

# XXI. A NOMINAL LIST OF THE SCIURIDAE OF THE ORIENTAL REGION WITH A LIST OF SPECIMENS IN THE COLLECTION OF THE ZOOLOGICAL SURVEY OF INDIA.

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We owe to the kindness of Dr. N. Annandale the opportunity of examining the whole collection of Oriental Sciuridae in the possession of the Zoological Survey of India, a collection which is of great interest to Mammalogists as containing the material on which the work of Blyth and Anderson was based. In the course of our work we have reviewed the whole recent literature of the group which, owing largely to the exertions of the veteran American Field Naturalist Dr. W. L. Abbott and the collectors of the Bombay Natural History Society's Mammal Survey, is now very extensive. We have, therefore, attempted to give a list of all known forms from the Oriental Region proper, excluding Celebes and the Philippines, with the species of which we are not familiar, though those interested in the latter country will find an exhaustive list by Hollister<sup>1</sup> in the "Proceedings of the United States National Museum," vol. 46, pp. 299-341 (1913). Certain Chinese and Japanese species are included, but the list does not pretend to comprise all the forms from these areas, which are mainly Palaeartic.

The nomenclature used is as far as possible trinomial as best indicating natural relationships, but in many groups this has not been adopted, owing to paucity of material.

## Family SCIURIDAE.

### Subfamily *PETAURISTINAE*.

#### Genus **PETAURISTA**, Pallas, 1792.

In cataloguing the specimens of this genus in the Indian Museum we have in the main followed Mr. R. C. Wroughton in his paper on "Oriental Flying Squirrels of the *Pteromys* group"<sup>2</sup> and like him have been compelled for the greater number of the forms to use a binomial nomenclature, though there is not the slightest doubt that the relationships of by far the larger proportion are merely subspecific and that, when a sufficient number of properly authenticated specimens are available, we shall be able to sort them out from the present unwieldy

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<sup>1</sup> See also Hollister, N. H., List of the Mammals of the Philippine Islands, exclusive of the Cetacea. *Philippine Journ. Sci.* sec. D., vol. vii, no. 1, pp. 1-64 (1912).

<sup>2</sup> *Journ. Nat. Hist. Soc. Bombay*, XX, pp. 1012-23 (1911).

mass of names into a comparatively few groups. At present the only division that has been sufficiently studied is that represented in the Malay Peninsula and the Indo-Malayan Islands, which has been reduced to order by Mr. Oldfield Thomas.<sup>1</sup>

**Petaurista petaurista.**

**a. *petaurista petaurista* (Pall.).**

*Zool. Misc.* p. 54 (1766).

*Typical locality.*—West Java.

*Type.*—Not in existence.

**b. *petaurista nigricaudatus*, Robinson and Kloss.**

*Journ. Fed. Malay States Mus.*, VII, p. 224 (1918).

*Typical locality.*—Idjen Massif, near Banjoewangi, East Java.

*Type.*—In Federated Malay States Museum.

♂ Sodong Jerok, Idjen Massif, near Banjoewangi, East Java, 3,900 ft., 30th March 1916. *Mus. Coll.* [C.]; skin and skull; Federated Malay States Museum [P.].

**c. *petaurista melanotus* (Gray).**

Charlesworth's *Mag. Nat. Hist.*, I, p. 584 (1837).

*Typical locality.*—Nepal (error). Malay Peninsula substituted.

*Type.*—In British Museum.

9745-6. [Siam] (Dr. Finlayson) [C.]; skins and skulls; *ex* India Museum, London.

It is practically certain that these specimens were not procured in Siam proper, where the form that occurs will probably be *P. p. cicur*, R. and K., but from some portion of the Malay Peninsula. Many of Finlayson's specimens labelled "Siam" are certainly not from that country.

**d. *petaurista cicur*, Robinson and Kloss.**

*Ann. Mag. Nat. Hist.* (8), XIII, p. 223 (1914).

*Typical locality.*—Ban Kok Klap, Bandon, Siamese Malaya.

*Type.*—In Federated Malay States Museum.

♂ Ban Kok Klap, Bandon, Siamese Malaya, 2nd July, 1913; skin and skull, H. C. Robinson and E. Seimund [C.]; Federated Malay States Museum [P.]. A paratype of the subspecies.

**e. *petaurista rajah*, Thos.**

*Ann. Mag. Nat. Hist.* (8), I, p. 251 (1908).

*Typical locality.*—Mount Dulit, Baram, Borneo, 2,000 ft.

*Type.*—In British Museum.

<sup>1</sup> *Ann. Mag. Nat. Hist.* (8), I, pp. 249-252 (1908).

f. **petaurista nitidulus** (Thos.).

*Nov. Zool.* VII, p. 592 (1900).

*Typical locality*.—Bunguran, North Natuna Islands.

*Type*.—In British Museum.

g. **petaurista batuanus** (Miller).

*Smithsonian Misc. Coll.* XLV, p. 27 (1903).

*Typical locality*.—Tana Bala, Batu Islands, West Sumatra.

*Type*.—In United States National Museum.

h. **petaurista terutaus** (Lyon).

*Proc. Biol. Soc. Washington*, XX, p. 17 (1907).

*Typical locality*.—Terutau Island, Northern Straits of Malacca.

*Type*.—In United States National Museum.

i. **petaurista mimicus** (Miller).

*Smithsonian Misc. Coll.* LXI, No. 21, p. 27 (1913).

*Typical locality*.—Pulau Rupert, East Sumatra.

*Type*.—In United States National Museum.

j. **petaurista marchio** (Thos.).

*Ann. Mag. Nat. Hist.* (8), I, p. 251 (1908).

*Typical locality*.—Si Rambai, Sumatra.

*Type*.—In British Museum.

**Petaurista yunnanensis** (Anderson).

*Ann. Mag. Nat. Hist.* (4), XVI, p. 282 (1875); *id.*, *Anat. Zool. Res.*, p. 282, pl. xxii.

*Typical locality*.—Momein, Yunnan.

*Type*.—In Indian Museum.

9486. Momein, Yunnan, June 1868 (Dr. J. Anderson) [C.]; skin only.

9725-7. Momein, Yunnan, June 1868 (Dr. J. Anderson) [C.]; skin only.

No. 9486 is marked as type of species and of figure, but I think it probable that No. 9725 is at any rate the specimen figured.

**Petaurista taylori**, Thos.

*Journ. Nat. Hist. Soc. Bombay*, XXIII, p. 205 (1914); Kloss, *Journ. Nat. Hist. Soc. Siam*, II, pp. 33-35 (1916).

9721. ♀ Mergui (Dr. J. Anderson) [C.]; skin and skull.

Tenasserim (Rev. J. Barbe) [C.]; skin and skull.

The second specimen which is listed as “*k*” under *Pteromys alborufus* by Sclater (*Cat Mamm. Ind. Mus.* II, p. 35; 1891) is so faded as to be difficult to recognize but is apparently this form. It is, however, much less speckled than the specimen from Mergui. It is specimen No. 292-C of Blyth's catalogue.

**Petaurista annamensis**, Thos.a. **annamensis annamensis**, Thos.

*Loc. cit. supra.*, p. 204.

*Typical locality*.—Bali, Nha-trang, South Annam.

*Type*.—In British Museum.

b. **annamensis barroni**, Kloss.

*Journ. Nat. Hist. Soc. Siam*, II, p. 33 (1916).

*Typical locality*.—Hup Bon, Sriracha, South-east Siam.

*Type*.—In private possession.

7949. ♀ Hue Tam Din, Nampat, Monthon Pitsanoluk, Central Siam; 26th March 1902 (H. B. G. Garrett) [C.]; skin only, tail missing.

**Petaurista candidulus**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XX, p. 1014 (1911).

*Typical locality*.—Kindat, Upper Chindwin, Burma.

*Type*.—In British Museum.

9717. Assam (F. Day); skin and skull.

9718. Naga Hills, Assam (H. H. Godwin-Austen) [C.]; skin and skull.

9719. Samagooting, Assam (J. Butler) [C.]; skin and skull.

8015. ♂ Zoological Gardens, Calcutta; skin and skull.

9722. [Arakan] (Zoological Gardens, Calcutta); skin only.

9723 imm. Skin and skull.

9724 imm. (A. S. B. 292D.). Cherrapunji, Assam (W. Laidlay); skin and skull.

9720. Pegu (Revd. J. Barbe) [C.]; skin and skull.

The first specimen from Assam is unusually dark and the last from Pegu, which is a very old and much deteriorated specimen dating from 1844, differs from the rest in being browner and less rufous above with little or no darkening of any part of the tuft of hairs behind the ears. It possibly represents a transitional form to *P. cineraceus* (Blyth), but on the existing material is not describable.

**Petaurista lylei**, Bonh.a. **lylei lylei**, Bonh.

*P. Z. S.*, 1900, p. 192.

*Typical locality*.—Doi Sritepe, Chiangmai, N. Siam.

*Type*.—In British Museum.

b. **lylei venningi**, Thos.

*Journ. Nat. Hist. Soc. Bombay*, XXIII, p. 26 (1914).

*Typical locality*.—Kalaw, Southern Shan States, Burma.

*Type*.—In British Museum.

**Petaurista alborufus** (Milne-Edw.).

*Compt. Rend.*, LXX, p. 342 (1870).

