Mamm. B. M.*, iii, p. 25; *Blyth J. A. S. B.*, xxxi, p. 340; *id. Cat.*, p. 163.

The Buffalo; Bhainsa (Domestic Race), Arna, Urna or Jangli bhyns (Wild Race), Hind.; Mung at Bhagulpore; Geraerumi, Gond; Mee harak, Singalese; Kywai, Burmese.

*Distribution.*—In low lands and swampy places, never in mountains; Assam and Ganges valley including the Nepal terai (Hodgson) and the Sunderbunds. In the peninsula of India from the Ganges southwards to the Godavery River (Jerdon), and westwards to the Weinagunga River and Mandla (Blanford); it is also

found in the northern and eastern districts of Ceylon (Kelaart). It seems very doubtful whether the wild buffalo of Burma and Indo-China is truly feral or merely the escaped domestic animal.

Domesticated, the buffalo is found in Italy, Hungary, Turkey, Egypt, and all through Western Asia to Afghanistan, all over India, Burma, the Malay peninsula and in most of the Islands where an Albino variety is often met with.

a. Skull, horns ♀	.....	No history.
b. Skull, horns ♀	.....	F. Mouat, 1859, A.S.B.
c. Skull, horns ♀	.....	N. Wallich, 1816, A.S.B.
d. Skull, horns ♀	.....	N. Wallich, 1816, A.S.B.
e. Skull, horns ♂	.....	No history.
f. Skull, horns ♂	.....	No history.
g. Skull, horns ♂	.....	No history.
h. Skull, horns ♂	.....	No history.
j. Skull, horns ♂	.....	Sir J. Barlow, 1856, A.S.B.
k. Skull, horns ♂	.....	No history.
l. Skull, horns ♂	Kalibar, Central Assam	J. Hamilton, 1879.
m. Skull, horns ♂	.....	N. Wallich, 1816, A.S.B.
n. Skull, horns ♂	Assam	Major Brodie, 1848, A.S.B.
o. Skull, horns ♂	Assam	Major Brodie, 1848, A.S.B.
p. Skeleton ♀	Purneah	A. Weekes, 1881,
q. Skeleton ♂	Purneah	J. L. Shillingford, 1881.
r. Head, horns	.....	No history.
s. Head, horns	Sudiya, Assam	Col. Graham, 1877.
t. Head, horns ♀	.....	No history.
u. Head, horns ♂	.....	No history.

### Bos depressicornis.

Anoa depressicornis, *H. Smith in Griffith An. Kingd.*, iv, p. 293 (1827); *Gray Cat. Mamm. B. M.*, iii, p. 29; *Everett P. Z. S.*, 1878, p. 792, *Meyer* *ibid.*, p. 881; *Bartlett*, *ibid.*, p. 882.  
 Antelope depressicornis, *Quoy et Gaimard Ann. Sci. Nat.* (1), xvii, pl. xx; p. 423 (1829); *id. Astrolabe Zoologie*, i, p. 136, pl. xxvi.

*Distribution.*—The Island of Celebes.

a. Skin, skull ♀ juv.	.....	Zoological Gardens (1881).
and bones		
b. Skin, skull ♂ juv.	Celebes	Zoological Gardens (1880).
and bones.		
c. Skin, skull ♀ juv.	.....	Zoological Gardens (1880).
and bones.		
d. Skin, skull ♀	.....	Zoological Gardens (1882).
and body.		

### Bos caffer.

Bos caffer, *Sparrman Kongl. Vetensk. Akad. Handl.*, xl, p. 79 (1779).  
 Bubalus caffer, *Gray List Mamm. B. M.*, p. 153 (1843); *id. Cat. Mamm. B. M.*, ii, p. 28; *Elyth Cat.*, p. 164.



*Distribution.*—South Africa replaced in West Africa by *B. pumilus* and in East and Central Africa by *B. aequinoctialis* of Blyth to which perhaps specimens “b” and “c” should be referred.

a. Skull and horns	.....	E. Blyth, 1864, A.S.B.
b. Horns	♂ juv. ....	W. S. Sherwill, 1844, A.S.B.
c. Skeleton	♀ juv. ....	Zoological Gardens, 1878.

### **Bos americanus.**

*Bos americanus*, *Gmelin Syst. Nat.*, i., p. 204 (1788).

*Bison americanus*, *H. Smith Griffith An. Kingd.*, iv, p. 401, with plate (1827); *Gray Cat. Mamm. B. M.*, iii, p. 38; *Allen. Mem. Mus. Comp. Zool.*, iv, no. 10.

The American Buffalo.

*Distribution.*—Formerly spread over the plains of North America from the Alleghanies to the Rocky Mountains, now nearly extinct and confined to the remoter districts of Saskatchewan, Montana and perhaps Texas.

a. Skeleton, skin	♀	.....	W. Rutledge (1881).
b. Skeleton, skin	♀	.....	Babu H. M. Roy (1881).
c. Skull (no horns)		.....	H. A. Ward [Ex.] (1889).

### **Bos taurus.**

*Bos taurus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 98 (1766); *Blyth Cat.*, p. 159.

*Bos indicus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 99 (1766).

*Zebus gibbosus*, *Blyth F. A. S. B.*, xxix, p. 282 (1860); *id. Cat.*, p. 159.

*Distribution.*—The Indian humped race are unknown in an aboriginal state, but are suspected by Blyth to have originated in South Africa rather than in Asia; they are found in a domestic state all over the hotter parts of Africa as far as Natal, in Madagascar, Arabia, South Persia (Blanford), Beluchistan, all over India, and through Indo-China as far as Japan; also in many of the Islands.

a. Skeleton	♀	.....	“Australian dom. race.”
b. Skeleton		.....	No history.
c. Skull	♀	.....	“English polled race.”

### **Genus OVIS.**

*Ovis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 97 (1766).

*Ammotragus*, *Blyth P. Z. S.*, p. 13 (1840). *Type*, *O. tragelaphus*.

*Pseudois*, *Hodgson F. A. S. B.*, xv, p. 343 (1846). *Type*, *O. nahoor*.

*Caprovis*, *Hodgson F. A. S. B.*, xvi, p. 702 (1847). *Type*, *O. musimon*.

The Wild Sheep may be divided into three groups, the larger sheep of Central Asia which also reach North America, and the

smaller sheep distributed through Western Asia and the Mediterranean regions, and thirdly, two forms forming a link with the Goats, *Ovis nahoor* and *Ovis tragelaphus*.

Of the larger group the Museum possesses examples of three distinct species, *i.e.*, *Ovis poli*, *O. hodgsoni*, and *O. canadensis*.

Besides these three the following have been described :—

- (1) *Ovis ammon*, Linnaeus (= *Ægoceros argali*, Pallas.)
- (2) *Ovis nivicola*, Eschscholtz.
- (3) *Ovis jubata*, Peters.
- (4) *Ovis heinsii*, Severtzoff.
- (5) *Ovis nigrimontana*, Severtzoff.
- (6) *Ovis karelini*, Severtzoff.
- (7) *Ovis brookei*, Ward.

*Ovis ammon* is found in Eastern Siberia, but is apparently very rare in Siberia itself, having been driven southwards by the Cossack sportsmen ; it is very nearly allied to *Ovis hodgsoni* of Thibet from which it seems to be distinguished only by the entire absence of a mane or fringe of long hair on the neck, while *O. hodgsoni* has a well developed white mane on either side and below the neck, and a short gray mane along the dorsal surface of the neck ; the anal patch affords no distinguishing character.

*Ovis jubata*, from Mongolia north of Peking, seems very nearly allied to *O. ammon*.

*Ovis nigrimontana* seems to belong to the same type as *O. ammon*.

*Ovis karelini* and *O. heinsii* both seem to resemble *O. poli* of Blyth very strongly.

*Ovis nivicola* from Kamschatska is nearly allied to the American species, *Ovis canadensis* from the northern form of which it seems doubtfully distinct. It is quite distinct from *O. ammon*. Finally, *Ovis brookei* might well be a young *O. hodgsoni* of perhaps a hybrid between *O. hodgsoni* and *O. vignei* as suggested by Sterndale (*Journ. Bomb. N. H., Soc. i, p. 35*).

There seem to be, therefore, three different types of large wild sheep in Asia with several geographical races :—

- (1) *Ovis ammon* from East Siberia represented in Mantchuria by *O. jubata*, in Thibet by *O. hodgsoni*, and in Turkestan by *O. nigrimontana* ?
- (2) *Ovis poli* of the Pamir represented by *O. karelini* in the Thian Shan.
- (3) *Ovis nivicola* of Kamschatska.

*Key of the Indian Species.*

- . A distinct antorbital pit present.

*b.* Large forms with enormous horns of which the points are always directed more or less horizontally away from each other; with antorbital pit very shallow.

*c.* Space between the horn cores flat; the horns describe a complete circle at least; and the proportion of their basal circumference to their total length is as 1-3.

*O. poli*, p. 133.

*c*<sup>2</sup>. Space between the horn cores concave; the horns seldom describe a complete circle and are very massive at the base, *i.e.*, the proportion of the basal circumference to the total length of the horn is as 1-2. *O. hodgsoni*, p. 136.

*b.* Smaller forms with smaller horns, with generally converging points and a deep antorbital pit.

*d.* Horns with points hardly converging, with the fronto-orbital edge much rounded; beard and mane very small; animal more or less reddish. *O. vignii*, p. 139.

*d*<sup>2</sup>. Horns with converging points, fronto-orbital edge sharp; beard and mane markedly developed.

*O. cycloceros*, p. 138.

*a*<sup>2</sup>. No antorbital pits . . . . *O. nahoor*, p. 140.

### Ovis poli.

*Ovis polii*, *Blyth P. Z. S.*, p. 62 (1840); *id.* *J. A. S. B.*, x, p. 858; *id.* *Ann. Mag. N. H.*, vii, pl. v, fig. 1-4; *Horsfield Cat. E. I. Mus.*, p. 176; *Slater P. Z. S.*, 1860, p. 443; *Severtzoff Turk. Fevnot*, pp. 84-102, 149, pls. ii, iii, v, figs. 1-2, vi, fig. 1; *Stoliczka P. Z. S.*, 1874, p. 425, pl. liii; *Sir V. Brooke and B. Brooke P. Z. S.*, 1875, p. 514; *Biddulph* *ibid.*, p. 157; *Blanford* *ibid.*, p. 540; *Grote P. Z. S.*, 1876, p. 414; *Severtzoff Ann. Mag. N. H.* (4) xviii, pp. 171, 210 & 220; *Przewalsky, Peters. Mitth. Erzb.*, xii 1878, pp. 5, 17; *Blanford Yarkand Mamm.*, p. 83; *Biddulph P. A. S. B.*, 1879, p. 280; *Scully P. Z. S.*, 1881, p. 209; *Blanford P. Z. S.*, 1884, p. 326, with figures.

*Ovis karelini*, *Severtzoff Turk. Fevnot*, pp. 84-102, 149, pls. i, iv, figs. 3-4, vi, figs. 3-4; *id.* *Ann. Mag. N. H.* (4), xviii, pp. 171, 210, 217; *Sir V. Brooke and B. Brooke P. Z. S.*, 1875, p. 512; *Blanford Yarkand Mamm.*, p. 80.

*Distribution.*—This large sheep was first found on the Pamir where its occurrence is mentioned by Marco Polo (Yule's edition, i, pp. 18, 185, 2nd ed, 1875); it was first obtained by Wood near the sources of the Amu Daria and has also been obtained thence by Lockhart (I. M.) and Charles Ellis (Blanford); it also occurs in the Thian Shan Range and all round Lake Issyk (Stoliczka and Severtzoff). It is noted from the Juldus valley on the north and the Altyntag on the south of the Gobi by Przewalsky. Scully asserts that it must be considered an Indian animal since it occurs as far south as the Shimshal Pamir just north of Gilgit and south of the Mustagh Range.

There are, as can be seen from the list below in the Musum collection, examples of both the typical *Ovis poli* from the Pamir, and also of the smaller form from the Thian Shan, described as *Ovis karelini* by Severtzoff.

After reading Severtzoff's description of the two species (*O. poli* and *O. karelini*) and comparing the descriptions with the specimens in the Museum, it is impossible to make out any real differences between the two except that of size.

Below is a summary of the chief differences between *Ovis poli* and *Ovis karelini* as given by Severtzoff *loc. cit.*:—

<i>Ovis poli.</i>	<i>Ovis karelini.</i>
<i>Horns.</i> —Nuchal edge not rounded.	All edges rounded.
Orbital surface concave.	Orbital surface flat.
Horns four times the length of the skull.	Horns only three times the length of the skull.
Terminal axis of horns more or less horizontal.	Terminal axis of the horns parallel to the basal axis.
Cone formed by the horn-spiral, narrowing towards the skull, <i>i.e.</i> , base outwards.	Cone formed by the horn-spiral with its base towards the skull.
<i>Skulls.</i> —Premaxillæ do not articulate with the nasals and the maxillæ are separated by small bones.	Neither premaxillæ, maxillæ or lacrymals articulate with the nasals.
Lacrymals protrude forward beyond the malars, and both articulate with the maxillæ by serrated sutures.	Lacrymals very large and square, wider than the malars.
<i>Skins.</i> —Mane pure white.	Mane white, shaded with gray.
Light brown of back shades into the white of belly.	Light brown of back separated from the white of belly by a dark line.
White patch of tail marked and separated from the light brown of back by a dark line.	Light brown of back shades off to tail, forming a not well defined patch.

Taking these characters one by one in our specimens—

(1) The nuchal edge is most rounded in the largest specimen

“m” in the list, in the other skulls it seems to get rather sharper as the skull gets younger, so that the sharpness or roundedness of the nuchal edge appears to be a character due purely to age.

- (2) In all the Museum specimens the orbital surface is flat or even rather convex, never concave.
- (3) In the two Pamir specimens the length of the horns are in both cases considerably more than four times the length of the skull, and in the Thian Shan specimens the largest is considerably less. This character, however, seems to be due to the fact that both the Pamir specimens were selected; being chosen from among many others seen lying about on the Pamir on account of the size of their horns, while the specimens from the Thian Shan were shot and brought into the mission so that heads of only average size were got.
- (4) The axes of the horns can hardly be considered a character of much value as has also been shown by Blanford *tom. cit.*, since in the case of one head from the Thian Shan range the horn on one side is very much more horizontal than that on the other.
- (5) With regard to the cones formed by the horn spiral as far as it is possible to judge, in both Pamir and Thian Shan species, the cone has its base towards the skull.
- (6) Neither premaxillæ, maxillæ or lacrymals really articulate with the nasals, in all cases they are separated by a small piece of bone which generally drops out of the skull.
- (7) The lacrymals are not square nor are they wider than the malars in any of the skulls in the Museum Collection.

There are only skins of the Thian Shan form in the Museum; there are no skins of the true Pamir forms, as far as I am aware, in any European or other Museum; with regard to our skins—

- (8) The mane is pure white below and laterally; dorsally, in all cases but one, it is mixed with gray; the one exception being what appears to be the oldest animal.
- (9) In none of the skins can a dark brown lateral line be seen separating the light brown of the back from the dirty yellow of the belly.
- (10) The white patch on the tail is very well marked in all the skins except the old male mentioned above, where the change of colour is not so abrupt.

In the females there is little or no mane and the anal patch neither marked nor large.

The above I think is sufficient to justify the combination of the Pamir typical forms and Thian Shan specimens brought back

by the Yarkand Expedition, under the name of *Ovis poli*, even if the sheep described by Severtzoff as *Ovis karelini* should turn out to really differ from the typical *Ovis poli* of the Pamir.

a. Skin, skull, ♂	nr. Kashgar.	F. Stoliczka, 1877.
horns.		
b. Skin, skull, ♂	" "	F. Stoliczka, 1877.
horns.		
c. Skin, skull, ♂	" "	F. Stoliczka, 1877.
horns.		
d. Skin, skull, ♂	" "	F. Stoliczka, 1877.
horns.		
e. Skin, skull, ♀	" "	F. Stoliczka, 1877.
horns.		
f. Skin, skull, ♀	" "	F. Stoliczka, 1877.
horns.		
g. Skin, skull, ♀	" "	F. Stoliczka, 1877.
horns.		
h. Skin, ♀	" "	F. Stoliczka, 1877.
(no head.)		
j. Stuffed ♂	" "	F. Stoliczka, 1877.
k. Head ♀	" "	F. Stoliczka, 1877.
stuffed.		
l. Skeleton	" "	F. Stoliczka, 1877.
(no skull.)		
m. Skull and ♂	Hunza, nr. Gilgit	J. Biddulph, 1879.
horns.		
n. Skull and ♂	Tagdanbash, Pamir	Sir W. S. A. Lockhart, 1886.
horns.		
o. Skull and ♂	.....	No history, A. S. B.
horns. juv.		
p. Skull and ♂	.....	No history, A. S. B.
horns. juv.		
q. Skin and ♀	nr. Kashgar	F. Stoliczka, 1877.
skull.		

### *Ovis hodgsoni*.

- Ovis nayaur*, *Hodgson As. Res.*, xviii, pt. 2, p. 135, *with plate* (1833) [pt.]  
*Ovis hodgsoni*, *Blyth P. Z. S.*, p. 65 (1840); *P. L. Sclater P. Z. S.*, 1860, p. 129; *Sir V. Brooke and B. Brooke, P. Z. S.*, 1875, p. 520.  
*Ovis ammonoides*, *Hodgson J. A. S. B.*, x, pp. 230, 913 (1841); *id. ibid*, xv, p. 338; *Hutton J. A. S. B.*, xvi, p. 568.  
*Caprovis argali*, var 2, *Gray Cat. Mamm. B. M.*, iii, p. 174 (1852); *Adams P. Z. S.*, 1858, p. 527.  
*Ovis ammon*, *apud Horsfield Cat. E. I. Mus.*, p. 176 (1851); *Blyth Cat.*, p. 177; *Kinloch Large Game Shooting*, i, p. 19 with plate of head; *Blanford J. A. S. B.*, xli, p. 40.  
*Ovis brookei*, *Ward P. Z. S.*, p. 143 (1874); *Sir V. Brooke and B. Brooke P. Z. S.*, 1875, p. 521; *Sterndale J. Bomb. Soc.*, i, p. 35.

The Ammon; Nyan or Gnow, Tibetan.

*Distribution*.—The Nyan has been got chiefly from Ladak (Kinloch) and the country north of Gurwhal, and by Hodgson from the higher region of the Himalayas north of Nepal and Sikkim.

With regard to the distinctions between this species and the other two of which there are examples in the Museum, the skull differs from that of *O. poli* but slightly, in *O. hodgsoni* there is a very marked depression between the bases of the horn cones on the forehead, while the space is quite flat in *O. poli*; the great difference, however, is in the horns, while those of *O. hodgsoni* are enormously massive at the base, they are never very long, *i.e.*, they describe a little more than half a circle when viewed laterally, while those of *O. poli* are considerably more slender at their bases and the older ones describe a complete circle when viewed laterally; the proportions of the circumference at the base to the total length measured along the frontal surface is as follows in typical specimens:—*O. hodgsoni*, circumference of the horn at the base, 17 inches; length of horn, 30 inches; *O. poli*, circumference, 15 inches; length, 50 inches.

The horns of *Ovis canadensis* are of much the same external form as those of *O. hodgsoni* as far as the curves are concerned, they differ, however, markedly in being almost smooth and not marked by the very conspicuous transverse furrows and ridges present in the horns of both *O. poli* and *O. hodgsoni*; the nuchal edge in *O. canadensis* is very much rounded, much more so than in the largest and oldest horns of *O. poli*, and the nuchal surface is also markedly rounded instead of being flat as in *O. hodgsoni* and *O. poli*; in the skull the premaxillæ and nasal bones are much shorter than in those of the Asiatic *Argalis* and they are distinctly articulated the one with the other, which is not the case with the Asiatic forms.

Altogether the Asiatic and American forms seem very distinct.

a. Skull and ♂ horns.	.....	G. T. Lushington ? A. S. B.
b. Skull and ♂ horns.	.....	No history.
c. Skull and ♂ horns.	.....	No history.
d. Skeleton ♂	.....	G. T. Lushington, A. S. B.
e. Stuffed ♂	.....	G. T. Lushington, A. S. B.
f. Head and ♂ horns.	.....	No history.
g. Skin and ♀ skull.	.....	W. T. Blanford, 1870.
h. Skull ♀ Thibet ?	.....	No history, A. B. S.
j. Skeleton ♀	.....	No history, A. B. S.
k. Head and ♂ horns.	.....	Capt. Michell.
l. Skin, skull ♂ btw. Ladak and Kukchu and horns. 15,000 ft.		N. Elias, 1879.

### *Ovis canadensis*.

*Ovis canadensis*, *Shaw Nat. Misc.*, xv, pl. 610 (1804); *Biddulph P. Z. S.*, 1885, p. 678.

- Ovis montana*, *G. Cuvier Regne Anim.*, 1st ed., i, p. 267 (1817).  
*Ovis cervina*, *Desmarest N. Dict. d'Hist. Nat.*, xxi, p. 553 (1818); *Alston Biol. Centr. Am. Mamm.*, p. iii.  
*Ovis pygargus* *H. Smith Griffith An. Kingd.*, iv, p. 318, with plate (1827).  
*Ovis californianus*, *Douglas Zool. Journ.*, iv, p. 332 (1828).

The American Bighorn.

*Distribution*.—The American Bighorn is found along the whole range of the Rocky Mountains on both the eastern and western slopes, from 68° N. as far as Sonora about 31° N.; it is also found in all the lesser ranges along the Eastern Pacific coast from Alaska to California.

It seems probable that there are two species, or, at any rate, races of bighorns; the northern one much resembling *O. nivicola*, the Kamschatkan wild sheep, and a southern one. (See Guillimard *P. Z. S.*, 1885, p. 675. and Biddulph *l. c.*)

- |                                |       |                         |
|--------------------------------|-------|-------------------------|
| a. Skin, skull ♂<br>and horns. | ..... | H. A. Ward [Ex.], 1887. |
| b. Skin, skull ♀<br>and horns. | ..... | H. A. Ward [Ex.], 1887. |

### *Ovis cycloceros*.

- Ovis cycloceros*, *Hutton Calc. Journ. N. H.*, ii, p. 514, pl. xix (1842); *id.* *♀. A. S. B.*, xv, p. 152; *P. L. Sclater P. Z. S.*, 1860, p. 128, woodcut and pl., lxxx; *Blyth Cat.*, p. 177; *Ferdon Mamm.*, p. 294; *Kinloch Large Game Shooting*, i, p. 29, with plate of head; *Blanford Persia*, p. 87; *Murray Zool. Sind*, p. 59; *Sterndale Mamm. Ind.*, p. 435; *Thomas Linn. Trans.* (2), v, p. 63.  
*Ovis vignei*, *apud Blyth P. Z. S.*, p. 70 (1840); *Gray Cat. Mamm. B. M.*, iii, p. 172; *Horsfield Cat. E. I. Mus.*, p. 175; *Adams P. Z. S.*, 1858, p. 526.

The Oorial; Guch ♂, Mish ♀, Persian; Huriar, or Orial, Punjab; Kuch in Suliman range; Koh-i-poombur, Afghan.

*Distribution*.—From the Punjab Salt Range and the Suleiman Range, especially round Peshawur, southwards to Sind and westwards to the Parapamisus Range, and to Gwadar in Beluchistan and possibly to Shiraz (Blanford); Astrabad in Northern Persia (Beresford Lovett); this sheep is generally found at lower elevations than the other wild sheep and in places where the heat is very excessive in summer.

- |                                |                     |                       |
|--------------------------------|---------------------|-----------------------|
| a. Skull, horns ♂              | Astrabad, N. Persia | B. Lovett, 1885.      |
| b. Head, stuffed<br>and skin ♂ | Jalk, Beluchistan   | W. T. Blanford, 1877. |
| c. Skull, horns ♂              | .....               | W. Theobald, A. S. B. |
| d. Skull, horns ♂              | .....               | W. Theobald, A. S. B. |
| e. Skull, horns ♂              | Punjab              | W. T. Blanford.       |
| f. Skull, horns ♂              | .....               | A. S. B.              |
| g. Skull, and ♀<br>horns.      | .....               | W. Theobald, A. S. B. |
| h. Skull, horns ♂              | Afghanistan ?       | Purchased, 1871.      |



j. Skull, horns, ♂ skin.	Khawja, Afghan.	J. E. T. Aitchison, 1886.
k. Skeleton ♂	.....	Zoological, Gardens, 1882.
l. Skin, skull ♀	Dizak, Beluchistan, 23-3-72.	W. T. Blanford.
m. ? Skin, skull juv.	Shiraz, Persia	Sir O. St. John.
n. Skin, skull ♀	.....	A. S. B.
o. Skull, and ♂ horns.	British Beluchistan	E. J. Jones, 1889.

### Ovis vignii.

*Ovis vignii*, *Blyth P. Z. S.*, p. 70 (1840); *Wagner Hugel's Kaschmir*, iv, p. 581; *Gray Cat. Mamm. B. M.*, iii, p. 172; *Horsfield Cat. E. I. Mus.*, p. 175; *Adams P. Z. S.*, 1858, p. 526; *P. L. Sclater P. Z. S.*, 1860, p. 127, wood-cut and pl. lxxix; *Scully P. Z. S.*, 1881, p. 209; *Sterndale Mamm. Ind.*, p. 435.

*Ovis montana*, *apud Cunningham Ladak*, p. 199, pl. vii (1854).

Shapoo, Ladak; Sha, Thibet; Oorin, Astor district.

*Distribution*.—Western Thibet and Ladak (Kinloch) extending to Gilgit (Scully).

There was formerly considerable confusion with regard to the distinctions between this sheep and the Oorial; for some time they were considered identical until Sclater *l. c.* showed the distinctions between the two; the one (*Ovis vignii*) occurring only, as far as is known, in Ladak and the upper valley of the Indus; the other having a wider distribution extending from the Punjab throughout Afghanistan.

a. Skin, skull ♂ horns.	Ladak (Strachey)?	India Mus., London.
? b. Skull ♀ juv.	.....	A. S. B.

### Ovis gmelini.

*Ovis gmelini*, *Blyth P. Z. S.*, p. 69 (1840); *Blanford Persia*, p. 87; *Danford and Alston P. Z. S.*, 1877, p. 276; *id. P. Z. S.*, 1880, p. 55, with 6 figs.

*Ovis orientalis*, *apud Keyserling and Blasius Wirbelth. Europ.*, pp. 5, 29 (1840); *Gray Cat. Mamm. B. M.*, iii, p. 172.

? *Ovis anatolica*, *Valenciennes Comptes Rend.*, xliii, p. 65 (1856).

*Distribution*.—The Elburz Mountains (Blanford), Erzerroom (Blyth), the northern slopes of the Taurus, and central parts of Asia Minor (Danford).

a. Frontlet	.....	No history, A. S. B.
b. Skull and horns.	.....	No history, A. S. B.
c. Skull and ♂ horns.	Shameran Mts., N. of Teheran.	W. T. Blanford.
d. Stuffed ♂	.....	W. Rutledge (1869).

e. Stuffed ♂	.....	No history.
f. Skin and juv. skull.	.....	No history.

### Ovis nahoor.

- ? Ovis nayaur, *Hodgson As. Res.*, xviii, p. 135, with plate (1833) [ pt. ]  
 Ovis nahoor, *Hodgson P. Z. S.*, p. 197 (1834); *Bichenon P. Z. S.*, 1838, p. 79;  
*Blyth P. Z. S.*, 1840, p. 66; *Hodgson J. A. S. B.*, x, pp. 231, 913; id. *ibid.*,  
 xi, p. 283; *P. L. Sclater P. Z. S.*, 1860, p. 129; *Blyth Cat.*, p. 178; *Ferdon*  
*Mamm.* p. 296; *Kinloch's Large Game Shooting*, i, p. 25; with plate; *Blan-*  
*ford J. A. S. B.*, xli, p. 40; *Milne Edwards Rech. Mamm.*, p. 357, pls.  
 lxviii, lxix; *Blanford Yarkand Mamm.*, p. 85, pl. xiv.  
 Ovis burrhal, *Blyth P. Z. S.*, p. 67 (1840); id. *Ann. Mag. N. H.*, vii, pl. v,  
 fig. 7.  
 Pseudois nahoor, *Hodgson J. A. S. B.*, xv, p. 343 (1846); *Gray Cat. Mamm.*  
*B. M.*, iii, p. 177; *Horsfield Cat. E. I. Mus.*, p. 176; *Adams P. Z. S.*, 1858,  
 p. 527; *Prewalski Peters. Mitth. Engb.*, xii, 1878, p. 17; *Lydekker J. A.*  
*S. B.*, xlix, p. 131.

The Burrhal; Na, Sna or Gnao in Western Thibet; Nirvati, Nepal; Wa in Sutlej district.

*Distribution.*—Himalayas from the Nubra Valley, Ladak, (Adams) to Sikkim (Hodgson); also the Kuenlun (Stoliczka) Altyn Tagh south of Lob Nor (Prewalski) and Moupin, Eastern Tibet (Père David); it is generally found high up, seldom descending to the level of the forests.

This is a very interesting form since it is in many ways a link between the genera Capra and Ovis; this has been specially noticed by Lydekker (*l. c.*)

Among its Caprine characters are the absence of any trace of the antorbital pits, the shape of the basioccipital which resembles that of a goat in that the anterior tubercles are the larger than the posterior ones, while in the case of the sheep the reverse is the case, and the horns which have a slight tendency to the upward spiral so characteristic of the Markhor.

Among the Ovine characters are the absence of any odour, no trace of a mane or beard, and presence of interdigital pores on all the feet.

Ovis cylindricornis, which was described by Blyth (*P. Z. S.*, 1840, p. 68) many years ago from a single head from the Caucasus, has recently been redescribed at length by Dennik in Proceedings of the Society of Naturalists in St. Petersburg (translated by Delmar Morgan, *Ann. Mag. N. H.* (5) xix, p. 450) as *Capra pallassii* and by Eug. Buchner (Memoirs of the Imperial Academy of Sciences at St. Petersburg (7), xxxv, no. 8) as *Capra cylindricornis* of Blyth.

Judging from the descriptions and figures given by these two Russian Naturalists, the Goat in question seems to be very nearly allied to Ovis nahoor and is probably its representative in the Caucasus.

a. Skull and ♂ horns.	.....	G. T. Lushington, A.S.B.
b. Frontlet ♂	.....	A.S.B.
c. Frontlet juv. ♂	.....	A.S.B.
d. Frontlet ♀	.....	A.S.B.
e. Skull and ♂ horns.	.....	No history.
f. Frontlet ♀	.....	A.S.B.
g. Skull and ♂ horns.	.....	A.S.B.
h. Skull and ♂ horns.	.....	A.S.B.
j. Stuffed juv.	.....	No history, A.S.B.
k. Skeleton ♀	.....	A.S.B.
l. Skeleton ♂	.....	F. Wilson.
m. Skin and ♂ skull.	.....	E. Smyth, 1862, A.S.B.
n. Skin and ♂ skull.	nr. Tam, Sanju Valley, Kuenlun Mts.	F. Stoliczka, 1874.
o. Skin and ♀ skull.	.....	A.S.B.
p. Flat skin	Sikkim	L. Mandelli, 1877.
q. Skin, skele- ton. juv. ♀	.....	W. Rutledge, 1878.
r. Skin, skull juv. ♀	.....	W. Rutledge, 1880.
s. Skin ♀	.....	W. Rutledge, 1879.
t. Skin, skele- ton. ♀	.....	W. Rutledge, 1877.
u. Skin	.....	No history.
v. Skin ♀	.....	No history.
w. Skin, skull juv.	Sikkim ?	L. Mandelli, 1877.
x. Skeleton ♂ juv.	.....	W. Rutledge, 1879.
y. Skeleton, skin. ♀	.....	W. Rutledge, 1879.
z. Skeleton ♀	.....	W. Rutledge, 1879.
a <sup>2</sup> . Skeleton ♂	.....	W. Rutledge, 1880.
b <sup>2</sup> . Stuffed juv.	.....	No history, A.S.B.

### Ovis tragelaphus.

*Ovis tragelaphus*, *Desmarest Mamm.*, p. 486 (1822); *Blyth P. Z. S.*, 1840, p. 75; *Lafaste Act. Soc. Linn. Bordeaux*, xxxix, p. 288.  
*Ovis ornata*, *Is. Geoff. St. Hil. Descript. Egypt Hist. Nat.*, ii, p. 742, *Atlas*, i, pl. vii, fig. 2 (1813).  
*Ammotragus tragelephus*, *Gray Cat. Mamm. B. M.*, iii, p. 179 (1852).

The Aoudad or Barbary Wild Sheep.

*Distribution*.—The mountains of North Africa from Barbary to Tunis.

a. Skin and ♂ skeleton.	.....	W. Rutledge, 1881.
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Genus **CAPRA.**

*Capra*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 94 (1766).

*Hircus*, *Boddaert Elench. Anim.* (1785)\*.

*Aegoceros*, *Pallas Zoog. Ross. As.*, i, p. 224 (1831).

*Hemitragus*, *Hodgson F. A. S. B.*, x, p. 913 (1814). *Type*, *C. jemlaica*.

*Ibex*, *Hodgson F. A. S. B.*, xvi, p. 700 (1847).

Out of the ten recognized species of wild goats no less than five are found in India, all of which are represented in the Museum Collection, of the others *Capra pyrenaica* and *C. ibex* are found in the Pyrenees and Alps respectively; *Capra caucasica* in the Caucasus and *Capra sinaitica* and *C. walie* in Palestine, Egypt, and Abyssinia.

Sterndale (J. Bomb. Soc., i, p. 26) has recently described a head of an ibex from the Kishengunge country to the west of Kashmir, which seems to differ considerably from the ordinary *C. sibirica*, but until a little more is known about it, it seems rash to add it to the list of Indian Mammals; Sterndale has named it *Capra duvergii*.

*Key of the Indian Species.*

a. Goats with long scimitar-shaped horns with knots at intervals along their length.

b. Horns with a sharp anterior edge; the side of the horns being convex; very slight traces of the knots.

**C. aegagrus**, p. 142.

b<sup>2</sup>. Horns with a flat anterior surface with distinct knots at regular intervals . . . . **C. sibirica**, p. 143.

a<sup>2</sup>. Goats with spirally twisted horns, the spiral being from right to left, beginning from the base . . . **C. falconeri**, p. 145.

a<sup>3</sup>. Goats with short horns never exceeding 18 inches.

c. Horns set very parallel to one another; the fronto-nuchal edge sharp, the fronto-orbital edge rounded off so that the frontal and nuchal surfaces form a continuous curve.

**C. hyllocrius**, p. 146.

c<sup>2</sup>. Horns very divergent, forming about a right angle, but with the tips again converging; horns two-sided with a sharp anterior edge; flat orbital and rounded nuchal surface. . . . **C. jemlaica**, p. 146.

**Capra aegagrus.**

*Capra aegagrus*, *Gmelin Syst. Nat.*, i, p. 193 (1788); *Hutton Calc. Journ. N. H.*, ii, p. 521, pl. xix; id. *F. A. S. B.*, xv, p. 161; *Kotschy Verh. Zool. Bot. Ver. Wien*, iv, p. 201\*; *Blasius Säugeth. Deutsch.*, p. 485; *Blyth Cat.*, p. 176; *P. L. Sclater P. Z. S.*, 1874, p. 89; *Blanford P. Z. S.*, 1874,

p. 248; *Danford P. Z. S.*, 1875, p. 458; *Blanford F. A. S. B.*, xlv, p. 15; *Danford and Alston P. Z. S.*, 1877, p. 276; *Blanford Persia*, p. 89; *Murray Zool. Sind*, p. 56; *P. L. Sclater P. Z. S.*, 1886, p. 315, pl. xxxi; *Radde Zool. F. B.*, iv, p. 1064.

"Aegagrus," *Pallas Spic. Zool.*, xi, p. 43, pl. v, figs. 2, 3 (1776).

*Aegoceros aegagrus*, *Pallas Zoog. Ross. As.*, i, p. 226, pl. xvi, figs. 3, 4, 5 (1831).

*Capra caucasica*, *apud Gray List Mamm. B. M.*, p. 167 (1834); *Adams P. Z. S.*, 1858, p. 525.

*Capra blythi*, *Hume P. A. S. B.*, p. 240 (1874).

*Capra picta*, *Erhardt Fauna der Cycladen* (1858)\*; *P. L. Sclater P. Z. S.*, 1872, p. 689, pl. lviii.

The Sind Ibex: Pasang ♂, Boz ♀, Persia; Surrah, Beluchi.

*Distribution.*—From Crete and several of the Cyclades eastward through Asia Minor, occurring on the Taurus (Danford), Mount Ararat and the Little Caucasus and sparingly on the southern slopes of the Great Caucasus, all over Persia, Trans-caspia, Beluchistan and Afghanistan to the borders of India where it is found in the Pabb and Suleiman ranges, probably as far north as the Khyber Pass.

a. Stuffed	♂	Sind	A. E. Watson, 1876.
b. Stuffed	♀	Sind	A. E. Watson, 1876.
c. Skin, skull,	♂	Sind	Karachi Mus. [Ex.], 1879.
horns.			
d. Head stuffed	♂	Sind	Karachi Mus. [Ex.], 1878.
e. Skull, horns	♂	.....	J. A. Murray, 1882.
f. Skull, horns	♂	Ispahan	Sheik Harri, 1878.
g. Horns	♂	nr. Shiraz	Sir O. St. John.
h. Skull, horns	♂	Afghanistan	Sir A. Burns, A. S. B.
j. Head stuffed	♀	Sind, 17-5-75	W. T. Blanford.
k. Head stuffed	♂	Ispahan	Sheik Harri, 1878.
		juv.	
l. Skin		.....	No history.
m. Skin	♂	juv. E. of Bampur, Baluch.,	W. T. Blanford.
		4,000 ft., 30-3-72.	
n. Skeleton, skin	♂	.....	Karachi Mus. [Ex.], 1879.
o. Skull, horns	♀	.....	No history.

### Capra sibirica.

"Skyin," *Cunningham Ladak*, p. 200.

"Ibex alpinus sibericarum," *Pallas Spic. Zool.*, xi, p. 31, pl. iii, 1776.

*Capra sibirica*, *Meyer Zool. Annal.*, i, 397 (1794)\*; *Radde Ost Siberien*, p. 243, pl. x, figs. 1-4; *Blyth Cat.*, p. 176; *Jerdon Mamm.*, p. 292; *Kinloch Large Game Shooting*, i, p. 32 [with plate of head]; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 333; *Lydekker F. A. S. B.*, xlv, p. 286; *Blanford Yarkand Mamm.*, p. 86; *Scully P. Z. S.*, 1881, p. 208; *P. L. Sclater P. Z. S.*, 1886, 316; *Thomas Linn. Trans.*, (2) v, p. 64.

*Aegoceros ibex*, *Pallas Zoog. Ross. As.*, i, p. 224, pl. xv, figs. 1-2 [horns] (1831).

*Capra ibex*, *apud Hodgson F. A. S. B.*, x, p. 913 (1841); *id. F. A. S. B.*, xi, p. 283.

*Capra sakeen*, *Blyth F. A. S. B.*, xi, p. 283 (1842).

*Aegoceros skyn*, *Wagner Schreb. Säugeth. Suppl.*, iv, p. 491 (1844).

*Ibex sakin*, *Hodgson F. A. S. B.*, xvi, p. 700 (1847.)

*Capra himalayana*, *Gray Cat. Mamm. B. M.*, iii, p. 150 (1852); *Adams P. Z. S.*, 1858, p. 523.

*Capra skyn*, *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 334 (1878); *Przewalsky Peters. Mitth. Erzb.*, xii, 1878, p. 5.

*Capra pallasii*, *apud Schinz N. Denkschr. all. Schweitz. Gesellsch.*, ii, p. 9\*.

The Himalayan Ibex; Skyn ♂ l'Danma ♀ of Little Thibet; Kyl, Kashmir; Buz on the Upper Suttlej; Tangrol of Kulu.

*Distribution*.—The Himalayas from the Gilgit district (Scully), eastwards to Nepal, but not east of Nepal, also the higher ranges of Thibet (Hodgson), the Thian Shan (Severtzoff) and the Altai and Saján Ranges, but not extending east of Lake Baikal (Radde); it frequents the higher ranges seldom descending to the tree level. It was also got by the Afghan Boundary Commission in the Parapomismus Mountains.

a. Stuffed	♂	Kalsi, Ladak	N. Elias, 1879.
b. Flat skin		Gilgit	J. Scully, 1888.
c. Flat skin	♂	Gilgit, 27-4-79	J. Scully, 1888.
d. Skin	juv.	Gilgit	J. Scully, 1888.
e. Skin, skull,	♀	nr. Kashgar	F. Stoliczka, 1874.
horns.			
f. Skin, skull,	♀	nr. Kashgar	F. Stoliczka 1874.
horns.			
g. Skin, skull,	♀	Tam, Sanju, Kuenlun	F. Stoliczka, 1874.
horns.		Mts., 28-10-73.	
h. Skin and	♂ juv.	nr. Kashgar	F. Stoliczka, 1874.
horns.			
i. Feet		nr. Kashgar	F. Stoliczka, 1874.
k. Horns, ♂ juv.		nr. Kashgar	F. Stoliczka, 1874.
l. Horns, ♂ juv.		nr. Kashgar	F. Stoliczka, 1874.
m. Stuffed head	♂	nr. Kashgar	F. Stoliczka, 1874.
n. Skull, horns	♂	nr. Kashgar	F. Stoliczka, 1874.
o. Skull, horns	♂	.....	Purchased 1871.
p. Skull, horns	♂	.....	Purchased 1871.
q. Skull, horns	♂	.....	Purchased 1871.
r. Frontlet,	♂	.....	No history, A. S. B.
horns.			
s. Frontlet,	♂	.....	No history, A. S. B.
horns.			
t. Frontlet,	♂	...	No history, A. S. B.
horns.			
u. Skeleton, no		nr. Kashgar	F. Stoliczka, 1874.
skull.			

### *Capra sinaitica*.

*Capra nubiana*, *F. Cuvier Hist. Nat. Mamm.* (1825).

*Capra sinaitica*, *Hempr. et Ehr. Symb. Phys.*, i, pl. xviii (1828); *P. L. Sclater P. Z. S.*, 1886, p. 316, pl. xxxii.

*Capra arabica*, *Ruppell N. Wirbelth.*, p. 17 (1835).

*Ægoceros beden*, *Wagner Schreb. Säugeth.*, v, p. 1303 (1836).

*Capra beden*, *Tristram, P. Z. S.*, p. 85 (1866).

*Distribution*.—Mountains of Upper Egypt, Sinai and Palestine.

a. Skull, horns, ♂ Sinaitic peninsula B. M. P. Carter [Ex.]

**Capra falconeri.**

- Aegoceros* (*Capra*) *falconeri*, *Wagner Munch. Gel. Ans.*, ix, p. 430 (1839).  
*Capra megaceros*, *Hutton Calc. Fourn. N. H.*, ii, p. 535, pl. xx (1842); *id.*  
*J. A. S. B.*, xv, p. 161; *Blyth Cat.*, p. 176; *Ferdon Mamm.*, p. 291;  
*Kinloch Large Game Shooting*, i, p. 37 [with plate].  
*Capra falconeri*, *Wagner Hugel's Kaschmir*, iv, p. 579, with plate (1848);  
*Blanford J. A. S. B.*, xlv, p. 17; *Scully P. Z. S.*, 1881, p. 209;  
*P. L. Sclater P. Z. S.*, 1886, p. 317.  
*Capra megaceros*, *Cunningham Ladak*, p. 200, pl. vii (1854).  
*Hircus megaceros*, *Adams P. Z. S.*, p. 525 (1858).  
*Capra jerdoni*, *Hume P. A. S. B.*, 1874, p. 240; *Kinloch Large Game Shooting*, ii, p. 15 [with plate].

The Markhor; Markhor (Snake-eater) of the Afghans; Rap-hochhe ♂ Ramochhe ♀ of Ladak.

*Distribution.*—The Pir Pinjal range to the south of Kashmir extending northwards to Gilgit (Scully), eastwards to the Beas River (Adams), and southward through the Suleiman Range as far as Mittun Kote (Adams).

There are certainly two varieties of Markhor, whether they can be considered as two different species or not still remains undecided; the scantiness of the Museum collections of these animals prevents my forming an opinion on the subject, I have, therefore, followed Blanford, who is of opinion that the two forms run into one another and cannot be therefore separated as two species.

In the Kashmir variety, which is found in the Pir Pinjal and also in the Gilgit district, the horns are spirally twisted about an imaginary axis, the spiral being very open in some cases as in the one figured in "Hugel's Kaschmir."

In the Suleiman variety the horns are perfectly straight, but a spiral ridge runs round the horn which gives the horn a very different appearance; both varieties are very well figured by Colonel Kinloch in his book on the Large Game of the Himalayas.

Should the Suleiman variety prove to be sufficiently distinct to be considered a separate species, it would be called *Capra megaceros* of Hutton.

a. Skin [no horns]	Gilgit	J. Scully, 1888.
b. Skin ♂ juv.	Jutyel Mula, Gilgit	J. Scully, 1888.
c. Skin juv.	Gilgit	J. Scully, 1888.
d. Skull and ♂ horns.	.....	W. T. Blanford.
e. Skull and ♂ one horn.	.....	Sir A. Burnes, 1840, A.S.B.
f. Skull and ♂ horns.	.....	W. T. Blanford, 1879.
g. Frontlet ♂	.....	W. Theobald, A.S.B.
h. Skin and juv. skull.	.....	W. Rutledge, 1868.
j. Skull, horns ♂	Gilgit	J. Scully, 1888.

**Capra jemlaica.**

- Capra jemlanica*, *H. Smith, Griffith An. Kingd*, iv, p. 308 [plate very bad] (1827); *Sclater P. Z. S.*, 1886, p. 317.  
*Capra jharal*, *Hodgson As. Res.*, xviii, pt. 2, p. 129, with plate (1831); *id. P. Z. S.*, 1834, p. 106; *id. J. A. S. B.*, iv, p. 491; *id. ibid.*, p. 710.  
*Hemitragus quadrimammis*, *Hodgson J. A. S. B.*, x, p. 913, (1841).  
*Hemitragus jemlaicus*, *Gray Cat. Mamm. B. M.*, iii, p. 144 (1852); *Adams P. Z. S.*, 1858, p. 523; *Blyth Cat.*, p. 175; *Ferdon Mamm.*, p. 286; *Blanford J. A. S. B.*, xli, p. 40; *Kinloch Large Game Shooting*, ii, p. 11 [with plate of head]; *Atkinson N. W. P. Gazett.*, xi, p. 33; *Lydekker J. A. S. B.*, xlvi, p. 286.

The Tahr; Jharal of Nepal; Jogle of Kashmir; Kras of Khristwar; Kart of Kulu district; Esbu of the Sutlej.

*Distribution*.—The Himalayas, from 6,000 ft. or 7,000 ft. upwards; not recorded west of the Pir Pinjal (Adams) and eastwards, occurs doubtfully in Sikkim.

- |                           |   |  |                       |
|---------------------------|---|--|-----------------------|
| a. Stuffed head and skin. | ♂ | Pir Pinjal, South Slope N. Elias (1879). |                       |
| b. Stuffed                | ♂ | nr. Mussooree                            | Miss Milman (1873).   |
| c. Skull and horns.       | ♂ | .....                                    | B. H. Hodgson, A.S.B. |
| d. Skull and horns.       | ♂ | .....                                    | A.S.B.                |
| e. Skull and horns.       | ♂ | .....                                    | A.S.B.                |
| f. Skull and horns.       | ♂ | .....                                    | B. H. Hodgson, A.S.B. |
| g. Frontlet and horns.    | ♀ | .. ..                                    | A.S.B.                |
| h. Skeleton               | ♂ | .....                                    | A.S.B.                |
| j. Frontlet               | ♂ | .....                                    | No history, A.S.B.    |

**Capra hylocrius.**

- Kemas hylocrius*, *Ogilby P. Z. S.*, p. 81 (1837); *Blyth J. A. S. B.*, xi, p. 880; *id. J. A. S. B.*, xxviii, p. 291.  
*Capra (Ibex) worryato*, *Gray Ann. Mag. N. H.* (1), x, p. 267 (1842).  
*Hemitragus hylocrius*, *Blyth Cat.*, p. 175 (1863); *Ferdon Mamm.*, p. 288; *McMaster Notes on Ferdon*, p. 117.  
*Kemas worryato*, *Gray Cat. Mamm. B. M.*, iii, p. 146 (1852).  
*Capra hylocrius*, *P. L. Sclater, P. Z. S.*, p. 318 (1886).

The Nilgiri Ibex; Warra-ardu or-artu, Tamil.

*Distribution*.—This goat is entirely confined to the hills in Southern India, *i.e.*, the Nilgiris and Cardamums or Ghats of Travancore and Cochin.

- |                     |   |               |                    |
|---------------------|---|---------------|--------------------|
| a. Skin             | ♀ | Nilgiri hills | Madras Mus., 1872. |
| b. Skull and horns. | ♂ | Nilgiri hills | Madras Mus., 1879. |



c. Skull and ♀ horns.	Nilgiri hills	Madras Mus., 1879.
d. Skull and ♂ horns.	Travancore	Rev. J. Baker, A.S.B.
e. Skull and ♀ horns.	.....	T. C. Jerdon, A.S.B.
f. Skull and ♀ horns.	.....	L. C. Stewart, A.S.B.
g. Skull and ♂ horns.	Deviculam, Travancore	A. W. Turner, 1889.

### Capra hircus.

*Capra hircus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 94 (1766); *Blyth Cat.*, p. 176.

#### The Domestic Goat.

a. Head stuffed	.....	No history.
b. Head stuffed	.....	No history.
c. Head stuffed	Upper Burma	J. Anderson, 1869.
d. Head stuffed	.....	W. Rutledge, 1864.
e. Head stuffed	.....	Mrs. Turnbull, 1875.
f. Skull and horns.	Sikkim breed	A.S.B.
g. Skin and skull.	Shoho breed of Abyssinia.	W. T. Blanford, 1869.
h. Skin of head.	♂ [which gave milk]	Zoological Gardens, 1878.

### Genus NEMORHÆDUS.

*Nemorhædus*, *H. Smith, Griffith An. Kingd.*, v, p. 352 (1827); [as a sub-genus.]

*Kemas*, *Ogilby P. Z. S.*, p. 138 (1836). *Type*, *N. goral*.

*Capricornis*, *Ogilby P. Z. S.*, p. 139 (1836). *Type*, *N. bubalina*.

*Urotragus*, *Gray Ann. Mag. N. H.* (4), viii, p. 371 (1871). *Type*, *N. caudata*.

This genus is rather in confusion in consequence of the large number of species that have been described, but which are doubtfully distinct from one another. The type of the genus is *Nemorhædus sumatrensis*; *N. goral* is certainly distinct, but *N. bubalina* seems to differ from *N. sumatrensis* only in being a little larger; *N. rubida* described by Blyth seems to be only a very reddish form of *M. sumatrensis*; *N. crispus* from Japan appears to be distinct; *N. swinhoei* from Formosa was considered by Blyth to be, like *N. rubida* merely a variety of *N. sumatrensis*; finally Milne Edwards in his *Recherches Mammiferes* described four new species (1) *N. caudatus* which seems to most resemble *N. goral* but has a very long tail; (2) *N. griseus* and (3) *N. cinereus* which seem somewhat intermediate between the goral and serow type; and finally (4) *N. edwardsii* which M. Milne Edwards allows is very nearly allied to *N. bubalina* from which it differs only in

being somewhat smaller and redder; since these are exactly the differences between *N. sumatrensis* and *bubalina* as pointed out by Blyth, the inference is obvious that *N. edwardsii* is merely the same reddish variety of *N. sumatrensis* as that described by Blyth as *N. rubida*.

The skull of the true *N. sumatrensis* has been compared with the description and figure in M. Milne Edwards' work and agrees with it very well.

*Key of the Indian Species.*

- a.* Smaller, (head and body 50 inches); skull with a distinct ridge across the cheek in front of the eye; no antorbital depression. **N. goral**, p. 148.
- a*<sup>2</sup>. Larger, (head and body 60 to 66 inches); skull with a shallow depression in front of the eyes for the reception of the antorbital gland.
- b.* Larger, (head and body generally over 5 feet); black; legs white. **N. bubalinus**, p. 149.
- b*<sup>2</sup>. Smaller, (head and body generally under 5 feet); black or red; legs the same colour as the body. **N. sumatrensis**, p. 150.

**Nemorhædus goral.**

- "Bouquetin de Nepoul," *F. Cuvier, Hist. Nat. Mamm.; livr. 41, with plate.*  
 Antilope goral, *Hardwicke Linn. Trans.*, xiv, p. 518, pl. xiv (1823); *Wagner Hugel's Kaschmir*, iv, p. 578.  
 Antilope (Nemorhædus) goral, *H. Smith, Griffith An. Kingd.*, iv, p. 279, (1827); *Hodgson, P. Z. S.*, 1834, p. 85; *id. J. A. S. B.*, iv, p. 488.  
 Antilope (Nemorhædus) *duvaucellii*, *H. Smith, Griffith An. Kingd.*, iv, p. 279 (1827).  
 Kemas goral, *Ogilby P. Z. S.*, p. 138 (1836).  
 Nemorhædus goral, *Hodgson J. A. S. B.*, x, p. 913 (1841); *Gray P. Z. S.*, 1850, p. 136; *Horsfield Cat. E. I. Mus.*, p. 168; *id. P. Z. S.*, 1856, p. 403; *Adams P. Z. S.*, 1858, p. 523; *Blyth Cat.*, p. 175; *Ferdon Mamm.*, p. 285; *Blanford J. A. S. B.*, xli, p. 40; *Lydekker J. A. S. B.*, xlvi, p. 286; *Kinloch Large Game Shooting*, ii, p. 21, [plate of head]; *Atkinson N. W. P. Gazette.*, xi, p. 33.

The Goral or Himalayan Chamois; Goral or Bund-buckree of Paharias; Pijur Rein or Rom of Kashmir; Sah of the Sutlej valley; Peij of Chumba; Suhging, Lepch.; Ragiya, Bhotia.

*Distribution.*—The southern ranges of the Himalayas, from 4,000 feet to 10,000 feet; Pir Pinjal (Adams) to Sikkim (Blanford), Kinloch gives also the Siwaliks.

*a.* Skin and ♀ Mussoorie  
 horns.

Miss Milman, 1873.

b. Skin and horns.	Mussoorie	Miss Milman, 1873.
c. Skin, skull and horns.	Native Sikkim	W. T. Blanford, 1870.
d. Skin and horns.	Sikkim	L. Mandelli, 1877.
e. Skin and horns.	Sikkim	L. Mandelli, 1877.
f. Skin, skull and bones.	.....	W. Rutledge, 1883.
g. Skull	♂	.....
h. Frontlet	♂	.....
j. Frontlet	♀	.....
k. Stuffed	♂	.....
l. Stuffed	♀	.....
m. Skeleton and skin.	North of Simla	.....
n. Skull and horns.	♂	.....

No history.  
 B. H. Hodgson, A.S.B.  
 B. H. Hodgson, A.S.B.  
 B. H. Hodgson, A.S.B.  
 F. Stoliczka.  
 W. Rutledge, 1881.  
 B. H. Hodgson, A.S.B.

### Nemorhædus caudatus.

*Antilope crista*, *apud Schrenck Amurland Säugeth*, p. 158 (1859); *Radde Ost Siberien*, i, p. 262, pl. xii.  
*Antilope caudata*, *A. Milne Edwards Ann. Sc. Nat.* (5), vii, p. 377 (1867); *id. Rech. Mamm.*, p. 186, pl. xxiii, xxiii-a xxiii-b.  
*Urotragus caudatus*, *Gray Ann. Mag. N. H.* (4), viii, p. 371 (1871).

*Distribution*.—Amurland (Radde) and the mountains to the north of Pekin (Père David.)

a. Stuffed North of Pekin Paris Mus. [Ex.]

### Nemorhædus bubalinus.

*Antilope bubalina*, *Hodgson P. Z. S.*, p. 12 (1832).  
*Antilope thar*, *Hodgson P. Z. S.*, p. 105 (1833); *id. ibid*, 1834, p. 86; *id. J. A. S. B.*, iv, p. 489.  
*Capricornis thar*, *Ogilby P. Z. S.*, p. 139 (1836).  
*Nemorhædus proclivus*, *Hodgson J. A. S. B.*, x, p. 913 (1841).  
*Capricornis bubalina*, *Gray List Mamm. B. M.*, p. 166 (1842); *id. P. Z. S.*, 1850, p. 135; *Adams P. Z. S.*, 1858, p. 522; *Blyth Cat.*, p. 174.  
*Nemorhædus bubalinus*, *Ferdon Mamm.*, p. 283 (1867); *Blanford J. A. S. B.*, xli, p. 40; *Kinloch Large Game Shooting*, ii, p. 18, *with plate*; *Anderson Anat. Zool. Res.*, p. 335.

The Serow; Thar of Nepal; Ramoo, Kashmir; Eimu of Sulej valley; Gya, Bhotea; Lichi, Lepcha.

*Distribution*.—From Kashmir all through the Himalayas to Sikkim (Blanford), also in the mountains of Upper Burma (Anderson).

a. Skin, skull and horns. Sikkim L. Mandelli, 1877.  
 b. Flat skin Sanda valley, Yunnan J. Anderson, 1868.

c. Flat skin	Sanda valley, Yunnan, J. Anderson, 7-1-68, 6,000 ft.	
d. Stuffed	.....	J. Biddulph.
e. Frontlet	Naini Tal, 1888.	Purchased.
f. Frontlet	Sanda valley, Yunnan, J. Anderson, 1868. 4,000 ft.	
g. Frontlet	Sanda valley, Yunnan, J. Anderson, 1868. 4,000 ft.	
h. Skull	.....	No history.

### Nemorhædus sumatrensis.

- "Kambing utan," *Marsden Hist. Sumatra*, 3rd ed., p. 115, pl. xiv, fig. 1.  
 Antilope sumatrensis, *Shaw Genl. Zool.*, ii, pt. 2, p. 354 (1800); *Raffles Linn. Trans.*, xiii, p. 266; *Ogilby P. Z. S.*, 1836, p. 121; *Muller Over de Zoogdierenem Tem., Verhandl.*, p. 45.  
 Antilope (Nemorhædus) sumatrensis, *H. Smith, Griffith An. Kingd.*, iv, p. 277 (1827).  
 Antilope interscapularis, *Lichtenstein Mag. Ges. Naturf. Freunde*, vi, p. 165 (1864).  
 Nemorhædus sumatrensis, *Gray List Mamm. B. M.*, p. 166 (1843); *Beavan P. Z. S.*, 1866, p. 2; *Cantor F. A. S. B.*, xv, p. 272.  
 Capricornis sumatrensis, *Gray P. Z. S.*, p. 135 (1850); *Blyth Cat.*, p. 174; *id. F. A. S. B.*, xlv, *Burma List*, p. 46.  
 Capricornis rubida, *Blyth Cat.*, p. 174 (1863).  
 Capricornis swinhoei, *Gray P. Z. S.*, p. 263, pl. xxxv (1862); *Swinhoe P. Z. S.*, 1862, p. 361 and 1870, p. 647.  
 ? Capricornis milne-edwardsii, *David N. Arch. Mus.*, v, *bulletin*, p. 10 (1869).  
 Antilope (Nemorhædus) edwardsii, *Milne Edwards Rech. Mamm.*, p. 364, pls. lxxii, lxxiii (1874); *Anderson Anat. Zool. Res.*, p. 335.

#### Thorsek of Burmese.

*Distribution.*—Assam, Burma, Arakan (Blyth), Moulmein (Beavan), Tenasserim, Malay peninsula (Cantor), and Sumatra (Raffles), also Formosa (Swinhoe), if *N. edwardsii* is identical with this species, its range extends northwards to Eastern Thibet.

a. Stuffed and skull.	Shillong, Assam, 3,500ft.	C. R. Cock, 1879.
b. Skull, horns	Chittagong Hill Tracts	J. T. Jarbo, 1879.
c. Skull, horns	Chittagong Hill Tracts	J. T. Jarbo, 1879.
d. Skull, one horn.	Tenasserim	Major Berdmore, 1861, A.S.B.
e. Skull and horns.	Tenasserim	Major Berdmore, 1861, A.S.B.
f. Skull (imperfect).	Tenasserim	Major Berdmore, 1861, A.S.B.
g. Skull (no horns).	Sumatra	A.S.B.
h. Skull and horns.	.....	No history.
i. Frontlet horns.	Arakan	Sir A. Phayre, A.S.B.
k. Frontlet	.....	No history.

l. Odd horn	Rangamati, Chittagong	J. T. Jarbo, 1879.
m. Odd horn	.....	J. T. Jarbo, 1879.
n. Skull	Wellesley Province	India Mus., London.

Genus **HAPLOCEROS.**

*Aploceros*, *H. Smith Griffith An. Kingd.*, v, p. 354 (1827).

*Haploceros*, *Wagner Schreber Säugeth. Suppl.*, iv, p. 462 (1844).

**Haploceros montanus.**

*Ovis montana*, *Ord Guthrie's Geograph.*, 2nd Amer. ed., ii, pp. 293, 309 (1815)\*.

Antelope (*Rupicapra*) *americana*, *Blainville Bull. Soc. Philom.*, p. 80 (1816)\*.

Antelope *lanigera*, *H. Smith, Linn. Trans.*, xiii, p. 38 pl. iv. (1822).

*Distribution.*—The Rocky Mountains of North America.

a. Skull ..... H. A. Ward [Ex.], 1889.

Genus **RUPICAPRA.**

*Rupicapra*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

*Capella*, *Keyserling and Blasius Wirbelth. Europ.*, p. 28 (1840). *Type*, *R. tragus*.

**Rupicapra tragus.**

*Capra rupicapra*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 95 (1766).

Antelope (*Rupicapra*) *rupicapra*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

*Rupicapra tragus*, *Gray List Mamm. B. M.*, p. 167 (1843).

*Capella rupicapra*, *Blasius Säugeth. Deutsch.*, p. 488 (1857).

*Distribution.*—The Alps of Central Europe, the Carpathians, the Pyrenees and the Caucasus.

a. Stuffed ♂ Alps of Aosta, Italy Prof. Giglioli, 1881.

b. Skeleton Alps of Aosta, Italy Prof. Giglioli, 1881.

Genus **BUDORCAS.**

*Budorcas*, *Hodgson J. A. S. B.*, xix, p. 65 (1850).

Only one species known.

**Budorcas taxicolor.**

"Takang," *Rowlatt J. A. S. B.*, xiv, p. 493.

*Budorcas taxicolor*, *Hodgson J. A. S. B.*, xix, p. 65, [3 plates] (1850); *Blyth J. A. S. B.*, xix, p. 348; *Gray P. Z. S.*, 1853, p. 192, pl. xxxvi; *Blyth Cat.*,

p. 174; *Anderson P. Z. S.*, 1869, p. 470; *Hume P. Z. S.*, 1887, p. 483, [woodcuts of heads ♂ and ♀].  
*Budorcas taxicolor* var. *tibetana*, *Milne Edwards Rech. Mamm.*, p. 367, pls. lxxiv to lxxix (1874).

Takin, Mishmis of Assam frontier; Khing, Khamtees.

*Distribution.*—The hills at the head of the Assam valley whence it is brought down by the Mishmi tribes; it has also been got by Père David from Moupin in Eastern Thibet. \*

The Takin has never yet, as far as I am aware, been seen wild or shot by Anglo-Indian sportsmen, in fact the only man who has been actually in the country of the "Takin" is Père David the celebrated French Missionary.

The Takin is a generalized type exhibiting many intermediate characteristics, so that it is difficult to say whether it should be included among the sheep, oxen, antelopes or goats; Milne Edwards considers that it is rather more allied to the antelopes, and I have followed him in placing it here at the beginning of the antelopes.

Hume in his recent paper has shown that all previous writers have been mistaken with regard to the horns of the female, which are long straight and ox-like without the characteristic gnu-like twist of the male.

a. Stuffed	♂	Mishmi hills, Assam	F. Jenkins, A.S.B.
b. Stuffed	♀	.....	No history.
c. Stuffed	♂	.....	E. T. Dalton (1856), A.S.B.
		head and horns.	
d. Skull	♂	.....	A. R. Comber (1863).
e. Frontlet	♂	.....	F. Jenkins, A.S.B.
f. Frontlet	♂	.....	F. Jenkins, A.S.B.
g. Frontlet	♀	.....	F. Jenkins, A.S.B.
h. Skeleton	juv.	.....	Col. Graham, 1879.
j. Skin, skull,		Mishmi hills	Dy. Commissioner, 1882.
		skelet.	
k. Skin, skull,		"Sudiya," Assam	W. Brydon, 1884.
		skelet.	
l. Skin	♂	.....	Col. Graham, 1879.
m. Skin	juv.	.....	Col. Graham, 1879.
n. Skin	♂	"Debroghur"	Col. Graham, 1879.
o. Skin		Mishmi hills	J. Gregory, 1870.

## Genus OREAS.

*Oreas*, *Desmarest Mamm.*, p. 471 (1822).

### *Oreas canna*.

Antelope oryx, *Pallas Spic. Zool.*, i, p. 15 (1767).

Antelope oreas, *Pallas Spic. Zool.*, xii, pp. 5 and 17 (1777).

Antelope (*Oreas*) *canna*, *Desmarest Mamm.*, p. 471 (1822).

*Damalis* (*Boselaphus*) *oreas*, *H. Smith Griffith An. Kingd.*, iv, p. 355 [with plate] (1827).

*Damalis* (*Boselaphus*) *canna*, *H. Smith Griffith An. Kingd.*, iv, p. 357 (1827).  
*Boselaphus oreas*, *Harris Wild Game S. Africa*, pl. vi (1840); *A. Smith S. Africa Zool.*, pls. xl and xli.

*Oreas canna*, *Blyth Cat.*, p. 164 (1863); *Selous P. Z. S.*, 1881, p. 749.

The Eland.

*Distribution*—South Africa generally; extending north to the Kilimanjaro district; now extinct in Cape Colony.

a. Frontlet	.....	W. S. Sherwill (1843), A.S.B.
b. Skeleton ♂	.....	Zoological Gardens (1885).

### Genus STREPSICEROS.

*Strepsiceros*, *H. Smith, Griffith An. Kingd.*, v, p. 365 (1827).

The Abyssinian specimens of Kudu got by Blanford seem to be examples of the Lesser Kudu of Blyth, easily distinguished from the Greater Kudu by the closed spiral of its horns.

### *Strepsiceros kudu*.

Antilope *strepsiceros*, *Pallas Spic. Zool.*, i, p. 17 (1767).

Antilope (*Tragelaphus*), *strepsiceros*, *Desmarest Mamm.*, p. 468 (1822).

*Damalis* (*Strepsiceros*) *strepsiceros*, *H. Smith, Griffith An. Kingd.*, iv, p. 359 (1827).

*Strepsiceros kudu*, *Gray List Mamm. B. M.*, p. 155 (1843); *Blyth Cat.*, p. 165; *Selous P. Z. S.*, 1881, p. 751.

*Strepsiceros capensis*, *Harris Wild Game S. Africa*, pl. xx (1840); *A. Smith S. Africa Zool.*, pls. xlii, xliii.

The Kudu.

*Distribution*.—South Africa, but nearly extinct in Cape Colony; found in abundance between the Limpopo and Zambesi Rivers, and extending northwards as far as the Kilimanjaro district

a. Frontlet ♂	.....	A. S. B.
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### *Strepsiceros imberbis*.

*Strepsiceros imberbis*, *Blyth P. Z. S.*, p. 52 (1869); *P. L. Sclater P. Z. S.*, 1884, p. 45; pl. iv; *Phillips P. Z. S.*, 1885, p. 931.

*Strepsiceros kudu*, *apud Blanford Abyssinia*, p. 270 (1870).

*Strepsiceros tendal*, *Gray Cat. Rum. Mamm. B. M.*, p. 46 (1872).

Lesser Kudu.

*Distribution*.—Central and Eastern Africa from Abyssinia in the north to Somaliland, and down to the Equator.

a. Stuffed, ♂	Anseba valley, Abys-	W. T. Blanford.
	sinia, 4,000 ft.	

♂. Skin, ♀ juv. Anseba valley, Abyssinia, 4,000 ft., 14-7-68. W. T. Blanford.

### Genus TRAGELAPHUS.

*Tragelaphus*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

### *Tragelaphus sylvaticus*.

*Antelope sylvatica*, *Sparrman Kongl. Vetensk. Akad. Handl.*, p. 197 (1780).  
*Tragelaphus sylvatica*, *Gray List Mamm. B. M.*, p. 165 (1843); *Harris Wild Game S. Africa*, pl. xxvi, fig. 1, *Selous P. Z. S.*, 1881, p. 752.

The Bosch-bok.

*Distribution*.—South Africa, extending north to the Kilimanjaro district.

a-b. 2 Prs. horns South Africa W. Irving.

### Genus BOSELAPHUS.

*Boselaphus*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.  
 Portax, *H. Smith, Griffith An. Kingd.*, v, p. 366 (1827). *Type*, *B. tragocamelus*.

This genus contains only one species, the Nilgai, which is entirely confined to India.

### *Boselaphus tragocamelus*.

*Antelope tragocamelus*, *Pallas Spic. Zool.*, i, p. 9 (1767); *id. ibid*, xii, p. 13.

*Antelope albipes* *Erxleben Syst. Reg. An.*, p. 280 (1777).

*Antelope picta*, *Pallas Spic. Zool.*, xii, p. 14 (1777); *F. Cuvier Hist. Nat. Mamm.*, livr. 46, with plate; *Sykes P. Z. S.*, 1831, p. 105.

*Antelope (Boselaphus) picta*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

*Damalis (Portax) risia*, *H. Smith, Griffith An. Kingd.*, iv, p. 363 (1827); *Elliot Madr. Journ.*, x, p. 226.

*Tragelaphus hippelaphus*, *Ogilby P. Z. S.*, p. 138 (1836).

*Portax picta*, *Gray List Mamm. B. M.*, p. 154 (1843); *Jerdon Mamm.*, p. 272; *McMaster Notes on Jerdon*, p. 99; *Kinloch Large Game Shooting*, ii, p. 55 [plate of head]; *Sterndale Mamm. Ind.*, p. 476.

*Portax tragocamelus*, *Gray P. Z. S.*, p. 146 (1850); *Adams P. Z. S.*, 1858, p. 523; *Blyth Cat.*, p. 165.

The Nilgai; Roz Rooee, Hind.; Maravi, Canarese; Gurayi, Gond; Manupotu, Telegu.

*Distribution*.—The peninsula of India generally; not north of Lahore (Adams), but common about Cawnpore and Umbala and southwards to the Deccan (Sykes), and to Coimbatore and Salem (Jerdon); not found in Ceylon or Lower Bengal.

a. Stuffed ♂ ..... Barrackpore, Menagerie,  
 (1842), A.S.B.



b.	Stuffed	♀	.....	Barrackpore, Menagerie, 1842, A.S.B.
c.	Skeleton (mtd).	♂	.....	A.S.B.
d.	Stuffed head	♂	.....	W. Rutledge, 1878.
e.	Skull, horns	♂	Cawnpore dist.	J. Cockburn, 1872.
f.	Skull, horns	♂	.....	A.S.B.
g.	Skull, horns (castrated).	♂	.....	A.S.B.
h.	Skull	♂	.....	W. Rutledge, 1881.
j.	Skull	♂	Alwara, Jumna River	J. Cockburn, 1881.
k.	Skull	♀	Banda district	J. Cockburn, 1881.
l.	Skull	♀	.....	A.S.B.
m.	Skeleton and skin juv.	♀	.....	Zoological Gardens, 1880.
n.	Skeleton	♂	.....	Zoological Gardens, 1878.
v.	Frontlet	♂	.....	A.S.B.

Genus **ORYX.**

*Oryx*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

**Oryx gazella.**

*Capra gazella*, *Linnæus Syst. Nat.*, 12th ed., i, p. 96 (1766).

*Antilope bezoartica*, *Pallas Spic. Zool.*, i, p. 14 (1767).

*Antilope oryx*, *Pallas Spic. Zool.*, xii, p. 17 (1777).

*Antilope (Oryx) oryx*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

*Oryx capensis*, *Ogilby P. Z. S.*, p. 139 (1836); *Harris Wild Game S. Africa*, pl. ix.

*Oryx gazella*, *Blyth Cat.*, p. 169 (1863); *Selous P. Z. S.*, 1881, p. 755.

The Gemsbok.

*Distribution.*—South Africa; principally in the deserts of the south-west, *i.e.*, Kalahari and Damara land.

a. Frontlet ♂ South Africa A.S.B.

**Oryx beisa.**

*Antilope beisa*, *Rüppell N. Wirbelth.*, p. 14, pl. v (1835).

*Oryx beisa*, *Gray Cat. Mamm. B.M.*, iii, p. 106 (1852); *Blanford Abyssinia*, p. 262; *P. L. Selater P. Z. S.*, 1881, p. 626, pl. liv; *Phillips P. Z. S.*, 1885, p. 931.

Beisa Antelope.

*Distribution.*—North-East Africa; desert country round Suakim and Massowah and southward to Somali land (Phillips) and Kilimanjaro.

a. Stuffed ♀ nr. Massowa, Abyssinia, 8-68. W. T. Blanford.

- b. Skeleton ♀ nr. Massowa, Abyssinia, 8-68. W. T. Blanford.  
 c. Skin, ♀ skeleton. .... Zoological Gardens, 1883.  
 d. Skin, ♂ juv. skeleton. .... Zoological Gardens, 1878.

### Oryx beatrix.

*Oryx beatrix*, Gray *P. Z. S.*, p. 158, pl. lv (1857); *P. L. Sclater P. Z. S.*, 1872, p. 603; id. *P. Z. S.*, 1878, p. 789.

*Distribution.*—Arabia, one specimen was got from near Mecca, the other from Bushire.

A skull identified by Blyth as *O. leucoryx* seems to be rather referable to *O. beatrix* than to *O. beisa*; the horns are quite straight, so that it is certainly not *O. leucoryx*.

- a. Skull ..... A. S. B.

### Oryx leucoryx.

Antelope *leucoryx*, *Pallas Spic. Zool.*, xii, p. 17 (1777).

Antelope (*Oryx*) *leucoryx*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

*Oryx leucoryx*, *Ogilby P. Z. S.*, p. 139 (1836); *Gray Cat. Mamm. B. M.*, iii, p. 107.

White *Oryx*.

*Distribution.*—North and West Africa, Nubia, Senaar and Senegal.

- a. Skeleton ♀ ..... W. Rutledge, 1881.  
 b. Skull and ♂ horns. .... W. Rutledge, 1889.

### Genus HIPPOTRAGUS.

*Egoceros*, *Desmarest Mamm.*, p. 475 (1822).

*Aigoceros*, *H. Smith, Griffith An. Kingd.*, v, p. 324 (1827).

*Hippotragus*, *Sundevall Kongl. Vetens. Akad. Handl.*, p. 196 (1844)'

### Hippotragus equinus.

Antelope *equina*, *Is. Geoff. St. Hil. N. Dict. Hist. Nat.*, ii, p. 204 (1816).

Antelope (*Aigoceros*) *equina*, *H. Smith, Griffith An. Kingd.*, v, p. 324 (1827); *Harris Wild Game S. Africa*, pl. xviii; *A. Smith Zool. S. Africa*, pl. xxvii; *Blyth Cat.*, p. 169.

*Hippotragus equinus*, *Sundevall Kongl. Vetens. Akad. Handl.*, p. 196 (1844)\*; *Kohl. Ann. K. K. Nat. Hofmus.*, i, p. 85.

*Hippotragus leucophaeus*, *apud Selous P. Z. S.*, p. 755 (1881).

The Equine Antelope.

*Distribution.*—Throughout Central and South Africa; it has also been got from West Africa, but is replaced in Central Africa

by an allied species *Hippotragus bakeri* of Heuglin. (See Sclater *P. Z. S.*, 1868, p. 214).

If *H. leucophaeus* of Pallas is considered merely as a smaller or younger specimen of *H. equinus*, the former name has many years priority and will of course stand.

a. Frontlet ♂ ..... A. S. B.

### Genus GAZELLA.

*Gazella*, *Blainville Bull. Soc. Philom.* p. 75 (1816)\*.

*Antidorcas*, *Sundevall Kongl. Vetensk. Akad. Handl.* (1844)\*. *Type*, *G. euchore*.

*Procapra*, *Hodgson, F. A. S. B.*, xv, p. 334 (1846). *Type*, *G. picticaudata*.

*Tragops*, *Hodgson F. A. S. B.*, xvi, p. 695 (1847). *Type*, *G. bennetti*.

#### *Key of the Indian Species.*

a. Females horned ; horns of males not lyrate.

***Gazella bennetti***, p. 159.

a<sup>2</sup>. Females hornless.

b. Horns lyrate, a distinct antorbital pit to the skull.

***Gazella subgutturosa***, p. 160.

b<sup>2</sup>. Horns scimitar-shaped ; no trace of antorbital pit.

***Gazella picticaudata***, p. 161.

### *Gazella dorcas.*

*Capra dorcas*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 96 (1766).

*Antilope dorcas*, *Pallas Spic. Zool.*, i, p. 11 (1767).

*Gazella dorcas*, *Lichtenstein Mag. Ges. Naturf. Freunde*, vi, p. 168 (1812)\* ; *Blyth Cat.*, p. 172 ; *Tristram P. Z. S.*, 1866, p. 86 ; *Danford and Alston P. Z. S.*, 1877, p. 276 ; *Brooke P. Z. S.*, 1873, p. 537.

*Distribution*.—Asia Minor near Tarsus (Danford), Syria, Egypt, and Algeria.

a. Skin, skull ♂ ..... Zoological Gardens, 1881.  
and horns.

b. Skin ♂ juv. Egypt R. A. Turnbull, 1881.

c. Skeleton ♂ No history.

d. Stuffed ♂ Rajah R. Mullick, 1872.

### *Gazella isabella.*

*Gazella isabella*, *Gray Ann. Mag. N. H.*, xviii, p. 214 (1846) ; *Brooke P. Z. S.*, 1873, p. 539.

*Gazella dorcas*, *apud Blanford Abyssinia*, p. 261 (1870).

*Distribution*.—The Egyptian Soudan up to the coast at Massowah.

a. Stuffed head.	♂	Ain nr. Massowah, 16-8-68, 12,000 ft.	W. T. Blanford.
b. Stuffed head.	♀	Abyssinia	W. T. Blanford.
c. Stuffed head.	♂ juv.	Abyssinia	W. T. Blanford.
d. Skull and horns.	♀	Komayli, Abyssinia, 20-2-68.	W. T. Blanford.

### Gazella spekii.

*Gazella spekii*, *Blyth* *♀. A. S. B.*, xxiv, p. 296 (1855); *id. Cat.*, p. 172; *Blanford Abyssinia*, p. 261, pl. i, figs. 5-5a; *Brooke P. Z. S.*, 1873, p. 543; *Phillips P. Z. S.*, 1885, p. 531; *Kohl Ann. K. K. Nat. Hofmus.* i, p. 77, pls. iii and iv.

*Distribution.*—Somali land (Speke, Phillips and Menges).

a. Stuffed head.	♂	Somali land	J. H. Speke, 1855, A.S.B.
b. Stuffed head.	♀	Somali land	J. H. Speke, 1855, A.S.B.

[Types of *Gazella spekii*, Blyth.]

### Gazella arabica.

? *Gazella cora*, *H. Smith, Griffith An. Kingd.*, v, p. 333 (1827).

*Gazella arabica*, *Lichtenstein Darstell.*, pl. vi (1827); *Hempr. & Ehr. Symb. Phys.*, pl. v; *Blanford Abyssinia*, p. 261, pl. i, fig. 3; *Brooke P. Z. S.*, 1873, p. 544.

*Gazella vera*, *Gray Knowsley Menagerie* (1850)\*.

*Gazella dorcas*, *apud Blyth Cat.*, p. 172 (1863).

*Distribution.*—South Arabia.

a. Skin and skeleton.	♀	.....	Zoological Gardens, 1878.
b. Skin and skele- ton.	♀ juv.	.....	W. Rutledge, 1878.
c. Skin and skele- ton.	♂ juv.	.....	Zoological Gardens, 1878.
d. Skin (with horns), juv.	♂	.....	Purchased, 1864.
e. Skin and skull, juv.		.....	Zoological Gardens, 1881.
f. Skin,	♀	.....	Zoological Gardens, 1877.
g. Skin and skeleton.	♂	.....	Zoological Gardens, 1877.
h. Skin and skull.	♂	"Bushire"	Zoological Gardens, 1882.
i. Skin and skeleton.	♀	.....	Zoological Gardens, 1882.
k. Skin		.....	No history.
l. Skull	♂	.....	A.S.B.
m. Skull	♂	.....	A.S.B.

n. Frontlet	♂	.....	A. S. B.
o. Skull		.....	A. S. B.
p. Skull	♀	.....	A. S. B.
q. Skull	♂	.....	A. S. B.
r. Skull	♀	.....	A. S. B.
s. Skull	♀	.....	A. S. B.