*Typical locality*.—Moupin, Eastern Tibet.

*Type*.—In Mus. Hist. Nat., Paris.

***Petaurista cineraceus* (Blyth).**

*Journ. Asiat. Soc. Bengal*, XXI, p. 865 (1847).

*Typical locality*.—Arakan.

*Type*.—In Indian Museum, Calcutta.

9485.—Arakan (Sir A. Phayre) [C.]; skins and skull. Nos. 292A, B; A. S. B. The types of the species.

9715. juv. Arakan (Sir A. Phayre) [C.]; skin and skull. One of the types of the species.

Blyth described this form on two adults and a small young specimen from Arakan, which are listed above, and another adult in worn pelage and unusually rufescent with darker tail than ordinary, from Tenasserim, which is the second specimen of *Petaurista taylori* (*cf., supra*). Specimen 292B. (A. S. B.), one of the types of the species, is that listed as spm. "j" of *Pteromys alborufus* (Sclater, *loc. cit.*). In this stuffed specimen the tail is whitish.

9714. ♂ Arakan (Museum Collector); skin and skull.

3805, 3808. Menagerie specimens (W. Rutledge) [P.]; skins and skulls.

9716. ♀ juv. (W. Rutledge) [P.]; skull only.

9764. (?) skin and skull.

The last specimen was identified in the previous catalogue as *Eupetaurus cinereus*, Thomas, to which species it has some slight superficial resemblance.

***Petaurista magnificus* (Hodgs.).**

*Journ. Asiat. Soc. Bengal*, V, p. 231 (1836).

*Typical locality*.—Nepal.

*Type*.—Co-types in British Museum and in Indian Museum, Calcutta.

9728. Nepal (Hodgson) [C.]; India Museum, London [P.]; skin and skull.

9729-30. Sikkim (L. Mandelli) [C.]; skins and skulls.

9733. Zoological Gardens, Calcutta; skin and skull.

7551. Menagerie specimen; skin and skull.

7268. Menagerie specimen (W. Rutledge); skin and skull.

9732. Darjiling (W. Earle) [C.]; skull.

In this small series all gradations from a form with a clearly defined median stripe on the back to one with no stripe at all are present. In view of Hodgson's specimen above which has the upper surface ungrizzled I have used his name for the species rather than the later one *P. nobilis*, Gray, which has been adopted by Wroughton (*Journ. Nat. Hist. Soc. Bombay*, XX, p. 1020; 1911) who has transferred *P. magnificus* as a synonym to the larger grizzled form to which he has applied the name *P. albiventer*, Gray.

***Petaurista albiventer*, Gray.**

*Ill. Ind. Zool.*, II, pl. xviii (1834).

*Typical locality*.—"Nepal."

*Type*.—In British Museum.

9731 (A. S. B.). Cherrapunji, Assam (F. Skipwith) [C.]; skin only.

**Petaurista fulvinus**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XX, p. 1021 (1911).

*Typical locality*.—Simla, Western Himalayas.

*Type*.—In British Museum.

**Petaurista inornatus** (Is. Geoffr.).

In Jacquemont's *Voyage*, IV, Mamm., p. 62, Atlas, ii, pl. iv (1844).

*Typical locality*.—North India.

*Type*.—In Mus. Hist. Nat., Paris.

9734. Ladakh (J. Biddulph) [C]; skin and skull.

9735. Sonamarg, Kashmir, August 1878 (F. Stoliczka) [C]; skin and skull.

9736. Kashmir (Dr. J. E. T. Aitchison) [C]; skin and skull.

7408. Mussoorie (Miss K. Southon) [C]; skin and skull.

9737-8. Sikkim (L. Mandelli) [C]; skins and skulls.

7632. ♂ juv. Zoological Gardens, Calcutta; skin and skull.

**Petaurista birrelli**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XX, p. 1019 (1911).

*Typical locality*.—Murree, Hazara, Punjab.

*Type*.—In British Museum.

**Petaurista melanopterus**, Milne-Edw.

*Ann. Sci. Nat. Zool.*, VIII, p. 375 (1867).

*Typical locality*.—Tcheli, China.

*Type*.—In Mus. Hist. Nat., Paris.

**Petaurista caniceps** (Gray).

*Ann. Mag. Nat. Hist.*, X, p. 262 (1842).

*Typical locality*.—Sikkim.

*Type*.—In British Museum.

9740 (A. S. B.). Landour, North-Western Himalayas (1854) (L. E. Stewart) [C]; skin and skull.

9741-3. Sikkim (L. Mandelli) [C]; skins and skulls.

9744. Gumphar, near Darjiling, 2,000 ft. (J. Knight) [C]; skin and skull.

9739 imm. ? Sikkim; skin only.

**Petaurista pectoralis** (Swinh.).

*P. Z. S.*, 1870, p. 654.

*Typical locality*.—Takow, South-West Formosa.

*Type*.—In British Museum.

**Petaurista leucogenys** (Temm.).

*Mon. Mamm. Tab. Method.*, I, p. 27 (1827).

*Typical locality*.—Japan.

*Type*.—In Leyden Museum.

**Petaurista elegans** (Temm.).

Mueller and Sehlegel, *Verhandl. Nat. Gesch.*, 1839-44, pp. 107, 112, pl. xvi, figs. 1-3.

*Typical locality*.—Island south of Nusa Kumbang, South Java.

*Type*.—In Leyden Museum.

**Petaurista philippensis**.**a. philippensis philippensis** (Elliot).

*Madras Journ. Lit. and Sc.*, p. 217 (1839).

*Typical locality*.—Near Madras.

*Type*.—? In British Museum.

9708-9. Travancore; skins and skulls.

9805 imm. Hulekal, Sirsi, Kanara, 1,500 ft., April 1912; G. C. Shortridge, Bombay Nat. Hist. Soc. Mammal Survey [P.]; skin and skull.

**b. philippensis oral** (Tick.).

*Journ. Nat. Hist. Calcutta*, II, p. 401, pl. xi (1842).

*Typical locality*.—Singhbhum district, Bengal.

*Type*.—?.

9711, 9712 (A. S. B.). No locality; skulls only.

Juv. Midnapur

The allocation of these skulls, without any provenance, to this form is of course quite hypothetical. They are considerably smaller than those of *P. p. philippensis* from Travancore. A third skull also marked as *oral* is that of a species of *Ratufa*, probably *R. gigantea*.

9043. Zoological Gardens, Calcutta; skin and skull.

This is only a one-third grown specimen and is marked as coming from Assam; this however is probably only the locality of the species, *Hy. alboniger*, with which it has been identified.

**c. philippensis cinderella**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XX, p. 1018 (1911).

*Typical locality*.—Surat District, Bombay.

*Type*.—In British Museum.

7311. Rourkel district, Nagpur (B. D. Whiffen) [P.]; skin only.

**d. philippensis lanka**, Wroughton.

*Op. cit. supra*, p. 1017 (1911).

*Typical locality*.—Ceylon.

*Type*.—In British Museum.

9710. Ceylon (Colombo Museum) [P.]; skin and skull.

**Petaurista punctatus.**a. **punctatus punctatus** (Gray).

*Ann. Mag. Nat. Hist.*, XVIII, p. 211 (1846).

*Typical locality*.—Malacca.

*Type*.—In British Museum.

Also collected by Fea on the Karin Hills.

b. **punctatus marica**, Thos.

*Ann. Mag. Nat. Hist.* (8), IX, p. 627 (1912).

*Typical locality*.—Yunnan (probably near Mong-tze).

*Type*.—In British Museum.

c. **punctatus sybilla**, Thos.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 424 (1916).

*Typical locality*.—Chin Hills (near Kindat, Upper Burma).

*Type*.—In British Museum.

**Sp. incert.**

9057. Yung Ping, Heien, Yunnan, 22nd February 1909 (J. Coggin Brown) [C]; skin and skull.

This specimen, which is far too young to describe, probably represents a new form allied to the *annamensis-alborufus* section, if indeed it does not belong to the latter form, of which we have seen no authentic specimens.

Genus **EUPETAURUS**, Thomas, 1888.

**Eupetaurus cineraceus**, Thos.

*Journ. Asiat. Soc. Bengal*, LVII, p. 258, pls. xxii, xxiii (1888).

*Typical locality*.—Gilgit Valley.

*Type*.—In British Museum. Co-type in Indian Museum.

9492. Gilgit Valley, 5,000 ft. (G. M. Giles) [C.]; skin and skull. Co-type of the species.

Subfamily **PTEROMIINAE**.

Genus **IOMYS**, Thomas, 1908.

**Iomys horsfieldi**.a. **horsfieldi horsfieldi** (Waterhouse).

*P. Z. S.*, 1837, p. 87.

*Typical locality*.—Java (or Sumatra)

*Type*.—In British Museum.

b. **horsfieldi davisoni** (Thos.).*P. Z. S.*, 1886, p. 74, pl. vi.*Typical locality*.—Malacca.*Type*.—In British Museum.c. **horsfieldi thomsoni** (Thos.).*Ann. Mag. Nat. Hist.*, (7), V, p. 275.*Typical locality*.—Baram, Sarawak.*Type*.—In British Museum.d. **horsfieldi lepidus**, Lyon.*Proc. U. S. Nat. Mus.*, XL, p. 78 (1911).*Typical locality*.—Kendawangan River, South-west Borneo.*Type*.—In United States National Museum.Genus **BELOMYS**, Thomas, 1908.**Belomys pearsoni** (Gray).*Ann. Mag. Nat. Hist.*, X, p. 263 (1842).*Typical locality*.—Darjiling, Sikkim.*Type*.—In British Museum ?.

9786. Darjiling (W. Theobald); skull only.

**Belomys villosus** (Blyth).*Journ. Asiat. Soc. Bengal*, XVI, p. 866 (1847).*Typical locality*.—Upper Assam (Singpho country).*Type*.—In Indian Museum, Calcutta.9488. North Assam (F. Bonyng), co-type of *Sc. villosus*; skin only.9489. North Assam (F. Bonyng), cotype of *Sc. villosus*; skin and skull.

? 9770. Naga Hills (H. H. Godwin-Austen); skin and skull.

? 9771. Cachar (Mus. Coll.); skin and skull.

? 9769. Assam (A. W. Chennell); skin and skull.

**Belomys trichotis**, Thos.*Ann. Mag. Nat. Hist.*, (8), I, p. 7 (1908).*Typical locality*.—Machi, Manipur.*Type*.—In British Museum.

? 9758. Momein (J. Anderson); skin and skull.

? 9772. Momein (J. Anderson); skull only.

**Belomys kaleensis** (Swinh.).*P. Z. S.*, 1862, p. 359.*Typical locality*.—North Formosa.*Type*.—In British Museum.

Of the above examples of the genus *Belomys* the skull of *pearsoni* (9786, Darjiling) agrees with the characters given by Thomas (*Ann.*

*Mag.* (8), I, p. 7) in having the palate breadth between the large pre-molars (*pm.*—) only equal to the length of  $pm^4 + \frac{1}{2} m^1$ .

The Assam example (9489, cotype of *villosus* : 9488 having no skull) has rather smaller teeth and possesses the characters given for *trichotis*, Thomas, of Manipur, in having the palate breadth equal to the length of  $pm^4 + m^1$ , as does that of the Cachar specimen (9771) which resembles it generally ; but the second Assam skull (9769), which also has about the same ratio of palate breadth to tooth row, is otherwise very different from all the rest in being larger with a much heavier, blunter rostrum ; considerably greater breadth in general and larger, markedly broader teeth ; it is however the oldest of the lot.

The Naga Hill skull (9770) more nearly resembles *pearsoni*.

The only Momein skull (9758) agrees with the majority in form, except that the bullae seem smaller, but it has the proportion of palate breadth to teeth as in *pearsoni* ; it has however teeth nearly as broad as No. 9769 of Assam, with the longest tooth row of all and  $pm^3$  very large indeed—larger than in *pearsoni*.

The skins are in poor condition but do not seem separable on colour ; either, however, too many forms have been recognised, or not enough.

#### Genus **PTEROMYSCUS**, Thomas, 1908.

##### **Pteromyscus pulverulentus.**

###### a. **pulverulentus pulverulentus** (Gunther).

*P. Z. S.*, 1873, p. 413, pl. xxxviii.

*Typical locality.*—Penang.

*Type.*—In British Museum.

###### b. **pulverulentus borneanus**, Thos.

*Ann. Mag. Nat. Hist.*, (8), I, p. 17 (1908).

*Typical locality.*—Baram, Sarawak.

*Type.*—In British Museum.

#### Genus **PETAURILLUS**, Thomas, 1908.

##### **Petaurillus hosei** (Thos).

*Ann. Mag. Nat. Hist.*, (7), V, p. 275 (1900).

*Typical locality.*—Baram, Sarawak.

*Type.*—In British Museum.

##### **Petaurillus emiliae**, Thos.

*Ann. Mag. Nat. Hist.*, (8), I, p. 8 (1908).

*Typical locality.*—Baram, Sarawak.

*Type.*—In British Museum.

**Petaurillus kinlochi**, Robinson and Kloss.

*Journ. Fed. Malay States Mus.*, IV, p. 171 (1911).

*Typical locality*.—Selangor, Malay Peninsula.

*Type*.—In Federated Malay States Museum.

Genus **HYLOPETES**, Thomas, 1908.**Hylopetes everetti** (Thos.).

*Nov. Zool.*, II, p. 27 (1895).

*Typical locality*.—Bunguran Island, South China Sea.

*Type*.—In British Museum.

**Hylopetes nigripes** (Thos.).

*Ann. Mag. Nat. Hist.*, (6), XII, p. 30 (1893).

*Typical locality*.—Palawan Island.

*Type*.—In British Museum?

**Hylopetes aurantiacus** (Wagn.).

*Munch. Gel. Anz.*, XII, p. 438 (1841).

*Typical locality*.—Island of Banka, East of Sumatra.

*Type*.—Presumably in Munich Museum.

**Hylopetes belone** (Thos.).

*Ann. Mag. Nat. Hist.*, (8), II, p. 305 (1908).

*Typical locality*.—Terutau Island, Northern Straits of Malacca.

*Type*.—In British Museum.

**Hylopetes amoenus** (Miller).

*Proc. U. S. Nat. Mus.*, XXXI, p. 264 (1907).

*Typical locality*.—Kundur Island, Rhio Archipelago, near Singapore.

*Type*.—In United States National Museum.

**Hylopetes platyurus** (Jent.).

*Notes Leyden Museum*, XII, pp. 145, 147, pl. vii, figs. 7, 8 (1890).

*Typical locality*.—Deli, North-east Sumatra.

*Type*.—In Leyden Museum.

**Hylopetes phayrei**.a. **phayrei phayrei** (Blyth).

*Journ. Asiat. Soc. Bengal*, XXVIII, p. 278 (1859).

*Typical locality*.—Rangoon, Burma.

*Type*.—In Indian Museum, Calcutta.

9490. Rangoon, Burma; skin and skull. Cotype.

9491. Burma. Sir A. Phayre and Major Berdmore (cotype); skin only.

7232. Pegu Yomas. O. L. Fraser; skull only.

9767. Skin only.

9768. Skin and skull.

**b. phayrei probus** (Thomas).

*Journ. Bombay Nat. Hist. Soc.*, XXIII, p. 27 (1914).

*Typical locality*.—Mount Popa, Burma.

*Type*.—In British Museum.

**c. phayrei laotum** (Thomas).

*Journ. Bombay Nat. Hist. Soc.*, XXIII, p. 28 (1914).

*Typical locality*.—Laos Mountains.

*Type*.—In British Museum.

**Hylopetes spadiceus** (Blyth).

*Journ. Asiat. Soc. Bengal*, XVI, p. 867 (1847).

*Typical locality*.—Arakan.

*Type*.—In Indian Museum, Calcutta.

9765. Arakan. Sir A. Phayre, type of the species; skin and skull.

9766. Moulmein, Tenasserim. J. Davis; skin and skull.

**Hylopetes alboniger** (Hodgson).

*Journ. Asiat. Soc. Bengal*, V, p. 231 (1836).

*Typical locality*.—Nepal.

*Type*.—In British Museum.

8428. Nepal. R. A. Hodgert; skin and skull imm.

9755. Darjiling. Mrs. Oates; skin and skull imm.

9756. Garo Hills. H. L. Haughton; skin and skull imm.

9763. Shillong. T. la Touche; skin only.

9757. Cachar Hills; skin and skull.

9762. Naga Hills. A. W. Chennell; skin only.

9759. Momein. J. Anderson; skin only.

9760. W. Rutledge; skin and skull.

9761. Skin and skull.

The validity and generic position of the following three races are doubtful.

**? sagitta** (Linn.).

*Syst. Nat.*, I, p. 88 (1766).

*Typical locality*.—Western (?) Java.

*Type*.—Disappeared.

**? lepidus** (Horsf.).

? [Synonym of *sagitta*, of Thos. and Wr., *P. Z. S.*, 1909, p. 387]; *Zool. Res. in Java*, 1824 (description and plate).

*Typical locality*.—Java.

*Type*.—Disappeared.

**? harrisoni** (Stone).

*Proc. Acad. Nat. Sci. Philadelphia*, XLII, p. 462 (1900).

*Typical locality*.—Borneo.

*Type*.—In Philadelphia Academy of Sciences.

Genus **ÆROMYS**, Robinson and Kloss, 1915.

**Æromys tephromelas** (Gunther).

*P. Z. S.*, 1873, p. 413, pl. xxxvii.

*Typical locality*.—Penang.

*Type*.—In British Museum.

**Æromys phaeomelas** (Gunther).

*P. Z. S.*, 1873, p. 413.

*Typical locality*.—Borneo.

*Type*.—In British Museum.

? **Æromys thomasi** (Hose).

*Ann. Mag. Nat. Hist.*, (7), V, p. 214 (1900).

*Typical locality*.—Baram, Sarawak.

*Type*.—In British Museum.

Genus **PETINOMYS**, Thomas, 1908.

**Petinomys lugens** (Thos.).

*Ann. Mus. Stor. Nat. Genova*, XIV, p. 666 (1894).

*Typical locality*.—Island of Sipora, West Sumatra.

*Type*.—In Genoa Museum.