### Gazella bennetti.

*Antilope bennettii*, Sykes *P. Z. S.*, p. 104 (1831); *Blanford* *♀. A. S. B.*, xxxvi, p. 196.

*Antilope arabica*, *apud Elliot Madr. Journ.*, x, p. 223 (1839).

*Gazella christi*, *Gray apud Blyth, ♀. A. S. B.*, xi, p. 452 (1842); *Hutton ♀. A. S. B.*, xv, p. 151.

*Gazella bennetti*, *Gray List Mamm. B. M.*, p. 161 (1843); *Ferdon Mamm.*, p. 280; *McMaster Notes on Ferdon*, p. 115; *Kinloch Large Game Shooting*, i, p. 57, with plate; *Stoliczka ♀. A. S. B.*, xli, p. 229; *Blanford P. Z. S.*, 1873, p. 315; *Brooke P. Z. S.*, 1873, p. 544; *Blanford Persia*, p. 91; *Sterndale Mamm. Ind.*, p. 463; *Murray Zool. Sind*, p. 56.

*Antilope hazenna*, *Is. Geoff. St. Hil. Jacquemont Voyage*, iv, p. 74, pl. vi (1844).

*Tragops bennetti*, *Hodgson ♀. A. S. B.*, xvi, p. 695 (1847); *Adams P. Z. S.*, 1853, p. 522; *Blyth Cat.*, p. 173.

The Indian Gazelle, Ravine Deer in North India; Goat Antelope in South India; Chikara, Kalpunch, Kalsipi, Hindustani; Budari, Mudari; Tiska, Canarese; Hurnee in Punjab; Ast in Beluchistan; Burudujinka, Telegu.

*Distribution.*—Found throughout the western parts of India in suitable localities and extending westwards through Beluchistan as far as Bushire, not found on the Malabar Coast, south of the Kistna River, in Ceylon, or in Lower Bengal.

a. Skin	♂	.....	Zoological Gardens, 1876.
b. Skin	♂	.....	Karachi Mus. [Ex.], 1879.
c. Skin and skeleton.	♀	.....	W. Rutledge, 1879.
d. Skin	♂	Bampur, Beluchistan	W. T. Blanford.
e. Skin	♀	.....	W. T. Blanford.
f. Skin	juv.	.....	Karachi Mus. [Ex.], 1879.
g. Head	♂	Sind, 17-5-75	W. T. Blanford.
stuffed.			
h. Head	♂	Chanda, C. P.	Mus. Coll., 1867.
stuffed.			
j. Head	♂	.....	W. T. Blanford.
stuffed, juv.			
k. Head	♂	Pubb Hills, Sind	Karachi Mus. [Ex.], 1879.
stuffed.			
l. Head	♂	Pubb Hills, Sind	Karachi Mus. [Ex.], 1879.
stuffed.			
m. Head	♂	Pubb Hills, Sind	Karachi Mus. [Ex.], 1879.
stuffed.			
n. Head	♀	Pubb Hills, Sind	Karachi Mus. [Ex.], 1879.
stuffed.			
o. Skull	♂	Allahabad district	J. Cockburn, 1879.
p. Skull	♂	Allahabad district	J. Cockburn, 1879.

q. Skull	♂	Allahabad district	J. Cockburn, 1879.
r. Skull	♂	Allahabad district	J. Cockburn, 1879.
s. Skull	♂	Pind Dadan Khan	W. Theobald, 1853, A.S.B.
t. Frontlet	♀	Banda, N.-W. P.	J. Cockburn, 1879.
u. Skeleton	♂	.....	W. Rutledge, 1874.
v. Skeleton	♂	.....	J. F. Barckley, 1875.
w. Skeleton	♂	.....	W. Rutledge, 1875.
x. Skull	♂	.....	Zoological Gardens, 1878.
y. Skull	♀	.....	W. Rutledge, 1881.
z. Stuffed	♂	.....	Rajah R. Mullick.
a <sup>2</sup> . Stuffed	♂	.....	Rajah R. Mullick.
b <sup>2</sup> . Stuffed	♀	Chanda, 20-2-67	W. T. Blanford.
c <sup>2</sup> . Skin		Deccan (Sykes)	India Museum, London.
d <sup>2</sup> . Horns	♂	Bampur Beluchistan, 4-72.	W. T. Blanford.
e <sup>2</sup> . Stuffed head.	♂	.....	W. Rutledge, 1878.
f <sup>2</sup> . Stuffed head.	♂	Pubb Hills Sind	Karachi Mus., 1879.
g <sup>2</sup> -h <sup>2</sup> . 2 Skulls	♂	Banda, N.-W. P.	J. Cockburn, 1881.

### Gazella fuscifrons.

*Gazella fuscifrons*, *Blanford P. Z. S.*, p. 317 (1873); *Brooke P. Z. S.*, 1873, p. 545; *Blanford Persia*, p. 92.

*Distribution*.—Desert of Jalk, north of Beluchistan.

Only one specimen, the one mentioned below, is known and this is a female; the species is certainly very nearly allied to *Gazella bennetti*, but pending the collection and examination of more specimens it seems better to keep it separate.

a. Skin and ♀ Jalk, Beluchistan, 3,000 ft. W. T. Blanford.  
head. 13-3-72.

[Type of *Gazella fuscifrons*, Blanford.]

### Gazella subgutturosa.

*Antelope subgutturosa*, *Guldenstadt Act. Acad. Petrop.*, ii, pt. 1, p. 251 pls. ix-xii (1780); *Pallas Zoog. Ross. As.*, i, p. 252; *Radde Zool. F. B.* iv, p. 1060.

*Gazella subgutturosa*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*; *Hutton, F. A. S. B.*, xv, p. 151; *Blyth Cat.*, p. 172; *Blanford P. Z. S.*, 1873, p. 313; *Brooke P. Z. S.*, 1873, p. 545; *Blanford Persia*, p. 91; *Severtsoff Ann. Mag. N. H.* (4), xviii, p. 170; *Prewalsky Peters. Mitth., Erzb.*, xii, p. 9; *Scully F. A. S. B.*, lvi, p. 76; *Thomas Linn. Trans.* (2), v, p. 64.

*Gazella subgutturosa* var. *yarkandensis*, *Blanford Yarkand Mamm.*, p. 88, pl. xv (1879).

The Persian Gazelle; Ahu, Persian.

*Distribution*.—The highlands of Persia and Afghanistan extending westward as far as Tiflis, northwards all over Russian-Turkistan, and eastwards to Yarkand; not found on the shores of the Persian Gulf being there replaced by *G. bennetti*.

a. Skin	♀	nr. Ispahan	W. T. Blanford, 1878.
b. Skin, skull	♂	nr. Ispahan, 9-70	Sir O. St. John.
c. Skin, skull	♂	Kashgar	F. Stoliczka, 1874.
d. Skin juv.	♀	Yarkand	F. Stoliczka, 1874.
e. Skin	♀	Yarkand	F. Stoliczka, 1874.
f. Skin, skull	♂	Yarkand	F. Stoliczka, 1874.
g. Skin	♂	Yarkand	F. Stoliczka, 1874.
h. Skin	♂	Yarkand	F. Stoliczka, 1874.
j. Skin	♀	Yarkand 1-75	J. Scully.
k. Skin	♀	Yarkand 1-75	J. Scully.
l. Skin	♂	.....	Zoological Gardens, 1880.
		skeleton.	
m. Skull	♂	Kandahar	T. Hutton, 1846, A.S.B.
n. Frontlet	♂	Kandahar	H. B. Lumsden, 1859, A.S.B.
o. Frontlet	♂	Yarkand	J. Scully, 1889.
p. Skull	♂	Badghis, Herat	C. E. Yate, 1887.
q. Skull	♀	Yarkand, 1-75.	J. Scully.
r. Stuffed	♂	.....	Rajah R. Mullick, A.S.B.
s. Stuffed	♀	.....	Rajah R. Mullick, A.S.B.
t. Head (no horns)	♂	Yarkand	F. Stoliczka, 1874.

### Gazella picticaudata.

*Procopra picticaudata*, Hodgson *J. A. S. B.*, xv, p. 334, pl. ii (1846); *Blyth J. A. S. B.*, xvi, p. 725; *Hooker Himalayan Journ.*, ii, p. 157; *Adams P. Z. S.*, 1858, p. 523; *Blyth Cat.*, p. 173; *Kinloch Large Game Shooting*, i, p. 10 [with plate]; *Blanford J. A. S. B.*, xli, p. 39.  
*Gazella picticaudata*, Brooke *P. Z. S.*, p. 547 (1873).

The Tibetan Ravine Deer; Goa of Thibetans.

*Distribution*.—Upper part of Ladak and Western Thibet (Kinloch). Sir J. Hooker also observed it over the Thibetan frontier to the north of Sikkim.

a. Skin and horns.	♂	.....	Purchased at Naini Tal, 1888.
b. Skull and horns.	♂	.....	F. Jenkins, 1846, A.S.B.
c. Skull, horns and skin.	♂	Kukchu nr. Ladak, 15,000 ft.	N. Elias, 1879.
d. Frontlet	♂	.....	F. Jenkins, 1846, A.S.B.
e. Frontlet	♂	.....	F. Jenkins, 1846, A.S.B.
f. Frontlet	♂	.....	No history.

### Gazella søemmerringi.

*Antelope søemmerringi*, *Cretzschmar Ruppell's Atlas*, p. 49, pl. xix (1826).  
*Gazella søemmerringi*, *Gray List Mamm. B. M.*, p. 161 (1843); *P. L. Sclater P. Z. S.* 1867, p. 817, pl. xxxvii; *Blanford Abyssinia*, p. 260; *P. L. Sclater P. Z. S.*, 1871, p. 701; *Brooke P. Z. S.*, 1873, p. 549; *Phillips P. Z. S.* 1885, p. 932.

*Distribution.*—North-East Africa from near Suez southward to Somali land (Phillips); always near the sea (Blanford).

- a. Skin and skull. ♂ Annesley Bay, Abyssinia, W. T. Blanford, 29-12-67.  
 b. Skull, horns ♂ Annesley Bay, Abyssinia W. T. Blanford, 1868.  
 c. Frontlet ♀ ..... No history.

### Gazella euchores.

- Antelope euchores, *Lichtenstein Mag. Ges. Naturf. Freunde*, vi, p. 169 (1814)\*.  
 Antelope pygarga, *Blumenbach Handb. Naturges.*, 10th ed., p. 119 (1821)\*.  
 Gazella euchores, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*; *Harris Wild Game of S. Africa.*, pl. iii; *Selous P. Z. S.*, 1881, p. 757.  
 Antidorcas euchores, *Gray P. Z. S.*, p. 116 (1850); *Blyth Cat.*, p. 171.

The Springbok.

*Distribution.*—South Africa; the north-western parts of Cape Colony, Orange Free State, Transvaal and Grimqualand west.

- a. Frontlet ..... A.S.B.

### Genus ANTILOPE [restricted].

Antelope, *Pallas Spic. Zool.*, i, p. 3 (1767).

The genus Antelope, which formerly included the whole sub-family of Antelopes, was first restricted to the following species by Ogilby *P. Z. S.*, 1836, p. 137.

### Antelope cervicapra.

- Antelope cervicapra, *Pallas Spic. Zool.*, i, p. 18, pls. i, ii, (1767); *Sykes P. Z. S.*, 1831, p. 104; *Gray Illustr. Ind. Zool.*, i, pls. xii, xiii; *Bennett P. Z. S.*, 1833, p. 13; id. *ibid.*, 1836, p. 34; *Elliot Madr. Journ.*, x, p. 222; *Hutton J. A. S. B.*, xv, p. 150; *Blanford J. A. S. B.*, xlv, p. 18.  
 Cervicapra bezoartica, *Gray List Mamm. B. M.*, p. 159 (1843).  
 Antelope bezoartica, *Gray P. Z. S.*, p. 117 (1850); *Adams P. Z. S.*, 1858, p. 522; *Blyth Cat.*, p. 171; *Ferdon Mamm.*, p. 275; *Blanford J. A. S. B.*, xxxvi, p. 196; *MacMaster Notes on Ferdon*, pp. 109, 210; *Kinloch Large Game Shooting*, i, p. 59 [with plate]; *Stoliczka J. A. S. B.*, xli, p. 229; *Pollok Sport in Brit. Burma*, i, p. 150; *Sterndale Mamm. Ind.*, p. 472.

The Black Buck or Indian Antelope; Mriga, Sanscrit; Kalwit Haran and Mirga ♂ Harna Harnin ♀ Hind.; Harin, Bengalee; Kalsar ♂ Baoti ♀ in Behar; Kala ♂ Guria ♀ in Tirhut; Barout or Sasin in Nepal; Bureta in Bhagulpore; Chigri, Canarese; Irri ♂ Ledi ♀ or Jinka in Telegu.

*Distribution.*—The whole Indian peninsula from the Punjab to Cape Comorin, except the Malabar Coast, the Eastern Ghats, and



Lower Bengal; it is most abundant in the North-West Provinces and the Deccan. It is recorded from the banks of the Manass River, a northern tributary of the Brahmaputra, in Assam by Pollok (*l. c.*)

a. Skull, horns ♂	Agra	J. Cockburn, 1879.
b. Skull, horns ♂	Banda dist.	J. Cockburn, 1881.
c. Skull, horns ♂	Banda dist.	J. Cockburn, 1881.
d. Skull, horns ♂	Banda dist.	J. Cockburn, 1881.
e. Skull, horns ♂	Banda dist.	J. Cockburn, 1881.
f. Skull, horns ♂	Allahabad dist.	J. Cockburn, 1879.
g. Skull, horns ♂	Banda dist.	J. Cockburn, 1881.
h. Skull, horns ♂	Banda dist.	J. Cockburn, 1881.
j. Skull, horns ♂	.....	A.S.B.
k. Skull, horns ♂	.....	J. J. Athanass, 1842, A.S.B.
l. Skull, horns ♂	.....	A.S.B.
m. Skull, horns ♂	.....	A.S.B.
n. Skull, horns ♂	.....	J. Cockburn, 1872.
o. Skull, horns ♂	.....	Rajah R. Mullick, 1870.
p. Skull, horns ♂	.....	No history.
q. Skull, horns ♂	.....	A.S.B.
[castrated.]		
r. Skull, horns ♂	.....	J. J. Athanass, A.S.B.
[one horn deformed.]		
s. Skull, horns ♂	.....	W. Rutledge, 1870.
[one horn deformed.]		
t. Skull ♀	.....	J. J. Athanass, A.S.B.
u. Head stuffed ♂	.....	J. Armstrong, 1869.
v. Head stuffed ♂	.....	A.S.B.
w. Frontlet, horns. ♂	Banda	J. Cockburn, 1881.
z. Frontlet, horns. ♂	Doon of Assam	F. Jenkins.
a <sup>2</sup> . Stuffed ♂	Chanda	W. T. Blanford, 1867.
b <sup>2</sup> . Stuffed ♂	.....	Purchased, 1869.
c <sup>2</sup> . Stuffed juv. ♂	.....	Purchased, 1869.
d <sup>2</sup> . Skeleton ♂	.....	Zoological Gardens, 1881.
e <sup>2</sup> . Skull [horns deformed] ♂	.....	Mrs. Turnbull, 1837, A.S.B.
f <sup>2</sup> . Head stuffed ♂	.....	A.S.B.

### Genus PANTHOLOPS.

Pantholops, *Hodgson P. Z. S.*, p. 80 (1834).

This genus also contains only one species, the Thibetan Antelope, which has been shot just within the boundaries of the Indian Empire and which must therefore be included in the Indian Fauna.

### Pantholops hodgsoni.

*Antelope hodgsonii*, *Abel Edin. Journ. Sci.*, p. 163 (1827)\*; *Hodgson Gleanings in Science*, ii, p. 348, pls. iii and v; *id. P. Z. S.*, 1831, p. 52; *id.*

- ♀. *A. S. B.*, i, p. 59, pl. iv; *Hooker Himalayan Journ.*, ii, pp. 132, 157 and woodcut, p. 158.  
 Antelope (*Oryx*) kemas, *H. Smith, Griffith An. Kingd.*, v, p. 328 (1827).  
 Antelope chiru, *Lesson Man. Mamm.*, p. 371 (1827).  
*Pantholops hodgsoni*, *Hodgson, P. Z. S.*, p. 80 (1834); id. ♀. *A. S. B.*, iii, p. 134; id. ♀. *A. S. B.*, x, p. 913; *Adams P. Z. S.*, 1858, p. 521; *Blanford Yarkand Mamm.*, p. 89, pl. xvi.  
*Kemas hodgsoni*, *Gray List Mamm. B. M.*, p. 157 (1843); *Horsfield Cat. E. I. Mus.*, p. 166; *Blyth Cat.*, p. 173; *Kinloch Large Game Shooting*, i, p. 6, [with plate]; *Blanford ♀. A. S. B.*, xli, p. 39.

Isoors or Choors of West Thibet; Chiru of East Thibet.

*Distribution.*—Apparently throughout Thibet; was seen by Hooker just over the pass to the north of Sikkim and has been shot by Kinloch in Changchenmo in the eastern part of Ladak.

a. Skin	♂	Kium, Ladak, 4-8-73	J. Biddulph.
b. Skin	♀	.....	F. Stoliczka, 1874.
c. Stuffed	♂	Thibet	L. Mandelli, 1877.
d. Skull, horns	♂	.....	A.S.B.
e. Skull, horns	♂	.....	A.S.B.
f. Frontlet	♂	.....	A.S.B.
g. Skull	♀	Yarkand	F. Stoliczka, 1874.

### Genus KOBUS.

*Kobus*, *A. Smith S. African Zool.* (1840).

#### *Kobus ellipsiprymnus*.

- Antelope ellipsiprymnus, *Ogilby, P. Z. S.*, p. 47 (1833)\*.  
*Kobus ellipsiprymnus*, *A. Smith S. African Zool.*, pls. xxviii and xxix (1840);  
*Harris Wild Sports S. Africa*, pl. xiv; *Selous P. Z. S.*, 1881, p. 758.

The Water Buck.

*Distribution.*—South Africa, principally found about the Zambesi and Limpopo Rivers, and extending northwards to the Kilimanjaro district.

a Skeleton	♂	.....	E. S. Gerrard [P.], 1881.
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### Genus CERVICAPRA.

- Cervicapra*, *Blainville Bull. Soc., Philom.*, p. 75 (1816)\*.  
*Redunca*, *H. Smith, Griffith An. Kingd.*, v, p. 337 (1827) [as a sub-genus].

#### *Cervicapra arundinacea*.

- Antelope arundinacea, *Shaw Genl. Zool.*, ii, pt. 2, p. 347 (1801).  
 Antelope (*Cervicapra*) eleotragus, *Blainville Bull. Soc., Philom.*, p. 75 (1816).

Antilope (Redunca) eleotragus, *H. Smith, Griffith An. Kingd.*, iv, p. 237 (1827).

Eleotragus reduncus, *Gray List. Mamm. B. M.*, p. 165 (1843).

Eleotragus arundinaceus, *Gray Cat. Mamm. B. M.*, iii, p. 91 (1852).

The Rietbok.

*Distribution.*—Central South Africa, especially about the tributaries of the Zambesi and Limpopo Rivers.

*a.* Frontlet

.....

No history.

## Genus NEOTRAGUS.

Neotragus, *H. Smith, Griffith An. Kingd.*, v, p. 349 (1827).

### Neotragus saltianus.

Antilope (Cervicapra) saltiana, *Blainville Bull. Soc., Philom.*, p. 75 (1816)\*.

Antilope saltiana, *Cretschmar Rüppell's Atlas*, p. 55, pl. xxi (1826).

Antilope (Neotragus) mandoka, *H. Smith, Griffith An. Kingd.*, iv, p. 271 (1827).

Antilope hemprichiana, *Hempr. and Ehr. Symb. Phys.*, pl. vii (1828).

Mandoqua saltiana, *Gray List Mamm. B. M.*, p. 164 (1842).

Neotragus saltiana, *Gray Cat. Mamm. B. M.*, iii, p. 76 (1882); *Blanford Abyssinia*, p. 268; *Gunther P. Z. S.*, 1880, p. 19 [figs. of skull].

The Beni Israel.

*Distribution.*—Shores of the Red Sea, in the neighbourhood of Abyssinia; replaced by allied species in Somaliland and Damara-land.

<i>a.</i> Skin	♂	Anseba valley, Abyssinia, 4,000 ft., 27-7-68.	W. T. Blanford.
<i>b.</i> Skin	♂	Anseba valley, Abyssinia, 4,000 ft., 2-8-68.	W. T. Blanford.
<i>c.</i> Skin	♂	Anseba valley, Abyssinia, 4,000 ft., 5-8-68.	W. T. Blanford.
<i>d.</i> Skin	♂	Anseba valley, Abyssinia, 4,000 ft., 15-7-68.	W. T. Blanford.
<i>e.</i> Skin	♂	Abyssinia	W. T. Blanford.
<i>f.</i> Skin	♀	Anseba valley, 4 000 ft., 29-7-68.	W. T. Blanford.
<i>g.</i> Skin	♀	Anseba valley, 4,000 ft., 25-7-68.	W. T. Blanford.
<i>h.</i> Skin	♀	Suru, Abyssinia, 2,500 ft., 17-2-68.	W. T. Blanford.
<i>j.</i> Skin	♀	Samhar, Abyssinia, 700 ft., 28-6-68.	W. T. Blanford.
<i>k.</i> Skin	♀	Koomeyloo, Abyssinia, 300 ft., 1-68.	W. T. Blanford.
<i>l.</i> Head	♂	Anseba valley.	W. T. Blanford, 1868.
<i>m.</i> Stuffed head	♂	Anseba valley.	W. T. Blanford, 1868.
<i>n.</i> Stuffed head	♀	Anseba valley.	W. T. Blanford, 1868.
<i>o.</i> Skeleton		Anseba valley.	W. T. Blanford, 1868.

### Neotragus kirki.

*Neotragus saltiana*, *apud Blyth Cat.*, p. 168 (1863).

*Neotragus kirkii*, *Günther P. Z. S.*, p. 17, figs. 1-10 (1880).

*Distribution*.—Somaliland, extending southwards to the Kilimanjaro country.

a. Stuffed ♂ Somaliland J. H. Speke, 1855, A. S. B.

### Genus NANOTRAGUS.

*Nanotragus*, *Sundevall Kongl. Vetensk. Akad. Handl.*, p. 191 (1844)\*. *Type*, *N. spiniger*.

*Calotragus*, *Sundevall Kongl. Vetensk. Akad. Handl.*, p. 192 (1846)\*. *Type*, *N. tragulus*.

*Scopophorus*, *Gray Ann. Mag. N. H.*, xviii, p. 232 (1846). *Type*, *N. scoparia*.

*Nesotragus*, *Von Düben Kongl. Vetensk. Akad. Öfvers.*, p. 221 (1846)\*. *Type*, *N. moschatus*.

*Oreotragus*, *Gray Ann. Mag. N. H.*, xviii, p. 231 (1846). *Type*, *N. saltatrix*.

### Nanotragus tragulus.

*Antilope campestris*, *Thunberg Mem. Ac. St. Petersb.*, iii, p. 313 (1811).

*Antilope (Gazella) tragulus*, *Lichtenstein Mag. Ges. naturf. Freunde*, vi, p. 176 (1814)\*.

*Antilope (Cervicapra) stenbock*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

*Antilope (Tragulus) rupestris*, *H. Smith, Griffith An. Kingd*, iv, p. 248 (1827); *Harris Wild Game of S. Africa*, pl. xxv, fig. 2.

*Calotragus tragulus*, *Sundevall Kongl. Vetensk. Akad. Handl.*, p. 192 (1846)\*; *Blyth Cat.*, p. 166.

*Pediotragus campestris*, *Gray Cat. Rum. B. M.*, p. 31 (1872).

*Nanotragus tragulus*, *Brooke P. Z. S.*, p. 642 (1872); *Selous P. Z. S.*, 1881, p. 762.

The Steinbock.

*Distribution*.—All over South Africa from the Cape to the Zambesi, extending northward to the Kilimanjaro district.

a. Skin ♂ South Africa E. L. Layard (1860), A. S. B.

### Nanotragus montanus.

*Antilope montana*, *Cretschmar Rüppell's Atlas*, p. 11, pl. iii (1826).

*Scopophorus montanus*, *Gray Ann. Mag. N. H.*, xviii, p. 232 (1846); *Blanford Abyssinia*, p. 266.

*Nanotragus montanus*, *Brooke P. Z. S.*, p. 632 (1872).

*Distribution*.—Eastern Africa, Abyssinia, West Africa?

a. Skin Dolo, Abyssinia, 7,500 ft., W. T. Blanford. 27-3-68.

**Nanotragus melanotis.**

- Antilope melanotis, *Thunberg Mem. Acad. St. Petersb.*, iii, p. 312 (1811).  
 Antilope grisea, *F. Cuvier Dict. Sci. Nat.*, ii, p. 244 (1816).  
 Antilope (Cervicapra) grisea, *Blainville Bull. Soc. Philom.*, p. 75 (1816).  
 Antilope (Tragulus) grisea, *H. Smith, Griffith An. Kingd.*, iv, p. 250 (1827).  
 Oreotragus griseus, *Gray List Mamm. B. M.*, p. 164 (1842).  
 Calotragus melanotis, *Gray Cat. Mamm. B. M.*, iii, p. 72 (1852); *Blyth Cat.*, p. 166.  
 Nanotragus melanotis, *Brooke P. Z. S.*, p. 642 (1872); *Selous P. Z. S.*, 1881, p. 762.

The Grysbok.

*Distribution.*—Central South Africa, north of the Limpopo River.

- u. Stuffed ♂ South Africa E. L. Layard (1860), A.S.B.

**Nanotragus oreotragus.**

- Antilope oreotragus; *Gmelin Syst. Nat.*, i, p. 189 (1778).  
 Antilope saltatrix, *Boddaert Elench. Anim.*, p. 141 (1785)\*.  
 Antilope (Tragulus) oreotragus, *H. Smith, Griffith An. Kingd.*, iv, p. 245 (1827).  
 Oreotragus saltatrix, *Harris Wild Game S. Africa*, pl. xxiv, fig. 2 (1840); *Gray Ann. Mag. N. H.*, xviii, p. 231; *Blyth Cat.*, p. 167; *Blanford Abyssinia*, p. 265.  
 Nanotragus oreotragus, *Brooke P. Z. S.*, p. 642 (1872); *Selous P. Z. S.*, 1881, p. 762.

The Klipspringer.

*Distribution.*—East and South Africa from Abyssinia in the north to Cape in the south, wherever there are stony hills.

- a. Stuffed ♂ South Africa E. L. Layard (1860), A.S.B.  
 b. Stuffed head ♂ Senafe Tigré, Abyssinia, 6-68. W. T. Blanford.  
 c. Stuffed head ♂ Somaliland J. H. Speke, 1855, A. S. B.  
 d. Skin ♂ Senafe Tigré, Abyssinia, 7,500 ft., 11-3-69. W. T. Blanford.

Genus **CEPHALOPHUS.**

- Cephalophorus, *H. Smith, Griffith An. Kingd.*, v, p. 344 (1827); [as a subgenus];  
 Grimmia, *Gray Cat. Rum. Mamm. B. M.*, p. 22 (1872).

**Cephalophus mergens.**

- Antilope mergens, *Blainville N. Dict. d'Hist. Nat.*, ii, p. 193 (1816).  
 Antilope (Cephalophus) mergens, *H. Smith, Griffith An. Kingd.*, iv, p. 264 (1827); *Harris Wild Game S. Africa*, pl. xv, fig. 2.

*Cephalophus grimmia*, *apud Gray Cat. Mamm. B. M.*, iii, p. 78 (1852); *id. P. Z. S.*, 1857, p. 277, pl. lvii; *Blyth Cat.*, p. 167.  
*Grimmia nictitans*, *Gray Cat. Rum. Mamm. B. M.*, p. 22 (1872).

The Duiker.

*Distribution*.—South Africa extending northwards to the Kili-manjaro district.

*a.* Stuffed ♂ South Africa E. L. Layard (1860), A. S. B.

### *Cephalophus natalensis*.

*Antilope natalensis*, *A. Smith S. African Quart. Journ.*, p. 217 (1830)\*; *id. S. African Zool.*, pl. xxxii.  
*Cephalophus natalensis*, *Gray Ann. Mag. N. H.*, xviii, p. 166 (1846); *Blyth Cat.*, p. 168.

Rhoodebok.

*Distribution*.—South Africa, more especially Natal.

*a.* Stuffed ♂ ..... A. Malherbe (1859), A. S. B.

### *Cephalophus madoqua*.

*Antilope madoqua*, *Rüppell N. Wirbelth.*, p. 22, pl. vii, fig. 2 (1835).  
*Cephalophus madoqua*, *Gray Cat. Mamm. B. M.*, iii, p. 82; *Blanford Abyssinia*, p. 267.  
*Grimmia madoqua*, *Gray Cat. Rum. Mamm. B. M.*, p. 24 (1872).

*Distribution*.—Eastern Africa, Abyssinia.

*a.* Skin ♂ Dildi, Abyssinia, 7,000 W. T. Blanford.  
 ft., 23-4-68.  
*b.* Skin ♂ Dongolo, Abyssinia, 6,500 W. T. Blanford.  
 ft., 17-5-68.

### Genus TETRACERUS.

*Tetracerus*, *Leach cf. Linn. Trans.*, xiv, p. 524 (1823).

This genus contains one species only and is entirely confined to India.

### *Tetracerus quadricornis*.

*Antilope (Cervicapra) quadricornis*, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*; *id. Isis*, 1819, pt. 2, p. 1095, pl. xii, fig. 3.  
*Tetracerus striaticornis*, *F. Cuvier Hist. Nat. Mamm. livr.* 44 (1824).  
*Antilope chickara*, *Hardwicke Linn. Trans.*, xiv, p. 520, pls. xv, xvi (1825); *Hills Linn. Trans.*, xv, p. 501, pl. xx; *Hodgson F. A. S. B.*, i, p. 346; *id. P. Z. S.*, 1834, p. 99.  
*Antilope sub-4-cornutus*, *Elliot Madr. Journ.*, x, p. 225, pl. x, fig. 2 (1839); *Sclater P. Z. S.*, 1875, p. 527.  
*Tetracerus chickara*, *Hodgson F. A. S. B.*, x, p. 913 (1841).  
*Tetracerus quadricornis*, *Gray List Mamm. B. M.*, p. 159 (1843); *Blyth F. A.*

*S. B.*, xvi, pt. ii, p. 879; *id. J. A. S. B.*, xvii, pt. 1, p. 561; *Adams P. Z. S.*, 1858, p. 522; *Blyth Cat.*, p. 165; *Ferdon Mamm.* p. 274; *McMaster Notes on Ferdon*, p. 103; *Blanford J. A. S. B.*, xxxvi., p. 196; *Kinloch Large Game Shooting*, ii, p. 54 with plate. *Murray Zool. Sind*, p. 55. *Tetracerus iodes* and *paccerois*, *Hodgson Calc. Journ N. H.*, viii, p. 90 (1847).

The four-horned Antelope; Chouka, Chousinga, Hind.; Benkara or Bekra of Mahrattas; Kondguri, Canarese; Kondagori, Telegu.

*Distribution*.—India generally, more especially in the Central Provinces; is not found in the Ganges valley itself, but to the north in the terai is fairly common, it doubtfully extends into the Punjab and Sind, and does not occur in Ceylon.

a. Skin and skull	♀	Raneegunge	Babu Rameshur Mullick, 1872.
b. Skin and skull	♂	Raneegunge	Babu Rameshur Mullick, 1872.
c. Skin and skelet.	♂	.....	Zoological Gardens, 1878.
d. Skeleton skin	♂	.....	Zoological Gardens, 1882.
e. Skeleton	♂	.....	Zoological Gardens, 1880.
f. Stuffed	♂	.....	Rajah R. Mullick, A. S. B.
g. Stuffed	♀	.....	Rajah R. Mullick, A. S. B.
h. Stuffed	juv	.....	W. Rutledge, 1873.
j. Stuffed head	♂	Asirgarh, C. P., 7-66.	W. T. Blanford.
k. Stuffed head	♂	Asirgarh, C. P., 7-66.	W. T. Blanford.
l. Skull	♂	.....	A. S. B.
m. Skull	♂	.....	A. S. B.
n. Skull	♂	.....	A. S. B.
o. Skull	♂	.....	A. S. B.
p. Skull	♂	South India	Sir W. Elliot, 1845, A. S. B.
q. Skull	♀	South India	Sir W. Elliot, 1845, A. S. B.
r. Skull	♀	South India	Sir W. Elliot, 1845, A. S. B.
s. Skull	♂	.....	J. Cockburn, 1886.
t-u. 2 Skulls	♂	.....	J. Cockburn [P.], 1886.

### Genus ÆPYCEROS.

*Æpyceros*, *Sundevall Kongl. Vetensk. Akad. Handl.*, p. 271 (1845)\*.

### *Æpyceros melampus*.

*Antilope melampus*, *Lichtenstein Mag. Ges. naturf. Freunde*, vi, p. 167 (1814)\*; *Harris Wild Game S. Africa*, pl. xv.

*Æpyceros melampus*, *Sundevall Kongl. Vetensk. Akad. Handl.*, p. 271 (1845)\*; *Blyth Cat.*, p. 171; *Selous P. Z. S.*, 1881, p. 757.

The Mpallah or Roodebok.

*Distribution*.—Central South Africa, especially about the Upper Waters of the Limpopo River, extending northwards to the Kili-manjaro district.

a. Frontlet ..... Purchased (1861), A. S. B.

Genus **ALCEPHALUS.**

Alcephalus, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

**Alcephalus caama.**

Antilope caama, *F. Cuvier Dict. Sci. Nat.*, ii, p. 242 (1816).

Antilope (Alcephalus) caama, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*;  
*Selous P. Z. S.*, 1881, p. 763.

Damalis (Acronotus) caama, *H. Smith, Griffith Ann. Kingd.*, iv, p. 348, with  
plate (1827); *Harris Wild Game S. Africa*, pl. vii.

Boselaphus caama, *Gray Ann. Mag. N. H.*, xviii, p. 233 (1846); *Blyth Cat.*,  
p. 170.

Bubalus caama, *A. Smith Zool. S. Africa*, pl. xxx (1849).

The Hartebeest.

*Distribution.*—South Africa; Grimqualand and the Kalahari  
Desert.

a. Frontlet	.....	W. S. Sherwill (1843), A.S.B.
b. Skeleton, ♀ juv skin.	.....	Zoological Gardens, 1881.

Genus **CONNOCHAETES.**

Connochaetes, *Lichtenstein Mag. Ges. naturf. Freunde*, vi, p. 165 (1814)\*.

Catoblepas, *H. Smith, Griffith An. Kingd.*, v, p. 367 (1827).

**Connochaetes gnu.**

Antilope gnu, *Gmelin Syst. Nat.*, i, p. 189 (1788).

Antilope (Connochaetes) gnu, *Lichtenstein Mag. Ges. naturf. Freunde*, vi,  
p. 165 (1814)\*.

Antilope (Boselaphus) gnu, *Blainville Bull. Soc. Philom.*, p. 75 (1816)\*.

Catoblepas gnu, *H. Smith, Griffith An. Kingd.*, iv, p. 367 (1827); *Harris  
Wild Game S. Africa*, pl. i.

The White-tailed Gnu.

*Distribution.*—South Africa, extending northwards to the  
Kilimanjaro district.

a. Frontlet	.....	No history.
b. Skeleton ♀ juv	.....	Berlin Mus. [Ex.] 1878.
c. Skeleton and skin ♂	.....	Babu H. M. Roy, 1885.

Genus **ANTILOCAPRA.**

Antilocapra *Ord Journal de Physique*, lxxxvii, p. 149 (1818)\*; id. *Isis*,  
1819, p. 1106.

Dicranoceros, *H. Smith, Griffith An. Kingd.*, v, 322 (1827).



**Antilocapra americana.**

- Antilope americana, *Ord Guthrie's Geography* 2nd Amer. ed., ii, pp. 292, 308 (1815)\*.
- Antilocapra americana, *Ord Journal de Physique*, lxxxvii, p. 149 (1818)\*; *P. L. Sclater P. Z. S.*, 1865, p. 60, pl. iii; *Bartlett P. Z. S.*, 1865, p. 718; *Murie P. Z. S.*, 1870, p. 334; *Forbes P. Z. S.*, 1880, p. 540;
- Antilope furcifer, *H. Smith Linn. Trans.*, xiii, p. 28, pl. ii (1822).
- Antilope (Dicranoceros) furcifer, *H. Smith, Griffith An. Kingd.*, iv, p. 170 (1827).

**The Prong Buck.**

*Distribution.*—North America, west of the Missouri from the Saskatchewan southwards to Northern Mexico.

a. Stuffed	♂	North America	H. A. Ward [Ex.], 1879.
b. Skeleton	♂	North America	Brit. Mus. [Ex.], 1878.
c. Skeleton		.....	W. Jamrach [P.], 1876.
d. Skin		Montana, N America	..

**Genus GIRAFFA.**

- Giraffa, *Zimmermann Geogr. Geschichte*, ii, p. 125 (1780).
- Camelopardalis, *Gmelin Syst. Nat.*, i, p. 181 (1788).

**Giraffa camelopardalis.**

- Cervus camelopardalis, *Linnaeus Syst. Nat.*, 12th ed., i, p. 92 (1766).
- Giraffa camelopardalis *Zimmermann Geogr. Geschichte*, ii, p. 125 (1780); *Gray Cat. Mam. B. M.*, iii, p. 181.
- Camelopardalis giraffa, *Gmelin Syst. Nat.*, i, p. 181 (1788); *Blyth Cat.*, p. 144.
- Camelopardalis aethiopicus, et. C. capensis *Ogilby, P. Z. S.*, p. 134 (1836).

*Distribution.*—Africa south of the Atlas.

a. Skeleton mtd.	♂	.....	Lord Canning, 1862.
b. Skull		.....	No history.
c. Skin	♂	.....	W. Rutledge, 1881.
d. Skin, skeleton	♂	.....	Zoological Gardens, 1879.
e. Skin, skeleton	♂	.....	Babu H. M. Roy, 1883.
	juv.		
f. Skeleton	♀	.....	Babu H. M. Roy, 1886.
g. Skeleton	♂	.....	Zoological Gardens, 1887.

**Genus MOSCHUS.**

- Moschus, *Linnaeus Syst. Nat.*, 12th ed., i, p. 91 (1766).

The genus Moschus is now generally allowed to consist of a single species only, though others have been from time to time described on mere colour variations and on other insufficient grounds.

### Moschus moschiferus.

*Moschus moschiferus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 91 (1766); *Hodgson Gleanings in Science*, iii, p. 320, pl. xxi; *Pallas Zoog. Ross. As.*, p. 108; *Walker Calc. Journ. N. H.*, iii, p. 267.; *Wagner Hugel's Kaschmir*, iv, p. 576; *Middendorf Siberische Reise.*, p. 118; *Adams P. Z. S.*, 1858, p. 528; *Schrenck Amurland*, p. 161; *Radde Ost Siberien*, p. 274; *Blyth Cat.*, p. 157; *Milne Edwards Ann. Sci. Nat.* (5), ii, p. 154, pl. iv, fig. 1; *Ferdon Mamm.*, p. 266; *Kinloch Large Game Shooting*, i, p. 41 [with plate of head]; *Milne Edwards Rech. Mamm.*, p. 176, pls. xix, xx; *Blanford F. A. S. B.*, xli, p. 39; *Flower P. Z. S.*, 1875, p. 159; *Lydekker F. A. S. B.*, xlv, p. 286; id. *F. A. S. B.*, xlix, p. 4; *Scully P. Z. S.*, 1881, p. 209.

*Moschus sibiricus*, *Pallas Spic. Zool.*, xiii, p. 29, pls. iv, v, vi, (1779).

*Moschus altaicus*, *Eschscholtz Isis*, p. 606 (1830).

*Moschus chrysogaster*

*Moschus leucogaster*

*Moschus saturatus*

} *Hodgson F. A. S. B.*, viii, p. 203 (1839); id. *F. A. S. B.*, xi, p. 285.

The Musk Deer; Kusturee or Russ, Kashmīri; Kastura, Hind; La or Lawa, Tibetan; Ribjo in Ladak; Bena in Kunawar; Gan Pahoo, Assamese.

*Distribution.*—Eastern Central Asia, from Amurland (Schrenck) and Transbaikalia and even further north, through Mongolia and Thibet to the Himalayas; in the latter is found from Gilgit to Bhootan at considerable elevations; Milne Edwards also gives the mountains of Cochin-China as a locality for the species.

a. Skin	♀	Sikkim	L. Mandelli, 1877.
b. Skin	♀	Basalgah, Gilgit, 7-79	J. Scully, 1888.
c. Skin		.....	No history, A. S. B.
d. Skin	♂	Ladak	J. Biddulph, 1877.
e. Skin	♂	.....	Sir W. W. Hunter, 1886.
f. Skin	♂	Ladak	J. Biddulph, 1877.
g. Skin	juv.	Basalgah, Gilgit, 7-79	J. Scully, 1888.
h. Skin	juv.	Sikkim	L. Mandelli, 1877.
j. Skin	juv.	Yarkand	J. Armstrong.
k. Skin	juv.	.....	No history.
l. Skeleton	♂	.....	W. Rutledge, 1874.
	juv.		
m. Stuffed	♂	North of Simla	F. Stoliczka [Ex.], 1869.
n. Skeleton,		.....	No history.
mtd.			
o. Skull	♂	Gilgit	J. Scully (1888).
p. Skull	♂	.....	G. T. Lushington (1849), A. S. B.
q-s. 3 Skulls	♂ ♂ ♀	.....	A. S. B.

### Genus CERVULUS.

*Cervulus*, *Blainville Bull. Soc. Philom.*, p. 77 (1816)\*.

*Stylocerus*, *H. Smith, Griffith An. Kingd.*, v, p. 319 (1827).

*Prox*, *Ogilby P. Z. S.*, p. 135 (1836). *Type*, *C. muntjac*

*Muntjacus*, *Blyth F. A. S. B.*, xx, p. 174 (1851).

The genus *Cervulus* is confined to the Indian and the south-eastern parts of the Palæarctic regions. Besides the species mentioned below, there exists *C. sclateri* (= *C. lacrimans*) and *C. crinifrons*, both from China.

The Indian form of *Cervulus muntjac* was at one time thought to differ specifically from the Sumatra and Javan form, and the point does not yet seem to be quite satisfactorily decided. I have, however, followed Sir V. Brooke (*P. Z. S.*, 1874, p. 33) in uniting the two forms under the name of *C. muntjac*.

### *Cervulus muntjac.*

- Cervulus muntjak*, *Zimmerman Geog. Geschichte*, ii, p. 131 (1780); *Raffles Linn. Trans.*, xiii, p. 265; *Sykes P. Z. S.*, 1831, p. 104; *Elliot Madr. Journ.*, x, p. 221; *Cantor F. A. S. B.*, xv, p. 269; *Walker Calc. Journ. N. H.*, iii, p. 267; *Fentink Notes Leyd. Mus.*, xi, p. 25.  
*Cervulus vaginalis*, *Boddaert Elench. Anim.*, i, p. 136 (1785)\*.  
*Cervulus moschatus*, *Blainville Bull. Soc. Philom.*, p. 77 (1816)\*.  
*Cervus (Stylocerus) aureus*, *H. Smith, Griffith Ann. Kingd.*, iv, p. 148 (1827).  
*Cervus ratwa*, *Hodgson As. Res.*, xviii, pt. 2, p. 139, with plate (1829); *id. F. A. S. B.*, x, p. 914; *Wagner Hugel's Kaschmir*, iv, p. 578.  
*Prox moschatus*, *Ogilby P. Z. S.*, p. 135 (1836).  
*Cervus melas*, *Ogilby Royle Himal. Bot.*, p. lxxiii (1839).  
*Muntjacus vaginalis*, *Blyth F. A. S. B.*, xx, p. 174 (1851).  
*Stylocerus muntjacus*, *Kelaart Prodr. Faun. Zeylan.*, p. 85 (1852).  
*Cervulus vaginalis*, *Adams P. Z. S.*, p. 530 (1858); *Blyth Cat.*, p. 154; *Swinhoe P. Z. S.*, 1869, p. 652.  
*Cervulus aureus*, *Ferdon Mamm.*, p. 264; *McMaster Notes on Ferdon*, p. 94; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 46; *Kinloch Large Game Shooting*, ii, p. 25 [plate of head].  
*Cervulus muntjac*, *Brooke P. Z. S.*, p. 38 (1874); *P. L. Sclater P. Z. S.*, 1875, p. 421; *Anderson Anat. Zool. Res.*, p. 337.

The Kakur, Barking Deer or Rib-faced Deer of North India; the Jungle sheep of South India; and the Red Hog Deer of Ceylon; Kakur, Hind.; Maya, Bengalee; Ratwa of Nepalese; Bekra, Mahratti; Kankuri, Canarese; Jungli bukra of South India Musalman; Karsiar of Bhooteas; Sikku of Lepchas; Gutra of Gonds; Kuka gori, Telegu; Welly or Hoola Morha of Singalese; Hoogeree of Assam; Gee of Burma.

*Distribution.*—The Kakur is found all over India, Burma, Indo-China, the Malay peninsula and the Islands of Sumatra, Java, Banka, Borneo and Hainan (Swinhoe). In India proper it is found from Kashmir (Hugel) in the north to Ceylon (Kelaart) on the south; it is replaced in Eastern Thibet and South China by the next species and by *C. sclateri*.

- |                |                                    |                           |
|----------------|------------------------------------|---------------------------|
| a. Skin (flat) | .....                              | India Mus., London, 1880. |
| b. Skin (flat) | ♂ Nepal (Hodgson)                  | India Mus., London, 1880. |
| c. Skin (flat) | Sanda Valley, Yunnan, J. Anderson. |                           |
|                | 7-68.                              |                           |
| d. Skin (flat) | Sanda Valley, Yunnan, J. Anderson. |                           |
|                | 7-68.                              |                           |

e. Skin (flat)		Sanda Valley, Yunnan, J. Anderson.	
		7-68.	
f. Shin (flat) juv.		Sanda Valley, Yunnan, J. Anderson.	
		7-68.	
g. Skin (flat) juv.		Sanda Valley, Yunnan, J. Anderson.	
		7-68.	
h. Skin	♂	Ceylon	Columbo Museum, 1888.
j. Skin, skelet.	♀	.....	Rajah R. Mullick, 1877.
k. Skin	♀ juv.	.....	Zoological Gardens, 1878.
l. Skin	♂ juv.	.....	Zoological Gardens, 1880.
m. Skull	♂	.....	A.S.B.
n. Skull	♂	.....	P. Homfray (1843), A.S.B.
o. Skull	♂	Dibrugahr, Assam	Purchased, 1879.
p. Skull and skin	♂	Shevaroy Hills, Madr.	Mrs. W. King, 1888.
		of head.	
q. Skull	♂	.....	A.S.B.
r. Skull	♂	.....	A.S.B.
s. Skull	♂	Nepal	B. H. Hodgson, 1844, A.S.B.
t. Skull, skelet.	♂	.....	Rajah R. Mullick, A.S.B.
u. Skull	♀	.....	A.S.B.
v. Frontlet	♂	Sanda Valley, 7-68	J. Anderson.
w. Frontlet	♂	Sanda Valley, 7-68	J. Anderson.
x. Frontlet	♂	.....	A. Masters, 1842, A.S.B.
y. Frontlet	♂	Arakan	Sir A. Phayre, 1846, A.S.B.
z. Frontlet	♂	Arakan	Sir A. Phayre, 1846, A.S.B.
a <sup>1</sup> . Stuffed	♂	.....	Zoological Gardens, 1877.
b <sup>2</sup> . Skeleton	♂	.....	No history.
		mted.	
c <sup>2</sup> . Flat skin		.....	India Mus., London, 1880.
d <sup>2</sup> . Skeleton	♂ juv.	.....	Zoological Gardens, 1880.

### Cervulus reevesi.

*Cervulus reevesi*, *Ogilby P. Z. S.*, p. 105 (1838); *Blyth F. A. S. B.*, xxix, p. 93; *Swinhoe P. Z. S.*, 1862, p. 361; *Blyth Cat.*, p. 155; *Swinhoe P. Z. S.*, 1870, p. 644; *Brooke P. Z. S.*, 1874, p. 41, pl. ix; *Sclater P. Z. S.*, 1875, p. 422, pl. li, fig. 2.

*Cervulus micurus*, *Sclater P. Z. S.*, p. 421, pl. li (1875).

*Distribution*.—Southern China from Canton northwards to Ningpo and Formosa.

a. Skin skull	♂	.....	Zoological Gardens, 1879.
b. Skull	♂	Formosa.	R. Swinhoe, 1860.

### Genus CERVUS.

*Cervus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 92 (1766).

*Dama*, *H. Smith, Griffith An. Kingd.*, v, p. 306 (1827) [as a sub-genus].  
Type, *C. dama*.

*Rusa*, *H. Smith, Griffith An. Kingd.*, v, p. 309 (1827) [as a sub-genus].  
Type, *C. aristotelis*.

*Axis*, *H. Smith, Griffith An. Kingd.*, v, p. 312 (1827) [as a sub-genus].  
Type, *C. axis*.

*Recurvus*, *Hodgson Ann. Mag. N. H.*, i, p. 154 (1838). Type, *C. duvaucelli*.

*Panolia*, *Gray List Mamm. B. M.*, p. 180 (1843). *Type*, *C. eldi*.

*Hyelaphus*, *Sundevall Kongl. Vetens. Akad. Handl.*, p. 180 (1844)\*. *Type*, *C. porcinus*.

An excellent account of the genus *Cervus*, which has been followed in the catalogue below, will be found in the Proceedings of the Zoological Society for 1878, by Sir Victor Brooke.

*Key of the Indian Species.*

- a. With only one brow antler; rhinarium extensive, completely surrounding the nostrils, the upper margin being slightly concave.
- b. Brow antler forms an acute angle with the beam which bifurcates to form two strong tines only.  
[=sub-genus *Rusa*.]
- c. Of large size, from 4 to 5 ft. high at the shoulder.  
***C. aristotelis***, p. 176.
- c<sup>2</sup>. Of small size, about 2 ft. to 2 ft. 6 in. at the shoulder; the outer tine always surpasses the inner tine in length.  
***C. porcinus***, p. 178.
- d<sup>2</sup>. Brow antler at right angles to the beam sometimes forked and sometimes developing supplemental tines; adults unspotted. . . . [ =sub-genus *Recurvus*. ]
- d. Beam bifurcates very early within a few inches of the basal tine and forms a crown of very long tines far surpassing the undivided beam in length.  
***C. schomburgki***, p. 180.
- d<sup>3</sup>. Undivided beam much longer, so that the crown is formed of short tines which are much shorter than the undivided beam. . . . ***C. duvauceli***, p. 179.
- b<sup>3</sup>. Brow antler forms with the beam a continuous curve; a supplemental tine frequently developed at the junction of the beam and brow antler; adults unspotted [ =sub-genus *Recurvus*, pt. ] . . . . ***C. eldi***, p. 180.
- b<sup>4</sup>. Brow antler at right angles to the beam, which forms two tines only above; adults constantly spotted.  
***C. axis***, p. 181.
- a<sup>2</sup>. With two brow antlers; rhinarium not extensive, the infranarial portion completely absent, and the preanarial portion much constricted. [ =sub-genus *Elaphus*. ]
- e. The two brow antlers of approximately the same length. . . . ***C. affinis***, p. 184.

e<sup>2</sup> The second brow antler considerably exceeds the first in length. . *C. cashmerianus*, p. 184.

### *Cervus aristotelis*.

- Cervus aristotelis*, *G. Cuvier Oss. foss.*, 2nd ed., iv, p. 503 (1823)\*; *Walker Calc. Journ. N. H.*, iii, p. 267; *Blyth F. A. S. B.*, xi, p. 449; *Brooke P. Z. S.*, 1878, p. 901; *Pollok Sport in Brit. Burma.*, i, p. 139.
- Cervus leschenaultii*, *G. Cuvier Oss. foss.*, 2nd ed., iv (1823)\*.
- Cervus hippelaphus*, *apud Duvaucel As. Res.*, xv, p. 157, with plate (1825); *Elliot Madr. Journ.*, x, p. 220; *Blyth F. A. S. B.*, xi, p. 449; *Blyth F. A. S. B.*, xx, p. 174; *Kelaart Prodr. Faun. Zeylan.*, p. 83.
- Cervus (Rusa) aristotelis*, *H. Smith, Griffith An. Kingd.*, iv, p. 110 (1827).
- Cervus (Rusa) unicolor*, *H. Smith, Griffith An. Kingd.*, iv., p. 108 (1827).
- Cervus jarai*, *Hodgson Gleanings in Science*, iii, p. 321, pl. xxi (1831); *id. F. A. S. B.*, i, p. 66, pl. v.
- Cervus equinus*, *apud Sykes P. Z. S.*, p. 104 (1831).
- Rusa jaraya*  
*Rusa napalensis* } *Hodgson F. A. S. B.*, x, p. 914 (1841).  
*Rusa heterocervus* }
- Rusa aristotelis*, *Blyth Cat.*, p. 150 (1863); *Ferdon Mamm.*, p. 256; *McMaster Notes on Ferdon*, p. 68; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 45; *Kinloch Large Game Shooting*, ii, p. 24; *Gilbert F. Bomb. Soc.*, iii, p. 224.

Sambur in the plains; Gerow in the Himalayas, and Elk in Southern India and Ceylon; Sambur, Hind. and Mahratta; Jarai or Jarao of the Paharris of the Himalayas; Maha in the Terai; Mahao of the Gonds; Cadavi, Canarese; Kannadi, Telegu; Ghous or Gaoj in Eastern Bengal; Gona Rusa, Cingalese; Khatkhowah Pohoo, Assamese; Schap, Burmese.

*Distribution*.—India generally from the Himalayas to the extreme south and Ceylon; not found west of the Sutlej (Kinloch), but extending eastward through Assam, Burma and Siam to Hainan?

*Cervus equinus* is said by Brooke (*l. c.*) to come from Borneo and Sumatra, and he also suggests that it may possibly turn out to be indistinguishable from the true *Cervus aristotelis*. In the Museum collection all the heads coming from Assam and Burma differ markedly from the true Indian heads, in that the outer tine always surpasses the inner tine in length, while in the true Indian forms the outer and inner tines are of approximately equal length; this is the difference as noted by Brooke between *Cervus aristotelis* and *C. equinus*; it is therefore quite possible that it is not the true *Cervus aristotelis* that is found in Assam and Burma, but the allied species *Cervus equinus*.

- |                     |          |                                   |
|---------------------|----------|-----------------------------------|
| a. Skull and horns. | ♂ Assam  | F. Jenkins (1846), A.S.B.         |
| b. Skull and horns. | ♂ Assam  | E. V. Westmacott (1866), A. S. B. |
| c. Skull and horns. | ♂ Arakan | Sir A. Phayre (1847), A.S.B.      |

d. Skull and horns.	♂	.....	Rajah R. Mullick (1846), A.S.B.
e. Skull and horns.	♂	.....	A.S.B.
f. Skull and horns.	♂	Rewah, N.-W. P.	Dr. Waller [Ex.], 1879.
g. Skull and horns.	♂	Rewah, N.-W. P.	Dr. Waller [Ex.], 1879.
h. Skull and horns.	♂	.....	No history.
j. Skull and horns.	♂	.....	No history.
k. Skull and horns.	♂	.....	No history.
l. Skull and horns.	♂	Banda dist, N.-W. P.	J. Cockburn, 1886.
m. Skull and horns(deformed).	♂	.....	A.S.B.
n. Skull, pt. and horns.	♂	.....	No history, A.S.B.
o-p. 2 Frontlets mtd.	♂	Arakan	Sir A. Phayre, 1847, A.S.B.
q-t. 4 Frontlets	♂	Assam	H. Butcher, 1879.
u. Frontlet	♂	Assam	No history, A.S.B.
v-f <sup>2</sup> . 11 Frontlets, mtd.	♂	.....	No history, A.S.B.
g <sup>2</sup> . h <sup>2</sup> . 2 Frontlets juv.	♂	.....	No history, A.S.B.
-j <sup>2</sup> . Cast horns mtd.	♂	Cuttack dist.	Purchased 1848, A.S.B.
k <sup>2</sup> . Cast horns mtd.	♂	.....	R. C. Beavan.
l <sup>2</sup> -p <sup>2</sup> . 5 prs. cast horns mtd.	♂	.....	No history, A.S.B.
q <sup>2</sup> . 1 pr. horns	♂	Mirzapur dist.	J. Cockburn [P.], 1886.
r <sup>2</sup> . 1 pr. horns	♂	Mirzapur dist.	J. Cockburn [P.], 1886.
s <sup>2</sup> . 1 pr. horns	♂	Mirzapur dist.	J. Cockburn [P.], 1886.
t <sup>2</sup> . Horns	♂	[Cast, 11-3-82]	Zoological Gardens, 1882.
u <sup>2</sup> . Horns	♂	" 2-3-81	Zoological Gardens, 1882.
v <sup>2</sup> . Horns	♂	" 27-4-81	Zoological Gardens, 1882.
w <sup>2</sup> . Horns	♂	" 23-5-80	Zoological Gardens, 1882.
x <sup>2</sup> -z <sup>2</sup> . 3 Single horns.	♂	.....	A.S.B.
a <sup>3</sup> -b <sup>3</sup> . 2 Single horns.	♂	.....	R. C. Beavan 1865, A.S.B.
c <sup>3</sup> . Single horn.	♂	.....	Hon. Justice Norman.
d <sup>3</sup> . Skull and skin of head.	♀	.....	Rajah R. Mullick, 1880.
e <sup>3</sup> . Skull, skeleton.	♀	.....	Zoological Gardens, 1880.
f <sup>3</sup> . Skull and skin of head.	♂	.....	Rajah R. Mullick, 1883.

<i>g</i> <sup>3</sup> . Skin, skull ♂ and horns.	.....	Zoological Gardens, 1883.
<i>h</i> <sup>3</sup> . Skin and ♂ [Castrated] skeletal.		O. L. Fraser, 1874.
<i>j</i> <sup>3</sup> . Skin } and ♀ skeletal.	.....	W. Rutledge, 1877.
<i>k</i> <sup>3</sup> . Skeleton ♂ mtd.	.....	Barrackpore Menagerie, 1845 A.S.B.
<i>l</i> <sup>3</sup> . Head stuff ♂ Central India ed.		S. R. Tickell, 1846, A.S.B.
<i>m</i> <sup>3</sup> . Skull	.....	Purchased, A.S.B.
<i>n</i> <sup>3</sup> . Frontlet ♂ Banda dist.		J. Cockburn, [P.], 1886.

### Cervus swinhoii.

*Rusa swinhoii*, *P. L. Sclater P. Z. S.*, p. 152, pl. xvii (1862); *Sminhoe*,  
*P. Z. S.*, 1862, p. 364; *P. L. Sclater Trans. Zool. Soc.*, vii, p. 349, pl. xxxix.  
*Cervus swinhoii*, *Brooke, P. Z. S.*, p. 901 (1878).

*Distribution*.—Formosa.

*u*. 1 pr. horns ♂ [Cast, 29-4-82] Zoological Gardens.

### Cervus porcinus.

*Cervus porcinus*, *Zimmermann Spec. Geogr. Quad.*, p. 532 (1777); *McClelland P. Z. S.*, 1839, p. 150; *Hutton J. A. S. B.*, xv, p. 150; *Brooke P. Z. S.*, 1878, p. 902; *Anderson Zool. Anat. Res.*, p. 340.

*Cervus (Axis) porcinus*, *H. Smith Griffith An. Kingd.*, iv, p. 119 (1828);  
*Hodgson. J. A. S. B.*, x, p. 914.

*Hyelaphus porcinus*, *Sundevall Kongl. Vetens. Akad. Handl.*, p. 180  
(1844)\*; *Adams P. Z. S.*, 1858, p. 530; *Blyth Cat.*, p. 153; *id. J. A. S. B.*,  
xliv, *Burma List*, p. 45; *Murray Zool. Sind*, p. 60.

*Axis oryzus*, *Kelaart Prodr. Faun. Zeylan.*, p. 83 (1852); *Blyth J. A. S. B.*,  
xxiii, p. 217.

*Axis porcinus*, *Ferdon Manim.*, p. 262 (1867); *McMaster Notes on Ferdon*,  
p. 91; *Kinloch Large Game Shooting*, ii, p. 32 (with plate of head).

The Hog Deer; Para, Hindustani; Khar laguna and Leghuna in the Nepal terai; Nuthrini haran in parts of Bengal; Weel mooha, Cingalese; Draï, Burmese.

*Distribution*.—From Punjab and Sind through the Gangetic valley and Assam to Burma; it is said to be found in Central India, but this seems doubtful; is not found in Malabar but occurs in the lower parts of Ceylon whither possibly it may have been imported. This deer is confined to the low lands near the rivers and never ascends into the hills.

<i>a</i> . Skin	♀	Tsitkaw, nr. Bhamo	J. Anderson, 1875
<i>b</i> . Skin skeletal.	♀	.....	Rajah R. Mullick, 1876.
<i>c</i> . Skeleton	♀	.....	Rajah R. Mullick, 1876.
<i>d</i> . Skeleton	♂	.....	Zoological Gardens, 1877.
<i>e</i> . Skeleton	♂	.....	Zoological Gardens, 1878.
<i>f</i> . Skeleton	♀	.....	H. P. Vieire, 1868.



g. Skull	♀	.....	Rajah R. Mullick, 1852, A.S.B.
h. Stuffed	♂	.....	Zoological Gardens, 1877.
j. Skull and horns.	♂	.....	No history, A.S.B.
k. Skull and horns.	♂	.....	No history, A.S.B.
l. Skull	♂ juv.	.....	Rajah R. Mullick, 1857, A.S.B.
m. Skull	♂ juv.	.....	No history, A.S.B.
n u. 8 Frontlets	♂ Assam		H. Butcher, 1879.
v-y. 4 Frontlets	♂ Assam		H. Butcher, 1879.
z-a <sup>2</sup> . 2 Frontlets	♂ Martaban		R. C. Beavan, 1865, A.S.B.
b <sup>2</sup> -n <sup>2</sup> . 12 Frontlets.	♂	.....	No history, A.S.B.
o <sup>a</sup> . Skull	♀	.....	R. G. W. Frith, 1843, A.S.B.

### Cervus hippelaphus.

*Cervus hippelaphus*, *G. Cuvier Oss. foss.*, 3rd ed., iv, p. 40 (1825)\*; *Brooke P. Z. S.*, 1878, p. 903.

*Cervus russa*, *Müller and Schlegel Tem. Verhandl.*, p. 217, pls. xliii and xlv, figs. 1-6 (1844); *Blyth J. A. S. B.*, xxiv, p. 480 [foot-note.]

*Cervus tunjac*, *apud Blyth Cat.*, p. 151 (1863).

*Distribution.*—Java and several other islands into which it has probably been introduced by human agency; it is still a question as to whether the Timor and Molucca Deer are distinct; it has also been introduced into Mauritius (see Blyth *J.A.S.B.*, xxiv p. 480).

All the specimens of this deer in the Museum were in the old Asiatic Society's Collection and have lost their labels, so that it is impossible to identify the specimens with the list given in Blyth's catalogue, but I suspect that the two of the small frontlets are those catalogued by Blyth at "h" and "i," coming from Timor, in which case they are representatives of the form described by Blainville as *Cervus timoriensis*.

a-b. 2 Skulls and horns.	♂	.....	No history, A. S. B.
c-j. 7 Frontlets	♂	.....	No history, A. S. B.
k. Horns 1 pr.	♂ Moluccas		Zoological Gardens, 1869.
l. Skin, skelet.	♀	.....	Zoological Gardens, 1882.
m. Skull and horns.	♂	.....	Zoological Gardens, 1882.

### Cervus duvauceli.

*Cervus duvaucelii*, *G. Cuvier Oss. foss.*, 4th ed., vi, p. 89, pl. cci, figs. 6, 7 and 8 (1835); *Anonymous J. A. S. B.*, v, p. 240; *P. L. Sclater Trans. Zool. Soc.*, vii, p. 346, pl. xxxvi; *Brooke P. Z. S.*, 1878, p. 905.

*Cervus bahrainja*, *Hodgson, P. Z. S.*, p. 99 (1834).

*Cervus elaphoides*, *Hodgson J. A. S. B.*, iv, p. 648, pl. liii, fig. 4, (1835).

*Cervus (Recurvus) elaphoides*, *Hodgson Ann. Mag. N. H.*, i, p. 154 (1838); id. *J. A. S. B.*, x, p. 914.  
*Recurvus duvaucelii*, *Gray Cat. Mamm., B. M.*, iii, p. 203 (1852); *Blyth Cat.*, p. 150; id. *P. Z. S.*, 1867, p. 835, figs. 1-5; *Blanford, J. A. S. B.*, xxxvi, p. 197; *Ferdon Mamm.*, p. 254.

The Swamp Deer; Barasingha, Hind.; Baraya or Maha in the Nepal terai; Jhinkar in the Kyarda Doon; Potiya haran in Monghyr; Goen or Goenjak ♂ Gaoni ♀ in Central India.

*Distribution.*—The Terai from the Kyarda Doon in the west to Bootan and Assam in the east, also along the Brahmapootra to the Sunderbunds. In Upper Bengal from Midnapore to the Mandla district in the Central Provinces, confined to low marshy country.

a. Skin	♀	.....	Zoological Gardens, 1877.
b. Skeleton	♀	.....	Rajah R. Mullick.
c. Skeleton	♂	.....	Zoological Gardens, 1877.
d. Skeleton	♂	.....	Rajah of Kuch Behar, 1879.
e. Skull, horns	♂	.....	No history, A.S.B.
f-g. 2 Skulls	♂	.....	No history, A.S.B.
h. Skull	♂ juv.	.....	Rajah R. Mullick, A.S.B.
j. Frontlet	♂	Assam	H. Butcher, 1879.
k. Frontlet	♂	Tezpur, Assam	H. Butcher, 1879.
l. Frontlet	♂	Lakhimpur, Assam	H. Butcher, 1879.
m. Frontlet	♂	Shillong, Assam	Purchased, 1879.
n. Frontlet	♂	.....	T. Hardwicke, 1822, A.S.B.
o. Frontlet	♂	.....	R. W. G. Frith, 1842, A.S.B.
p-u. 6 Frontlets	♂	.....	No history, A.S.B.
v. 1 pr. horns	♂	Sergoojah, Chota Nag- pore.	J. Cockburn, [P.] 1886.
w. 1 pr. horns	♂	[Cast, 2-4-82]	Zoological Gardens.
x. 1 pr. horns	♂	.....	No history, A.S.B.
y-c <sup>2</sup> . 5 single horns	♂	.....	No history, A.S.B.
d <sup>2</sup> . Skull	♂	.....	Rajah R. Mullick, A.S.B.

### *Cervus schomburgki*.

*Recurvus schomburgki*, *Blyth P. Z. S.*, p. 155 (1863); id. *P. Z. S.*, 1867, p. 835, figs. 6-12; *Swinhoe P. Z. S.*, 1872, p. 798.  
*Cervus schomburgki*, *Brooke P. Z. S.*, p. 304, figs. 1 and 2 (1876); *P. L. Sclater, P. Z. S.*, 1877, p. 682 [with woodcut of head]; *Bracke, P. Z. S.*, 1878, p. 905.

*Distribution.*—Northern Siam and the Shan States.

a. Skin (flat) ?	♂	Sanda Valley, Yunnan	J. Anderson, 1878.
b. Frontlet	♂	.....	No history, A. S. B.

### *Cervus eldi*.

♀ *Cervus smithii*, *Gray P. Z. S.*, p. 45 (1837).  
 "Nondescript Species of Deer," *McClelland Calc. Journ. N. H.*, i, p. 501, pl. xii, figs. 1a and 1b (1841).

- Cervus eldii*, *Anonymous Calc. Journ. N. H.*, ii, p. 417, pl. xii (1842); *Beavan P. Z. S.*, 1867, p. 759; *Swinhoe P. Z. S.*, 1869, p. 653, figs. 1-3; *P. L. Sclater Trans. Zool. Soc.*, vii, p. 348, pls. xxxvii, xxxviii; *Brooke P. Z. S.*, 1878, p. 906.
- Cervus frontalis*, *McClelland Calc. Journ. N. H.*, iii, p. 401, pl. xiii, xiv (1843); *Blyth F. A. S. B.*, xxviii, p. 296; *Pollok Sport in Brit. Burma*, i, p. 142.
- Panolia acuticornis*, *Gray List Mamm., B. M.*, p. 180 (1843); *Cantor F. A. S. B.*, xv, p. 272.
- Panolia platyceros*, *Gray List Mamm. B. M.*, p. 181 (1843).
- Cervus lyratus*, *Schinz Synop. Mamm.*, ii, p. 395 (1845).
- Cervus dimorpha*, *Hodgson F. A. S. B.*, xii, p. 897, with plate (1845).
- Cervus eldii*, *Gray P. Z. S.*, p. 229 (1850); *Blyth F. A. S. B.*, xxxi, p. 334; *Blyth Cat.*, p. 149; *Blyth P. Z. S.*, 1867, p. 835; *Beavan F. A. S. B.*, xxxvi, p. 175; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 45.

Thamine of Burmese; Sungnai of Maniporees.

*Distribution*.—From Manipur in the north through Burma to the northern part of the Malay peninsula (Cantor) and through Cambodia to Hainan (Swinhoe); is common in the Pegu and Martaban plains of Lower Burma (Beavan).

a. Skull and ♂ horns.	Manipur	J. McClelland (1844), A.S.B.
b. Skull and ♂ horns.	Manipur	J. McClelland (1844), A.S.B.
c. Skull and ♂ horns.	Manipur	J. McClelland (1844), A.S.B.
d. Skull and ♂ horns.	Manipur	Purchased (1861), A. S. B.
e. Frontlet	♂ Manipur	Purchased (1861), A. S. B.
f. Frontlet	♂ Manipur	C. S. Guthrie (1861), A. S. B.
g-h. 2 Skulls	♂ Pegu	Sir A. Phayre (1847), A.S.B.
j. Frontlet	♂ Pegu	Sir A. Phayre (1847), A.S.B.
k. Skull, horns.	♂ Rangoon Bazaar	Dr. Pritchard (1861), A. S. B.
l. Skull, horns.	♂ Sitang River, Tenasserim	Major Berdmore (1856), A. S. B.
m. Frontlet	♂ Martaban, Tenasserim	R. C. Beavan (1865).
n. Frontlet	♂ "brought from Penang"	H. Lewis (1846), A. S. B.
o-p. Stuffed heads.	♀ Rangoon Bazaar	E. Blyth (1861), A. S. B.
q. Skull	♀ Rangoon	Genl. Fytche (1868).

### Cervus axis.

- Cervus axis*, *Exleben Syst. Reg. An.*, p. 312 (1777); *Elliot Madr. Journ.*, x, p. 221; *Blyth F. A. S. B.*, xi, p. 1202; *Brooke P. Z. S.*, 1878, p. 907.
- Cervus (Axis) axis*, *H. Smith, Griffith An. Kingd.*, iv, p. 117 (1828).
- Cervus nudipalpebra*, *Ogilby P. Z. S.*, p. 136 (1831).
- Axis major } *Hodgson F. A. S. B.*, x, p. 914 (1841).
- Axis minor }
- Axis maculata, *Gray List Mamm. B. M.*, p. 178 (1843); *Cantor F. A. S. B.*, xv, p. 270; *Blyth F. A. S. B.*, xx, p. 174; *Kelaart Prodr. Faun. Zeylan.*,

p. 82; *Adams P. Z. S.*, 1858, p. 530; *Blyth Cat.*, p. 152; *Ferdon Mamm.*, p. 260; *McMaster Notes on Ferdon*, pp. 89 and 207; *Kinloch Large Game Shooting*, ii, p. 28 [with plate of head]; *Pollok Sport in Brit. Burma*, i, p. 148.

The Spotted Deer; Chital, Chitra, Chitri or Jhank, Hindustani; Chatidah of Bhagulpore; Boro khotiya of Rungpore; Buriya in Goruckpore; Saraga, Canarese; Dupi, Telegu; Lupi, Gond; Tic mooha, Cingalese.

*Distribution.*—Indian peninsula and Ceylon, not recorded from the Punjab or to the east of the Bay of Bengal. It is said by Cantor to be common in Sumatra and the Malay peninsula, but is probably introduced there, is also mentioned by Radde as occurring in the Amoor district north of China, but this is probably a mistake. It occurs in the Sunderbunds and is recorded by Pollok from the Manass river and the Durrung both north of the Brahmapootra in Assam.

a.	Skin and ♀ skeleton.	.....	J. Anderson, 1878.
b.	Skin ♂ juv.	.....	W. Rutledge, 1873.
c.	Skin juv.	Purneah, Bengal	J. Shillingford, 1871.
d.	Skin ♂	.....	Zoological Gardens, 1877.
e.	Skeleton ♀ (skull ?)	.....	Rajah R. Mullick, 1875.
f.	Skull and ♂ horns.	Manbhoom, Bengal	R. C. Beavan, 1865, A.S.B.
g.	Frontlet ♂	.....	R. C. Beavan, 1865, A.S.B.
h.	Skull and ♂ horns.	Mirzapur dist., N.-W. P.	J. Cockburn [P.] 1886.
j-m.	4 Skulls ♂ and horns.	.....	No history, A.S.B.
n-r.	5 Frontlets ♂	.....	No history, A.S.B.
s-t.	2 Skulls ♂ (castrated)	.....	No history, A.S.B.
u.	Stuffed head ♂	.....	E. Higgins, 1846, A.S.B.
v.	Horns 1 pr. ♂	[Shed, 10-2-77]	Zoological Gardens.
w.	Horns 1 pr. ♂	[Shed, 7-1-78]	Zoological Gardens.
x.	Horns 1 pr. ♂	[Shed]	Zoological Gardens, 1879.
y.	Horns 1 pr. ♂	[Shed]	Zoological Gardens, 1879.
z.	Skull and ♂ horns.	.....	Lord Mayo, 1870.
a <sup>2</sup> .	Skull ♀	.....	A.S.B.
b <sup>2</sup> .	Horns 1 pr. ♂	[Shed, 18-3-82]	Zoological Gardens.
c <sup>2</sup> .	Horns 1 pr. ♂	[Shed, 27-12-81]	Zoological Gardens.
d <sup>2</sup> .	Horns 1 pr. ♂	[Shed, 21-2-80]	Zoological Gardens.
e <sup>2</sup> .	1 horn ♂	.....	No history, A. S. B.

### *Cervus dybowskii*.

? *Cervus axis*, *Radde Ost Siberien*, i., p. 286 (1862).

*Cervus dybowskii*, *Tacsanowski P. Z. S.*, p. 123, with fig. (1876); *Brooke P. Z. S.*, 1878, p. 909; *W. L. Sclater J. A. S. B.*, lviii, p. 186, pl. xi.

*Distribution.*—Mantchuria extending to Thibet?

- a. Skull and skin ♂ "Darjeeling bazaar" A. M. Dunne [Ex.], 1888.  
of head.

### Cervus sika.

*Cervus sika*, *Temminck and Schlegel Faun. Jap. Mamm.*, p. 54, pl. xvii (1847); *Blyth Cat.*, p. 148; *P. L. Sclater P. Z. S.*, 1860, p. 377; id. *Trans. Zool. Soc.*, vii, p. 346, pl. xxxv; *Brooke P. Z. S.*, 1878, p. 908.  
*Rusa japonica*, *Gray Ann. Mag. N. H.* (3) vi, p. 218 (1860); id. *P. Z. S.*, 1861, p. 236.

*Distribution.*—Japan.

- a. Skull and ♂ Japan  
horns. Hakodate Mus. [Ex.] 1884.

### Cervus taëvanus.

*Cervus taiouanus*, *Blyth F. A. S. B.*, xxix, p. 90 (1860); *Sclater P. Z. S.* 1860, p. 376.  
*Cervus taëvanus*, *P. L. Sclater P. Z. S.*, 1862, p. 152, pl. xvi; *Swinhoe*, *ibid.*, p. 362; *Blyth Cat.*, p. 148; *P. L. Sclater Trans. Zool. Soc.*, vii, p. 345, pl. xxxiii, xxxiv; *Brooke P. Z. S.*, 1878, p. 909.

*Distribution.*—The Mountains of Formosa.

- a. Skull ♂ Formosa R. Swinhoe (1860), A. S. B.  
[Type of *Cervus taiouanus*, *Blyth.*]

### Cervus elaphus.

*Cervus elaphus*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 93 (1766); *Blasius Säugeth. Deutsch.*, p. 439; *Blyth F. A. S. B.*, xxx, p. 185; id. *Cat.*, p. 147; *Danford and Alston P. Z. S.*, 1877, p. 276; id. *ibid.*, 1880, p. 54; *Brooke P. Z. S.*, 1878, p. 910.  
*Cervus barbarus*, *Bennet List An. Gard. Zool. Soc.*, 13th ed., p. 31 (1837)\*.

The Red Deer.

*Distribution.*—The British Isles and Europe generally, Corsica, Sardinia, Algeria, Asia Minor and the Caucasus; is replaced in Northern and Eastern Asia by an allied species; distinguished as *C. xanthopygus* by Milne-Edwards.

- a. Stuffed head ♂ Scotland H. R. H. Prince Consort  
1861, A.S.B.  
b. Skull and ♂ Great Britain W. Davison, 1846, A.S.B.  
horns.  
c. Skull and ♂ Great Britain W. Davison, 1846, A.S.B.  
horns.  
d-e. 2 Frontlets ♂ Great Britain W. Davison, 1846, A.S.B.  
f. Horns 1 pr. ♂ C. Darwin, 1846, A.S.B.  
g. Skeleton ♂ J. Struthers [Ex.] 1881.  
h. Odd horn ♂ No history.

**Cervus eustephanus.**

*Cervus eustephanus*, *Blanford P. Z. S.*, p. 637 (1875); *id. Yarkand Mamm.*, p. 90; *Brooke P. Z. S.*, 1878, p. 912.  
 ♀ *Cervus maral*, *Severtzoff Turk. Fev.*, pp. 62, 103, etct. with figs. of horns (1873); *id. Ann. Mag. N. H.* (4), xviii, p. 377.

*Distribution*.—Thian Shan and Altai Mountains.

a. 1 pr. horns Thian Shan Mts. F. Stoliczka, 1874.  
 [Type of *Cervus eustephanus*, Blanford.]

**Cervus affinis.**

*Cervus wallichii*, *G. Cuvier Oss. foss.*, 4th ed., vi, p. 89 (1835); *F. Cuvier Hist. Nat. Mamm.*, livr. 39, with plate; *Blyth F. A. S. B.*, x, p. 745; *Hodgson F. A. S. B.*, xi, p. 284; *Blyth F. A. S. B.*, xxi, p. 341; *id. F. A. S. B.*, xxii, p. 592; *id. F. A. S. B.*, xxiii, p. 217.  
*Cervus elaphus*, *apud Hodgson F. A. S. B.*, iv, p. 648, pl. liii, fig. 5 (1835).  
*Cervus affinis*, *Hodgson F. A. S. B.*, x, p. 721, with plate (1841); *id. ibid.*, p. 914; *id. F. A. S. B.*, vix, with plate of horns, p. 466; *Gray P. Z. S.*, 1850, p. 228; *Hodgson F. A. S. B.*, xx, p. 388, pl. vii; *Blyth F. A. S. B.*, xxx, p. 188; *id., Cat.*, p. 146; *Ferdon Mamm.*, p. 251; *Blanford F. A. S. B.*, xli, p. 39; *Brooke P. Z. S.*, 1878, p. 913.

The Shou of Tibetans.

*Distribution*—Eastern Tibet; this stag has been only got through native collectors and it seems probable that it has never occurred on the Indian side of the passes or indeed any nearer India than in the Chumbi Valley.

a. Skin	♀	Thibet	L. Mandelli, 1877.
b. Skin, skull and horns.	♂	nr. Phari, Thibet	Sir A. Eden, 1882.
c. Stuffed	♂	Thibet	L. Mandelli, 1877.
d. Skull and horns.	♂	nr. Phari, Thibet	A. Campbell, 1851, A. S. B.
e. 1 pr. horns	♂	.....	No history.
f. 1 pr. horns	♂	nr. Dhoulagiri, Thibet	Barrackpore Menagerie, A. S. B.

[Type of *C. wallichii*, Cuvier.]

**Cervus cashmeerianus.**

"Kashmir stag," *Blyth P. Z. S.*, 1840, p. 79.

*Cervus cashmerensis*, *Gray List Osteol. Spec. B. M.*, p. 65 (1847); *Blyth F. A. S. B.*, xxiii, p. 734; *Adams P. Z. S.*, 1858, p. 529; *Lydekker F. A. S. B.*, xlvi, p. 286.  
*Cervus wallichii*, *apud Wagner Hugel's Kaschmir*, iv p. 576 (1849); *Blyth F. A. S. B.*, xxx, p. 188; *id. Cat.*, p. 146; *Ferdon Mamm.*, p. 250; *Kinloch Large Game Shooting*, i, p. 44.  
*Cervus cashmeerianus*, *Falconer Palæont. Memoirs*, i, p. 576 (1868); *P. L. Sclater Trans. Zool. Soc.*, vii, p. 339 (with woodcut and pl. xxx); *Brooke P. Z. S.*, 1878, p. 912; *Scully F. A. S. B.*, lvi, p. 76.

The Kashmir Stag; Barasingha, Hind.; Hangul or Honglu of Kashmir.

*Distribution*.—The Kashmir Valley, not extending eastwards; a single horn was procured by Major Yate near Balkh in Afghan-Turkestan.

Sir V. Brooke's nomenclature has been followed for this and the preceding species and Cuvier's name *Cervus wallichii* has been ignored since it seems impossible to decide with any certainty to which species the specimen described by Baron Cuvier refers. The pair of horns shed by the animal whose portrait appears in M. F. Cuvier's *Histoire Naturelle des Mammifères* is still here in the Museum, *C. affinis* "f", they are the horns of a young stag probably in its third year, the right-hand antler is a simple beam with a brow and bez antler only, the brow being considerably the longest; the left-hand antler bears, in addition to the brow and bez antlers, a third the royal, but in this case the bez surpasses the brow in length; in the case of the Tibetan stag (*Cervus affinis*), the brow and bez are approximately of the same length, whereas in the case of the Kashmir stag the bez is generally considerably the longer of the two; so that, as far as the respective lengths of the brow and bez antlers are concerned, there is no ground for considering *C. wallichii* to be either the Kashmir or Tibetan stag.

The antlers present no other points of note which throw any light on their affinity.

The stag which bore the antlers in question is said to have been brought from near Mt. Dhoulagiri to the north of Nepal on the further side of the snowy range, and it therefore seems probable that the animal really was, as Jerdon thought, a deformed young specimen of *Cervus affinis*.

a.	Skull and horns.	♂ Kashmir Valley	R. Lydekker [Ex.], 1878.
b-c.	2 Frontlets	♂ .....	No history.
d.	1 pr. horns	♂ .....	No history.
e-f.	2 horns	♂ . . .	Purchased, 1872.
g.	Single horn	♂ .....	R. C. Beavan.
h.	Single horn	♂ Oxus River nr. Balkh	C. E. Yate, 1887.

### *Cervus canadensis*.

*Cervus canadensis*. *Erxleben Syst. Reg. An.*, p. 305 (1777); *Blyth J. A. S. B.*, x, p. 737; id. *ibid.*, xxii, p. 592; id. *Cat.*, p. 146; *Brooke P. Z. S.*, 1878, p. 913.

*Cervus wapiti*, *Leath Journal de Physique*, lxxxv, p. 66 (1818)\*.

The Wapiti.

*Distribution*.—Alleghanies, Minnesota, Dakota, Nebraska, Washington, Oregon and California, northwards to 57° N. Lat.

a. Skin and skeleton	♀	.....	Zoological Gardens, 1882.
b. Skin	♂	North America	Brit. Mus. [Ex.] 1879.
c. Skull, horns	♂	.....	No history.
d. Frontlet	♂	.....	Purchased, 1859, A. S. B.
e. Frontlet	♂	.....	No history.
f. Skin juv.	♂	... ..	Zoological Gardens, 1881.

### Cervus dama.

*Cervus dama*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 93 (1766); *Blasius Säugeth. Deutsch.*, p. 453; *Feittles, Slater, Boyd Dawkins and Brooke Nature*, xi, pp. 71, 112, 210 and 226; *Brooke P. Z. S.*, 1878, p. 913.  
*Cervus (Dama) dama*, *H. Smith Griffith An. Kingd.*, iv, p. 84 (1827).  
*Dama vulgaris*, *Gray List Mamm. B. M.*, p. 181, (1843); *Blyth Cat.*, p. 148.

#### The Fallow Deer.

*Distribution*.—Circum-Mediterranean, *i.e.*, Greece, Spain, Asia Minor, Sardinia, Algeria and Northern Palestine, introduced into England.

a. Skull	♂	Great Britain	W. Davison, 1846, A.S.B.
b. Frontlet	♂	.....	C. Darwin, 1857, A.S.B.
c. Frontlet	♂	... ..	E. Blyth, A.S.B.
d. Skull	♂	.....	No history.
e-f. 2 Skeletons	♀	.....	Rajah R. Mullick.
g. Skull	♀	.....	Rajah R. Mullick.
h. Skull	♀	.....	No history, A.S.B.
j. Skull	♂	.....	W. Rutledge, 1881.
k. 1 pr. horns	♂	.....	No history, A.S.B.
l-n. 3 odd horns	♂	.....	C. Darwin, A.S.B.

### Genus ALCES.

*Alces*, *H. Smith, Griffith An. Kingd.*, v, p. 303 (1827) [as a sub-genus].

### *Alces machlis*.

*Cervus alces*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 92 (1766).  
*Cervus (Alces) alces*, *H. Smith, Griffith An. Kingd.*, iv, p. 72 (1827).  
*Alces machlis*, *Ogilby P. Z. S.*, p. 135 (1836); *Blyth Cat.*, p. 145; *Brooke P. Z. S.*, 1878, p. 916.  
*Alces americanus*, *Fardine Nat. Libr.*, xi, p. 125 (1837).  
*Alces palmatus*, *Gray List Mamm. B. M.*, p. 182 (1843); *Blasius Säugeth. Deutsch.*, p. 434.

#### The Elk or Moose.

*Distribution*—Sweden, Northern Russia, Siberia and North America from the Columbia river on the west and Maine on the east coast northwards (Brooke).

a. Skull	♂	Scandinavia.	Christiania Univ., 1846, A.S.B.
b. Frontlet	♂	.....	No history, A.S.B.



- c. Skull ♂ Umbagog Lake, Maine, J. G. Rich.  
U. S. A.  
d. Skull ♂ Nova Scotia H. A. Ward [Ex.], 1889.

Genus **CAPREOLUS.**

*Capreolus*, *H. Smith, Griffith An. Kingd.*, v, p. 313 (1827) [as a sub-genus.]

**Capreolus capraea.**

- Cervus capreolus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 94 (1766).  
*Cervus (Capreolus) capreolus*, *H. Smith, Griffith An. Kingd.*, iv, p. 124 (1827);  
*Blasius Säugeth. Deutsch.*, p. 457.  
*Capreolus capraea*, *Gray List Mamm. B. M.*, p. 176 (1843); *Blanford Persia*,  
p. 96.  
*Capreolus europaeus*, *Sundevall Kongl. Vetensk. Akad. Handl.*, p. 184  
(1844)\*; *Blyth Cat.*, p. 157.

## The Roe Deer.

*Distribution.*—Europe generally, Northern Palestine, and the Elburz Mountains.

- |                  |   |                      |                              |
|------------------|---|----------------------|------------------------------|
| a-b. 2 Skulls    | ♂ | .....                | Purchased, 1860, A.S.B.      |
| c. Skull         | ♂ | .....                | No history.                  |
| d. Skull         | ♂ | Hungary?             | Hungarian Mus., A.S.B.       |
| e-g. 3 Frontlets | ♂ | Great Britain        | W. Davison, 1844, A.S.B.     |
| h. Skull         | ♂ | Scotland             | Sir W. Jardine, 1850, A.S.B. |
| j. Skull         | ♂ | Astrabad, N. Persia  | B. Lovett, 1883.             |
| k. Skin          | ♀ | Astrabad, N. Persia. | B. Lovett, 1883.             |

Genus **CARIACUS.**

*Mazama*, *H. Smith, Griffith An. Kingd.*, v, p. 314 (1827) [as a sub-genus].  
*Cariacus*, *Gray List Mamm. B. M.*, p. 175 (1843).

**Cariacus virginianus.**

- Cervus virginianus*, *Boddaert Elench. Anim.*, i, p. 136 (1774)\*; *Baird N. Amer. Mamm.*, p. 643, figs. 12, 13\*.  
*Cervus mexicanus*, *Gmelin Syst. Nat.*, i, p. 179 (1788); *Baird N. Amer. Mamm.*, p. 653\*.  
*Cervus (Mazama) virginianus*, *H. Smith, Griffith An. Kingd.*, iv, p. 127 (1827).  
*Cariacus virginianus*, *Gray List Mamm. B. M.*, p. 175 (1843); *Blyth Cat.*, p. 157; *Brooke P. Z. S.*, 1878, p. 919.  
*Cariacus mexicanus*, *Brooke P. Z. S.*, 1878, p. 919.

*Distribution.*—North America from Canada and British Columbia, southwards to Panama,\*perhaps to Peru.

- |                  |      |                        |                                |
|------------------|------|------------------------|--------------------------------|
| a. Skull         | ♂    | Upton, Maine, U. S. A. | W. Theobald, 1868.             |
| b. Skull         | juv. | .....                  | A. D. Bartlett, 1849, A. S. B. |
| c-d. 2 Frontlets | ♂    | .....                  | A. S. B.                       |
| e. Frontlet      | ♂    | .....                  | No history.                    |

f. Skull	♀ Upton, Maine, U. S. A.	W. Theobald, 1868.
g. Skin, skull	♂ Spirit Lake, Ont., 11-12-84.	J. H. Garnier [Ex.]
h. Skin, skull	♀ Spirit Lake, Ont., 31-10-84.	J. H. Garnier [Ex.]

### Genus RANGIFER.

Rangifer, *H. Smith, Griffith An. Kingd.*, v, p. 304 (1827) [as a sub-genus].  
 Tarandus, *Ogilby P. Z. S.*, p. 134 (1836).

### Rangifer tarandus.

*Cervus tarandus, Linnæus Syst. Nat.*, 12th ed., i p. 93 (1766).

*Cervus (Rangifer) tarandus, H. Smith Griffith, An. Kingd.*, iv., p. 79 (1827).

*Tarandus rangifer, Ogilby P. Z. S.*, p. 134 (1836); *Blyth Cat.*, p. 145.

*Rangifer tarandus, Gray List Mamm. B. M.*, p. 181 (1843); *Brooke P.Z.S.*, 1878, p. 928.

*Rangifer caribou et groenlandicus, Baird N. Amer. Mamm.*, p. 633 (1857)\*.

*Distribution.*—Circumpolar, *i.e.*, Northern Europe, Asia and America.

a. Frontlet	♂ Scandanavia	Christiania Univ., 1846, A.S.B.
b. Frontlet	♂ .....	E. Blyth, A.S.B.
c. Skull	Scandanavia	Stockholm Mus. [Ex.], 1887.
d. Skull	North America	W. Theobald, 1868.
e. Skull	♂ .....	H. A. Ward [Ex.], 1889.

### Genus TRAGULUS.

*Tragulus, Pallas Spic. Zool.* xiii, p. 27 (1778).

*Meminna, Gray Ann. Philos.* xvi (1825)\*.

There has been a great deal of confusion in the synonymy of this genus; Milne Edwards published in 1864 a monograph on the subject and first elucidated matters. Besides *T. meminna*, which is quite distinct, there seem to be two well-marked forms and several varieties which are doubtfully worthy of specific distinction; the typical *T. napu* is of a grayish tinge and has two varieties, one unnamed, reddish with a strongly marked nuchal stripe, the other called *T. stanleyanus* of Gray, a still brighter red without any trace of the nuchal stripe; of the smaller forms, the one best known is *T. kanchil*, the other *T. javanicus*, is said to be distinguishable from *T. kanchil*, but is apparently confined to the island of Java and there is no representative of it in the Museum.

#### *Key of the Indian Species.*

- |  |                             |
|--|-----------------------------|
| a. Body spotted . . . . .  | <b>T. meminna</b> , p. 189. |
| a <sup>2</sup> . Body not spotted  |                             |
| b. Larger, tarsus and hind-foot, 5·8 inches, with 5 white throat stripes . . . . . | <b>T. napu</b> , p. 190.    |

b<sup>2</sup>. Smaller, tarsus and hind-foot, 4 8 inches, with 3 white throat stripes . . . . . **T. kanchil**, p. 189.

### Tragulus memminna.

- Moschus memminna. *Erxleben Syst. Reg. An.*, p. 322 (1777); *Sykes P. Z. S.*, 1831, p. 104; *Elliot Madr. Journ.*, x, p. 220; *Tickell Calc. Journ. N. H.* i, p. 420; *Blyth F. A. S. B.*, xi, p. 96.  
 Meminna indica, *Gray P. Z. S.*, p. 63 (1836); *Blyth F. A. S. B.*, xx, p. 174; *Kelaart Prodr. Faun. Zeylan.*, p. 81; *Blyth Cat.*, p. 155; *Ferdon Mamm.*, p. 269; *McMaster Notes on Ferdon*, p. 98.  
 Tragulus mimenoides, *Hodgson F. A. S. B.*, x, p. 914 (1841).  
 Tragulus memminna, *A. Milne Edwards Ann. Sci. Nat.* (5), ii, p. 160 (1864); *Blyth P. Z. S.*, 1864, p. 483.

The Mouse-deer; Pisuri, Hindu; Burka, Canarese; Mugi of Central India; Yar of the Kols; Gandwa, Oorlah; Jitri Haran, Bengali; Kurupandi, Telegu; Walmooha, Cingalese.

*Distribution.*—The large forests of the Indian peninsula and Ceylon; it is said to have occurred in the Himalayan Terai.

a. Skin	♀		Zoological Gardens, 1880.
b. Skin, ♂ juv.		.....	W. Rutledge, 1881.
skull			
c. Skin	♀ juv.		W. Rutledge, 1881.
d. Skin		Ceylon	Columbo Museum, 1888.
e. Skin, skele-	♀	.....	Zoological Gardens, 1880.
ton.			
f. Skin, skele-	♂	.....	W. Rutledge, 1881.
ton.			
g. Skin, skele-	♂	Ceylon ?	W. Rutledge, 1873.
ton.			
h. Skeleton	♂	.....	W. Rutledge, 1881.
i. Stuffed	♂	India	Dr. MacCosh, 1835, A. S. B.
k. Stuffed	♀	Ceylon	Babu M. Dey, 1870.
l. Stuffed	juv.	India	Mrs. Lindstedt, 1842, A.S.B.

### Tragulus kanchil.

- Moschus kanchil, *Raffles Linn. Trans.*, xiii, p. 262 (1822); *Gray P. Z. S.*, 1836, p. 64; *Fentink Notes Leyd. Mus.*, v, p. 181.  
 Moschus fulviventor, *Gray P. Z. S.*, 1836, p. 65 (1836).  
 Tragulus kanchil, *Gray List Mamm. B. M.*, p. 173 (1843); *Cantor F. A. S. B.*, xv, p. 268; *Blyth F. A. S. B.*, xxvii, p. 276; *id. Cat.*, p. 156; *Milne Edwards Ann. Sci. Nat.* (5), ii, p. 159; *Blyth P. Z. S.*, 1864, p. 483; *id. F. A. S. B.*, xlv, *Burma List*, p. 44; *Thomas P. Z. S.*, 1886, pp. 72, 79; *Fentink Notes Leyd. Mus.*, xi, p. 25; *Anderson F. Linn. Soc.*, xxi, p. 341.  
 †Tragulus pelandoc, *Blyth F. A. S. B.*, xxvii, p. 277 (1858); *id. Cat.*, p. 156.

*Distribution.*—Tenasserim, Siam and Cambodia, the Malay peninsula and Sumatra.

This species is represented in Java by nearly allied species *Tragulus javanicus* of Pallas, which seems to differ from *Tragulus kanchil* merely in the absence of the nuchal streak so con-

spicuous in *Tragulus kanchil*; *Tragulus affinis* described by Gray from Cambodia, *P. Z. S.*, 1861, p. 138, also seems to be merely a geographical variety of *T. kanchil*.

a. Skin	♂	.....	A.S.B.
b. Skin	♀	.....	A.S.B.
c. Skin		Thaing, Mergui, 31-1-82	J. Anderson.
d. Skin	♀	Pilai, Mergui, 3-3-82	J. Anderson.
e. Skin	♂ ?	Thaing, Mergui, 31-1-82	J. Anderson.
f. Skin	♂ ?	Thaing, Mergui, 27-1-82	J. Anderson.
g. Skin	♂	Pilai, Mergui, 7-3-82	J. Anderson.
h. Skin		Mergui, 24-2-82	J. Anderson.
j. Skin		Mergui, 21-1-82	J. Anderson.
k. Skin	♂	.....	Zoological Gardens, 1877.
l. Skin, skull	♀	.....	W. Rutledge, 1878.
m. Skin	♂	...	W. Rutledge, 1877.
n. Skin		.....	W. Rutledge, 1877.
o. Skin	♀	.....	Zoological Gardens, 1880.
p. Skin	♀	...	W. Rutledge, 1877.
q. Skin	♀	.....	W. Rutledge, 1877.
r. Stuffed		.....	No history.
s. Stuffed		.....	Maharajah of Burdwan, (1858), A.S.B.
t. Stuffed, skull		Plembang Isle, Sumatra ?	W. Rutledge, 1874.
u. Skin, skeleton.		.....	W. Rutledge, 1877.
v. Skin, skeleton.	♂	.....	W. Rutledge, 1875.
w. Skin, skeleton.	♀	.....	W. Rutledge, 1877.
x. Skin, skeleton.	♂	.....	W. Rutledge, 1877.
y. Skin, skeleton.	♂	.....	W. Rutledge, 1877.
z. Skin, skeleton.	♂	.....	W. Rutledge, 1875.
a <sup>2</sup> . Skin, skeleton.	♀	.....	W. Rutledge, 1877.
b <sup>2</sup> -c <sup>1</sup> . 2 Skulls		.....	No history, A.S.B.
a <sup>2</sup> . Skeleton, mtd.	♂	.....	W. Rutledge, 1872.

### *Tragulus napu.*

*Moschus napu*, *F. Cuvier Hist. Nat. Mamm.*, livr. 37, with plate (1822).

*Moschus javanicus*, *apud Raffles Linn. Trans.*, xiii, p. 261 (1822); *Gray P. Z. S.*, 1836, p. 64.

*Tragulus javanicus*, *apud Gray List Mamm. B. M.*, p. 173 (1843); *Cantor F. A. S. B.*, xv, p. 269; *Blyth F. A. S. B.*, xxvii, p. 277; *id. Cat.*, p. 155.

*Tragulus fuscatus*, *Blyth F. A. S. B.*, xxvii, p. 278 (1850).

*Tragulus napu*, *Milne Edwards Ann. Sci. Nat.* (5), ii p. 158 (1864); *Blyth P. Z. S.*, 1864, p. 483; *Blanford F. A. S. B.*, xlvii, p. 166; *Thomas P. Z. S.*, 1886, p. 71; *Fentink Notes Leyd. Mus.*, xi, p. 25.

*Distribution.*—From Tenasserim (Blanford), southwards through the Malay peninsula, Sumatra (Raffles), Java (Blyth), Banka and Borneo (Jentink).

a. Skin	♀	.....	W. Rutledge, 1881.
b. Skin	♀	.....	W. Rutledge, 1877.
c. Skin, skull	♂	Plembang Isle, Sumatra	W. Rutledge, 1872.
d. Skin, skull	♂	Plembang Isle, Sumatra	W. Rutledge, 1872.
e. Skin	♂ juv.	.....	W. Rutledge, 1876.
f. Stuffed	♀	Malay peninsula	W. Rutledge, 1871.
g. Stuffed	♀	Malay peninsula	W. Rutledge, 1872.
h. Stuffed	♀	Java	Batavian Soc., 1844, A.S.B.

[Type of *Tragulus fuscatus*, Blyth.]

j. Stuffed	♀	Java	W. Rutledge.
k. Skin, skeleton		.....	No history, 1881.
l. Skull		.....	A.S.B.

### *Tragulus stanleyanus*.

*Moschus stanleyanus*, *Gray P. Z. S.*, p. 65 (1836).

*Tragulus stanleyanus*, *Milne Edwards Ann. Sci. Nat.* (5), ii, p. 160 (1864);  
*Blyth P. Z. S.*, 1864, p. 483.

*Distribution*.—Malay peninsula and Java?

a. Skin	♂	.....	W. Rutledge, 1877.
b. Skin	♀	.....	W. Rutledge, 1879.
c. Skin, skull	♂	.....	W. Rutledge, 1877.
		juv.	
d. Stuffed	♂	Java	A. Grote, 1867.
e. Stuffed	♀	Malay peninsula	W. Rutledge, 1870.
f. Stuffed	♀	Malay peninsula	W. Rutledge, 1870.
g. Skin, skeleton.	♂	.....	W. Rutledge, 1874.
h. Skin, skeleton.	♀	.....	W. Rutledge, 1874.

### Genus CAMELUS.

*Camelus*, *Linnaeus, Syst. Nat.*, 12th ed., i, p. 90 (1766).

### *Camelus bactrianus*.

*Camelus bactrianus*, *Linnaeus, Syst. Nat.*, 12th ed., i, p. 90 (1766); *Gray Cat. Mamm. B. M.*, iii, p. 253; *Hutton Z. A. S. B.*, xv, p. 167; *Radde Ost Sibirien*, p. 238; *Finsch P. Z. S.*, 1876, p. 696; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 170; *Przewalsky Peters. Mitth. Erzb.*, xii, p. 17; *Blanford Persia*, p. 97.

*Distribution*.—The Bactrian Camel has been recently discovered in a feral state by Przewalsky (*loc. cit.*) in the region of Lob Nor in Central Asia; it is found in a domesticated condition in Turkestan and Central Asia generally; it appears to be but rarely seen in Afghanistan and Persia.

a. Skeleton mtd. and skin.	♂	.....	King of Oude, 1877.
b. Skeleton	♂	.....	King of Oude, 1877.
c. Skeleton	♀	.....	King of Oude, 1877.

**Camelus dromedarius.**

- Camelus dromedarius*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 90 (1766); *Hutton and Blyth J. A. S. B.*, xv, p. 162; *Tristram P. Z. S.*, 1866, p. 87; *Blyth Cat.*, p. 143; *Blanford Persia*, p. 97.  
*Camelus dromas*, *Pallas Zoog. Ross. As.*, p. 197 (1831); *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 170.  
*Camelus arabicus*, *Desmoulins Dict. Class. H. N.*, iii, p. 452 (1824-30); *Gray Cat. Mamm. B. M.*, iii, p. 252.

*Distribution.*—The One-humped Camel has never been found in a truly feral state; it is found domesticated in India, Afghanistan and Western Asia generally, and also in Northern Africa.

a. Skin and skeleton.	.....	Karachi Museum, 1877.
b. Skeleton ♂	.....	Babu H. M. Roy, 1881.
c. Skeleton ♂ mted.	.....	King of Oude, 1839, A. S. B.
d. Skull ♀	.....	R. C. Tytler, 1861, A. S. B.
e. Skull	.....	No history.
f-g. 2 skulls	Jeysulmere, Rajputana	N. Bellety, 1890.

**Genus AUCHENIA.**

*Lama*, *Cuvier Tableau Gen. in Leçons d'Anat. Comp.*, 1st ed. (1800)<sup>†</sup>  
*Auchenia*, *Illiger Prodr.*, p. 103 (1811).

**Auchenia glama.**

*Camelus glama*, *Linnaeus Syst. Nat.*, 12th ed, i, p. 91 (1766).  
*Lama peruana*, *Tiedemann Zool.*, i, p. 421 (1808).  
*Auchenia Llacma*, *Illiger Prodr.*, p. 103 (1811).  
*Auchenia glama*, *Blyth Cat.*, p. 144 (1863).

*Distribution.*—The Andes of South America, only known in a domestic state.

a. Skin, skeleton.	♂	.....	W. Rutledge, 1881.
b. Skin	♀	.....	W. Rutledge, 1881.
c. Skin	♂	.....	W. Rutledge, 1881.
d. Skeleton	♂	.....	W. Rutledge, 1881.
e. Skeleton	♂	.....	W. Rutledge, 1881.
f. Skeleton	♂	.....	W. Rutledge.
g. Skeleton	♂	.....	W. Rutledge, 1879.
h. Skeleton mted.		.....	Earl of Derby, 1850.
j. Stuffed		.....	No history.

**Genus SUS.**

*Sus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 102 (1766).

† Afterwards abandoned by the author in favour of *Auchenia*.

**Sus cristatus.**

- Sus cristatus*, *Wagner Münch. Gel. Anz.*, ix, p. 435 [misprinted 535] (1839); *Gray P. Z. S.*, 1868, p. 27; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 43; *Murray Zool. Sind*, p. 54.
- Sus scrofa*, *apud Sykes, P. Z. S.*, p. 104 (1831); *Elliot Madr. Journ.*, x, p. 219; *McClelland P. Z. S.*, 1839, p. 150; *Adams P. Z. S.*, 1858, p. 531; *Blyth Cat.*, p. 139 [divided into several races]; *Blanford F. A. S. B.*, xxxvi, p. 197; *Anderson F. Linn. Soc.* xxi, p. 341.
- Sus indicus*, *Gray List Mamm. B. M.*, p. 185 (1843); *Hutton and Blyth, F. A. S. B.*, xv, p. 135; *Cantor F. A. S. B.*, xv, p. 261; *Kelaart Prodr. Faun. Zeylan*, p. 78; *Blyth F. A. S. B.*, xxix, p. 105; *Jerdon Mamm.*, p. 241; *MacMaster Notes on Jerdon*, p. 59; *Stoliczka F. A. S. B.*, xli, p. 228; *Lydekker F. A. S. B.*, xlvi, p. 287.
- Sus aper* vars. *aipomus* et *isonotus*, *Hodgson F. A. S. B.*, x, p. 911 (1841).
- Sus zeylonensis*, *Blyth F. A. S. B.*, xx, p. 173 (1851); *id. F. A. S. B.*, xxi, p. 351; *id. F. A. S. B.*, xxix, p. 105.
- Sus bengalensis*, *Blyth F. A. S. B.*, xxix, p. 105 (1860).

The Indian Wild Boar; Sur, Suwar, Bura janwar or Bud janwar, Hindustani; Dukar, Mahratti; Handi, Mikka or Jewardi, Canarese; Pandi, Telegu; Paddi of the Gonds; Waloor, Cingalese; Tauwet, Burmese.

*Distribution.*—All over India, from the Himalayas to Cape Comorin, Ceylon and Burma, but possibly replaced by another species in Tenasserim.

It has always been a question as to whether the Indian and European Wild Boars differ sufficiently from one another to warrant their separation as distinct species; Blyth finally considered them merely as geographical varieties of one species, Jerdon separated them entirely.

On comparing the skulls of the two, slight differences are to be found, but it is a question if they would be constant if a larger series of skulls were examined.

In the European form the parietal region of the skull above the eyes is flat or almost concave, not convex, as in the Indian boar; behind this region the skull is much reduced, so that it forms a narrow ridge barely a inch across, while in the Indian boar, although this part of the skull is reduced, it is very much wider than in the European boar.

In the European boar, again, the nasals are longer than the rest of the skull measured from the naso-frontal suture to the occipital ridge; in the Indian boar they are generally, though not invariably, shorter.

The anterior palatine foramen in the European boar is pear-shaped, tapering to a point posteriorly, while in the Indian boar it is somewhat oval-shaped and ends in a blunt point posteriorly. The European boar is said to have small warts under the eye while the Indian boar has none.

There are in the Museum two specimens of the Yarkand wild boar collected by Stoliczka and described by Blanford in the Yarkand Mission report; the skulls of these specimens agree

with that of the European form (*S. scropha*) except that the nasals are short and the anterior palatine foramina agree with those of the Indian form (*Sus cristatus*).

Blyth in his catalogue further distinguished no less than four different Indian races, (1) the typical Indian race, with the narrow occipital vertex, about  $1\frac{1}{2}$  inches wide at the narrowest point, found all over India and Ceylon, (2) the Bengal race, with the wide occipital plane, about  $2\frac{1}{4}$  inches across, (3) the Tenasserim race considerably smaller; (4) a distinct Ceylonese race, with a very large posterior molar.

On comparing the skulls, which have been acquired by the Museum since Blyth's time with Blyth's original specimens, the distinction between the Bengal race and the typical Indian race breaks down, and the width of the occipital plane seems to be merely an individual peculiarity; the Ceylonese skull must be regarded as an abnormal one; the Tenasserim skulls, however, resemble that of a specimen, acquired thence more recently, which may possibly be identical with *Sus leucomystax* of China and Japan; it is possible that this latter race may have been imported from China and have run wild in Tenasserim.

a.	Stuffed	Goalundo	Museum Collector (1876).
b.	Skelet. mtd	[domestic var.]	A. R. Jackson (1837), A.S.B.
c.	Skull ♂	Goruckpore terai, N.W.P.	J. C. Peppé (1847), A.S.B.
d.	Skull ♀	Arakan	Sir A. Phayre (1846), A.S.B.
e-h.	4 Skulls	Goruckpore terai, N.W.P.	J. C. Peppé (1862), A.S.B.
j.	Skull ♂	Cuttack, Bengal	T. Shawe (1845), A.S.B.
k-l.	2 Skulls ♀	Punjab Salt Range	W. Theobald (1853), A.S.B.
m.	Skull ♂	Akyab bazaar	E. Blyth (1861), A.S.B.
n.	Skull ♂	Ceylon	E. F. Kelaart (1851), A.S.B.
o.	Skull juv.	Ceylon	E. F. Kelaart (1851), A.S.B.
p.	Skull	Ceylon	E. F. Kelaart (1850), A.S.B.

[Type of *Sus zeylonensis*, Blyth.]

q.	Skull ♂	Purneah dist.	J. L. Shillingford, 1881.
r.	Skull ♀	Eastern Bengal	J. Biddulph, 1877.
s-t.	2 Skulls ♂	Central India?	J. Cockburn [P.], 1886.
u-v.	2 Skulls ♀	Central India?	J. Cockburn [P.], 1886.
w.	Skull [dom. var. ?]	Soonderbunds	A. M. Nicholetts, 1866.
x.	Skull [dom. var. ?]	Nicobars	W. Hodge, 1860, A.S.B.
y.	Skeleton ♂	Purneah	J. L. Shillingford, 1881.
z.	Skull	.....	No history, A.S.B.
a <sup>2</sup> .	Skin, ♀ juv. and skull.	Padow, Mergui, 8-2-82	J. Anderson.
b <sup>2</sup> .	Skin ♀ juv.	King Isle, Mergui, 27-1-82	J. Anderson.
c <sup>2</sup> .	Skin ♀ juv.	King Isle, Mergui, 27-1-82.	J. Anderson.
d <sup>2</sup> .	Skull	.....	No history, A.S.B.
e <sup>2</sup> .	Skull	.....	No history, A.S.B.



**Sus andamanensis.**

*Sus andamanensis*, *Blyth* *J. A. S. B.*, xxvii, p. 267 (1858); id. *ibid.*, xxviii, p. 271; id. *ibid.*, xxix, p. 103; id. *Cat.*, p. 141; *Gray P. Z. S.*, 1868, p. 29.

*Distribution.*—The Andamans and possibly the Nicobars.

a. Stuffed	♀ Andamans	G. W. Wicks, 1873.
b. Skeleton- mted.	.....	W. Hodge, 1860, A. S. B.
c-g. 14 Skulls	Andaman Islands	A. S. B.
r-i. 3 Skulls	juv. Andaman Islands.	A. S. B.
n-v. 2 Skulls	Port Blair, Andamans	Major Ford, 1867.
w-x. 2 Skulls	Andamans	J. Anderson, 1872.
y. Skull	Andamans	J. Anderson, 1866.
z. Lower jaw	Preparis Island	J. Wood Mason, 1873.

**Sus scrofa.**

*Sus scrofa*, *Linnaeus Syst Nat.*, 12th ed., i, p. 103 (1766); *Gray P. Z. S.*, 1868, p. 30; *Blanford Persia*, p. 86; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 387; *Danford and Alston P. Z. S.*, 1877, p. 275; *Thomas Linn, Trans.* (2), v, p. 62; *Radde. Zool. J. B.*, iv, p. 1068.

*Sus scrofa* var. *nigripes*, *Blanford J. A. S. B.*, xlv, p. 112 (1875); id. *Yarkand Mamm.*, p. 79.

The Wild Boar.

*Distribution.*—Europe and North Africa, Asia Minor (Danford), Persia (Blanford), and Northern Asia generally.

a. Skull	Europe	Hungarian Museum, A.S.B.
b. Skull and skin.	♂ Thian Shan Mts.	F. Stoliczka, 1874.
c. Skull and skin.	♀ Thian Shan Mts (Capt. Chapman)	F. Stoliczka, 1874.

[Types of *Sus scrofa* var. *nigripes*, Blanford.]

**Genus PORCULA.**

*Porcula*, *Hodgson J. A. S. B.*, xvi, pt. i, p. 423 (1847).

**Porcula salvania.**

*Porcula salvania*, *Hodgson J. A. S. B.*, xvi, pt. i, pp. 423, 593, pls. xii, xiii (1847); id. *P. Z. S.*, 1847, p. 115; *Horsfield P. Z. S.*, 1853, p. 192 pl. xxxvii; *Ferdon Mamm.*, p. 244; *Gray P. Z. S.*, 1868, p. 33; *Anderson P. Z. S.*, 1869, p. 470; *P. L. Sclater P. Z. S.*, 1882, p. 546, pl. xxxvii.

The Pigmy Hog; Chota suwaṛ, Hindus; Sano banel of Nepalese.

*Distribution.*—Confined to the Terai at the base of the Himalayas from Nepal, probably to Assam, but is apparently rare.

a. Stuffed and skull.	♂	Darjeeling terai, 19-5-70.	J. Anderson.
b. Stuffed		Darjeeling terai, 28-9-69.	J. Anderson.
c. Skeleton mtd.	♀	Bhutan terai	Zoological Gardens, 1882.
d.-e. 2 skins		Darjeeling terai, 19-5-70	J. Anderson.
f. Skin		Neora Karanti Douars	F. A. Möller, 1883.
g. Skin		Dam Dim, Douars	F. A. Möller, 1883.
h. Skin		.....	No history.
j. Skeleton	♀	.....	Zoological Gardens, 1883.
k. Skeleton	♂	Dam Dim, Douars	F. A. Möller, 1883.
	juv.		
l. Skeleton	♀	.....	Zoological Gardens, 1883.
m. Skeleton	♂	.....	Zoological Gardens, 1883.
n. Skull pt.	?	Sikkim Terai (Hodgson)	India Mus., London.

### Genus BABIRUSSA.

Babirusa, *Lesson Man. Mamm.*, p. 337 (1827).

#### Babirusa alfurus.

*Sus babirusa*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 104 (1766).

*Babirusa alfurus*, *Lesson Man. Mamm.*, p. 338 (1827); *P. L. Sclater P. Z. S.*, 1860, p. 443, pl. lxxxiii; *Blyth Cat.*, p. 142; *Gray P. Z. S.*, 1868, p. 43.

*Distribution.*—Celebes and Borneo.

a. Skin and skeleton	♀	.....	Zoological Gardens, 1885.
b.-c. 2 skulls	♂	Amboyna?	A.S.B.

### Genus DICOTYLES.

*Dicotyles*, *G. Cuvier Regne Anim.*, 1st ed., i, p. 237 (1817).

#### *Dicotyles tajacu*.

*Sus tajacu*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 103 (1766).

*Dicotyles torquatus*, *G. Cuvier Regne Anim.*, 1st ed., i, p. 237 (1817); *Baird N. Amer. Mamm.*, p. 627\*.

*Dicotyles tajacu*, *P. L. Sclater List Vert. An. Zool. Soc.*, 1st ed., p. 19 (1862)\*; *Alston Biol. Centr. Amer. Mamm.*, p. 107.

The Peccary.

*Distribution.*—North America from the Red River of Arkansas, southwards through Central and Southern America to Patagonia.

a. Skin	♂	Nuces valley, Texas	J. H. Garnier [Ex.] U. S. A., 9-3-84.
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Genus **TAPIRUS**.

*Tapirus*, G. Cuvier *Tab. Element de l'Hist. Nat.*, p. 152 (1798)\*.  
*Rhinocærus*, Wagler *Syst. Amphib.*, p. 17 (1830).

**Tapirus indicus.**

"Tapir of Malacca," Farquhar, *Diard and Siddons, As. Res.*, xiii, p. 417.  
*Tapirus indicus*, G. Cuvier *Rapport trav. l'Institut* (1818)\*; Desmarest *N. Dict. d'Hist. Nat.*, xxxii, p. 458.  
*Tapirus sumatranus*, Gray *Med. Repos.* (1821)\*.  
*Tapirus malayanus*, Raffles *Linn. Trans.*, xiii, p. 270 (1822); Horsfield *Zool. Res.* with plates; Cantor *J.A.S.B.*, xv, p. 263; Blyth *Cat.*, p. 135; id. *J. A. S. B.*, xlv, *Burma List*, p. 49.  
*Tapirus bicolor*, Wagner Schreb. *Säugeth.*, vi, p. 400 (1835).  
*Rhinocærus sumatranus*, Gray *P.Z.S.*, p. 884 (1867).

*Distribution.*—In Tenasserim from the latitude of Yè southwards through the Malay peninsula; Sumatra. It is also said to occur in Borneo and Southern China, but this is very doubtful.

a. Skeleton	♂	.....	W. Rutledge, 1874.
b. Skeleton	♂	.....	W. Rutledge, 1874.
c. Skeleton	♀ juv.	.....	Zoological Gardens, 1876.
d. Skeleton,	♂	.....	W. Rutledge, 1879.
skin.			
e. Skeleton	♀ juv.	.....	Purchased, 1879.
f. Skeleton	♀	.....	Zoological Gardens, 1881.
g. Skeleton	♂	.....	Babu H. M. Roy, 1885.
h. Stuffed	♀	.....	J. Agabeg, 1844, A.S.B.
j. Skeleton	mted.	.....	W. Rutledge, 1874.
k. Skull	♂ Malacca		W. Farquhar, 1820, A.S.B.
l. Skull	juv.	.....	Dr. McCosn, 1837, A.S.B.
m. Skin and skull	Malacca		E. Lindstedt, 1848, A.S.B.
impf. feet.			

Genus **EQUUS**.

*Equus*, Linnæus *Syst. Nat.*, 12th ed., i, p. 100 (1766).  
*Asinus*, Gray *Ann. Philos.*, xxvi, p. 337 (1825)\*.

The two Indian wild asses, the Kiang of Thibet and the Ghor-khur of Cutch, resemble each other very closely, and there does not seem to be, judging either by the descriptions published of the two animals or by examination of the few skulls in the Museum, any real distinction between the two. For convenience however, the synonymy of the two forms has been separated under the headings of *Equus hæmionus* var. *indicus* and *E. hæmionus* var. *kiang*.

**Equus hemionus.**

*Var. A.*—*typicus*.

"Onager," Pallas *Act. Acad. Petrop.*, 1777, pt. 2, p. 258, pls. xi, xii.

*Equus hemionus*, *Pallas Nov. Comm. Acad. Petrop.*, xix, p. 394, pl. vii, (1775); *Radde Ost Siberien*, i, p. 293; *Severtzoff Ann. Mag. N. H.*, (4), xviii, p. 387; *Thomas Linn. Trans.* (2), v, p. 61; *Radde Zool. J. B.*, p. 1057.

*Var. B.—indicus.*

*Equus hemionus*, *F. Cuvier Hist. Nat. Mamm.* (1823); *Is. Geoffr. St. Hil. Ann. Mus. Paris*, iv, p. 77, pl. viii\*; *Sykes P. Z. S.*, 1837, p. 91; *Hutton and Blyth J. A. S. B.*, xv, p. 145; *Gray P. Z. S.*, 1849, p. 29; *Blyth J. A. S. B.*, xxvi, p. 239; *Blanford Persia*, p. 84.

*Asinus onager*, *Gray Cat. Mamm. B. M.*, iii, p. 269 (1852); *Murray Zool. Sind* p. 54.

*Equus onager*, *Blyth J. A. S. B.*, xxviii, p. 229; *id.*, *Cat.*, p. 135; *Ferdon Mamm.*, p. 236; *Stoliczka J. A. S. B.*, xli, p. 228; *Sterndale Mamm. Ind.*, p. 399.

*Asinus indicus*, *P. L. Sclater P. Z. S.*, p. 163 (1862).

*Var. C.—kiang.*

*Equus kiang*, *Moorcroft's Travels*, i, p. 312 (1841); *Hodgson J. A. S. B.*, xi, p. 286; *Gray P. Z. S.*, 1849, p. 29; *Hay P. Z. S.*, 1859, p. 353, pl. lxxiii; *Kinloch Large Game Shooting*, i, p. 13.

*Asinus polyodon*, *Hodgson Calc. Journ. N. H.*, vii, p. 469, pl. vi (1847); *id.* *ibid.*, viii, p. 98.

*Equus hemionus*, *Walker J. A. S. B.*, xvii, pt. ii, p. 1, pl. i (1848); *Gray Cat. Mamm. B. M.*, iii, p. 272; *Cunningham Ladak*, p. 195, pl. vi; *Blyth J. A. S. B.*, xxviii, p. 229; *Strachey J. A. S. B.*, xxix, p. 136; *Blyth Cat.*, p. 136; *Sterndale Mamm. Ind.*, p. 401.

*Asinus hemionus*, *Adams P. Z. S.*, 1858, p. 531; *P. L. Sclater, P. Z. S.*, 1862, p. 163.

The Wild Ass; Kiang of Thibet; Ghorkhur, Hindustani; Ghour, Persia.

*Distribution.*—The typical variety originally described by Pallas is found all over the Southern Siberian steppes and was got by Radde from the Trans-baikal province, and also in the Trans-caspian region.

The Kiang is found plentifully in Western Thibet, extending over the Cashmir frontier in the upper valley of the Indus.

The Ghorkhur (*var. indicus*) is found in Cutch and Rajpootana, west of Long. 75°, and extends through Afghanistan and Beluchistan to Persia, and is finally replaced by a fourth sub-species from which it is barely distinguishable, *E. hemippus* of Geoffroy.

*Var. B.—indicus.*

a. Skull	Kandahar	H. B. Lumsden, 1859, A.S.B.
b. Skull	.....	W. T. Blanford, 1882.
c. Skull, ske- ♂ leton, skin.	.....	Zoological Gardens, 1877.
d. Skull, ske- ♀ leton.	.....	Zoological Gardens, 1877.
e. Skull, ske- ♂ leton.	.....	Zoological Gardens, 1878.

*Var. C.—kiang.*

a. Stuffed	Thibet	A. Campbell, A.S.B.
b. Stuffed juv.	Thibet	A. Campbell, A.S.B.
c. Skeleton	Thibet	.....
mtd.		
d. Skull	Thibet	G. T. Lushington (1838), A.S.B.
e. Skeleton	.....	No history, A.S.B.
impft.		

**Equus burchelli.**

*Asinus burchellii*, *Gray Zool. Journ.*, i. p. 247, pl. ix (1825); *P. L. Sclater P. Z. S.*, 1865, pl. xxii.  
*Equus zebroides*, *Lesson Man. Mamm.*, p. 346 (1827).

Burchell's Zebra.

*Distribution.*—South Africa, extending northwards to the Kili-manjaro district.

a. Stuffed	.....	W. Rutledge, 1884.
b. Skeleton ♂ and skin.	.....	Babu H. M. Roy, 1883.

**Equus asinus.**

*Equus asinus*, *Linnaeus Syst. Nat.*, 12th ed., i. p. 100 (1766); *Blyth Cat.*, p. 135.  
*Asinus vulgaris*, *Gray Zool. Journ.*, i. p. 244 (1825).

The Ass.

*Distribution.*—Cosmopolitan in a domestic state.

a. Stuffed	♀	.....	J. Anderson, 1867, A.S.B.
b. Skull	[Indian domestic race.]	.....	
c. Skull and ♀ skeleton impf.		.....	Zoological Gardens, 1879.

**Equus caballus.**

*Equus caballus*, *Linnaeus Syst. Nat.*, 12th ed., i. p. 100 (1766); *Blyth Cat.*, p. 135.

The Horse.

*Distribution.*—Cosmopolitan in a domestic state; a closely allied truly feral form (*Equus przewalskii*) has been recently discovered by Przewalsky in the deserts of Central Asia and has been described by Poliakof, of whose paper a translation will be found in the *Ann. Mag. N. H.* (5), viii, p. 16.

a-g. 7 Skulls	.....	No history, A.S.B.
h. Skull, skele- ton.	.....	Messrs. T. Smith & Co., 1866.

j.	Skull, skele- ton.	[Burma pony]	1866.
k.	Skull, ♀ skeleton.	[Arab, gray]	Sir J. Fayrer, 1872.
l.	Skull	[Pony "Lucknow"]	Sir J. Fayrer.
m.	Skull ♀	[Iceland pony]	W. Rutledge, 1870.
n.	Skull juv.	... ..	A.S.B.
o.	Skull, ♂ skeleton.	.....	Rajah R. Mullick, 1876.
p.	Skull	[Waler Roan pony]	A.S.B.
q.	Skull, ♀ skeleton and skin.	[Shetland pony]	W. Rutledge, 1872.
r.	Feet of an Arab with extra toes.	.....	Purchased, 1870.
s.	Skeleton ♂ mtd.	[Waler Gelding]	W. King 1888.

## Genus RHINOCEROS.

Rhinoceros, *Linnaeus Syst. Nat.*, 12th ed., i, p. 104 (1766).

*Ceratorhinus*, *Gray P.Z.S.*, p. 1021 (1867). *Type R. sumatrensis*.

*Key of the Indian Species.*

a. With one horn only, skull with the post-tympanic and post-glenoid processes of the squamosal bone united for a considerable extent below the meatus auditorius.

b. Upper lip rounded off; the posterior neck-fold does not unite with the anterior one to form a saddle; skull with the vomer ankylosed to the skull, and with basi-sphenoid and basi-occipital bones wide and flattened.

**R. unicornis**, p. 202.

b<sup>2</sup>. Upper lip produced into a short proboscis; the posterior neck-fold unites with the anterior one to form a saddle on the neck; skull with the vomer ending freely posteriorly in a jagged point frequently broken off; the basi-sphenoid and basi-occipital very much narrowed and steep at the sides; an ossified mesethmoid present.

**R. sondaicus**, p. 202.

a<sup>2</sup>. With two horns, skull with the post-tympanic and post-glenoid processes of the squamosal separated so as to form an open groove.

c. Ears hairy inside; no long fringe of hairs along the ear conch; skull narrow and tooth row short.

**R. sumatrensis**, p. 204.

c<sup>2</sup>. Ears not hairy inside, a long fringe of hairs along the edge of the ear conch; skull broader and with a longer tooth row.

**R. lasiotis**, p. 204.

### Rhinoceros unicornis.

*Rhinoceros unicornis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 104 (1766); *Gray P. Z. S.*, p. 1010 (1867); *P. L. Sclater Trans. Zool. Soc.*, ix, p. 645, pl. xcvi; *Flower P. Z. S.*, 1876, p. 454.

*Rhinoceros indicus* *G. Cuvier Menagerie du Mus. Hist. Nat.* (1801)\*; *Blyth F. A. S. B.*, xxx, p. 194; id. *F. A. S. B.*, xxxi, p. 151; id. *Cat.*, p. 136; *Jerdon Mamm.*, p. 232, *Lydekker F. A. S. B.*, xlix, p. 135; *Sterndale Mamm. Ind.*, p. 407.

*Rhinoceros asiaticus*, *Blumenbach Handb. Naturg.*, 12th ed., p. 107 (1830).  
*Rhinoceros stenocephalus*, *Gray P. Z. S.*, p. 1018 (1867).

The Indian Rhinoceros; Genda or Gonda, Hind.; Gor in Assam.

*Distribution*.—The Terai and country between the Himalayas and the Ganges; from Rohilkund (Jerdon) in the west to Assam; it was formerly plentiful in the Purneah district, but now seems to be almost confined to the Doars to the east of the Teesta River.

a.	Stuffed and ♂ bones of feet.	Purneah dist.	G. W. Shillingford, 1871.
b.	Skeleton ♀ mtd.	"Barrackpore Park"	Medical College Mus. [Ex.], 1879.
c.	Skull/skeleton incomplete.	Gauhati, Assam	F. T. Pollok, 1870.
d.	Skull skele- ♀ ton.	.....	Zoological Gardens, 1880.
e.	Skull skele- ♀ ton.	.....	Rajah of Kuch Behar, 1879.
f.	Skull	.....	A.S.B.
g.	Skull	.....	A.S.B.
h.	Skull ♂	Nepal Terai	Sir E. Baring, 1875.
i.	Skull	Nepal Terai	Sir E. Baring, 1875.
k.	Skull	.....	No history.
l.	Skull	.....	Rajah R. Mullick, 1871.
m.	Skull	.....	W. T. Blanford, 1879.
n.	Skull	.....	A.S.B.
o.	Skull	.....	A.S.B.
p.	Skull	Gauhati, Assam	Mus Coll., 1868.
q.	3 Hoofs	Nepal Terai	J. Anderson, 1880.
r.	Stuffed juv. and skele- ton.	.....	A.S.B.

### Rhinoceros sondaicus.

*Rhinoceros sondaicus*, *Desmarest Mamm.*, ii, p. 399 (1822); *Horsfield Zool. Res.*, with plate; *Müller and Schlegel, Tem. Verhandl.*, p. 184, pl. xxxiii; *Blyth F. A. S. B.*, xxxi, p. 151; id. *Cat.*, p. 137; *Jerdon Mamm.*, p. 234; *P. L. Sclater, P. Z. S.*, 1874, p. 182, pl. xxviii; *Fraser F. A. S. B.*, xlv, p. 10, pl. v; *P. L. Sclater Trans. Zool. Soc.*, ix, p. 649, pl. xcvi; *Flower P. Z. S.*, 1876, p. 454; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 50; *Rainey P. A. S. B.*, 1878, p. 139; *Sterndale Mamm. Ind.*, p. 410.

*Rhinoceros javanicus* *F. Cuvier Hist. Nat. Mamm.*, livr. 45, with plate (1824); *Gray P. Z. S.*, p. 1009 (1867).



Rhinoceros floweri, *Gray P. Z. S.*, p. 1015 (1867).  
 Rhinoceros nasalis, *Gray P. Z. S.*, p. 1012 (1867).

The Sondaic Rhinoceros.

*Distribution.*—The Sunderbunds and formerly the Rajmahal hills in Bengal; Assam, south of the Brahmaputra and Burma, extending southwards through Tenasserim and the Malay peninsula to Sumatra, Java and Borneo.

The comparison of the very fine collection of skulls in the list below, shows that there is no discernable distinction between the Sondaic Rhinoceros of the Sunderbunds, of Tenasserim, and of Java; the skull from Java, though very aged, shows no points of distinction from that of the Sunderbunds. The ossified mesethmoid (*c. f.* Fraser *J. A. S. B.*, xlv, p. 10) is present in only two of the skulls in the collection; in one or two others, however, there are traces of where it should have been, but it has evidently dropped off in the cleaning of the skull; there can be little doubt that it will be found in all carefully cleaned skulls.

The mesethmoid does not appear ever to be ossified in Rhinoceros unicornis.

The large stuffed female "a" in the list below shows no trace of a horn, whether this is a constant characteristic of the female of this species or not, it is impossible to state without further evidence; several people, however, who have seen this species alive, confirm this; Blyth asserted that there was no sexual differences in *R. unicornis* and *R. sondaicus*; if therefore the female of *R. sondaicus* has no horn this is not correct.

a. Stuffed, ske-♀ Sunderbunds leton.	O. L. Fraser and J. F. Barckley, 1874.
b. Stuffed, ♀ juv. Sunderbunds skeleton.	J. F. Barckley, 1872.
c. Skeleton ♀ Jessore dist.	J. H. Barlow, 1834, A.S.B.
d. Skeleton ♂	Babu H. M. Roy, 1884.
e. Skeleton, ♂ juv. skin.	Purchased, 1880.
f. Skeleton, ♀ juv. skin.	W. Rutledge, 1881.
g. Skeleton, ♂ juv. skin.	W. Rutledge, 1879.
h. Skeleton, ♀ juv. skin.	W. Rutledge, 1880.
j. Skull ♂ juv.	W. Rutledge, 1875.
k. Skin ♂ juv.	No history.
l. Skull	N. Wallich, A.S.B.
m. Skull Tenasserim	Sir T. H. Maddock, 1842, A.S.B.
n. Skull Tavoy Point	Genl. Fytche, 1861, A.S.B.
o. Skull	A.S.B.
p. Skull Java	Batavian Soc., 1846, A.S.B.
q. Skull Sunderbunds	W. W. Shepperd, 1867.
r. Skull ♂ juv.	Zoological Gardens.

s. Skull and feet bones.	♂ Matabangah R., Sunder-	Purchased, 1875.
		bunds.
t. Skull	♀ Chillichang Creek, Sun-	Capt. Charling.
		derbunds.
u. Skeleton	.....	No history (1869).
v. Lower jaw	.....	No history.
w. Lower jaw	.....	No history.

### Rhinoceros lasiotis.

♂ *Rhinoceros crossii*, *Gray P. Z. S.*, p. 250 (1854); *Blyth P. Z. S.*, p. 306 (1861).

*Rhinoceros sumatrensis*, *apud Anderson P. Z. S.*, p. 129 (1872).

*Rhinoceros lasiotis*, *P. L. Sclater P. Z. S.*, pp. 493, 791, pl. xxiii (1872); *id. P. Z. S.*, 1875, p. 566; *id. Ann. Mag. N. H.* (4), x, p. 299; *id. Trans. Zool. Soc.*, ix, p. 652, pl. xcvi; *Flower P. Z. S.*, 1876, p. 455; *id. P. Z. S.*, 1878, p. 634.

*Rhinoceros sumatranus*, *apud Gray Ann. Mag. N. H.* (4), x, p. 208 (1872).

♀ *Ceratorhinus crossii*, *Blyth F. A. S. B.*, xlv, *Burma List*, p. 51 (1875)

#### The Hairy-eared Rhinoceros.

*Distribution*.—The Chittagong and Tipperah Hills; this species is replaced by the next in the Malay peninsula and the line of division between the two is not actually made out, but probably this species will be found to be the one distributed all over Burma.

[No specimen in the Museum.]

### Rhinoceros sumatrensis.

“Double-horned Rhinoceros of Sumatra,” *Bell Phil. Trans.*, p. 3, pls. ii, iii, iv (1793).

*Rhinoceros sumatrensis*, *Cuvier Regne An.*, i, 1st ed. p. 240 (1817); *P. L. Sclater P. Z. S.*, 1872, p. 790, pl. lxxvii; *Bartlett P. Z. S.*, 1873, p. 104, pl. xi; *P. L. Sclater. Trans. Zool. Soc.*, ix, p. 650, pl. xcvi.

*Rhinoceros sumatranus*, *Raffles Linn. Trans.*, xiii, p. 268 (1822); *Müller and Schlegel Tem. Verhandl.*, p. 190, pl. xxxiv; *Blyth F. A. S. B.*, xxxi, p. 151; *id. Cat.* p. 137.

*Rhinoceros sondaicus*, *apud F. Cuvier Hist. Nat. Mamm. livr.* 47, with plate (1825).

*Ceratorhinus sumatranus*, *Gray P. Z. S.*, p. 1021 (1867); *id. Ann. Mag. N. H.* (4), xi, p. 357.

*Ceratorhinus crossii*, *Gray Ann. Mag. N. H.* (4), x, p. 209 (1872).

*Ceratorhinus sumatrensis*, *Garrod P. Z. S.*, p. 92 (1873); *Flower P. Z. S.*, 1876, p. 455; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 52; *Flower P. Z. S.*, 1880 p. 69.

*Ceratorhinus niger*, *Gray Ann. Mag. N. H.* (4), xi, p. 357.

*Ceratorhinus blythii*, *Gray Ann. Mag. N. H.* (4), xi, p. 360.

#### The Two-horned Rhinoceros.

*Distribution*.—The Malay peninsula and South Tenasserim?; the islands of Sumatra, Java and Borneo.

The skulls of the two-horned Rhinoceros in the Museum do not show any very appreciable variation with the exception of two formerly in the collection of the Asiatic Society; these two skulls,

however, have no recorded history and it is, therefore, impossible to say whence they came.

One of these skulls is remarkable for being much broader than all the others; the other, which, although narrower than the first, is still broader than all the others, is more remarkable still for the extreme length of the tooth row.

As these are the differences specially pointed out by Prof. Flower (P. Z. S., 1878, p. 634) between the Tipperah skull which was supposed to have belonged to an example *R. lasiotis* and the typical Sumatran skulls, it seems probable that these two skulls may also be referable to *R. lasiotis*.

a. Stuffed and ♀ "Singapore" skull.	W. Rutledge, 1875.
b. Skeleton ♀ Malacca mtd.	Purchased, 1875.
c. Skin, skele- ♀ ..... ton.	W. Rutledge, 1879.
d. Skeleton ♂ juv. Malacca	Purchased, 1875.
e. Skeleton ..... (skull Malacca impt.)	Zoological Gardens, 1889.
f. Skeleton (skull Malacca impt.)	Dr. Maingay, 1867.
g. Skull (with ♂ Tenasserim limb bones).	E. O'Reilly, 1847, A.S.B.
h. Skull ♂ Tenasserim	Sir T. H. Maddock, 1842, A.S.B.
j. Skull Tenasserim	Sir T. H. Maddock, 1842, A.S.B.
k. Skull .....	No history, A.S.B.
l. Skull .....	No history, A.S.B.
m. Skull .....	No history.
n. Skull .....	No history.
o. Skin, skull ♀ "Singapore" juv.	W. Rutledge, 1885.
p. Pt. of skull Upper Martaban	E. Blyth, 1861, A.S.B.
q. Nasal bones Sumatra?	Miss Lloyd, A.S.B.
r. Two horns Akyab attached.	Sir P. Sladen, 1877.
s. Skeleton .....	Zoological Gardens (1889).

### Rhinoceros bicornis.

*Rhinoceros unicornis*, var. *bicornis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 104 (1766).

*Rhinoceros bicornis*, *Gmelin Syst. Nat.*, i, p. 57 (1788); *P. L. Sclater Trans. Zool. Soc.*, ix, p. 655, pl. xcix; *Selous P. Z. S.* 1881, p. 725.

*Rhinoceros africanus*, *Desmarest. Mamm.*, p. 400 (1820); *Blyth Cat.*, p. 138.

*Rhinoceros keitloa*, *A. Smith S. African Zool.*, pl. i (1849); *Blanford Abyssinia*, p. 243.

*Distribution*.—South Africa, extending northwards to Abyssinia.

a-b. 2 Anterior horns .....	W. S. Sherwill, 1843, A.S.B.
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**Rhinoceros simus.**

*Rhinoceros simus*, *Burchell Bull. Soc. Philom.*, p. 96 (1817)\*; *A. Smith S. African Zool.*, pl. xix; *Blyth Cat.*, p. 138; *Selous P. Z. S.*, 1881, p. 725, pl. lxii.

*Distribution*.—South Africa.

a. Anterior horn ..... W. S. Sherwill, 1843,  
A. S. B.

**Order PROBOSCIDEA.**

Animals of large size provided with a long flexible proboscis with finger-like prehensile tip; no clavicles; radius and ulna permanently crossed; tibia and fibula complete; hind-legs pillar-like, femur vertical when standing; manus and pes each consisting of five digits united but separately hoofed; in the skull the jugal bones form the middle of the zygoma only; nasals very short; large and extensive frontal sinus present; tusks are permanent incisors with persistent pulps, but with no enamel; placenta deciduate and zonary.

**Genus ELEPHAS.**

*Elephas*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 48 (1766).

***Elephas indicus*.**

*Elephas indicus*, *Linnaeus Mus. Frid. Adolph.*, i, p. 11 (1754)\*; *Cuvier Tab. Element d'Hist. Nat.*, p. 148 (1798)\*; *Corse As. Res.*, iii, p. 29; *Elliot Madr. Journ.*, x, p. 219; *Blyth Cat.*, p. 134; *Ferdon Mamm.*, p. 229; *Fohnstone P. A. S. B.*, 1868, p. 127.

*Elephas maximus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 48 (1766) [pt.]

*Elephas asiaticus*, *Blumenbach Handbuch der Naturges.*, 12th ed., p. 106 (1830).

The Indian Elephant; Hasti or Gaja, Sanscrit; Gaj, Bengali; Hati, Hind.; Ani in South India; Allia, Cingalese; Shanh, Burmese.

*Distribution*—The peninsula of India, especially the Western Ghats; the Terai region of the Himalayas, Assam, Cachar, Burma and Siam, extending southwards to the Malay peninsula. In Ceylon and Sumatra elephants are also found, but it seems doubtful whether they are a distinct species or not.

Professor Schlegel in a paper published in the Academy of Sciences of Holland (*Verslagen en Med. der Koninkl. Acad. van Vetens. Afd. Natuurkunde*, 1861, p. 101) a translation of which appeared in the *Natural History Review*, II, p. 72, 1862, has pointed out the distinctions between the true Indian Elephant and that inhabiting the Islands of Ceylon and Sumatra.

The differences seem to resolve themselves into the two following points of distinction: the laminæ of the molar teeth are wider in *E. sumatranus* and approach those of *E. africanus*; there are in *E. sumatranus* 20 dorsal vertebræ and 19 pairs of ribs, while in *E. indicus* the numbers are respectively 19 and 18.

With regard to the size of Elephants, Sanderson has maintained both in his book "Thirteen Years among the Wild Beasts" and elsewhere that no elephant has ever exceeded 11 feet when measured in the ordinary way at the shoulder.

The largest ever measured by Sanderson, who has certainly had vast experience, was one belonging to the Sirmoor Rajah, which was 10 feet  $7\frac{1}{2}$  inches at the shoulder.

The elephant, whose skeleton is mounted in the Museum Gallery ("a" in the list) certainly exceeds this limit; a plumb line dropped from a bar placed on the anterior dorsal vertebræ just above the scapulæ makes him no less than 11 feet 3 inches, so that in life he must have measured several inches more.

Flower mentions in his "Catalogue of the Osteological Specimens in the Royal College of Surgeons," Part II, Mammalia, p. 443, a very large femur and humerus, measuring respectively 112 c.m. and 90 c.m., which is roughly equal to 43 and 35 inches; the femur and humerus of the large elephant "a" in the list measure respectively  $47\frac{3}{4}$  and 39 inches.

a. Skeleton mtd.	♂	Bilkandi, Sonthal Pergunnahs.	W. M. Smith, 1870.
b. Skeleton mtd.	♂	.....	King of Oude, 1839, A.S.B.
c. Stuffed, skeleton	juv.	.....	Commissariat Department, 1877.
d. Skeleton, skull.	♂	Garó Hills	Purchased, 1877.
e. Skeleton	♂	.....	W. Rutledge, 1874.
f. Skeleton, skin.	♂	.....	W. Rutledge, 1881.
g. Skeleton, imft.	♂	.....	G. P. Sanderson [Ex.], 1881.
h. Skin, skull	♂	.....	Zoological Gardens, 1877.
j. Skin	♂	Tikri Killah, Garó Hills.	G. P. Sanderson, 1886.
k. Skull	♀ juv.	.. ..	W. Rutledge, 1874.
l. Skull	♂ juv.	.....	G. P. Sanderson, 1885.
m. Skull	♂ juv.	.....	G. P. Sanderson, 1885.
n. Skull, skeleton	♂ juv.	.....	W. Rutledge, 1876.
o. Skull fetal		.....	Capt. Johnstone, 1868.
p. Split skull		.....	A.S.B.
q-r. 2 Tusks		.....	General Bhima Sinha, 1836, A.S.B.
s. Tusk	♂	.....	R. Home, A.S.B.

<i>t.</i> Tusk (gnawed by Porcupines)	.....	H. B. Medlicott, 1878.
<i>u-x.</i> 4 Tusks ♂	.....	Capt. Johnstone, 1868.
<i>y.</i> Tusk ♀	.....	A.S.B.
<i>z.</i> Milk tusk	.....	A.S.B.
<i>a<sup>2</sup>.</i> Tusk	Garó Hills	G. P. Sanderson, 1879.
<i>b<sup>2</sup>.</i> Pr. of tusks (Mukna) ♂	.....	A. J. Shillingford, 1888.
<i>c<sup>2</sup>.</i> Concretion in tusk.	.....	A.S.B.
<i>d<sup>2</sup>.</i> Pt. of tusk with rifle ball imbedded.	.....	A.S.B.
<i>e<sup>2</sup>.</i> Several molar teeth.	.. ..	No history.
<i>f<sup>2</sup>-g<sup>2</sup>.</i> 2 Molars	Kapatakshi R., Koolna dist.	Babu S. Banerjee, 1888.
<i>h<sup>2</sup>.</i> Molar teeth of a foetal specimen.	.....	No history.

### Elephas africanus.

*Elephas maximus* *Linnaeus Syst. Nat.*, 12th ed., i, p. 48 (1766) [pt.]  
*Elephas africanus*, *Blumenbach Handb. der Naturges.* (1779)\*; *Blanford Abyssinia*, p. 258.

*Elephas capensis*, *G. Cuvier Tabl. Element. d' Hist. Nat.*, p. 142 (1798)\*.

*Distribution*.—Africa generally, south of the Sahara.

<i>a.</i> Skeleton ♂	.....	W. Rutledge, 1883.
<i>b.</i> Skull juv.	Kokai, Lebka valley Abyssinia.	W. T. Blanford, 1867.
<i>c.</i> Tusk	Abyssinia	W. T. Blanford, 1867.
<i>d.</i> 4 Molars	.....	No history, A.S.B.

### Order HYRACOIDEA.

There are no representatives of this order in the Indian Region, so no definition is given.

#### Genus HYRAX.

*Hyrax*, *Hermann Tab. Affinit. Anim.*, p. 115 (1783).

#### *Hyrax capensis*.

*Cavia capensis*, *Pallas Spic. Zool.*, ii, p. 16 (1767).

*Hyrax capensis*, *Hermann Tab. Affinit. Anim.*, p. 115 (1783); *Blyth Cat.* p. 138.

*Distribution*.—South Africa.

<i>a-b.</i>	Stuffed, ♂ & ♀	.....	W. S. Sherwill, A.S.B.
<i>c-d.</i>	Stuffed juv.	.....	W. S. Sherwill, A.S.B.
<i>e.</i>	Skull	Spitz-koff Mt., S. Africa.	W. S. Sherwill, A.S.B.
<i>f.</i>	Skull	.....	W. S. Sherwill, A.S.B.
<i>g.</i>	Skull juv.	.....	W. S. Sherwill, A.S.B.
<i>h.</i>	Skin	.....	No history, A.S.B.

### Hyrax brucei.

*Hyrax brucei*, *Gray Ann. Mag. N. H.*, (4), i, p. 44 (1868); *Blanford P. Z. S.*, 1869, p. 642; id. *Abyssinia*, p. 252.

*Hyrax alpini*, *Gray Ann. Mag. N. H.*, (4), i, p. 45 (1868).

*Hyrax ferrugineus et irroratus*, *Gray Ann. Mag. N. H.* (4), iii, p. 242 (1869).

*Distribution.*—The Abyssinian Highlands.

<i>a.</i>	Skin	♀	Adigrat, Abyssinia, 8,000 ft., 26-4-68.	W. T. Blanford.
<i>b.</i>	Skin		Anseba valley, Abyssinia, 4,000 ft., 7-68.	W. T. Blanford.
<i>c.</i>	Skull		Abyssinia	W. T. Blanford, 1868.
<i>d.</i>	Skeleton		Abyssinia	W. T. Blanford, 1868.
<i>e.</i>	Skin		Adigrat Abyssinia, 8,000 ft., 7-4-68.	W. T. Blanford.
<i>f.</i>	Skin		Adigrat, Abyssinia, 8,000 ft., 24-4-68.	W. T. Blanford.
<i>g-h.</i>	2 Skins juv.	♂ ♀	Adigrat, Abyssinia, 8,000 ft. 24-4-68.	W. T. Blanford.
<i>j.</i>	Skin		Abyssinia	W. T. Blanford.
<i>k.</i>	Skin		Somali land	J. H. Speke, 1855, A.S.B.

### Order CARNIVORA.

Mammalia with hairy bodies; with clavicles incomplete or wanting; radius and ulna, tibia and fibula complete; radiale and intermedium fused; no centrale; manus and pes with five digits; thumb never opposable; terminal phalanges armed with sharp claws; skull with strong occipital ridges, wide zygomata, and generally incomplete orbital ring; nasals large and thin; glenoid cavity transversely elongated to which the mandibular condyle corresponds, thus limiting the motion of the lower jaw to a vertical movement; dentition heterodont and diphyodont; teeth simply coated with enamel, not compound; incisors  $\frac{3}{3}$  generally; in some forms the last enlarged premolar of the upper jaw and the first molar of the lower have trenchant edges and act as a pair of scissors and are called the sectorials; placentation zonary.

#### Sub-order I. FISSIPEDIA.

Terrestrial carnivora with manus and pes rarely webbed but bearing well-developed claws; hind-limbs and tail free; pinnæ of ear well developed; incisors  $\frac{3}{3}$ .

*Synopsis of Indian Genera.*

- a. Digitigrade with retractile or partially retractile claws; skull with the condylar foramen confluent with the foramen lacerum posterius; the paroccipital process applied to the bulla; mastoid process obsolete; last upper premolar and first lower molar generally sectorial. [=Aeluroidea.]
- b. With only 2 lower premolars; no alisphenoid canal; bulla not externally constricted or internally divided; metatarsus hairy. [=Felidae.]
- c. Claws completely retractile; inner cusp of upper sectorial moderate. **Felis**, p. 212.
- c<sup>2</sup>. Claws incompletely retractile; inner cusp of upper sectorial rudimentary. **Cynaelurus**, p. 235.
- b<sup>2</sup>. With 3 lower premolars; alisphenoid canal present (except *Viverricula*); bulla externally constricted and internally divided; metatarsus hairy or naked. [=Viverridae.]
- d. Claws strongly curved and more or less retractile; bulla not posteriorly everted; prescrotal glands present; anus not generally opening into a sac.
- e. Tarsus and metatarsus entirely hairy; ears never tufted.
- f. A second upper molar present.
- g. Alisphenoid canal present. **Viverra**, p. 235.
- g<sup>2</sup>. Alisphenoid canal absent. **Viverricula**, p. 238.
- f<sup>2</sup>. No second upper molar. **Prionodon**, p. 239.
- e<sup>2</sup>. Tarsus and metatarsus half bald; ears not tufted.
- h. Teeth small; hinder part of the alveolar margin of the mandible crested. **Arctogale**, p. 241.
- h<sup>2</sup>. Teeth large; hinder border of mandible not crested. **Paradoxurus**, p. 242.
- e<sup>3</sup>. Tarsus absolutely naked; ears tufted; tail prehensile. **Arctictis**, p. 249.
- d<sup>2</sup>. Claws elongated, not retractile; bulla posteriorly everted; canines large; no prescrotal glands; anus opening into a sac. **Herpestes**, p. 250.



- b*<sup>3</sup>. With 3 lower premolars; no alisphenoid canal; bulla not divided or constricted, with only a rudiment of a septum; metatarsus hairy; claws blunt and not retractile.  
[=Hyaenidae.]  
**Hyaena**, p. 258.
- a*<sup>2</sup>. Digitigrade, with non-retractile claws; condylar foramen distinct from the foramen lacerum posterius; paroccipital process closely applied to the bulla; clavicles rudimentary; last upper premolar and first lower molar sectorial.  
[=Cynoidea.]
- h*. A sinus in the frontal bone, postorbital process large, thick and swollen and bent down at the tip.
- j*. With only two true molars in the lower jaw, *i.e.*, the lower sectorial and one other; contour of facial line convex.  
**Cuon**, p. 260.
- j*<sup>2</sup>. With a complete set of three true molars in the lower jaw; contour of the facial line generally concave.  
**Canis**, p. 261.
- h*<sup>2</sup>. No sinus in the frontal bone; skull slight and elongate; postorbital processes thin, concave above, spread out more or less horizontally.  
**Vulpes**, p. 267.
- a*<sup>3</sup>. Plantigrade with generally non-retractile claws; skull with the condylar foramen distinct from the foramen lacerum posterius; paroccipital process widely separated from the bulla; mastoid process very large; auditory bulla not rounded or divided; no caecum.  
[=Arctoidea.]
- k*. With no alisphenoid canal; molars  $\frac{1}{2}$  or  $\frac{1}{3}$ .  
[=Mustelidae.]
- l*. Kidneys simple; feet short, digitigrade partially webbed; claws short, often semi-retractile; dentition, sectorial.
- m*. Premolars four above and below; lower sectorial with an inner tubercle; habits arboreal.  
**Mustela**, p. 273.
- m*<sup>2</sup>. Premolars three above and below; lower sectorial with no inner tubercle; habits terrestrial;  
**Putorius**, p. 276.
- p*<sup>2</sup>. Kidneys simple; feet elongated; toes straight; claws non-retractile, blunt; habits terrestrial and fossorial.

- n*. First upper molar as broad as long; with pig-like snout; palate produced back, level with the glenoid surface. **Arctonyx**, p. 290.
- n*<sup>2</sup>. First upper molar much broader than long.  
*o*. External ear present; molars, p. m.  $\frac{4}{4}$  m.  $\frac{1}{2}$ .  
**Helictis**, p. 284.
- o*<sup>2</sup>. No external ear; molars, p. m.  $\frac{3}{3}$  m.  $\frac{1}{1}$ .  
**Mellivora**, p. 287.
- ƒ*<sup>3</sup>. Kidneys conglomerate; feet short and rounded; toes webbed; claws small, curved and blunt; upper posterior molar large and quadrate; habits aquatic.  
**Lutra**, p. 291.
- k*<sup>2</sup>. With an alisphenoid canal; true molars  $\frac{2}{2}$  obtusely tuberculated; dentition not sectorial.  
**Aelurus**, p. 300.
- k*<sup>3</sup>. With an alisphenoid canal; kidneys conglomerate; true molars  $\frac{2}{2}$  longer than broad; dentition not sectorial; feet completely plantigrade. [=Ursidæ.]
- p*. Six incisors in upper jaw; snout not much produced.  
**Ursus**, p. 301.
- p*<sup>2</sup>. Four incisors in upper jaw; snout considerably produced.  
**Melursus**, p. 306.

### Genus FELIS.

- Felis**, *Linnaeus Syst. Nat.*, 12th ed., i, p. 60 (1766). *Type*, *F. leo*.  
**Leo**, *Tigris*, *Leopardus*, *Caracal*, *Chaus et Lynchus*, *Gray List Mamm. B. M.*, pp. 39-46 (1843). *Types*, *F. leo*, *F. tigris*, *F. leopardus*, *F. caracal*, *F. chaus* et *F. canadensis*.  
**Uncia**, *Gray Ann. Mag. N. H.* (2), xiv, p. 394 (1854). *Type*, *F. uncia*.  
**Ailurina**, *Gervais Hist. Nat. Mamm.*, ii, p. 87 (1855)\*. *Type*, *F. planiceps*.  
**Neofelis**, *Catolynx et Viverriceps*, *Gray P. Z. S.*, pp. 265-268 (1867). *Types*, *F. nebulosa*, *F. marmorata* et *F. viverrina*.  
**Serval**, *Pyrofelis*, *Gray Ann. Mag. N. H.* (4), xiv, p. 352-4 (1874). *Types*, *F. serval*, *F. temmincki*.

#### *Key of the Indian Species.*

- a*. Cats proper with three upper premolars generally present, with a rounded ear-conch, and with a long tail.
- b*. Cats with a concolorous coat, neither spots or stripes.
- c*. Of large size; up to 10 feet in length; tail with a black brush; nasal bones short, flat and not reaching so far back as the frontal processes of the maxillae.

**F. leo**, p. 214

- c*<sup>2</sup>. Of moderate size; colour varies from bright red to dark brown; tail short, not brushed; cheeks and forehead horizontally streaked with white and brown; faint traces of spots sometimes present on the flanks and abdomen.  
**F. temmincki**, p. 222.
- c*<sup>3</sup>. Of small size; resembles the last, but is half the size; skull of different shape, having narrow nasals, forming a ridge as in *F. viverrina*; anterior upper premolar large and two-rooted.  
**F. planiceps**, p. 222.
- b*<sup>2</sup>. Cats of large size with vertical stripes.  
**F. tigris**, p. 216.
- b*<sup>3</sup>. Cats with clouded fur, *i.e.*, with large spots or blotches exceeding two inches in diameter.
- d*. With very large canines, half the length of palate; ground colour pale yellow to gray, clouded with black not spotted; tail very long and thick; of large size measuring 2 feet 2 inches to 3 feet 10 inches; skull long and narrow.  
**F. nebulosa**, p. 220.
- d*<sup>2</sup>. With canines not half the length of palate; of small size; skull short and rounded; nasal area very broad and flat; orbit generally complete behind; anterior upper premolar generally absent; external characters as in the last, with the same long, bushy tail; colour fulvous to gray, mottled with black.  
**F. marmorata**, p. 221.
- b*<sup>4</sup>. Cats with distinct spots.
- e*. Of large size, up to 8 feet, with broad nasal bones.
- f*. Ground colour yellow, covered with distinct black spots or rosettes.  
**F. pardus**, p. 218.
- f*<sup>2</sup>. Ground colour white; fur thick and bushy; spots not well defined except on the head; skull with a more swollen palate, flatter bulla, smaller paroccipital process and shorter, more lion-like nasals than the leopard.  
**F. uncia**, p. 217.
- e*<sup>2</sup>. Of moderate or small size, less than 5 feet in length; the nasals form a more or less sharp ridge, and the part of the cheek formed by the maxillae is concave.
- g*. Large; grizzled gray with spots formed by longitudinal lines broken up; hind-quarters with small black spots; tail short and thick, about one-third

the length of the head and body; skull with nasal region very much attenuated; orbits generally complete.

**F. viverrina**, p. 225.

*g*<sup>2</sup>. Moderate size; markings very variable, ground colour yellowish gray or bright yellow to white on abdomen, with irregular dark brown blotches; tail spotted and long, about  $\frac{1}{2}$  the length of head and body; skull shorter and rounder and with only slightly attenuated nasals; three upper premolars present; orbits incomplete behind.

**F. bengalensis**, p. 223.

*g*<sup>3</sup>. Small; colour grizzled gray with reddish-brown spots; tail unspotted; skull short and rounded as in *F. bengalensis*, but with the nasals considerably more attenuated; orbit complete behind; only two upper premolars.

**F. rubiginosa**, p. 225.

*a*<sup>3</sup>. Lynxine group with pencilled ear-conch; generally only two upper premolars; a short tail; orbits incomplete behind.

*h*. Tail extremely short, one-quarter of length of head and body and black tipped, not reaching the hocks; ears strongly pencilled; skull with posterior nares very wide; no trace of the anterior premolar; inner lobe of upper sectorial tooth small.

**F. lynx**, p. 229.

*k*<sup>2</sup>. Tail reaching the hocks.

*j*. Unspotted; red with black ears, strongly pencilled; skull with small lobe to upper sectorial; nasal area flat; anterior premolar absent.

**F. caracal**, p. 230.

*j*<sup>2</sup>. Unspotted; ears yellow, black-pencilled, colour tawny; legs with indications of transverse bars; skull with inner lobe of sectorial well developed; anterior premolar present or absent.

**F. chaus**, p. 227.

*j*<sup>3</sup>. Spotted; pale yellow with regular small black spots; tail ridged with black posteriorly; ears with small brown pencil; skull resembles *F. chaus*.

**F. ornata**, p. 226.

### Felis leo.

*Felis leo*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 60 (1766); *Blyth Cat.*, p. 53; id. *P. Z. S.*, 1863, p. 182; *Ferdon Mamm.*, p. 91; *Blanford J. A. S. B.*, xxxvi, p. 189; *G. King P. A. S. B.*, 1868, p. 198; *Stoliczka J. A. S. B.*, xli, p. 226; *Blanford Persia*, p. 29; *Ball P. A. S. B.*, 1881, p. 3; *Elliot Monog. Felidæ* no. i; *Sterndale Mamm. Ind.*, p. 159; *Blanford Mammals*, p. 56. *Felis leo goojratensis*, *Smees Trans. Zool. Soc.*, i, p. 165, pl. xxiv (1833). *Leo barbarus*, *Gray List Mamm. B. M.*, p. 39 (1843). *Leo nobilis*, *Gray P. Z. S.*, p. 263 (1867); id., *Cat. Carn. Mamm.*, p. 9.