**Petinomys maerens** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 26 (1903).

*Typical locality*.—North Pagi Island, West of Sumatra.

*Type*.—In United States National Museum.

**Petinomys genibarbis**.

a. **genibarbis genibarbis** (Horsf.).

*Zool. Res. in Java*, 1824 (description and plate).

*Typical locality*.—Eastern Java.

*Type*.—In British Museum.

b. **genibarbis malaccanus** (Thos.).

*Ann. Mag. Nat. Hist.*, (8), II, p. 304 (1918).

*Typical locality*.—Malacca.

*Type*.—In British Museum.

c. **genibarbis borneonensis** (Thos.).

*Loc. cit. supra*, p. 304.

*Typical locality*.—Bakong River, East Sarawak, Borneo.

*Type*.—In British Museum.

**Petinomys vordermanni** (Jent.).

*Notes Leyden Museum*, 1890, p. 150, pl. vii, figs. 13 and 14.

*Typical locality*.—Island of Billiton, East Sumatra.

*Type*.—In Leyden Museum.

**Petinomys setosus** (Temm. and Schlegel).

*Faun. Japon.*, 1847, Mamm., p. 49.

*Typical locality*.—Padang, Sumatra.

*Type*.—In Leyden Museum.

**Petinomys hageni** (Jent.).

*Notes Leyden Museum*, XI, p. 26 (1888).

*Typical locality*.—Deli, Sumatra.

*Type*.—In Leyden Museum.

**Petinomys phipsoni**, Thomas.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 422 (1916).

*Typical locality*.—Tenasserim town, Tenasserim.

*Type*.—In British Museum.

**Petinomys fuscocapillus** (Jerdon in Blyth).

*Journ. Asiat. Soc. Bengal*, XVI, p. 867 (1847).

*Typical locality*.—South India (Nilgiri Hills?).

*Type*.—Apparently not in existence?

Genus **EOGLAUCOMYS**, Howell, 1915.**Eoglaucomyx fimbriatus** (Gray).

*Ann. Mag. Nat. Hist.*, I, p. 584 (1837).

*Typical locality*.—Western Himalayas.

*Type*.—In British Museum.

- 8990. Kashmir, 10,000 ft., J. Scully [C.]; skin and skull.
- 9747. Chitral, 5,000 ft., G. M. Giles [C.]; skin and skull juv.
- 9748. Nultar Valley, Gilgit (A. E. Ward) [C.]; skin only.
- 9749. Nultar Valley, Gilgit; skin and skull.
- 9750. Chaprot, Gilgit; skin and skull.
- 9751. Gilgit, 6,000 ft.; skin and skull.
- 9752. Ladak. J. Biddulph [C.]; skin and skull.
- 9753. Kashmir. J. Anderson [C.]; skin only.
- 9754. Simla. L. C. Stewart [C.]; skin only.

Not to be regarded as an Oriental species.

Subfamily *SCIURINAE*.Genus **RATUFA**, Gray, 1867**Ratufa macroura**.a. **macroura macroura** (Pennant).*Ind. Zool.*, I, pl. i (1769).*Typical locality*.—Highlands of Ceylon.*Type*.—Not in existence.

9472 (A. S. B.). Ceylon (Dr. Kelaart); skin only.

This specimen, though marked as the type of *Sc. teanantii* (*sic.*) Layard (Blyth, *Journ. Asiat. Soc., Bengal*, XVIII, p. 600; 1849) cannot I think so be regarded. The present specimen is that referred to by Blyth two years later [*op. cit.*, XX, p. 165 (1851)].

9283 (A. S. B.). Ceylon (Dr. Kelaart); skull only.

b. **macroura melanochroa**, Thos. and Wrought.*Journ. Nat. Hist. Soc. Bombay*, XXIV, pp. 36, 90 (1915).*Typical locality*.—Southern Ceylon (Kottawa).*Type*.—In British Museum.

9278. Ceylon (Colombo Museum) [P.]; skin and skull.

9280. Ceylon (Zoological Gardens); skin only.

c. **macroura albipes** (Blyth).*Journ. Asiat. Soc. Bengal*, XXVIII, p. 287 (1859).*Typical locality*.—Unknown.

*Type*.—Once in the Medical College, Calcutta; probably now not in existence.

9281. Nilgiris, Southern India (R. Rolls) 1845; skin.

9279. ♂ Shevaroy Hills, Madras (W. Daly); skin and skull.

Thomas and Wroughton have apparently overlooked the existence of this form, which, however, is well characterised by Blyth. In view of the fact that the continental and insular races of squirrels are almost invariably distinct I have allowed the succeeding form to stand.

d. **macroura dandolena**, Thos. and Wrought.*Loc. cit. supra*, pp. 36, 90.*Typical locality*.—Lowland Ceylon, Wellawaya, Uva.*Type*.—In British Museum.

9779, 9785. Ceylon (E. L. Layard); skins and skulls.

9282. Ceylon (Dr. R. Templeton); skin and skull.

The latter number is evidently the specimen described and figured by Blyth as *Sciurus macrourus* (*J. A. S. B.*, XVI, p. 869, pl. xxxvi, fig. 2, 1847).

It is, as stated in the description, a decidedly smaller animal. Greatest length of present skull 67 as against 70 mm. in 9283. In colour

it is rather dark, with grizzled sides and a black line from behind the ear down the cheeks.

### **Ratufa indica.**

#### **a. indica indica** (Erxleben).

*Syst. Regn. An.*, p. 420 (1777).

*Typical locality*.—Bombay Presidency.

*Type*.—Not in existence.

Deccan (Sykes). *India Mus.*, London [P], skin and skull.

Probably a paratype of *Sciurus elphinstonii*, Sykes (*P. Z. S.*, 1831, p. 103).

9787. ♂ Samasgi, Kanara border, South-West Dharwar, 2,000 ft., March 1912; (G. C. Shortridge) [C.], *Bombay Nat. Hist. Soc. Mammal Survey* [P.]; skin and skull.

9788 ♂ Devikop, South Mahratta country, 2,000 ft., November 1911; (G. C. Shortridge) [C.]. *Bombay Nat. Hist. Soc. Mammal Survey* [P.]; skin and skull.

#### **b. indica superans**, Ryley.

*Journ. Nat. Hist. Soc. Bombay*, XXII, p. 436 (1813).]

*Typical locality*.—Wotekolli, South Coorg.

*Type*.—In British Museum.

9972. Wotekolli, 2,000 ft., South Coorg, January 1913 (G. C. Shortridge) [C.]. *Bombay Nat. Hist. Soc. Mammal Survey* [P.]. Paratype of the subspecies.

#### **c. indica bengalensis** (Blanf.).

*Journ. Nat. Hist. Soc. Bombay*, XI, p. 303, pl. B, fig. 2 (1897).

*Typical locality*.—Not precisely specified.

*Type*.—In British Museum.

9605, 9606. 2♂ Menagerie specimens (W. Rutledge); skins.

9612 (A. S. B.). Barrackpore Menagerie; skin and skull.

9602-3. (J. Anderson) [C.]; skins and skulls.

9604. (Lord Northbrook) [P.]; skin.

9587 (A. S. B.). No history; skull only.

#### **d. indica centralis**, Ryley.

*Loc. cit. supra*, p. 436.

*Typical locality*.—Hosengabad, Central Provinces.

*Type*.—In British Museum.

9789-90. ♂ ♀ Bori, Hosengabad, 1800 ft., Central Provinces; February 1912; (C. M. Crump) [C.]; *Bombay Nat. Hist. Soc. Mammal Survey* [P.]; skins and skulls.

Skins almost destroyed by pests. Topotypes.

9597. Malabar (Alston).

Like that of many specimens derived from this source this locality is probably incorrect.

9600-1 (A. S. B.). ♀ No history; skins and skulls.

9784. No history; skin and skull.

9607-9. 2♂ ♀ Menagerie specimens (Rutledge); skins.

9611, 9613 (A. S. B.). No history; skin and two skulls.

7954. ♂ No history; skin and skull.

9593. Cuttack, Orissa (Ball) [C.]; skin and skull.

9614-5. ♂ ♀ Tenmalai, South Arcot (W. P. Howell) [C.]; skins and skulls.

The material is somewhat indifferent and the allotment of skulls unaccompanied by skins to this subspecies is not a matter of absolute

certainty. The specimen from Orissa has distinctly black shoulders and is not therefore true *R. i. centralis*. Those from Arcot have the red colour paler, the black rump and shoulders more sharply differentiated from the red portions of the pelage.

e. **indica maxima** (Schreb.).

*Saugth.*, IV, p. 784, pl. ccxxii, B (1784).

*Typical locality*.—Malabar.

*Type*.—In Paris Museum.

9594, 9598. Travancore; skins.

9616-9617. Travancore (Travancore Museum) [P.]; skins and skulls.

9595. South Malabar. Revd. J. Baker [C.]; skin and skull.

9595 (A. S. B. 307A). South Malabar.

9596 (A. S. B. 307B). South Malabar; skin and skull.

7102. ♀ Calathorpulay, Travancore (Mus. Coll.); skin and skull.

9610. South Malabar; skull only.

e. **indica dealbata** (Blanf.).

*Journ. Nat. Hist. Soc. Bombay*, XI, p. 299 pl. A, fig. 1 (1897).

*Typical locality*.—Surat Dangs.

*Type*.—In British Museum.

**Ratufa bicolor.**

a. **bicolor bicolor** (Sparrm.).

*Gotheb. Wet. Sevensk. Handl.*, I, p. 70 (1778).

*Typical locality*.—Anjer, West Java.

*Type*.—Not in existence.

7785 imm. No locality; skin and skull.

♂ Tjibodas, Gedeh, 5,000 ft., West Java, 2nd March 1916; skin and skull (H. C. Robinson) [C.]; Federated Malay States Museum [P.].

Miller (*Proc. Biol. Soc., Washington*, XXIV, p. 28; 1911) has described from the above locality a mountain race of this species as *Ratufa bicolor major*, but the measurements of a large series do not confirm his conclusions and we have not therefore recognised his subspecies.

b. **bicolor baliensis**, Thos.

*Ann. Mag. Nat Hist.*, (8), XI, p. 506 (1913).

*Typical locality*.—Tjetoekambawang, Bali.

*Type*.—In British Museum.

♀ Sodong Jerok, Idjen Massif, 3,900 ft., near Banjoewangi, East Java, 9th April 1916; Federated Malay States Museum [P.]; skin and skull.

Though originally described from Bali, this is merely the eastern Java form of the preceding and is the one on which Horsfield's descriptions have been founded.

c. **bicolor palliata** (Miller).

*Proc. Acad. Nat. Sci. Philadelphia*, LIV, p. 147 (1902).

*Typical locality*.—Indragiri River, East Sumatra.

*Type*.—In United States National Museum.

♂ Sungei Kumbang, Korinchi, West Sumatra, 4,500 ft., 11th April 1914. H. C. Robinson and C. B. Kloss [C.]; Federated Malay States Museum [P.]; skin and skull.

d. **bicolor laenata**, Miller.

*Proc. U. S. Nat. Mus.*, XXVI, p. 459 (1903).

*Typical locality*.—Pulau Tuangku, Banjak Islands, West Sumatra.

*Type*.—In United States National Museum.

e. **bicolor batuana**, Lyon.

*Proc. U. S. Nat. Mus.*, LII, p. 445 (1916).

*Typical locality*.—Tana Bala, Batu Islands, West Sumatra.

*Type*.—In United States National Museum.

**Ratufa notabilis.**a. **notabilis notabilis**, Miller.

*Proc. Acad. Nat. Sci. Philadelphia*, 1902, p. 150.

*Typical locality*.—Lingga Island, Rhio-Lingga Archipelago.

*Type*.—In United States National Museum.

b. **notabilis insignis**, Miller.

*Smithsonian Misc. Coll.*, XLV, p. 4 (1903).

*Typical locality*.—Pulau Sugi, Rhio-Lingga Archipelago.

*Type*.—In United States National Museum.

c. **notabilis bulana**, Lyon.

*Proc. U. S. Nat. Mus.*, XXXVI, p. 482 (1909).

*Typical locality*.—Pulau Bulan, Rhio-Lingga Archipelago.

*Type*.—In United States National Museum.

d. **notabilis carimonensis**, Miller.

*Proc. U. S. Nat. Mus.*, XXXI, p. 257 (1906).

*Typical locality*.—Great Karimon Island, Rhio-Lingga Archipelago.

*Type*.—In United States National Museum.

♂ Tanjong Sebatak, Great Karimon Island, Rhio-Lingga Archipelago; 25th August 1908; E. Seimund [C.]; skin and skull. Federated Malay States Museum [P.].

e. **notabilis condurensis**, Miller.*Loc. cit. supra*, p. 258.*Typical locality*.—Pulau Kundur, Rhio-Lingga Archipelago.*Type*.—In United States National Museum.f. **notabilis confinis**, Miller.*Loc. cit. supra*, p. 258.*Typical locality*.—Sinkep Island, Rhio-Lingga Archipelago.*Type*.—In United States National Museum.g. **notabilis conspicua**, Miller.*Smithsonian Misc. Coll.*, XLV, p. 5 (1903).*Typical locality*.—Pulau Bintang, Rhio-Lingga Archipelago.*Type*.—In United States National Museum.**Ratufa ephippium.**a. **ephippium ephippium** (S. Muell.).*Tijd. Nat. Gesch. Physiol.*, V, p. 147 (1838-9).*Typical locality*.—South-East Borneo (low country).*Type*.—In Leyden Museum.

9549 (A. S. B.). Borneo (Batavian Society), 1844, imperfect skull.

It is of course impossible to allocate this specimen to any particular subspecies with any certainty, but from its data it is probably this race.

b. **ephippium cothurnata**, Lyon.*Proc. U. S. Nat. Mus.*, XL, p. 93 (1911).*Typical locality*.—Mount Palung, near Sukadana, West Borneo.*Type*.—In United States National Museum.

9544. Borneo (Alston); skin and skull.

c. **ephippium baramensis**, Bonh.*Ann. Mag. Nat. Hist.*, (7), V, p. 496 (1900).*Typical locality*.—Baram district, Sarawak, Borneo.*Type*.—In British Museum.d. **ephippium sandakanensis**, Bonh.*Loc. cit. supra*, p. 497.*Typical locality*.—Sandakan, British North Borneo.*Type*.—In British Museum.

9550. Borneo (Alston); skin and skull.

e. **ephippium griseicollis**, Lyon.

*Proc. U. S. Nat. Mus.*, XL, p. 94 (1911).

*Typical locality*.—Panebangan Island, West Borneo.

*Type*.—In United States National Museum.

f. **ephippium vittata**, Lyon.

*Loc. cit. supra*, p. 94.

*Typical locality*.—Pulau Laut, South-East Borneo.

*Type*.—In United States National Museum.

g. **ephippium vittatula**, Lyon.

*Loc. cit. supra*, p. 95.

*Typical locality*.—Pulau Sebuku, South-East Borneo.

*Type*.—In United States National Museum.

h. **ephippium bunguranensis** (Thos. and Hart.).

*Nov. Zool.*, I, p. 658 (1894).

*Typical locality*.—Bunguran Island, Natunas.

*Type*.—In British Museum.

i. **ephippium sirhassenensis**, Bonh.

*Loc. cit. supra*, p. 498.

*Typical locality*.—Sirhassen Island, Natunas.

*Type*.—In British Museum.

j. **ephippium nanogigas** (Thos. and Hart.).

*Nov. Zool.*, II, p. 491 (1895).

*Typical locality*.—Pulau Laut, North Natunas.

*Type*.—In British Museum.

k. **ephippium polia**, Lyon.

*Proc. U. S. Nat. Mus.*, XXXI, p. 585 (1906).

*Typical locality*.—Billiton Island.

*Type*.—In United States National Museum.

l. **ephippium bancana**, Lyon.

*Loc. cit. supra*, p. 587.

*Typical locality*.—Banka Island.

*Type*.—In United States National Museum.

**Ratufa affinis.****a. affinis affinis** (Raffles).

*Trans. Linn. Soc.*, XIII, p. 258 (1822).

*Typical locality*.—Singapore.

*Type*.—Doubtfully in existence.

9545 ♀ Singapore (Rutledge) ; skull only.

The identification of this skull subspecifically is doubtful, but the specimen agrees with authentic examples from the type locality.

**b. affinis hypoleuca** (Horsf.).

*Zool. Res. in Java* (1824).

*Typical locality*.—Bencoolen, West Sumatra.

*Type*.—Doubtfully in existence.

9543. Java (Horsfield) [C.] ex India Museum, London ; skin and skull.

The localities attached to specimens from the old India Museum were notoriously incorrect, and I therefore am practically certain that the present one is incorrect, insomuch as no squirrel of this type is known from Java, neither Shortridge nor myself nor any recent collector having met with it.<sup>1</sup> I have therefore assigned it to the present race with the descriptions of which by Lyon and others it very fairly well agrees.

**c. affinis catemana**, Lyon.

*Proc. U. S. Nat. Mus.*, XXXII, p. 443 (1907).

*Typical locality*.—Kateman river, South-East Sumatra.

*Type*.—In United States National Museum.

**d. affinis johorensis**, Robinson and Kloss.

*Journ. Fed. Malay States Mus.*, IV, p. 244 (1911).

*Typical locality*.—Padang Tuan, Segamat, North-west Johore.

*Type*.—In Federated Malay States Museum.

**e. affinis aureiventer** (Is. Geoffr.).

*Mag. Zool. Cl.*, I, pl. v (1832).

*Typical locality*.—Java (in error) substitute "Malacca."

*Type*.—In Mus. Nat. Hist., Paris.

9100, 9101. Nyalas Malacca, October, 1910 ; Federated Malay States Museum [P.] ; skins and skulls.

9542. Malacca (Alston) ; skin and skull.

9546-7, 9780 (A. S. B.). Malay Peninsula (E. Linstedt and R. W. G. Frith) [C.] 1846 ; imperfect skulls.

9548. [Java] (Mrs. Turnbull) 1857 ; skull.

<sup>1</sup> There is, however, one in the Leyden Museum labelled "Java Teysmann, 1878," vide Jentink, *Notes Leyden Mus.*, V, p. 112 (1883) under *Sciurus albiceps*, No. 29. It is not impossibly a much bleached example of *R. bicolor*.