The Lion; Hindustani, Sher, Singha; Persian, Shir; Bengali, Shingal; Guzerat, Untia bag; Kattywar, Sawach.

*Distribution.*—Africa from Algeria to the Cape; Mesopotamia on the west flanks of the Zagros range and Persia south of Shiraz, but not on the tableland; India (see notes below).

The Lion was formerly more widely spread in India than it is at the present day. The districts in which it occurs or has occurred are Guzerat in the extreme west of India, Central India and Bundelcund. Blanford in the *Journal As. Soc.*, vol. xxxvi, p. 189, gives accounts of a lion shot near Rewah in 1866; also of a lion stoned to death by a Mr. Arratoon of the Police at Sheorajpur, 25 miles west of Allahabad; in the *Asian* newspaper of June 30th, 1885, Colonel Martin, of the Central India Horse, mentions that he and General Travers killed in 1860 two lions on a hill to the west of Goona in Gwalior; and in 1862 he, with Colonel Beadon, Deputy Commissioner, turned out and killed no less than eight lions at a place called Patulghur, 70 miles north-west of Goona. The last lion in Central India, of which I can find any record, was shot by Colonel Hall near Goona in 1873.

Of the Lions of Guzerat, an exceedingly good account is given by Major General Rice in a book called "Indian Game," published in 1884. I have heard too of a lion being killed in 1888 in Guzerat, so that it is evident that the lion is not extinct in India yet, although it seems probable that he soon will be.

An account of the lion of Mount Abu (a skull of which is in the collection) is given by Dr. G. King (*l. c.*).

The skull of the lion is easily distinguished from that of the tiger by the two following points:—

- (1) In the lion the posterior processes of the nasal bones do not extend so far back as the frontal processes of the maxillæ; in the tiger the posterior processes of the nasals extend back far beyond the frontal processes of the maxillæ.
- (2) In the lion the distance between the anterior parietal suture and the postorbital processes is much shorter than in the tiger, so that the former may be called a short-waisted skull as compared with the latter.

There does not seem to be any differences in the teeth.

a. Skin, skull	♂	.....	Babu H. M. Roy.
b. Skin, skull	♀ juv.	Kattywar	Zoological Gardens.
c. Skin, skull	♀ juv.	.....	Zoological Gardens.
d. Stuffed	♂ juv.	.....	Zoological Gardens.
e. Skeleton		Algeria	A. D. Bartlett, 1849, A.S.B.
<i>f-h.</i> 3 skulls		.....	E. Blyth, A.S.B.
j. Skull		.....	People's Park, Madras.
k. Skull	♀ juv.	Mount Abu, Rajputana	G. King, 1868.
l. Skeleton	♂	.....	Woombell's Menagerie.
m. Skeleton	♂	.....	Zoological Gardens.
n. Skull juv. (newborn)		.....	O. L. Fraser.

### Felis tigris.

*Felis tigris*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 61 (1766); *Raffles Linn. Trans.* xiii, p. 249; *Sykes P. Z. S.*, 1831, p. 102; *Elliot Madras Journ.*, x, p. 104; *Cantor F. A. S. B.*, xv, p. 243; *Horsfield Cat. E. I. Mus.*, p. 43; *Blyth Cat.*, p. 54; *id. P. Z. S.*, 1863, p. 182; *Ferdon Mamm.*, p. 92; *McMaster Notes on Ferdon*, pp. 19, 150; *Schrenck Amurland Säugeth.*, p. 90; *Swinhoe P. Z. S.*, 1870, p. 626; *Stoliczka, F. A. S. B.*, xli, p. 226; *Blyth F. A. S. B.*, xlv, *Burma list*, p. 27; *Blanford Persia*, p. 34; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 49; *Anderson Anat. Zool. Res.*, p. 160; *Elliot Monog. Felidæ*, no. 3; *Dode P. Z. S.*, 1871, p. 480; *Sterndale Mamm. Ind.*, p. 161; *Inverarity F. Bomb. Soc.*, iii, p. 143; *Thomas Linn. Trans.* (2), v, p. 55; *Radde Zool. F. B.*, iv, p. 1009; *Anderson F. Linn. Soc.*, xxi, p. 338; *Blanford Mammals*, p. 58.

*Tigris regalis*, *Gray List Mamm. B. M.*, p. 40 (1843); *id. Cat. Hodgs. Coll.* 1st ed., p. 4; *Adams P. Z. S.*, 1858, p. 513; *Gray Cat. Carn. Mamm.*, p. 10.

The Tiger; Hind., Bagh, Pantayat bagh or Sher; Bengali, Gowagh or Salawagh; Marhatta, Wahag, Pultite wagh; Bundelcund, Nahar; Telegu, Puli; Canarese, Huli; Lepch., Suhtong; Bhot., Tukh; Gonds, Publiah; Sind, Sheendh; Tibet, Tagh; Burmese, Kya.

*Distribution*.—From the Caucasus through Northern Persia (Blanford), Turkestan and Afghanistan, India, Assam, Lower and Upper Burma, Malay Peninsula (Cantor), Sumatra, Java (Temminck), Borneo? extending through China (Swinhoe) and Manchuria to Amurland (Schrenck).

In India found nearly everywhere from the Himalayas to Cape Comorin, but is not known from Ceylon.

The largest skull in the collection is the one marked "z" from the Purneah District, presented by Mr. J. Shillingford; this skull measures 15 inches from the premaxillæ to the posterior end of the supraoccipital; across the zygomata 10.3 inches; and in height with the lower jaw 7.5 inches; the largest skin is "a" from Barrackpore Park which, from the tip of the nose to the end of the tail, measures 10 feet 1 inch or, without the tail, 7 feet; these of course are measurements from the dried skin and are probably therefore considerably larger than measurements taken from the animal in the flesh would have been.

The size of tigers has been a source of much discussion, some authors, *i.e.* Mr. G. P. Sanderson and Dr. Jerdon believe that the tiger fairly measured never exceeds 10 feet and perhaps a few inches; others maintain that 11 and 12 feet tigers are by no means uncommon. Sir J. Fayrer (*Nature*, xviii, p. 219) gives a good many well-authenticated cases of tigers well over 10 feet, among them is included the tiger, the measurement of whose skull is given above; this, the Purneah large tiger measured 10 feet 8 inches according to Sir J. Fayrer; Sterndale discusses the question at some length in his book on the Indian Mammalia, he has worked

out a formula by means of which the total length of a tiger can be calculated from the skull measurements; from the formula Mr. Sterndale calculates the length of the Purneah tiger to be 10 feet 10 inches.

There seems to be no doubt that the Bengal tiger is a larger and more lanky animal than the tiger of the Central Provinces and Southern India, though in an all round measurement (Sterndale, p. 167), the Southern Indian tiger sometimes has the advantage.

The tiger of Central Asia and of Amurland is generally of a much richer colour with darker stripes, and the fur is very much more woolly, this can be seen very clearly in the case of the Afghan tiger brought home by Dr. Aichison of the Afghan Boundary Commission now or lately living in the Zoological Society's Gardens in London.

a. Skin, skull	♂	.....	Barrackpore Menagerie.
b. Skin	♀ juv.	.....	W. Rutledge, 1875.
c. Skin	♂	.....	W. Rutledge, 1875.
d. Skin	♂ juv.	Purneah, Bengal	J. F. Barckley, 1875.
e. Skin, skull	♀ juv.	.....	W. Rutledge, 1882.
f. Skin, skeleton	♂	Sunderbuns, Bengal	Purchased.
g. Skin	♀ juv.	.....	W. Rutledge.
h. Stuffed head		.....	Barrackpore Menagerie.
i. Stuffed	♀ juv.	Sunderbuns, Bengal	W. Rutledge.
k. Skeleton	♀ juv.	.....	No history.
l. Skeleton	♀	Jessore, Bengal	O. L. Fraser.
m. Skeleton		Mergui, Tenasserim	J. Anderson.
n. Skeleton	♂	... ..	Barrackpore Menagerie.
o. Skull	♀ juv.	.....	W. Rutledge.
p. Skull	♂ juv.	.....	W. Rutledge.
q. Skull	juv.	Shahabad, Bengal	J. F. Barckley.
r. Skull	♂	... ..	Barrackpore Menagerie.
s. Skull	♀	.....	A.S.B.
t. Skull	♂	.....	A.S.B.
u. Skull		.....	Barrackpore Menagerie, A.S.B.
v. Skull		.....	A.S.B.
w. Skull		.....	A.S.B.
x. Skull		.....	A.S.B.
y. Skull		Dehing, Assam	A.S.B.
z. Skull	♂	Purneah, Bengal	J. Shillingford.
a <sup>2</sup> . Bones of feet		Gandhra, Rohtak	Lahore Museum.
b <sup>2</sup> . Skull		.....	E. Blyth, 1855, A.S.B.
c <sup>2</sup> . Alc., ♀ juv. (1 day old).		.....	W. Rutledge.
d <sup>2</sup> . Alc., fœtus		.....	Purchased.
e <sup>2</sup> . Alc., fœtus		Assam	A.S.B.

### Felis uncia.

*Felis uncia*, Schreber *Säugeth.*, iii, p. 386, pl. c (1778); *Blyth Cat.*, p. 58; id. *P. Z. S.*, 1863, p. 183; *Ferdon Mamm.*, p. 101; *Lydekker F. A. S. B.*, xlvi, p. 284; *Blanford Yarkand Mamm.*, p. 19; id. *Persia*, p. 35; *Scully P. Z. S.*, 1881, p. 201; *Dode P. Z. S.*, 1871, p. 480; *Elliot Monog. Felidæ* no. 4; *Sterndale Mamm. Ind.*, p. 184; *Blanford Mammals*, p. 71.

- Felis pardus*, *apud Pallas Zoog. Rosso As.*, i., p. 17 (1811).  
*Felis irbis*, *Ehrenberg Ann. Sci. Nat.*, xxi, p. 394 (1830); *Radde Ost Siberien*, i., p. 104; *Schrenck Amurland Säugeth.*, p. 96; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 49; *Milne Edwards Rech. Mamm.*, p. 213.  
*Leopardus uncia*, *Gray List Mamm. B. M.*, p. 41 (1843); *id. Cat. Hodgs. Coll.*, 1st ed., p. 5.  
*Uncia irbis*, *Gray Ann. Mag. N. H.* (2), xiv, p. 394 (1854); *id. Cat. Carn. Mamm.*, p. 9.  
*Felis uncioides*, *Horsfield Ann. Mag. N. H.* (2), xvi, p. 105 (1855).

Ounce or Snow Leopard; Simla, Burrel hay; Bhootea, Sah; Lepcha, Páhte; Tibetan, Iker.

*Distribution*.—All the high regions of Central Asia, Gilgit, Hunza (Scully), Turkestan, Trans-Baikalia, Amurland, Persia (Blanford), Western China (Milne Edwards).

In India the ounce has only been got in the higher ranges of the Himalayas, and, as a rule, not below an elevation of 8,000 feet.

a. Skin, skull	.....	Sir A. W. Croft, 1883.
b. Skin	Leh Ladak	H. J. Elwes, 1879.
c. Skin	Yarkand	F. Stoliczka, 1873.
d. Skin	Yarkand	F. Stoliczka, 1873.
e. Stuffed	.....	G. T. Lushington, 1845.
f. Skull juv.	Serikol, Kashgar	F. Stoliczka.
g. Skin, skull ♂	Chaprot, Gilgit, 4-4-79	J. Scully.
h. Skull	Gilgit	J. Scully.

### *Felis pardus*.

- Felis pardus*, *Linnæus Syst. Nat.*, 12th ed., i, p. 61 (1766); *Sykes P. Z. S.*, 1831, p. 102; *Elliot Madras Journ.*, x., p. 106; *Müller Over de Zoogdieren in Tem. Verhandl.* p. 29; *Horsfield Cat. E. I. Mus.*, p. 46; *Blyth Cat.* no. 173, p. 55; *id. P. Z. S.*, 1863, p. 183; *Ferdon Mamm.*, p. 97; *McMaster Notes on Ferdon*, p. 23; *Swinhoe P. Z. S.*, 1870, p. 628; *Stoliczka F. A. S. B.*, xli, p. 226; *Lydekker F. A. S. B.*, xlvi, p. 284; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 27; *Blanford Persia*, p. 34; *Anderson Anat. Zool. Res.*, p. 161; *Spearman Burma Gazett.*, p. 550; *Danford and Alston P. Z. S.*, 1880, p. 51; *Elliot Monog. Felidæ*, no. 6; *Murray Zool. Sind*, p. 27; *Sterndale Mamm. Ind.* p. 179; *Radde Zool. F. B.*, iv., p. 1010; *Blanford Mammals*, p. 67.  
*Felis leopardus*, *Erxleben Syst. Regn. Anim.*, p. 509 (1777); *Sykes P. Z. S.*, 1831, p. 102; *Cantor F. A. S. B.*, xv, p. 243; *Horsfield Cat. E. I. Mus.*, p. 45; *Kelaart Prodr. Faun. Zeylan.*, p. 45.  
*Felis panthera*, *Pallas Zoog. Rosso As.*, i, p. 18 (1811); *Sterndale Mamm. Ind.*, p. 183.  
*Felis melas*, *Desmarest Mamm.*, p. 223 (1820).  
*Leopardus varius*, *Gray List Mamm., B. M.*, p. 40 (1843); *id. Cat. Hodgs. Coll.*, 1st ed., p. 5; *Adams P. Z. S.*, 1858, p. 513.  
*Felis tulliana*, *Valenciennes Comptes Rend.*, xlii, p. 1039 (1856).  
*Felis poecilura*, *Valenciennes Comptes Rend.*, xlii, p. 1036 (1856).  
*Leopardus japonensis*, *Gray P. Z. S.*, p. 262, pl. xxxiii (1862); *id. Cat. Carn. Mamm.*, p. 11.  
*Leopardus perniger*, *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 3 (1863).  
*Felis fontanieri*, *Milne Edwards Ann. Sci. Nat. Zool.* (5), viii, p. 375 (1867); *id. Rech. Mamm.*, p. 208, pls. xxix-xxxi (1869).



*Leopardus chinensis*, Gray P. Z. S., p. 264 (1867); id. *Cat. Carn. Mamm.*  
p. 11.

*Leopardus pardus*, Gray P. Z. S., p. 263 (1867); id. *Cat. Carn. Mamm.*  
p. 10.

The Leopard or Panther; Tendwa, Chita, Chitabagh, Sher, Gorbacha, Hind; Beyhewe, Tahirhay, Segabaga, Ghurbag, Dheer hay, in the Himalayas; Asnee, Beebeerbagh, Mahrat; Honiga, Kegkal, Canarese; Chinnapulli, Telegu; Burkel bille of Gonds; Sik, Tibetan; Cooteal, Singalese; Kyamai, Keythit, Burmese.

*Distribution.*—Africa generally, Asia Minor (Alston), Persia (Blanford), Baluchistan (Murray), India, Assam, Ceylon (Kela-art), Lower Burma, Upper Burma (Anderson), Malay Peninsula (Cantor), Sumatra and Java (Temminck), South China (Swinhoe); North China (Swinhoe, Gray and Milne Edwards).

In India the leopard seems to be generally distributed from Sind (Murray) and the Himalayas throughout at moderate elevations to the extreme south.

There is a very large series of leopards' skulls in the Museum, and from an examination of these it is manifest that no real specific distinction can be drawn between the so-called Leopard and Panther.

The skulls of the Leopard differ enormously in size, so that at first it seemed possible to separate them into two groups, a larger and smaller; further examination, however, showed that there was a perfect gradation between the two extremes as the following measurements will show; Nos. 1 and 2 were the two extremes of the panthers, *i.e.*, larger variety, Nos. 3 and 4 of the leopard or smaller variety:—

*Measurements in inches.*

In the list,	Length.	Palate length.	Width of brain-case.	Lower jaw.
1. "r"	7'70	3'75	3'10	5'90
2. "u"	6'95	3'50	2'70	5'23
3. "f"	6'40	3'30	2'50	4'75
4. "e <sup>2</sup> "	5 80	2'80	2'45	4'20

These measurements on being reduced to a common base, *i.e.*, the total length of the skull being taken as 100, show that there is a progressive increase in the width of the brain-case, as the skull decreases in length, which is the character that has been given for the leopard's skull as opposed to the panther.

1.	"r"	100	48	27	76
2.	"u"	100	50	30	75
3.	"f"	100	51	39	74
4.	"e <sup>2</sup> "	100	48	41	72

a. Skin, skull ♂	.....	Zoological Gardens, 1878.
b. Skin ♂ juv.	.....	W. Rutledge, 1875.
c. Skin ♂ juv.	.....	W. Rutledge, 1875.
d. Skin	Muangla, Sanda Valley, Yunan.	J. Anderson.
e. Skin	Muangla, Sanda Valley, Yunan.	J. Anderson.
f. Skin, skull ♀	.....	Zoological Gardens, 1879.
g. Skin, skeleton ♀	.....	W. Rutledge.
h. Skin ♂	.....	W. Rutledge.
j. Stuffed	.....	No history, 1867.
k. Stuffed	.....	Barrackpore Menagerie, 1869.
l. Skin and skull ♂	[Black var.]	W. Rutledge, 1883.
m. Skin and skull ♀	[Black var.]	Zoological Gardens, 1880.
n. Stuffed	[Black var.] Assam.	F. Jenkins, 1844.
o. Skeleton ♂	.....	Zoological Gardens.
p. Skeleton ♀ juv.	... "	No history.
q. Skeleton	.....	Barrackpore Menagerie, 1847, A. S. B.
r. t. 3 Skulls	.....	No history, A. S. B.
u. Skull ♂	.....	W. Rutledge.
v. Skull, skelet.	Purneah, Bengal	J. Shillingford.
w. Skull	.....	Zoological Gardens, 1882.
x. Skull ♂	.....	Rajah Rajendra Mullick.
y. Skull ♂	.....	W. Rutledge.
z. Skull	.....	Zoological Gardens.
a <sup>2</sup> . Skull	.....	A. S. B.
b <sup>2</sup> . Skull juv.	.....	A. S. B.
c <sup>2</sup> . Skeleton	[Black var.]	W. Rutledge.
d <sup>2</sup> . Skeleton	" "	W. Rutledge.
e <sup>2</sup> . Skull	" "	G. King.
f <sup>2</sup> . Skull	" "	W. Rutledge.
g <sup>2</sup> . Alc. still horn.	" "	Zoological Gardens.
h <sup>2</sup> . Alc. juv.	" "	Zoological Gardens.
i <sup>2</sup> . Skull juv.	Muangla, Yunnan	J. Anderson.

### Felis nebulosa.

- Felis nebulosa*, *Griffith Descrip. Vert.*, p. 37 (1821)\*; id. *An. Kingd.*, v, p. 164 (1827); *Blanford Mammals*, p. 72.
- Felis diardi*, *G. Cuvier Oss. foss.*, 2nd ed., iv, p. 437 (1823)\*; *Blyth P. Z. S.*, 1863, p. 183; *Ferdon Mamm.*, p. 102; *Elliot Monog. Felidæ*, no. 7, *Sterndale Mamm. Ind.*, p. 185.
- Felis macrocelis*, *Horsfield Zool. Journal*, i, p. 542, pl. xxi (1825); *Müller Over de Zoogdieren in Tem. Verhondl.*, p. 29; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 27; *Spearman Burma Gazett.*, p. 550; *Swinhoe P. Z. S.*, 1870, pp. 228 & 628.
- Felis* sp., *Tickell F. A. S. B.*, xii, p. 814 (1843).
- Felis macroceloides*, *Hodgson Calc. Journ. N. H.*, iv, p. 286 (1844); *Blyth Cat.*, no. 175, p. 58; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 5; *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 3.

- Uncia macrocelis*, *Gray Ann. Mag. N. H.* (2), xiv, p. 394 (1854).  
*Uncia macroceloides*, *Gray Ann. Mag. N. H.* (2), xiv, p. 394 (1854).  
*Leopardus brachyurus*, *Swinhoe P. Z. S.*, p. 352 (1862).  
*Felis brachyura*, *Blyth P. Z. S.*, p. 183 (1863).  
*Neofelis brachyurus*, *Gray P. Z. S.*, p. 266 (1867); *id. Cat. Carn. Mamm.*, p. 14.  
*Neofelis macrocelis*, *Gray P. Z. S.*, p. 266 (1867); *id. Cat. Carn. Mamm.*, p. 13.

The Clouded Tiger; Tungmar, Lepch.; Zik, Bhotea.; Lamchitta, Khas tribe of Nepal; Thit-kyoung, Burmese.

*Distribution*.—The Himalayas from Nepal (Hodgson) to Sikkim and Assam, hills of Burma and Siam, Malay Peninsula, Sumatra Java, Borneo (Müller), Formosa (Swinhoe).

This species has received a great many different names; the name used here, *i.e.*, *F. nebulosa*, which is apparently the oldest, was recently rediscovered by Mr. Blandford, and, as he has adopted it in his hand-book on Indian Mammals, it has been used here.

a. Skin, skull ♂	Sibsagar, Assam (S. E. Peal.)	Zoological Gardens.
b. Skin, skelet.	.....	W. Rutledge, 1886.
	♀	
c. Skin	♂	W. Rutledge, 1882.
d. Stuffed	Sikkim	E. B. Ryan, 1843, A. S. B.
e. Stuffed	Sikkim	B. H. Hodgson, A. S. B.
f. Skeleton	.....	W. Rutledge, 1882.
g. Skull	Labong, Bt. Sikkim	Purchased, 1876.

### *Felis marmorata*.

- Felis marmorata*, *Martin P. Z. S.*, p. 107 (1836); *Cantor F. A. S. B.*, xv, p. 244; *Blyth Cat.*, no. 177, p. 59; *id. P. Z. S.*, 1863, p. 183; *Ferdon Mamm.* p. 104; *Elliot Monog. Felidæ*, no. 8; *Sterndale Mamm. Ind.*, p. 188; *Blandford Mammals*, p. 74.  
*Felis diardi*, *apud Jardine Nat. Libr.*, ii, p. 221 (1837).  
*Felis longicaudatus*, *Blainville Osteog.*, ii, *Felis*, p. 47 (1839-64).  
*Leopardus marmoratus*, *Gray List Mamm. B. M.*, p. 42 (1843).  
*Felis chalconi*, *Gray Ann. Mag. N. H.*, xviii, p. 211 (1846); *Blyth Cat.*, p. 59, no. 176.  
*Felis ogilbi*, *Hodgson Calc. Journ. N. H.*, viii, p. 44 (1846).  
*Uncia marmorata*, *Gray Ann. Mag. N. H.*, (2), xiv, p. 394 (1854).  
*Uncia chalconi*, *Gray Ann. Mag. N. H.* (2), xiv, p. 394 (1854).  
*Leopardus dorsul*, *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 3 (1863).  
*Catolynx marmoratus*, *Gray P. Z. S.*, p. 267 (1867); *id. Cat. Carn. Mamm.*, p. 16.  
*Catolynx chalconi*, *Gray P. Z. S.*, p. 268 (1867); *id. Cat. Carn. Mamm.*, p. 16.  
 ? *Felis scripta*, *Milne Edwards Rech. Mamm.*, p. 341, pls. lvii, lviii, fig. 1 (1874).

*Distribution*.—Himalayas from Sikkim to Assam, Burma to Malay Peninsula (Cantor), Sumatra (Haagen), Java? and perhaps is the same as Milne Edwards' *Felis scripta* from East Thibet.

## The Marbled Cat; Bhotea, Sikmar; Lepcha, Dosal.

a. Skin	.....	W. Rutledge, 1881.
b. Skin, skull ♂	Bhootan	W. Rutledge, 1874.
c. Skin, skelet.	.....	W. Rutledge, 1882.
d. Skin, skull ♂	.....	W. Rutledge, 1881.
e. Skin, skelet. ♂	.....	W. Rutledge, 1885.
f. Skin	Samagooting, Assam	Mus. Coll., Shaik Kureem.
g. Stuffed	Malacca	Rev. F. J. Lindstedt, 1845, A.S.B.
h. Stuffed	Malacca	Rev. F. J. Lindstedt 1845, A.S.B.
j. Skin, skull ♀	.....	Zoological Gardens.

**Felis temmincki.**

- Felis temminckii*, *Vigors and Horsfield Zool. Journ.*, iii, p. 451, pl. xxii sup. (1828); *Elliot Monog. Felidæ* no. 15; *Spearman Burma Gazett.*, p. 551; *Blanford Mammals*, p. 75.
- Felis moormensis*, *Hodgson Gleanings in Science*, iii, p. 177 (1831); id. *P. Z. S.*, 1832, p. 10; *Horsfield Cat. E. I. Mus.*, p. 49.
- Leopardus moormensis*, *Gray List Mamm. B. M.*, p. 41 (1843); id. *Cat. Hodgs. Coll.*, 1st ed, p. 5.
- Felis aurata*, *apud Blyth P. Z. S.*, p. 185 (1863); *Ferdon Mamm.*, p. 107; *P. L. Sclater P. Z. S.*, 1867, p. 816, pl. xxxv; *Sterndale Mamm. Ind.*, p. 181.
- Felis nigrescens*, *Gray Cat. Hodgs. Coll.*, 2nd ed, p. 4 (1863).
- Leopardus auratus*, *Gray P. Z. S.*, p. 265 (1867); id. *Cat. Carn. Mamm.*, p. 12.

## The Golden or Fire Cat; Nepal, Murmi.

*Distributions.*—Himalayas at moderate elevations from Nepal and Sikkim to the Tipperah hills, Burma, the Malay Peninsula and Sumatra?

a. Skin, skull ♂	.....	O. L. Fraser, 1880.
b. Skin, skull ♂	Tipperah Hills, Beng.	Zoological Gardens, 1878.
c. Skin	Sikkim	L. Mandelli, 1877.
d. Skin, skelet. ♂	Sumatra?	W. Rutledge, 1882.
e. Stuffed	Malacca	Dr. Maingay, 1867.

**Felis planiceps.**

- Felis planiceps*, *Vigors and Horsfield Zool. Journ.*, iii, p. 450, pl. xxii (1828); *Müller Oer de Zoogdieren in Tem. Verhandl.*, p. 29; *Cantor F. A. S. B.*, xv, p. 245; *Blyth Cat.* no. 180, p. 62; id. *P. Z. S.* 1863, p. 185; *Elliot Monog. Felidæ* no. 16.
- Ailurina planiceps*, *Gervais Hist. Nat. Mamm.*, ii, p. 87 (1855)\*.
- Viverriceps planiceps*, *Gray P. Z. S.*, p. 269 (1867); id. *Cat. Carn. Mamm.*, p. 17.

## The Little Fire Cat.

*Distribution.*—Malay Peninsula, Sumatra and Borneo (Müller) perhaps extending into Tenasserim.

a. Skin, skelet. ♂	.....	W. Rutledge.
b. Stuffed, skull	.....	Purchased, 1869.
c. Stuffed	Malacca	C. Huffnagle, 1846, A.S.B.

**Felis bengalensis.**

- Felis bengalensis*, *Kerr Linn. Anim. Kingd.*, p. 151 (1792)\*; *Raffles Linn. Trans.*, xiii, p. 249; *Horsfield Cat. E. I. Mus.*, p. 49; *Adams P. Z. S.*, 1858, p. 514; *Blyth Cat.* no. 178, p. 60; id. *P. Z. S.*, 1863, p. 184; *Jerdon Mamm.*, p. 105; *McMaster Notes on Jerdon*, p. 29; *Anderson Anat. Zool. Res.*, p. 164; *Elliot Monog. Felidae* no. 20; *Sterndale Mamm. Ind.*, p. 189; *Blanford P. Z. S.*, 1887, p. 627; id. *Mammals*, p. 78.
- Felis javanensis*, *Desmarest N. Dict. d' Hist. Nat.*, vi, p. 115 (1816); *Horsfield Zool. Res.* with plate; id. *Cat. E. I. Mus.*, p. 48; *Elliot Monog. Felidae* no. 27.
- Felis sumatrana*, *Horsfield Zool. Res.* with plate (1824); id. *Cat. E. I. Mus.*, p. 48.
- Felis minuta*, *Temminck Monogr. Mamm.*, i, p. 130 (1827); *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 29; *Günther P. Z. S.*, 1879, p. 75; *Fentink Notes Leyd. Mus.*, v, p. 177.
- Felis nipalensis*, *Vigors and Horsfield Zool. Journ.*, iv, p. 382 (1829).
- Felis chinensis*, *Gray Charlesw. Mag. N. H.*, i, p. 577 (1837); *Swinhoe P. Z. S.*, 1870, p. 629; *Milne Edwards Rech. Mamm.*, pl. xxxib, p. 216.
- Felis* sp., "Wagati of Mahrattas;" *Elliot Madras Journ.*, x, p. 108 (1839).
- Leopardus ellioti*, *Gray Ann. Mag. N. H.*, x, p. 260 (1842); id. *Cat. Hodgs. Coll.*, 1st ed., p. 6.
- Leopardus horsfieldii*, *Gray Ann. Mag. N. H.*, x, p. 260 (1842).
- Chaus servalinus*, *Gray List Mamm. B. M.*, p. 45 (1843).
- Leopardus javanensis*, id. *ibid.*, p. 43 (1843).
- Leopardus sumatranus*, id. *ibid.*, p. 43 (1843).
- Leopardus chinensis*, id. *ibid.*, p. 43 (1843).
- Leopardus reevesi*, id. *ibid.*, p. 44 (1843).
- Felis pardochrous*, *Hodgson Calc. Journ. N. H.*, iv, p. 286 (1844); *Horsfield Cat. E. I. Mus.*, p. 47.
- Felis jerdoni*, *Blyth P. Z. S.*, p. 185 (1863); *Jerdon Mamm.*, p. 107.
- Felis servalina*, *Gray P. Z. S.*, p. 401 (1867).
- Felis tenasserimensis*, id. *ibid.*, p. 400 (1867).
- Felis wagati*, id. *ibid.*, p. 400 (1867).
- Viverriceps ellioti*, id. *ibid.*, p. 269 (1867).
- Felis herschellii*, *Gray Cat. Carn. Mamm.*, p. 28 (1869).
- Felis undata*, *apud Blyth F. A. S. B.*, xlv, *Burma List*, p. 27 (1873); *Radde Ost Siberien*, p. 106; *Spearman Burma Gazett.*, p. 551.

Leopard Cat; Chita billa, Hindi; Bun beral, Bengali; Wagati, Shan-rah-manjur, Mahrattas; Theet-kyoung, Arakan; Kbye-thit, Burmese.

*Distribution.*—India from the Himalayas to the extreme south (not including Ceylon), Assam, Upper and Lower Burma, Malay Peninsula, Java, Sumatra and Borneo (Müller), Philippines (Günther), South China and Formosa (Swinhoe), North China (Milne Edw.) and Amurland (Radde).

This species, as is evident from the number of synonyms which have been applied to it, is a very variable one; the three chief forms beside the typical *F. bengalensis* are *Felis pardochroa* of Hodgson, *F. javanensis* of Desmarest and *F. sumatrana* of Hors-

field; there are in the Museum typical specimens of all these three varieties.

*F. pardochroa* ("w") differs from the ordinary *F. bengalensis* merely in having the ground colour a bright yellow instead of the ordinary gray or grayish yellow; the skull, however, resembles in every respect the typical *F. bengalensis*.

*Felis javanensis* ("k<sup>2</sup>") has some resemblance to *F. viverrina* in having a grizzly gray ground and in the spots being arranged to a certain extent in straight lines instead of irregularly.

*Felis sumatrana* ("l<sup>2</sup>") resembles the ordinary *F. bengalensis* in every way. There does not seem to be any differences in the skulls of these three forms.

a.	Skin, skull ♂	.....	W. Rutledge, 1875.
b.	Skin, skele- ton ♂	.....	Zoological Gardens.
c.	Skin, skull ♀	Tipperah hills	Zoological Gardens.
d.	Skin, skull ♂	.....	W. Rutledge, 1881.
e.	Skin, skull ♂	.....	W. Rutledge, 1881.
f.	Skin, skele- ton ♀	.....	Zoological Gardens.
g.	Skin, skele- ton ♀	.....	Zoological Gardens.
h.	Skin, skele- ton.	.....	Zoological Gardens.
j.	Skin	Momien, Yunan, 6,000 ft.	J. Anderson.
k.	Skin	Momien, Yunan, 6,000 ft.	J. Anderson.
l.	Skin	Momien, Yunan, 6,000 ft.	J. Anderson.
m.	Skin	Kakhyen Hills	J. Anderson.
n.	Skin	Chittagong	E. R. Shopland, A. S. B.
o.	Skin	Coromandel Coast	Sir W. Elliot, A. S. B.
p.	Skin	Malay Peninsula	Rev. F. J. Lindstedt.
q.	Skin	Sikkim	L. Mandelli.
r.	Skin	Sikkim	L. Mandelli.
s.	Skin	Sikkim	L. Mandelli.
t.	Skin	Sikkim	No history.
u.	Skin	Sikkim	No history.
v.	Skin	Sikkim	No history.
w.	Skin, skull	Nepal (Hodgson)	India Mus., London.
x.	Stuffed	Sunderbunds, Beng.	No history.
y.	Stuffed	.....	Barrackpore Menagerie.
z.	Stuffed	Assam	F. Jenkins, 1842, A. S. B.
a <sup>2</sup> .	Stuffed	Sikkim	Dr. Brougham, 1871.
b <sup>2</sup> .	Stuffed	Sikkim	Dr. Brougham, 1871.
c <sup>2</sup> .	Stuffed	Coromandel Coast	Sir W. Elliot, 1848, A.S.B.
d <sup>2</sup> .	Skeleton mtd.	.....	A.S.B.
e <sup>2</sup> .	Skull	.....	Zoological Gardens, 1879.
f <sup>2</sup> .	Skeleton	.....	Zoological Gardens.
g <sup>2</sup> .	Skeleton	.....	W. Rutledge.
h <sup>2</sup> .	Skin	Sikkim ?	Purchased.
i <sup>2</sup> .	Skin	Sikkim	Purchased.
k <sup>2</sup> .	Skin, skull	Java (Horsfield)	India Mus., London.
l <sup>2</sup> .	Skin, skull	Sumatra (Sir S. Raffles)	India Mus., London.

**Felis viverrina.**

- Felis viverrina*, *Bennett P. Z. S.*, p. 68 (1833); *Horsfield Cat. E. I. Mus.*, p. 49; *Blyth P. Z. S.*, 1863, p. 184; *Jerdon Mamm.*, p. 103; *McMaster Notes on Jerdon*, p. 28; *Swinhoe P. Z. S.*, 1870, p. 628; *Blyth J. A. S. B.*, xliv, *Burma List*, p. 27; *Atkinson N.-W.P. Gazett.*, xi, p. 17; *Spearman Burma Gazett.*, p. 551; *Elliot Monog. Felidae*, no. 21; *Murray Zool. Sind*, p. 28; *Blanford Mammals*, p. 76.
- Felis viverriceps*, *Hodgson J. A. S. B.*, v., p. 232 (1836); *Kelaart Prodr. Faun. Zeylan.*, p. 46.
- Felis himalayana*, *Jardine Nat. Libr. Mamm.*, ii, p. 230 (1837).
- Leopardus viverrinus*, *Gray List Mamm. B. M.*, p. 43 (1843).
- Leopardus celidogaster*, *apud Gray Cat. Hodgs. Coll.*, 1st ed., p. 6 (1846).
- Felis celidogaster*, *Blyth Cat.* no. 179, p. 61 (1863).
- Viverriceps bennettii*, *Gray P. Z. S.*, p. 268 (1867); *id. Cat. Carn. Mamm.* p. 16.

The Large Tiger Cat or Fishing Cat; Bunbiral, Kupya-bagh, Hindi; Machbagrul, Bagh-dasha, Bengali; Handoon deeva, Cingalese.

*Distribution*.—India, Ceylon (Kelaart); Lower Burma (McMaster), Tenasserim (Spearman), and Formosa (Swinhoe).

In India is recorded from the banks of the Indus (Murray), Lower ranges of the Himalayas, Nepal Terai (Hodgson), Assam and Bengal; Jerdon also gives Travancore and the Malabar coasts. It does not seem to be found in Central India.

a. Skin, skeleton	♂	.....	Rajah Rajendra Mullick.
b. Skin, skeleton	♀	.....	W. Rutledge, 1873.
c. Skin	Cachar		Mus. Collector.
d. Skin	Calcutta		A. S. B.
e. Stuffed	Calcutta		Sir J. Fayrer.
f. Stuffed	Bengal		Purchased.
g. Skull	Bengal		Purchased.
h. Skull.		.....	A. S. B.
i. Stuffed and skull juv. ♂		.....	W. Rutledge.
k. Stuffed juv.	Calcutta		R. Swinhoe.
l. Skeleton	Calcutta		No history.
m. Skull juv.		.....	A. S. B.
n. Skin	Ceylon		Colombo Museum.

**Felis rubiginosa.**

- Felis rubiginosa*, *Is. Geoff. St. Hil. Voy. aux Indes Orient. Belanger*, p. 140, pl. vi (1834); *Kelaart Prodr. Faun. Zeylan.*, p. 47; *Blyth P. Z. S.*, 1863, p. 185; *Jerdon Mamm.*, p. 108; *Elliot Monog. Felidae* no. 28; *Sterndale Mamm. Ind.*, p. 192; *Blanford P. Z. S.*, 1887, p. 629; *id. Mammals*, p. 81.
- Viverriceps rubiginosa*, *Gray P. Z. S.*, p. 269 (1867); *id. Cat. Carn. Mamm.*, p. 18.

The Rusty Spotted Cat; Namali pilli or Verewa puni, Tamil; Coolla-deeva, Cingalese.

*Distribution*.—Madras coasts, hills of Southern India, Ceylon (Kelaart), and perhaps Central India, Seonee (Sterndale).

a. Skin, skull ♀	.....	Zoological Gardens.
b. Skin, skull ♀	.....	Zoological Gargens.
c. Stuffed, skele- ton ♀	.....	Zoological Gardens.
d. Skin	Ceylon	Colombo Museum, 1887.
e. Skin	♂ Bangalore	Museum Coll. (Jaffa).

### Felis manul.

*Felis manul*, *Pallas Reise*, iii, p. 692 (1776)\*; *Brandt Bull. Acad. St. Petersb.* ix, 1841, p. 37\*; *Blyth P. Z. S.*, 1863, p. 185; *Elliot Monog. Felidæ*, no. 9, *Blanford Mammals*, p. 83; *Radde Zool. F. B.*, iv, p. 1013.  
*Felis nigripsectus*, *Hodgson F. A. S. B.*, xi, p. 276, with plate (1842).

Pallas' Cat.

*Distribution*.—Central Asia generally from Mongolia and Thibet to the Transcaspian region, extending to within the Indian Empire at Ladak.

[No specimen in the Indian Museum.]

### Felis ornata.

*Felis ornata*, *Gray Illustr. Ind. Zool.*, i, pl. ii (1830); *Blyth Cat.* no. 184, p. 63; *Elliot Monog. Felidæ* no. 31; *Murray Zool. Sind*, p. 29; *Thomas P. Z. S.*, 1886, p. 55; *Blanford Mammals*, p. 84.  
*Felis servalina*, *Fardine Nat. Libr. Mamm.*, ii, p. 232, pl. xxv (1837).  
*Chaus pulchellus*, *Gray List Mamm. B. M.*, p. 45 (1843).  
*Chaus servalinus*, *id. ibid.*  
*Felis torquata*, *apud Blyth P. Z. S.*, p. 185 (1863); *Ferdon Mamm.*, p. 110; *Sterndale Mamm. Ind.*, p. 193.  
*Chaus ornatus*, *Gray P. Z. S.*, p. 275 (1867).

*Distribution*.—The dry rocky countries of North-West India, from Banda, North-Western Provinces (Cockburn), thence westward through Agra, Sambhar (Thomas), to Sind where common (Murray).

This species and the next three, *i.e.*, *F. shawiana*, *F. chaus* and *F. caudata*, all appear to be very nearly allied forms, all four have a slight pencil of hairs on their ears; *F. chaus* can be distinguished at once by its black pencil, its pepper-and-salt colour with no trace of lines or spots on the body; *F. caudata* is very indistinctly spotted, but has a very long tail, twice the length of that of *F. chaus*; *F. ornata* and *shawiana* seem to resemble each other in every respect; *Blanford (Yarkand Mammals*, p. 19) distinguishes *F. shawiana* from *F. ornata* by (1) its shorter tail, (2) its more rufous colouration, (3) distinct black spots on the abdomen.



With regard to the first distinction, the tails of the two specimens of *F. shawiana* are certainly shorter than those of the specimens of *F. ornata*; but the skins are furriers, skins, both having been bought in the bazaars at Yarkand and Kashgar, and the tails in both cases seem mutilated, the tails, too, of *F. ornata* in the Museum collection vary considerably in length, from 8 to 13 inches in specimens of approximately the same size; with regard to the second point, that of colour, the difference of shade is so slight that it is only perceptible in a strong light; finally, there are in the Museum collection many specimens of *F. ornata* with quite as distinct spots on the abdomen as *F. shawiana*.

With regard to the skulls of *F. ornata*, *F. chaus* and *F. shawiana* [there is no skull in the only specimen of *F. caudata*], there does not seem to be any real substantial difference, although there are minor differences which have been pointed out by Mr. Blanford, yet it does not seem that any of the differences are sufficiently important to be due to anything but individual variations.

a-h. 8 skins		Banda, N.-W. P.	J. Cockburn.
j. Skin	♂	Agra dist., N.-W. P.	Lucknow Mus. [Ex.]
k. Skin	♀	Agra dist., N.-W. P.	Lucknow Mus. [Ex.]
l. Skin		Hazara Hills, Punj.	T. Hutton, 1845, A.S.B.
m. Skin		Hansi, Punjab	D. Scott, A.S.B.
n. Skin		Hansi, Punjab	D. Scott A.S.B.
o. Skin		nr. Karachi, Sind	Karachi Museum.
p. Skin		Mullier, Sind	Col. Meurant.
q-t. 4 Skulls		Banda dist., N.-W. P.	J. Cockburn.
u. Skull		Karachi, Sind	Karachi Museum.

### *Felis shawiana*.

*Felis shawiana*, Blanford *♀*, *A. S. B.*, xlv, p. 49 (1876); id. *Yarkand Mamm.*, p. 17, pls. *ib*, *ic*; *Elliot Monog. Felidae* no. 34.

*Distribution*.—Eastern Turkestan (Yarkand and Kashgar).

a. Skin, skeleton	Yarkand	W. B. Shaw.
		[Type of <i>F. shawiana</i> , Blanford].
b. Skin	Yarkand bazaar	F. Stoliczka.
c. Skin	Kashgar, 11-74	J. Scully.

### *Felis chaus*.

*Felis chaus*, *Guldenstadt Nov. Comm. Acad. Petrop.*, xx, p. 483 (1770); *Sykes, P. Z. S.*, 1831, p. 102; *Elliot Madras Journ.*, x, p. 108; *Horsfield Cat. E. I. Mus.*, p. 50; *Kelaart Prodr. Faun. Zeylan.*, p. 48; *Blyth Cat.* no. 186, p. 63; id. *P. Z. S.*, 1863, p. 186; *Tristram P. Z. S.*, 1866, p. 92; *Ferdon Mamm.*, p. 111; *McMaster Notes on Ferdon*, p. 29; *Stoliczka, ♀. A. S. B.*, xli, p. 227; *Blyth ♀. A. S. B.*, xlv, p. 17; *Burma List*, p. 28; *Blanford Persia*, p. 36; *Atkinson N.-W. P. Gazett.*, xi, p. 17; *Alston P. Z. S.*, 1880, p. 52; *Sterndale Mamm. Ind.*, p. 195; *Elliot Monog. Felidae* no. 32; *Murray Zool. Sind*, p. 29; *Spearman Burma Gazett.*, p. 551; *Thomas P. Z. S.*, 1886, p. 55; *Blanford Mammals*, p. 86; *Radde Zool. ♀. B.*, iv, p. 1015.

- Felis catolynx*, Pallas *Zoog. Rosso As.*, i, p. 23 (1811).  
*Lynx chaus*, Fischer *Zoognosie*, p. 230 (1814)\*.  
*Felis kutas*, Pearson *F. A. S. B.*, i, p. 75 (1832).  
*Felis affinis*, Gray *Illustr. Ind. Zool.*, i, pl. iii (1832).  
*Felis erythrotis*, Hodgson *F. A. S. B.*, v, p. 233 (1836).  
*Felis inconspicua*, Gray *Charlesw. Mag. N. H.*, i, p. 577 (1837).  
*Chaus lybicus*, Gray *List Mamm. B. M.*, p. 45 (1843); id. *Cat. Hodgs. Coll.*, 1st ed., p. 7; Adams *P. Z. S.*, 1858, p. 514.  
*Felis jacquemonti*, Is. Geoff. *St. Hil. Jacquemont Voyage*, p. 58 pls. ii, iii (1844).  
*Felis lybicus*, Locke *Expl. Scient. Alger.*, iii (1850)\*.  
*Chaus jacquemonti*, Gerrard *Cat. Bones B. M.*, p. 66 (1862); Gray *Cat. Carn. Mamm.*, p. 34.

The Jungle Cat; Gurba-i-kuhi, Persian; Jangli billi, Deccani and Hindustani; Ban billi, in Kumaon; Katas, Banberal, Bengali; Hoppa, Assamese; Maut bek, Kadu bek, Bella bek, Canarese; Mota rahu, Manjur, Mahratta; Bhooga, Mahrattas (Ghats); Birka, Bhagulpore Hills; Jurka pilli, Telegu; Cherru pili, Malayalim; Kyoung tsek-koon, Arakan.

*Distribution.*—Throughout North Africa, Egypt, Nubia and Barbary, Asia Minor (Alston), Palestine (Tristram); shores of Caspian, West and Southern Persia (Blanford), Afghanistan and Candahar, India, Ceylon (Kelaart), Assam and Burma (Spearman). In India universally distributed from the Himalayas and Sind to the extreme south extending eastwards to Assam.

a. Skin	♂	Agra dist., N.-W. P.	Lucknow Museum.
b. Skin	♂	Agra dist., N.-W. P.	Lucknow Museum.
c. Skin	juv. ♀	Agra dist., N.-W. P.	Lucknow Museum.
d. Skin		Punjab Salt Range	W. Theobald, A. S. B.
e. Skin		Kisht, nr. Bushire (2,000 ft).	Sir O. St. John.
f. Skin		Cachar	Sir O. St. John.
g. Skin		Banda, N.-W. P.	J. Cockburn.
h. Skin		Travancore	Purchased.
j. Skin		.....	J. E. T. Aitchison.
k. Skin	juv. ♀	.....	Zoological Gardens.
l. Stuffed		.....	No history, A.S.B.
m. Stuffed		.....	W. Rutledge.
n. Stuffed		Gurriah, nr. Calcutta	Museum Coll., 1870.
o. Stuffed		Gurriah, nr. Calcutta	Museum Coll., 1870.
p. Stuffed	♀	Raneegunge, Bengal	J. Diveria, 1867.
q. Stuffed		Simla	T. Hutton, A.S.B.
r. Stuffed	♂	Calcutta	Purchased.
s. Skull		.....	Purchased.
t. Skull		Kabul	Sir A. Burnes, A.S.B.
u. Skull		Kandahar	T. Hutton, A.S.B.
v. Skull		Ceylon	E. F. Kelaart, A.S.B.
w. <sup>b</sup> . 6 Skulls		Banda, N.-W. P.	J. Cockburn.
c <sup>2</sup> . Skull juv. ♀		.....	Zoological Gardens.
d <sup>2</sup> . Skeleton		.....	A.S.B.
e <sup>2</sup> . Skin, skull	♂	Kendrapara, Bengal	A. J. Fraser.
f <sup>2</sup> . 6 Skulls		Banda, N.-W. P.	J. Cockburn.
m <sup>2</sup> . Skin, skull		Shevaroy Hills, Mdr.	Mrs. W. King.

**Felis caudata.**

*Felis servalina*, *apud Brandt Bull. Acad. St. Petersb.*, ix, p. 34 (1841)\*; *Eversmann Bull. Nat. Mosc.*, 1848, p. 200; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 49.

*Chaus caudatus*, *Gray P. Z. S.*, p. 31, pls. vi, vii, (1874).

*Felis caudata*, *Elliot Monog. Felidae*, no. 33 (1878-83); *Scully ꝑ. A. S. B.*, lvi, p. 69; *Thomas Linn. Trans.* (2), v, p. 57; *Radde Zool. ꝑ. B.*, iv, p. 1014.

*Distribution.*—Transcaspián region eastwards to Afghan and Russian Turkestan.

a. Skin Maimanah, Afghanistan C. E. Yate, 1887.

**Felis lynx.**

*Felis lynx*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 62 (1766); *Blyth Cat.* no. 189, p. 64; *Radde Ost Siberien*, p. 89; *Schrenck Amurland Säugeth.*, p. 87; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 49; *Alston P. Z. S.*, 1877, p. 272; id. 1880, p. 52; *Scully P. Z. S.*, 1881, p. 201; *Blanford Yarkand Mammals*, p. 19; *Elliot Monog. Felidae* no. 38; *Blanford Mammals*, p. 89.

*Felis lupulina*, *Thunberg Denkschr. Akad. Münch.*, ix., p. 189 (1825).

*Felis vulpinus*, *Thunberg Denkschr. Akad. Münch.*, ix, p. 189 (1825).

*Felis virgata*, *Nilsson Illum. Fig. till Faun.*, pls: iii and iv (1829)\*; id. *Skand. Faun.*, p. 126\*.

*Felis borealis*, *Keyserling & Blasius Wirbelth. Europ.*, p. 63 (1840).

*Lyncus vulgaris*, *Gray Cat. Hodgs. Coll.*, 1st ed., p. 7 (1846).

*Felis isabellina*, *Blyth ꝑ. A. S. B.*, xvi, p. 1178 (1847); id., *Cat.*, no. 183, p. 64; id. *P. Z. S.*, 1863, p. 186; *Kinloch Large Game Shooting*, i, p. 18, with plate.

*Lynchus lynx*, *Severtzoff Rev. Mag. Zool.* (2), x, p. 385 (1858).

*Lyncus isabellinus*, *Gray P. Z. S.*, p. 276 (1867); id. *Cat. Carn. Mamm.*, p. 38.

*Lyncus borealis*, *Gray P. Z. S.*, p. 276, (1867); id. *Cat. Carn. Mamm.* p. 37.

*Distribution.*—Northern Europe, Siberia, Baikal (Radde); Amurland and Sachalin (Schrenck); Turkestan (Severtzoff); Eastern Turkestan (Blanford), Gilgit (Scully), Western Thibet (Kinloch) and Eastern Thibet (Blyth).

a. Skin	Kashgar bazaar	F. Stoliczka,
b. Skin	" "	F. Stoliczka.
c. Stuffed	Norway "	Christiania Univ., A. S. B.
d. Stuffed	" "	Christiania Univ., A. S. B.
e. Stuffed	Thibet	G. T. Lushington, 1845, A. S. B.
f. Stuffed	" "	G. T. Lushington, 1845, A. S. B.
g. Stuffed juv.	Norway	C. S. Bonnevie, 1850, A. S. B.
h-j. 2 Skulls	.....	No history, A. S. B.
k. Skin, skull	Kashgar, 11-74	J. Scully.
l. Skin, skull	Bagrot, Gilgit, 5,000ft., 10-4-79.	J. Scully.
m. Skin	Bargo, Gilgit	J. Scully.

**Felis caracal.**

*Felis caracal*, *Güldenstadt Nov. Comm. Acad. Petrop.*, xx, p. 500, (1766); *Blyth Cat.* no. 187, p. 64; id. *P. Z. S.*, 1863, p. 186; *Tristram P. Z. S.*, 1866, p. 92; *Ferdon Mamm.*, p. 113; *McMaster Notes on Ferdon*, p. 31; *Stoliczka Z. A. S. B.*, xli, p. 227; *Blanford Persia*, p. 37; *Atkinson N. W. P. Gazett.*, xi, p. 18; *Alston P. Z. S.*, 1877, p. 273; *Elliot Monog. Felidae* no. 40; *Murray Zool. Sind*, p. 30; *Sterndale Mamm. Ind.* p. 198; *Blanford Mammals*, p. 88; *Rudde Zool. Z. B.*, iv, p. 1016.

*Lynx caracal*, *Fischer Zoognosie*, p. 200 (1814)\*.

*Caracal melanotis*, *Gray List Mamm. B. M.*, p. 46 (1843); id. *Cat. Carn. Mamm.*, p. 38.

Siahgosh, Persian and Hind.

*Distribution*.—Africa generally, Palestine (Tristram), Arabia, Smyrna and Taurus (Danford); Mesopotamia, Persia (Blanford), and Transcaspia. In India proper is generally distributed but found more abundantly in the west, *i. e.*, Sind (Murray), Cutch (Stoliczka), Dehra Dun? (Atkinson), and Nepal terai (Hodgson).

The anterior upper premolar present in the skull of specimen "a" is a rather uncommon variation.

a. Skin, skelet.	♂	.....	W. Rutledge.
b. Skin, skull	♀	.....	Zoological Gardens.
c. Skin, skelet.	♀	... ..	W. Rutledge.
d. Skin, skull	♂	.... .	Zoological Gardens.
e. Skin, skull juv.	♂	.....	W. Rutledge.
f. Stuffed		.....	W. Rutledge, 1870.
g. Skeleton		.....	No history.
h. Skeleton	♂	.....	Babu H. H. Roy.
j. Skeleton	♀	.....	W. Rutledge.

**Felis concolor.**

*Felis concolor*, *Linnaeus Mantissa*, p. 522 (1771)\*; *Elliot Monog. Felidae* no. 2.

*Felis puma*, *Molina Sagg. Stör. Nat. Chili*, p. 245 (1817)\*.

*Felis cougar*, *Lesson Man. Mamm.*, 190 (1827).

*Felis unicolor*, *Lesson Man. Mamm.*, p. 190 (1827).

*Leopardus concolor*, *Gray List Mamm. B. M.*, p. 41 (1843).

The Puma.

*Distribution*.—North and South America from 45° N. lat. to the Straits of Magellan.

a. Skin, skull	♀	.....	W. Rutledge, 1883.
b. Skin	South America		W. Jamrach [P.]
c. Skin, skull	Mexico		British Mus. [Ex.]
d. Skull		.....	E. Blyth, 1865.

**Felis jagouarondi.**

- Felis jagouarondi*, *Lacepede Œuvres d'Azara Atlas*, pl. x\* ; *Fischer Zoognosie*, p. 228 (1814)\* ; *Elliot Monog. Felidae* no. 12.  
*Felis mexicana*, *apud Desmarest N. Dict. d' Hist. Nat.*, vi, p. 112 (1816).  
*Felis unicolor*, *Traill Mem. Wern. Soc.*, iii, p. 170 (1819).  
*Felis darwinii*, *Martin P. Z. S.*, p. 3 (1837).  
*Leopardus jagouarondi*, *Gray List Mamm. B. M.*, p. 42 (1843).  
*Felis calomithi*, *Baird N. Amer. Mamm.*, p. 74 (1859)\*.

*Distribution.*—From Mexico through Central and South America as far as Southern Paraguay.

a. Skin ..... British Mus. [Ex.]

**Felis pardalis.**

- Felis pardalis*, *Linnaeus Syst. Nat.*, 12th. ed., i, p. 62 (1766) ; *Gray Cat. Carn. Mamm.*, p. 19 ; *Elliot Monog. Felidae* no. 17.  
*Felis ocelot*, *Griffith Anim. Kingd.*, v, p. 169 (1827).  
*Felis catenata*, *Griffith Anim. Kingd.*, v, p. 169 (1827).  
*Felis canescens*, *Swainson Anim. Menag.*, p. 118 (1838)\*.  
*Leopardus pardalis*, *Gray List Mamm. B. M.*, p. 42 (1843).  
*Leopardus griseus*, *Gray List Mamm. B. M.*, p. 42 (1843).  
*Leopardus pictus*, *Gray List Mamm. B. M.*, 43 (1843).  
*Felis melanura*, *Boll P. Z. S.*, p. 128 (1844) ; *Gray Cat. Carn. Mamm.*, p. 19.  
*Felis albescens*, *Pucheran Voyage Autour du Monde Venus Zool.*, p. 137, pl. viii (1855).  
*Felis grisea*, *Gray P. Z. S.*, p. 270 (1867) ; *id. Cat. Carn. Mamm.*, p. 19 (1869).  
*Felis picta*, *Severtzoff Rev. Mag. Zool.* (2) x, p. 194 (1858) ; *Gray Cat. Carn. Mamm.*, p. 19.  
*Felis pardoides*, *Gray P. Z. S.*, p. 403 (1867) ; *id. Cat. Carn. Mamm.*, p. 20.

The Ocelot.

*Distribution.*—Arkansas, Louisiana, Texas, Mexico, Central America, and South America, East of Andes.

a. Skin, skull ♂ ..... Purchased, 1880.  
 b. Skull .. ... E. Blyth.

**Felis serval.**

- Felis serval*, *Erxleben Syst. Regn. Anim.*, p. 523 (1777) ; *Blyth Cat.* no. 181, p. 62 ; *Gray Cat. Carn. Mamm.*, p. 23 ; *Elliot Monog. Felidae* no. 25.  
*Felis capensis*, *Gmelin Syst. Nat.*, i, p. 81 (1788).  
*Felis galeopardus*, *Desmarest Mamm.*, p. 227 (1820).  
*Felis senegalensis*, *Lesson Mag. de Zool.*, x (1839)\*.  
*Felis servalina*, *Ogilby P. Z. S.*, p. 94 (1839).  
*Leopardus serval*, *Gray List Mamm. B. M.*, p. 41 (1843).

*Distribution.*—Africa from Algiers to the Cape.

a. Stuffed Cape Colony E. L. Layard, 1858, A. S. B

**Felis caffra.**

- Felis caffra*, *Desmarest Mamm. Suppl.*, p. 540 (1822); *Blyth Cat.*, no. 185, p. 63; *Elliot Monog. Felidae*, no. 30.  
*Felis obscura*, *Desmarest Mamm.*, p. 230 (1820).  
*Felis nigripes*, *Burchell's Travels.*, ii, p. 592 (1824).  
*Felis maniculata*, *Cretschmar Ruppell's Atlas*, i, pl. i (1826).  
*Felis pulchella*, *Gray Charlesw. Mag. N. H.*, i, p. 577 (1837).  
*Chaus caffer*, *Gray List Mamm. B. M.*, p. 45 (1843).  
*Leopardus inconspicuus*, *Gray List Mamm. B. M.*, p. 44 (1843).  
*Felis caligata*, *Is. Geoff. St. Hil. Jacquemont Voyage*, p. 49, pl. iii, fig. 2 (1844).  
*Felis lybica*, *Is. Geoff. St. Hil. Jacquemont Voyage*, p. 56 (1844).  
*Felis margarita*, *Loche Rev. Mag. Zool.*, (2), x, p. 49 (1858).  
*Felis inconspicua*, *Gray P. Z. S.*, p. 273 (1867); *id. Cat. Carn. Mamm.*, p. 31.

*Distribution*—Africa from Algeria to the Cape.

a. Stuffed	Cape Colony	E. L. Layard, A.S.B.
b. Skull	...	A.S.B.

**Felis catus.**

- Felis catus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 62 (1776); *Blasius Säugeth. Deutsch.*, p. 162; *Blanford Persia*, p. 35; *Danford and Alston, P. Z. S.*, 1877, p. 272 and 1880, p. 52; *Elliot Monog. Felidae* no. 29.  
*Felis sylvestris*, *Schreber Säugeth.*, iii, p. 397 (1778); *Blyth Cat.*, no. 182, p. 62.

*Distribution*—Europe generally, extending eastwards into Persia (Blanford) and Asia Minor (Alston).

a. Stuffed, skull	Scotland	Sir W. Jardine, 1843, A.S.B.
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**Felis pardina.**

- Felis pardina*, *Temminck Monogr. Mamm.*, i, p. 116 (1827); *Elliot Monog. Felidae* no. 37.  
*Lyncus pardinus*, *Gray List Mamm., B. M.*, p. 46 (1843); *id. Cat. Carn. Mamm.*, p. 38 (1869).

*Distribution*—Portugal, Spain, Sardinia, Sicily, Turkey and Asia Minor.

a. Stuffed	Sardinia	British Museum [Ex.]
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**Felis canadensis.**

- Felis canadensis*, *Desmarest N. Dict. d' Hist. Nat.*, vi, p. 108 (1816); *Elliot Monog. Felidae* no. 36.  
*Lynx canadensis*, *Rafinesque Amer. Month. Mag.*, ii, p. 46 (1817)\*.  
*Felis borealis*, *Temminck Monogr. Mamm.*, i, p. 109 (1827).  
*Lyncus canadensis*, *Gray List Mamm., B. M.*, p. 46 (1843); *id. Cat. Carn. Mamm.*, p. 37.  
*Lyncus borealis*, *Daley New York Zool.*, p. 5 (1842).

*Distribution*—Northern Europe, Scandinavia, Russia, and Siberia, North America, as far south as Pennsylvania and California.

a. Skin	Hudson's Bay	British Museum [Ex.]
b. Skin	Alumette Isle, Ottawa	J. H. Garnier [Ex.]
c. Skull	Upton, Maine, U.S.A.	W. Theobald, 1869.
d. Skull	Umbagog Lake, Maine, U.S.A.	W. Theobald, 1869.

### Felis rufa.

*Felis rufa*, *Guldenstadt Nov. Comm. Acad. Petrop.*, xx, p. 499 (1776);  
*Blyth Cat.* no. 190, p. 65; *Elliot Monog. Felidae* no. 39.

*Felis carolinensis*, *Desmarest Mamm.*, p. 234 (1820).

*Lynx floridanus*

*Lynx montanus*

*Lynx rufus*

*Lynx aureus*

*Lynx faciatus*

*Felis maculata*, *Vigors and Horsfield Zool. Journ.*, iv, p. 381, pl. xiii (1829).

*Distribution*—North America to Mexico.

a. Skin	Lake Amhee, Ontario	J. H. Garnier [Ex.]
b. Skin	juv. Blue Ridge, Ontario	J. H. Garnier [Ex.]
c. Skull	North Carolina	Rev. F. Fitzgerald, A.S.B.

### Felis domestica.

*Felis domestica*, *Gmelin Syst. Nat.*, i, p. 80 (1788); *Elliot Monog. Felidae*  
no. 41; *Thomas Linn. Trans.* (2), v, p. 57.

*Felis catus*, *Erzleben Syst. Reg. Anim.*, p. 518 (1777); *Blyth F. A. S. B.*,  
xxv, p. 442; *id. Cat.* no. 183, p. 62; *Severtzoff Ann. Mag. N. H.* (4),  
xviii, p. 50; *Blanford Yarkand Mamm.*, p. 17.

*Felis torquata*, *F. Cuvier Hist. Nat. Mamm.*, livr. liv, with plate, (1826);  
*Sykes P. Z. S.*, 1831, p. 102; *Horsfield Cat. E. I. Mus.*, p. 49; *Thomas P.*  
*Z. S.*, 1886, p. 55; *Blanford Mammals*, p. 85.

*Felis maniculata*, *Fenyns Brit. Vert. Anim.*, p. 15 (1835).

*Felis megalotis*, *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 54  
(1839-44).

*Felis huttoni*, *Blyth F. A. S. B.*, xv, p. 169 (1846); *id. F. A. S. B.*, xvii,  
p. 247.

The Domestic Cat of India differs considerably from the English domestic cat; Blyth distinguishes two races of Indian domestic cats—(1) the spotted type in which the spots tend to form themselves into streaks, especially on the anterior parts of the body; the tail of this form is slender and of uniform thickness, with a series of black rings; this form is frequently found in a feral state and it is probable that it was from an animal of this kind that *Felis torquata* of F. Cuvier was originally described; (2) the other form was called by Blyth the Chaus-coloured cat; it is of a uniform fulvous colour with barred legs and a ringed tail, resembling *F. chaus*; in its proportions, however, it differs from

*F. chaus* considerably, its legs and ears are much shorter and its tail much longer, this Blyth suspects to be derived from the domestic cat with an admixture of *chaus* blood.

The two examples of this latter form are "e" and "j" of the list below; "e" is specially to be noticed since it was shot in the town of Banda, round which *F. chaus* abounds.

The English tabby is never seen in India; this may possibly be due to the fact that the tabby markings of the English domestic cat are due to an admixture of the blood of the wild cat (*F. catus*). Evidence to show that domestic cats breed with some of the different species of wild cats will be found in Pennant where, after the description of *F. bengalensis*, he mentions that the specimen from which the description was drawn up, coupled with female domestic cats and produced offspring; Blyth also quotes the evidence of Sir Walter Elliot on the subject (*vide* J.A. S. B., xvii, pp. 247 and 559) in the cases of *F. chaus* and *F. rubiginosa*.

There are also in the collection two skins which seem to require further remark, these are "f", the skin procured by Dr. Scully at Kashgar, and "g" one procured by the Afghan Boundary Commission at Wen Male.

The former, which is a flat skin without a skull, was described by Mr. Blanford in the Yarkand Mammals as *F. catus*, but it differs from *F. catus* in having a slender and tapering tail instead of a clubbed one which is so characteristic of the true *F. catus* of Europe. The other skin from Afghanistan also has a slender tapering tail; a comparison of the skull of this specimen with a skull of an English *F. catus*, and with the skulls of several specimens of *F. domestica* shows that this Afghan cat agrees with the domestic cat in the several points in which the latter differs from *F. catus*, *i.e.*, in *F. domestica*, the frontal and squamosal bones are separated from one another by the parietals and alisphenoids, the nasals are not produced posteriorly beyond the frontal processes of the maxillæ, and, finally, the teeth are small as compared with *F. catus*. In all these points the Afghan cat agrees with the domestic cat and not with *Felis catus*.

a. Skin	Punjab Salt Range	W. Theobald, A.S.B.
b. Skin	Hansi, Punjab	D. Scott, A.S.B.
c. Skin	.....	E. Blyth, A.S.B.
d. Skin	Deccan (Col. Sykes)	India Mus., London.
e. Skin, skull	Banda (town), N.-W.P.	J. Cockburn (1881).
f. Skin	Kashgar	J. Scully.
g. Skin	Wen Male, Afghanistan	J. E. T. Aichison.
h. Stuffed (tabby)	.....	No history, A.S.B.
j. Stuffed, skull	Calcutta	No history, A.S.B.
k. Stuffed	.. ..	No history, A.S.B.
l. Skull	.....	No history, A.S.B.
m. Skeleton	.....	No history, A.S.B.
n. Skeleton	Calcutta	Purchased.



Genus **CYNAELURUS.**

- Cynailurus*, *Wagler Nat. Syst. Amphib.*, p. 30 (1830).  
*Cynofelis*, *Lesson Nouv. Tab. Reg. Anim.*, p. 48 (1842).  
*Gueparda*, *Gray List Mamm. B. M.*, p. 46 (1843).

**Cynaelurus jubatus.**

- Felis jubata*, *Erxleben Syst. Reg. Anim.*, p. 510 (1777); *Sykes P. Z. S.*, p. 102 (1831); *Elliot Madras Journ.*, x, p. 107; *Blyth P. Z. S.*, 1863, p. 181; *Jerdon Mamm.*, p. 114; *Blanford F. A. S. B.*, xxxvi, p. 191, *McMaster Notes on Jerdon*, p. 31; *Stoliczka, F. A. S. B.*, xli, p. 227; *Blanford Persia*, p. 35; *Ball P. A. S. B.*, 1877, p. 169; *Alston P. Z. S.*, 1880, p. 52; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 49; *Murray Zool. Sind*, p. 30; *Sterndale Mamm. Ind.*, p. 200; *Thomas Linn. Trans.* (2), v, p. 56; *Radde Zool. F. B.*, iv, p. 1012.  
*Felis guttata*, *Hermann Obser. Zool.*, p. 38 (1804).  
*Cynailurus jubatus*, *Wagler Nat. Syst. Amphib.*, p. 30 (1830); *Blyth Cat.*, no. 191, p. 65; *Elliot Monog. Felidae* no. 42; *Blanford Mammals*, p. 91.  
*Cynofelis jubata*, *Lesson Nouv. Tab. Regn. Anim.*, p. 49 (1842).  
*Cynofelis guttata*, id. *ibid.*  
*Gueparda guttata*, *Gray P. Z. S.*, p. 277 (1867); id. *Cat. Carn. Mamm.*, p. 39.  
*Felis megabalia*, *Heuglin Zeitschr. Allg. Erdkunde*, iii, p. 53 (1868)\*.

The Cheetah or hunting leopard; Yuz palang, Persian; Yuz-cheetah bagh, Hindustani; Kendua bagh, Bengali; Cheeta, Deccani; Chircha, Sivungi, Canarese; Chita puli, Telegu.

*Distribution*.—Africa generally; has been recorded by Alston from Euphrates valley, Transcaspia, Western Turkestan (Severtzoff) and Persia, (Blanford). In India it is found in the Central and western districts, i.e., Deccan (Sykes), Saugor, Central India (Jerdon), the Punjab, Sind (Murray), Cutch (Stoliczka), and has been procured as far as east as Deogurh in the Sonthal Pergunnahs (Blanford).

a. Skin, skull	♂	.....	Babu H. M. Roy.
b. Skin, skeleton	♀	.....	Zoological Gardens.
c. Skin	♀ juv.	.....	W. Rutledge.
d. Skin	♀	.....	W. Rutledge.
e. Skeleton	♀	.....	W. Rutledge.
f. Skull	♀ juv.	.....	W. Rutledge.
g. Stuffed		.....	E. Blyth, 1857, A. S. B.
h. Skeleton		.. ..	E. Blyth, 1857, A. S. B.

Genus **VIVERRA.**

*Viverra*, *Linnaeus Syst. Nat.*, 12th ed., p. 63 (1766).

*Key of the Indian Species.*

- a. Tail with complete light and dark rings; body markings indistinct and cloudy, not spotty; size large; anterior upper molars distinctly triangular.

**V. zibetha**, p. 236

- a*<sup>2</sup>. Tail with light and dark rings incomplete.  
*b*. Large size; black rings all complete, light rings just broken by the dorsal black band of the tail; flanks distinctly spotted with large spots.  
*c*. Mane commencing between the ears; skull with anterior upper molars quadrangular as compared with *V. zibetha*. **V. civettina**, p. 237.  
*c*<sup>2</sup>. Mane commencing between the shoulders. **V. megaspila**, p. 237.  
*b*<sup>3</sup>. Smaller; only a few of the posterior black rings of the tail complete, and the dorsal black band broad. **V. tangalunga**, p. 237.

### *Viverra zibetha*.

- Viverra zibetha*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 65 (1766); *Gray Illustr. Ind. Zool.*, ii, pl. v; *McClelland Calc. Journ. N. H.*, i, p. 56; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 7; *Horsfield Cat. E. I. Mus.*, p. 54; *Walker Calc. Journ. N. H.*, iii, p. 266; *Blyth J. A. S. B.*, xxxi, p. 331; *id. Cat.*, p. 45; *Gray P. Z. S.*, 1864, p. 512; *Ferdon Mamm.*, p. 120; *Gray Cat. Carn. Mamm.*, p. 46; *Swinhoe P. Z. S.*, 1870, pp. 227, 630; *Blyth J. A. S. B.*, xlv, *Burma list*, p. 25; *Sterndale Mamm. Ind.*, p. 208; *Spearman Burma. Gazett.*, p. 547; *Blanford Mammals*, p. 96.  
*Viverra undulata*, *Gray Spicel. Zool.*, p. 9 (1830).  
*Viverra melanurus*, *Hodgson J. A. S. B.*, x, p. 909 (1841); *id. Calc. Journ. N. H.*, ii, p. 47.  
*Viverra civettooides*, *Hodgson id. ibid.*  
*Viverra ashtoni*, *Swinhoe P. Z. S.*, p. 379, (1864).

The Indian Civet Cat; Katas, Hindustani; Machbhondar, Bagdos, and Pudogaula, Bengali; Bhras, Nepal terai; Nit biralu, Nepal; Kung, Bhotea; Saphiong, Lepcha; Kyung-myeng, Burmese; Hagh gendrah, Assamese.

*Distribution*.—Bengal, extending northwards to the Nepal Terai and southwards to Cuttack, Assam, Burma, Southern China and Hainan (Swinhoe); its occurrence in the Malay Peninsula seems doubtful since it has been so often confused with *V. megaspila* and *V. tangalunga*.

<i>a</i> . Skin, skull	.....	No history.
<i>b</i> . Skin, skull ♀	Calcutta	Purchased, 1870.
<i>c</i> . Skin ♂	Maldah, Bengal	Mus. Coll., 1870.
<i>d</i> . Skin, skull ♂	Calcutta	Purchased.
<i>e</i> . Skull ♂	.....	W. Rutledge, 1876.
<i>f</i> . Skin, skull ♂	.....	W. Rutledge.
<i>g</i> . Skin ♀	.....	Zoological Gardens.
<i>h</i> . Skull	.....	A. S. B.
<i>j</i> . Skull	.....	A. S. B.
<i>k</i> . Stuffed ♂	Calcutta	Purchased, 1871.
<i>i</i> . Skeleton	.....	A. S. B.
<i>m</i> . Skull	.....	A. S. B.
<i>n</i> . Skull ♂ juv.	.....	W. Rutledge, 1872.

**Viverra civettina.**

*Viverra civettina*, Blyth *ŷ. A. S. B.*, xxxi, p. 332 (1862); id. *P. Z. S.*, 1864, p. 484; id. *Cat.* no. 140 p. 44; *Ferdon' Mamm.*, p. 121; *Blanford Mammals*, p. 98.

*Distribution*.—Malabar Coast, Wynaad and Coorg.

This species, described first by Blyth from Southern India, seems to differ in several respects from *V. zibetha*; instead of the indefinite stripy markings of *V. zibetha*, the hinder part of the body of *V. civettina* is covered with distinct large black spots and the ground colour is distinctly yellow; the yellow rings on the tail are broken by the longitudinal dorsal black band down the tail, whereas in *V. zibetha* the yellow rings completely surround the tail.

The skulls too, differ in several respects; the large upper molar of *V. civettina* is much more quadrangular and its length bears a much greater ratio to its breadth than in *V. zibetha*, in which the tooth is almost triangular; the postorbital processes of the frontal bones are almost absent in *V. civettina*, whereas in *V. zibetha* they are quite distinct.

a. Skin, skeleton	.....	W. Rutledge.
b. Skin, skull	South India	Lord A. Hay, 1845, A.S.B.
[Type of <i>V. civettina</i> of Blyth.]		
c. Skin	.....	Purchased.
d. Skin	.....	Purchased.

**Viverra megaspila.**

*Viverra tangalanga*, *apud Cantor ŷ. A. S. B.*, xv, p. 197 (1846).

*Viverra megaspila*, Blyth *ŷ. A. S. B.*, xxxi, p. 331 (1862); id. *ŷ. A. S. B.* xlv, *Burma List*, p. 25; *Spearman Burma Gazett.*, p. 548, *Gunther P. Z. S.*, 1876, p. 428, pl. xxxvii; *Blanford Mammals*, p. 99.

*Distribution*.—Burma and the Malay Peninsula, Cochin China and Sumatra.

[No specimens in Indian Museum.]

**Viverra tangalanga.**

*Viverra tangalanga*, *Gray P. Z. S.*, p. 63 (1832); *Horsfield Cat. E. I. Mus.*, p. 57; *Blyth ŷ. A. S. B.*, xxxi, p. 332; id. *Cat.* no. 142, p. 45; *Gray Cat. Carn. Mamm.*, p. 47, *Gunther, P. Z. S.*, 1876, pp. 427 and 735.

*Viverra zibetha*, *apud F. Cuvier Hist. Nat. Mamm.*, livr xxi, with plate (1820); *Raffles Linn. Trans.*, xiii, p. 251; *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 30; *Cantor ŷ. A. S. B.*, xv, p. 197.

*Distribution*.—Malay Peninsula, Sumatra (Raffles), Borneo Celebes and Amboyna (Müller), Philippines (Gunther).

a. Skin, skull	Malacca	F. W. Lindstedt, 1846, A.S.B.
b. Skin, skull ♂	.....	W. Rutledge.
c. Skeleton ♂	.....	Purchased, 1867.
d. Stuffed	Malacca	F. W. Lindstedt, A.S.B.
e. Stuffed ♂	Malay Peninsula	J. Anderson.
f. Skin	.....	Purchased, 1867.
g. Skin, skull ♀	Penang	Zoological Gardens.
	juv.	
h. Skin, skelet. ♀	.....	W. Rutledge.
	juv.	
j. Skin	♂	.....
		W. Rutledge.

### Viverra civetta.

*Viverra civetta*, Schreber *Säugeth.*, iii, p. 418, *Atlas*, pl. cxi (1778); *Gray Cat. Carn. Mamm.*, p. 46.

*Distribution*—Africa generally.

a. Skin	♀	.....	W. Rutledge.
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### Genus VIVERRICULA.

*Viverricula*, Hodgson *Ann. Mag. N. H.*, i, p. 152 (1838). *Type*, *V. malaccensis*.

### *Viverricula malaccensis*.

*Viverra malaccensis*, Gmelin *Syst. Nat.*, i, p. 92 (1788); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 8; *Ferdon Mamm.*, p. 122; *Sterndale Mamm. Ind.*, p. 211.

*Viverra leveriana*, Shaw *Mus. leverianum* (1792)\*.

*Viverra indica*, Desmarest *N. Dict. d'Hist. Nat.*, vii, p. 170 (1817); Sykes *P. Z. S.*, 1831, p. 101; Elliot *Madr. Journ.*, x, p. 102; Horsfield *Cat. E. I. Mus.*, p. 58.

*Viverra rasse*, Horsfield *Zool. Res.*, with plate (1824); id. *Cat. E. I. Mus.*, p. 59; *Peters Reise nach Mossambique*, i, p. 113.

*Viverra bengalensis*, Gray *Illustr. Ind. Zool.*, i, pl. iv (1832).

*Viverra pallida*, Gray *P. Z. S.*, p. 63 (1832); id. *Illustr. Ind. Zool.*, ii, pl. vi; Swinhoe *P. Z. S.* 1862, p. 353.

*Viverricula indica*, Hodgson *F. A. S. B.*, x, p. 909 (1841).

*Viverricula malaccensis*, Cantor *F. A. S. B.*, xv, p. 199 (1846); Kelaart *Prodr. Faun. Zeylan.*, p. 37; Blyth *Cat. no. 143*, p. 45; Gray *P. Z. S.*, 1864, p. 513; id. *Cat. Carn. Mamm.*, p. 47; Swinhoe *P. Z. S.*, 1870, pp. 227, 630; Atkinson *N. W. P. Gazett.*, xi, p. 19; Blyth *F. A. S. B.*, xlv, *Burma List*, p. 25; Anderson *Anat. Zool. Res.*, p. 166; Spearman *Burma Gazett.*, p. 548; Thomas *P. Z. S.*, 1886, p. 55; *Blanford Mammals*, p. 100.

The Small Civet; Mushak billi, Deccani and Hindustani; Gandha gokul, Bengali; Kasturi, Jwadee manjar, Mahratta; Punagin bekh, Canarese; Punagu pilli, Telegu; Saiger, Bugmyal, Terai of Nepal; Ooralawa, Cingalese; Wa-young-kyoung-bonk, Arakanese; Kyoung kado, Burmese.

*Distribution*.—Comoro Isles, Socotra and Madagascar(Thomas),

India, Ceylon (Kelaart), Assam, Burma, Upper and Lower, Malay Peninsula (Cantor), Java (Horsfield), South China, Hainan and Formosa (Swinhoe).

In India this form seems to be found everywhere except perhaps in the Punjab and Sind; it is recorded from Sambhar Lake, Rajpootana (Thomas), from the Terai of Kumaon (Atkinson), and Nepal (Hodgson), Central India, Bengal, Assam, the Deccan (Sykes), and Southern Mahratta country (Elliot).

a. Skin, skull	Assam	J. Anderson 1872.
b. Skin, skull	Assam	J. Anderson 1872.
c. Skin	Cachar	Museum Collector.
d. Skin	Naga Hills, Assam	A. W. Chennell, 1877.
e. Skin	♀ Bhamo, 600 ft.	J. Anderson 1868.
f. Skin	Goona, C. India	A. Barclay.
g. Skin, skull	♂ Calcutta	Purchased, 1870.
h. Skin	Calcutta	Purchased
i. Skin	North Africa?	British Museum [Ex.]
k. Skin	juv. ....	No history, A.S.B.
l. Skin	juv. ....	No history, A.S.B.
m. Skull	.....	No history, A.S.B.
n. Skull	.....	No history, A.S.B.
o. Skull	♀ ..... .....	Purchased.
p-v. 7	Stuffed on one stand. .....	No history, A.S.B.
w. Skeleton	.....	No history, A.S.B.
x. Skull	.....	No history, A.S.B.
y. Skin, skull	Goona, C. I.	A. Barclay.
z. Skin	Chumbi, Thibet?	Schneider [P.]
	Ceylon	Colombo Museum.

### Genus PRIONODON.

Prionodon, *Horsfield Zool. Res.* (1824). *Type*, *P. gracilis*.

Linsang, *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 28 (1839). *Type*, *P. gracilis*.

#### *Key of the Indian Species.*

a. Large, about 35 inches, including the tail; dorsal surface covered with large patches of black.

**P. maculosus**, p. 239.

a<sup>2</sup>. Smaller, about 30 inches, including the tail; back with broad transverse bands.

**P. pardicolor**, p. 240.

### Prionodon maculosus.

*Prionodon maculosus*, *Blanford F. A. S. B.*, xlvii, p. 152, pls. vi, vii (1878); *Thomas P. Z. S.*, 1886, p. 66; *Blanford Mammals*, p. 104.

*Distribution.*—Known only from Tenasserim.

[No specimen in the Museum.]

### Prionodon pardicolor.

*Prionodon pardicolor*, *Hodgson Cal. Journ. N. H.*, ii, p. 57, pl. i, figs. 3, 6 (1842); id. *ibid.*, viii, p. 40; *Horsfield Cat. E. I. Mus.*, p. 52; *Blyth Cat.* no. 146, p. 46; *Ferdon Mamm.*, p. 124; *Anderson Anat. Zool. Res.*, p. 166; *Sterndale Mamm. Ind.*, p. 212; *Blanford Mammals*, p. 103. *Linsang pardicolor*, *Gray List Mamm. B. M.*, p. 49 (1843); id. *Cat. Hodgs. Coll.*, 1st ed., p. 8. *Viverra pardicator*, *Schinz Syn. Mamm.*, i, p. 366 (1844).

The Tiger Civet; Zik-chum, Bhotea; Suliyu, Lepcha.

*Distribution*.—Nepal, Sikkim and Kakhyen Hills of Upper Burma (Anderson).

a. Skin, skull	Darjeeling	E. R. Henry.
b. Skin	Sikkim	L. Mandelli.
c. Skin, skull	Gumpah, Sikkim	J. Knight.
d. Skin	Kakhyen Hills	J. Anderson.
e. Skin	.....	No history, A.S.B.
f. Skin	.....	No history, A.S.B.
g. Stuffed	Darjeeling	Mrs. Saxon, A.S.B.

### Genus GENETTA.

*Genetta*, *G. Cuvier Regne Anim.*, 1st ed., i, p. 156 (1817).

#### *Genetta vulgaris*.

*Viverra genetta*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 65 (1766).

*Genetta afra*, *F. Cuvier Nat. Hist. Mamm.*, livr. lii, with plate (1825); *Blyth Cat.* no. 144, p. 46.

*Genetta vulgaris*, *Lesson Man. Mamm.*, p. 173 (1827).

*Genetta bonapartii*, *Loche Rev. Mag. Zool* (2), ix, p. 385, pl. xiii (1857).

*Distribution*.—South Europe, *i.e.*, France, Spain and Turkey, North Africa and Palestine.

a. Stuffed	Algeria	A. Malherbe, 1848, A.S.B.
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#### *Genetta tigrina*.

*Viverra tigrina*, *Schreber Säugeth.*, iii, p. 425, *Atlas*, pl. cxv (1778).

*Genetta abyssinica*, *Rüppell N. Wirbelth.*, p. 33, pl. xi (1835).

*Genetta tigrina*, *Gray Cat. Mamm. B. M.*, p. 49 (1843); *Blyth Cat.* no. 145, p. 46.

*Viverra genetta*, *Peters Reise nach Mossambique*, i, p. 113 (1852)

*Viverra abyssinica*, *Gerrard Cat. Bones B. M.*, p. 71 (1862).

*Distribution*.—South Africa and up through Mosambique to Abyssinia.

a. Stuffed	South Africa	E. L. Layard, 1859, A.S.B.
b. Stuffed	South Africa	E. L. Layard, 1859, A.S.B.

Genus **HEMIGALE.**

*Hemigalus*, *Fourdan Comptes Rend.*, v, p. 442 (1837). *Type*, *H. hardwickii*.  
*Hemigalea*, *Gray P. Z. S.*, p. 524 (1864).

**Hemigale hardwickii.**

*Viverra hardwickii*, *Gray Spicel. Zool.*, p. 9 (1830).  
*Hemigalus zebra*, *Fourdan Comptes Rend.*, v, p. 442 (1837).  
*Paradoxurus derbianus*, *Gray Charlesw. Mag. Nat. Hist.*, i, p. 579 (1837);  
*Cantor J. A. S. B.*, xv, p. 202.  
*Paradoxurus zebra*, *Gray Charlesw. Mag. N. H.*, i, p. 579 (1837).  
*Viverra boiei*, *Müller Tijdschr. Natuur. Ges.*, v, p. 144 (1838); *Müller & Schlegel Tem. Verhandl.*, p. 121, pl. xviii.  
*Hemigalea derbiana*, *Blyth Cat. no. 147*, p. 46 (1863); *Fentink Notes Leyd. Mus.*, xi, p. 23.  
*Hemigalea hardwickii*, *Gray P. Z. S.*, p. 524 (1864); *id. Cat. Carn. Mamm.*, p. 57; *Thomas P. Z. S.*, 1886, p. 73.

*Distribution.*—Malay Peninsula, Sumatra, and Borneo.

a. Stuffed Malacca M. de Stow, 1843, A.S.B.

Genus **ARCTOGALE.**

*Arctogale*, *Gray P. Z. S.*, p. 542 (1864).

**Arctogale trivirgata.**

*Paradoxurus trivirgatus*, *Gray P. Z. S.*, p. 68 (1832); *Temminck Monogr. Mamm.*, ii, p. 333, pl. lxiii.  
*Arctogale trivirgata*, *Blanford P. Z. S.*, p. 789 (1885).

*Distribution.*—Java only.

The single specimen *A. trivirgata* is from Java, and seems to differ from *A. leucotis* in being smaller, having the three dark lines down the back much more distinct, and wanting the dark patch at the base of the ear. The skull also differs in being smaller, and the palate is not produced back so far as in *A. leucotis*.

a. Stuffed, skull Java W. Rutledge, 1870.

**Arctogale leucotis.**

*Paguma trivirgata*, *apud Gray List Mamm. B. M.*, p. 55 (1843); *Cantor J. A. S. B.*, xv, p. 201.  
*Paradoxurus leucotis*, *Horsfield Cat. E. I. Mus.*, p. 66 (1851); *Blyth J. A. S. B.*, xxvii, p. 274; *Blyth Cat. no. 151*, p. 48; *Gray Cat. Carn. Mamm.*, p. 76; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 26.  
*Paradoxurus stigmaticus*, *Temminck Esquis. Zool.*, p. 120 (1853); *Fentink Notes Leyd. Mus.*, vii, p. 35; *id. ibid.*, xi, p. 23.

*Paradoxurus trivirgata*, *apud Blyth Cat.* no. 150, p. 47 (1863).

*Arctogale trivirgata*, *Gray P. Z. S.*, p. 543 (1864); *id. Cat. Carn. Mamm.*, p. 75.

*Paradoxurus prehensilis*, *apud P. L. Sclater P. Z. S.*, p. 681, pl. lxxi (1877).

*Arctogale leucotis*, *Blanford P. Z. S.*, p. 789 (1885); *Thomas P. Z. S.*, 1886, p. 73; *Blanford Mammals*, p. 115; *Anderson J. Linn. Soc.*, xxi, p. 338.

Small Palm Civet; Na-zwet-phyoo, Arakan; Kyoung-na-ga in Tenasserim, Kyoung-na-rwek-phyoo, Burmese.

*Distribution*.—Sikkim, Arakan, Burma, Malay Peninsula, Sumatra and Borneo.

There has been some confusion with regard to the species of *Arctogale* which, according to Blanford (*P. Z. S.*, 1885, p. 789), are two in number, *Arctogale trivirgata*, Gray, confined to Java, and *Arctogale leucotis*, Horsf. (= *A. stigmations* of Temminck), found in the Malay Peninsula, Borneo, Sumatra and stretching up through Arakan to Darjeeling, whence there is a skin in the Museum "a" which is probably referable to this species though, in the absence of the skull, it is not possible to make an authoritative assertion.

The specimens "f," "g" and "h" were all identified by Blyth as *A. trivirgata*, of these "g" and "h" seem to accord better with *A. leucotis* and have been re-named so; the third "f" is from Malacca and is larger and of a darker colour, and wants the black patch at the base of the ear, so that it is possible that it will turn out to be a new species.

a. Skin	Darjeeling	Dr. Stewart 1856, A. S. B.
b. Skin, skull	Moulmein dist.	Museum Collector, 1873.
c. Skin, skull	....	No history.
d. Stuffed, skull	.....	F. Skipwith, 1845, A. S. B.
e. Stuffed, skull	Arakan	Sir A. Phayre, 1846, A. S. B.
f. Stuffed, skull	Malacca	Rev. F. T. Lindstedt, 1846, A. S. B.
g. Stuffed	Rangoon	Zoological Gardens, 1878.
h. Stuffed, skull	Malacca	Rev. F. T. Lindstedt, 1847, A. S. B.
	juv.	A. S. B.
i. Skull	.....	No history, A. S. B.
k. Skeleton ♀	.....	Zoological Gardens.
l. Skin ♂	King Isle, Mergui,	J. Anderson.
	7-2-82.	

## Genus PARADOXURUS.

*Paradoxurus*, *F. Cuvier Hist. Nat. Mamm.* livr. xxiv (1821). *Type*, *P. niger*. *Paguma*, *Gray P. Z. S.*, p. 95 (1831). *Type*, *P. larvatus*.

*Platyschista*, *Otto Nova Acta Acad. Leop. Caro.*, xvii, p. 1089 (1835). *Type*, *P. hermaphroditus*.

### *Key of the Indian Species.*

- a. The bony palate extends less than .25 inches behind the posterior molars; vibrissae in general dark coloured.



- b*. Colour fulvous, ashy or black; the anterior palatine foramina, only extending as far as the canines.
- c*. Teeth moderate; upper sectorial .30 inches long by .25 inches wide. **P. hermaphroditus**, p. 243.
- c*<sup>2</sup>. Teeth very large; upper sectorial .39 inches long by .33 inches wide. **P. macrodus**, p. 246.
- b*<sup>2</sup>. Colour dark brown, fur grizzled, not glossy, with brown tips; anterior palatine foramina extending to opposite the anterior premolars. **P. jerdoni**, p. 246.
- b*<sup>3</sup>. Colour rusty red throughout. **P. aureus**, p. 247.
- a*<sup>2</sup> The bony palate extends more than .25 inches behind the posterior molars; vibrissae in part at least conspicuously white.
- d*. Colour gray or fulvous; head markings indistinct; skull 4.5 to 4.75 inches long. **P. grayi**, p. 247.
- d*<sup>2</sup>. Colour brown or rufous; head markings generally distinct brown and whitish, a broad pale band across forehead or whole face whitish; skull about 5 inches long. **P. leucomystax**, p. 248.

### Paradoxurus hermaphroditus.

#### *Var A.—typicus.*

- Viverra hermaphrodita*, Schreber *Säugeth.*, iii, p. 426 (1778).
- Viverra prehensilis*, Desmarest *Mamm.*, p. 208 (1820).
- Viverra musanga*, Raffles *Linn. Trans.*, xiii, p. 252 (1820); Horsfield *Zool. Res.*, with plate (1824).
- Paradoxurus prehensilis*, Gray *P. Z. S.*, p. 66 (1832); id. *Illustr. Ind. Zool.* ii, pl. ix.
- Paradoxurus musanga*, Gray *P. Z. S.*, p. 66 (1832); Cantor *J. A. S. B.*, xv, p. 201; Blyth *Cat.* no. 148, p. 46. [pt.]; Jerdon *Mamm.*, p. 125; Müller *Ober de Zoogdieren in Tem. Verhandl.*, p. 31; Blyth *J. A. S. B.*, xlv *Burma list*, p. 26; Sterndale *Mamm. Ind.* p. 216; Jentink *Notes Leyd. Mus.*, xi, p. 22.
- Paradoxurus dubius*, Gray *P. Z. S.*, p. 66 (1832).
- Paradoxurus hermaphroditus*, Gray *P. Z. S.*, p. 67 (1832); Blanford *P. Z. S.* 1885, p. 794; Thomas *P. Z. S.*, 1886, pp. 67, 73; W. L. Sclater *P. A. S. B.*, 1888, p. 125; Blanford *Mammals*, p. 108; Anderson *J. Linn. Soc.*, xxi, p. 338.
- Paradoxurus pallasii*, Gray *P. Z. S.*, p. 67 (1832).
- Paradoxurus crossii*, Gray *P. Z. S.*, p. 67 (1832).
- Paradoxurus finlaysonii*, Gray *P. Z. S.*, p. 68 (1832).
- Paradoxurus quinquelineatus*, Gray *Charlesw. Mag. N. H.*, i, p. 579 (1837).
- Paradoxurus musangoides*, Gray *Charlesw. Mag. N. H.*, i, p. 579 (1837).

- Paradoxurus felinus*, *Wagner Schreb. Säugeth. Suppl.*, ii., p. 349 (1841).  
*Paradoxurus nigrifrons*, *Gray List Mamm. B. M.*, p. 55 (1843).  
*Paradoxurus setosus*, *Pucheran Hombr. et Jacq. Voy. au Pôle Sud Zool.*,  
 iii., p. 25, pl. vi (1853).  
*Paradoxurus fæsciatus*, *Gray P. Z. S.*, p. 536 (1864).

*Var. B.—strictus.*

- Paradoxurus strictus*, *Horsfield Ann. Mag. N. H.* (2), xvi, p. 105 (1855).  
*Paradoxurus quadriscipitus*, *Horsfield Ann. Mag. N. H.* (2), xvi, p. 106  
 (1855); *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 5.

*Var. C.—niger.*

- Viverra niger*, *Desmarest Mamm.*, p. 208 (1820).  
*Viverra bondar*, *Desmarest Mamm.*, p. 210 (1820).  
*Paradoxurus typus*, *F. Cuvier Hist. Nat. Mamm. livr.* xxiv (1821); *Sykes*  
*P. Z. S.*, 1831, p. 102; *Elliot Madr. Journ.*, x, p. 103; *Horsfield Cat. E. I.*  
*Mus.*, p. 60; *Kelaart Prodr. Faun. Zeylan.*, p. 38.  
*Paradoxurus leucopus*, *Ogilby Zool. Journ.*, iv, p. 304 (1828).  
*Paradoxurus bondar*, *Gray P. Z. S.*, p. 66 (1832); *id. Cat. Hodgs. Coll.*, 1st ed.,  
 p. 10; *Ferdon Mamm.*, p. 128.  
*Paradoxurus pennanti*, *Gray P. Z. S.*, p. 66 (1832).  
*Platyschista pallassi*, *Otto Nova Acta Acad. Leop. Caro.*, xvii, p. 1089  
 (1835).  
*Paradoxurus hirsutus*, *Hodgson As. Res.*, xix, p. 72 (1836); *id. J. A. S. B.*, x,  
 p. 909.  
*Paguma bondar*, *Horsfield Cat. Mamm. E. I. Mus.*, p. 68 (1851).  
*Paradoxurus hermaphroditus*, *apud Gray P. Z. S.*, p. 532 (1864).  
*Paradoxurus musanga*, *apud Blyth Cat.* no. 148, p. 46 (1863); *Ferdon Mamm.*,  
 p. 125 [pt.]  
*Paradoxurus niger*, *Blanford P. Z. S.*, p. 792 (1885); *Thomas P. Z. S.*, 1886,  
 p. 55; *W. L. Sclater P. A. S. B.*, 1888, p. 125; *Blanford Mammals*,  
 p. 106.

The Toddy Cat or Palm Cat; Lakati also Jharka kutta, Hindustani; Bhondor, Bengali; Menuri, Deccan; Ud, Mahrattas; Kera bek, Canarese; Manu pilli (tree cat), Telegu; Marra pilli, Malayalim; Oogoodova, Cingalese; Kyoung woon bouk, Arakan and Burmese; Jymabel (Walker), Assamese.

*Distribution.*—The typical variety is found throughout Burma, Siam, the Malay Peninsula, and the Islands of Sumatra, Borneo and Java; var. *strictus* seems to be confined to the Sikkim Terai and Assam; var. *niger* is found throughout India proper, from the Himalayas southwards, including Ceylon, becoming rarer towards the north-west and in the east in Lower Bengal, where it mixes with the typical variety.

Blanford in his monograph of the genus *Paradoxurus* (*P. Z. S.*, 1885, p. 780) divided the common toddy cat into two distinct species; it seems however more in accordance with the facts to recognize the two species only as geographical races; since,

although the toddy cat of Southern India is fairly distinguishable from that of the Malay Peninsula, the forms met with in Lower Bengal are intermediate between the two.

The typical variety is distinguished by the marked longitudinal stripes down the back; the hill variety (*var. strictus*), by its darker colour, more distinct spots, and smaller size, the Indian variety (*var. niger*) by the absence of definite stripes and spots which are replaced by dusky patches.

*Var. A.—typicus.*

a. Skin	.....	W. Rutledge.
b. Skin, skelet. ♀	Calcutta	H. Philips.
c. Skin, skull ♀	Midnapore jungles	Zoological Gardens.
	juv.	
d. Skin, skelet. ♀	.....	W. Rutledge.
e. Skin, skull ♀	Calcutta	Rajah R. Mullick.
	juv.	
f. Skin, skelet. ♂	Calcutta	Rajah R. Mullick.
g. Stuffed ♀	Calcutta	Purchased, 1870.
h. Stuffed juv.	Calcutta	J. Hinder, 1868.
j. Stuffed	Bengal	J. W. Laidlay.
k. Skin, skull	Calcutta	Purchased, 1870.
l. Skin, skull	Calcutta	Purchased, 1870.
m. Stuffed	Calcutta	Purchased, 1870.
n. Skin, skull	King Isle, Mergui, 31-1-82	J. Anderson.
o. Skin ♀	King Isle, Mergui, 10-2-82	J. Anderson.
p. Skin	King Isle, Mergui, 1-2-82	J. Anderson.

*Var. B.—strictus.*

a. Skin	.....	Zoological Gardens.
b. Skin	Dikrang, Assam	H. H. Godwin Austen.
c. Stuffed	Assam	J. Anderson, 1870.
d. Stuffed	Assam	J. Anderson, 1870.

*Var. C.—niger.*

a. Skull ♀	.....	No history.
b. Skin, skull ♀	Calcutta	Purchased.
c. Skin juv.	(Kitten of "b").	
d. Skin	.....	T. Galaffle.
e. Skin ♀	Paresnath, Bengal	E. V. Westmacott, 1868.
f. Skin	Goon, C. I.	A. Barclay, 1878.
g. Skin	Benares, N.-W.P.	C. Horne, 1864, A.S.B.
h. Skin, skelet. ♂	Koila Ghat, Bengal	Zoological Gardens.
j. Skin, skull ♂	Museum compound	Museum Coll.
	juv. Calcutta.	
k. Skin, skull ♀	Rangoon ?	W. Rutledge.
l. Skin, skull	.....	Babu P. K. Shaw, 1863, A.S.B.

<i>m.</i> Stuffed	Agra, N.-W.P.	Agra Museum, 1870.
<i>n.</i> Skin, skull ♀	.....	Zoological Gardens, 1878.
<i>o.</i> Skull	Calcutta	A.S.B.
<i>p.</i> Skull	Goalpara, Assam	No history.
<i>q.</i> Skull ♀	.....	A.S.B.
<i>r.</i> Skeleton	.....	A.S.B.
<i>s.</i> Skull	.....	No history.
<i>t.</i> Skin, skull	Ceylon	Colombo Mus.
<i>u.</i> Skin	Shevaroy hills	Mrs. W. King.
<i>v.</i> Skull, skin of head.	Shevaroy hills	Mrs. W. King.
<i>w.</i> Skull	.....	A.S.B.

### Paradoxurus macrodus.

*Paradoxurus macrodus*, Gray *P. Z. S.*, p. 538 (1864); id. *Cat. Carn. Mamm.*, p. 70; *Blanford P. Z. S.*, 1885, p. 801; *W. L. Sclater P. A. S. B.*, 1888, p. 125.

*Distribution*—Malay Peninsula.

Among the specimens of *Paradoxurus* belonging to the old collection of the Asiatic Society are four obtained from Malacca, identified by Blyth as *Paradoxurus musanga*, on examining the skulls, however, it was at once seen that these specimens were really *Paradoxurus macrodus* of Gray, only known hitherto from a single skull in the British Museum (*Blanford P. Z. S.*, 1885, p. 801). In external characters this species does not differ appreciably from *Paradoxurus hermaphroditus*, but the skulls are at once distinguished by the large size of the teeth.

<i>a.</i> Stuffed, skull	Malacca	E. Lindstedt, A.S.B.
<i>b.</i> Stuffed, skull	Malacca	E. Lindstedt, A.S.B.
<i>c.</i> Stuffed, skull	Malacca	E. Lindstedt, A.S.B.
	juv.	
<i>d.</i> Stuffed juv.	Malacca	E. Lindstedt, A.S.B.
<i>e.</i> Skeleton ♀	.....	Zoological Gardens.
<i>f.</i> Skeleton ♀	.....	Zoological Gardens.

### Paradoxurus jerdoni.

*Paradoxurus jerdoni*, *Blanford P. Z. S.*, pp. 613 & 802, pl. xlix (1885); *W. L. Sclater P. A. S. B.*, 1888, p. 124; *Blanford Mammals*, p. 111.

*Distribution*.—Southern India, Madura Hills (*Blanford*), and Nilgiris.

This species of *Paradoxurus* lately described by *Blanford* (*P. Z. S.*, 1885, p. 613), is at once distinguished from *P. hermaphroditus* by the length of the anterior palatal foramina which extend back to a line drawn through the middle of the 1st pair of pre-

molars. The tip of the tail in the single specimen in the Museum is black, not white as described and figured by Blanford.

a. Skin, skull Ootacamund, 2-88 J. Ross.

### Paradoxurus aureus.

*Paradoxurus aureus*, *F. Cuvier Mem. Mus. Paris*, ix, p. 48, pl. iv (1822); *Blanford P. Z. S.*, 1885, pl. 1, p. 802; id. *Mammals*, p. 110.

*Paradoxurus zeylanicus*, *Kelaart Prod. Faun. Zeylan.* p. 39 (1852); *Blyth F. A. S. B.*, xx, pp. 161, 184; id. *Cat.*, p. 47; *Gray Cat. Carn. Mamm.*, p. 64.

*Paradoxurus montanus*, *Kelaart apud Blyth F. A. S. B.*, xx, p. 161 (1851).

*Coolla wedda*, Cingalese.

*Distribution*.—Ceylon.

- |                   |                     |                            |
|-------------------|---------------------|----------------------------|
| a. Stuffed, skull | Ceylon              | E. L. Layard, 1849, A.S.B. |
| b. Stuffed, skull | Ceylon              | E. L. Layard, 1849, A.S.B. |
| c. Stuffed, skull | Ceylon              | E. L. Layard, 1849, A.S.B. |
|                   | juv.                |                            |
| d. Skin           | Ceylon (West Prov.) | Colombo Museum.            |

### Paradoxurus grayi.

*Paradoxurus grayi*, *Bennett P. Z. S.*, p. 118 (1835); *Blyth Cat.* no. 154, p. 48; *Ferdon Mamm.*, p. 128; *McMaster Notes on Ferdon*, p. 37; *Blyth F. A. S. B.*, xliv, *Burma List*, p. 26; *Spearman Burma Gazette.*, p. 549; *Sterndale Mamm. Ind.*, p. 217; *Ball Stray Feathers*, ii, p. 369; *Blanford P. Z. S.* 1885, p. 803; id. *Mammals*, p. 112.

*Paradoxurus nipalensis*, *Hodgson As. Res.*, xix, p. 76 (1836).

*Paguma grayi*, *Gray List Mamm. B. M.*, p. 54 (1843); id. *Cat. Hodgs. Coll.*, 1st ed., p. 9; id. *Cat. Carn. Mamm.*, p. 73.

*Paradoxurus tytleri*, *Tytler F. A. S. B.*, xxxiii, p. 188 (1864).

*Paradoxurus laniger*, *apud Blyth Cat.* no. 152, p. 48; id. *F. A. S. B.*, xxvii, p. 274.

*Distribution*.—The Himalayas from Simla to Assam, Arakan and the Andamans; Chota Nagpore? (Ball) Northern Circars? (McMasters).

*Paradoxurus tytleri* was described by Tytler as the species of Palm Cat inhabiting the Andamans, it is represented in the Museum collection by several specimens, *i.e.*, "l," "m," "n," "p," "q;" these specimens confirm, what has been already shown by Blanford, that this insular form in no way differs from the ordinary *P. grayi*.

Blyth named one of the specimens below "o" *P. laniger* of Hodgson, it does not agree, however, with the description of *P. laniger*, in which the tail is said to be  $\frac{1}{2}$  the length of the body and tapering; the tail of specimen "o" is quite as long as the body, and approximately of the same width throughout, and the

whole appearance of the skin accords with that of *P. grayi*; unfortunately the skull is missing.

a. Skin, skull	.....	No history.
b. Skin, skull ♀	Assam	A. W. Chennell, 1875.
c. Skin	.....	India Mus., London.
d. Skin	Sikkim (Hodgson)	India Mus., London.
e. Skin	Sikkim	L. Mandelli, 1877.
f. Skin	Sikkim	L. Mandelli, 1877.
g. Skin	Chota Nagpore	V. Ball, 1876.
h. Stuffed	Arakan	Sir A. Phayre, 1844, A.S.B.
j. Stuffed	Arakan	Sir A. Phayre, 1844, A.S.B.
k. Stuffed	Arakan	Sir A. Phayre, A.S.B.
l. Stuffed, skull	Andamans	R. C. Tytler, 1864, A.S.B.
m. Stuffed, skull	Andamans	R. C. Tytler, 1864, A.S.B.
n. Stuffed, skull	Andamans	R. C. Tytler, 1864, A.S.B.
o. Stuffed	Himalayas	Maharajah of Burdwan, 1858, A.S.B.
p. Skeleton	Andamans	R. C. Tytler, 1864.
q. Skull	Andamans	R. C. Tytler, 1864.
r. Skull	Benares ?	C. Horne, 1868.
s. Skeleton	.....	No history.
t. Skin, skull ♂	.....	W. Rutledge, 1880.
juv.		
u. Skull	Darjeeling	No history.
v. Skull	Darjeeling	Dr. Stewart, 1856, A.S.B.
w. Skull	Andamans	R. C. Tytler, A.S.B.
x. Skin	Nepal	J. Scully.
y. Skin	Shillong, Assam	T. LaTouche.

### *Paradoxurus leucomystax.*

- Paradoxurus leucomystax*, Gray *P. Z. S.*, p. 88 (1836); id. *Charlesw. Mag. N. H.*, i, p. 579 (1837); *Blyth Cat.*, p. 48; *Müller Over de Zoogäieren in Tem. Verhandl.*, p. 32; *Fentink Notes Leyd. Mus.*, v, p. 178; *Blanford P. Z. S.*, 1885, p. 805; *Fentink Notes Leyd. Mus.*, xi, p. 23
- Paradoxurus jourdani*, Gray *Charlesw. Mag. N. H.*, i, p. 579 (1837).
- Paguma leucomystax*, Gray *List Mamm. B. M.*, p. 55 (1843); *Cantor J. A. S. B.*, xv, p. 200; *Gray Cat. Carn. Mamm.*, p. 73.
- Paradoxurus ogilbyi*, Fraser *Zool. Typ. pl. x* (1849).
- Paradoxurus auratus*, Blainville *Osteog.*, ii, *Viverra*, p. 96 (1839-64).
- Paradoxurus rubidus*, *Blyth J. A. S. B.*, xxvii, p. 275 (1858); id. *Cat. no.* 155, p. 48.

*Distribution.*—Malay Peninsula, Sumatra, Borneo and probably other islands but not Java (Blanford).

a. Skin, skelet. ♀	.....	W. Rutledge, 1875.
b. Skin, skelet. ♀	.....	Purchased, 1879.
c. Skin, skull ♀	Malacca (Cantor)	India Mus., London.
d. Stuffed, skull	Malacca	Messrs. Lindstedt and Frith, 1843, A. S. B.
e. Stuffed, skull	Malacca	Messrs. Lindstedt and Frith, 1843, A. S. B.
f. Stuffed, skull	.....	Purchased, 1857, A. S. B.

[Type of *P. rubidus*, Blyth.]

**Paradoxurus laniger.**

*Paradoxurus laniger*, *Hodgson As. Res.*, xix, p. 79 (1836); *Gray Cat. Carn. Mamm.*, p. 74; *Blanford P. Z. S.*, 1885, p. 807; id. *Mammals*, p. 114. *Paguma laniger*, *Gray List Mamm. B. M.*, p. 55 (1843); id. *Cat. Hodgson Coll.*, 1st. ed. p. 9.

*Distribution.*—Thibet?

[No specimen in the Museum]

**Genus ARCTICTIS.**

*Arctictis*, *Temminck Prospec. Monogr. Mamm.* (1824)\*; id. *Monogr. Mamm.*, i, p. xxi, and ii, p. 310.

*Ictides*, *Valenciennes Ann. Sci. Nat.* (1), iv, p. 57 (1824).

**Arctictis binturong.**

*Viverra binturong*, *Raffles Linn. Trans.*, xiii, p. 253 (1822).

*Paradoxurus albifrons*, *F. Cuvier Mem. Mus. Paris*, ix, p. 48, pl. iv (1822).

*Ictides ater*, *F. Cuvier Hist. Nat. Mamm.*, livr. xliiv (1824); *M'Clelland Calc. Z. N. H.*, ii, p. 457.

*Ictides albifrons*, *Valenciennes Ann. Sci. Nat.*, (1) iv, p. 57 (1824).

*Arctictis binturong*, *Temminck Monogr. Mamm.*, ii, p. 308 (1835); *Cantor Z. A. S. B.*, xv, p. 192; *Horsfield Cat. E. I. Mus.*, p. 94; *Gray Cat. Carn. Mamm.*, p. 58; *Blyth Cat. no. 157*, p. 49; *Ferdon Mamm.*, p. 130; *Mc Master Notes on Ferdon*, p. 37; *Blyth Z. A. S. B.*, xlv, *Burma List*, p. 26; *Spearman Burma Gazette.*, p. 550; *Sterndale Mamm. Ind.*, p. 221; *Blanford Mammals*, p. 118.

*Arctictis pencillatus*, *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 32 (1839).

The Binturong or Bear Cat; Myouk kya, Burmese.

*Distribution.*—The Himalayas from Simla to Assam, Burma, Siam, Malay Peninsula (Cantor), Java and Sumatra (Muller).

a. Skin	Chittagong	E. Sanders.
b. Skin, skelet. ♂	.....	Purchased, 1879.
c. Skin, skull ♂	.....	Purchased, 1879.
d. Skin, skull ♀	.....	Zoological Gardens.
e. Skin juv. ♀	.....	W. Rutledge, 1878.
f. Skin, skull ♀	.....	W. Rutledge, 1882.
g. Skin, skelet. ♂	Malacca?	Rajah R. Mullick, 1873.
h. Skin, skelet. ♂	.....	W. Rutledge.
j. Skeleton ♂	Arakan	Sir A. Phayre, A. S. B.
k. Skull	.....	H. Falconor, 1854, A. S. B.
l. Skin, skull ♂	.....	Purchased, 1879.
m. Skeleton ♂	.....	Purchased, 1879.
n. Skull	.....	No history, A. S. B.

**Genus CYNOGALE.**

*Cynogale*, *Gray P. Z. S.*, p. 88 (1836).

*Potamophilus*, *Müller Tijdsch. Natuur. Gesch.*, v, p. 140 (1838).

### Cynogale bennetti.

- Cynogale bennettii*, *Gray Charlesw. Mag. N. H.*, i, p. 579 (1836); *Gervais Voyage Bonite Zool.*, p. 24, pl. vi; *Cantor J. A. S. B.*, xv, p. 203; *Wallace Island life*, p. 351; *Blyth Cat. no. 156*, p. 49; *Gray Cat. Carn. Mamm.*, p. 78; *Fentink Notes Leyd. Mus.*, xi, p. 24.  
*Viverra carcharias*, *Fourdain Ann. Sci. Nat.* (2), viii, p. 281, pl. viii (1837).  
*Potamophilus barbatus*, *Müller Tijdsch. Natuur. Gesch.*, v, p. 142 (1838); *Müller and Schlegel in Tem. Verhandl.*, p. 115, pl. xvii.  
*Cynogale barbata*, *Schinz Syn. Mamm.*, i, p. 388.

*Distribution.*—Malay Peninsula (Cantor), Sumatra and Borneo.

- |                   |                   |   |
|-------------------|-------------------|---|
| a. Stuffed, skull | Malayan Peninsula | Rev. F. J. Lindstedt, 1845,<br>A. S. B. |
| b. Skin, skelet.  | .....             | W. Rutledge, 1882.                      |

### Genus EUPLERES.

*Eupleres*, *Doyere Ann. Sci. Nat.* (2), iv, p. 280 (1835).

### Eupleres goudoti.

*Eupleres goudotii*, *Doyere Ann. Sci. Nat.* (2), iv, p. 281 (1835); *Gray Cat. Carn. Mamm.*, p. 177.

*Distribution.*—Madagascar.

- |            |            |                  |
|------------|------------|------------------|
| a. Skin    | Madagascar | Brit. Mus. [Ex.] |
| b. Skelet. | Madagascar | Brit. Mus. [Ex.] |

### Genus HERPESTES.

*Ichneumon*, *apud Lacépède Mem. Insti. Paris*, iii, p. 492 (1801). *Type*, *H. ichneumon*.

*Herpestes*, *Illiger Prodr.*, p. 135 (1811). *Type*, *H. ichneumon*.

*Mangusta*, *Olivier apud Fischer Syn. Mamm.*, p. 162 (1829).

*Mungos*, *Ogilby P. Z. S.*, p. 103 (1835). *Type*, *H. vitticollis*.

*Urva*, *Hodgson J. A. S. B.*, vi, p. 561 (1837). *Type*, *H. urva*.

*Mesobema*, *Hodgson J. A. S. B.*, x, p. 910 (1841). *Type*, *H. urva*.

*Osmectis*, *Gray Ann. Mag. N. H.*, x, p. 260 (1842). *Type*, *H. urva*.

*Calogale*, *Gray P. Z. S.*, p. 560 (1864). *Type*, *H. auropunctatus*.

*Calictis*, *Gray t. c.*, p. 564 (1864). *Type*, *H. smithi*.

*Taeniogale*, *Gray t. c.*, p. 569 (1864). *Type*, *H. vitticollis*.

*Onychogale*, *Gray t. c.*, p. 570 (1864). *Type*, *H. maccarthiæ*.

### *Key of the Indian Species.*

- a. No bands or stripes on the body; colour more or less concolorous.  
 b. Small (skull under  $2\frac{1}{2}$  inches long), fur adpressed; hairs



on the posterior part of the back and commencement of the tail not longer than those of the rest of the body.

**H. auropunctata**, p. 251.

b<sup>2</sup>. Large (skull over 3 inches long), fur not adpressed; hairs on the posterior part of the back considerably elongated.

c. Tail black tipped. **H. smithi**, p. 254.

c<sup>2</sup>. Tail without black tip.

e. Hair with 3 very narrow light bands, about  $\frac{1}{3}$  the length of the dark bands.

f. Very dark, under-fur dark-brown.

**H. fuscus**, p. 255.

f<sup>2</sup>. Light yellowish; tail-tip pure yellow.

**H. fulvescens**, p. 255.

e<sup>2</sup>. Hair with light and dark bands of equal length.

**H. mungo**, p. 253.

a<sup>2</sup>. With streaks behind the ears.

h. Black streak behind the ear; limbs dark; tip of tail black; red on hind-quarters. **H. vitticollis**, p. 256.

h<sup>2</sup>. White streak behind the ear; tail not black tipped; back with white tips to the fur; below chest and limbs reddish brown. **H. urva**, p. 256.

## Herpestes auropunctatus.

*Var. A.—typicus.*

*Viverra auropunctata*, *Hodgson F. A. S. B.*, v, p. 235 (1836).

*Herpestes nipalensis*, *Gray Charlesw. Mag. N. H.*, i, p. 578 (1837); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 9; *Horsfield Cat. E. I. Mus.*, p. 91; *Blyth Cat.* no. 165, p. 51; *Ferdon Mamm.* p. 136.

*Herpestes auropunctatus*, *Wagner Schrebr. Säugeth. Suppl.*, ii, p. 310 (1841); *Cantor F. A. S. B.*, xv, p. 242; *Alston P. Z. S.*, 1879, p. 665; *Anderson Anat. Zool. Res.*, p. 173, pl. xi, figs. 11 and 12; *Atkinson N.-W. P. Gazett.*, xi, p. 20; *Blanford Mammals*, p. 121.

*Herpestes pallipes*, *Blyth F. A. S. B.*, xiv, p. 346 (1845).

*Herpestes griseus*, *apud Hutton F. A. S. B.*, xiv, p. 346 (1845).

*Herpestes javanicus*, *Blyth F. A. S. B.*, xxi, p. 349 (1852).

*Herpestes persicus*, *Gray P. Z. S.*, p. 554 (1864); *id. Cat. Carn. Mamm.*, p. 151; *Blanford Persia.*, p. 42; *id. P. Z. S.*, 1874, p. 663; *Murray Zool. Sind*, p. 33; *Anderson Anat. Zool. Res.*, p. 174, pl. ix, figs. 9 and 10.

*Calogale nepalensis*, *Gray Cat. Carn. Mamm.*, p. 158 (1869).

*Var. B.—birmanicus.*

*Herpestes auropunctatus birmanicus*, *Thomas Ann. Mag. N. H.* (5), xvii, p. 84 (1886); *id. P. Z. S.*, 1886, p. 58.

*Herpestes birmanicus*, *Blanford Mammals*, p. 122 (1888).

Mush-i khourma, Persian.

*Distribution*.—South-west Persia (Blanford), Sind (Blanford), Kandahar (Hutton), and the lower ranges of the Himalayas and their neighbouring plains from Kashmir to Sikkim, including Lower Bengal.

The Burmese variety is found in Assam, Upper and Lower Burma and perhaps the Malay Peninsula.

There is now in the Museum a very fair series of *Herpestes persicus* of Gray; Anderson in his *Zoological Researches* seems to doubt whether this species is separable from *H. auropunctatus*; he, however, asserts that the skull of *Herpestes persicus* is less elongated with a broader and shorter muzzle, wider palate and broader frontal area between the orbits; all these differences seem to break down on examining a larger series of skulls, such as the Museum now possesses, and it is quite impossible to find any point of distinction between these two so-called species.

Thomas has also separated the Assamese and Burmese small mungoose as a distinct geographical race, and Blanford has raised this race to the dignity of a species.

There seems no ground for specifically separating these two races, as the distinction seems to rest merely on the slightly larger size and darker colour of the Burmese race; the hind-foot and tarsus of the four representatives of this race in the Museum varies from 1·95 to 2·05 inches, while those of the typical race run up to 2·05 as well.

*Var. A.—typicus.*

a. Skin		Pind Dadan Khan, Punjab.	W. Theobald, 1867, A.S.B.
b. Skin	♂	Shahpur, Punjab	G. Henderson.
c. Skin, skull		Quetta, Br. Baluchistan, (Sir O. St. John).	Zoological Gardens, 1887.
d. Skin, skull		Sukkur, Sind	F. Day [P.], 1876.
e. Skin, skull	♂	Agra, N.-W. P.	Agra Museum.
f. Skin		Agra, N.-W. P.	No history.
g. Skin		N.-W. Himalayas	T. C. Jerdon.
h. Skin, skull		Nepal	Mus. Coll., 1872.
i. Skin		Nepal	J. Scully.
k. Skin, skull		Calcutta (Bot. Gardens).	J. Anderson.
l. Skin		Calcutta	J. Anderson, 1869.
m. Skin, skull	♂	Calcutta	J. Anderson, 1869.
n. Skin	♂	Calcutta	Purchased.

<i>o.</i> Skin		Mutlah, Bengal	Mus. Coll., 1870.
<i>p.</i> Skull		Manbhoom, Bengal	J. Anderson, 1877.
<i>q.</i> Skull		Manbhoom, Bengal	J. Anderson, 1877.
<i>r.</i> Skeleton	♂	.....	Calcutta Zoological Gardens, 1877.
<i>s.</i> Skeleton	♂	.....	J. Anderson.
<i>t.</i> Skeleton	♂	.. ..	J. Anderson.
<i>u.</i> Skeleton		.....	Purchased.
<i>v.</i> Skeleton	♂	Botanical Gardens	J. Anderson, 1866.
<i>w.</i> Skeleton	♂	Calcutta	J. Anderson, 1865.
<i>x.</i> Stuffed		Calcutta	E. Blyth, 1843, A.S.B.
<i>y.</i> Stuffed		Calcutta	E. Blyth, 1843, A.S.B.
<i>z.</i> Stuffed	juv.	Calcutta	E. Blyth, 1843, A.S.B.
<i>a</i> <sup>2</sup> . Stuffed	juv.	Calcutta	E. Blyth, 1843, A.S.B.
<i>b</i> <sup>2</sup> . Stuffed		Midnapore	R. Rollo, A.S.B.
<i>c</i> <sup>2</sup> . Stuffed		Midnapore	R. Rollo, A.S.B.
<i>d</i> <sup>2</sup> . Stuffed		Agra, N.-W. P.	Dr. Stewart, A.S.B.
<i>e</i> <sup>2</sup> . Stuffed		Agra, N.-W. P.	Dr. Stewart, A.S.B.
<i>f</i> <sup>2</sup> . Alc. skull	♀	Rajanpur, Punjab	E. Sanders.
<i>g</i> <sup>2</sup> . Alc. skull	♂	Sind	Karachi Museum.
<i>h</i> <sup>2</sup> . Alc. skull	♀	Karachi	Karachi Museum.

*Var. B.—birmanicus,*

<i>a.</i> Skin	Cachar	Mus. Coll.
<i>b.</i> Skull	Cachar	Mus. Coll.
<i>c.</i> Skin, skull	Chittagong	D. Thorburn, 1864, A.S.B.
<i>d.</i> Skin, skull	Sawaddy, Burma	J. Anderson.

**Herpestes mungo.**

- Viverra mungo*, *Gmelin Syst. Nat.* i, p. 84 (1788).  
*Herpestes griseus*, *Desmarest Mamm.*, p. 212 (1820).  
*Herpestes frederici*, *Desmarest Dict. Sc. Nat.*, xxix, p. 60 (1823).  
*Mangusta malaccensis*, *Fischer Syn. Mamm.*, p. 164 (1829).  
*Mangusta grisea*, id. *ibid.*  
*Herpestes griseus*, *Sykes P. Z. S.*, p. 102, (1831); *Wagner Hugel's Kaschmir*, iv, p. 570; *Cantor F. A. S. B.*, xv, p. 242; *Horsfield Cat. E. I. Museum*, p. 90; *Kelaart Prodr. Faun. Zeylan.*, p. 41; *Adams P. Z. S.*, 1858, p. 516; *Gray Cat. Carn. Mamm.*, p. 151; *Blyth Cat. no. 164*, p. 51; *Ferdon Mamm.*, p. 132; *Stoliczka F. A. S. B.*, xli, p. 227; *Murray Zool. Sind*, p. 33; *Sterndale Mamm. Ind.*, p. 223; *Thomas P. Z. S.*, 1886, p. 56; *Blyth and Nevill Taprobanian*, i, p. 58.  
*Herpestes nyula*, *Hodgson F. A. S. B.*, v, p. 236 (1836); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 8.  
*Mangusta mungos*, *Elliot Madras Journ.*, x, p. 102 (1839).  
*Herpestes pallidus*, *Wagner Schrebr. Säugeth. Suppl.*, ii, p. 311 (1841); *Anderson Anat. Zool. Res.*, p. 181.  
*Herpestes malaccensis*, *Blyth F. A. S. B.*, xxi, p. 349 (1852); id. *Cat. no. 163*, p. 51; *Ferdon Mamm.*, p. 134; *Gray Cat. Carn. Mamm.*, p. 153.  
*Herpestes fimbriatus*, *Temminck Esquis. Zool.*, p. 112 (1853).

Calogale nyula, *Gray P. Z. S.*, p. 560 (1864); id. *Cat. Carn. Mamm.*, p. 158.

*Cynictis fimbriatus*, *Gray Cat. Carn. Mamm.*, p. 171 (1869).

*Herpestes ferrugineus*, *Blanford P. Z. S.*, p. 661, pl. lxxxii (1874); *Murray Zool. Sind*, p. 33; *Anderson Anat. Zool. Res.*, p. 182.

*Herpestes andersoni*, *Murray Zool. Sind*, p. 34 (1884).

*Herpestes mungo*, *Blanford P. Z. S.*, p. 631 (1887); id. *Mammals*, p. 123.

The Gray Mongoose; Mungli, Canarese; Mongus, Mahratti; Moogatea, Cingalese; Nyul, Hindustani; Benji, Bengali; Mungi, Mungisu-yentawa, Telegu; Koral, Gonds; Baj or Bij, Behar; Newera, Nore, Sind.

*Distribution*.—India generally, from the Himalayas southwards, *i.e.*, Kashmir (Hugel), Punjab (I. M.), Deccan (Sykes), Cutch (Stoliczka), Sind (Murray), Travancore (I. M.), Assam also Ceylon (Kelaart) and has been recorded from the Malay Peninsula, but was probably imported there.

a. Skin	♂	Agra, N.-W P.	Agra Museum, 1870.
b-d. 3 Skins	♀	Agra, N.-W P.	Agra Museum, 1870.
e-g. 3 Skins		Travancore	Purchased.
h. Skin		Travancore	Rev. T. Baker, A.S.B.
j-m. 4 Skulls		Banda, N.-W P.	J. Cockburn, 1881.
n. Skull		Manbhoom, Beng.	J. Anderson, 1877.
o. Stuffed		.....	No history, A.S.B.
p. Stuffed		.....	No history, A.S.B.
q. Stuffed	juv.	Bengal	No history, A.S.B.
r. Stuffed		.....	G. Finch, 1848, A.S.B.
s. Stuffed	♂	Calcutta	Purchased.
t. Stuffed		Assam	H. P. Pierre.
u. Skin		Deccan (Sykes)	India Mus., London.
v. Skin		Shevaroy Hills, Md.	Mrs. W. King.
w-x 2 Skins	♀	Bangalore	Mus. Coll., Jaffa.

#### *Var.—ferrugineus.*

a. Skin, skull	Larkhana, Sind,	F. Day [P ], 1876.
	[Type of <i>H. ferrugineus</i> , Blanford.]	
b. Skin, skull	Bnshire, Persian Gulf	Karachi Mus. [Ex.]
c. Stuffed	.....	No history, A. S. B.

#### *Herpestes smithi.*

*Herpestes smithi*, *Gray Charlesw. Mag. N. H.*, i, p. 578 (1837); id. *P. Z. S.* 1851, p. 131, pl. xxx; *Blyth Cat.* no. 162, p. 50; *Ferdon Mamm.*, p. 135; *Anderson Anat. Zool. Res.*, p. 176; *Thomas P. Z. S.*, 1886, p. 56; *Blanford Mammals*, p. 126; *Bligh and Nevill Taprobanian*, i, p. 58.

*Herpestes thysanurus*, *Wagner Münch. Gel. Anz.*, ix., p. 439 (1839); id. *Schreber Säugeth. Suppl.*, ii., p. 301.

*Crossarchus rubiginosus*, *Wagner Schreber Säugeth. Suppl.*, ii, p. 329 (1841).

*Herpestes ellioti*, *Blyth F. A. S. B.*, xx, p. 162 (1851).

*Herpestes rubiginosus*, *Kelaart Prodr. Faun. Zeylan.*, p. 213 (1852).

*Calictis smithi*, *Gray P. Z. S.*, p. 565 (1864).

*Herpestes jerdoni*, *Gray P. Z. S.*, p. 550 (1864); id. *Cat. Carn. Mamm.*, p. 148; *Anderson Anat. Zool. Res.*, p. 183; *Sterndale Mamm. Ind.*, p. 225.  
*Herpestes monticolus*, *Jerdon Mamm.*, p. 135 (1867).

The Ruddy Mongoose; Konda yentava, Telegu; Erima-kiri-pilai, Tam.; Deeto, Cingalese.

*Distribution*.—Over the whole of India but rare, from Kashmir southwards, also Ceylon.

- |                                  |   |            |                             |
|----------------------------------|---|------------|-----------------------------|
| a. Skin                          | ♂ | Bangalore  | Mus. Coll., Jaffa.          |
| b. Stuffed and<br>skeletal. mtd. |   | Ceylon     | E. F. Kelaart, 1852, A.S.B. |
| c. Stuffed                       | ♂ | Singhbhoom | V. Ball, 1869.              |

### *Herpestes fuscus*.

*Herpestes fuscus*, *Waterhouse P. Z. S.*, p. 55 (1838); *Blyth Cat.* no. 167, p. 52; *Jerdon Mamm.*, p. 136; *Gray Cat. Carn. Mamm.*, p. 152; *Anderson Anat. Zool. Res.*, p. 184, pl. viii, figs. 1, 2; *Blanford Mammals*, p. 127.

*Distribution*.—Travancore and Nilgiri Hills (Jerdon); stated by Anderson to be found also in Ceylon.

- |            |                 |                            |
|------------|-----------------|----------------------------|
| a. Stuffed | Ootacamund, Md. | T. C. Jerdon, 1842, A.S.B. |
|------------|-----------------|----------------------------|

### *Herpestes fulvescens*.

*Herpestes fulvescens*, *Blyth J. A. S. B.*, xx, p. 162 (1851); id. *ibid.*, xxi, p. 348; id. *Cat.*, p. 52; *Blanford Mammals*, p. 127.

*Herpestes flavidens*, *Blyth J. A. S. B.*, xx, p. 184 (1851); *Kelaart Prodr. Faun. Zeylan.*, p. 44.

*Cynictis maccarthiæ*, *Gray P. Z. S.*, p. 131, pl. xxxi (:851).

*Onychogale maccarthiæ*, *Gray P. Z. S.*, p. 570 (1864).

*Herpestes maccarthiæ*, *Anderson Anat. Zool. Res.*, p. 178 (1878); *Nevill and Bligh Taprobanian*, i, p. 58.

*Herpestes ceylanicus*, *Nevill Taprobanian*, i, p. 62 (1885).

Ram-mugatea, Cingalese.

*Distribution*.—Ceylon.

- |                   |        |                             |
|-------------------|--------|-----------------------------|
| a. Stuffed, skull | Ceylon | E. F. Kelaart, 1852, A.S.B. |
| b-c. 2 Skulls     | .....  | No history, A.S.B.          |
| d. Skin, skull    | Ceylon | Colombo Mus., 1888.         |

### *Herpestes brachyurus*.

*Herpestes brachyurus*, *Gray Charlesw. Mag. N. H.*, i, p. 578 (1837); *Cantor J. A. S. B.*, xv, p. 243; *Blyth Cat.* no. 170, p. 52; *Gray Cat. Carn. Mamm.*, p. 154; *Anderson Anat. Zool. Res.*, p. 187; *Wallace Island Life*, p. 351; *Jentink Notes Leyd. Mus.*, xi, p. 23.

*Distribution*.—Malay Peninsula and Borneo.

- |            |                 |                           |
|------------|-----------------|---------------------------|
| a. Stuffed | Malay Peninsula | C. Hufnagle, 1846, A.S.B. |
| b. Skull   | Malay Peninsula | C. Hufnagle, 1846, A.S.B. |
| c. Skin    | .....           | Zoological Gardens, 1882. |

**Herpestes vitticollis.**

*Herpestes vitticollis*, *Bennett P. Z. S.*, p. 67 (1835); *Kelaart Prodr. Faun. Zeylan*, p. 42; *Jerdon Mamm.*, p. 137; *Anderson Anat. Zool. Res.*, p. 188; *Blanford Mammals*, p. 128; *Nevill Taprobanian*, i, p. 60.  
*Mungusta vitticollis*, *Ogilby P. Z. S.*, p. 103 (1835); *Blyth Cat.*, p. 50.  
*Mangusta vitticollis*, *Elliot Madr. Journ.*, x, p. 103 (1839).  
*Taeniogale vitticollis*, *Gray P. Z. S.*, p. 569 (1864); *id. Cat. Carn. Mamm.*, p. 167.

Loco moogatea, Cingalese.

*Distribution*.—Southern India, Malabar Coast (Jerdon), and Ceylon (Kelaart).

a. Skin	Travancore	Purchased.
b. Stuffed, skull	Malabar	T. C. Jerdon, 1846, A.S.B.
c. Stuffed	Ceylon	E. L. Layard, 1848, A.S.B.
d. Skull, juv.	.....	No history, A.S.B.
e. Skin	Ceylon	Colombo Museum.

**Herpestes urva.**

?*Viverra fusca*, *Gray Illustr. Ind. Zool.*, i, pl. v (1830).  
*Gulo urva*, *Hodgson J. A. S. B.*, v, p. 238 (1836); *McClelland Calc. Journ. N. H.*, ii, p. 458, pl. xiii.  
*Urva cancrivora*, *Hodgson J. A. S. B.*, vi, p. 561 (1837); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 8; *Horsfield Cat. E. I. Mus.*, p. 93; *Blyth Cat. no. 158*, p. 49; *Jerdon Mamm.*, p. 138; *Swinhoe P. Z. S.*, 1870, p. 630; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 26; *Spearman Burma Gazett.*, p. 550.  
*Mesobema cancrivora*, *Hodgson J. A. S. B.*, x, p. 910 (1841).  
*Osmetectis fusca*, *Gray Ann. Mag. N. H.*, x, p. 260 (1842).  
*Herpestes urva*, *Anderson Anat. Zool. Res.*, p. 189, pl. ix, figs. 5, 6 (1878); *Blanford Mammals*, p. 129.

The Crab-eating Mongoose; *Urva*, Nepalese; *Mywe-ba*, Burmese.

*Distribution*.—Himalayas from Nepal (Hodgson) to Assam, Arakan, Burma, to North Tenasserim and South China (Swinhoe).

a. Skin	Chittagong	E. R. Shopland.
b. Skin, skelet. ♂	.....	Zoological Gardens, 1881.
c. Skin	.....	G. King, 1878.
d. Skin, skelet. ♂	.....	Zoological Gardens, 1878.
e. Stuffed, skull	Arakan	Sir A. Phayre, 1843, A.S.B.
f. Stuffed, juv.	Arakan	Sir A. Phayre, 1843, A.S.B.
g. ?Skull	.....	Zool. Gardens, 1882.
h. Skin	Assam	O. L. Fraser.

**Herpestes caffer.**

*Viverra cafra*, *Gmelin Syst. Nat.*, i, p. 85 (1788).  
*Herpestes griseus*, *Smuts Enum. Mamm. Capens.*, p. 19 (1832).  
*Herpestes madagascariensis*, *Smith S. African Quart. Journ.*, ii, p. 114 (1835)\*.  
*Herpestes bennettii*, *Gray Charlesw. Mag. N. H.*, i, p. 578 (1837).  
*Herpestes caffer*, *Blyth Cat. no. 168*, p. 52 (1863); *Thomas P. Z. S.*, 1882, p. 66.

*Distribution.*—Africa, south of the Sahara.

a. Stuffed	South Africa	E. L. Layard, 1859, A.S.B.
b. Stuffed	South Africa	E. L. Layard, 1859, A.S.B.
c. Skull, skelet. ♂	.....	No history.

### Herpestes galera.

- Mustela galera*, *Erzleben Syst. Reg. Anim.*, p. 453 (1777).  
*Viverra nems*, *Kerr Linn. Anim. Kingd.*, p. 160 (1792)\*.  
*Mustela afra*, *Kerr Linn. Anim. Kingd.*, p. 175 (1792)\*.  
*Ichneumon galera et major*, *Is. Geoff. St. Hil. Descrip. Egypt Hist. Nat.*, ii, p. 139 (1813).  
*Atilax vansire*, *F. Cuvier Hist. Nat. Mamm.*, livr. liv (1826).  
*Herpestes paludinosus*, *G. Cuvier Regne Anim.*, 2nd ed., i, p. 158 (1829).  
*Mangusta urinatrix*, *A. Smith Zool. Journ.*, iv, p. 437 (1829).  
*Herpestes pluto*, *Temminck Esquis. Zool.*, p. 95 (1853).  
*Herpestes loempo*, *Gray P. Z. S.*, p. 551 (1864).  
*Athylax vansire et paludosus*, *Gray P. Z. S.*, p. 557 (1864).  
*Athylax robustus*, *Gray P. Z. S.*, p. 558 (1864).  
*Herpestes paludosus*, *Blyth Cat.* no. 169, p. 52 (1863).  
*Herpestes galera*, *Thomas P. Z. S.*, p. 72 (1882).

*Distribution.*—Africa, south of the Sahara.

a. Stuffed	South Africa	E. L. Layard, 1859, A. S. B.
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### Herpestes gracilis.

- Herpestes gracilis*, *Rüppel N. Wirbelth.*, p. 29, pl. viii, fig. 2 (1835);  
*Thomas P. Z. S.*, 1882, p. 68.  
*Herpestes mutgigella*, *Rüppel t. c.*, p. 29, pl. ix, fig. 1 (1835); *Blanford Abyssinia*, p. 234.  
*Cynictis melanurus*, *Martin P. Z. S.*, p. 56 (1836).  
*Ichneumon ratlamuchi et cawi*, *A. Smith App. Rep. S. Afr. Exp.*, p. 42 (1836)\*.  
*Ichneumia nigricaudatus*, *Is Geoff. St. Hil. Mag. de Zool.*, p. 18 (1839)\*.  
*Herpestes ochraceus*, *Gray P. Z. S.*, p. 138, pl. viii (1848).  
*Herpestes badius*, *A. Smith S. African Zool.*, pl. iv. (1849).  
*Herpestes galinieri*, *Guérin Ferret, and Galinier Voy. Abyss. Atlas Zool.*, pl. i (1850)\*.  
*Herpestes ornatus*, *Peters Reise nach Mossambique Mamm.*, p. 117, pl. xxvi (1852).  
*Herpestes ochromelas*, *Pucheran Rev. Mag. Zool.* (2) vii, p. 393 (1855).  
*Herpestes iodopymnus*, *Heuglin Nova Acta Acad. Leop. Caro.*, xxix, p. 23 (1861).  
*Herpestes adailensis*, *Heuglin Peterm. Mitth.*, p. 17 (1861).  
*Calogale granti*, *Gray P. Z. S.*, p. 561 (1864).  
*Calogale venatica*, *Gray t. c.*, p. 563 (1864).  
*Galerella ochracea*, *Gray t. c.*, p. 564 (1864).  
*Herpestes mutschelischela*, *Heuglin Reise N. O. Afrika*, ii, p. 43 (1877)\*.

*Distribution.*—Africa, south of the Sahara.

a. Skin	♀ Adegat Tigre, Abyssinia, W. T. Blanford, 1868.
	8,000 ft.

- b. Skin ♀ Adegrat Tigre, Abyssinia, W. T. Blanford, 1868.  
8,000 ft.  
c. Skin ♂ Senafé Tigre, Abyssinia, W. T. Blanford, 1868.  
7,500 ft.  
d. Skin, skelet. ♀ Senafé Tigre, Abyssinia, W. T. Blanford, 1868.  
8,000 ft.

Genus **CROSSARCHUS.**

*Crossarchus*, *F. Cuvier Hist. Nat. Mamm.* livr. xlvii (1825).

***Crossarchus fasciatus.***

- Viverra ichneumon*, pt. *Schreber Säugeth.*, iii, p. 430, pl. cxvi (1778).  
*Herpestes mungo*, *Desmarest Mamm.*, i, p. 211 (1820).  
*Herpestes fasciatus*, *Desmarest Dict. Sci. Nat.*, xxix, p. 58 (1823).  
*Ichneumon tenionotus*, *A. Smith S. African Quart. Journ.*, ii, 114 (1835)\*.  
*Mungos fasciatus*, *Blyth Cat.* no. 160, p. 50 (1863).  
*Ariela taenionota*, *Gray P. Z. S.*, p. 565 (1864).  
*Crossarchus fasciatus*, *Thomas P. Z. S.*, p. 90 (1882).

*Distribution.*—South-East Africa, Caffraria to Mozambique.

- a. Skin, skelet. ♀ ..... Zoological Gardens, 1883.  
b. Stuffed Somali land Messrs. Burton and Speke,  
1855, A.S.B.

Genus **PROTELES.**

*Proteles*, *Is. Geoff. St. Hil. Mem. Mus. Paris*, xi, p. 354 (1824).

***Proteles cristatus.***

- Viverra cristata*, *Sparrman Resa till Goda Hopps Udden*, p. 581 (1783)\*.  
*Viverra hyaenoides*, *Desmarest Mamm. Suppl.*, p. 538 (1822).  
*Proteles lalandi*, *Is. Geoff. St. Hil. Mem. Mus. Paris*, xi, p. 371 (1824);  
*Gray Cat. Carn. Mamm.*, p. 214.  
*Proteles cristatus*, *Blyth Cat.* no. 139, p. 44 (1863); *Flower P. Z. S.*, 1869,  
p. 474, pl. xxxvi.

*Distribution.*—South Africa, Cape of Good Hope.

- a. Skin, skull South Africa E. L. Layard, 1859, A.S.B.

Genus **HYAENA.**

- Hyaena*, *Zimmermann Spec. Geogr. Quad.*, p. 365 (1777).  
*Crocota*, *Gray P. Z. S.*, p. 525 (1868). *Type*, *H. crocuta*.

***Hyaena striata.***

- Canis hyaena*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 58 (1766).  
*Hyaena striata*, *Zimmermann Geogr. Geschichte*, ii, p. 256 (1780); *Adams*  
*P. Z. S.*, 1858, p. 514; *Blyth Cat.* no. 138, p. 44; *Tristram P. Z. S.*,  
1866, p. 91; *Ferdon Mamm.*, p. 118; *Gray Cat. Carn. Mamm.*, p. 212;



*McMaster Notes on Jerdon*, p. 34; *Stoliczka F. A. S. B.*, xli, p. 227; *Atkinson N. W. P. Gazette.*, xi, p. 18; *Blanford Persia*, p. 42; *Alston P. Z. S.*, 1877, p. 273, and 1880, p. 53; *Murray Zool. Sind*, p. 38; *Sterndale Mamm. Ind.*, p. 205; *Thomas P. Z. S.*, 1886, p. 56; *Blanford Mammals*, p. 132; *Radde Zool. F. B.*, iv, p. 1021.

*Hyaena orientalis*, *Tiedemann Zool.*, i, p. 350 (1808).

*Hyaena fasciata*, *Thunberg Kongl. Vetens. Akad. Handl.*, p. 59 (1820).

*Hyaena antiquorum*, *Temminck Ann. Gen. Sci. Phys.*, iii, p. 51 (1820)\*.

*Hyaena vulgaris*, *Desmarest Mamm.*, p. 215 (1820); *Sykes P. Z. S.*, 1831, p. 102; *Elliot Madras Journ.*, x, p. 103; *Walker Calc. Journ. N. H.*, iii, p. 266; *Hutton F. A. S. B.*, xiv, p. 345.

The Striped Hyæna; Kirba, Kutkirba, Canarese; Turras, Mahrathi; Hondar, Lakrabagha, Jhirak, Bhagiah, Hindustani; Lankrabagh, Bengali; Renhra, Central India; Cherrag, Sind.

*Distribution.*—North Africa as far as the Senegal. Asia Minor, Palestine (Tristram), Euphrates valley, Baluchistan, Persia (Blanford), and Transcaspia. In India common in dry open country, *i.e.*, Sind (Murray), Kutch (Stoliczka); Kumaon submountain tracts (Atkinson), Southern India (Sykes and Elliot), and Assam? (Walker). Not found in Ceylon or east of the Bay of Bengal.

a. Skin, skull ♂	.....	Zoological Gardens, 1876.
b. Skin ♀	.....	Purchased, 1879.
c. Stuffed	.....	Barrackpore Menagerie, 1869.
d. Stuffed	Benares, N.-W. P.	Purchased, 1870.
e. Stuffed juv.	.....	L. C. Mullins, 1867.
f. Stuffed, skull juv.	Midnapur, Bengal	W. Rutledge, 1874.
g. Skeleton ♂	.....	Zoological Gardens, 1878.
h. Skeleton ♂ juv.	.....	No history.
j-l. 3 Skulls	.....	A. S. B.
m. Skull	Agra, N.-W. P.	J. Cockburn, 1881 [P.]
n-o. 2 Skulls	Banda, N.-W. P.	J. Cockburn, 1881.
p. Skull	Manbhoom, Bengal	R. C. Beavan, 1865, A.S.B.
q. Skull	Agra, N.-W. P.	J. Cockburn, 1879.
r. Skin	nr. Benares, N.-W. P.	No history.
s-v. 4 Skulls	Banda dist., N.-W. P.	J. Cockburn, 1881.

### *Hyaena crocuta.*

*Canis crocuta*, *Erxleben Syst. Reg. Anim.*, p. 578 (1777).

*Hyaena maculata*, *Zimmermann, Spec. Geogr. Quad.*, p. 470 (1777).

*Hyaena crocuta*, *Zimmermann Geogr. Geschichte*, ii, p. 256 (1780); *Blyth Cat.*, p. 43; *Blanford Abyssinia*, p. 235.

*Hyaena capensis*, *Desmarest Mamm.*, p. 216 (1820).

*Crocuta maculata*, *Gray P. Z. S.*, p. 525 (1868); *id. Cat. Carn. Mamm.*, p. 213.

*Distribution.*—Africa, south of Sahara.

a. Skin, skull ♂	Abyssinian Highlands	W. T. Blanford.
b. Skull ♀	Somali land	Messrs. Speke and Burton, A.S.B.

## Genus CUON.

Cuon, *Hodgson Ann. Mag. N. H.*, i, p. 152 (1838). *Type*, *C. dukhunensis*.  
 Chrysaeus, *H. Smith Jard. Nat. Libr.*, ix, p. 167 (1839). *Type*, *C. dukhunensis*.

The species of the family Canidae have been arranged as far as possible according to the system adopted by Prof. Huxley in his paper on the Canidae (*P. Z. S.*, 1880, p. 238); beginning with the higher Thoooids, the Wild Dogs and Wolves, then follow the Jackals and their allies, *Canis procyonides* being the lowest true Thoooid represented; the Alopecoid Series follows, beginning with the most highly developed foxes, *Vulpes alopec* and *Vulpes fulvus* and gradually descending to the microdont *V. bengalensis* and *V. caama*.

## Cuon dukhunensis.

†*Canis javanicus*, *Desmarest Mamm.*, p. 198 (1820).

*Canis familiaris*, var. *sumatrensis*, *Hardwicke Linn. Trans.*, xiii, p. 235, pl. xxiii (1822).

*Canis dukhunensis*, *Sykes P. Z. S.*, p. 100 (1831); *Blyth J. A. S. B.*, xi, p. 591.

*Canis primævus*, *Hodgson As. Res.*, xviii, pt. 2, p. 221, (1833); *Walker Calc. Journ. N. H.*, iii, p. 266.

*Cuon primævus*, *Hodgson Ann. Mag. N. H.*, i, p. 152 (1838); id. *Calc. Journ. N. H.*, ii, p. 205; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 10; *Cantor J. A. S. B.*, xv, p. 196; *Horsfield Cat. E. I. Mus.*, p. 73; *Adams P. Z. S.*, 1858, p. 514; *Gray Cat. Carn. Mamm.*, p. 184; *Scully P. Z. S.*, 1881, p. 202.

*Canis familiaris* var., *Elliot Madr. Journ.*, x, p. 100 (1839).

*Canis rutilans*, *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 17 (1839); *Blyth J. A. S. B.*, xlv, *Burma List*, p. 24.

*Chrysaeus primævus*, *H. Smith Jard. Nat. Lib.*, ix, p. 170 (1839).

*Chrysaeus scylax*, id. *ibid.*, p. 179 (1839).

*Cuon dukhunensis*, *Horsfield Cat. E. I. Mus.*, p. 73 (1851); *Gray Cat. Carn. Mamm.*, p. 186; *Blanford Mammals*, p. 143.

*Cuon sumatrensis*, *Horsfield Cat. E. I. Mus.*, p. 79 (1851); *Gray Cat. Carn. Mamm.*, p. 184.

*Cuon rutilans*, *Blyth Cat.*, p. 37 (1863); *Jerdon Mamm.*, p. 145; *Blanford J. A. S. B.*, xxxvi, p. 191; *McMaster Notes on Jerdon*, p. 42; *Atkinson N.-W. P. Gazett.*, xi, p. 21; *Lydekker J. A. S. B.*, xlvi, p. 285; *Sterndale Mamm. Ind.*, p. 239; *Spearman Burma Gazett.*, p. 547; *Kinloch Large Game Shooting*, i, p. 17, with plate.

The Indian Wild Dog; Kohiya, Dhole, Jungli kutta, Hindustani; Kolsa, Mahratti; Buansu, in the Himalayas; Tawkhwe, Burmese; Ram hun, Kashmir; Sona kutta, Central India; Ban kutta, North India; Réza kutta, Adavi kutta, Telegu; Shennai, Malayalim; Eram naiko, Gond; Saddaki, Tibetan (Ladak); Suhutum, Lepcha; Paoho, Bhotea; Konaug, Assamese.

*Distribution.*—India generally, *i.e.*, Gilgit (Scully), West Himalayas (Adams), Central and Southern India (Jerdon), Nepal (Hodgson), Assam (Walker), Burma (Spearman), Malay Peninsula (Cantor), Sumatra (Hardwicke), Java and Borneo (Temminick).

There are said to be three varieties of Red wild dogs, which have been all classed together in the genus *Cuon*, *i.e.*, *C. dakhunensis* (= *primævus*), *C. javanicus* (= *C. familiaris* var. *sumatrensis* and *C. rutilans*), and finally, *C. alpinus*.

Following Scully, *C. alpinus* has been separated since it has a short upper sectorial compared with *C. dakhunensis*.

The Malayan form is considered distinct by Mr. Blanford in his recent work on Indian Mammals; it is said to be smaller and rather darker coloured. The above synonymy, however, refers to the Malay as well as the Indian variety.

a. Skin	♂ juv.	.....	Zoological Gardens.
b. Skin	♂	Chybassa, Bengal	A. Grote, Esq., 1856, A. S. B.
c. Skin	♀	.....	Zoological Gardens.
d. Skin, skull	♂	Banda dist., N.-W. P.	J. Cockburn [P.]
e. Skin, skull		Buxa, Doars	A. A. Kinloch.
f. Skin		Sikkim	L. Mandelli.
g. Skin		.....	No history, A. S. B.
h. Skin,		.....	Zoological Gardens.
	skelet. ♂ juv.		
j. Skin, skull		Sumatra ?	W. Rutledge.
k. Stuffed	♀	.....	Zoological Gardens.
l. Stuffed		Darjeeling	Messrs. Colvin Ainslie & Co., A. S. B.
m. Skeleton	♀	.....	A. S. B.
n. Skull		Nepal	B. H. Hodgson, A. S. B.
o. Skeleton		.....	No history.
p. Skin, skull		Chaprot, Gilgit	J. Scully.

### *Cuon alpinus*.

*Canis alpinus*, *Pallas Zoog. Rosso As.*, i, p. 34 (1831); *Blyth Cat.*, p. 38; *Van der Hoven Verh. Kon. Akad. Amster.*, 1856, iii; *Schrenck Amurland Säugeth.*, p. 48, pl. ii; *Radde Ost Siberien*, p. 60; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 48.

*Cuon alpinus*, *Gray Ann. Mag. N. H.*, xvii, p. 293 (1846); *Gray Cat. Carn. Mamm.*, p. 184.

*Distribution*.—Siberia, Turkestan (Severtzoff), Amurland (Schrenck) and Thibet (I. M.), in fact the highlands of Central Asia. The specimen below may possibly be referred to *Cuon dukhunensis*.

a Stuffed Thibet Capt. Munro, 1845, A. S. B.

### Genus CANIS.

*Canis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 56 (1766).

*Saccalius*, *H. Smith, Fard. Nat. Libr.*, ix, p. 206 (1839). *Type*, *Canis aureus*.

*Lupus*, *H. Smith Fard. Nat. Libr.*, ix, p. 129 (1839). *Type*, *Canis lupus*.

*Oxygous*, *Hodgson J. A. S. B.*, x, p. 908 (1841). *Type*, *Canis aureus*.

#### *Key of the Indian Species.*

a. Skull generally exceeds  $7\frac{1}{2}$  inches in length; head and body 3 ft. to 3 ft. 6 in.; legs long.

*b.* The carnassial tooth exceeds in length the two posterior molars, a black stripe down the forelegs.

**C. lupus**, p. 262.

*b*<sup>2</sup>. The carnassial is either of the same length or else shorter than the two posterior molars.

*c.* Fur smooth, thin and fulvous, little or no under fur.

**C. pallipes**, p. 263.

*c*<sup>2</sup>. Fur soft and woolly, colour pale and isabelline, owing to the absence of black-tipped hairs on the flanks.

**C. laniger**, p. 262.

*a*<sup>2</sup>. Skull generally less than 6 inches in length; head and body about 2 feet 6 inches; legs short.

**C. aureus**, p. 264.

### Canis lupus.

*Canis lupus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 58 (1766); *Hutton ꝯ. A. S. B.*, xiv, p. 345; *Blyth Cat.*, p. 39; *Schrenck Amurland Säugeth.*, p. 44; *Middendorff Siberische Reise*, ii, pt. ii, p. 70; *Severizoff Ann. Mag. N. H.* (4), xviii, p. 48; *Blanford Persia*, p. 37; id. *Yarkand Mammals*, p. 20; *Scully P. Z. S.*, 1881, p. 201; id. *Ann. Mag. N. H.* (5), viii, p. 224; id. *ꝯ. A. S. B.*, lvi, p. 69; *Thomas Linn. Trans.* (2), v, p. 57; *Blanford Mammals*, p. 135; *Radde Zool. ꝯ. B.*, iv, p. 1017.

*Lupus vulgaris*, *H. Smith ꝯard. Nat. Libr.*, ix, p. 148 (1839); *Gray Cat. Carn. Mamm.*, p. 186.

*Distribution.*—The Palearctic region generally, from France to Amurland, extending to Persia, Afghanistan, Baluchistan and Gilgit, and probably found in Western Sind and the Punjab.

<i>a.</i> Skin	Yarkand ?	F. Stoliczka, 1873.
<i>b.</i> Skin	Kashgar bazaar	F. Stoliczka, 1873.
<i>c.</i> Skin	Kashgar bazaar	F. Stoliczka, 1873.
<i>d.</i> Skin	Kashgar bazaar	F. Stoliczka, 1873.
<i>e.</i> Skin	Afghan-Turkestan	C. E. Yate, 1887.
<i>f.</i> Skull	Bushire	No history.
<i>g.</i> Skull	Bokhara ?	Purchased, 1872.
<i>h.</i> Skin, skull ♂	Khornor, Gilgit, 21-11-79	J. Scully.
<i>j.</i> Skin, skull ♂	Gilgit, 17-4-79	J. Scully.
<i>k.</i> Skin, skull ♀	Gilgit, 23-1-79	J. Scully.
<i>l.</i> Skull	juv. Gilgit	J. Scully.

### Canis laniger.

*Canis laniger*, *Hodgson Calc. Journ. N. H.*, vii, p. 474, (1847); *Blyth ꝯ. A. S. B.*, xvi, p. 1176; *Horsfield Ann. Mag. N. H.* (2), xvi, p. 107; *Blyth Cat.*, p. 39; *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 5; *Blanford P. A. S. B.* 1877, p. 114; *Kinloch Large Game Shooting*, i, p. 15.

*Canis chanco*, Gray P. Z. S., p. 94 (1863).

*Lupus chanco*, Gray P. Z. S., p. 501 (1868); id., *Cat. Carn. Mamm.*, p. 187.

*Canis niger*, P. L. Sclater P. Z. S., p. 654, pl. lxxviii (1874); Blyth J. A. S. B., xvi, p. 1176; Kinloch *Large Game Shooting*, 2nd ed., p. 39.

Chanko and Chanko nagpo, (black var.) Thibetan.

*Distribution*.—Eastern (Hodgson) and Western Thibet (Kinloch) including Ladak.

Mr. Blanford in his recent work on Indian Mammals considers *Canis laniger* to be conspecific with *Canis lupus*; the differences as described are certainly not striking, but probably as marked as the differences between many other species; the difference formerly pointed out by Blanford, with regard to the sectorial being shorter than the two molars, is now said by him to be not constant.

The skin "h", which is in a very bad state of preservation, is the skin of the black wolf of Thibet (*c. f.* Blyth J. A. S. B., xvi, p. 1176,) which was afterwards described by Mr. Sclater as *Canis niger*, from living specimens in the London Zoological Gardens.

It is probable that this black form is merely a variety of the typical form, similar to that of the European wolf which was described as *Canis lycaon* by Schreber.

a. Skin, skull.	Nanskar, Thibet	J. B. Lee.
b. Skin	Thibet	G. T. Lushington, A. S. B.
c. Stuffed	Thibet	G. T. Lushington, A. S. B.
d-g. 4 Skulls	Thibet	G. T. Lushington, A. S. B.
h. Skin	Thibet	R. Strachey, 1847, A. S. B.
	(black var.).	
j. Skin	Phialung, Ladak,	S. J. Stone.
	(black var.). 29-6-88.	

### *Canis pallipes*.

*Canis pallipes*, Sykes P. Z. S., p. 101 (1831); Blyth *Cat.*, p. 39; Jerdon *Mamm.*, p. 139; *Stoliczka J. A. S. B.*, xli, p. 227; *McMaster Notes on Jerdon*, p. 38; *Atkinson N.-W. P. Gazett.*, xi, p. 20; *Murray Zool. Sind*, p. 36; *Sterndale Mamm. Ind.*, p. 232; *Thomas P. Z. S.*, 1886, p. 56; *Blanford Mammals*, p. 137.

*Canis lupus*, *apud Elliot Madr. Journ.*, x, p. 101 (1839).

*Lupus pallipes*, Gray P. Z. S., p. 504 (1868); id. *Cat. Carn. Mamm.*, p. 189.

The Indian wolf; Tola, Canarese; Landga, Deccani; Bherya nekra, Hundar, Hurar, Hindustani; Bigana, Bundelcund; Toralu, Telegu; Buggyar, Sind.

*Distribution*.—The Indian wolf is generally distributed over the whole of the Indian peninsula south of the Himalayas, more especially in the open country. Is recorded from Sind (Murray), Sambhar Lake (Thomas), Cutch (Stoliczka), Central Provinces (Jerdon) and South India (Elliot and Sykes).

a. Skin, skull	.....	Zoological Gardens.
♀ juv.		

b. Skin	.....	Purchased, 1870.
c. Skin	Pind Dadun Khan, Punj.	W. Theobald, 1854, A. S. B.
d. Skin	Chybassa, Bengal	S. R. Tickell, 1848, A.S.B.
e. Skin	.....	J. Anderson.
f. Stuffed	♀	Purchased, 1870.
g. Stuffed	♂	J. Anderson.
h. Skin	♂ juv. Agra dist., N.-W. P.	Agra Museum [Ex.]
j. Skin	♀ juv. Agra dist., N.-W. P.	Agra Museum [Ex.]
k. Skin	juv. Chaman, Baluchistan	J. A. Murray.
l. Skin, skull,	♂	Zoological Gardens.
	juv.	
m. Skin	♂ juv. ....	Zoological Gardens.
n. Skull	♂ Shiurajpur, N.-W.P.	J. Cockburn [P.]
o. Skull	juv. Agra dist., N.-W.P.	J. Cockburn [P.]
p. Skull	♀ Banda, N.-W. P.	J. Cockburn.
q. Skin	♀ juv. Agra dist., N.-W.P.	Agra Museum [Ex.]
r. Skin	♂ Purneah, Bengal	Zoological Gardens.
s. Skin	.....	Purchased, 1870.
t. Alc.	♂ Motihari dist., Behar	L. Cameron, 1882.
u. Alc.	♀ Motihari dist., Behar	L. Cameron, 1882.
v. Skeleton	♂ Banda dist., N.-W.P.	J. Cockburn, 1881.
w. Skull	.....	Agra Museum [Ex.]

### Canis lagopus.

*Canis lagopus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 59 (1766).

*Canis fuliginosus*, *Shaw Genl. Zool.*, i, p. 331 (1800).

*Vulpes lagopus*, *Audubon and Bachman Quad. N. Amer.*, ii, p. 89 (1829)\*;

*Blyth Cat.* no. 129.