The locality for this last skull must be erroneous. I have placed it under this form, but its subspecific identification is, of course, in the absence of the skin, rather uncertain.

f. **affinis arusinus**, Lyon.

*Proc. U. S. Nat. Mus.*, XXXII, p. 442 (1907).

*Typical locality*.—Aru Bay, North-East Sumatra.

*Type*.—In United States National Museum.

g. **affinis pyrsonota**, Miller.

*Proc. Acad. Sci. Washington*, II, p. 75 (1900).

*Typical locality*.—Trang, Siamese Malaya.

*Type*.—In United States National Museum.

7071. Taiping, Perak, Malay Peninsula, 1889 (Mus. Coll.) ; skin and skull.

h. **affinis femoralis**, Miller.

*Proc. U. S. Nat. Mus.*, XXVI, p. 447 (1903).

*Typical locality*.—Pulau Tuangku, Banjak Islands, West Sumatra.

*Type*.—In United States National Museum.

i. **affinis nigrescens**, Miller.

*Op. cit. supra*, p. 448.

*Typical locality*.—Pulau Mansalar, near Tapanuli Bay, West Sumatra.

*Type*.—In United States National Museum.

j. **affinis balae**, Miller.

*Smithsonian Misc. Coll.*, XLV, p. 6 (1903).

*Typical locality*.—Tana Bala, Batu Islands, West Sumatra.

*Type*.—In United States National Museum.

k. **affinis masae**, Miller.

*Op. cit. supra*, p. 7.

*Typical locality*.—Tana Masa, Batu Islands, West Sumatra.

*Type*.—In United States National Museum.

l. **affinis piniensis** (Miller).

*Op. cit. supra*, p. 7.

*Typical locality*.—Pulau Pinie, Batu Islands, West Sumatra.

*Type*.—In United States National Museum.

**Ratufa gigantea.**

a. **gigantea gigantea** (McClell.).

*P. Z. S.*, 1839, p. 150.

*Typical locality*.—Assam.

*Type*.—Formerly in the India Museum, London, but apparently no longer in existence.

9166. ♀ Upper Renging, Abor Hills, 2,150 ft. (Capt. de Courcy) [C.]; skin and skull.  
 9570-1. Naga Hills, Assam (A. W. Chennell) [C.]; skins and skulls.  
 9564. Garo Hills, Assam (Dr. J. Anderson) [C.], 1879; skin and skull.  
 9572. Telbongo Peak, Naga Hills, Assam (H. H. Godwin-Austen) [C.]; skin and skull.  
 9573-6. Dunsiris Valley, Assam, August 1873 (H. H. Godwin-Austen) [C.]; skin and skull.  
 9578-9, 9585. Sibsagar, Assam, July 1868 (S. E. Peel) [C.]; two skins and skulls.  
 9584 Juv. Goalpara, Assam, August 1868 (A. L. Haughton) [C.]; skin and skull.  
 9565-9, 9586. Samagooting, Assam (J. Butler) [C.]; skins and skulls.  
 9575. Assam, 1859 (Capt. E. F. Smith) [C.]; skin.  
 9303-5. Mangaldai, Assam (R. Frith) [C.]; skins.  
 9577. Dirjung River, North Cachar, May 1879 (H. H. Godwin-Austen) [C.]; skin and skull.  
 9580. Momein, Yunnan border, 6,000 ft., May 1868 (J. Anderson) [C.]; skin.  
 9591 Juv. Momein, Yunnan border, 6,000 ft., May 1868 (J. Anderson) [C.]; skin.  
 9583. Menagerie specimen (W. Rutledge) [P.]; skin and skull.  
 9582. [Borneo] (Alston); skin and skull.

The locality of the last specimen is certainly erroneous; no squirrel of this type is known to occur in Borneo. The tufted ears show that it is not one of the Malayan forms. The Momein skins though rather dark are quite typical; they too have tufted ears.

b. *gigantea lutrina*, Thos. and Wrought.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 226 (1916).

*Typical locality*.—West Bank of Upper Chindwin, Upper Burma.

*Type*.—In British Museum.

c. *gigantea macruroides* (Hodgs.).

*Journ. Asiat. Soc. Bengal*, XVIII, p. 775 (1849).

*Typical locality*.—Bengal.

*Type*.—In British Museum.

7297. ♀ Sukna, Darjiling Terai (W. Partridge) [C.]; skin and skull.  
 9563. ♀ Darjiling Terai, 1869. (J. Anderson) [C.]; skin and skull.  
 9560-1. ♂ ♀ Darjiling, 6,000 ft. (W. G. Masson) [C.]; skins and skulls.  
 9588. ♂ Darjiling, 8,000 ft. (W. G. Masson) [C.]; skin and skull.  
 9589. ♀ Darjiling, 8,000 ft. (W. G. Darling) [C.]; skin and skull.  
 9590. ♀ Rungbee, Darjiling (J. Munro) [C.]; skin and skull.  
 9562. ♂ Sikkim (H. J. Elwes) [E.]; skin and skull.  
 9574. ♂ Sikkim (W. T. Blanford) [C.]; skin and skull.  
 9551-9. Sikkim (L. Mandelli) [C.]; skin and eight skulls.

d. *gigantea fellii*, Thos. and Wrought.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 226 (1916)

*Typical locality*.—Yin, Lower Chindwin, Burma.

*Type*.—In British Museum.

9541. Pegu (W. T. Blanford) [C.]; skin and skull.

We are a little doubtful about this identification, but the small size of the skull, under 70 mm. in greatest length, induces us to place the

specimen, which is in faded pelage, under this race which appears to form a connecting link between *gigantea* and *melanopepla*.

e. ***gigantea hainana***, Allen.

*Bull. Amer. Mus. Nat. Hist.*, XXII, p. 472 (1916).

*Typical locality*.—Cheteriang, Hainan.

*Type*.—In American Mus. of Natural History, New York.

Except for the fact that the single specimen obtained is stated to have tufted ears we should be inclined to place this race near the island forms of *R. melanopepla*, viz., *R. m. fretensis* and *R. m. penangensis*.

***Ratufa phaeopepla***.

a. ***phaeopepla phaeopepla***, Miller.

*Smithsonian Misc. Coll.*, LXI, p. 25 (1913).

*Typical locality*.—Sungei Balik, South Tenasserim.

*Type*.—In United States National Museum.

9534-5. Amherst, Tenasserim (Dr. J. Armstrong) [C.]; skins and skulls.

9529. Ye, Tenasserim, 1886 (G. M. Giles) [C.]; skin and skull.

9539 (A. S. B.). Tenasserim; skin and skull.

9540 Juv. (A. S. B.). Tenasserim (Major Berdmore) [C.]; skin and skull.

9592 (A. S. B.). Tenasserim, 1845 (F. Jenkins) [C.]; skin.

9530-1. ♂ ♀ Pilai, Elphinstone Island, Mergui, March, 1882 (Dr. J. Anderson) [C.]; skins and skulls.

9533. ♂ Mergui, December, 1881 (Dr. J. Anderson) [C.]; skin and skull.

9532. Thaing, King Island, Mergui, December, 1881 (Dr. J. Anderson) [C.]; skin and skull.

Nos. 9530-1 and to a less extent No. 9532 are not typical; the black is more intense on the upper surface and the rufous ferruginous colour below much richer, while the size is also rather large. They are probably referable to *R. m. calaenopepla*, Miller, or an undescribed form, but the material is not adequate for description or determination within very narrow limits.

b. ***phaeopepla marana***, Thos. and Wrought.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 227 (1916).

*Typical locality*.—Mount Popa, Dry zone of Burma.

*Type*.—In British Museum.

9581. Upper Burma (Dr. Williams) [C.]; skin and skull.

c. ***phaeopepla leucogenys***, Kloss.

*Proc. Zool. Soc. London*, 1916, p. 43.

*Typical locality*.—Lem Ngop, South-east Siam.

*Type*.—In British Museum.

d. ***phaeopepla sinus***, Kloss.

*Loc. cit. supra*, p. 44.

*Typical locality*.—Koh Kut Island, South-east Siam.

*Type*.—In British Museum.

If *R. phaeopepla* is to be regarded as other than a subspecies of *R. melanopepla*, which is a very moot point, these two races are better classed as subspecies of it and not of *R. melanopepla* as has been done in the first instance.

**Ratufa melanopepla.**

**a. melanopepla melanopepla, Miller.**

*Proc. Acad. Sci. Washington*, II, p. 71 (1903).

*Typical locality*.—Telibon Island, Trang, Siamese Malaya.

*Type*.—In United States National Museum.

**b. melanopepla peninsulae, Miller.**

*Smithsonian Misc. Coll.*, LXI, No. 21, p. 25 (1913).

*Typical locality*.—Lay Song Hong, Trang, Siamese Malaya.

*Type*.—In United States National Museum.

9538. ♂ Malay Peninsula (Rutledge); skull only.

♀ Ginting Bidai, Selangor, Malay Peninsula, 7th September, 1914; Federated Malay States Museum [P.]; skin and skull.

**c. melanopepla decolorata, Robinson and Kloss.**

*Ann. Mag. Nat. Hist.*, (8), XIII, p. 227 (1914).