*Leucocyron lagopus*, *Gray P. Z. S.*, p. 521 (1868).

*Distribution.*—Arctic regions of both continents.

a. Skin, skull	♂	.....	W. Rutledge 1874.
b. Stuffed		Arctic regions	Christiania University, 1844, A. S. B.
c. Skull		.....	Royal Acad. Copenhagen, 1839, A. S. B.
d. Skull	♂	Arctic regions	W. Rutledge.
e. Skull	♀	Lapland	Stockholm Mus. [Ex.]

### Canis aureus.

*Canis aureus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 59 (1766); *Sykes P. Z. S.*, 1831, p. 101; *Elliot Madras Journ.*, x, p. 101; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 11; *Horsfield Cat. E. I. Mus.*, p. 80; *Kelaart Prodr. Faun. Zeylan.*, p. 30; *Blyth J. A. S. B.*, xxiv, p. 471; *Adams P. Z. S.* 1858, p. 515; *Blyth Cat.*, p. 40; *Tristram P. Z. S.*, 1866, p. 91; *Ferdon Mamm.*, p. 142; *McMaster Notes on Ferdon*, p. 41; *Stoliczka J. A. S. B.*, xli, p. 227; *Blanford Persia*, p. 37; *Blyth J. A. S. B.*, xlv, *Burma list*, p. 25; *Atkinson N.-W. P., Gazett.*, xi, p. 20; *Alston P. Z. S.*, 1877, p. 273 and 1880, p. 53; *Murray Zool. Sind*, p. 35; *Sterndale Mamm. Ind.*, p. 237; *Thomas P. Z. S.*, 1886, p. 56; *Thomas Linn. Trans.* (2), v, p. 57; *Blanford Mammals*, p. 140; *Radde Zool. J. B.*, iv, p. 1017.

- Canis barbarus*, *Shaw Genl. Zool.*, i, p. 311 (1800).  
*Canis aureus indicus*, *Hodgson As. Res.*, xviii, pt. ii, p. 237 (1833).  
*Saccalius aureus*, *H. Smith Jard. Nat. Libr.*, ix, p. 214 (1839).  
*Saccalius barbarus*, *H. Smith Jard. Nat. Libr.*, ix, p. 218 (1839).  
*Oxygous indicus*, *Hodgson J. A. S. B.*, x, p. 908 (1841).  
*Lupus aureus*, *Gray Cat. Carn. Mamm.*, p. 188 (1867).

The Jackal; Nari, Canarese; Kolah, Shighal, Deccani and Mah-ratti; Nareeah, Cingalese; Gidhur, Hindustani; Sheal, Sial, Shialu, Bengali; Srigal, Sanskar, Syar, Nepalese; Nakka, Telugu; Nerka, Gond; Amu, Bhotea; Tholuk, Mekranees; Mye-khwe, Burmese.

*Distribution*.—South-East Europe, North Africa and Egypt, Asia Minor (Alston), Persia (Blanford), India, Assam, Burma (Blyth and Spearman); in India is found everywhere from the Himalayas to Cape Comorin and also in Ceylon; in Burma it has been recorded as far south as Moulmein.

a.	Skin	♂	Agra dist., N.-W. P.	Agra Mus. 1870 [Ex.]
b.	Skin	♀	Agra dist., N.-W. P.	Agra Mus. 1870 [Ex.]
c.	Skin		Manbhoom	R. C. Bcavan,
d.	Skin, skull		.....	Babu H. Mullick.
	(white var.)			
		♀		
e.	Skin, skull		.....	Zoological Gardens.
	(white var.)			
		♀		
f.	Skin, skull		.....	Barrackpore Menagerie.
	(black var.)			
g.	Skin		Burma	J. Anderson.
h.	Skin, juv.		Calcutta	No history, A. S. B.
j.	Skull	♀	Nepal	No history, A. S. B.
k.	Skull		.....	No history, A. S. B.
l.	Skull		.....	No history, A. S. B.
m.	Skull		.....	No history, A. S. B.
n.	Skull		Sadiya, Assam	J. Cockburn [P.]
o.	Skull		Botanical Gardens, Calcutta.	J. Anderson, 1873.
p.	Skull		Agra, N.-W. P.	J. Cockburn [P.]
q.	Skull		Banda dist., N.-W. P.	J. Cockburn.
r.	Skeleton	♂	.....	No history.
s.	Stuffed		Calcutta	Purchased, 1870.
	(dark var.)			
t.	Stuffed	♂	Calcutta	J. Anderson, 1869.
u.	Stuffed (Pyrrhous var.)		Calcutta	W. Stalkart, 1843, A. S. B.
v.	Stuffed		.....	Maharaja of Burdwan, 1859, A.S.B.
	(white var.)			
w.	Skeleton		.....	No history.
x.	Stuffed juv.		Calcutta	No history, A. S. B.
y.	Skeleton		.....	Purchased.
z.	Skin	♂	.....	No history, A.S.B.
a <sup>1</sup> .	Skin		Shiraz, Persia	Sir O. B. C. St. John.
b <sup>1</sup> .	Skin, skull	♀	Bampur, Baluchistan, 2,000 ft.	W. T. Blanford, 1872.
c <sup>1</sup> .	Skin, skull		Ceylon	Colombo Museum.
d <sup>1</sup> .	Skin	♀	Nepal	J. Scully.

**Canis mesomelas.**

*Canis mesomelas*, *Schreber Säugeth.*, iii, p. 370, pl. xciv (1778); *Blanford Abyssinia*, p. 237.

*Vulpes mesomelas*, *Gray P. Z. S.*, p. 516 (1868); *id. Cat. Carn. Mamm.*, p. 203.

*Distribution.*—South and East Africa, Abyssinia and the Cape of Good Hope.

a. Skin, skull ♂ ..... Zoological Gardens.

**Canis variegatus.**

*Canis variegatus*, *Cretzschmar Rüppell's Atlas*, p. 31, pl. x (1826); *Blyth Cat.*, p. 40; *Blanford Abyssinia*, p. 238.

*Vulpes variegata*, *Gray P. Z. S.*, p. 516 (1868); *id. Cat. Carn. Mamm.*, p. 203.

*Distribution.*—Upper Egypt, Nubia and Abyssinia to Somali land.

a. Skin	♀ Hulai, Abyssinia	W. T. Blanford.
b. Stuffed	Somali land	Messrs. Burton and Speke, 1855, A. S. B.

**Canis procyonoides.**

*Canis procyonoides*, *Gray Illustr. Ind. Zool.*, ii, pl. i (1833); *Schrenck Amurland Säugeth.*, p. 53.

*Nyctereutes procyonoides*, *Gray List Mamm. B. M.*, p. 62 (1843); *Swinhoe, P. Z. S.*, 1870, p. 631.

*Nyctereutes viverrinus*, *Temminck & Schlegel Faun. Jap. Mamm.*, p. 40, pl. viii (1850).

*Distribution.*—Eastern Asia from Amurland to Canton, Japan (Temminck), but not Formosa.

a. Skin, skull ♂ ..... Zoological Gardens.

**Canis familiaris.**

*Canis familiaris* *Linnaeus Syst. Nat.*, 12th ed., i, p. 56 (1766); *Blyth Cat.*, p. 38; *Gray Cat. Carn. Mamm.*, p. 193.

*Var.*—*dingo*.

*Canis dingo*, *Shaw Genl. Zool.*, i, p. 277 (1800); *Gould Mamm. Austr.*, iii, pls. li, lii.

*Canis familiaris* var. *australasiæ*, *Desmarest Mamm.*, p. 191 (1820).

*Chrysaëus australiæ*, *H. Smith Jard. Nat. Libr.*, ix, p. 188, pl. x (1839).

*Distribution.*—Cosmopolitan in a domestic state; the dingo is confined to Australia, and may perhaps be considered a distinct species.



a. Skin		Yunnan	J. Anderson.
b. Skin		Kashgar	F. Stoliczka.
c. Skin	♀	Japan	Dr. Tonnerre.
d. Skull		India (pariah)	G. T. Lushington, A. S. B.
e. Skull		India (pariah)	G. T. Lushington, A. S. B.
f. Skull		India	A. Masters, 1845, A. S. B.
g. Skull		India (spaniel)	A. Masters, 1845, A. S. B.
h. Skull		Formosa	R. Swinhoe, 1859, A. S. B.
i. Skull		Amoy	R. Swinhoe, 1859, A. S. B.
k. Skull		(Bulldog ?)	A. S. B.
l. Skin, skull	♂	Bhutan	T. R. Doucett.
m. Skull		(Greyhound)	J. Cockburn [P.]
n. Skull		Allahabad, N.-W. P.	J. Cockburn [P.]
o. Skull		Dhappa, Calcutta	Museum Collector.
p. Skull		Cherra Poonjee, Assam.	H. H. Godwin-Austen, 1868.
q. Skull		China (pug)	No history.
r. Skin and skeleton.		China (pug)	F. Day, 1869.
s. Skeleton	♂	(Hybrid kangaroo hound and retriever).	No history, 1868.
t. Skin	♂	India	T. R. Doucett.
u. Skull		Japan (pug)	Dr. Tonnerre.
v. Alc.	♀ juv.	(Yorkshire terrier)	W. Rogerson.

*Var.—dingo.*

a. Skin		.....	Zoological Gardens.
b. Stuffed		Australia	A. Grote, 1864, A. S. B.
c. Skull		South Australia	Adelaide Mus. [Ex.]
d. Skull		Australia	C. Hollings, 1856, A. S. B.

Genus **VULPES.**

*Vulpes*, *Brisson Regnum animale* (1758)\*. *Type*, *V. alopec.*  
*Cynalopex*, *H. Smith Jard. Nat. Libr.*, ix, p. 222 (1839).

*Key of the Indian Species.*

a. Of large size, fur soft and thick, ears black, skull with large carnasial teeth, brush white-tipped.

b. Large, tarsus about 6 inches; skull about  $5\frac{1}{2}$  inches in length, carnasial teeth long.

**V. alopec var. montanus**, p. 268.

b<sup>2</sup>. Smaller, tarsus 4 to 5 inches, skull about  $4\frac{3}{4}$  inches in length, carnasial teeth short.

**V. leucopus**, p. 270.

a<sup>2</sup>. Of small size, skull about  $3\frac{1}{2}$  inches, brush black-tipped, ears grey outside.

**V. cana**, p. 274.

*a*<sup>3</sup>. Small, fur rather harsh, ears not black, skull small with small carnassial teeth.

*c*. Brush black-tipped, body concolorous.

**V. bengalensis**, p. 271.

*c*<sup>2</sup>. Brush white-tipped, back reddish, sides grizzled iron gray.

**V. ferrilatus**, p. 272.

### **Vulpes alopec.**

*Var. A.—typicus.*

*Canis vulpes* Linnaeus *Syst. Nat.*, 12th ed., i, p. 59 (1766).

*Canis alopec*, Linnaeus *Syst. Nat.*, 12th ed., i, p. 59 (1766).

*Vulpes melanogaster*, *Pr. Bon. parte Iconog. Faun. Ital.* no. 1, pl. i (1832).

*Vulpes vulgaris*, *Gray List Mamm. B. M.*, p. 59 (1842); *Blyth Cat.*, p. 42.

*Vulpes alopec*, *Blanford P. Z. S.*, p. 635 (1887); *id. Mammals*, p. 153.

*Var. B.—fulvus.*

*Canis fulvus*, *Desmarest Mamm.*, p. 203 (1820).

*Vulpes fulvus*, *DeKay New York Zool.*, p. 44, pl. vii, fig. 1 (1842).

*Var. C.—montanus.*

*Canis (Vulpes) montana*, *Pearson J. A. S. B.*, v, p. 313 (1836).

*Vulpes himalaicus*, *Ogilby P. Z. S.*, p. 103 (1836).

*Vulpes nipalensis*, *Gray Charlesw. Mag. N. H.*, i, p. 578 (1837).

*Vulpes montanus*, *Blyth J. A. S. B.*, xi, p. 589 (1842); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 12; *Horsfield Cat. E. I. Mus.*, p. 87; *Blyth J. A. S. B.*, xxiii, p. 730; *Adams P. Z. S.*, 1858, p. 516; *Blyth Cat.*, p. 42; *Ferdon Mamm.*, p. 152; *Lydekker J. A. S. B.*, xlvi, p. 285; *Blanford J. A. S. B.*, xlvi, p. 323; *id. ibid.*, xlviii, p. 95; *Scully P. Z. S.*, 1881, p. 202; *id. Ann. Mag. N. H.* (5), viii, p. 225; *id. J. A. S. B.*, lvi, p. 69.

*Vulpes flavescens*, *Gray Ann. Mag. N. H.*, xi, p. 118 (1843); *id. Cat. Hodgs. Coll.*, 1st ed., p. 11; *Horsfield Cat. E. I. Mus.*, p. 86; *Adams P. Z. S.*, 1858, p. 516; *Blyth Cat.*, p. 42; *Blanford Yarkand Mammals*, p. 22, pl. ii.

*Vulpes alopec*, *Blanford P. Z. S.*, p. 635 (1887); *id. Mammals*, p. 153.

The Mountain Fox; Loh of Kashmir; Wamu of Nepal.

*Distribution.*—The typical variety is found throughout the Palearctic region from England to Siberia; var. *fulvus* is found throughout the Nearctic region in the States and Canada; and var. *montanus* is distributed over the Himalayas from Sikkim to Kashmir, Eastern Turkestan (Blanford), Candahar (Scully), Upper Burma (Anderson)?

The skulls of Indian foxes present little or no points of difference except in actual size, and in the proportions of the teeth, thus in a series formed by *V. bengalensis* and passing up through *V. leucopus* and *V. griffithii* to *V. montanus* there can be traced

(1) a gradual increase in size of the upper and lower sectorial, (2) a decrease in length and increase in breadth of  $\frac{m1}{i}$ ; this is well shown in the following table of measurements of 4 typical skulls of the four species, the total length of the skull being reduced in each case to 1,000 after Huxley's method:—

	Total length.	$\frac{p.m. 4}{\text{length.}}$	Length $\frac{m 1}{i}$ .	Width $\frac{m 1}{i}$ .	Length $\frac{m 1}{i}$ .	Length of skull in inches.
V. montanus .	1,000	110	70	96	128	5'50
V. griffithii .	1,000	100	76	92	116	4'95
V. leucopus .	1,000	96	75	88	117	4'70
V. bengalensis .	1,000	86	77	86	106	4'10

*Var. A.—typicus.*

a. Stuffed	England	A. D. Bartlett, 1843, A. S. B.
b. Skeleton	.....	J. H. Gurney, 1860, A. S. B.
c-e. 3 Skulls	England	A. D. Bartlett, A. S. B.

*Var. B.—fulvus.*

a. Skin	Lucknow Ont., Canada	J. H. Garnier.
b. Skin	Lucknow Ont., Canada	J. H. Garnier.
c. Skull	Upton Maine, U. S. A.	J. G. Rich, A. S. B.

*Var. C.—montanus.*

a. Skin	juv. Kashgar bazaar	F. Stoliczka, 1873.
b. Skin	Yarkand bazaar	F. Stoliczka, 1873.
c. Skin	Kashgar bazaar	F. Stoliczka, 1873.
d. Skin	Kashgar bazaar	F. Stoliczka, 1873.
e. Skin	Kashgar bazaar	F. Stoliczka, 1873.
f. Skin	Kashgar bazaar	F. Stoliczka, 1873.
g. Skin, skull	Kashgar bazaar	F. Stoliczka, 1873.
h. Skin, skull	Gilgit	J. Biddulph.
j. Skin, skull	Gilgit	J. Biddulph.
k. Skin, skull	Moralbashi	J. Biddulph, 1874.
l. Skin, skull	Chenab poel, Ramban	J. Biddulph.
m. Skin	Afghan Turkestan	C. E. Yate.
n. Skin	Afghan Turkestan	C. E. Yate.
o. Skin	Turkestan	C. Ellis.
p. Skin, skull	Gilgit, 5,000 ft.	G. M. Giles.
q. Skin, skull	Gilgit, 5,000 ft.	G. M. Giles.
r. Skin	Leh	No history.
s. Skin	Leh	No history.
t. Skin, skull	.....	Purchased, 1871.
u-y. 5 Skins	.....	Purchased, 1871.
z. Skin, skull	Yarkand	J. Biddulph.

a <sup>2</sup> . Skin	Hunza, 8,000 ft.	J. Biddulph.
b <sup>2</sup> . Stuffed	Thibet	G. T. Lushington, 1847, A. S. B.
c <sup>2</sup> . Stuffed	Thibet	G. T. Lushington, 1847, A. S. B.
d <sup>2</sup> . Stuffed, skull	North-West Himalayas	J. T. Pearson, 1835, A.S.B.

[Type of *Canis (Vulpes) montana*, Pearson.]

e <sup>2</sup> . Stuffed	.. ..	Purchased, 1871. A. S. B.
f <sup>2</sup> . Skull	.....	No history, A. S. B.
g <sup>2</sup> . Skull	♂ .....	Purchased, 1872.
h <sup>2</sup> . Skull	.....	Purchased, 1872.
i <sup>2</sup> . Skull	.....	J. Anderson, 1868.
k <sup>2</sup> . Skin, skull	Mormien, Yunnan, 4,500 ft.	No history.
l <sup>2</sup> . Skull	.....	J. Scully.
m <sup>2</sup> . Skin, skull	Gilgit dist., 25-12-79	J. Scully.
n <sup>2</sup> . Skin, skull	♂ Gilgit dist., 4-3-80	J. Scully.
o <sup>2</sup> . Skin, skull	♂ Gilgit dist., 1-8-79	J. Scully.
p <sup>2</sup> . Skin, skull	♂ Gilgit dist., 8-12-79	J. Scully.
q <sup>2</sup> . Skin, skull	♀ Gilgit dist., 7-4-79	J. Scully.
r <sup>2</sup> . Skin	♀ Gilgit dist., 15-11-78	J. Scully.
s <sup>2</sup> . Skin	Shaiot, Gilgit, 1-80	J. Scully.
t <sup>2</sup> . Skin	Chaprot, Gilgit, 1-80	J. Scully.
u <sup>2</sup> . Skin, skull	Chitral (J. Biddulph), 5,000 ft., 7-11-78.	J. Scully.
v <sup>2</sup> . Skin, skull	♂ Bunji, Indus valley, 4,000 ft., 1-79.	J. Scully.
w <sup>2</sup> . Skin	juv. Sinjah, Punjab, 29-5-79.	J. Scully.
x <sup>2</sup> . Skin, skull	♂ Gilgit, 4-4-80	J. Scully.

### *Vulpes leucopus.*

- Vulpes flavescens*, *apud Blyth* *ŷ. A. S. B.*, xiv, p. 344 (1845).  
*Vulpes leucopus*, *Blyth* *ŷ. A. S. B.*, xxiii, p. 729 (1854); *id. ibid.*, xxv, p. 443; *id. ibid.*, xxvi, p. 239; *id. Cat.*, p. 43; *Ferdon Mamm.*, p. 151; *Stoliczka* *ŷ. A. S. B.*, xli, p. 228; *Murray Zool. Sind.*, p. 37; *Thomas P. Z. S.*, 1886, p. 56; *Blanford Mammals*, p. 151.  
*Vulpes pusillus*, *Blyth* *ŷ. A. S. B.*, xxiii, p. 729 (1854); *Blyth Cat.* no. 133, p. 43; *Ferdon Mamm.*, p. 153; *Adams P. Z. S.*, 1858, p. 516.  
*Vulpes griffithii*, *Blyth* *ŷ. A. S. B.*, xxiii, p. 730 (1854); *id. Cat.* no. 134, p. 43; *Scully Ann. Mag. N. H.* (5), viii, p. 226.  
*Vulpes persicus*, *Blanford Ann. Mag. N. H.* (4), xvi, p. 310 (1875); *id. Persia*, p. 39, pl. ii.

*Distribution*.—The dry parts of North-West India, *i.e.*, the Punjab, Rajputana, Sind and Cutch, extending through Afghanistan and Baluchistan to Persia; Blanford also records it from Arabia.

This species, from which *V. pusillus*, *V. griffithii* and *V. persicus* cannot be separated, is closely allied to the foregoing *V. mon-*

tanus from which it differs solely in respect of size; it seems to occur rather in the lower ranges of the hills and also quite down on the plains in the north and north-west of India.

a. Skin		Punjab Salt Range	W. Theobald, 1853, A.S.B.
b. Skin	♂	nr. Sehwan, Sind	W. T. Blanford, 1875.
c. Skin	♂	Khairpur, Sind	W. T. Blanford, 1875.
d. Skin	♂	nr. Rohri, Sind	W. T. Blanford, 1875.
e. Skin	♀	.....	Zoological Gardens.
f. Skin		.....	Purchased, 1871.
g. Skin	♂	Agra dist., N.-W. P.	Agra Mus. [Ex.], 1870.
h. Skin	♀	Agra dist., N.-W. P.	Agra Mus. [Ex.], 1870.
i. Skin		.....	Purchased, 1871.
k. Skin	juv.	Bushire ?	Karachi Mus.
l. Stuffed, skull		Punjab Salt Range	W. Theobald, 1853, A.S.B.

[Type of *V. pusillus*, Blyth.]

m. Stuffed		North-West India	A.S.B.
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[Type of *V. leucopus*, Blyth.]

n. Stuffed		North-West India	D. Scott, 1857, A.S.B.
o. Skull		North-West India	? A.S.B.
p. Skeleton		nr. Rohri, Sind	W. T. Blanford.
q-r. 2 Skins and ♂ skulls.		Quetta	Sir O. B. St. John, 1888.
s-t. 2 Skins and ♀ skulls.		Quetta	Sir O. B. St. John, 1888.
us Skin		Afghanistan	T. Hutton, A.S.B.
v. Skin, skull		Ispahan	Sir O. B. St. John.

[Type of *V. persicus*, Blanford.]

w. Stuffed, skull		Afghanistan	T. Hutton, A.S.B.
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[Type of *V. griffithii*, Blyth.]

x. Skin		Afghanistan ?	W. Griffith.
y. Stuffed		Candahar	T. Hutton, 1844, A.S.B.

### *Vulpes bengalensis*.

- Canis bengalensis*, *Shaw Genl. Zool.*, i, p. 330 (1800); *Elliot Madr. Journ.*, x, p. 102; *Walker Calc. Journ. N. H.*, iii, p. 266.  
*Canis kokree*, *Sykes P. Z. S.*, p. 101 (1831); *Gray Illustr. Ind. Zool.*, ii, pl. ii.  
*Vulpes rufescens*, *Gray Illustr. Ind. Zool.*, ii, pl. iii (1833).  
*Canis (Vulpes) indicus*, *Hodgson As. Res.*, xviii, pt. ii, p. 237 (1833).  
*Canis chrysurus*, *Gray Charlesw. Mag. N. H.*, i, p. 577 (1837).  
*Cynalopex insectivorus*, *H. Smith Jard. Nat. Libr.*, ix, p. 229 (1839).  
*Vulpes bengalensis*, *Gray Cat. Hodgs. Coll.*, 1st ed., p. 11 (1846); *Horsfield Cat. E. I. Mus.*, p. 84; *Adams P. Z. S.*, 1858, p. 515; *Gray Cat. Carn. Mamm.*, p. 204; *Ferdon Mamm.*, p. 149; *McMaster Notes on Ferdon*, p. 45; *Stoliczka F. A. S. B.*, xli, p. 228; *Atkinson N.-W. P. Gazett.*, xi, p. 22; *Murray Zool. Sind*, p. 36; *Sterndale Mamm. Ind.*, p. 243; *Thomas P. Z. S.*, 1886, p. 56; *Blanford Mammals*, p. 148.  
*Cynalopex bengalensis*, *Blyth Cat.* no. 126, p. 41 (1863).

The Indian Fox; Lomri, Hind.; Lomer in Nepal; Lokerie in Central India; Khek-siyal, Bengali; Khekar in Behar; Kokree, Mahratti; Konk, Kempnari or Chandak nari, Canarese; Konka nakka or Gunta nakka, Telegu.

*Distribution*.—Found throughout India in the open country from the Himalayas to Cape Comorin. Not found west of Sind, rare in Assam; not known from Burma or Ceylon.

a. Skin	♀	.....	Agra Mus. [Ex.], 1870.
b. Skin		nr. Calcutta	A.S.B.
c. Skin	♀	Base of Sehwan hills, Sind.	W. T. Blanford, 1877.
d. Skin	♂	Agra dist.	Agra Mus. [Ex.], 1870.
e. Skin		.....	Purchased, 1869.
f. Skin		Manbhoom, Beng.	R. C. Beavan, 1869.
g. Skin	♀	nr. Rohri, Sind	W. T. Blanford.
h. Skin		Sehwan, Sind	Karachi Mus. [Ex.]
j. Skin juv.	♂	.....	S. F. Holquette.
k. Skin juv.	♂	.....	S. F. Holquette.
l. Skin juv.	♂	Agra dist.	Agra Mus. [Ex.], 1870.
m. Skin juv.	♀	Agra Dist.	Agra Mus. [Ex.], 1870.
n. Stuffed, skull		Calcutta dist.	A.S.B.
o. Stuffed, skull		.....	A.S.B.
p. Skeleton		.....	A.S.B.
q. Skull		.....	A.S.B.
r. Stuffed juv.		Calcutta	A.S.B.
s. Skin, skull	♀	Agra dist., N.-W.P.	A. C. L. Carlyle, 1870.
t. Skin, skull		Deoli, Rajputana	J. Biddulph, 1887.
u. Skin, skull		Deoli, Rajputana	J. Biddulph, 1887.
v. Skull		Banda dist., N.-W. P.	J. Cockburn.
w. Skin	♂	Residency Katmundu, 14-11-77.	J. Scully.
x. Skin	♀	Ranijangal, Nepal valley, 28-2-78.	J. Scully.
y-z. 2 Skins	♂ ♀	Shabpur, Punjab, 10-88	G. Henderson.

### *Vulpes ferrilatus.*

*Vulpes ferrilatus*, *Hodgson* *f. A. S. B.*, xi, p. 278, with plate (1842); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 12; *Gray Cat. Carn. Mamm.*, p. 204; *Stoliczka f. A. S. B.*, xxxvii, p. 5; *Blanford Mammals*, p. 155.  
*Cynalopex ferrilatus*, *Blyth Cat.* no. 127, p. 41 (1863).

*Distribution*.—Thibet near Llassa; has been recorded by *Stoliczka* from the Upper Sutlej valley.

a. Skin	juv.	Thibet?	A. Campbell, 1853, A.S.B.
b. Skin		.....	No history, A.S.B.
c. Stuffed		Thibet?	A. Campbell, 1853, A.S.B.

### *Vulpes cana.*

*Vulpes canus*, *Blanford f. A. S. B.*, xlvi, p. 321 (1877); *P. L. Sclater P. Z. S.* 1878, p. 392; *Blanford Mammals*, p. 150.

*Distribution.*—Baluchistan and Southern Afghanistan, possibly extending to Sind.

[No specimen in the Museum.]

### Vulpes caama.

*Canis caama*, *A. Smith S. African Quart. Journ.* (1833)\*.

*Megalotis caama*, *H. Smith Gard. Nat. Libr.*, ix, p. 236 (1839); *Blyth Cat.* no. 128, p. 41.

*Vulpes caama*, *Gerrard Cat. Bones B. M.*, p. 87 (1862).

*Fennecus caama*, *Gray P. Z. S.*, p. 520 (1868); *id. Cat. Carn. Mamm.*, p. 207.

*Distribution.*—South Africa.

a. Stuffed                      South Africa                      E. L. Layard, 1859, A. S. B.

### Vulpes virginiana.

*Canis virginianus*, *Gmelin Syst. Nat.*, i, p. 74 (1788).

*Canis cinereo-argentatus*, *Schreber Säugeth.*, iii, p. 367 pl. xxi ( 778).

*Vulpes virgineana*, *Dekay New York Zool.*, p. 45 ( 142); *Lytell Cat.* no. 136, p. 43.

*Urocyon virgineanus*, *Gray P. Z. S.*, 1868, p. 522; *id. Cat. Carn. Mamm.*, p. 209.

*Distribution.*—North America, from New England to Costa Rica.

a. Stuffed.                      North America.                      E. Rüppel, 1885, A. S. B.

## Genus MUSTELA.

*Mustela*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 66 (1766).

*Martes*, *Nilsson Skand. Faun.*, 1st ed., i, p. 41 (1820)\*.

### Key of the Indian Species.

a. Blackish brown, with very thick under fur; throat white; tail without hair, one half the length of the head and body.

**M. foina**, p. 275.

a<sup>2</sup>. Yellowish; head, neck, rump and legs black; tail without hair, three-fourths the length of the head and body.

**M. flavigula**, p. 273.

### Mustela flavigula.

*Mustela flavigula*, *Boddaert Elench. Anim.*, i, p. 88 (1785)\*; *Cantor F. A. S. B.*, xv., p. 194; *Thomas P. Z. S.*, 1886, p. 67; *Blanford Mammals*, p. 158.

*Viverra quadricolor*, *Shaw Genl. Zool.*, i, p. 429 (1800).

*Mustela leucotis*, *Griffith An. King.*, ii, p. 297 (1827).

*Mustela hardwickii*, *Horsfield Zool. Journ.*, iv, p. 238, pl. viii (1828); *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 30.

*Martes flavigula*, *Hodgson F. A. S. B.*, vi, p. 560 (1837); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 12; *Horsfield Cat. E. I. Mus.*, p. 98; *Blyth F. A. S. B.*, xxvi, p. 316; *Adams P. Z. S.*, 1858, p. 516; *Blyth Cat.*, p. 67; *id. P. Z. S.*, 1864, p. 485; *Ferdon Mamm.*, p. 82; *Radde Ost Siberien*, i, p. 19; *Gray Cat. Carn. Mamm.*, p. 86; *Swinhoe P. Z. S.*, 1870, p. 623; *Blanford F. A. S. B.*, xlvii, p. 150; *Blyth F. A. S. B.*, xlii, *Burma List*, p. 29.  
*Galidictis chrysogaster*, *H. Smith Fard. Nat. Libr.*, xiii, p. 167, pl. vii (1842).  
*Martes gwatkinsii*, *Horsfield Cat. E. I. Mus.*, p. 99 (1851); *Blyth F. A. S. B.*, xxvi, p. 316.

The Indian Marten; Mul sumpra, Nepal; Tutural or Chitrala, in Kumaon; Huniah, Bhotia; Sekku, Lepcha; Surmar, Khasia hills; Takere Mahee in Assam.

*Distribution.*—The Himalayas from Kashmir (Adams), to Assam, Southern India on the Nilgiris and Travancore hills; the hills of Burma, Tenasserim and the Malay Peninsula and the islands of Java? and Sumatra, it has also been procured from Amurland by Radde and from Formosa by Swinhoe, and is therefore probably found throughout China.

The Malayan race is very much paler than the common Indian race; the head being very little darker than the back; in the Indian race the head is very dark and contrasts strongly with the back and throat; the skulls present no points of difference.

a. Skin		Sikkim	L. Mandelli.
b. Skin		Sikkim	L. Mandelli.
c. Skin	juv.	Sikkim	L. Mandelli.
d. Skin		Sikkim	L. Mandelli.
e. Skin		Sikkim	L. Mandelli.
f. Skin		Sikkim	L. Mandelli.
g. Skin		Samagooting, Assam	J. Butler, 1872.
h. Skin		Samagooting, Assam	J. Butler, 1872.
j. Skin		Assam	F. Day [P.].
k. Skin		Sibsagar, Assam	S. E. Peal.
l. Skin		Naga hills, Assam	H. W. Chennell.
m. Skin		Kashmir	J. E. T. Aitchison.
n. Skin		Salt Range, Punj.	Capt. Bengaugh, 1867.
o. Skin		Mussoorie, N.-W. P.	L. C. Stewart, A.S.B.
p. Skin, skull		Malacca	R. W. G. Frith, A.S.B.
q. Skin		Malacca	R. W. G. Frith, A.S.B.
r. Stuffed		Himalayas	F. Stoliczka, 1869.
s. Stuffed		Arakan	Sir A. Phayre, 1844, A.S.B.
t. Skull	♀	Assam	No history, A.S.B.
u. Skull	♀	West Himalayas	No history, A.S.B.
v. Skull	♀	.....	A.S.B.
w. Skull	♀	.....	W. Rutledge.
x. Skin	♂	Nepal, 26-7-79	J. Scully.
y. Skin		Nimbotar, Nepal, 16-12-77.	J. Scully.
s-a <sup>2</sup> . 2 Skins		Simla	E. C. Cotes, 1888.

### Mustela martes

*Mustela martes*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 67 (1766); *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 45; *Schrenck Amurland Säugeth.*, p. 36.



*Martes sylvatica*, Nilsson *Skand. Faun.*, i, p. 41 (1820)\*; *Alston P. Z. S.*, 1879, p. 468.

*Martes vulgaris*, Griffith *An. Kingd.*, v, p. 123 (1827).

*Martes abietum*, Fleming *Brit. Anim.*, p. 14 (1828)\*; *Blyth Cat.* no. 193, p. 66; *Gray Cat. Carn. Mammals*, p. 81.

#### The Pine Marten.

*Distribution*.—England and Northern Europe, Northern Asia, *i.e.*, Turkestan (Severtzoff), and Amurland (Schrenck).

a. Skin	.....	British Mus. [Ex.]
b. Stuffed, skull	Norway	Christiania University, 1846, A.S.B.
c. Skin, skelet.	.....	W. Rutledge.

### Mustela foina.

*Mustela foina*, *Erzleben Syst. Regn. Anim.*, p. 458 (1777); *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 45; *Blanford Mammals*, p. 160; *Radde Zool. Z. B.*, iv, p. 1022.

*Martes foina*, Nilsson *Skand. Faun.*, i, p. 38 (1820)\*; *Alston P. Z. S.*, 1877 p. 274, 1879, p. 469, and 1880, p. 53; *Gray Cat. Carn. Mamm.*, p. 86 *Scully P. Z. S.*, 1881, p. 202; *id. Ann. Mag. N. H.* (5), viii, p. 96.

*Martes toufaeus*, *apud Blyth Z. A. S. B.*, xvi, p. 353 (1847) [pt.]; *Blyth Cat.* no. 194, p. 66.

*Martes abietum*, *apud Horsfield Cat. E. I. Mus.*, p. 101 (1851); *Adams P. Z. S.*, 1858, p. 517.

*Martes leucolachnaea*, *Blanford Yarkand Mammals*, p. 26 (1879).

? *Mustela intermedia*, *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 45.

#### The Beach Marten.

*Distribution*.—Northern Europe (except England), Asia Minor (Alston), Turkestan (Severtzoff), Eastern Turkestan (Blanford), and Afghanistan. In the Himalayas from Gilgit eastwards as far as Sikkim or the country to the north of Sikkim.

a. Stuffed	Germany	W. T. Blanford, 1879.
b. Skeleton	Germany	W. T. Blanford, 1879.
c. Skin, skull	Yarkand	F. Stoliczka, 1874.

[Type of *M. leucolachnaea*, Blanford.]

d. Skin, skull	Gilgit, 5,000 ft.	G. M. Giles.
e. Skin	Leh, Kashmir	No history.
f. Skin	" "	H. H. Godwin-Austen.
g. Skin	Yarkand	J. Scully.
h-m. 5 Skins	Kabul?	Purchased, 1872.
n. Stuffed, skull	Kabul?	Purchased, 1872.
o. Stuffed	Thibet	G. T. Lushington, A.S.B.
p. Stuffed	Thibet	G. T. Lushington, A.S.B.
q. Stuffed	Thibet	G. T. Lushington, A.S.B.
r. Skull	Thibet	G. T. Lushington, A.S.B.
s. Skull	Afghanistan?	Sir A. Burnes, A.S.B.
t. Skin, skull	♂ Gilgit, 5,000 ft., 8-10-80	J. Scully.
u. Skin, skull	Gilgit, 5,000 ft., 24-10-79	J. Scully.
v. Skin	Gilgit, 5,000 ft., 5-79	J. Scully.
w. Skin	Nagar, Gilgit, 2-79	J. Scully.

**Mustela zibellina.**

*Mustela zibellina*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 68 (1766); *Radde Ost Siberien*, i, p. 29; *Schrenck Amurland Säugeth.*, p. 27.

*Martes?* *toufoeus*, *Hodgson Z. A. S. B.*, xi, p. 281 (1842).

*Martes zibellina*, *Gray P. Z. S.*, p. 105 (1865); *id. Cat. Carn. Mamm.*, p. 83; *Blyth Cat. no.* 195, p. 66.

*Distribution.*—Northern Europe, Northern Asia, Saghalien Isle (Radde) Amurland, (Schrenck) and Thibet (I.M.)

a. Stuffed                      Thibet                      Purchased, 1855, A.S.B.

**Mustela pennanti.**

*Mustela pennanti*, *Erxleben Syst. Reg. Anim.*, p. 470 (1777); *Coues Fur-bearing Animals of North America*, p. 62.

*Mustela canadensis*, *Schreber Säugeth.*, iii, p. 492, pl. cxxxiv (1778).

*Mustela melanorhyncha*, *Boddaert Elench. Anim.*, p. 188 (1784)\*.

*Viverra piscator*, *Shaw Gen. Zool.*, i, p. 414 (1800).

*Mustela nigra*, *Turton Syst. Nat.*, i, p. 60 (1806)\*.

*Mustela piscatoria*, *Lesson Man. Mamm.*, p. 150 (1827).

*Mustela godmani*, *Fischer Syn. Mamm.*, p. 217 (1820).

*Martes pennantii*, *Gray P. Z. S.*, p. 107 (1865); *id. Cat. Carn. Mamm.*, p. 85.

The Pekan.

*Distribution.*—North America between 35° and 65° N. lat. in wooded parts of the country.

a. Skull                      Umbagog Lake, Maine, W. Theobald [P.], 1868.  
U.S.A. (A. F. Verril,  
Col.)

**Mustela americana.**

*Mustela martes*, *apud Forster Phil. Trans.*, lxii, p. 372 (1772).

*Mustela americana*, *Turton Syst. Nat.*, i, p. 60 (1806)\*; *Coues Fur-bearing Animals of North America*, p. 81.

*Mustela leucopus*, *Kuhl Beitr.*, p. 74 (1820).

*Mustela vulpina*, *Rafinesque Am. Z. Sc.*, i, p. 82 (1819)\*.

*Mustela huro*, *Schinz Syn. Mamm.*, i, p. 337 (1844).

*Martes americana*, *Gray P. Z. S.*, p. 106 (1865).

*Mustela martinus*, *Ames Bull. Minn. Acad.*, p. 69 (1874).

*Distribution.*—Northern parts of North America as far south as California in the west and Pennsylvania in the East.

a. Skull                      Upton, Maine, U.S.A. W. Theobald, 1868.  
(J. G. Rich.)

**Genus PUTORIUS.**

*Putorius*, *G. Cuvier Regne Anim.*, 1st ed., i, p. 147 (1817).

*Foetorius*, *Keyserling and Blasius Wirbelth. Europ.*, p. 21 (1840).

*Vison*, *Gray List Mamm. B. M.*, p. 64 (1843). *Type*, P. Intreola.

*Gymnopus*, *Gray P. Z. S.*, p. 118 (1865).

*Key of the Indian Species.*

- a* Limbs and lower surface darker than the upper parts; skull large and thick; the bulla connected with the hamular process of the pterygoids by a narrow bridge of bone.
- b*. Back fulvous, longer hairs black-tipped. **P. larvatus**, p. 278.
- b*<sup>2</sup>. Back dark-spotted and blotched with yellow. **P. sarmaticus**, p. 278.
- a*<sup>2</sup>. Limbs and lower surface not darker than the back.
- c*. Tip of tail dusky or black.
- d*. In winter pure white; in summer dark brown above; yellowish white below; bulla not very flat, rounded in front. **P. erminea**, p. 278.
- d*<sup>2</sup>. Lower parts brown. **P. subhemachalanus**, p. 280.
- c*<sup>2</sup>. Tip of tail not darker.
- e*. A pale yellow median dorsal stripe present; the yellow of the ventral surface not extending further than the breast. **P. strigidorsus**, p. 282.
- e*<sup>2</sup>. No dorsal stripe.
- f*. Nose white, above chestnut. **P. canigula**, p. 280.
- f*<sup>2</sup>. Nose the same colour as the forehead.
- g*. Back dark brown; below bright yellow; bulla pointed in front. **P. kathiah**, p. 281.
- g*<sup>2</sup>. Back very light brown, below a little paler. **P. alpinus**, p. 281.

**Putorius fœtidus.**

*Mustela putorius*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 67 (1766); *Blyth Cat.* no. 197, p. 67.  
*Mustela furo*, id. *ibid.*, p. 68 (1766) [dom. var].  
*Putorius vulgaris*, *Griffith Anim. King.*, v, p. 120 (1827).  
*Putorius fœtidus*, *Gray List Mamm. B. M.*, p. 64 (1843); *Gray Cat. Carn. Mamm.*, p. 87; *Coues Fur-bearing Animals of North America*, p. 154.  
*Fœtorius putorius*, *Blasius Säugeth. Deutschl.*, p. 222 (1857).

**The Pole Cat.**

*Distribution*.—Middle and Northern Europe, Asia, Northern and Central regions?

<i>a</i> . Skin, skull	♂	.....	Purchased.
<i>b</i> . Skin, skull	♀	.....	Purchased.
<i>c</i> . Stuffed	Scotland		Sir W. Jardine, 1852, A.S.B.
<i>d</i> . Stuffed	"		Sir W. Jardine, 1852, A.S.B.
<i>e</i> . Skeleton	England		J. H. Gurney, 1860, A.S.B.

*Var.—furio* (=domesticated ferret).

a. Skin, skelet.	♀	.....	W. Rutledge.
b. Skin	♂	.....	W. Rutledge.
c. Skin, skelet.	♂	.....	W. Rutledge.
d. Skin, skull	♀	.....	W. Rutledge.
e. Skin, skelet.	♀	.....	W. Rutledge.
f. Stuffed, skull	Europe		Maharaja of Burdwan, 1858, A. S. B.
g. Alc.		.....	O. L. Fraser.

**Putorius larvatus.**

*Putorius larvatus*, Hodgson *J. A. S. B.*, xviii, p. 447, pl. xi (1849); *Blanford Mammals*, p. 163.

*Putorius tibetanus*, Horsfield *Cat. E. I. Mus.*, p. 105 (1851).

## The Thibetan Pole Cat.

*Distribution.*—Thibet; the type was procured in the Utsany district north of Sikkim, another specimen in the British Museum was obtained from Ladak by General Strachey.

[No specimens in the Indian Museum.]

**Putorius sarmaticus.**

*Mustela sarmatica*, Pallas *Itin.*, i, p. 453 (1771)\*; Hutton *J. A. S. B.*, xiv, p. 346; Blyth *Cat.* no. 198, p. 68; Alston *P. Z. S.*, 1880, p. 53; Scully *Ann. Mag. N. H.* (5), viii, p. 227.

*Mustela peregusna*, Guldensädt *N. Comm. Petrop.*, xiv, p. 441 (1770).

*Foetorius sarmaticus*, Keyserling and Blasius *Wirbelth. Europ.*, p. 68 (1840); Blasius *Säugeth. Deutschl.*, p. 226.

*Putorius sarmaticus*, Griffith *An. Kingd.*, v, p. 121 (1827); Coues *Fur-bearing Animals of North America*, p. 157; *Blanford Mammals*, p. 164; Thomas *Linn. Trans.* (2), v, p. 58; Radde *Zool. J. B.*, iv, p. 1023.

*Distribution.*—Eastern Europe, Poland and Russia, Western Asia from Asia Minor (Alston) to Kandahar (Hutton and Scully); also throughout the Transcaspien region.

a-f. 6 Skins	Afghanistan	Purchased, 1872.
g. Stuffed	"	T. Hutton, 1845, A.S.B.
h. Skull	"	Sir A. Burnes, 1841, A.S.B.

**Putorius erminea.**

*Mustela erminea*, Linnæus *Syst. Nat.*, 12th ed., i, p. 68 (1766); Hodgson *J. A. S. B.*, vi, p. 564; id. *ibid.*, x, p. 909; id. *ibid.*, xi, p. 280; Gray *Cat. Hodgs. Coll.*, 1st ed., p. 13; Adams *P. Z. S.*, 1858, p. 517; Blyth *Cat.*, no. 201, p. 68; Radde *Ost Sibiriens*, p. 52; Schrenck *Amurland Säugeth.*, p. 40; Gray *Cat. Carn. Mamm.*, p. 88; Severtzoff *Ann. Mag. N. H.* (4), xviii, p. 45; Brauns *Jena Zeit. Zool.*, xvii, p. 454; *Blanford Yarkand Mamm.*, p. 32.

*Putorius erminea*, Griffith *An. Kingd.*, v, p. 122 (1827); Coues *Fur-bearing Animals of North America*, p. 109; *Blanford Mammals*, p. 165.

- Mustela cicognani*, *Bonaparte Charlesw. Mag. N. H.*, ii, p. 37 (1835).  
*Mustela richardsoni*, *Bonaparte*, id. *ibid.*, p. 38 (1838).  
*Foetorius erminea*, *Keyserling and Blasius Wirbelth. Europ.*, p. 69 (1840);  
*Blasius Säugeth. Deutschl.*, p. 228.  
*Putorius noveboracensis*, *Dekay New York Zool.*, p. 36, pl. xii (1842).  
*Mustela fusca*, *Audubon and Bachman Journ. Acad. N. Sci. Philad.*, viii, pt. 2, p. 288 (1842).  
*Putorius agilis*, *Audubon and Bachman Quad. N. Amer.*, iii, p. 184 (1853)\*.  
*Putorius kanei*, *Baird North Amer. Mamm.*, p. 172 (1857)\*.

The Ermine or Stoat.

*Distribution*.—Northern Palæarctic region and America as far as the southern border of the States; it extends to the Himalayas whence it was got by Dr. Henderson (see below) and is also recorded from Afghanistan by Griffith.

a. Skin (winter dress).	Hudson's Bay, 1883	J. H. Garnier. [Ex.]
b. Skin (summer dress).	Hyde Park, Ont., D. C.	J. H. Garnier [Ex.]
c. Skin	Europe	No history, A.S.B.
d. Skin	Europe	A.S.B.
e. Skin	Europe	A.S.B.
f. Skin	♂ Hungary	Hungarian Mus., A.S.B.
g. Stuffed	Europe	A.S.B.
h. Stuffed	Europe	A.S.B.
j. Stuffed	Dras, Kashmir	G. Henderson. †
k. Skull	.....	A.S.B.
l. Skull	.....	A.S.B.
m. Skull	Upton, Maine, U. S. A.	W. Theobald, 1868.

### *Putorius vulgaris*.

- Mustela nivalis*, *Linnaeus Syst. Nat.*, 12th ed., i., p. 69 (1766); *Radde Ost Sibiens*, p. 53; *Schrenck Amurland*, i, p. 40; *Brauns Fena Zeit. Zool.*, xvii, p. 452.  
*Mustela vulgaris*, *Erzleben Syst. Reg. An.*, p. 471 (1777); *Blyth Cat.* no. 204, p. 69.  
*Putorius vulgaris*, *Griffith Animal Kingdom*, v, p. 121 (1827); *Coates Fur-bearing Animals of North America*, p. 102.  
*Mustela gale*, *Pallas Zoog. Rosso As.*, i, p. 94 (1834).  
*Foetorius vulgaris*, *Keyserling and Blasius Wirbelth. Europ.*, p. 69 (1840); *Blasius Säugeth. Deutschl.*, p. 231.  
*Mustela pusilla*, *Dekay New York Zool.*, p. 34 (1842); *Blyth Cat.* no. 205, p. 69.  
*Putorius pusillus*, *Audubon and Bachman Quad. N. Amer.*, ii, p. 100 (1851)\*.

The Weasel.

*Distribution*.—North Europe and America (Northern States and Canada), Asia, Siberia, Amurland, and Yezzo.

a. Skin	Hungary	Hungarian Museum, 1863, A. S. B.
b-d. 3 skins	England	A. S. B.

† See Henderson Lahore to Yarkand, p. 42.

e. Stuffed	Europe	A. S. B.
f. Stuffed	England	A. D. Bartlett, 1842, A. S. B.
g. Stuffed	N. Carolina, U. S. A.	Rev. F. Fitzgerald, 1852, A. S. B.
h. Stuffed	N. Carolina, U. S. A.	Rev. F. Fitzgerald, 1852, A. S. B.
j. Skull?	Upton, Maine, U. S. A.	W. Theobald, 1868.

### **Putorius stoliczkanus.**

*Mustela stoliczkanus*, *Blanford Zool. A. S. B.*, xlv, pt. 2, p. 260 (1877); *id. Yarkand Mammals*, p. 30, pls. ia, fig. 3, iib; *Radde Zool. Z. B.*, iv, p. 1023.

*Distribution*.—Eastern Turkestan.

a. Skin Yarkand F. Stoliczka, 1873.

[Type of *M. stoliczkanus*, Blanford.]

b. Skin, skull ♂ nr. Yarkand, 29-6-75. J. Scully.

### **Putorius subhemachalanus.**

*Mustela (Putorius) subhemachalana*, *Hodgson Zool. A. S. B.*, vi, p. 563 (1837).

*Mustela subhemachalana*, *Hodgson Zool. A. S. B.*, xi, p. 280 (1842); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 13; *Horsfield Cat. E. I. Mus.*, p. 103; *Adams P. Z. S.*, 1858, p. 517; *Blyth Cat.* no. 202, p. 68; *Ferdon Mamm.*, p. 83.

*Mustela humeralis*, *Blyth Zool. A. S. B.*, xi, p. 99 (1842).

*Mustela horsfieldii*, *Gray Ann. Mag. N. H.* (1), xi, p. 118 (1843).

*Mustela hodgsoni*, *apud Horsfield Cat. E. I. Mus.*, p. 103.

*Vison subhemachalana* and *V. horsfieldii*, *Gray Cat. Carn. Mamm.*, p. 95, (1869).

*Putorius subhemachalanus*, *Blanford Mammals*, p. 166 (1888).

Bhotea, Zimiong; Lepcha, Sang king.

*Distribution*.—The Himalayas of Nepal and Sikkim (Hodgson), possibly extending through the North-West Himalayas to Kashmir.

a. Skin Landour, Mussoorie L. C. Stewart, A. S. B.

b. Skin Nepal (B. H. Hodgson) E. I. Mus., London.

c. Stuffed Darjeeling J. T. Pearson, 1842, A. S. B.

[Type of *M. humeralis*, Blyth.]

### **Putorius canigula.**

*Mustela canigula*, *Hodgson Zool. A. S. B.*, xi, p. 279 (1842); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 13.

*Mustela hodgsoni*, *Gray Ann. Mag. N. H.*, xi, p. 118 (1843).

*Putorius canigula*, *Blanford Mamm.*, p. 167 (1888).

*Distribution*.—Thibet and the North-West Himalayas, probably extending to Kashmir.

a. Skin ♂ Bagee, nr. Simla J. Biddulph, 1875.

b. Stuffed ..... No history.

**Putorius alpinus.**

- Mustela alpina*, *Gebler Mem. Soc. Imp. Nat. Moscou*, vi, p. 213 (1824)\*; *Radde Ost Siberiens* i, p. 48; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 45.  
*Mustela temon*, *Hodgson Z. A. S. B.*, xxvi, p. 207 (1857); *Blanford Yarkand Mamm.*, p. 32; *Scully P. Z. S.*, 1881, p. 203; id. *Ann. Mag. N. H.* (5), viii, p. 97.  
*Putorius alpinus*, *Blanford Mammals*, p. 168 (1888).

*Distribution*.—Central Asia, the Altai mountains and Amurland, extending southwards to Thibet and the Himalayas, whence it has been recorded from Gilgit, the Kumaon and the Sikkim frontier.

Mr. Blanford remarks on the difference in size of the examples of this species and suggests that the larger individuals may be males, the smaller females, that this is the case is shewn by the following measurements of the individuals in the flesh taken from the tickets of Dr. Scully's specimens, the individuals were also sexed by Dr. Scully himself:—

	a. ♂	b. ♂	c. ♀
Total length . . . . .	17'0	17'4	15'0
Head and body . . . . .	10'0	9'8	8'7
Tail . . . . .	5'7	6'2	5'0
Hair at end of tail . . . . .	1'3	1'3	1'3
Height at shoulder . . . . .	3'25	3'6	—
"    "    rump . . . . .	3'90	4'0	—
Palm . . . . .	0'95	1'0	—
Sole . . . . .	0'7	0'75	—
Ear in front . . . . .	0'9	1'0	—
"    "    breadth . . . . .	1'1	1'1	65
	Weight 8'3 oz.		Weight 4'0 oz.
a. Skin, skull	♂ Bassin, Gilgit, 2-11-79	J. Scully.	
b. Skin, skull	♂ Farfu, Bagrot, nr. Gilgit, 6-11-79	J. Scully.	
c. Skin	♀ Gilgit, 26-6-79.	J. Scully.	
d. Skin, skull	Chashi Yassin, nr. Gilgit, (J. Biddulph, 8-80, 9,500ft).	J. Scully.	
e. Stuffed, skull	♀ Sanju Pass, Kuenlun Mts.	G. Henderson.	

**Putorius kathiah.**

- Mustela kathiah*, *Hodgson Z. A. S. B.*, iv, p. 702 (1835); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 13; *Walker Calc. Journ. N. H.*, iii, p. 266; *Horsfield Cat. E. I. Mus.*, p. 102; *Blyth Cat.* no. 203, p. 69; *Ferdon Mamm.*, p. 84.  
*Mustela auriventer*, *Hodgson Z. A. S. B.*, x, p. 909 (1841); id. *ibid*, xi, p. 280.  
*Gymnopus kathiah*, *Gray P. Z. S.*, p. 119 (1865); id. *Cat. Carn. Mamm.*, p. 96.  
*Putorius cathia*, *Blanford Mammals*, p. 169 (1888).

Nepal, Kathiah nyul; Assam, Darrup.

*Distribution*.—The Himalayas from Mussoorie to Sikkim, and the Khasia hills in Assam.

a. Skin	Assam	F. Jenkins, 1846, A.S.B.
b. Skin	Shillong, Assam	J. Cockburn [P.]
c. Alc., skull	Darjeeling	Zoological Gardens.
d. Alc., skull	Darjeeling, 5,000ft.	G. King, 1871.
e-f. 2 Skins	Shillong	T. la Touche, 1889.

### **Putorius strigidorsus.**

*Mustela strigidorsa*, Gray P. Z. S., p. 191 (1853); *Horsfield Ann. Mag. N. H.* (2), xvi, p. 107; *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 6; *Ferdon Mammals*, p. 85.

*Gymnopus strigidorsus*, Gray P. Z. S., p. 119 (1865); id. *Cat. Carn. Mamm.*, p. 97.

*Putorius strigidorsus*, *Blanford Mammals.*, p. 170 (1888).

*Distribution*.—Only known from the Sikkim Himalayas.

a. Skin, skull juv. ? Nepal (B. H. Hodgson)	India Mus., London.
b. { Skin in alc. }	Darjeeling
{ Skull, part }	

### **Putorius sibiricus.**

*Mustela sibirica*, *Pallas Spic. Zool.*, xiv., p. 86 (1780); *Blyth Cat.* no. 200, p. 68; *Radde Ost Siberiens*, i, p. 45; *Schrenck Amurland Säugeth.*, p. 37; *Swinhoe P. Z. S.*, 1870, p. 624.

*Putorius sibiricus*, *Griffith An. Kingd.*, v, p. 122 (1827); *Coues Fur-bearing Animals of North America*, p. 171.

*Mustela itatsi*, *Temminck and Schlegel Faun. Japan Mamm.*, p. 34, pl. vii (1850).

*Vison sibirica*, Gray P. Z. S., p. 117 (1865).

*Distribution*.—Siberia generally, Amurland (Schrenck); Japan (Temminck) and China (Swinhoe).

a. Stuffed	Amoy, China	R. Swinhoe, 1859, A.S.B.
b. Skull	Amoy, China	R. Swinhoe, 1859, A.S.B.

### **Putorius vison.**

*Mustela lutreola*, *Forster Phil. Trans.* lxii., p. 371 (1772); *Blyth Cat.* no. 199, p. 68.

*Mustela canadensis*, *Erxleben Syst. Reg. Anim.*, p. 455 (1777).

*Mustela vison*, *Schreber Säugeth.*, iii, p. 463, pl. cxxviii (1778).

*Lutra vison*, *Shaw Genl. Zool.*, i, p. 448 (1800).

*Mustela winingus*, *Barton Am. Phil. Trans.*, vi, p. 70. (1804).

*Mustela minx*, *Turton Syst. Nat.*, i, p. 58 (1806)\*.

*Mustela lutreocephala*, *Harlan Faun. Amer.*, p. 63 (1825).

*Putorius vison*, *Gapper Zool. Journ.*, v, p. 202 (1830); *Coues Fur-bearing Animals of North America*, p. 160.



*Vison lutreola*, *Gray List Mamm. B. M.*, p. 64 (1843).

*Putorius nigrescens*, *Audubon and Bachman Quad. North Amer.*, iii, p. 104 (1853)\*.

*Vison lutreocephala*, *Gray P. Z. S.*, p. 116 (1865); id. *Cat. Carn. Mamm.*, p. 93.  
*Putorius lutreolus*, *Allen Bull. Mus. Comp. Zool.*, i, p. 175 (1869).

### The Mink.

*Distribution*.—North America generally; from the Arctic Ocean to the southern part of the States.

a. Skin	♂ Ontario, Canada	J. H. Garnier [Ex.]
b. Skull	N. Carolina	Rev. F. Fitzgerald, A.S.B.
c. Skull	Upton, Maine, U. S. A.	W. Theobald, 1868.

## Genus GULO.

*Gulo*, *Storr Prodr. Meth. Mamm.*, p. 34 (1780)\*.

### *Gulo luscus*.

*Mustela gulo*, *Linnæus Syst. Nat.*, 12th ed., i, p. 67 (1766).

*Ursus luscus*, *Linnæus Syst. Nat.*, 12th ed., i, p. 71 (1766).

*Ursus gulo*, *Schreber Säugeth.*, iii, p. 525, pl. cxliv (1778).

*Gulo sibericus*, *Pallas Spic. Zool.*, xiv, p. 25 (1780).

*Meles luscus*, *Boddaert Elench. Anim.*, i, p. 80 (1784)\*.

*Gulo borealis*, *Nilsson Illum. fig. till Skand. Faun.* (1829)\*; *Blasius Säugeth. Deutschl.*, p. 209; *Gray Cat. Carn. Mamm.*, p. 98.

*Taxus gulo*, *Tiedemann Zool.*, i, p. 377 (1808).

*Gulo arcticus*, *Desmarest Mamm.*, i, p. 174 (1820).

*Gulo luscus*, *Sabine Franklin's Journ.*, p. 650 (1823)\*; *Blyth Cat.* no. 192, p. 65; *Coues Fur-bearing Animals of North America*, p. 34.

### The Wolverine.

*Distribution*.—Circumpolar, *i.e.*, the northern parts of both continents.

a. Stuffed	Siberia	British Mus. [Ex.]
b. Skull	Norway	University of Christiania, 1846, A.S.B.

## Genus GALICTIS.

*Galictis*, *Bell Zool. Journ.*, ii, p. 552 (1826). *Type*, *G. vittata*.

*Galera*, } *Gray List Mamm. B. M.*, pp. 67, 68 (1843). { *Type*, *G. barbara*.  
*Grisonia*, } { *Type*, *G. vittata*.

### *Galictis barbara*.

*Mustela barbara*, *Linnæus Syst. Nat.*, 12th ed., i, p. 67 (1766).

*Gulo barbatus*, *Desmarest Mamm.*, p. 175 (1820).

*Viverra poliocephala*, *Traill Mem. Wern. Soc.*, iii, p. 440 (1821).

*Galictis barbara*, *Wagner Schreber Säugeth. Suppl.*, ii, p. 214 (1841); *Alston Biol. Centr. Am. Mamm.*, p. 79.

*Galera barbara*, *Gray List Mamm. B. M.*, p. 67 (1843).

*Galera barbata*, *Gray P. Z. S.*, p. 121 (1865); *id. Cat. Carn. Mamm.*, p. 99.

*Distribution*.—From Mexico southwards to the Rio de la Plata.

a. Skin, skull ♀ ..... Zoological Gardens.

### **Galictis vittata.**

*Viverra vittata*, *Schreber Säugeth.*, iii, p. 447, pl. cxxiv (1778).

*Viverra cuja*, *Shaw Genl. Zool.*, i, p. 433 (1800).

*Viverra quiqui*, *Shaw Genl. Zool.*, p. 432 (1800).

*Gulo vittatus*, *Desmarest Mamm.*, p. 175 (1820).

*Galictis vittata*, *Bell Trans. Zool. Soc.*, ii, p. 203, pls. xxxv, xxxvi (1837).

*Galictis allamandi*, *Bell Trans. Zool. Soc.*, ii, 204, pl. xxxvii (1837).

*Grisonia vittata*, *Gray P. Z. S.*, p. 122 (1865); *id. Cat. Carn. Mamm.*, p. 99.

*Distribution*.—South America.

a. Skin ♀ ..... W. Rutledge.  
b. Skin ♂ ..... W. Rutledge.

### **Genus ICTONYX.**

*Ichtonyx*, *Kaup Thierreich*, i, p. 352 (1835)\*.

*Zorilla*, *Lieblein Grundr. Uebers. Thierreichs* (1839)\*.

### **Ichtonyx zorilla.**

*Viverra zorilla*, *Erzleben Syst. Reg. An.*, p. 492 (1777).

*Viverra striata*, *Shaw Genl. Zool.*, i, p. 387 (1800).

*Mephitis zorilla*, *Lichtenstein Darstell.*, pl. xlvi (1827-34).

*Ichtonyx capensis*, *Kaup Thierreich*, i, p. 353 (1835)\*.

*Zorilla capensis*, *Waterhouse Cat. Mamm. Mus. Zool. Soc.*, p. 33 (1838).

*Zorilla striata*, *Gray List Mamm. B. M.*, p. 67 (1843); *Blyth Cat. no. 206*, p. 69; *Gray Cat. Carn. Mamm.*, p. 140.

*Rhabdogale mustelina*, *Wagner Schreb. Säugeth. Suppl.*, ii, p. 219 (1841).

*Distribution*.—Africa, Senegal and the Cape.

a. Stuffed South Africa E. L. Layard, 1859, A. S. B.  
b. Skeleton ♀ ..... Purchased.

### **Genus HELICTIS.**

*Helictis*, *Gray P. Z. S.*, p. 94 (1831). *Type*, *H. moschata*.

*Melogale*, *Is. Geoff. St. Hil. Voy. aux Indes Orient. Belanger*, p. 129 (1834).  
*Type*, *H. personata*.

The species of this genus seem to require revision; Anderson (*Anat. Zool. Res.*, p., 193) recognized four species, *H. nepalensis*.

sis from Nepal, *H. orientalis* from Java and Sumatra, *H. subaurantiaca* from Formosa and the allied *H. moschata* (of which he considered *H. personata* of Geoffroy as a synonym) from China and Yunnan.

Thomas (P. Z. S., 1886, p. 62), states that *H. personata* of Geoffroy cannot be considered a synonym of *H. moschata*, as its teeth are of large size as is shown by Blainville's figure (*Osteographie*, II), and that it belongs to the large-toothed section of the genus; he also remarked that he could perceive no distinction between *H. orientalis* and *H. nepalensis* from Java and Nepal respectively.

Blanford (*Mammals*, p. 172) practically adopts Thomas' views on this subject, and distinguishes only two species from the Indian Empire; *H. orientalis* from Nepal, Sikkim and Java of a dark-brown, almost chocolate colour, with the upper sectorial tooth of moderate size, of which the outer lobe projects anteriorly and posteriorly beyond the inner lobe, and the anterior inner cusp considerably exceeds the posterior inner cusp in size; and *H. personata* with brownish gray fur and a trapezoidal upper sectorial with the two inner cusps almost equally developed.

The specimens in the Indian Museum cannot in any way be fitted to these two descriptions, as the following brief characters show:—

<i>Specimen.</i>	<i>Colour.</i>	<i>Sectorial.</i>
Skin, skull, juv. Darjeeling.	Reddish brown	Outer lobe not projecting, inner cusp subequal.
Skin, Arakan	Pale brown	...
Stuffed, skull, Arakan.	Pale brown	Very worn, but with outer lobe projecting and inner cusps very unequal.
Stuffed, Tippera	Pale brown	.....
Skeleton, Rangoon	.....	Outer lobe projecting slight- ly in front, more behind; inner lobes unequal.
Skin, skull, Shillong.	Blackish-gray, no red- dish tinge; head al- most black.	Outer lobe markedly pro- jecting in front and be- hind; inner lobes very unequal.

From this it will be seen that the Darjeeling specimen, though of the colour of *H. orientalis*, has a skull resembling that of *H. personata*, while the Shillong specimen, with the colouring of *H. personata*, has a skull resembling that of *O. orientalis*. In the list below all the specimens have been identified as *H. personata*, except the Darjeeling one, as until more specimens are examined, it is impossible to correctly determine the limits of the species.

The following key is adopted from Blanford :—

*Key of the Indian Species.*

a. Forms with large teeth.

b. Colour brown or yellowish brown, not gray.

**H. orientalis**, p. 286.

b<sup>2</sup>. Colour brownish gray.

**H. personata**, p. 286.

a<sup>2</sup>. Forms with small teeth.

**H. moschata**, p. 286.

**Helictis orientalis.**

*Gulo orientalis*, *Horsfield Zool. Res.* with plate (1824).

*Gulo nipalensis*, *Hodgson F. A. S. B.*, v, p. 237 (1836); id. *F. A. S. B.*, vi, p. 560.

*Helictis nipalensis*, *Gray Cat. Hodgs. Coll.*, 1st ed., p. 14 (1846); *Horsfield Cat. E. I. Mus.*, p. 108; *Gray P. Z. S.*, 1853, p. 191; *Ferdon Mamm.*, p. 80.

*Helictis orientalis*, *Horsfield Cat. E. I. Mus.*, p. 106 (1851); *Blanford Mammals*, p. 173.

Oker, Nepal.

*Distribution.*—Nepal, Sikkim and Java.

a. Skin, skull juv. nr. Darjeeling, 9-65 J. Anderson.

**Helictis personata.**

*Melogale personata*, *Is. Geoff. St. Hil. Voy. aux Indes Orient.* *Belanger*, p. 137, pl. v (1834).

*Mustela personata*, *Blainville Osteog.*, ii, *Mustela*, p. 16; *Atlas*, ii, *Mustela*, pl. xiii (1839-64).

*Helictis orientalis*, *apud Blyth F. A. S. B.*, xxxi, p. 332 (1862).

*Helictis nipalensis*, *apud Blyth Cat.* no. 208, p. 70 (1863); id. *F. A. S. B.*, xlv, *Burma List*, p. 29.

*Helictis personata*, *Thomas P. Z. S.*, p. 59 (1886); *Blanford Mammals*, p. 174.

*Distribution.*—Assam, Manipur (Thomas); Tippera, Arakan and Lower Burma.

a. Skin	Arakan	Sir A. Phayre, 1843, A.S.B.
b. Stuffed, skull	Arakan	Sir A. Phayre, 1843, A.S.B.
c. Stuffed	Tippera dist., Beng.	F. Skipwith, 1845, A.S.B.
d. Skeleton	Rangoon, Burma	Sir A. Phayre, 1843, A.S.B.
e. Skin, skull	Shilloug, Assam	T. laTouche.

**Helictis moschata.**

*Helictis moschata*, *Gray P. Z. S.*, p. 94 (1831); *Swinhoe P. Z. S.*, 1870, pp. 228 and 623; *Anderson Anat. Zool. Res.*, p. 193.

*Distribution.*—Yunnan (Anderson); China from Shanghai southwards and Hainan (Swinhoe); in Formosa replaced by *H. aurantiaca*.

- a. Skin Teng ye chew, Yunnan, J. Anderson.  
7-58.  
b. Skin Mormien, Yunnan, 4500ft., J. Anderson.  
7-68.

### Genus MELLIVORA.

*Mellivora*, *Storr Prodr. Method. Mamm.*, p. 34 (1780)\*.  
*Ursitaxus*, *Hodgson As. Res.*, xix, p. 60 (1836); *Type*, *M. indica*.

### *Mellivora indica*.

- Meles indicus*, *Boddaert Elench. Anim.*, i, p. 80 (1785)\*.  
*Ursus indicus*, *Kerr Linn. Anim. Kingd.*, p. 188 (1792)\*.  
*Meles indica*, *Fischer Syn. Mamm.*, p. 151 (1829).  
*Ratelus mellivorus*, *Bennet List An. Gard. Zool. Soc.*, p. 13 (1835)\*.  
*Ursitaxus inauritus*, *Hodgson As. Res.*, xix, p. 60 (1836); *id.* *J. A. S. B.*, v, p. 671.  
*Mellivora ratel*, *Gray Cat. Hodgs. Coll.*, 1st ed., p. 13 (1846); *Horsfield Cat. E. I. Mus.*, p. 120; *Blyth Cat.* no. 207, p. 69.  
*Ratelus indicus*, *Schinz Synop. Mamm.*, i, p. 329 (1844).  
*Mellivora indica*, *Ferdon Mamm.*, p. 78; *McMaster Notes on Ferdon*, p. 15; *Gray Cat. Carn. Mamm.*, p. 122; *Murray Zool. Sind*, p. 32; *Sterndale Mamm. Ind.*, p. 134; *Thomas P. Z. S.*, 1886, p. 56; *Blanford Mammals*, p. 176.

The Indian Ratel; Biju or Bijru Bhal, Hind.; Biyu kharwar, Telegu; Tava karadi, Tamil; Gore pat, Sind; Bhassiar, Nepal.

*Distribution.*—India generally from the base of the Himalayas southwards, but does not seem to occur in Lower Bengal or on the Malabar Coast; is recorded from Sambar Lake (Thomas), Sind (Murray), the Deccan and Northern Circars (McMasters) and Goona, C. I. (I. M.)

The distinctness of the African and the Indian Ratels has never been satisfactorily settled; Blyth believed them to be the same when he wrote his catalogue, afterwards (*cf.* Jerdon's Mammals) he believed them to be different from one another, and distinguished the African form by the possession of a white stripe along the cheeks which does not occur in the Indian form. P. L. Sclater (*P. Z. S.*, 1870, p. 232) says that the animal which he described as *M. leuconota* could not when adult be distinguished from the Indian Ratel; and as there was no reasonable doubt that the type of *M. leuconota* came from Africa, he came to the conclusion that there was no specific distinction between the Indian and African Ratels.

Two fossil species (*M. sivalensis* and *punjabensis*) have been described from the Siwalik beds [*Pal. Ind.* (10), ii, p. 180.]

a. Skin	♀ nr. Paresnath, Beng., 1-2-68	E. V. Westmacott.
b. Skin	Goona, C. I.	A. Barclay.
c. Skin, skull	♀ .....	W. Rutledge.
d. Skin	♀ .....	Barrackpore Park, 1868.
e. Stuffed	.....	Maharajah of Burdwan, 1858, A.S.B.
f. Stuffed	.....	Maharajah of Burdwan, 1858, A.S.B.
g. Skeleton	♂ Coromandel Coast	Sir W. Elliot, 1847, A.S.B.
h. Skull	.....	B. H. Hodgson, 1836, A.S.B.
j. Skin	Agra dist., N.-W. P., 20-7-70	Agra Museum.

Genus **MELES.**

*Meles*, *Storr Prodr. Method. Mamm.* (1780)\*.

There are apparently several species of Badger in Central Asia ; besides Hodgson's *Tumpha* (*Meles leucura*) there is Blyth's *Meles albogularis* (J. A. S. B., xxii, p. 590) ; Blanford's unnamed species from Kashgar, and Milne-Edward's *Meles leptorhynchus* (*Recherches Mammifères*, p. 190).

*M. leucura* is said to have a very distinct skull, the lower part of the hind-feet covered with hair, and it is also distinguished by its fur, which is longer, thicker and more flaccid than that of *M. taxus*.

*M. albogularis* is apparently distinguished by its white throat with a very narrow band of black only separating it from the white cheek.

*M. leptorhynchus* (*M. chinensis* of Gray) from China resembles the European badger externally and differs from it only in certain cranial characters.

Finally, the unnamed species from Kashgar differs from *M. taxus* only in that the median white mark in the middle of the face does not extend back further than the ears.

**Meles taxus.**

*Ursus meles*, *Linnæus Syst. Nat.*, 12th ed. i, p. 70 (1766).

*Meles taxus*, *Boddaert Elench. Anim.*, i, p. 80 (1785)\*; *Blyth Cat.* no. 210, p. 70; *Middendorf Siberische Reise*, ii, pt. 2, p. 3; *Blasius Säugeth. Deutschl.*, p. 204; *Radde Ost Siberiens*, i, p. 14; *Schrenck Amurland Säugeth.*, p. 17; *Gray Cat. Carn. Mamm.*, p. 124; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 45; *Alston P. Z. S.*, 1877, p. 274.

*Taxus vulgaris*, *Tiedemann Zool.*, i, p. 376 (1808).

*Meles europæus*, *Desmarest N. Dict. Hist. Nat.*, iii, p. 465 (1816).

*Meles vulgaris*, *Desmarest Mamm.*, p. 173 (1820).

*Meles canescens*, *Blanford Persia*, p. 44, pl. iii (1876); *Alston P. Z. S.*, 1877, p. 274.

*Distribution*.—Europe, Northern Asia, Turkestan (Severtzoff), Persia (Blanford), and Asia Minor (Alston).

a. Skin, skelet.	♀	Spain ?	W. Rutledge.
b. Skin, skull	♂	.....	W. Rutledge.
c. Skin, skull	♂	.....	W. Rutledge.
d. Skin, skull		.....	W. Rutledge.
e. Skin, skelet.	♀	.....	W. Rutledge.
f. Stuffed		England	W. Davison, 1846, A.S.B.
g. Skeleton		England	J. H. Gurney, 1860, A.S.B.
h. Skeleton		France	Prof. Gervais.
j. Skull		England	A. D. Bartlett, A.S.B.
k. Skin, skull		Ispahan	Sir O. B. C. St. John.

[Type of *M. canescens*, Blanford.]

### Meles leucura.

*Taxidea leucura*, Hodgson *J. A. S. B.*, xvi, p. 763, pls. xxix-xxxi (1847); *Blyth Cat.* no. 209, p. 70; *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 7.  
*Meles leucurus*, *Gray P. Z. S.*, p. 190 (1853); *id. Cat. Carn. Mamm.*, p. 126; *Horsfield Ann. Mag. N. H.* (2) xvi, p. 108.

Tibetan, Tumpaha.

*Distribution*.—Thibet.

a. Skin	Thibet	A. Campbell, 1853, A.S.B.
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### Meles sp. ?

*Meles sp.*, *Blanford Yarkand Mammals*, p. 25.

a. Skin	Kashgar	F. Stoliczka.
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### Genus MYDAUS.

*Mydaus*, *F. Cuvier Hist. Nat. Mamm.* livr. xxvii (1821).

### Mydaus meliceps.

*Mydaus meliceps*, *F. Cuvier Hist. Nat. Mamm.* livr. xxvii (1821); *Horsfield Cat. E. I. Mus.*, p. 109; *Gray Cat. Carn. Mamm.*, p. 131; *Forbes P. Z. S.*, 1879, p. 664.  
*Mephitis javanensis*, *Desmarest Mamm.*, p. 187 (1820); *Raffles Linn. Trans.*, xiii, p. 251.

*Distribution*.—Java (Horsfield), Sumatra (Raffles), Borneo (I.M.)

a. Skeleton	Borneo	J. Anderson.
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Genus **ARCTONYX.**

*Arctonyx*, *F. Cuvier Hist. Nat. Mamm.* livr. li (1825).

Besides the two Indian species mentioned below, Milne Edwards (*Recherches Mamm.*, p. 195) has described two other species: *Arctonyx leucolæmus* from the neighbourhood of Peking, and *A. obscurus* from Thibet.

*Key of the Indian Species.*

- a.* Skull about 6 in. in length; 4th upper premolar with two internal cusps and with the larger external cusp about equidistant from the anterior and posterior ends of the tooth, which is of a distinctly triangular shape. **A. collaris**, p. 290.
- a*<sup>2</sup>. Skull about 4 in. in length; size about half that of *A. collaris*; 4th upper premolar with no internal cusps, the large external cusp being at the anterior end of the tooth, and the tooth itself approaching a quadrangular form. **A. taxoides**, p. 291.

***Arctonyx collaris.***

*Arctonyx collaris*, *F. Cuvier Hist. Nat. Mamm.* livr. li (1825); *Evans J. A. S. B.*, vii, p. 732; *id. ibid.*, viii, p. 408; *Horsfield Cat. E. I. Mus.*, p. 114; *Gray. Cat. Hodgs. Coll.*, 2nd ed., p. 7; *Walker Calc. Journ. N. H.*, iii, p. 265; *Blyth Cat.* no. 212, p. 71; *Ferdon Mamm.*, p. 77; *Gray Cat. Carn. Mamm.*, p. 122; *McMaster Notes on Ferdon*, p. 15; *Anderson Anat. Zool. Res.*, p. 196; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 29; *Blanford Mammals*, p. 178.

*Mydaus collaris*, *Gray Illustr. Ind. Zool.*, i, pls. vi and vii (1830).

*Mephitis assamensis*, *McClelland Ind. Rev.*, ii p. 509 (1838).

*Arctonyx isonyx*, *Horsfield P. Z. S.*, p. 398, pl. 1 (1856).

The Hog Badger; Bhalu sur (= bear pig), Hind.; Hunteree bora, Assamese; Khway-htoo-wet-htoo, Arakan; Khwe-ta-wek-wek-ta-wek, Burmese.

*Distribution.*—Lower ranges and bases of the Himalayas, from Nepal to Assam, Sylhet, Arakan, both Upper and Lower Burma, not apparently found south of Tenasserim.

<i>a.</i> Skin	Momein, Yunnan, 6,000ft. 7-68.	J. Anderson.
<i>b.</i> Skin	Chittagong hills	J. T. Jarbo.
<i>c.</i> Skin	.....	Purchased.
<i>d.</i> Skin	juv. Darjeeling	Purchased.
<i>e.</i> Skin	Assam	J. Butler.
<i>f.</i> Skin	Chittagong	E. R. Shopland.
<i>g.</i> Stuffed	juv. Sylhet	C. Hufnagle, A.S.B.



<i>h.</i> Stuffed	.....	Captain Paterson, 1838, A.S.B.
<i>j.</i> Skull	juv. ....	No history, A.S.B.
<i>k.</i> Skull	juv. ....	No history, A.S.B.
<i>l.</i> Skull	♂ .....	A.S.B.
<i>m.</i> Skeleton	♂ .....	F. Skipwith, 1847, A.S.B.

### Arctonyx taxoides.

*Arctonyx taxoides*, *Blyth J. A. S. B.*, xxii, p. 591 (1853); *Blyth Cat. no.* 213, p. 71; *Spearman Burma Gazette.*, p. 553; *Anderson Anat. Zool. Res.*, p. 196; *Blanford Mammals*, p. 180.

*Distribution.*—Probably the same as the last. Assam, Sylhet, Arakan and possibly China, if *Meles leucolæmus*, Milne Edw. is indistinguishable from this species as suggested by Blanford.

<i>a.</i> Stuffed, skull	Assam	J. McClelland, 1843, A.S.B.
		[Type of <i>A. taxoides</i> , Blyth].
<i>b.</i> Stuffed	juv. Arakan	Sir A. Phayre, 1848, A.S.B.

### Genus MEPHITIS.

*Mephitis*, *G. Cuvier Tableau Gen.*, in *Leçons d'Anat. Comp.*, 1st ed., i, (1800)\*.

### Mephitis mephitica.

*Viverra putorius*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 64 (1766).

*Viverra mephitis*, *Schreber Säugeth.*, iii, p. 444, pl. cxxi (1778).

*Viverra mephitica*, *Shaw Mus. Leverianum*, p. 171 (1792)\*.

*Mephitis varians*, *Gray Charlesw. Mag. N. H.*, i, p. 581 (1837); *id. Cat. Carn. Mamm.*, p. 136.

*Mephitis mephitica*, *Baird N. Amer. Mamm.*, p. 195 (1857)\*; *Cones Fur-bearing Animals of North America*, p. 195.

*Distribution.*—North America, from Hudson's Bay and Great Slave Lake to Guatemala.

<i>a.</i> Skin	nr. Lake Scugog, Canada.	J. H. Garnier [Ex.].
<i>b.</i> -Skelet.	.....	No history.
<i>c.</i> Skull	Upton, Maine, U. S. A., 29-9-68.	W. Theobald.
<i>d.</i> Alc.	♀ .....	W. Rutledge.

### Genus LUTRA.

*Lutra*, *Erzleben Syst. Regn. Anim.*, p. 445 (1777).

*Aonyx*, *Lesson Mun. Mamm.*, p. 157 (1827). *Type*, *Lutra capensis*.

*Lataxina*, *Gray List Mamm. B. M.*, p. 70 (1843). *Type*, *Lutra canadensis*.

*Barangia*, *Gray P. Z. S.*, p. 123 (1865). *Type*, *L. sumatrana*.

*Key of the Indian Species.*

- a. Claws well developed ; tail about  $\frac{2}{3}$  of length of body.
- b. Teeth moderate ; portion of frontals behind the postorbital processes decreasing regularly in width to constriction in front of brain case ; fur longish and loose ; upper border of naked nose-pad forming a salient angle.  
**L. vulgaris**, p. 292.
- b<sup>2</sup>. Teeth large ; portion of frontals behind the postorbital process of equal width as far as the constriction in front of the brain case ; fur short and adpressed ; upper border of naked nose-pad straight.  
**L. ellioti**, p. 294.
- b<sup>3</sup>. Rich chestnut-brown above, golden red below and on the extremities (skull not known).  
**L. aurobrunnea**, p. 295.
- a<sup>2</sup>. Claws in adults rudimentary ; tail not more than half the length of the head and body.  
**L. leptonyx**, p. 295.

**Lutra vulgaris.**

- Mustela lutra*, *Linnæus Syst. Nat.*, 12th ed., i, p. 66 (1766).  
*Lutra vulgaris*, *Erxleben Syst. Reg. Anim.*, p. 448 (1777); *Temminck and Schlegel Faun. Jap. Mamm.*, p. 35; *Middendorf Siberische Reise*, ii, pt. ii, p. 70; *Schrenck Amurland Säugeth.*, p. 42; *Radde Ost Siberien*, i, p. 54; *Kelaart Prod. Faun. Zeylan.*, p. 35; *Blyth Cat.*, no. 216, p. 73; *Ferdon Mamm.*, p. 88 [pt.]; *Gray Cat. Carn. Mamm.*, p. 103; *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 48; *Blanford Persia*, p. 43; id. *J. A. S. B.*, xlvi, p. 324; *Alston P. Z. S.*, 1877, p. 275; id. *ibid.*, 1880, p. 54; *Lydekker J. A. S. B.*, xlix, p. 6; *Scully P. Z. S.*, 1881, p. 203; *Blanford Mammals*, p. 182; *Thomas P. Z. S.*, 1889, p. 195; *Radde Zool. J. B.*, iv, p. 1022.
- Lutra nair*, *F. Cuvier Dict. Sci., Nat.*, xxvii, p. 247 (1823); *Sykes, P. Z. S.*, 1831, p. 100; *Horsfield Cat. E. I. Mus.*, p. 115; *Blyth Cat.* no. 214, p. 72 [pt.]; *Ferdon Mamm.*, p. 86 [pt.]; *McMaster Notes on Ferdon*, p. 15 [pt.]; *Swinhoe P. Z. S.*, 1861, p. 390; id. *ibid.*, 1864, p. 381; *Anderson Anat. Zool. Res.*, p. 208, pl. xi; *Sterndale Mamm. Ind.*, p. 153.
- Viverra lutra*, *Pallas Zoog. Ross. As.*, i, p. 76 (1831).  
*Lutra roensis*, *Ogilby P. Z. S.*, p. 111 (1834).  
*Lutra nudipes*, *Melchior Säugeth. des Danisch. Staats* (1834)\*.  
*Lutra chinensis*, *Gray Charlesw. Mag. N. H.*, i, p. 580 (1837); id. *Cat. Carn. Mamm.*, p. 104; *Swinhoe P. Z. S.*, 1870, pp. 228, 624; *Anderson Anat. Zool. Res.*, p. 211.  
*Lutra indica*, *Gray Charlesw. Mag. N. H.*, i, p. 580 (1837); id. *Cat. Carn. Mamm.*, p. 104.  
*Lutra monticolus*, *Hodgson J. A. S. B.*, viii, p. 320 (1839).  
*Lutra monticola*, *Blyth J. A. S. B.*, xi, p. 99 (1842); id. *ibid.*, xiv, p. 351; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 14 [pt.].  
*Lutra kutab*, *Schinz Syn. Mamm.*, i, p. 354 (1844).  
*Lutra* ? *Blyth Cat.* no. 215, p. 73 (1863).

The Common Otter; Udbilao, Panikutta, Hind; Sag-i-ab, Punjab; Nirunei, Tam.; Niru-kuka, Telegu; Deeya balla, Cingalese.

*Distribution.*—The typical variety is found throughout the Palae-arctic region from England to Japan, it extends to the Himalayas from Gilgit to the Brahmapootra, at elevations of from 4,000 ft. to 12,000 ft. The var. *nair* is found throughout Assam and the eastern half of the Indian peninsula from the foot of the Himalayas to Pondicherry, and also probably throughout the western half, but this is uncertain.

The var. *chinensis* is found throughout South China, extending as far as Yunnan and Upper Burma about Bhamo, and another variety unnamed is found in Ceylon.

a. Skin, skull	♂	Punyal, nr. Gilgit,	J. Scully.
		30-5-79.	
b. Skin		Daym, nr. Gilgit,	J. Scully.
		8-79.	
c. Skin	juv.	Gilgit, 5,000 ft.,	J. Scully.
d. Skin	♂	Gilgit, 16-6-79	J. Scully.
e. Skin, skull	♀	Gilgit, 10-2-80	J. Scully.
f. Skin		Gilgit	J. Biddulph.
g. Skin		Rungbee, Darjeeling	J. Munro.
h. Skull		Himalayas	A.S.B.
i. Skin, skull	juv. ♂	Assam?	Zoological Gardens.
k. Stuffed		Neuralia, Ceylon	E. F. Kelaart, A.S.B.
l. Stuffed		Neuralia, Ceylon	E. L. Layard, A.S.B.
m. Skin, skull		Ceylon	Colombo Mus.
n. Stuffed	♀	Calcutta, 4-4-70.	No history.
o. Stuffed		Calcutta.	W. H. Greenfield, 1848, A.S.B.
p. Skull	juv.	Calcutta	A.S.B., 1845.
q. Skeleton		.....	J. Armstrong.
r. Skin, skull	♀	Balligunge, Calcutta	Purchased.
s. Skin, skelet.	♀	Behala nr. Calcutta	Zoological Gardens.
t. Skin, skull	♂	Baraipore S. of Calcutta.	Purchased.
u. Skin, skull		Boitakkhana, Calcutta.	Purchased.
v. Skin	juv.	Bengal	No history.
w. Skin		Sibsagar, Assam, 14-6-70.	S. E. Peal.
x. Skull		Assam	Zoological Gardens.
y. Skin, skull		Deccan (Sykes)	India Mus., London.
z. Skin	juv.	Bhamo, Upper Burma, 2-68.	J. Anderson.
a <sup>2</sup> . Skin		Bhamo, Upper Burma 2-68.	J. Anderson.
b <sup>2</sup> . Skin		Momien, Yunnan, 6,000 ft., 6-68.	J. Anderson.
c <sup>2</sup> . Skin		" "	J. Anderson.
d <sup>2</sup> . Skin		" "	J. Anderson.
e <sup>2</sup> . Skin		" "	J. Anderson.
f <sup>2</sup> . Skin		" "	J. Anderson.
g <sup>2</sup> . Skin		" "	J. Anderson.

<i>h</i> <sup>2</sup> . Skin	Momein, Yunnan 6,000 ft., 6-68.	J. Anderson.
<i>i</i> <sup>2</sup> . Skin	" " "	J. Anderson.
<i>k</i> <sup>2</sup> . Skin	" " "	J. Anderson.
<i>l</i> <sup>2</sup> . Skin	Momien, Yunnan, 4,500 ft. 6 68.	J. Anderson.
<i>m</i> <sup>2</sup> . Stuffed	Malay Peninsula	No history.
<i>n</i> <sup>2</sup> . Stuffed	England	W. Davison, 1844, A.S.B.
<i>o</i> <sup>2</sup> . Skull	Derbyshire, England	D. Scott, A.S.B.
<i>p</i> <sup>2</sup> . Stuffed	Europe	Christiania University, 1846, A.S.B.
<i>q</i> <sup>2</sup> . Skull	♀ Europe	Hungarian Mus., 1863, A.S.B.
<i>r</i> <sup>2</sup> . Skull	Europe	Christiania University, A.S.B.
<i>s</i> <sup>2</sup> . Skull	Algeria	A. Malherbe, A.S.B.
<i>t</i> <sup>2</sup> . Skin	juv. ....	Purchased, 1871.
<i>u</i> <sup>2</sup> . Skull	.....	No history.
<i>v</i> <sup>2</sup> . Skin, skull	.....	No history.
<i>w</i> <sup>2</sup> . Skin, skull juv. ♂	.....	Zoological Gardens.
<i>x</i> <sup>2</sup> . Alc. juv. ♀	Calcutta	O. L. Fraser.
<i>y</i> <sup>2</sup> . Skin juv. ♀	.....	O. L. Fraser.
<i>z</i> <sup>2</sup> . Skin, skull	.....	No history, 1869.
<i>a</i> <sup>2</sup> . Skin, skull	.....	No history.
<i>b</i> <sup>2</sup> . Skin	.....	No history.
<i>c</i> <sup>2</sup> . Skin, skull ♂	.....	Purchased.
<i>d</i> <sup>2</sup> . Skin	.....	No history.
<i>e</i> <sup>2</sup> . Skeleton juv.	.....	No history.
<i>f</i> <sup>2</sup> . Skeleton ♂	.....	Purchased, 1871.
<i>g</i> <sup>2</sup> . Skull	.....	No history.
<i>h</i> <sup>2</sup> . Skull	.....	A.S.B.
<i>j</i> <sup>2</sup> . Alc. juv. ♀	.....	Zoological Gardens.

### Lutra ellioti.

*Lutra tarayensis*, Hodgson *F. A. S. B.*, viii, p. 319 (1839) [in part]; *Blyth F. A. S. B.*, xi, p. 99.

*Lutra nair*, apud Elliot *Madr. Journ.*, x, p. 100 (1839); Cantor *F. A. S. B.*, xv, p. 195; *Blyth Cat.* no. 214, p. 72 [in part]; *Ferdon Mamm.*, p. 86, [in part]; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 28; *McMaster Notes on Ferdon*, p. 15 [in part]; *Murray Zool. Sind*, p. 31.

*Lutra monticola*, apud Gray *Cat. Hodgs. Coll.*, 1st ed., p. 14 [in part]; *Gray Cat. Carn. Mamm.*, p. 105; *Anderson Anat. Zool. Res.*, p. 209, pl. xii, figs. 1, 2, 3.

*Lutra ellioti*, *Anderson Anat. Zool. Res.*, pp. 211, 212 (1878); *Sterndale, Mamm. Ind.*, p. 155; *Blanford Mammals*, p. 185.

*Lutra simung*, apud *Anderson Anat. Zool. Res.*, p. 213 (1878).

*Lutra barang*, apud *Thomas P. Z. S.*, p. 195 (1889).

*Distribution*.—Throughout the Indian Peninsula, from the foot of the Himalayas to Travancore, and from the mouths of the Ganges to the river Indus in Sind; but not found in the hills in any part of its range, extending eastwards through Burma to the Malay Peninsula.

<i>a</i> . Skull	♂ Dehra Dun.	L. C. Stewart, A.S.B.
<i>b</i> . Skull	Jumna River, N.-W. P.	J. Cockburn [P.]

c. Alc.	♂	Sind	Karachi Mus. [Ex.].
d. Skin	♂	Goona, C. I.	Zoological Gardens.
e. Skin, skull	♀	" "	A. Barclay.
f. Skeleton	♀	" "	A. Barclay.
	adult.		
g. Skeleton	♂	" "	A. Barclay.
h. Skull	♀	" "	A. Barclay.
i. Skull	♀	" "	A. Barclay.
k. Skull		" "	A. Barclay.
l. Skull	♂	" "	A. Barclay.
m. Skin, skull		South India	Sir W. Elliot, A.S.B.
		[Type of <i>L. ellioti</i> , Anderson.]	
n. Skull		South India	Sir W. Elliot, A.S.B.
o. Skin		Travancore	Purchased.
p. Skin		"	Purchased.
q. Skull		"	Rev. H. Baker, A.S.B.
r. Skull	♀	Purneah, Beng.	G. W. Shillingford.
s. Skin, skull,	♂	nr. Calcutta	E. Blyth, A.S.B., 1842.
skelet.			
t. Skull	♀	Alipore, Calcutta	Zoological Gardens.
u. Skeleton,	♂	Salt Water Lakes,	O. L. Fraser.
		Calcutta.	
v. Skin, skull	♂	Sunderbunds, Beng.	Zoological Gardens.
	juv.		
w. Skin, skele-	♂	" "	Zoological Gardens.
ton.			
x. Skin juv.	♂	Rajshahye dist., Beng.	Zoological Gardens.
y. Skull	♂	Bengal	A.S.B.
z. Skin, skull	♂	Assam	Zoological Gardens.
	juv.		
a <sup>2</sup> . Skull	juv.	Arakan	Sir A. Phayre, 1845, A.S.B.
b <sup>2</sup> . Skin		Momien, Yunnan,	J. Anderson.
		6,000 ft., 6-68.	
c <sup>2</sup> . Alc.	♀	Amiah, Tavoy	Mus. Coll.
d <sup>2</sup> . Stuffed juv.		.....	No history.
e <sup>2</sup> . Skull	juv.	.....	A.S.B.

### Lutra aurobrunnea.

- Lutra aurobrunnea*, Hodgson *J. A. S. B.*, viii, p. 320 (1839).  
*Lutra aurobrunnea*, Gray *List Mamm. B. M.*, p. 71 (1843); id. *Cat. Hodgs. Coll.*, 1st ed., p. 14; *Anderson Anat. Zool. Res.*, p. 212.  
*Aonyx aurobrunnea*, Gray *P. Z. S.*, p. 131 (1865); id. *Cat. Carn. Mamm.*, p. 111.  
 ? *Barangia nepalensis*, Gray *Cat. Carn. Mamm.*, p. 101 (1869).

*Distribution*.—Upper Hill Region of Nepal (Hodgson).

[No specimens in the Indian Museum].

### Lutra leptonyx.

- Lutra leptonyx*, Horsfield *Zool. Res.* with plate (1824); Müller *Over de Zoogdieren in Tem. Verhandl.*, p. 51; Blyth *Cat.* no. 217, p. 73; Ferdon *Mamm.*, p. 89; McMaster *Notes on Ferdon*, p. 18; Sterndale *Mamm. Ind.*, p. 156; *Blanford Mammals.*, p. 187.

- Aonyx horsfieldii*, *Gray Charlesw. Mag. N. H.*, i, p. 580 (1837); *Swinhoe P. Z. S.*, 1870, p. 229; *Anderson Anat. Zool. Res.*, p. 213.  
*Lutra indigitatus*, *Hodgson F. A. S. B.*, viii, p. 320 (1839).  
*Aonyx leptonyx*, *Gray List Mamm. B. M.*, p. 71 (1843); *Cantor F. A. S. B.*, xv, p. 195; *Horsfield Cat. E. I. Mus.*, p. 117; *id. Cat. Carn. Mamm.*, p. 110; *Swinhoe P. Z. S.*, 1870, p. 229; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 28; *Fentink Notes Leyd. Mus.*, xi, p. 25.  
*Aonyx sikimensis*, *Horsfield Ann. Mag. N. H.*, xvi, p. 109 (1855); *Gray Cat. Hodgs. Coll.*, 2nd ed., p. 7.  
*Aonyx indigitatus*, *Gray Cat. Hodgs. Coll.*, 1st ed., p. 14 (1846); *Horsfield Cat. E. I. Mus.*, p. 119; *Gray Cat. Carn. Mamm.*, p. 110.  
*Lutra swinhoei*, *Gray P. Z. S.*, p. 182 (1867); *id., Cat. Carn. Mamm.*, p. 105; *Swinhoe P. Z. S.*, 1870, p. 625; *Anderson Anat. Zool. Res.*, p. 213.  
*Lutra aurobrunnea*, *apud McMaster Notes on Ferdon*, p. 18 (1870).  
*Lutra (Aonyx) leptonyx*, *Anderson Anat. Zool. Res.*, pp. 202, 213 (1878).  
*Lutra cinerea*, *Thomas P. Z. S.*, p. 195 (1889).

The Clawless Otter; Chusam, Bhotea; Suriam, Lepcha.

*Distribution*.—Java, Sumatra, Borneo, Hainan, South China, Malay Peninsula, Burma, Yunnan, Assam, Himalayas up to 8,000ft. and as far west as Mussoorie, and throughout the eastern half of the Indian Peninsula from the Himalayas to Cape Comorin including the Nilgiris.

a. Stuffed	N. W. Himalayas	Purchased, 1851, A. S. B.
b. Skull	Mussoorie	L. C. Steuart, 1843, A.S.B.
c. Skin	Sikkim	L. Mandelli.
d. Stuffed, skull	Darjeeling	Mrs. Saxon 1844, A.S.B.
e. Skull	Cochin, South India	Rev. J. Baker.
f. Skull	" "	Rev. J. Baker.
g. Skin	Travancore, 9-70	Rev. J. Baker.
h. Skin	" "	Rev. J. Baker.
j. Skull	Calcutta	R. C. Beavan, A.S.B.
k. Skeleton ♂	Calcutta	Zoological Gardens.
l. Skin, skull ♀	24-Pergunnahs, Bengal	Zoological Gardens.
m. Skin, skull ♂	" "	Zoological Gardens.
n. Skin	Assam	A. W. Chennell.
o. Skin	Naga Hills, Assam	A. W. Chennell.
p. Stuffed	Arakan	Sir A. Phayre 1844, A.S.B.
q. Skin	Ponsee, Yunnan, 6,000ft., 7-68.	J. Anderson.
r. Skin	Momien, Yunnan, 4,500ft., 6-68.	J. Anderson.
s. Skin	" "	J. Anderson.
t. Stuffed	Malacca	R. W. G. Frith, 1847, A.S.B.
u. Stuffed juv.	Malacca	R. W. G. Frith, 1847, A.S.B.
v. Skin	.....	No history.
w. Skin	.....	No history.
x. Stuffed	.....	No history.
y. Skull	.....	A.S.B.
z. Skull	.....	A.S.B.

a <sup>a</sup> . Skull	♂	.....	No history.
b <sup>b</sup> . Alc.		.....	No history.
c <sup>c</sup> . Alc.		.....	No history.

### Lutra canadensis.

- Mustela (*Lutra*) canadensis, *Kerr Linn. Anim. Kingd.*, i, p. 173 (1792)\*.  
*Lutra* brasiliensis, *Desmarest Mamm.*, i, p. 188. (1820) [in part].  
*Lutra* lataxina, *F. Cuvier Dict. Sci. Nat.*, xxvii, p. 242 (1823).  
*Lutra* canadensis, *Is. Geoff. St. Hil. Dict. Class. Hist. Nat.*, ix, p. 520 (1826);  
*Coues Fur-bearing Animals of North America.*, p. 295.  
*Lutra* hudsonica, *F. Cuvier Suppl. Buffon*, i, p. 194 (1831)\*.  
*Lataxina* mollis, *Gray List Mamm. B. M.*, p. 70 (1843).  
*Lutra* americana, *Wyman Pr. Bost. Soc. N. H.*, ii, p. 249 (1847).  
*Lutra* californica, *Baird N. Amer. Mamm.*, p. 187 (1857)\*.  
*Latax* canadensis, *Gray P. Z. S.*, p. 133 (1865); *id. Cat. Carn. Mamm.*,  
 p. 112.

*Distribution.*—The whole of North America.

a. Skull            Umbagog Lake, Maine, U. S. A.    W. Theobald.

### Lutra brasiliensis.

- Lutra* brasiliensis, *Zimmerman Geogr. Geschichte*, ii, p. 316 (1780); *Thomas P. Z. S.*, 1889, p. 197.  
*Lutra* lupina et paraguaensis, *Schinz Cuv. Thierr.*, i, p. 213 (1821).  
*Pteronura* sandbachii, *Gray Charlesw. Mag. N. H.*, i, p. 580 (1837).

*Distribution.*—The Guianas and Brazil.

d. Skin            Surinam                            Oxford Museum, 1870 [Ex.]

## Genus ENHYDRA.

- Pusa*, *Oken Lehrb. Naturg.* (1816)\*.  
*Enhydra*, *Fleming Philos. Zool.*, ii, p. 187 (1822).

### Enhydra lutris.

- Mustela* lutris, *Linnaeus Syst. Nat.*, 12th ed., i, p. 66 (1766).  
*Lutra* marina, *Erxleben Syst. Regn. Anim.*, p. 445 (1777).  
*Pusa* orientalis, *Oken Lehrb. Naturg.*, iii, p. 986 (1816)\*.  
*Lutra* lutris, *Lesson Man. Mamm.*, p. 155 (1827).  
*Lutra* stelleri, *Lesson Man. Mamm.*, p. 156 (1827).  
*Enhydria* stelleri, *Fischer Syn. Mamm.*, p. 229 (1829).  
*Phoca* lutris, *Pallas Zoog. Ros. As.*, p. 100 (1831).  
*Enhydra* lutris, *Dekay New York Zool.*, p. 41 (1842); *Coues Fur-bearing Animals of North America*, p. 326.  
*Latax* marina, *Lesson Nouv. Tabl. Reg. Anim.*, p. 71 (1842).  
*Enhydria* lutris, *Gray P. Z. S.*, p. 136 (1865); *id. Cat. Carn. Mamm.*,  
 p. 119.

## The Sea Otter.

*Distribution*.—Shores of North Pacific, north of 50°, extending on the American side as far as Lower California.

a. Skeleton	N. E. coast, Siberia	New York Mus.
b. Skeleton	.....	New York Mus.

Genus **PROCYON**.

*Procyon*, *Storr Prodr. Method. Mamm.*, p. 35 (1780)\*.

**Procyon lotor.**

*Ursus lotor*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 70 (1766).

*Procyon lotor*, *Storr Prodr. Method. Mamm.*, p. 35 (1780)\*; *Blyth Cat. no.* 220, p. 74; *Gray Cat. Carn. Mamm.*, p. 242; *Allen Bull. U. S. Geol. Surv.*, ii, p. 325.

*Meles lotor*, *Boddaert Elench. Anim.*, i, p. 80 (1784)\*.

*Lotor vulgaris*, *Tiedemann Zool.*, i, p. 380 (1808).

*Procyon hernandezii*, *Wagler Isis*, p. 514 (1831).

*Procyon brachyurus*, *Weigman Archiv f. Nat.*, iii, p. 369 (1837).

*Procyon obscurus*, *Weigman Archiv f. Nat.*, iii, p. 370 (1837).

*Procyon nivea*, *Gray Charlesw. Mag. N. H.*, i, p. 580 (1837).

*Procyon psora*, *Gray Ann. Mag. N. H.*, x, p. 261 (1842).

*Procyon gularis*, *H. Smith Fard. Nat. Libr.*, xiii, p. 222 (1842).

## The Raccoon.

*Distribution*.—North America from Alaska southward to Costa Rica in Central America.

a. Skin	juv.	Bruce Co., Ont., Canada	J. H. Garnier [Ex.].
b. Skin		Texas, U. S. A.	J. H. Garnier [Ex.].
c. Skin		Ontario	J. H. Garnier [Ex.].
d. Skin,	♂	.....	Purchased.
skelet.			
e. Skin,	♂	.....	W. Rutledge.
skelet.			
f. Skin,	♂	.....	Purchased.
skelet.			
g. Stuffed	♂	America	No history, 1872.
h. Skull		North America	A. D. Bartlett, 1849, A.S.B.
i. Skull		.....	Rev. F. Fitzgerald, 1853, A.S.B.

Genus **NASUA**.

*Nasua*, *Storr Prodr. Method. Mamm.*, p. 35 (1780)\*.

*Caoti*, *Lacépède Mem. Inst. Paris*, iii, p. 492 (1801).

**Nasua rufa.**

*Viverra nasua*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 64 (1766).

*Viverra vulpecula*, *Erxleben Syst. Reg. Anim.*, p. 490 (1777).

*Viverra quasje*, *Gmelin Syst. Nat.* p. 37 (1788).



- Ursus nasua*, *G. Cuvier Tabl. Élément. d' Hist. Nat.*, p. 113 (1798)\*.  
*Nasua quasje*, *Desmarest N. Dict. d' Hist. Nat.*, vii, p. 217 (1817).  
*Nasua rufa*, *Desmarest Mamm.*, p. 170 (1820); *Allen Bull. U. S. Geol. Surv.*, v, p. 170.  
*Nasua fusca*, *Desmarest Mamm.*, p. 170 (1820).  
*Nasua solitaria*, *Pr. Maximilian zu Wied Beitr. Naturg. Bras.*, ii, p. 292 (1826)\*.  
*Nasua socialis*, *Pr. Maximilian zu Wied Beitr. Naturg. Bras.*, ii, p. 283, (1826)\*.  
*Nasua vittata*, *Tschudi Faun. Peruan.*, p. 101 (1844).  
*Nasua montana*, *id. ibid.*, p. 102, pl. v (1844).  
*Nasua narica*, *Gray List Mamm. B. M.*, p. 74 (1843) [pt.].  
*Nasua olivacea*, *Gray P. Z. S.*, p. 703 (1864).  
*Nasua dorsalis*, *Gray P. Z. S.*, p. 169, pl. xvii (1866).

### The Ring-tailed Coati.

*Distribution*.—South America from Surinam to Paraguay and from the Atlantic to the Andes.

a. Skin, skelet.	.....	W. Rutledge.
b. Skin, skelet.	.....	Purchased.
juv. ♀		
c. Skin, skelet.	.....	Purchased.
♂		
d. Skin, skelet.	.....	W. Rutledge.
e. Stuffed	Brazil	Rajah R. Mullick, 1866.
f. Skull	Surinam	A. D. Bartlett, 1849, A.S.B.

### *Nasua nasica*.

- Viverra narica*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 64 (1766).  
*Nasua narica*, *Gray List Mamm. B. M.*, p. 74 (1843) [pt.]; *Blyth Cat. no.* 221, p. 75; *Allen Bull. U. S. Geol. Survey*, v, p. 162.  
*Nasua leucorhynchus*, *Tschudi Faun. Peruan.*, p. 100 (1844).  
*Nasua solitaria* var. *mexicana*, *Weinland Zool. Gart.*, i, p. 191 (1860)\*.  
*Nasua socialis*, *De Saussure Zool. Gart.*, iii, p. 53 (1862)\*.  
*Bassaricyon gabbii*, *Allen P. Acad. N. Sci. Philad.*, p. 20 (1876).

### The White-nosed Coati.

*Distribution*.—Central America, Texas and California southwards as far as the Isthmus of Panama.

a. Skin and ♀	.....	Purchased, 1878.
skelet.		
b. Stuffed ♂	America	W. Rutledge, 1870.

## Genus CERCOLEPTES.

- Potos*, *G. Cuvier Tableau Gen. in Leçons, d'Anat. Comp.*, 1st ed. i. (1800)\*.  
*Kinkajou*, *Lacépède Mem. Inst. Paris*, iii, p. 492 (1801).  
*Cercoleptes*, *Illiger Prodr.*, p. 127 (1811).

### *Cercoleptes caudivolvulus*.

- Viverra caudivolvula*, *Schreber Säugeth.*, iii, p. 453, pl. cxxv (1778)  
*Lemur flavus* *Schreber Säugeth.*, i, p. 145, pl. xlii (1778).

*Ursus caudivolvulus*, *G. Cuvier Tabl. Élément. d'Hist. Nat.*, p. 113 (1798)\*.

*Caudivolvulus flavus*, *Tiedemann Zool.*, i, p. 381 (1808).

*Cercoleptes caudivolvulus*, *Illiger Prodr.*, p. 127 (1811); *Blyth Cat.* no. 218, p. 74; *Alston Biol. Centr.-Amer. Mamm.*, p. 76.

*Potos caudivolvulus*, *Desmarest Mamm.*, p. 171, pl. xlii (1820).

*Cercoleptes megalotus*, *Martin P. Z. S.*, p. 83 (1836).

*Cercoleptes brachyotus*, *Martin P. Z. S.*, p. 83 (1836).

The Kinkajou.

*Distribution*.—From Mexico southwards to the Rio Negro and Peru.

a. Stuffed, skull Tropical America Zoological Gardens, 1878.

b. Skeleton ♀ ..... A. D. Bartlett, 1849, A.S.B.

## Genus AELURUS.

*Ailurus*, *F. Cuvier Hist. Nat. Mamm.*, livr. 1 (1825).

### *Aelurus fulgens*.

*Ailurus fulgens*, *F. Cuvier Hist. Nat. Mamm.*, livr. 1 (1825); *Hardwicke Linn. Trans.*, xv, p. 161, pl. ii; *Gray Cat. Hodgs. Coll.*, 1st ed., p. 15; *Horsfield Cat. E. I. Mus.*, p. 126; *Blyth Cat.* no. 219, p. 74; *Ferdon Mamm.*, p. 74; *Gray Cat. Carn. Mamm.*, p. 247; *P. L. Sclater P. Z. S.*, 1869, p. 408, with figure; *Simpson P. Z. S.*, 1869, p. 507, pl. xli; *Sterndale Mamm. Ind.*, p. 128.

*Aelurus ochraceus*, *Hodgson J. A. S. B.*, xvi, p. 1118, pls. lii, liii (1847); id. *J. A. S. B.*, xvii, pt. 2, pp. 475, 573.

*Aelurus fulgens*, *Flower P. Z. S.*, p. 752 (1870); *Bartlett P. Z. S.*, 1870, p. 769; *Blanford Mammals*, p. 190.

The Cat-bear or Panda; Wah, Nepal; Wahdonka, Bhotea; Suknam, Lepcha.

*Distribution*.—Himalayas at 7,000 to 12,000 ft. from Nepal eastwards through Assam to Yunnan.

This peculiar animal is very distinct from all other carnivora and forms a distinct genus, and according to some views a distinct family; recently, Prof. Boyd Dawkins (*Quat. Journ. Geol. Soc.*, xlv, p. 230) has described a new species (*Ailurus anglicus*) from the New Crag of Norfolk and Suffolk which is of pliocene age, this is a very interesting discovery since it extends the range of the genus *Aelurus* considerably and offers fresh evidence in support of the view that the pliocene Mammalia of Europe are closely related to those of the Oriental Region now living.

a. Skin Momien, Yunnan, J. Anderson.  
4,600 ft., 7-68.

b. Momien, Yunnan, J. Anderson.  
4,600 ft., 6-68.

c. Skin	Momien, Yunnan,	J. Anderson.
	4,600 ft., 7-68.	
d. Skin	Momien, Yunnan,	J. Anderson.
	4,600 ft., 6-68.	
e. Skin	Sanda, Yunnan, 4,500	J. Anderson.
	ft., 7-68.	
f. Skin	Sikkim, 11-71	T. R. Doucett.
g. Skin	Sikkim	L. Mandelli.
h. Skin	Sikkim	L. Mandelli.
j. Skin	Sikkim ?	Purchased.
k. Skin, skeleton	.....	Zoological Gardens.
l. Skin, skeleton ♀	.....	Zoological Gardens.
m. Skin	Sikkim ?	Purchased.
n. Skin	Sikkim ?	Purchased.
o. Skin	Sikkim ?	Purchased.
p. Skin	Sikkim ?	Purchased.
q. Stuffed	Darjeeling	B. Mainwaring.
r. Skeleton	♂ Himalayas	Zoological Gardens.
s. Skeleton	♂ .....	Zoological Gardens.
t. Skull	♀ .....	O. L. Fraser.
u. Skull	.....	No history.
v. Skin	Nepal	J. Scully.

### Genus AILUROPUS.

*Ailuropus*, A. Milne Edwards *Arch. Mus. Paris*, vii, *Bulletin* p. 88 (1871).

#### *Ailuropus melanoleucus*.

*Ursus melanoleucus*, David *Arch. Mus. Paris*, v, *Bulletin* p. 13 (1869).

*Ailuropoda melanoleucus*, A. Milne Edwards *Ann. Sc. Nat.* (5), xliii, no. 10 (1870).

*Ailuropus melanoleucus*, A. Milne Edwards *Arch. Mus. Paris*, vii, *Bull.* p. 92 (1871); id. *Rech. Mamm.*, p. 321, pls. l-lvi.

*Distribution*.—Mountains of Eastern Thibet.

a. Skull (cast). ..... Paris Museum [Ex.]

### Genus URSUS.

*Ursus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 69 (1766).

*Helarctos*, *Horsfield Zool. Journ.*, ii, p. 221 (1826). *Type*, *U. malayanus*,

#### *Key of the Indian Species.*

a. Upper molar equal in length to the two premolars immediately in front of it.

b. Forehead concave; fur generally whitish or grayish to brown; claws white or brown. **U. isabellinus**, p. 302.

b<sup>2</sup>. Forehead flat; fur generally black with a broad white mark on the chest; claws black. **U. torquatus**, p. 303.

$a^2$ . Upper molar equal in length to the one premolar immediately in front of it; skull with a very short nasal portion, the nose ferruginous and the chest with a semi-lunar yellow patch.

**U. malayanus**, p. 304.

### Ursus isabellinus.

*Ursus isabellinus*, *Horsfield Linn. Trans.*, xv. p. 332 (1826); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 15; *Wagner Hugel's Kaschmir*, iv, p. 570; *Adams P. Z. S.*, 1858, p. 517; *Blyth Cat.* no. 224, p. 76; *Ferdon Mamm.*, p. 69; *Gray Cat. Carn. Mamm.*, p. 223; *Atkinson N.-W. P., Gazett.*, xi, p. 9; *Lydekker F. A. S. B.*, xlvi, p. 285; *Scully P. Z. S.*, 1881, p. 203; *Kinloch Large Game-shooting*, i, p. 46.

♀ *Ursus syriacus*, *Hempr. & Ehr. Symb. Phys.*, pl. i (1828); *Gray Cat. Carn. Mamm.*, p. 224.

♀ *Ursus leuconyx*, *Severtzoff Ann. Mag. N. H.* (4), xviii, p. 43 (1876).

*Ursus pruinusos*, *Blanford F. A. S. B.*, xlvi, p. 318 (1877); *Blyth F. A. S. B.*, xxii, p. 589.

The Snow or Brown Bear also the Blue Bear (= var. *pruinusos*; Lal Bhalu, or Barfkarich, Hind.; Harpat of Kashmir; Drinmor of Ladak.

*Distribution*.—The higher ranges of the Himalayas, both north and south of the watershed, from Gilgit, eastwards to Assam.

On comparing the skulls of *Ursus isabellinus* with those of the European and Northern Asiatic bear (*U. arctos*), the only apparent point of difference is that the forehead of the former species is distinctly concave, while that of the latter is flat, *i.e.*, the line between the postorbital processes and the nasal opening is in the case of *U. arctos* a straight one, and in the case of *U. isabellinus* a curved one, beyond this there does not seem to be any difference between the two species, and Blanford has in his *Mammals of India* combined the two under the name of *Ursus arctus*.

In the Eastern Thibetan variety (*U. pruinusos*), the hair is blackish or bluish, but it is hardly worthy of separation even as a geographical race.

a. Skin	.....	G. T. Lushington, 1847, A.S.B.
b. Skin, skull	.....	Maharajah of Burdwan, 1858, A.S.B.
c. Skin, skull	.....	Maharajah of Burdwan, 1858, A.S.B.
d. Skin juv. ♀	.....	Zoological Gardens.
e. Skin, skelet. ♂	.....	Zoological Gardens.
f. Skin, skull ♂	.....	Zoological Gardens.
g. Stuffed, skull juv. ♂	.....	Zoological Gardens.
h. Stuffed juv. ♀	.....	Rajah R. Mullick.
j. Skull ♂	.....	A. Campbell, 1856, A.S.B.
k. Skull ♀	Kashmir	T. Brownlow, 1856, A.S.B.
l. Skull	Kashmir	Purchased, 1858, A.S.B.

m. Skeleton	♀	.....	King of Oudh, 1865.
n. Skull	♀	.....	Zoological Gardens.
o. Skull	♀	.....	Babu H. M. Roy.
p. Skin, skull	♂	Napin, nr. Gilgit, 29-10-79.	J. Scully.
q. Skin, skull	♀	Gakuch, nr. Gilgit, 22-10-79.	J. Scully.
r. Skull	♂	Sharot, nr. Gilgit	J. Scully.

*Var.—pruinusosus.*

a. Skin	Thibet	A. Campbell, A.S.B.
b. Skin, skull pt.	Lhassa	W. T. Blanford.

[Type of *U. pruinusosus*, Blanford.]

**Ursus torquatus.**

*Ursus thibetanus*, *F. Cuvier Hist. Nat. Mamm.* livr. xli (1824); *Blyth Cat. no. 225*, p. 76; *Ferdon Mamm.*, p. 70; *Radde Ost Siberien*, i, p. 12; *Swinhoe P. Z. S.*, 1870, pp. 230 and 621; *Atkinson N.-W. P. Gazett.*, xi, p. 10; *Lydekker J. A. S. B.*, xlvi, p. 285; *Anderson Anat. Zool. Res. introd.*, p. xxi; *Murray Sind Zool.*, p. 39; *id. Ann. Mag. N. H.* (5), xiv, p. 98; *Kinloch Large Game-shooting*, i, p. 49.

*Helarctos malayanus*, *apud Hodgson J. A. S. B.*, i, p. 340 (1832).

*Ursus torquatus*, *Wagner Schreb. Säugeth. Suppl.*, ii, p. 144, pl. 141d (1841); *id. Hugel's Kaschmir*, iv, p. 570; *Gray Cat. Carn. Mamm.*, p. 225; *Blanford J. A. S. B.*, xlvi, p. 320; *Sterndale Mamm. Ind.*, p. 113; *Blanford Mammals*, p. 197.

*Ursus ferox*, *Robinson Assam*, p. 96 (1841).

*Helarctos thibetanus*, *Gray List Mamm. B. M.*, p. 73 (1843); *id. Cat. Hodgs. Coll.*, 1st ed., p. 15; *Horsfield Cat. E. I. Mus.*, p. 122; *Adams P. Z. S.*, 1858, p. 518.

*Ursus formosianus*, *Swinhoe P. Z. S.*, p. 380 (1864).

*Ursus gedrosianus*, *Blanford J. A. S. B.*, xlvi, p. 317 (1877); *id. P. A. S. B.*, 1879, p. 4.

The Black Bear; Harpat in Kashmir; Mumh in Baluchistan; Bhalu Reench or Reech, Hind.; Thom, Bhotea; Sona, Lepcha.

*Distribution.*—From Baluchistan and the Khirthar hills in Sind (Blanford) to Kashmir (Hugel) and so along the entire range of the Himalayas to Assam, extending southwards through Burma as far as Mergui; and eastwards through China to Shantung and the Islands of Hainan and Formosa (Swinhoe) and South-Eastern Siberia.

a. Skin	♀	.....	Zoological Gardens.
b. Skin		Sanda Valley, Yunnan, 1,700 ft.	J. Anderson.
c. Skin		Assam, 27-6-72	S. E. Peal.
d. Skin, skull	♂	.....	L. C. Griesbach.
e. Stuffed		.....	No history.
f. Skeleton		.....	No history.
g. Skull		Assam	F. Jenkins, 1847, A.S.B.
h. Skull		.....	No history, A.S.B.
j. Skull		.....	H. H. Godwin Austen.

k. Skull		Mand Hills, Baluchistan	Karachi Mus. [Ex.]
l. Skull	♀	Mand Hills, Baluchistan	Karachi Mus. [Ex.]
m. Skull	♀	Mand Hills, Baluchistan	Karachi Mus. [Ex.]
n. Skull		Himalayas	Rajah R. Mullick.
o. Skeleton	♀	.....	Zoological Gardens.
p. Skull	♀	.....	Zoological Gardens.
q. Skull		.....	Zoological Gardens.
r. Skin, skull.		.....	No history.

### Ursus malayanus.

*Ursus malayanus*, *Raffles Linn. Trans.*, xiii, p. 254 (1820); *Blyth Cat.* no. 226, p. 76; *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 32; *Mc-Master Notes on Ferdon*, p. 10; *Blanford Mammals*, p. 199.

*Prochilus malayanus*, *Gray Ann. Phil.*, p. 61 (1825)\*.

*Helarctos malayanus*, *Horsfield Zool. Journ.*, ii, p. 234 (1826); *id. Cat. E. I. Mus.*, p. 122; *Cantor J. A. S. B.*, xv, p. 191; *Gray Cat. Carn. Mamm.*, p. 234; *Blyth J. A. S. B.*, xlv, *Burma List*, p. 30.

*Helarctos euryspilus*, *Horsfield Zool. Journ.*, ii, p. 234 (1826).

The Malayan Bear; Wetwoon, Burmese; Bruang, Malay.

*Distribution*.—Garo Hills, Assam, Chittagong, Arakan, Tenasserim, Malay Peninsula (Cantor), Sumatra, Java and Borneo (Temminck).

a. Skin, skull	♀	Sibsagar, Assam	Zoological Gardens.
b. Skin, skull	♂	.....	Zoological Gardens.
c. Skin, skelet.		Assam	H. Phillips.
d. Skin, skelet.	♀	...	Rajah R. Mullick.
e. Skin, skull.	♀	.....	W. Rutledge.
f. Skin, skull	♂	Garo Hills, Assam	Zoological Gardens
g. Skin		.....	No history.
h. Skin		Java	Captain Scholefield, A.S.B.
j. Skin, skull		Arakan	Sir A. Phayre, 1845, A.S.B.
k. Stuffed, skull		Sumatra	W. Rutledge.
l. Stuffed, skull	juv. ♂	.....	H. W. Bennett, 1853, A.S.B.
m. Skull	♂	Malay peninsula	No history.
n. Skull	juv.	Arakan Hills	Zoological Gardens.
o. Skin, skull,		.....	W. Rutledge.
p. Skin	juv. ♀	.....	No history, 1885.

### Ursus arctos.

*Ursus arctos*, *Linnæus Syst. Nat.*, 12th ed., i, p. 69 (1766); *Blyth Cat.* no. 223, p. 75; *Radde Ost Siberien.*, i, p. 1; *Schrenck Amurland Säugeth.*, p. 8; *Alston P. Z. S.*, 1877, p. 275; *Gunther P. Z. S.*, 1880, p. 442.

*Ursus pyrenaicus*, *F. Cuvier Hist. Nat. Mamm.* livr. xlv (1824).

*Ursus collaris*, *F. Cuvier Hist. Nat. Mamm.* livr. xlvii (1824).

*Ursus ferox*, *apud Temminck and Schlegel Faun. Mamm. Jap.*, p. 29 (1850).

*Distribution*.—Europe, Northern Asia, Asia Minor (Northern pt.), Amurland (Schrenck), Kurile Isles (Gunther) and Yesso.

a. Stuffed	♂	Europe	Purchased, 1869.
b. Skull	♂	Norway	Christiania Univ., 1846, A.S.B.
c. Skull	♀	Norway	Christiania Univ., 1846, A.S.B.
d. Skeleton	♀	.....	Babu H. M. Roy.
e. Skull		.....	H. F. Blanford, 1863, A.S.B.
f. Skull		Japan	Hakodate Mus. Yesso [E.]

**Ursus japonicus.**

*Ursus tibetanus*, apud Temminck and Schlegel Faun. Jap. Mamm., p. 29 (1850).

*Ursus japonicus*, Schlegel Handleid Beoefning Dierk., pt. 1 p. 42 (1857)\*; P. L. Sclater P. Z. S., 1862, p. 261, pl. xxxii; Gunther P. Z. S., 1880, p. 442; Gray Cat. Carn. Mamm., p. 227.

*Distribution.*—Japan.

a. Skin	♀	Japan	O. L. Fraser, Esq., 1886.
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**Ursus americanus.**

*Ursus americanus*, Pallas Spic. Zool., xiv, p. 5 (1780); Gray Cat. Carn. Mamm., p. 229.

*Ursus niger americanus*, Schinz Synop. Mamm., i, p. 301 (1844).

*Ursus cinnamomeus*, Baird Rep. U. S. Mex. Bound. Surv., ii, Mamm., p. 29 (1859)\*.

*Distribution.*—North America from Alaska southwards to Mexico.

a. Skull	.....	E. Blyth, 1865, A.S.B.
b. Skull	.....	W. Theobald, 1868.

**Ursus maritimus.**

*Ursus maritimus*, Erxleben Syst. Reg. Anim., p. 160 (1777); Blyth Cat. no. 222, p. 75.

*Ursus polaris*, Shaw Mus. Leverianum, i, p. 7 (1792)\*.

*Ursus marinus*, Pallas Itin., iii, p. 691 (1793)\*.

*Thalartos polaris*, Gray Ann. Philos., p. 62 (1825)\*.

*Thalartos maritimus*, Gray List Mamm. B. M., p. 73 (1843).

*Thalassartos maritimus*, Gray Cat. Carn. Mamm., p. 218 (1869).

*Distribution.*—Circum-polar, Arctic coasts of Europe, Asia and America.

a. Skin, skelet.	♀	.....	W Rutledge.
b. Skull		.....	E. Blyth, 1865, A.S.B.
c. Skull		Greenland	Copenhagen Mus., A.S.B.
d. Skull		Greenland	Aberdeen University.

Genus **MELURSUS.**

Melursus, *Meyer Uebers. neust. Zool. Entdeck.*, p. 155, (1793)\*.  
 Prochilus, *Illiger Prodr.*, p. 109 (1811).

**Melursus ursinus.**

*Bradypus ursinus*, *Shaw and Nodder Natur. Miscell.*, ii, pl. lviii (1791); id  
*Genl. Zool.*, i, pt. 1, p. 159.  
*Melursus lybius*, *Meyer Uebers. neust. Zool. Entdeck.*, p. 155 (1793)\*;  
*Gray Cat. Hodgs. Coll.*, 1st ed., p. 15.  
*Prochilus ursinus*, *Illiger Prodr.*, p. 109 (1811).  
*Ursus labiatus*, *Blainville Bull. Soc. Philom.*, p. 74 (1817)\*; *Sykes P. Z. S.*,  
 1831, p. 100; *Elliot Madras Journ.*, x, p. 100; *Tickell Calc. Journ. N. H.*,  
 i, p. 199, pl. vii; *Blyth Cat. no. 227*, p. 77; *Ferdon Mamm.*, p. 72;  
*McMaster Notes on Ferdon*, p. 12; *Stoliczka F. A. S. B.*, xli, p. 226;  
*Atkinson N.-W. P. Gazett.*, xi, p. 11; *Sterndale Mamm. Ind.*, p. 119.  
*Ursus longirostris*, *Tiedemann Abhandl.*, p. 4 (1820)\*.  
*Prochilus labiatus*, *Gray Ann. Philos.*, p. 60 (1825)\*; *Kelaart Prodr. Faun.*  
*Zeylan.*, p. 34.  
*Ursus inornatus*, *Pucheran Rev. Mag. Zool.*, (2), vii, p. 392 (1855).  
*Melursus labiatus*, *Gray Cat. Carn. Mamm.*, p. 237 (1869).  
*Melursus ursinus*, *Blanford Mammals*, p. 201 (1888).

The Sloth Bear; Aswail, Mahrathi; Kaddi, Canarese; Rinch, Deccani; Oosa, Cingalese; Ballu Riksha, Sanskrit; Reech, Hindustani; Bhalu, Bhaluk, Bengali; Yerid, Gonds; Banna, Kols; Elugu, Telegu.

*Distribution.*—Over the whole Peninsula of India and Ceylon (Kelaart). It is apparently found in Cutch but not in Sind or in the Himalayas, eastwards it extends to Lower Bengal and apparently to Assam.

The Indian Bear is very distinct from the other bears, both in its distribution and its morphological characteristics. It is confined to the Peninsula of India strictly speaking, while the other Indian bears are all extra-peninsular; it is distinguished from the other Indian bears by its very elongated snout; by its very small cheek-teeth and by its concave and curved palate.

Of the two fossil bears found in India, one *Ursus theobaldi* from the Siwaliks [Pal. Ind. (20), ii, p. 211] is distinctly allied to *Melursus ursinus*.

a. Skin	.....	No history.
b. Skin	.....	No history.
c. Skin, skelet.	.....	W. Rutledge.
juv. ♀		
d. Stuffed, juv.	.....	W. Rutledge.
e. Skull ♂ Umsuing nr. Shillong, Assam.		J. Cockburn.
f. Skeleton	.....	No history, A.S.B.
g. Skull	.....	R. C. Beavan, 1864, A.S.B.
h. Skull	.....	Dr. McCosh, A.S.B.



<i>j-l.</i> 3 Skulls		.....	No history, A. S. B.
<i>m.</i> Skull	Ceylon	.....	E. F. Kelaart, A.S.B.
<i>n-o.</i> 2 Skulls		.....	A.S.B.
<i>p.</i> Skeleton ♀		.....	Purchased.
<i>q.</i> Stuffed ♂	Chota Nagpore	.....	V. Ball.
<i>r.</i> Skull juv.		.....	No history, A. S. B.
<i>s.</i> Skull juv.		.....	Maharajah of Burdwan, 1858, A.S.B.
<i>t.</i> Skull juv. ♂		.....	Purchased.
<i>u.</i> Skull		.....	V. Ball, 1869.
<i>v.</i> Skeleton		.....	No history, A.S.B.

## Sub-order II—PINNIPEDIA.

## Genus TRICHECHUS.

*Trichechus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 49 (1766).

*Trichechus rosmarus*.

*Trichechus rosmarus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 49 (1766); *Blyth Cat.* no. 232, p. 79.

*Odobaeus rosmarus*, *Sundevall Kongl. Vetens. Akad. Oefvers.*, p. 442 (1859).

*Rosmarus trichechus*, *Lamont Seasons with the Sea-horses*, p. 141 (1861)\*.

*Rosmarus obesus*, *Gill Proc. Essex Inst.*, v, p. 13 (1866).

*Rosmarus arcticus*, *Lilljeborg Fauna öfvers Swer. och Norg. Ryg.*, p. 674 (1874)\*.

## The Walrus.

*Distribution*.—North Atlantic shores of North America from Labrador northwards, Greenland; Spitzbergen and Nova Zembla.

<i>a.</i> Skull	♂ Greenland		Copenhagen Mus. 1839, A.S.B.
<i>b.</i> Skull	♀	.....	Copenhagen Mus. 1839, A.S.B.
<i>c.</i> Skull			No history.
<i>d.</i> Tusk	♀	.....	No history, A.S.B.

## Genus PHOCA.

*Phoca*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 55 (1766).

*Phoca vitulina*.

*Phoca vitulina*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 56 (1766).

*Callocephalus vitulinus*, *F. Cuvier Dict. Sci. Nat.*, xxxix, p. 544 (1826); *Blyth Cat.* no. 228, p. 77.

*Phoca canina*, *Pallas Zoog. Rosso Asiat.*, i, p. 114 (1831).

*Halicyon richardii*, *Gray P. Z. S.*, p. 28 (1864).

*Phoca pealei*, *Gill Proc. Essex Inst.*, v, p. 13 (1866).

*Distribution*.—The North Atlantic and Pacific coasts, from Japan to Southern California and from New Jersey round to Spain.

a. Skull ♂ Greenland Copenhagen Mus. 1839, A.S.B.

### *Phoca grœnlandica*.

*Phoca grœnlandica*, *Fabricius in Müller's Zool. Dan. Prodr.*, p. viii (1776)\*.

*Phoca oceanica*, *Lepechin Act. Acad. Petrop.*, i, pt. 1, p. 259 (1778).

*Phoca albicauda*, *Desmarest Mamm. Suppl.*, p. 541 (1822).

*Callocephalus grœnlandicus*, *F. Cuvier Mem. Mus. Paris*, xi, p. 186 (1824);  
*Blyth Cat.* no. 230, p. 78.

*Phoca legura*, *G. Cuvier Oss. foss.*, 3rd ed., v, p. 238 (1825)\*.

*Phoca dorsata*, *Pallas Zoogr. Rosso. As.*, i, p. 112 (1831).

*Pagophilus grœnlandicus*, *Gray Cat. Mamm. B. M.*, i, p. 25 (1850).

*Distribution*.—North Atlantic and Pacific, Newfoundland to Greenland, Iceland, Spitzbergen, Nova Zembla and the Arctic coast of Europe; also Northern Pacific, Kamschatka and Sitka.

a. Skull ♂ Greenland Copenhagen Mus., A.S.B.

b. Skull ♀ Greenland Copenhagen Mus., A.S.B.

### *Phoca barbata*.

*Phoca barbata*, *Fabricius in Müller's Zool. Dan. Prodr.*, p. viii (1776)\*;

*Blyth Cat.* no. 231, p. 78.

*Phoca leporina*, *Lepechin Act. Acad. Petrop.*, i, pt. i, p. 264 (1778).

*Callocephalus barbatus*, *F. Cuvier Mem. Mus. Paris*, xi, p. 189 (1824).

*Phoca albigena*, *Pallas Zoogr. Rosso. As.*, i, p. 109 (1831).

*Phoca nautica*, *Pallas Zoogr. Rosso. As.*, i, p. 108 (1831).

*Erigonathus barbatus*, *Gill Proc. Essex Inst.*, v, p. 12 (1866).

*Distribution*.—Circum-polar but northerly in its range, southern limits, Labrador and Scandinavia on the Atlantic, Amur River and Sitka on the Pacific side.

a. Skull ♀ Greenland Copenhagen Mus., 1839,  
A.S.B.

### Genus *STENORHYNCHUS*.

*Stenorhynchus*, *F. Cuvier Mem. Mus. Paris*, xi, p. 190 (1824).

### *Stenorhynchus carcinophagus*.

*Phoca carcinophaga*, *Hombon and Jacquinot in Dumont d'Urville, Voy. au Pôle Sud, Atlas, Mamm.*, pls. x. and x a (1842).

*Stenorhynchus serridens*, *Owen Ann. Mag. N. H.*, xi, p. 331 (1843).

*Lobodon carcinophaga*, *Gray Zool. Ereb. and Terr.*, p. 5 (1844).

*Distribution.*—Antarctic Seas.

a. Skull                      Antarctic Ocean                      Brit. Mus. [Ex.]

### Genus **CYSTOPHORA.**

*Cystophora*, Nilsson *Skand. Fauna*, i, p. 382 (1820)\*.

#### **Cystophora cristata.**

*Phoca cristata*, *Erxleben Syst. Reg. Anim.*, p. 590 (1777).

*Cystophora borealis*, Nilsson *Skand. Faun.*, p. 383 (1820)\*.

*Stemmatopus cristatus*, *F. Cuvier Mem. Mus. Paris*, xi, p. 196 (1824).

*Phoca mitrata*, *G. Cuvier Oss. foss.*, 3rd ed., v, p. 210 (1825)\*.

*Mirounga cristata*, *Gray Griffith's An. Kingd.*, v, p. 179 (1827).

*Cystophora cristata*, Nilsson *K. Vetens. Akad. Handl.* (1837)\*; *Blyth Cat.* no. 233, p. 79.

*Cystophora antillarum*, *Gray P. Z. S.*, p. 93 (1849).

*Distribution.*—Northern parts of the Atlantic Ocean from Labrador to Norway.

a. Skull	♂	.....	Copenhagen Mus., 1839, A. S. B.
b. Skull	♀	.....	Copenhagen Mus., 1839, A. S. B.
c. Skull juv.	♂	.....	Copenhagen Mus., 1839, A. S. B.

### Genus **MACRORHINUS.**

*Macrorhinus*, *F. Cuvier Mem. Mus. Paris*, xi, p. 200 (1824).

#### **Macrorhinus leoninus.**

*Phoca leonina*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 55 (1766).

*Phoca elephantina*, *Molina Saggio sul Stor. Nat. del Chili*, p. 280 (1782)\*.

*Phoca proboscidea*, *Peron Voy. aux Terr. Austr.*, ii, p. 34 (1817)\*; *Blyth Cat.* no. 234, p. 79.

*Phoca byroni*, *Desmarest Mamm.*, p. 240 (1820).

*Phoca ansoni*, *Desmarest Mamm.*, p. 239 (1820) [in part].

*Mirounga patagonica*, *Gray Griffith's Anim. Kingd.*, v, p. 180 (1827).

*Cystophora leonina*, *falklandica*, *proboscidea*, et *kerguelensis*, *Peters Monatsber. Akad. Berlin*, p. 394 (1875).

*Distribution.*—Antarctic and Southern seas, *i. e.*, Kerguelen, Falkland, Patagonia, Juan Fernandez.

a. Upper canine	..	C. K. Hamilton, 1860, A.S.B.
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## Order CETACEA.

Marine rarely fluviatile Mammals, with a thick, hairless skin and a flattened caudal fin; a certain number of the seven cervical vertebræ confluent; no sacrum; only very few of the ribs are provided with a capitulum or are connected with the sternum; no clavicles; the forelimbs are not provided with nails and form broad flattened paddles; the traces of the hind limb are scanty and entirely internal; the brain case is spheroidal, with broad basis cranii; the fused supraoccipitals and interparietals generally meet the frontals in front and separate the small laterally placed parietals from one another; a large supraorbital present; nasal bones very short, not covering the ventral nasal passages; rami of mandible with no ascending process; dentition homodont, monophyodont, teeth with single roots; pinna auris absent; stomach complex; salivary glands absent; kidneys lobulate; os penis not present; mammæ inguinal two in number; placenta diffuse.

Our knowledge of the Indian Cetacea is primarily due to Blyth, who wrote a paper in the *Journal of the Asiatic Society*, Vol. XXVIII, describing all the remains of Cetacea from Indian seas which he had been able to secure for the Museum of the Asiatic Society; secondly, to Anderson, who in his *Anatomical and Zoological Researches*, gives a complete account of the two fresh-water Dolphins of Indian Rivers, and of the skeleton of the fin-back whale found in the Indian Ocean; and, lastly, to Owen, who (*Trans. Zool. Soc.*, Vol. VI) described the remains of a large number of Indian Cetacea collected by Sir W. Elliot on the Madras Coast.

The following synopsis is entirely based on the various writings of Prof. Flower, of which the chief are the papers in the *Transactions of the Zoological Society*, Vol. VI, in the *Proceedings for 1883*, and the articles *Mammalia* and *Whales* in the *Encyclopædia Britannica*.

*Synopsis of Indian Genera.*

- a.* Teeth never functionally developed; upper jaws provided with plates of baleen; external respiratory aperture double; rami of mandible arched outwards, the anterior ends connected by fibrous tissue only; sternum a single piece connected with one pair of ribs only [= *Mystacoceti*]. **Balenoptera**, p. 313.
- a*<sup>2</sup>. Teeth present and functional; no baleen; external respiratory aperture single; rami of the mandible straight, the anterior ends forming a true symphysis; sternum of several pieces and connected with several pairs of ribs. [= *Odontoceti*.]
- b.* Costal cartilages not ossified; hinder ribs loose the tubercular and retain the capitular articulation with the vertebræ;

cervical vertebræ ankylosed together; no functional teeth in the upper jaw; pectoral limbs small; dorsal fin usually present.

- c. Teeth in lower jaw, 20 to 25 in number; rostrum greatly elongated; mandible long and narrow, the symphysis occupying more than half the length of the ramus.

**Physeter**, p. 314.

- c<sup>2</sup>. Teeth in the lower jaw, 9 to 12 in number; rostrum short, not exceeding the cranium in length; mandibular symphysis less than half the length of the ramus.

**Kogia**, p. 315.

- δ<sup>2</sup>. Costal cartilages not ossified; the tubercular and capitular articulation of the ribs blending posteriorly; cervical vertebræ all free; mandibular symphysis very long, exceeding half the length of the ramus; dorsal fin rudimentary; eye rudimentary; fluviatile or estuarine. **Platanista**, p. 315.

- δ<sup>3</sup>. Costal cartilages firmly ossified; posterior ribs lose their capitular articulation and are united to the transverse processes of the vertebræ by the tubercular process; some of the anterior cervical vertebræ generally ankylosed; numerous teeth in both jaws; symphysis of mandible short or moderate, not exceeding  $\frac{1}{3}$  of the ramus; dorsal fin usually present.

[= Delphinidæ.]

- d. With rounded head; no distinct rostrum or beak; in the skull the rostral equals the cranial portion in length; atlas and axis firmly united; pterygoids small and widely separated.

- e. Crowns of the teeth laterally compressed; teeth  $\frac{1\frac{1}{2}}{2}$  to  $\frac{2}{2}$ ; no dorsal fin.

**Neomeris**, p. 318.

- e<sup>2</sup>. Crowns of the teeth conical and pointed.

- f. Pterygoid bones widely separated from one another; teeth  $\frac{1\frac{1}{2}}{2}$  to  $\frac{1\frac{1}{4}}{2}$  small, occupying the whole length of the rostrum.

**Orcella**, p. 318.

- f<sup>2</sup>. Pterygoid bones normal, meeting in the middle line; teeth  $\frac{7}{8}$  to  $\frac{8}{1\frac{1}{2}}$  occupying only the anterior part of the rostrum; dorsal fin low and triangular.

**Globicephalus**, p. 319.

- f<sup>3</sup>. Pterygoid bones normal, meeting in the middle line; teeth small  $\frac{2\frac{2}{3}}{3}$  to  $\frac{3\frac{2}{3}}{3}$ , not exceeding 4 mm. in diameter; rostrum slightly exceeding in length the cranium.

**Lagenorhynchus**, p. 21.

*d*<sup>2</sup>. With distinctly elongated rostrum generally marked off from the antennarial adipose elevation by a V-shaped groove; the rostral considerably exceeds the cranial portion of the skull in length; atlas and axis united, other cervical vertebræ free.

*g*. Pterygoid bones normal, meeting in the middle line.

*h*. Palate with deep lateral grooves; symphysis of lower jaw short; teeth small not exceeding 3 mm. in diameter and  $\frac{4}{10}$  to  $\frac{6}{10}$  in number.

**Delphinus**, p. 321.

*h*<sup>2</sup>. Palate not grooved; symphysis of mandible short; teeth stout 6 to 7 mm. in antero-posterior diameter,  $\frac{2}{1}$  to  $\frac{2}{5}$  in number.

**Tursiops**, p. 323.

*h*<sup>3</sup>. Palate not grooved; symphysis of mandible short; teeth  $\frac{3}{10}$  to  $\frac{6}{10}$ , small not exceeding 3 mm. in diameter. **Prodelphinus**, p. 324.

*h*<sup>4</sup>. Palate not grooved; symphysis of the mandible longer than  $\frac{1}{4}$ th the length of the ramus; rostrum long and narrow; teeth  $\frac{2}{1}$  to  $\frac{2}{5}$ , large 5 to 6 mm. in diameter.

**Steno**, p. 324.

*g*<sup>2</sup>. Pterygoid bones narrow, separated in the middle line, their inner borders diverging posteriorly; teeth  $\frac{3}{10}$  to  $\frac{3}{5}$  in number, 4 to 5 mm. in diameter.

**Sotalia**. p. 325.

### Genus BALAENA.

Balæna, *Linnaeus Syst. Nat.*, 12th ed., i, p. 105 (1766).

#### Balaena australis.

Balæna australis, *Desmoulins Dict. Class. H. N.*, ii, p. 161 (1822); *Blyth, Z. A. S. B.*, xxviii, p. 488; id. *Cat.* no. 290, p. 94; *Flower P. Z. S.*, 1864, p. 390; id. *List Cetacea B. M.*, p. 1.

The Southern Right Whale.

*Distribution*.—Southern Seas.

*a*. Scapula }  
3 vertebræ } ..... No history, A.S.B.

#### Balaena mysticetus.

Balaena mysticetus, *Linnaeus Syst. Nat.*, 12th ed., i, p. 105 (1766); *Blyth Cat.* no. 289, p. 93; *Flower P. Z. S.*, 1864, p. 390; id. *List Cetacea B. M.*, p. 1.

The Greenland Right Whale.

*Distribution*.—Arctic Seas.

a. A flake of Baleen ..... Dr. McGowan, 1860,  
A.S.B.

### Genus BALAENOPTERA.

Balaenoptera, *Lacépède Hist. Nat. Cétacés Tab. Ordres*, p. xxxvi (1804)\*.

The Whales inhabiting the Northern Indian Ocean were first investigated by Blyth who described, from the remains catalogued below, *Balaenoptera indica*; Anderson (see below) believes that there are at least 3 species of Finback whales found in the Indian seas. *Balaenoptera indica*, the largest about 84 feet in length; a median-sized whale, whose existence is only indicated by certain vertebræ now in the Museum, attaining a length of about 60 feet for which he proposed the name *Balaenoptera blythi*; and a small species not exceeding 40 feet, which is founded on the nearly complete skeleton of the Sittang Whale (see below), for which the name *B. edeni* is proposed; these whales all seem to be closely allied to a species, *Balaenoptera schlegelii*, described by Prof. Flower (P. Z. S., 1864, p. 400) from Java and afterwards described and figured in great detail by Van Beneden and Gervais in the *Osteographie des Cétacés*; they do not seem to differ from one another at all except in size.

### *Balaenoptera indica*.

*Balaenoptera* sp., *Blyth* *J. A. S. B.*, xxi, p. 358 (1852); *id.* *J. A. S. B.*, xxii, p. 414.

*Balaenoptera indica*, *Blyth* *J. A. S. B.*, xxviii, p. 488 (1859); *id.* *J. A. S. B.*, xxix, p. 451; *id.* *Cat.* no. 288, p. 93; *Ferdon Mamm.*, p. 161; *Anderson Anat. Zool. Res.*, p. 551; *Murray Zool. Sind*, p. 41.

*Distribution*.—The Bay of Bengal and the northern part of the Indian Ocean; this is probably also the whale recorded from the Arabian Sea and Persian Gulf.

a. Lower jaws, left  
radius, 1st, 2nd,  
9th, 11th lumbar,  
3rd caudal verte-  
brae and 1 rib. } Amherst Isle, Arakan T. P. Sparks, A.S.B.  
Coast.

[Type of *Balaenoptera indica*, Blyth.]

b. Pt. of skull, atlas,  
1 lumbar 2 cau-  
dal, body of a  
dorsal vertebra,  
3 ribs, right  
shoulder girdle,  
hyoid and some  
epiphyses. } juv. Sondip Isle, Babu Uday Chand  
nr. Chittagong, 11-74. Dutt.

**Balaenoptera blythi.**

*Balaenoptera blythi*, *Anderson Anat. Zool. Res.*, p. 564 (1878).

*Distribution*.—? Bay of Bengal.

- a. 4 Vertebrae      ? Bay of Bengal      Medical College [Ex.], 1879.  
    1 rib

[Type of *Balaenoptera blythi*, Anderson.]

**Balaenoptera edeni.**

*Balaenoptera edeni*, *Anderson Anat. Zool. Res.*, p. 551, pl. xlv (1878).

*Distribution*.—Only known from the Bay of Bengal.

- a. Skeleton mtd., }  
    ribs and one pec- }  
    toral arch re- }  
    stored in plaster. }  
                            Thaybyoo Choung, Gulf Sir A. Eden and Major  
                            of Martaban, Burma.      Duff.

[Type of *B. edeni*, Anderson.]

- b. Skeleton al-      Sidhi Isle, Noakholly      C. E. F. Tonnerre.  
    most com-      Dist., 1-90.

- c. Skull      Arakan Coast (Prof.      Medical Coll. Mus. [Ex.]  
                    Walker).

**Genus PHYSETER.**

*Physeter*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 107 (1766).

***Physeter macrocephalus*.**

*Physeter macrocephalus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 107 (1766);  
*Blyth J. A. S. B.*, xxix, p. 452; *Blyth Cat.* no. 287, p. 93; *Flower Trans.*  
*Zool. Soc.*, vi, p. 309, pls. lv, lvi; *Flower List Cetacea B. M.*, p. 8.

The Cachalot or Sperm Whale.

*Distribution*.—The temperate seas of the Northern and Southern Hemispheres; it has been recorded (*Blyth l.c.*) from the seas round Ceylon and the Malabar Coast; and a specimen about 24 feet long was washed ashore at Madras in January 1889, the skull of which has been preserved in the Madras Museum; the lower jaw contained 23 functional teeth and above imbedded in the gum were 12 rudimentary teeth on either side.

- |                |           |                            |
|----------------|-----------|----------------------------|
| a-c. 3 Teeth   | .....     | No history, A.S.B.         |
| d. Small tooth | .. ...    | R. C. Tytler, 1864, A.S.B. |
| e-f. 2 Teeth   | Australia | C. S. Guthrie, 1867.       |
| g. Tooth       | Mauritius | S. R. Elson.               |



Genus **KOGIA**.

*Kogia*, Gray *Zool. Ereb. and Terr.*, p. 22 (1846).

*Euphysetes*, Wall *Hist. and Descript. New Sperm Whale, Sydney* (1851)\*.

***Kogia breviceps***.

*Physeter breviceps*, Blainville *Ann. Anat. Phys.*, ii, p. 337 (1838)\*.

*Kogia breviceps*, Gray *Zool. Ereb. and Terr.*, p. 22 (1846); *Flower List Cetacea B. M.*, p. 9.

*Euphysetes grayi*, Wall *Hist. and Descript. New Sperm Whale, Sydney* (1851)\*.

*Euphysetes simus*, Owen *Trans. Zool. Soc.*, vi, p. 30, pls. x-xiv (1865).

*Distribution*.—The temperate and tropical seas of both hemispheres; was procured by Sir W. Elliot at Waltair near Madras.

[No specimens in the Indian Museum.]

Genus **PLATANISTA**.

*Platanista*, G. Cuvier *Oss. Foss.*, 3rd ed., v, pt. i, p. 279 (1824)\*

***Platanista gangetica***.

*Delphinus gangeticus*, Lebeck *N. Schrift. Ges. naturf. Freunde*, iii, p. 280 (1801)\*; *Roxburgh As. Res.*, vii, p. 170, pl. v; *Home Phil. Trans.*, 1818, p. 417, pl. xx; *Lesson Hist. Nat. Cétacés*, p. 215.

*Delphinus rostratus*, Shaw *Genl. Zool.*, ii, pt. 2, p. 514 (1801).

*Delphinus shawensis*, Blainville *N. Dict. d'Hist. Nat.*, ix, p. 153 (1817).

*Platanista gangetica*, G. Cuvier *Oss. foss.*, 3rd ed., v, pt. i, p. 279, pl. xxii, figs. 8 to 10, pl. xxiii, fig. 19 (1824)\*; *Gray Illustr. Ind. Zool.*, ii, pl. xxiv; *Cuvier Hist. Nat. Cét.*, pl. viii, fig. 2\*; *Fardine Nat. Libr. Mamm.*, vi, p. 254, pl. xxviii; *McClelland Calc. Journ. N. H.*, i, p. 425; *Eschricht Naturvid. Kong. danske, videns. Selskab.* (5), ii, p. 347\*; *Horsfield Cat. E. I. Mus.*, p. 139; *Eschricht Ann. Mag. N. H.*, (2) ix, pp. 161, 279, pls. v, vi, viii; *Blyth F. A. S. B.*, xxviii, p. 492; id. *Cat.* no. 286, p. 92; *Ferdon Mamm.* no. 144, p. 158; *Flower Trans. Zool. Soc.*, vi, p. 87; *Anderson Anat. Zool. Res.*, p. 417, pls. xxv, et ct.; *Flower List Cetacea B. M.*, p. 12.

*Platanista indi*, *Blyth F. A. S. B.*, xxviii, p. 493 (1859); id. *Cat.* no. 285, p. 92; *Ferdon Mammals*, no. 145, p. 159; *Murray Zool. Sind*, p. 40.

The Gangetic Dolphin; Susa, Sous, Sunsar in the Ganges; Bulhan in Sind; Hihoo, Sihoo, Huh in Assam.

*Distribution*.—The Ganges and its tributaries, including the Bramapootra and the Cachar Rivers and the Karnaphuli River of Chittagong; the Indus and its tributaries, all from their exit from the hills to their mouths.

a. Stuffed ♀

.....

A. Duvancel, A.S.B.

b. Stuffed ♀

.....

E. Blyth, 1843, A.S.B.

c. Stuffed juv.	♀	.....	E. Blyth, 1849, A.S.B.
d. Stuffed		Sutlej River	G. E. Wakefield, 1867.
e. Skeleton	♂	Hughli River, 19-7-66	J. Anderson.
f. Skeleton	♂	" " 12-8-66	J. Anderson.
g. Skeleton	♂	" " 16-8-66	J. Anderson.
h. Skeleton	♂	" " 23-8-66	J. Anderson.
i. Skeleton	♂	" " 12-2-67	J. Anderson.
k. Skeleton	♂	" " 13-2-67	J. Anderson.
l. Skeleton (skull in spirit).		" " 24-2-69	J. Anderson.
m. Skeleton		" " 29-10-76	J. Anderson.
n. Skeleton juv.	♂	" "	Coms. Police.
o. Skeleton juv.	♂	" "	J. Wood Mason.
p. Skeleton juv.	♂	" " 6-9-77	Purchased.
q. Skeleton juv.	♂	" " 4-4-79	Purchased.
r. i. 3 Skeletons ♂, ♂ juv. and ♀.		" "	Purchased.
u. Skeleton	♀	Bansi Creek, N.-W. of Dacca, 16-7-67.	A. L. Clay.
v. Skeleton		Gauhati, Assam, 4-12-69.	J. Butcher.
w. Skeleton juv.	♂	Cachar, 26-10-67	Sir J. Edgar.
x. Skeleton juv.		Indus River	Karachi Mus. [Ex.]
y-z. 2 Skeletons		.....	No history.
a <sup>2</sup> . pt. of skeleton.		.....	No history.
b <sup>2</sup> . Skeleton mtd.		Baraset, 5-8-67	H. Clark.
c <sup>2</sup> -d <sup>2</sup> . 2 Skulls		Hughli ?	N. Wallich, A.S.B.
e <sup>2</sup> . Skull juv.		Dacca	A. L. Clay.
f <sup>2</sup> . Skull		Chupra, Sarun Dist.	C. B. Garrett.
g <sup>2</sup> . Skull		Indus	Sir A. Burnes, A.S.B.

[Type of *P. indi* of Blyth.]

h<sup>2</sup>. Skull juv. .... No history.

#### Anatomical.

a<sup>3</sup>. Brain    b<sup>3</sup>. Cœcum    c<sup>3</sup>. Kidney.    d<sup>3</sup>. Generative organs.  
e<sup>3</sup>. Penis    f<sup>3</sup>. Placenta and foetal membranes.    g<sup>3</sup>. Skeleton in spirit.

#### Genus MONODON.

*Monodon*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 105 (1766).

**Monodon monoceros.**

*Monodon monoceros*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 105 (1766); *Blyth Cat.* no. 276, p. 90; *Flower P. Z. S.*, 1883, p. 504; id. *List Cetacea B. M.*, p. 14.

The Narwhal.

*Distribution*.—Arctic Seas, north of 65° N. lat.

- a. Skelet. mtd. Lancaster Sound (Capt. Dundee Mus. [Ex.]  
McLennan in Steam-  
whaler Narwhal, 7-76).
- b. Tooth ..... Capt. Lumsden, 1820,  
A.S.B.

**Genus DELPHINAPTERUS.**

*Delphinapterus*, *Lacépède Hist. Nat. Cétacés Tabl. des Ord.*, p. xli (1804)\*.  
*Beluga*, *Gray Spicleg. Zool.*, p. 2 (1828).

**Delphinapterus leucas.**

*Delphinus leucas*, *Pallas Reise*, iii, p. 85 (1776)\*.  
*Balaena albicans*, *O. F. Müller Zool. Dan. Prodr.*, p. 7 (1776)\*.  
*Delphinapterus beluga*, *Lacépède Hist. Nat. Cétacés*, p. 243 (1804)\*.  
*Beluga catodon*, *Gray Zool. Ereb. & Terr.*, p. 29 (1846); *Blyth Cat.* no. 275, p. 90.  
*Delphinapterus leucas*, *Flower P. Z. S.*, p. 505 (1883); id. *List Cetacea B. M.*, p. 14.

The White Whale.

*Distribution*.—Arctic Seas and perhaps the Australian coasts (*Delphinus kingi* of Gray).

- a. Skull Greenland Copenhagen Mus., 1840, A.S.B.

**Genus PHOCAENA.**

*Phocaena*, *G. Cuvier Regne Anim.*, 1st ed., i, p. 279 (1817).

**Phocaena communis.**

*Delphinus phocaena*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 108 (1766).  
*Phocaena communis*, *Lesson Man. Mamm.*, p. 413 (1827); *Blyth Cat.* no. 271, p. 88; *Flower P. Z. S.*, 1883, p. 505; id. *List Cetacea B. M.*, p. 15.

*Distribution*.—Coasts of the North Atlantic, both European and American, the species found in the North Pacific is probably distinct.

- a-b. 2 Skulls Greenland Copenhagen Mus. [Ex.]  
A.S.B.
- c. Skeleton Christiania Univ., A.S.B.

Genus **NEOMERIS.**

*Neomeris*, *Gray Zool. Erebus and Terr.*, p. 30 (1846).

***Neomeris phocaenoides.***

*Delphinus phocaenoides*, *G. Cuvier Reg. Anim.*, 2nd ed., i, p. 291 (1829)\*.  
*Delphinus melas*, *Temminck and Schlegel Faun. Jap. Mamm.*, p. 14, pls xxv, xxvi (1850).

*Neomeris phocaenoides*, *Gray Zool. Erebus and Terr.*, p. 30 (1846);  
*Blyth J. A. S. B.*, xxix, p. 449; id. *Cat.* no. 272, p. 89; *Flower P. Z. S.*, 1883, p. 506.

*Delphinapterus molagan*, *Owen Trans. Zool. Soc.*, vi, p. 24 (1869).

*Distribution.*—Is recorded from the seas of Japan, the Bay of Bengal and the Cape of Good Hope.

A second species from Karachi harbour which, however, does not seem to differ in any essential manner from the present species, has been described by Murray (*Ann. Mag. N. H.* (5), xiii, p. 348) under the name of *Neomeris kurrachiensis*, (see also *J. Bomb. N. H. Soc.*, i, p. 159, with plate).

<i>a.</i> Skeleton	♂	Bay of Bengal	Calcutta Bazaar [P.]	A.S.B.
<i>b.</i> Stuffed		.....	No history.	

Genus **ORCELLA.**

*Orcella*, *Gray Cat. Seals and Whales*, p. 285 (1866).

*Orcella*, *Anderson P. Z. S.*, p. 142 (1871).

*Synopsis of the two Indian Species.*

*a.* Dorsal fin lower and more falcate; pectoral fins shorter and broader. ***O. brevisrostris***, p. 318.

*a*<sup>2</sup>. Dorsal fin higher and less falcate; pectoral fin longer and narrower; skin marked with streaks.

***O. fluminalis***, p. 319.

***Orcella brevisrostris.***

*Globocephalus indicus*, [pt.], *apud Blyth J. A. S. B.*, xxi, p. 358 (1852);  
 id. *J. A. S. B.*, xxviii, p. 490; id. *Cat.* no. 274, p. 89; *Ferdon Mammals*, no. 146, p. 160.

*Phocaena brevisrostris*, *Owen Trans. Zool. Soc.*, vi, p. 24, pl. ix, figs. 1, 2, 3 (1866).

*Orca* (*Orcaella*), *brevirostris*, *Gray Cat. Seals Whales B. M.*, p. 285 (1866).

*Orcella brevisrostris*, *Anderson P. Z. S.*, p. 143 (1871); id. *Anat. Zool. Res.*, p. 369, pl. xxv, etct.; *Flower P. Z. S.*, 1883, p. 507; id. *List Cetacea, B. M.*, p. 17.

*Distribution.*—Estuaries of the rivers flowing into the Bay of Bengal, recorded from Vizagapatam, the Hughli and Singapore.

a. Stuffed, skull	Hughli R., Serampore	G. T. Lushington, A.S.B.
b. Skull	Chilka Lake, Orissa	L. Schwendler, 1875.
c. Skull	Chilka Lake, Orissa	W. C. Taylor.
d. Skull	Amherst beach, Burma	Deputy Commr., Amherst, 1867.
e. Skeleton	♂ Hughli River	River Police.
f. Skeleton	♀ Budge Budge, Hughli R.	Purchased.
g. Skeleton	♀ Circular Canal, Calcutta	J. F. Barckley.
h. Skeleton	Calcutta Bazaar	Purchased, 1859, A.S.B.
j. Skeleton	Kistna R., Madras Pr.	R. S. Ellis.
k. Skeleton	.....	Purchased, 1867.
l. Skeleton	♀ .....	Purchased.

### *Orcella fluminalis.*

*Orcella fluminalis*, *Anderson P. Z. S.*, p. 143 (1871); *id. Anat. Zool. Res.* p. 358, pl. xxva, etct; *Flower List Cetacea B. M.*, p. 17.