*Typical locality*.—Koh Samui Island, Bandon Bight, Siamese Malaya.

*Type*.—In Federated Malay States Museum.

♀ West side, Koh Samui, Bandon Bight, Siamese Malaya, 7th May, 1913 (H.C. Robinson) [C.]; Federated Malay States Museum [P.]; skin and skull.

**d. melanopepla celaenopepla, Miller.**

*Smithsonian Misc. Coll.*, LXI, p. 26 (1913).

*Typical locality*.—Domel Island, Mergui Archipelago.

*Type*.—In United States National Museum.

**e. melanopepla fretensis, Thos. and Wrought.**

*Ann. Mag. Nat. Hist.*, (8), IV, p. 535 (1909).

*Typical locality*.—Pulau Langkawi.

*Type*.—In British Museum.

♂ Sungei Udang, Pulau Terutau, Straits of Malacca, 9th March, 1909; Federated Malay States Museum [P.]; skin and skull.

**f. melanopepla penangensis, Robinson and Kloss.**

*Journ. Fed. Malay States Museum*, IV, p. 245 (1911).

*Typical locality*.—Telok Bahang, Penang Island.

*Type*.—In Federated Malay States Museum.

9536-7. No locality; skins and skulls.

These specimens agree perfectly with the types.

Telok Bahang, Penang Island, 11th March, 1911; one of the typical series. Federated Malay States Museum [P.]; skin and skull.

g. **melanopepla tiomanensis**, Miller.

*Proc. Acad. Sci. Washington*, II, p. 216 (1900).

*Typical locality*.—Pulau Tioman, South China Sea.

*Type*.—In United States National Museum.

♂ Juara Bay, Pulau Tioman, East Coast Malay Peninsula, 22nd June 1916 (H. C. Robinson). Federated Malay States Museum [P.]; skin and skull.

h. **melanopepla anambae**, Miller.

*Proc. Acad. Sci. Washington*, II, p. 215 (1900).

*Typical locality*.—Pulau Jimaja, Anamba Islands.

*Type*.—In United States National Museum.

i. **melanopepla angusticeps**, Miller.

*Proc. Acad. Sci. Washington*, III, p. 130 (1901).

*Typical locality*.—Pulau Lingung, Natuna Islands.

*Type*.—In United States National Museum.

**sp. incert. sedis.**

A mounted specimen of *Ratufa* from Ramree Island, Aracan, collected by Capt. Abbott in 1844 (Blyth Cat. *Sciurus bicolor* No. 309 D., p. 99 : Selat. Cat. p. 9, *Sciurus bicolor typicus* spm. p.) is now, though in good external condition, bleached to a uniform liver brown above, hairs with no annulations, forehead slightly paler, grizzled, hands and feet white, tail above as body, paler at tip, the whole of the vertebral area beneath and the basal portion of the hairs white. Ears not tufted.

This specimen almost certainly represents a quite distinct undescribed form possibly allied to *R. g. lutrina*, but in view of the fact that it has been exposed to light for 75 years we do not care to describe it.

Genus **CALLOSCIURUS**, G. R. Gray, 1867

*Ann. Mag. Nat. Hist.*, (3), XX, p. 277 (1867).

*Cf. Thomas, op. cit.* (8), XV, p. 385 (1915).

**Callosciurus erythraeus.**a. **erythraeus erythraeus** (Pallas).

*Glires*, p. 377 (1778).

*Typical locality*.— (?)

*Type*.— (?)

10196-10199, 10201, 10203, 1026. Above Tura, Garo Hills, Assam (S. W. Kemp) [C.]; skins and skulls.

9235-6. Garo Hills, Assam (Dr. J. Anderson) [C.]; skins and skulls.

9237. Garo Hills, Assam (H. H. Godwin-Austen) [C.]; skin and skull.

9238. Dorengo, Garo Hills (Museum Collector); skin and skull.

9239-40. (?) (A. W. Chennell) [C.]; skins and skulls.

9270. Shillong, Assam (T. La Touche) [C.]; skin and skull.

9274-75. Upper Burma; skulls only.

b. *erythraeus bhutanensis* (Bonhote).

*Ann. Mag. Nat. Hist.*, (7), VII p. 161 (1901).

*Typical locality*.—Bhutan.

*Type*.—In British Museum.

The Indian Museum does not possess a specimen of this race which is of somewhat doubtful authenticity.

c. *erythraeus nagarum*, Thos.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 228 (1916).

*Typical locality*.—Sadiya, Assam.

*Type*.—In British Museum.

9241-4. East Naga Hills, August, 1875 (H. H. Godwin-Austen); skins and skull.

9249-52. 3 ♂ ♀ Naga Hills, December, 1875 (A. W. Chennell); skins and skulls.

9248. Samagooting, Assam (Capt. Butler) [C.]; skin and skull.

9245. ♂ Dinapur, Naga Hills, April, 1875 (H. H. Godwin-Austen) [C.]; skin and skull.

9246-7. ♂ ♀ (?) (Godwin-Austen) [C.]; skins and skulls.

9150. ♂ Between Kalek and Misshing, Abor Hills, March, 1912 (S. W. Kemp) [C.]; skins and skulls.

9157. ♂ Between Kalek and Misshing, Abor Hills, March, 1912 (S. W. Kemp) [C.]; (grading towards *C. e. intermedius*); skin and skull.

9153. ♀ Pasighat, Abor Hills, 400 ft., March, 1912 (S. W. Kemp) [C.]; skin and skull.

d. *erythraeus erythrogaster* (Blyth).

*Journ. Asiat. Soc. Bengal*, XI, p. 970 (1842).

*Typical locality*.—Manipur.

*Type*.—In Indian Museum.

9262 (A. S. B. 320a.). Manipur (Col. C. S. Guthrie) [C.]; type of the species; skin and skull. Also type of *Sciurus rufiventer*, Blyth (*nec* Desm., 1822), *Journ. Asiat. Soc. Bengal*, XVI, p. 871 (1847).

9253. "Assam" (A. W. Chennell) [C.]; skin and skull.

9254. ♂ Sylhet (Zoological Gardens); skin.

9256. Chittagong (J. M. Lister) [C.]; skin and skull.

e. *erythraeus punctatissimus* (Gray).

*Ann. Mag. Nat. Hist.*, (3), XX, p. 283 (1867).

*Typical locality*.—Cachar.

*Type*.—In British Museum.

9255. ♂ Sylhet (Zoological Gardens); skin and skull.

*C. e. punctatissimus* differs from the preceding form by the exceedingly fine, almost obsolete, speckling of the upper surface and the darker chestnut of the belly. If this specimen and No. 9254 were really both got in exactly the same district it is evident that the present form is only a phase of *C. e. erythrogaster*, but having been a menagerie specimen the exact locality is open to much doubt.

f. *erythraeus intermedius* (Anderson).

*Zool. and Anat. Res.*, p. 241 (1879).

*Typical locality*.—Assam.

*Type*.—In Indian Museum.

- 9260-1.<sup>1</sup> 2♂ Dikrang Valley, Assam (H. H. Godwin-Austen) [C.]; skins and skulls.  
 9263. ♂ Toruputu, Duffla Hills, Assam (H. H. Godwin-Austen) [C.]; skin and skull.  
 9264. ♀ (?) (H. H. Godwin-Austen) [C.]; skin and skull.  
 9265, 9272. "Assam" (Dr. Day); skins and skulls.  
 9158. Sirpo Valley, Abor Hills (Capt. M. de Courcy); skin.  
 9156. ♀ Kobo, Abor Hills, 400 ft., December, 1911 (S. W. Kemp) [C.]; skin and skull.  
 9159-62. ♂ 3 ♀ Kobo, Abor Hills, 400 ft., December 1911 and March 1912; skins and skull.

*Callosciurus erythraeus crotalius*, Thos. and Wrought. (*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 227; 1916), types from Hkamti, Upper Chindwin, appears to be synonymous with this form, which, owing to the pernicious custom of describing species casually in the text, has largely escaped notice though the description is quite recognisable.

**g. erythraeus gordonii** (Anderson).

*P. Z. S.*, 1871, p. 140.

*Typical locality*.—Bhamo, Upper Burma.

*Types*.—In Indian Museum.

9268. ♀ Bhamo, Upper Burma, February, 1868; Types; skin and skull.  
 9257. Bhamo, Upper Burma, September, 1868 (Dr. J. Anderson); Types; skin and skull.  
 9267. Bhamo, Upper Burma, February, 1868 (Dr. J. Anderson) [C.]; skin and skull.  
 9266. ♀ Bhamo, Upper Burma, February, 1868 (Dr. J. Anderson) [C.]; skin and skull.  
 9258-9. ♂ ♀ Bhamo, Upper Burma, March, 1875 (Dr. J. Anderson) [C.]; skins and skulls.  
 9270. ♂ Bhamo, Upper Burma, March, 1875 (Dr. J. Anderson) [C.]; skins and skulls.  
 9273, 77. 2♂ Second defile of Irrawaddy, Upper Burma, March, 1875 (Dr. J. Anderson) [C.]; skins and one skull.  
 9269. ♂ Sagaing, Upper Burma, October, 1868 (Dr. J. Anderson) [C.]; skin only.  
 9271. ♀ Sawaddy, Upper Burma, January, 1875 (Dr. J. Anderson) [C.]; skin and skull.