*Distribution.*—The Irrawaddy and its affluents, from Prome upwards extending to just beyond Bhamo.

a. Skeleton	♂ Bhamo	Capt. Bowers, 1870.
	[Type of <i>O. fluminalis</i> , Anderson.]	
b. Skeleton	♂ Bhamo	Capt. Cooke [P.]
c. Skeleton	Irrawaddy, above Bhamo.	Major Adamson.

### Genus **GLOBICEPHALUS.**

*Globicephalus Lesson Nouv. Tabl. Regn. Anim.*, p. 200 (1842).

### *Globicephalus melas.*

*Delphinus melas*, *Traill Nichol. Journ.*, xxii, p. 81 (1809)\*.  
*Delphinus globiceps*, *Cuvier Ann. Mus. Paris*, xix, p. 14, pl. i (1812).  
*Globiocephalus svineval*, *Gray Zool. Ereb. and Terr.*, p. 32 (1846).  
*Globicephalus deductor*, *apud Blyth Cat.* no. 273, p. 89 (1863).  
*Globicephalus melas*, *Flower List Cetacea B. M.*, p. 19 (1885).

*Distribution.*—Apparently Cosmopolitan; there are specimens in the British Museum from the English and American coasts in the Northern Hemisphere, and from the Falkland Islands and New Zealand in the Southern Hemisphere.

a. Skull	Greenland	Copenhagen Museum, 1840, A.S.B.
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### *Globicephalus indicus.*

*Globicephalus sp.*, *Blyth J. A. S. B.*, xix, p. 426 (1850).  
*Globicephalus indicus*, *Blyth J. A. S. B.*, xxi, p. 358 (1852); *id.*, *J. A. S. B.*, xxviii, p. 490; *id. Cat.*, no. 274, p. 89; *Ferdon Mammals* no. 146, p. 160.

*Distribution.*—Bay of Bengal.

The above synonymy also refers partly to what Blyth considered the young form of this species, but which was subsequently shown by Anderson to be really a different species (*Orcella brevisrostris*, see supra).

The skull of *Globicephalus indicus* differs from that of *G. melas*, in having the premaxillæ on the rostrum so broadened, as to cover the maxillæ completely; the teeth are also much larger and less numerous than in *G. melas*.

This is exactly the difference pointed out by Prof. Flower between the skull of *G. melas* and *G. macrorhynchus* (Gray Zool. Ereb. Terr., p. 33) which was got from the Cape of Good Hope.

To this broad-snouted group of the genus *Globicephalus*, there also belong *G. scammoni* Cope from the Pacific, and *G. brachypterus* Cope from the Atlantic coasts of the Southern States and also *G. guadaloupeensis* (= *G. intermedius*); True (Contributions to the Natural History of the Cetaceans in Bull. U. S. Nat. Mus. no. 36) considers that *G. scammoni* of the Pacific and *G. brachypterus* of the Atlantic differ specifically, and *G. indicus* seems to be rather more allied to the latter than to the former.

The following are the measurements of the two skulls of *G. indicus* and also of the one of *G. melas* above; the measurements are the same as those given by True in the paper quoted above and are given in centimetres.

	<i>G. indicus.</i>	<i>G. indicus.</i>	<i>G. melas.</i>
	<i>a</i>	<i>b</i>	<i>a</i>
Total length . . . . .	56½	65	69
Length of beak . . . . .	29½	33	36½
Breadth of beak, at its base . . . . .	23	28	24½
" " at its middle . . . . .	20½	25	21
Breadth of premaxillæ at middle of beak . . . . .	19	22	17
Greatest breadth between the outer margins of the premaxillæ proximally . . . . .	...	16½	16½
Length of tooth line . . . . .	15½	14	18
Last tooth to base of maxillary notch . . . . .	18	20	21
Extremity of beak to the anterior margin of the narial opening . . . . .	41	44½	49
Extremity of beak to the end of the pterygoid crest . . . . .	38	44	48
Breadth between the orbits . . . . .	41	47	43
Breadth between the hinder margins of the temporal fossæ . . . . .	27½	34	39
Length of the temporal fossæ . . . . .	12½	11½	13
Depth of the temporal fossæ . . . . .	14½	14½	10
Length of the mandible . . . . .	47	56	53
Length of mandibular symphysis . . . . .	8	9	8
Length of the mandibular tooth row . . . . .	13	13½	17½
Number of teeth . . . . .	$\frac{7}{8} \times \frac{7}{8}$	$\frac{7}{7} \times \frac{7}{7}$	$\frac{10}{11} \times \frac{10}{11}$

- a. Skeleton mtd. ♀ Salt Water Lakes, E. Blyth, 1850, A.S.B.  
Calcutta.
- b. Skull ♂ Salt Water Lakes, E. Blyth, 1850, A.S.B.  
Calcutta.
- [Types of *Globicephalus indicus*, Blyth.]
- c. Skull ..... No history.

### Genus LAGENORHYNCHUS.

*Lagenorhynchus*, *Gray Zool. Ereb. & Terr.*, p. 34 (1846).

#### *Lagenorhynchus acutus*.

- Delphinus acutus*, *Gray Spicileg. Zool.*, i, p. 2 (1828).
- Delphinus eschrichtii*, *Schlegel Abhan. Gebiet. Zool.*, i, p. 23, pls. i, ii, fig. 4, iv, fig. 5 (1841).
- Delphinus leucopleurus*, *Rasch Nyt Mag. Naturvidens.*, iv, p. 97, pls. ii, iii (1843).
- Lagenorhynchus leucopleurus*, *Gray Zool. Ereb. & Terr.*, p. 34 (1846); *Blyth Cat.* no. 281, p. 91.
- Leucopleurus arcticus*, *Gray Suppl. Cat. Seals and Whales*, p. 78 (1871).
- Lagenorhynchus acutus*, *Flower P. Z. S.*, p. 511 (1883); id. *List Cetacea B. M.*, p. 23.

*Distribution*.—North Atlantic and North Sea.

- a. Skeleton Norwegian Coast Christiania Univ. [Ex.],  
A.S.B.

#### *Lagenorhynchus electra*.

- Lagenorhynchus electra*, *Gray Zool. Ereb. & Terr.*, p. 35 (1846); *Flower List Cetacea B. M.*, p. 23.
- Phocaena pectoralis*, *Peale Mamm. and Ornith. U. S. Explor. Exped.*, 1st ed., p. 32, pl. vi, fig. i (1848)\*.
- Electra obtusa*, *Gray Suppl. Cat. Seals and Whales*, p. 76 (1871).
- Delphinus (Lagenorhynchus) fusiformis*, *Owen Trans. Zool. Soc.*, vi, p. 22, pl. v, fig. i (1856).

*Distribution*.—Bay of Bengal (Elliot) and Pacific (Sandwich Isles).

[No specimen in the Indian Museum.]

### Genus DELPHINUS.

*Delphinus*, *Linnæus Syst. Nat.*, 12th ed., i, p. 108 (1765).

#### *Delphinus delphis*.

- Delphinus delphis*, *Linnæus Syst. Nat.*, 12th ed., i, p. 108 (1776); *Flower P. Z. S.*, 1883, p. 512; id. *List Cetacea B. M.*, p. 24.

*Distribution.*—Cosmopolitan; there are in the British Museum specimens from the North and South Atlantic, and from the seas of New Zealand and Tasmania.

a. Skeleton	.....	No history, A.S.B.
b. Lower jaw only.	Indian Ocean	Purchased.
c. Lower jaw only.	Nicobar Isles	F. A. de Roepstorff.

[The above two probably of this species.]

### Delphinus frithi.

Delphinus sp., *Blyth* *ŷ. A. S. B.*, xvi, p. 386 (1847).

Delphinus frithi, *Blyth* *ŷ. A. S. B.*, xxviii, p. 492 (1859); *id. Cat.* no. 279, p. 91.

*Distribution.*—Probably the Indian Ocean.

This species, which is represented only by a skull, is closely allied to *Delphinus delphis*, it has the grooved palate characteristic of the genus as restricted by Flower; the teeth are not in good condition, many of them having fallen out; the number given by Blyth is  $\frac{52-55}{50-50}$  but it does not appear that there could ever have been more than 45 teeth above and below from the present state of the skull; the character by which Blyth thought to differentiate this species, namely, the fusing of the premaxillæ together in the middle of their length is probably merely due to age and is shown to be also the case in the specimen of *D. delphis* figured by Van Beneden and Gervais; there seems therefore to be no reason why this skull should not be referred to *D. delphis*; as, however, there is no authentic specimen of *D. delphis* in the Indian Museum with which to compare it, it will perhaps be better for the present to let Blyth's name stand.

a. Skull	Indian or Atlantic Oceans.	R. W. G. Frith, A.S.B.
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[Type of *D. frithi*, Blyth.]

### Delphinus pomeegra.

*Delphinus pomeegra*, *Owen Trans. Zool. Soc.*, vi, p. 23, pl. vi, fig. 3, pl. viii (1866); *Flower List Cetacea B. M.*, p. 26.

*Distribution.*—Bay of Bengal.

Probably conspecific with *D. delphis*.

[No specimen in the Indian Museum.]

### Delphinus longirostris.

*Delphinus longirostris*, *G. Cuvier Regn. Anim.*, 2nd ed., p. 228 (1829)\*  
*Van Beneden et Gervais Osteog. des Cetacés*, p. 604, pl. xxxix, figs. 10-11.



*Distribution.*—Malabar Coast.

This species is distinguished from *Delphinus delphis* by the number of its teeth  $\frac{65-65}{57-58}$ ; the beak forms 67·9 per cent. of the total length of the skull, a proportion never reached in any specimen of *D. delphis* (cf. True Bull. U. S. Nat. Mus., no. 36, p. 59).

[No specimen in the Indian Museum.]

### Genus TURSIOPS.

Tursiops, *Gervais Hist. Nat. Mamm.*, ii, p. 323 (1855)\*.

#### Tursiops tursio.

*Delphinus tursio*, *Fabricius Faun. Grænl.*, p. 49 (1780)\*.

*Delphinus truncatus*, *Montagu Mem. Wern. Soc.*, iii, p. 75, pl. iii (1821).

*Delphinus eurynome*, *Gray Zool. Ereb. and Terr.*, p. 38 (1846); *Blyth Cat.* no. 277, p. 90.

*Tursiops tursio*, *Flower P. Z. S.*, p. 512 (1883); *id. List Cetacea B. M.*, p. 26.

*Distribution.*—Atlantic and Indian Oceans extending to the Bay of Bengal.

There is a specimen identified by Prof. Flower with this species in the British Museum from the Seychelle Islands, so there is no reason that the two specimens catalogued below should not be identified with this species, though without direct comparison it is impossible to be certain.

a. Skull	.....	Medical College, Calcutta, A.S.B.
b. Skull	Bay of Bengal	Capt. Fairweather, A.S.B.
c. Skeleton	Port Natal	O. L. Fraser.

#### Tursiops perniger.

*Delphinus perniger*, *Blyth F. A. S. B.*, xvii, p. 250 (1848); *id. F. A. S. B.*, xxviii, p. 491; *id. Cat.* no. 280, p. 91; *Ferdon Mamm.*, p. 157.

*Distribution.*—The Bay of Bengal.

This species can never be properly identified as the type consists of a stuffed specimen and only about 8 inches of the beak of the skull; it is best assigned to *Tursiops*, from the typical specimens of which, however, it differs in the fact that the tooth row above is only about  $7\frac{1}{2}$  inches long, whereas in *Tursiops tursio* the measurement is between 9 and 10 inches; the teeth are large between 5 and 6mm. in antero-posterior diameter.

a. Stuffed and pt. of skull.	Bay of Bengal	Sir W. Elliot, A.S.B.
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[Type of *Delphinus perniger*, Blyth.]

Genus **PRODELPHINUS**.

Clymene, *Gray P. Z. S.*, p. 237 (1864).

Clymenia, *Gray Suppl. Cat. Seals and Whales*, p. 69 (1871).

Prodelphinus, *Van Beneden et Gervais Osteogr. des Cétacés*, p. 604 (1880).

**Prodelphinus obscurus.**

*Delphinus obscurus*, *Gray Spicileg. Zool.*, p. 2 (1828); *Blyth Cat.* no. 278, p. 90.

*Clymenia obscura*, *Flower P. Z. S.*, p. 512 (1883).

*Prodelphinus obscurus*, *Flower List Cetacea B. M.*, p. 28 (1885).

*Distribution*.—Southern seas; there are in the British Museum and in the Museum of the Royal College of Surgeons specimens from New Zealand, the Cape and the west coast of South America.

The skulls catalogued below certainly belong to the genus *Prodelphinus* as defined by Prof. Flower (*P. Z. S.*, 1883); they seem more nearly allied to *P. obscurus* than to any other species.

a. Skull	.....	No history, A.S.B.
b. Skull	Palk Straits, Ceylon	O. L. Fraser.

**Prodelphinus attenuatus.**

*Steno attenuatus*, *Gray Zool. Ereth. and Terr.*, p. 44, pl. xxviii (1846); *Blyth Cat.* no. 283, p. 92.

*Clymenia attenuata*, *Flower P. Z. S.*, p. 512 (1883).

*Prodelphinus attenuatus*, *Flower List Cetacea B. M.*, p. 30 (1885).

*Distribution*.—Indian Ocean, the Bay of Bengal to the Cape.

The specimens attributed to this species, bear a considerable resemblance to the specimens identified with the previous *P. obscurus*, but the rostra are considerably narrower and the teeth more numerous, being about  $\frac{38-40}{38-40}$  instead of  $\frac{30}{30}$ .

a. Skull	.....	No history, A.S.B.
b. Skull	Bay of Bengal	Capt. Jethro Fairweather, 1859, A.S.B.
c. Skull	Cape of Good Hope	R. C. Tytler, 1859, A.S.B.
d. Lower jaw	.....	C. Henry, A.S.B.
e-f. 2 Skulls, no lower jaws.	.....	No history, A.S.B.

Genus **STENO**.

*Steno*, *Gray Zool. Ereth. and Terr.*, p. 43 (1846).

**Steno rostratus.**

*Delphinus rostratus*, *Desmarest N. Dict. d' Hist. Nat.*, ix, p. 160 (1817).

*Delphinus frontatus* (pt.), *G. Cuvier Oss. foss.*, 2nd ed., v., pt. 1, p. 278, pl. xxi, figs. 7, 8 (1823)\*.

*Steno frontatus*, *Gray Zool. Ereb. and Terr.*, p. 43 (1846); *Blyth Cat.* no. 282, p. 91.

*Steno rostratus*, *Blyth F. A. S. B.*, xxviii, p. 491 (1859); *Flower P. Z. S.*, 1883, p. 513; id. *List Cetacea B. M.*, p. 31.

*Distribution.*—The Indian Ocean including the Red Sea and Bay of Bengal, the Southern Atlantic and Pacific Oceans.

a. Skull	Red Sea	J. Owen, 1844, A.S.B.
b. Skull	Nicobar Isles, Bay of Bengal.	H. Lewis, 1846, A.S.B.
c. Skull	"Calcutta Bazaar"	J. Armstrong.

### Genus SOTALIA.

*Sotalia*, *Gray Cat. Seals and Whales*, p. 393 (1866).

#### *Sotalia gadamu.*

*Delphinus* (*Steno*) *gadamu*, *Owen Trans. Zool. Soc.*, vi, p. 17, pl. iii, figs. 1-2, pl. iv, figs. 1-5 (1866).

*Sotalia gadamu*, *Flower P. Z. S.*, p. 513 (1883); id. *List Cetacea B. M.*, p. 33.

*Distribution.*—Indian Seas (Vizagapatam and Karachi).

The teeth of the specimen catalogued below are about 33 in number, while those of the type of *S. gadamu* are rather fewer, being only 27-28.

a. Skull, no lower jaw	.....	No history, A.S.B.
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#### *Sotalia plumbea.*

*Delphinus plumbeus*, *G. Cuvier Reg. Anim.*, 2nd ed., i, p. 283 (1829)\*; *Ferdon Mamm.*, no. 143, p. 157; *Murray Zool. Sind*, p. 39.

*Sotalia plumbea*, *Flower List Cetacea B. M.*, p. 32 (1885).

*Distribution.*—Is recorded from the Malabar Coast and from Sind.

[No specimen in the Indian Museum.]

#### *Sotalia lentigenosa.*

*Delphinus* (*Steno*?) *lentigenosus*, *Owen Trans. Zool. Soc.*, vi, p. 20, pl. v, figs. 2, 3 (1866); *Sterndale F. Bomb. N. H. Soc.*, ii, p. 51.

*Sotalia lentigenosa*, *Flower List Cetacea B. M.*, p. 33 (1885).

*Distribution.*—Bay of Bengal (Vizagapatam, Elliot).

[No specimen in the Indian Museum.]

## Order SIRENIA.

Mammals of herbivorous and aquatic habits, with an almost hairless skin, a horizontal flattened caudal fin and an odontoid process; no sacrum; the capitulum of the rib articulates with the centrum of the vertebra; no claws; fore-limbs paddle-shaped with rudimentary nails; digits never provided with more than three phalanges; no trace of hind-limbs; brain-case cylindroidal; the parietals meet in a sagittal suture; the rami of the mandible have a high ascending portion (in these two points differing from Cetacea); frontals with large supra-orbital processes; nasals aborted; salivary glands well developed; a cæcum present; testes abdominal; mam-mæ pectoral.

## Genus HALICORE.

Halicore, *Illiger Prodr.*, p. 140 (1811).

## Halicore dugong.

*Trichechus dugong*, *Erzleben Syst. Reg. Anim.*, p. 599 (1777).

*Halicore dugong*, *Illiger Prodr.*, p. 140 (1811); *Gray Illustr. Ind. Zool.*, ii, pl. xxiii; *Horsfield Cat. E. I. Mus.*, p. 139; *Blyth Cat.* no. 461, p. 143; *Ferdon Mamm.*, no. 240, p. 311; *Blyth F. A. S. B.*, xlv, *Burma List*, p. 53; *Nevill Taprobanian*, i, p. 2.

*Halicore indicus*, *Desmarest Mamm.*, p. 509 (1822); *Cantor F. A. S. B.*, xv, p. 274; *Kelaart Prodr. Faun. Zeylan.*, p. 89; *Blyth F. A. S. B.*, xxviii, p. 494.

*Halicore tabernaculi*, *Rüppell and Sömmerring Mus. Senckenb.*, i, p. 99, pl. vi (1834).

*Distribution.*—The coasts of the Indian Ocean from Mozambique to the Red Sea, Malabar, Ceylon, Andamans and Tenasserim to Singapore.

The Australian species was separated by Owen, chiefly on account of the fact that it possessed 24 instead of 20 molar teeth, this does not seem to be a constant difference, as both species exceptionally develop 6 molars instead of 5.

There seem to be, however, other distinctions, some of which were noticed by Owen, these distinctions have been ignored by modern writers by whom all the Dugongs are included under one specific name. If an Australian skull be compared with an Andamanese one of approximately the same age, it will be found that the very large external nasal opening is in the Australian skull distinctly heart-shaped, the sides of the opening forming a continuous curve; in the Andamanese skull the opening is pear-shaped, the sides of the opening bulging forward anteriorly so as to constrict the opening; in the Australian skull too, the anterior projection of the frontal bones which, with the premaxillæ and the maxillæ

form the side wall of nasal opening, is very much more prominent and raised up than in the Andaman species.

As was pointed out by Owen, the scapula of the two forms also presents several points of distinction, the coracoid process is much more developed in the Australian species than in the Andaman form, the notch between the coracoid process and the anterior part of the blade is also strongly developed in the Australian, whereas in the Indian species there is hardly any notch at all; the curve of the posterior edge of the blade is very much greater in the Andaman than in the Australian example; the acromion too is much higher and bigger in the Andamanese form.

Curiously enough the skull entered in Blyth's Catalogue under the number 462B, and believed by him to be the skull of an Australian specimen, agrees in every way with the Andamanese species in the Museum, and has therefore been entered here under the name of *H. dugong*; it is very possible that there has been some mistake in the locality of the skull in question.

It seems to be generally acknowledged that the Red Sea form, (*H. tabernaculi* of Rüppell) is indistinguishable from the Indian species.

a. Skeleton	♂ Andamans	E. H. Man [P.]
b. Skeleton (fœtus).	.....	No history.
c. Skull	Port Blair, Andamans	Col. Ford, 1867.
d. Skull	Nicobars	F. A. deRoepstorff.
e. Lower jaw	Nicobars, Andamans	F. A. deRoepstorff.
f. Lower jaw	Andamans	R. C. Tytler, A.S.B.
g. Skull	Gulf of Carpentaria ?	Dr. R. Tytler, A.S.B.
h. Skull	.....	Purchased.

### *Halicore australis.*

*Halicore australis*, Owen in *Fukes Voyage of H.M.S. Fly*, ii, p. 323 (1847).  
*Halicore dugong*, var. *australis*, Collett *Zool. J. B.*, ii, p. 85t (1887).

*Distribution.*—Coasts of Australia.

a. Stuffed and skeleton mtd.	Queensland	Brisbane Mus. [Ex.]
b. Skeleton	Queensland	Purchased.

## Order EDENTATA

The Order Edentata is a very polymorphic one and not easily defined; the forms included in it have, however, the following points of structure in common; teeth present or absent, when present, consisting of molars only, and springing from persistent pulps devoid of enamel.

The only genus represented in the Indian Empire is *Manis*, which is characterised by being covered externally by large imbricated horny scales; no teeth; tongue long, vermiform and protractile; limbs short, with five complete digits to each foot; a dif-fused and non-deciduate placenta.

### Genus **CHOLOPUS.**

*Cholœpus*, *Illiger Prodr.*, p. 108 (1811).

#### **Cholopus didactylus.**

*Bradypus didactylus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 51 (1766).  
*Cholœpus didactylus*, *Illiger Prodr.*, p. 108 (1811); *Gray Cat. Carn. Mamm.*, p. 363.

*Distribution.*—Brazil and Guiana.

u. Skin, skull ♂ ..... Zoological Gardens.  
and bones.

#### **Cholopus hoffmanni.**

*Cholœpus hoffmanni*, *Peters Monatsber. Akad. Berlin*, p. 128 (1858); *Gray Cat. Carn. Mamm.*, p. 363; *P. L. Sclater P. Z. S.*, 1872, p. 861, pl. lxxii; *Alston Biol. Centr.-Amer. Mamm.*, p. 186.

*Distribution.*—Central and South America from Costa Rica to Ecuador.

a. Skeleton ..... Purchased.  
mtd.

### Genus **MYRMECOPHAGA.**

*Myrmecophaga*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 51 (1766).

#### **Myrmecophaga jubata.**

*Myrmecophaga jubata*, *Linnaeus Syst. Nat.*, 12th ed. i, p. 52 (1766); *Blyth Cat.*, p. 178; *Alston Biol. Centr. Amer.-Mamm.*, p. 191.

*Distribution.*—America from Guatemala to Paraguay.

a. Stuffed ..... A. D. Bartlett, A.S.B.

### Genus **TATUSIA.**

*Tatusia*, *Lesson Man. Mamm.*, p. 309 (1827).

**Tatusia novemcincta.**

*Dasyopus novemcinctus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 54 (1766).

*Dasyopus peba*, *Desmarest Mamm.*, p. 368 (1822).

*Dasyopus fenestratus*, *Peters Monatsber. Akad. Berlin*, p. 180 (1864).

*Tatusia peba*, *Gray Cat. Carn. Mamm.*, p. 377 (1869).

*Tatusia novemcincta*, *Alston Biol. Centr.-Amer. Mamm.*, p. 188, pl. xx (1882).

*Distribution*.—America from Texas southwards to Paraguay.

*a. Alc.* ..... British Mus. [Ex.].

**Genus DASYPUS.**

*Dasyopus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 53 (1766).

*Euphractus*, *Wagler Nat. Syst. Amphib.*, p. 36 (1830).

***Dasyopus sexcinctus*.**

*Dasyopus sexcinctus*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 54 (1766); *Gray Cat. Carn. Mamm.*, p. 381.

*Dasyopus encoubert*, *Desmarest Mamm.*, p. 370 (1822).

*Distribution*.—Brazil and Paraguay.

<i>a. Stuffed</i>	Brazil	E. Blyth, 1865.
<i>b. Skelet. mtd. ♂</i>	.....	W. Rutledge.
<i>c. Skeleton and carapace.</i>	.....	Zoological Gardens.
<i>d. Skeleton ♂</i>	.....	Rajah R. Mullick.

**Genus MANIS.**

*Manis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 52 (1766).

*Pholidotus*, *Gray P. Z. S.*, p. 365 (1865).

*Synopsis of Indian Species.*

- a.* Tail the same length as the body or rather shorter.  
*b.* Scales very large and light olive coloured; 11 to 13 longitudinal rows on the trunk; a mesial line of 14 on the tail.

**M. pentadactyla**, p. 330.

- b*<sup>2</sup>. Scales smaller and very dark; 15 to 18 longitudinal rows on the trunk; a mesial line of 16 to 20 scales on the tail.

**M. aurita**, p. 330.

- a*<sup>2</sup>. Tail rather longer than the body; scales very dark; 19 longitudinal rows on the trunk; and as many as 30 in the mesial line of the tail.

**M. javanica**, p. 331.

### Manis pentadactyla.

- Manis pentadactyla, *Linnaeus Syst. Nat.*, 12th ed., i, p. 52 (1766) [in part]; *Sykes' P. Z. S.*, 1831, p. 104; *Blyth J. A. S. B.*, xi, p. 453; *Turner P. Z. S.*, 1851, p. 219; *Blyth J. A. S. B.*, xxi, p. 351; *Horsfield Cat. E. I. Mus.*, p. 196; *Blyth Cat.*, p. 179; *Ferdon Mamm.*, no. 241, p. 314; *McMaster Notes on Ferdon*, p. 132; *Anderson Anat. Zool. Res.*, p. 341, pl. xxiv, figs. 1 and 2.
- Manis brachyura, *Erzleben Syst. Reg. Anim.*, i, p. 98 (1777) [in part]; *Gray Illustr. Ind. Zool.*, ii, pl. xxii; *Blyth J. A. S. B.*, xx, p. 175.
- Manis crassicaudata, *Et. Geoff. St. Hil. Cat. Mamm., Mus. Hist. Nat.*, p. 213 (1803)\*; *Elliot Madras Journ.*, x, p. 218; *Tickell J. A. S. B.*, xi, p. 221 with plate; *Kelaart Prodr. Faun. Zeylan.*, p. 74; *Fentink Notes Leyd. Mus.*, iv, p. 203.
- Manis indicus, *Lesson Hist. Nat. Mamm.*, iv, p. 520 (1834) [in part].
- Manis laticauda, *Sundevall Kongl. Vetens. Akad. Handl.*, p. 258 (1842)\*.
- Pholidotus indicus, *Gray Cat. Carn. Mamm.*, p. 373 (1869); *Murray Zool. Sind*, p. 60.

The Scaly Ant Eater or Manis; Hind. and Sanskrit, Bajar-kit, Bajrakapta, Sillu, Sukunkhor; Kols, Armoi; Mahratta, Kaulimah; Telegu, Alawa; Mal., Alangu; Deccan, Banrohu (= Jungle carp); Bengal, Kot-pohu; Sind, Chulla Mirron; Cingalese, Caballaya.

*Distribution.*—Throughout India and Ceylon, from Sind in the west to Cuttack in the east, not extending into Lower Bengal, or found in the Himalayas.

a-b.	2 Skins	Shahbunder, Sind,	Karachi Mus. [Ex.]
c.	Skin	.....	E. I. Mus., London.
d.	Skin	.....	Purchased, 1871.
e.	Skin, skele- ton ♀	.....	Zoological Gardens.
f.	Skin, skull, bones ♀	.....	Zoological Gardens.
g.	Skin, skull, bones ♂	.....	Zoological Gardens.
h.	Alc. ♀	.....	Zoological Gardens.
j.	Alc. ♀	Chittagong ?	Zoological Gardens.
k.	Fœtus of "e"	.....	Zoological Gardens.
l.	Alc. fœtus	.....	Zoological Gardens.
m.	Skull	Ceylon	E. F. Kelaart, A.S.B.
n-o.	2 skulls	.....	No history, A.S.B.
p.	Stuffed	Chybassa	S. R. Tickell, 1842, A.S.B.
q.	Stuffed	.....	A. Masters, A.S.B.
r.	Skelet. mted.	.....	R. W. G. Frith, 1848, A.S.B.
s.	Skull	.....	No history.

### Manis aurita.

- Manis pentadactyla, *Linnaeus Syst. Nat.*, 12th ed., i, p. 52 (1766) [in part]; *Cantor Ann. Mag. N. H.*, ix, p. 275 (1842); *Gray Cat. Hodgs. Coll.*, 1st ed., p. 36; *Blyth J. A. S. B.*, xxix, p. 93.
- Manis aurita, *Hodgson J. A. S. B.*, v, p. 234 (1836); *id. J. A. S. B.*, x, p. 911; *Blyth Cat.*, p. 179; *Ferdon Mamm.*, p. 316; *Anderson Anat. Zool. Res.*, p. 352, pl. xxiv, figs. 3, 4; *Fentink Notes Leyd. Mus.*, iv, p. 202.



*Manis brachyura*, *apud M'Clelland P. Z. S.*, p. 183 (1830).

*Manis dalmanni*, *Sundevall Kongl. Vetens. Akad. Handl.*, p. 256, pl. iv, fig. 10 (1842)\*; *Swinhoe P. Z. S.*, 1870, pp. 236 and 650.

*Manis javanica*, *apud Adams P. Z. S.*, p. 133 (1859); *Blyth f. A. S. B.*, xxix, p. 449.

*Pholidotus dalmanni*, *Gray Cat. Carn. Mamm.*, p. 371 (1869). \*

*Distribution.*—The Himalayas from Nepal to Assam, Upper Burma at considerable elevations, Yunnan and Southern China, including the Islands of Formosa and Hainan.

<i>a.</i> Skin	Sikkim	T. C. Jerdon, A.S.B.
<i>b-c.</i> 2 Skins	Sikkim	L. Mandelli.
ad. and juv.		
<i>d.</i> Skin	Himalayas	W. Theobald, A.S.B.
<i>e.</i> Skin juv.	Samagooting, Assam.	J. Butler, 1872.
<i>f-j.</i> 4 Skins	Momien, Yunnan, 6,000 ft., 6-68.	J. Anderson.
<i>k-l</i> 2 Skins	Sanda Valley, Yunnan, 4,000 ft., 7-68.	J. Anderson.
<i>m.</i> Skin	Hotha Valley, Yunnan, 5,000 ft., 8-68.	J. Anderson.
<i>n.</i> Skin	Kakhyen hills, 3,400 ft., 4-68.	J. Anderson.
<i>o-p.</i> 2 Skins	Kakhyen hills, 3,400 ft., 4-68.	J. Anderson.
<i>q.</i> Skin	♀ Mantin, Kakhyen hills, 19-1-75.	J. Anderson.
<i>r.</i> Skin	Tsitkaw, Kakhyen hills, 16-2-75.	J. Anderson.
<i>s.</i> Skin, skull and bones	.....	Zoological Gardens.
<i>t.</i> Skin, skele- ton	.....	Zoological Gardens.
<i>u.</i> Skin, skeleton	♂ "China"	W. Rutledge.
<i>v.</i> Alc.	Hotha, Yunnan.	J. Anderson.
<i>w-x.</i> 2 Stuffed	Momien, 6,000 ft., 6-68	J. Anderson.
<i>y.</i> Skeleton	♀ Kakhyen hills, Burma, 19-1-75.	J. Anderson.
<i>z.</i> Skull	Yunnan	J. Anderson.
<i>a</i> <sup>2</sup> . Skull	China	R. Swinhoe, A.S.B.
<i>b</i> <sup>2-f</sup> <sup>2</sup> . 5 Skulls	.....	No history.

### *Manis javanica.*

*Manis javanica*, *Desmarest Mamm.*, p. 377 (1822); *Cantor f. A. S. B.*, xv, p. 259; *Blyth f. A. S. B.*, xvi, p. 1274; *Müller Over de Zoogdieren in Tem. Verhandl.*, p. 37; *Sundevall Kongl. Vetens. Akad. Handl.*, 1842, p. 254, pl. iv, fig. 11\*; *Turner P. Z. S.*, 1851, p. 219; *Horsfield Cat. E. I. Mus.*, p. 197; *Blyth Cat.*, p. 179; *Anderson Anat. Zool. Res.*, p. 352, pl. xxiv, figs. 5 and 6; *Fentink Notes Leyd. Mus.*, iv, p. 199; *Thomas P. Z. S.*, p. 72, 1886; *Anderson f. Linn. Soc.*, xxi, p. 342  
*Manis pentadactyla*, *apud Raffles Linn. Trans.*, xiii, p. 249 (1822).

- Manis leptura*, *Blyth Z. A. S. B.*, xi, p. 454 (1842); *id. Z. A. S. B.*, xvi, p. 1273; *id. Cat.*, p. 180.  
*Manis aspera*, *Sundevall Kongl. Vetensk. Akad. Handl.*, p. 213 (1842)\*.  
*Manis leucura*, *Blyth Z. A. S. B.*, xvi, p. 1274 (1847); *id. Z. A. S. B.*, xxx, p. 91; *id. Z. A. S. B.*, xlv, *Burma List*, p. 53.  
*Manis guy*, *Focillon Rev. Mag. Zool.*, (2), ii, p. 513, pl. x (1850).  
*Pholidotus javanus*, *Gray Cat. Carn. Mamm.*, p. 370 (1869).

Malayan, Pangolin; Burmese, Theng-khwe-khyat.

*Distribution.*—Burma from Arakan to Mergui, including Upper Burma, where it replaces *M. aurita* in the plains, the Malay Peninsula, Sumatra, Java, Borneo, and Celebes.

a. Skin	Bhamo, Burma, 600 feet,	J. Anderson.
	2-68.	
b. Skin	juv. Thaing Padan, Mergui,	J. Anderson.
	8-2-82.	
c. Skin, skull	Java	Batavian Soc., 1844, A.S.B.
d. Skin, skull	.....	No history, A.S.B.
[Type of <i>Manis leptura</i> , Blyth.]		
e. Alc. fœtus	.....	A.S.B.
f-h. 3 Stuffed	Arakan	Sir A. Phayre, A.S.B.
j. Skeleton	.....	No history.
k-l. 2 Skulls	.....	No history.

### Genus **ORYCTEROPUS.**

*Orycteropus*, *Geoffroy St. Hil. Decade Philosophique*, (1795)\*.

#### **Orycteropus capensis.**

- Myrmecophaga afra*, *Pallas Miscell. Zool.*, p. 64 (1778)\*.  
*Myrmecophaga capensis*, *Gmelin Syst. Nat.*, i, p. 53 (1788).  
*Orycteropus capensis*, *Blyth Cat.*, p. 178 (1863).

*Distribution.*—South Africa.

a. Stuffed	South Africa	E. L. Layard, A.S.B.
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### Order **MARSUPIALIA.**

This Order is entirely confined to the Australian and Neotropical Regions, so no definition is given.

Mr. Thomas' recent Catalogue of the Marsupialia and Monotremata in the British Museum has been rigidly adhered to in the following pages, and for full synonymy reference should be made to that work.

### Genus **MACROPUS.**

*Macropus*, *Shaw Nat. Misc.*, i, text to pl. xxxiii (1790).

**Macropus giganteus.**

- Yerboa gigantea*, *Zimmerman Spec. Geogr. Quad.*, p. 526 (1777).  
*Macropus giganteus*, *Shaw Nat. Misc.*, i, pl. xxxiii (1790); *Blyth Cat.*, p. 183; *Thomas Cat. Mars. B. M.*, p. 15.  
*Macropus major*, *Shaw Gen. Zool.*, i, pt. ii, p. 505 (1800); *Gould Mamm. Austr.*, ii, pls. i, ii.

*Distribution.*—Australia generally, except the extreme north.

a. Skin	.....	No history, A.S.B.
b. Stuffed ♀	.....	Bengal Econ. Mus.
c. Stuffed, skelet.	.....	Barrackpore Menagerie,
- mted. juv. ♂		1847, A.S.B.
d. Skeleton ♂	.....	Rajah R. Mullick.
e. Skeleton ♂	.....	Barrackpore Menagerie.
f. Skeleton ♀	.....	Rajah R. Mullick.
g. Skull	.....	N. Wallich, A.S.B.
h. Stuffed juv.	.....	Bengal Econ. Mus.

**Macropus rufus.**

- Kangurus rufus*, *Desmarest Mamm. Suppl.*, p. 541 (1822).  
*Macropus laniger*, *Lesson Man. Mamm.*, p. 226 (1827).  
*Macropus rufus*, *Bennett Cat. N.H. Austr. Mus.*, p. 6 (1837)\*; *Thomas Cat. Mars. B. M.*, p. 25.  
*Osphranter rufus*, *Gould Mamm. Austr.*, ii, pls. vi, vii (1853).

*Distribution.*—Eastern, South-Eastern and South Australia.

a. Stuffed ♀	.....	Purchased, 1886.
b. Stuffed ♂	Cachlan R., N. S. Wales	Bengal Econ. Mus.
c. Skeleton ♂	.....	W. Rutledge.
d. Skeleton	South Australia	Adelaide Mus. [Ex.]
e. Skin, skele- ton juv. ♀	.....	W. Rutledge.

**Macropus ualabatus.**

- Kangurus bruni*, *apud Desmarest N. Dict. d'Hist. Nat.*, (2), xvii, p. 42 (1817).  
*Kangurus ualabatus*, *Lesson et Garnot Voy. Coquille Zool.*, i, p. 161, pl. vii (1826).  
*Macropus ualabatus*, *Lesson Man. Mamm.*, p. 227 (1827); *Thomas Cat. Mars. B. M.*, p. 30.  
*Halmaturus ualabatus*, *Gray App. Grey Travels Austr.*, ii, p. 402 (1841)\*; *Blyth Cat.*, p. 184; *Gould Mamm. Austr.*, ii, pls. xxii, xxiii.

*Distribution.*—New South Wales and Victoria.

a. Stuffed	N. S. Wales	W. Rutledge.
b. Skeleton	.....	Zoological Gardens.
c. Skull	.....	No history, A.S.B.
d. Skeleton ♂	.....	No history, 1867.

**Macropus ruficollis.***Var. A.—typicus.*

- ? *Halmaturus kingii*, *Illiger Abh. Akad. Berl.*, 1811, p. 102 (1815).  
*Kangurus ruficollis*, *Desmarest N. Dict. d'Hist. Nat.*, (2), xvii, p. 37 (1817).  
*Halmaturus ruficollis*, *Golfuss Isis*, p. 267 (1819); *Gould Mamm. Austr.*, ii, pls. xiv, xv.  
*Macropus ruficollis*, *Lesson Man. Mamm.*, p. 226 (1827); *Thomas Cat. Mars. B. M.*, p. 32.

*Var. B.—bennettii.*

- ? *Macropus albus*, *Gray Spicileg. Zool.* ii, p. 10 (1830).  
*Macropus bennettii*, *Waterhouse P. Z. S.*, p. 103 (1837).  
*Halmaturus bennettii*, *Gould Monog. Macrop.*, pl. vii (1841)\*; *id. Mamm. Austr.*, ii, pls. xvi, xvii; *Blyth Cat.*, p. 184.  
*Macropus ruficollis*, var. *bennettii*, *Thomas Cat. Mars. B. M.*, p. 34 (1888).

*Distribution.*—The typical variety is found in New South Wales and Victoria; var. *bennettii* is confined to Tasmania.

*Var. A.—typicus.*

a. Stuffed	♀	.....	Bengal Econ. Mus.
b. Skull	♂	.....	W. Rutledge, 1872.
c. Skull		.....	No history.

*Var. B.—bennettii.*

a. Stuffed, skull	♀	.....	A. Grote, 1862, A.S.B.
b. Skeleton mtd.	Tasmania	.....	No history, A.S.B.
c. Skeleton		.....	No history, A.S.B.

**Macropus dorsalis.**

- Halmaturus dorsalis*, *Gray Charlesw. Mag. N. H.*, i, p. 583 (1837); *Gould Mamm. Austr.*, ii, pls. xxvi, xxvii.  
*Macropus dorsalis*, *Waterhouse Cat. Mamm. Mus. Zool. Soc.*, p. 67 (1838); *Thomas Cat. Mars. B. M.*, p. 37.

*Distribution.*—Inland districts of Queensland and New South Wales.

a. Stuffed	♂	.....	Brisbane Mus. [Ex.]
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**Macropus agilis.**

- Halmaturus agilis*, *Gould P. Z. S.*, p. 81 (1841); *id. Mamm. Austr.*, ii, pls. xxiv, xxv.  
*Macropus agilis*, *Giebel Odontogr.*, p. 43 (1855); *Thomas Cat. Mars. B. M.*, p. 42.

*Distribution.*—South-Eastern New Guinea, Northern Territory and Queensland.

a. Skin, skull ..... Calcutta Exhibition.

### Macropus thetidis.

Halmaturus thetis, *Lesson Man. Mamm.*, p. 229 (1827).

Halmaturus thetidis, *F. Cuvier Nat. Hist. Mamm.* livr., lvi, with plate (1829); *Gould Mamm. Austr.*, ii, pls. xxxi, xxxii.

Macropus thetidis, *Giebel Odontogr.*, p. 43 (1855); *Thomas Cat. Mars. B. M.*, p. 52.

Halmaturus ruficollis, *apud Blyth Cat.*, p. 184 (1863).

*Distribution.*—South Queensland, New South Wales and Victoria.

a. Stuffed ♂ ..... Sydney Institution, 1841, A.S.B.

♂ b. Skin, skull ..... Maharajah of Burdwan, A.S.B.

### Macropus eugenii.

Kangurus eugenii, *Desmarest N. Dict. d'Hist. Nat.*, (2), xvii, p. 38 (1817).

Macropus eugenii, *Lesson Man. Mamm.*, p. 227 (1827); *Thomas Cat. Mars. B. M.*, p. 54.

Halmaturus derbianus, *Gray Charlesw. Mag. N. H.*, i, p. 583 (1837); *Gould Mamm Austr.*, ii, pls. xxix, xxx.

*Distribution.*—Western and Southern Australia.

a. Skin, skull ♂ South Australia Adelaide Mus. [Ex.]

b. Stuffed ♀ ..... W. Rutledge.

c. Alc. .... Brisbane Mus. [Ex.]

### Macropus billardieri.

Kangurus billardieri, *Desmarest Mamm. Suppl.*, ii, p. 542 (1822).

Macropus billardieri, *Lesson Man. Mamm.*, p. 227 (1827); *Thomas Cat. Mars. B. M.*, p. 58.

Halmaturus billardieri, *Gould Monog. Macrop.*, pl. x (1841)\*; *id. Mamm. Austr.*, ii, pls. xxxv, xxxvi.

*Distribution.*—South-Eastern South Australia, Victoria and Tasmania.

a. Skin, skeleton ..... W. Rutledge.

♂ b. Skin, skull ..... W. Rutledge.

c. Skin, skull N. S. Wales Calcutta Exhibition.

### Macropus brachyurus.

Kangurus brachyurus, *Quoy et Gaimard Astrolobe Zoologie*, i, p. 114, pl. xix (1830).

*Macropus brachyurus*, *Lesson Hist. Nat. Mamm.*, v, p. 378 (1836); *Thomas Cat. Mars. B. M.*, p. 60.

*Halmaturus brachyurus*, *Gray App. Grey Travels Austr.*, ii, p. 403 (1841)\*; *Gould Mamm. Austr.*, ii, pls. xxxvii, xxxviii.

*Distribution*.—Western Australia.

a. Skull ..... No history, A.S.B.

### Genus PETROGALE.

*Heteropus*, *Fourdan Compt. Rend.*, v, p. 522 (1837).

*Petrogale*, *Gray Charlesw. Mag. N. H.*, i p. 583 (1837).

### *Petrogale xanthopus*.

*Petrogale xanthopus*, *Gray P. Z. S.*, p. 249, pl. xxxix (1854); *Gould Mamm. Austr.*, ii, pls. xliii, xliiv; *Thomas Cat. Mars. B. M.*, p. 64.

*Distribution*.—South Australia.

a. Skin	S. Australia	Adelaide Mus.
b. Skin	♀ S. Australia	Adelaide Mus.
c. Skin	.....	Purchased, 1867.
d. Skin, skeleton.	.....	W. Rutledge, 1859.
e. Stuffed	♂	W. Rutledge, 1869.
f. Skull	♂ S. Australia	Adelaide Mus.
g. Skull	.....	Maharajah of Burdwan, A.S.B.

### *Petrogale penicillata*.

*Kangurus penicillatus*, *Gray Griffith Anim. Kingd.*, v, p. 204 (1827).

*Macropus penicillatus*, *Bennett P. Z. S.*, p. 1 (1835).

*Heteropus albogularis*, *Fourdan Comptes Rend.*, v, p. 522 (1837).

*Petrogale penicillata*, *Gray Charlesw. Mag. N. H.*, i, p. 583 (1837); *Gould Mamm. Austr.*, ii, pls. xxxix, xl; *Thomas Cat. Mars. B. M.*, p. 66.

*Distribution*.—Eastern Australia, Queensland to Victoria.

a. Skin, skull	♂	.....	Purchased.
b. Skin, skull	♀	.....	Purchased.

### Genus ONYCHOGALE.

*Onychogalea*, *Cray App. Grey's Travels Austr.*, ii, p. 402 (1841)\*.

### *Onychogale frenata*.

*Macropus fraenatus*, *Gould P. Z. S.*, p. 92 (1840); *Blyth Cat.*, p. 184.

*Onychogalea fraenata*, *Gray List Mamm. B. M.*, p. 88 (1843); *Gould Mamm. Austr.*, ii, pl. liv.

*Onychogale frenata*, *Thomas Cat. Mars. B. M.*, p. 75 (1888).

*Distribution.*—Eastern Australia from Queensland to Victoria.

a. Stuffed	.....	Melbourne Inst., 1862, A.S.B.
b. Stuffed	♂	Bengal Econ. Mus.
c. Skull	.....	No history, A.S.B.

### Onychogale lunata.

*Macropus lunatus*, *Gould P. Z. S.*, p. 93 (1840).  
*Onychogale lunata*, *Gould Mamm. Austr.*, ii, pl. lv (1849); *Thomas Cat. Mars. B. M.*, p. 77.

*Distribution.*—South and West Australia.

a. Skin	S. Australia	Adelaide Mus. [Ex.]
b. Skeleton	juv. Yorke Peninsula, S. Australia.	Adelaide Mus. [Ex.]
c. Skull	S. Australia	Adelaide Mus. [Ex.]

### Genus DORCOPSIS.

*Dorcopsis*, *Schlegel and Müller Tem. Verhandl.*, p. 130 (1839-44).

### Dorcopsis mülleri.

*Kangurus veterum*, *Lesson et Garnot Voy. Coquille Zool.*, i, p. 164 (1826).  
*Didelphys bruni*, *apud Quoy et Gaimard Astrolobe Zoologie*, i, p. 116 (1830).  
*Dorcopsis bruni*, *Schlegel and Müller Tem. Verhandl.*, p. 131, pls. xxi-xxiv (1839-44); *Gould Mamm Austr.*, ii, pl. li.  
*Halmaturus asiaticus*, *apud Gray List Mamm. B. M.*, p. 91 (1843).  
*Lagorchestes gymnotis*, *apud Blyth Cat.*, p. 184 (1863).  
*Macropus mülleri*, *Schlegel Nederl. Tijdsch.*, iii, p. 353 (1866).  
*Dorcopsis mülleri*, *Garrod P. Z. S.*, p. 49 (1875); *Thomas Cat. Mars. B. M.*, p. 87.

*Distribution.*—New Guinea and the adjoining Islands.

a. Skin	.....	Maharajah of Burdwan, 1858, A.S.B.
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### Genus LAGOSTROPHUS.

*Lagostrophus*, *Thomas P. Z. S.*, p. 544 (1886).

### Lagostrophus fasciatus.

*Kangurus fasciatus*, *Pérouse et Lesson Voy. Terres. Austr.*, i, p. 114 (1807)\*.  
*Macropus elegans*, *G. Cuvier Regne Anim.*, i, p. 183 (1817).  
*Lagorchestes albipilis*, *Gould Ann. Mag. N. H.*, (1), x, p. 2 (1842).  
*Lagorchestes fasciatus*, *Gould Mamm. Austr.*, pl. lvi (1849).  
*Lagostrophus fasciatus*, *Thomas P. Z. S.*, p. 544 (1836); *id. Ca. Mars. B. M.*, p. 100.

*Distribution*.—Western Australia.

*a. b.* 2 Skins ♂ ♀ West Australia Adelaide Mus. [Ex.]

### Genus AEPYPRYMNUS.

*Aepyprymnus*, *Garrod P. Z. S.*, p. 59 (1875).

#### *Aepyprymnus rufescens*.

*Bettongia rufescens*, *Gray Charlesw. Mag. N. H.*, i, p. 584 (1837); *Gould Mamm. Austr.*, ii, pl. lxxv.

*Hypsiprymnus melanotis*, *Ogilby P. Z. S.*, p. 62 (1838).

*Aepyprymnus rufescens*, *Garrod P. Z. S.*, p. 59 (1875); *Thomas Cat. Mars. B. M.*, p. 103.

*Distribution*.—Eastern Australia.

*a.* Skin ♂ ..... No history.

### Genus BETTONGIA.

*Bettongia*, *Gray Charlesw. Mag. N. H.*, i, p. 584 (1837).

#### *Bettongia cuniculus*.

*Bettongia setosa*, *apud Gray Charlesw. Mag. N. H.*, i, p. 584 (1837).

*Hypsiprymnus cuniculus*, *Ogilby P. Z. S.*, p. 63 (1838).

*Bettongia cuniculus*, *Gould Mamm. Austr.*, ii, pl. lxxiii (1854); *Blyth Cat.*, p. 186; *Thomas Cat. Mars. B. M.*, p. 106.

*Distribution*.—Tasmania.

*a.* Skull ..... W. Cracroft, A.S.B.

#### *Bettongia penicillata*.

*Bettongia penicillata*, *Gray Charlesw. Mag. N. H.*, i, p. 584 (1837); *Gould Mamm. Austr.*, ii, pl. lxi; *Thomas Cat. Mars. B. M.*, p. 110.

*Hypsiprymnus ogilbyi*, *Waterhouse Gard. Nat. Libr.*, xi, p. 185 (1841).

*Distribution*.—All Australia except in the North; not found in Tasmania.

*a.* Skin, skull West Australia Adelaide Mus. [Ex.]

*b.* Skeleton ..... Major Turnbull.

#### *Bettongia lesueuri*.

*Hypsiprymnus lesueuri*, *Quoy et Gaimard Voy. Uranie*, p. 64 (1824)\*.

*Hypsiprymnus grayi*, *Gould P. Z. S.*, p. 178 (1840).

*Bettongia grayi*, *Gray App. Grey's Travels Austr.*, ii, p. 403 (1841)\*; *Gould Mamm. Austr.*, ii, pl. lxxiv.

*Bettongia lesueuri*, *Thomas Cat. Mars. B. M.*, p. 112 (1888).



*Distribution.*—South and West Australia.

a. Skin, skull	South Australia	Adelaide Mus. [Ex.]
b. Skin, skull	.....	No history.
c. Skull	South Australia	Adelaide Mus. [Ex.]
d. Stuffed, skull	.....	W. Rutledge.

Genus **TARSIPES.**

*Tarsipes*, *Gervais and Verreaux P. Z. S.*, p. 1 (1842).

**Tarsipes rostratus.**

*Tarsipes rostratus*, *Gervais and Verreaux P. Z. S.*, p. 1 (1842); *Gould Mamm. Austr.*, i, pl. v; *Thomas Cat. Mars. B. M.*, p. 133.  
*Tarsipes spenserae*, *Gray Ann. Mag. N. H.*, ix, p. 40 (1842).

*Distribution.*—Western Australia.

a. Skin	♂ W. Australia	Adelaide Mus. [Ex.]
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Genus **ACROBATES.**

*Acrobates*, *Desmarest N. Dict. d'Hist. Nat.*, xxv, p. 405 (1817).

**Acrobates pygmæus.**

*Didephys pygmæa*, *Shaw Zool. New Holland*, i, p. 5 (1794)\*.  
*Acrobates pygmæus*, *Desmarest N. Dict. d'Hist. Nat.*, xxv, p. 405 (1817);  
*Gould Mamm. Austr.*, i, pl. xxviii; *Blyth Cat.*, p. 183; *Thomas Cat. Mars. B. M.*, p. 136.

*Distribution.*—Southern Queensland, New South Wales and Victoria.

a. Stuffed	N. S. Wales	Sydney Inst., A.S.B.
b. Alc.	N. S. Wales	G. Nevill.

Genus **DROMICIA.**

*Dromicia*, *Gray App. Grey's Travels Austr.*, ii, p. 407 (1841)\*.

**Dromicia nana.**

*Phalangista nana*, *Desmarest N. Dict. d'Hist. Nat.*, xxv, p. 477 (1817).  
*Phalangista gliriformis*, *Bell Linn. Trans.*, xvi, p. 121, pl. xiii, xiv (1828).  
*Dromicia nana*, *Gray App. Grey's Travels Austr.*, ii, p. 401 (1841)\*; *Thomas Cat. Mars. B. M.*, p. 144.  
*Dromicia gliriformis*, *Gould Mamm. Austr.*, i, pl. xxix (1845).  
*Dromicia unicolor*, *Kreff P. Z. S.*, p. 49 (1863).

*Distribution.*—Tasmania."

a. Skin, skull	.....	No history.
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Genus **PETAURUS.**

*Petaurus*, *Shaw Nat. Misc.*, ii, text to pl. lx (1791).

*Belideus*, *Waterhouse P. Z. S.*, p. 151 (1838).

**Petaurus australis.**

*Petaurus australis*, *Shaw Nat. Misc.*, pl. lx (1791); *Thomas Cat. Mars. B. M.*, p. 151.

*Didelphys petaurus*, *Shaw Genl. Zool.*, i, pt. 2, p. 496 (1800).

*Petaurus flaviventer*, *Desmarest N. Dict. d'Hist. Nat.*, xxv, p. 403 (1817).

*Belideus flaviventer*, *Gould Mamm. Austr.*, i, pl. xxiii (1845).

*Belideus australis et sciurus*, *Blyth Cat.*, pp. 182, 183 (1863).

*Distribution.*—New South Wales and Victoria.

a. Skin, skull	N. S. Wales	Calcutta Exhibition.
b. Stuffed	N. S. Wales	Dr. Scone, 1864.
c. Skull	.....	Mrs. Turnbull, 1860, A.S.B.
d. Skull	.....	No history, A.S.B.

**Petaurus breviceps.**

*Petaurus (Belideus) breviceps*, *Waterhouse P. Z. S.*, p. 152 (1838).

*Petaurus breviceps*, *Gray App. Grey's Travels Austr.*, ii, p. 402 (1841)\*;

*Thomas Cat. Mars. B. M.*, p. 156.

*Belideus breviceps, ariel et notatus*, *Gould Mamm. Austr.*, i, pls. xxv, xxvi and xxvii (1849).

*Distribution.*—Queensland, New South Wales and Victoria.

a-b. 2 Stuffed,	Victoria	Dr. Scone, 1864.
2 skulls.		
c-d. 2 Alc. adt.	N. S. Wales	Calcutta Exhibition.
and juv.		

Genus **PETAUROIDES.**

*Volucella*, *Bechstein Allgem. Ubers. vierf. Thiere*, ii, p. 351 (1800)\*.

*Petaurista*, *Desmarest Mamm.*, i, p. 268 (1820).

*Petauroides*, *Thomas Cat. Mars. B. M.*, p. 163 (1888).

**Petauroides volans.**

*Didelphis volans*, *Kerr Linn. Anim. Kingd.*, p. 199 (1792)\*.

*Volucella nigra et macroura* *Bechstein Allgem. Ubers. vierf. Thiere*, ii, p. 351 (1800)\*.

*Petaurus taguanoides*, *Desmarest N. Dict. d'Hist. Nat.*, xxv, p. 400 (1817); *Blyth Cat.*, p. 182.

*Petaurista taguanoides*, *Desmarest Mamm.*, i, p. 269 (1820); *Gould Mamm. Austr.*, i, pl. xxii.

*Petauroides volans*, *Thomas Cat. Mars. B. M.*, p. 164 (1888).

*Distribution.*—Queensland to Victoria.

<i>a-b.</i> 2 Stuffed ♂ ♀	N. S. Wales	Dr. Scone, 1864.
<i>c.</i> Skull	.....	Purchased, A.S.B.
<i>d.</i> Skull	.....	T. Shawe, A.S.B.

Genus **PSEUDOCHIRUS.**

*Pseudochirus*, *Ogilby P. Z. S.*, p. 26 (1836).  
*Hepoonā*, *Gray, App. Grey's Travels Austr.*, ii, p. 402 (1841)\*.

***Pseudochirus peregrinus.***

*Didelphis peregrinus*, *Boddaert Elench. Anim.*, i, p. 78 (1785)\*.  
*Didelphis caudivolvula*, *Kerr Linn. Anim. Kingd.*, p. 196 (1792)\*.  
*Phalangista cooki*, *apud Ogilby P. Z. S.*, p. 192 (1835); *Gould Mamm. Austr.*, i, pl. xviii.  
*Phalangista lanuginosa*, *Gould Mamm. Austr.*, i, pl. xx (1858).  
*Pseudochirus peregrinus*, *Thomas Cat. Mars. B. M.*, p. 172 (1888).

*Distribution.*—Queensland to South Australia.

<i>a.</i> Skin	.....	Melbourne Mus., 1864.
<i>b.</i> Skin, juv.	W. Australia?	Bengal Econ. Mus.

***Pseudochirus occidentalis.***

*Pseudochirus occidentalis*, *Thomas Cat. Mars. B. M.*, p. 174 (1888).

*Distribution.*—Western Australia.

<i>a.</i> Skin	Gawler Ranges, S. Australia.	Adelaide Mus. [Ex.]
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***Pseudochirus cooki.***

*Phalangista cooki*, *Desmarest N. Dict. d'Hist. Nat.*, xxv, p. 476 (1817).  
*Phalangista viverrina*, *Ogilby P. Z. S.*, p. 131 (1837); *Gould Mamm. Austr.*, i, pl. xix.  
*Pseudochirus cooki*, *Thomas Cat. Mars. B. M.*, p. 176 (1888).

*Distribution.*—Tasmania.

<i>a.</i> Stuffed	Tasmania	Bengal Econ. Mus.
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Genus **TRICHOSURUS.**

*Trichosurus*, *Lesson Dict. Class. d'Hist. Nat.*, xiii, p. 333 (1828).

***Trichosurus vulpecula.***

*Var. A.*—*typicus.*

*Didelphis vulpecula*, *Kerr Linn. Anim. Kingd.*, p. 198 (1792)\*.

- Didelphis vulpina*, Meyer Uebers. Zool. Entd. Neuhol., p. 23 (1793)\*.  
*Phalangista vulpina*, Desmarest N. Dict. d'Hist. Nat., xxv, p. 475 (1817);  
*Gould Mamm. Austr.*, i, pl. xvi; *Blyth Cat.*, p. 182.  
*Phalangista xanthopus*, Ogilby P. Z. S., p. 135 (1831).  
*Trichosurus vulpecula*, Jentink Notes Leyd. Mus., vii, p. 25 (1884); *Thomas Cat. Mars. B. M.*, p. 187.

*Var. B.—fuliginosus.*

- Phalangista fuliginosa*, Ogilby P. Z. S., p. 135 (1831); *Gould Mamm. Austr.*, i, pl. xv.  
*Trichosurus vulpecula* var. *fuliginosus*, *Thomas Cat. Mars. B. M.*, p. 190 (1888).

*Distribution.*—The typical variety is found throughout Australia, except in the extreme north; var. *fuliginosus* is confined to Tasmania.

*Var. A.—typicus.*

a. Skin, skeleton	.....	Zoological Gardens.
♂		
b. Skin, skeleton juv.	.....	W. Rutledge.
♀		
c-d. 2 Stuffed	Australia	Dr. Scone, 1864.
e. Stuffed	N. S. Wales	W. Rutledge, 1870.
f. Skeleton	.....	Rajah R. Mullick.
g-h. 2 Skulls	S. Australia	Adelaide Mus. [Ex.]
ad. and juv.		
j. Skull	.....	No history, A.S.B.
k. Stuffed	.....	W. Rutledge, 1870.
albino	♀	

*Var. B.—fuliginosus.*

a. Skin, skull, bones.	.....	Purchased.
b. Skin, skeleton.	.....	Purchased.
c. Stuffed	Tasmania	C. F. T. Lloyd, A.S.B.
d. Skeleton, skin.	.....	Purchased.
e-f. 2 Skulls	Tasmania?	C. F. T. Lloyd, A.S.B.

***Trichosurus caninus.***

- Phalangista canina*, Ogilby P. Z. S., p. 191 (1831); *Gould Mamm. Austr.*, i, pl. xvii.  
*Trichosurus caninus*, *Thomas Cat. Mars. B. M.*, p. 191 (1888).

*Distribution.*—South Queensland and New South Wales.

- a. Stuffed, skull New South Wales Bengal Econ. Mus.

## Genus PHALANGER.

- Phalanger, *Storr Prodr. Method. Mamm.*, p. 33 (1780)\*.  
 Phalangista, *Et. Geoff. St. Hil. Bull. Soc. Philom.*, i, p. 106 (1796)\*.  
 Cuscus, *Lesson et Garnot Voy. Coquille Zool.*, p. 150 (1826).

## Phalanger orientalis.

- Didelphys orientalis, *Pallas Miscell. Zool.*, p. 59 (1766)\*.  
 Phalanger orientalis, *Storr Prodr. Method. Mamm.*, p. 33 (1780)\*; *Thomas Cat. Mars. B. M.*, p. 201.  
 Phalangista alba, *Et. Geoff. St. Hil. Cat. Mamm. Mus. Hist. Nat.*, p. 148 (1803)\*.  
 Cuscus orientalis, *Gray List Mamm. B. M.*, p. 84 (1843).

*Distribution.*—Timor and the Islands to the east of New Guinea.

- a. Skin, skull ..... Calcutta Exhibition.

## Phalanger celebensis.

- Cuscus celebensis, *Gray P. Z. S.*, p. 105, pl. lxii (1858).  
 Phalanger celebensis, *Thomas Cat. Mars. B. M.*, p. 206.

*Distribution.*—Celebes and the Sanghir Isles.

- a. Skin, skull Northern Territory? Adelaide Mus. [Ex.]  
 b. Skin, skeleton ..... W. Rutledge.

## Genus PHASCOLARCTUS.

- Phascolarctus, *Blainville Bull. Soc. Philom.*, p. 46 (1816)\*.  
 Lipurus, *Goldfuss Isis*, p. 271 (1819).

## Phascolarctus cinereus.

- Lipurus cinereus, *Goldfuss Isis*, p. 271 (1819).  
 Phascolarctus fuscus, *Desmarest Mamm.*, i, p. 276 (1820).  
 Phascolarctus cinereus, *Fischer Syn. Mamm.*, p. 285 (1829); *Gould Mamm. Austr.*, i, pls. xiii, xiv; *Thomas Cat. Mars. B. M.*, p. 210.

*Distribution.*—Eastern Australia from Queensland to Victoria.

- a. Stuffed New South Wales No history.  
 b. Stuffed New South Wales Bengal Econ. Mus.  
 c. Skull ♂ ..... Purchased.  
 d-e. 2 Skulls Victoria Calcutta Exhibition.  
 f. Skeleton New South Wales Purchased.

## Genus PHASCOLOMYS.

- Phascolomys, *Et. Geoff. St. Hil. Ann. Mus. Paris*, ii, p. 364 (1803).  
 Wombatus, *Desmarest N. Dict. d'Hist. Nat.*, 1st ed., xxiv, p. 20 (1803)\*.

**Phascolomys mitchelli.**

*Phascolomys mitchelli*, *Owen Mitchell's Exped. Austr.*, ii, p. 368 (1838);  
*Thomas Cat. Mars. B. M.*, p. 213.

*Phascolomys platyrhinus*, *Owen Cat. Ost. Coll. Surg.*, i, p. 334 (1853).

*Phascolomys latifrons*, *apud Gould Mamm. Austr.*, i, pls. lvii, lviii (1859). . . . .

*Distribution.*—New South Wales, Victoria and South Australia.

a. Stuffed	.....	No history.
b. Stuffed juv. ♀	.....	W. Rutledge, 1870.
c. Generative ♀ organs in spirit.	.....	W. Rutledge, 1869.

**Phascolomys ursinus.**

*Didelphys ursina*, *Shaw Genl. Zool.*, i, pt. 2, p. 504 (1800).

*Wombatus fossor*, *Desmarest N. Dict. d'Hist. Nat.* 1st ed., xxiv, p. 20 (1803)\*.

*Phascolomys wombatus*, *Leach Zool. Miscell.*, ii, p. 102 (1815).

*Phascolomys wombat*, *Peron et Lesueur Voy. Terr. Austr.*, ii, p. 13, (1816)\*;  
*Gould Mamm. Austr.*, i, pls. lv, lvi; *Blyth Cat.*, p. 186.

*Phascolomys ursinus*, *G. Cuvier Regne Anim.*, i, p. 185 (1817); *Thomas Cat. Mars. B. M.*, p. 215.

*Distribution.*—Tasmania.

a. Stuffed	Tasmania	Bengal Econ. Mus.
b. Skull	.....	C. J. T. Lloyd, A. S. B.
c. Skeleton juv.	.....	W. Rutledge, 1870.

**Phascolomys latifrons.**

*Phascolomys latifrons*, *Owen P. Z. S.*, p. 82 (1845); *Thomas Cat. Mars. B. M.*, p. 217.

*Phascolomys lasiorhinus*, *Gould Mamm. Austr.*, i, pl. lix, lx (1863).

*Distribution.*—South Australia.

a. Skeleton ♂	.....	Zoological Gardens,
b. Skull	Blanche town, Murray R., S. A.	Adelaide Mus. [Ex.]

**Genus PERAGALE.**

*Macrotis*, *Reid P. Z. S.*, p. 131 (1836).

*Peragalea*, *Gray App. Grey's Travels Austr.*, p. 401 (1841)\*.

**Peragale lagotis.**

*Perameles (Macrotis) lagotis*, *Reid P. Z. S.*, p. 129 (1836).

*Peragale lagotis*, *Gray List Mamm. B. M.*, p. 96 (1843); *Gould Mamm. Austr.*, i, pl. vii; *Thomas Cat. Mars. B. M.*, p. 223.

*Distribution.*—South and West Australia.

a. Skin	S. Australia	Adelaide Mus. [Ex.]
b. Skeleton	.....	Adelaide Mus. [Ex.]

Genus **PERAMELES.**

*Perameles*, *Geoff. St. Hil. Bull. Soc. Philom.*, iii, p. 249 (1803)\*.  
*Thylacis*, *Illiger Prodr.*, p. 76 (1811).  
*Isoodon*, *Desmarest N. Dict. d' Hist. Nat.*, xvi, p. 409 (1817).

**Perameles obesula.**

*Didelphis obesula*, *Shaw Nat. Miscell.*, viii, pl. ccxcviii (1793).  
*Perameles obesula*, *Et. Geoff. St. Hil. Ann. Mus. Paris*, iv, p. 64 (1804); *Gould Mamm. Austr.*, i, pl. xii; *Blyth Cat.*, p. 182; *Thomas Cat. Mars. B. M.*, p. 231.  
*Isoodon obesula*, *Desmarest N. Dict. d' Hist. Nat.*, xvi, p. 409 (1817).

*Distribution.*—Throughout Australia and Tasmania.

<i>a.</i> Skin, skull	.....	Calcutta Exhibition.
<i>b.</i> Skin	W. Australia	Adelaide Mus. [Ex.]
<i>c-d.</i> 2 Stuffed	.....	Melbourne Inst., 1862, A.S.B.
<i>e.</i> Stuffed	♂ .....	Dr. Scone, 1864.
<i>f.</i> Skull	New South Wales	Adelaide Mus. [Ex.]

**Perameles nasuta.**

*Perameles nasuta*, *Et. Geoff. St. Hil. Ann. Mus. Paris*, iv, p. 62 (1804); *Gould Mamm. Austr.*, i, pl. xi; *Thomas Cat. Mars. B. M.*, p. 242.

*Distribution.*—Eastern Australia.

<i>a.</i> Alc.	.....	Brisbane Mus. [Ex.]
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**Perameles gunni.**

*Perameles gunni*, *Gray P. Z. S.*, p. 1 (1838); *Gould Mamm. Austr.*, i, pl. ix; *Blyth Cat.*, p. 182; *Thomas Cat. Mars. B. M.*, p. 245.

*Distribution.*—Tasmania and perhaps Victoria.

<i>a.</i> Skin	♂ Victoria	Dr. Scone.
<i>b.</i> Stuffed	Tasmania	Melbourne Inst., 1862, A.S.B.

**Perameles bougainvillei.**

*Perameles bougainvillei*, *Quoy et Gaimard Voy. Uranie Zool.*, p. 56, *Atlas* pl. v (1824); *Thomas Cat. Mars. B. M.*, p. 246.  
*Perameles myosuroides*, *Wagner Archiv f. Natur.*, vii, pt. i, p. 293 (1841); *Gould Mamm. Austr.*, i, pl. x.

*Distribution.*—Western Australia.

<i>a.</i> Skin	Gawler Ranges, S. Austr.	Adelaide Mus. [Ex.]
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Genus **THYLACINUS.**

*Peracyon*, *Gray Ann. Philos.*, (2), p. 340 (1825)\*.  
*Thylacinus*, *Temminck Monogr. Mamm.*, i, p. 60 (1827).

### Thylacinus cynocephalus.

*Didelphys cynocephala*, *Harris Linn. Trans.*, ix, p. 174, pl. xix, fig. i, (1808).

*Thylacinus harrisi*, *Temminck Monogr. Mamm.*, i, p. 63 (1827).

*Thylacinus cynocephalus*, *Fischer Syn. Mamm.*, p. 270 (1829); *Gould Mamm. Austr.*, i, pls. liii, liv; *Blyth Cat.*, p. 180; *Thomas Cat. Mars. B. M.*, p. 255.

*Distribution.*—Tasmania.

a. Skin, impft.	.....	No history, A.S.B.
b. Skull	♂ .....	Dr. J. Henderson, A.S.B.
c. Skull	♀ .....	No history, A.S.B.

### Genus SARCOPHILUS.

*Sarcophilus*, *F. Cuvier Hist. Nat. Mamm.*, livr. lxx (1837)\*.

*Diabolus*, *Gray App. Grey's Travels Austr.*, p. 400 (1841)\*.

### Sarcophilus ursinus.

*Didelphys ursina*, *Harris Linn. Trans.*, ix, p. 176, pl. xix, fig. 2 (1808).

*Dasyurus ursinus*, *Geoff. St. Hil. Ann. Mus. Paris*, xv, p. 305 (1810).

*Sarcophilus ursinus*, *F. Cuvier Hist. Nat. Mamm.*, livr. lxx (1837); *Gould Mamm. Austr.*, i, pl. xlvi; *Blyth Cat.*, p. 180; *Thomas Cat. Mars. B. M.*, p. 259.

*Distribution.*—Tasmania.

a. Skin, skull	.....	Calcutta Exhibition.
b. Skull	.....	E. Blyth, A.S.B.

### Genus DASYURUS.

*Dasyurus*, *Et. Geoff. St. Hil. Bull. Soc. Philom.*, i, p. 106 (1796).

### Dasyurus maculatus.

*Viverra maculata*, *Kerr Linn. Anim. Kingd.*, p. 170 (1792)\*.

*Dasyurus macrourus*, *Et. Geoff. St. Hil. Ann. Mus. Paris*, iii, p. 358 (1804).

*Dasyurus maculatus*, *Fischer Zoognosie*, ii, p. 584 (1813)\*; *Gould Mamm. Austr.*, i, pl. xlix; *Blyth Cat.*, p. 181; *Thomas Cat. Mars. B. M.*, p. 263.

*Distribution.*—Eastern and South-Eastern Australia and Tasmania.

a. Skin, skull	N. S. Wales	Calcutta Exhibition.
b. Stuffed	Tasmania	G. Sceva, 1867.
c. Skull	Mt. Gambier, S. Austr.	Adelaide Mus. [Ex.]
d. Skull	.....	No history.



**Dasyurus viverrinus.**

*Didelphis maculata*, *Kerr Linn. Anim. Kingd.*, p. 199 (1792)\* (*nec Viverra maculata*, *id. op. cit.* p. 170).

*Didelphis viverrinus*, *Shaw Genl. Zool.*, i, pt. ii, p. 491 (1800).

*Dasyurus viverrinus*, *Et. Geoff. St. Hil. Ann. Mus. Paris*, iii, p. 360 (1804); *Gould Mamm. Austr.*, i, pl. 1; *Blyth Cat.*, p. 181; *Thomas Cat. Mars. B. M.*, p. 265.

*Dasyurus maugei*, *Et. Geoff. St. Hil. Ann. Mus. Paris*, iii, p. 359 (1804).

*Distribution*.—South-Eastern Australia and Tasmania.

<i>a.</i> Skin, skeleton	.....	Zoological Gardens.
	juv.	
<i>b.</i> Stuffed	Hunter R., N. S. W.	British Mus. [Ex.]
<i>c.</i> Stuffed	N. S. Wales	Bengal Econ. Mus.
<i>d-e.</i> 2 Skulls	.....	A. D. Bartlett, A.S.B.
<i>f.</i> Alc.	♂	Zoological Gardens.

**Dasyurus geoffroyi.**

*Dasyurus geoffroyi*, *Gould P. Z. S.*, p. 151 (1840); *Gould Mamm. Austr.*, i, pl. li; *Thomas Cat. Mars. B. M.*, p. 268.

*Distribution*.—All Australia, except extreme north and Tasmania.

<i>a.</i> Skin	West Australia	Adelaide Mus. [Ex.].
<i>b.</i> Skin	.....	Adelaide Mus. [Ex.].
<i>c.</i> Stuffed	.....	Purchased, 1846, A.S.B.
<i>d.</i> Stuffed	Melbourne?	No history.

**Genus PHASCOGALE.**

*Phascogale*, *Temminck Monogr. Mamm.*, i, p. 56 (1827).

*Antechinus Macleay Ann. Mag. N. H.*, viii, p. 242 (1841).

**Phascogale flavipes.**

*Phascogale flavipes*, *Waterhouse P. Z. S.*, p. 75 (1837); *Blyth Cat.*, p. 181; *Thomas Cat. Mars. B. M.*, p. 289.

*Antechinus stuarti*, *Macleay Ann. Mag. N. H.*, viii, p. 242 (1841).

*Antechinus flavipes*, *Gould Mamm. Austr.*, i, pl. xl (1854).

*Distribution*.—Eastern Australia.

<i>a.</i> Stuffed	.....	Melbourne Inst., A.S.B.
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**Phascogale penicillata.**

*Didelphis penicillata*, *Shaw Genl. Zool.*, i, pt. ii, p. 502 (1800).

*Dasyurus tafa*, *Et. Geoff. St. Hil. Ann. Mus. Paris*, iii, p. 360 (1804).

*Phascogale penicillata*, *Temminck Monogr. Mamm.*, i, p. 58 (1827); *Gould Mamm. Austr.*, i, pl. xxxi; *Thomas Cat. Mars. B. M.*, p. 294.

*Distribution*.—Throughout Australia, except the extreme north.

a. Skin	West Australia	Adelaide Mus. [Ex.]
b. Skull	South Australia	Adelaide Mus. [Ex.]

### Genus SMINTHOPSIS.

*Podabrus*, *Gould Mamm. Austr.*, letterpress to pl. xlvii (1845).  
*Sminthopsis*, *Thomas Ann. Mus. Genova* (2), iv, p. 503 (1887).

### *Sminthopsis crassicaudata*.

*Phascogale crassicaudata*, *Gould P. Z. S.*, p. 105 (1844).  
*Podabrus crassicaudatus*, *Gould Mamm. Austr.*, i, pl. xlvii (1845); *Blyth Cat.*, p. 181.  
*Podabrus macrurus*, *Gould P. Z. S.*, p. 70 (1845).  
*Sminthopsis crassicaudata*, *Thomas Cat. Mars. B. M.*, p. 306 (1888).

*Distribution*.—Throughout Australia.

a-b. 2 Stuffed	.....	Melbourne Inst., A.S.B.
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### Genus MYRMECOBIUS.

*Myrmecobius*, *Waterhouse P. Z. S.*, p. 69 (1836).

### *Myrmecobius fasciatus*.

*Myrmecobius fasciatus*, *Waterhouse P. Z. S.*, pp. 69, 131 (1836); *Gould Mamm. Austr.*, i, pl. iv; *Thomas Cat. Mars. B. M.*, p. 312.

*Distribution*.—Western and Southern Australia.

a. Skin	South Australia (A. Anderson, 12-73).	Adelaide Mus. [Ex.]
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### Genus DIDELPHYS.

*Didelphys*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 71 (1766).

### *Didelphys marsupialis*.

*Didelphys marsupialis*, *Linnaeus Syst. Nat.*, 12th ed., i, p. 71 (1766);  
*Thomas Cat. Mars. B. M.*, p. 323.  
*Didelphys cancrivora*, *Gmelin Syst. Nat.*, i, p. 108 (1788).  
*Didelphys virginiana*, *Kerr Linn. Anim. Kingd.*, p. 193 (1792)\*.

*Didelphys aurita*, *Pr. Maximilian zu Wied Beitr. Naturg. Bras.*, ii, p. 395 (1826)\*.

*Didelphys californica*, *Bennett P. Z. S.*, p. 40 (1833).

*Didelphys breviceps*, *Bennett P. Z. S.*, p. 40 (1833).

*Distribution*.—America from the States to Chili and South Brazil.

u. Skin      juv. ♂      .....      Zoological Gardens.

## Order MONOTREMATA.

### Genus ECHIDNA.

*Echidna*, *G. Cuvier Tab. Élément. d'Hist. Nat.*, p. 143 (1798)\*.

*Tachyglossus*, *Illiger Prodr.*, p. 114 (1811).

### *Echidna aculeata*.

*Myrmecophaga aculeata*, *Shaw Nat. Miscell.*, iii, pl. cix (1792).

*Ornithorhynchus hystrix*, *Home Phil. Trans.*, p. 348 (1802).

*Echidna hystrix*, *Et. Geoff. St. Hil. Cat. Mamm. Mus. Hist. Nat.*, p. 224 (1803)\*; *Gould Mamm. Austr.*, i, pl. ii.

*Tachyglossus aculeatus*, *Illiger Prodr.*, p. 114 (1811).

*Echidna aculeata*, *Garnot Bull. Soc. Philom.*, p. 45 (1825)\*; *Thomas Cat. Mars. B. M.*, p. 379.

*Echidna acrobata*, *apud Blyth Cat*, p. 187 (1863).

*Distribution*.—Throughout Australia, replaced by geographical races in New Guinea and Tasmania.

a. Skin, skeleton	.....	Purchased.
b-d. 3 Stuffed	.....	A.S.B.
e. Stuffed	New South Wales	Bengal Econ. Mus.
f. Alc.	.....	Calcutta Exhibition.

### Genus ORNITHORHYNCHUS.

*Platypus*, *Shaw Nat. Miscell.*, x, letterpress to pl. ccclxxxvi (1799) (*nec Herbst*).

*Ornithorhynchus*, *Blumenbach Voigt's Mag. Naturk.*, ii, p. 205 (1800)\*.

### *Ornithorhynchus anatinus*.

*Platypus anatinus*, *Shaw Nat. Miscell.*, x, pl. ccclxxxv, (1799).

*Ornithorhynchus paradoxus*, *Blumenbach Voigt's Mag. Naturk.*, ii, p. 205 (1800)\*.

*Ornithorhynchus rufus et fuscus*, *Péron et Lessueur Voy. Terr. Austr.*, *Atlas*, pl. xxxiv (1807)\*.

*Ornithorhynchus anatinus*, *Waterhouse Nat. Hist. Mamm.*, i, p. 35(1846);  
*Gould Mamm. Austr.*, i, pl. i; *Blyth Cat.*, p. 186; *Thomas Cat. Mars.*  
*B. M.*, p. 388.

*Distribution*.—Eastern Australia and Tasmania.

<i>a.</i> Skin	♂	.....	No history.
<i>b.</i> Skin		N. S. Wales	No history.
<i>c.</i> Stuffed		S. E. Australia	No history
<i>d.</i> Stuffed		N. S. Wales	H. T. Prinsep, 1842, A.S.B.
<i>e.</i> Skeleton mtd.		N. S. Wales	A.S.B.
<i>f.</i> Alc.		.....	Brisbane Mus. [Ex.]
<i>g.</i> Alc.		.....	Calcutta Econ. Mus.

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[Names of synonyms are printed in italics; recognized names in Roman characters.]

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