This squirrel varies in the intensity of the median grizzled streak on the belly, which is very much fainter in some specimens than in others. Two specimens shot in September have the under-surface pale yellowish instead of rusty chestnut.

**h. erythraeus kinneari**, Thos. and Wrought.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 229 (1916).

*Typical locality*.—Tathon, Kindat, Southern part of Upper Chindwin.

*Type*.—In British Museum.

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<sup>1</sup> No particular specimen having been designated as the type by Dr. Anderson, I have fixed on No. 9260 as having a precise locality and sex attached. The form may be recognised by the absence of a grizzled median line on the belly and by having no black tip to the tail which has the terminal hairs broadly banded with yellowish-buff.

i. *erythraeus hyperythrus* (Blyth).

*Journ. Asiat. Soc. Bengal*, XXIV, p. 474 (1855).

*Typical locality*.—Tenasserim (? Moulmein).

*Type*.—In Indian Museum, Calcutta.

9478. Tenasserim, 1852 (Major Berdmore) [C.]; Type of the subspecies; skin and skull.

We are quite convinced that this subspecies, which has generally been referred to a "non-black-backed form of *C. atridorsalis*," comes in with *C. erythraeus* and *castaneiventris* and has nothing to do with *C. atridorsalis*. It is with difficulty separated from *C. e. rubeculus* (Miller) and *C. e. youngi* (Robinson and Kloss) principally by its deeper coloured belly, smaller size and absence of any trace of median ventral streak.

j. *erythraeus rubeculus* (Miller).

*Typical locality*.—Kao Sai Dao, Trang, Siamese Malaya.

*Type*.—In United States National Museum.

♂ Kao Nawng, Bandon, Siamese Malaya, 3,500 ft., June, 1913 (H.C. Robinson and E. Siemund) [C.]; Federated Malay States Museum [P.]; skin and skull.

k. *erythraeus youngi* (Robinson and Kloss).

*Ann. Mag. Nat. Hist.*, (8), XIII, p. 225 (1914).

*Typical locality*.—Gunong Tahan, 5—6,000 ft., Northern Pahang.

*Type*.—In the Federated Malay States Museum.

♂ ♀ Wray's Camp, Gunong Tahan, 3,000ft., Northern Pahang, June and July, 1911 (H. C. Robinson and C. B. Kloss) [C.]; Federated Malay States Museum [P.]; skins and skulls.

l. *erythraeus castaneoventris* (Gray).

*Ann. Mag. Nat. Hist.*, X, p. 263 (1842).

*Typical locality*.—"China" substitute Hainan.

*Type*.—In British Museum.

In 1910 Mr. R. C. Wroughton and one of us made the following note on this form. "*Sc. castaneoventris*" was described by Gray from a specimen collected by Mr. J. R. Reeves and labelled "China." Amongst the many varying allied forms from China in the Natural History Museum only one, *viz.*, that from Hainan, at all resembles the type of *castaneoventris*; at first the strong resemblance was not very evident, but on washing the tail of the type specimen the characteristic long white tips of the hairs at the end became evident and there can be doubt that the form described by Allen as *Sc. erythraeus insularis* from Hainan is this form *sensu strictu*."

m. *erythraeus griseopectus* (Blyth).

*Journ. Asiat. Soc. Bengal*, XVI, p. 873 (1847).

*Typical locality*.—(Unknown)

*Type*.—In Indian Museum, Calcutta.

9369. (Raja Mullick) [P.]; Type of the subspecies; skin only.

I do not know on what authority W. L. Sclater (*Cat. Mamm. Ind. Mus.*, II, p. 17; 1891) has given the locality China as the locality of this specimen which was unknown to its describer. The species, however, undoubtedly has the facies of the Chinese forms, and I cannot agree with Mr. Bonhote that it should be considered identical with *C. e. gordonii* (Anderson).

9370. Amoy, China, 1860 (R. Swinhoe) [C.]; skin and skull.

7370-1. Foochow, China, April, 1892 (R. Rickett) [C.]; skins and skulls.

These last three specimens are all rather richer coloured specimens than the type, probably to be accounted for by the age of the former, and have the median ventral stripe less in evidence, though this has been possibly obscured in skinning.

n. **erythraeus ningpoensis** (Bonh.).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 163 (1901).

*Typical locality*.—Ningpo, China.

*Type*.—In British Museum.

o. **erythraeus styani** (Thos.).

*Ann. Mag. Nat. Hist.*, (6), XIII, p. 363 (1894).

*Typical locality*.—Between Shanghai and Hangchow.

*Type*.—In British Museum.

p. **erythraeus bonhotei** (Rob. and Wrought.).

*Journ. Fed. Malay States Mus.*, IV, p. 234 (1911).

*Typical locality*.—Chen Chien San, Szechuen, China.

*Type*.—In British Museum.

q. **erythraeus michianus** (Rob. and Wrought.).

*Loc. cit. supra*, p. 235.

*Typical locality*.—Mee-Chee, Yunnan, South China.

*Type*.—In British Museum.

9058. ♂ Haikom, near Tengyueh, Yunnan, May, 1909 (J. Coggin Brown) [C.]; skin and skull.

r. **erythraeus haemobaphes**, Allen.

*Proc. Biol. Soc. Washington*, XXV, p. 177 (1912).

*Typical locality*.—Chih-ping, South-East Yunnan.

*Type*.—In Museum of Comparative Zoology, Harvard, U. S. A.

s. **erythraeus taiwanensis** (Bonh.).

*Loc. cit. supra*, p. 166.

*Typical locality*.—South Formosa (Baksa, October).

*Type*.—In British Museum.

t. **erythraeus centralis** (Bonh.).*Loc. cit. supra*, p. 166.*Typical locality*.—Lak-ku-li, Central Formosa.*Type*.—In British Museum.u. **erythraeus roberti** (Bonh.).*Loc. cit. supra*, p. 166.*Typical locality*.—North-West Formosa.*Type*.—In British Museum.

I have inserted all three of these races from Formosa, but in view of the variability in the amount of chestnut on the underparts in *C. e. rubeculus*, I have strong doubts as to the validity of all, two being probably merely seasonal forms.

v. **erythraeus crumpi**, Wroughton.*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 425 (1916).*Typical locality*.—Sedonchen, Sikkim, 6500 ft.*Type*.—In British Museum.

This species also is almost certain to possess a red-bellied summer form. (The type series were collected in November.)

**Callosciurus sladeni**.a. **sladeni sladeni** (Anderson).*P. Z. S.*, 1871, p. 139.*Typical locality*.—Thigyain, Upper Burma.*Type*.—In Indian Museum.9371. ♂ Thigyain, Upper Burma, 18th January, 1868 (J. Anderson) [C.];  
Type of the species: skin and skull.9374, 9783. ♂ Thigyain, Upper Burma, 18th January, 1868 (J. Anderson)  
[C.]; Type of the species: skin and 2 skulls.

9372-3 (A. S. B.). Upper Burma, 1864 (Dr. C. Williams) [C.]; skins and skulls.

The specimens collected by Dr. Williams, unfortunately without precise locality, show an approach to the succeeding form in having the ferruginous of the forehead less extensive. They are probably not strictly conspecific with Anderson's types but cannot be more precisely identified.

b. **sladeni midas** (Thos.).*Journ. Nat. Hist. Soc. Bombay*, XXIII, p. 198 (1914).*Typical locality*.—Myitkyina, Upper Burma.*Type*.—In British Museum.c. **sladeni rubex** (Thos.).*Loc. cit. supra*, p. 198.*Typical locality*.—Lonkin, Myitkina District, Upper Burma.*Type*.—In British Museum.

d. **sladeni bartoni** (Thos.).

*Loc. cit. supra*, p. 198.

*Typical locality*.—Uyu River, 50 miles east of Homalin, Upper Chindwin.

*Type*.—In British Museum.

In a later paper (*op. cit.*, XXIV, p. 234 ; 1916) Mr. Thomas expresses some doubts as to the distinctness of this form from true *sladeni*.

e. **sladeni shortridgei**, Thos. and Wrought.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 232, pl. fig. 1 (1916).

*Typical locality*.—Hkamti, Upper Chindwin.

*Type*.—In British Museum.

f. **sladeni fryanus**, Thos. and Wrought.

*Op. cit. supra*, p. 232, pl. fig. 2.

*Typical locality*.—Minsin, Upper Chindwin.

*Type*.—In British Museum.

g. **sladeni careyi**, Thos. and Wrought.

*Op. cit. supra*, p. 233, pl. fig. 3.

*Typical locality*.—Tamanthe, Upper Chindwin.

*Type*.—In British Museum.

h. **sladeni haringtoni** (Thos.).

*Ann. Mag. Nat. Hist.*, (7), XVI, p. 314 (1905).

*Typical locality*.—Moungkan, Upper Chindwin.

*Type*.—In British Museum.

9970. No history ; skin only.

This specimen is to be referred to that form described as *Sc. haringtoni solutus*, Thomas (*Journ. Nat. Hist. Soc. Bombay*, XXIII, p. 199 ; 1914) which the author has later, on a revision of the whole group with large material, withdrawn (Thos. and Wroughton, *op. cit. supra*, p. 233, pl. fig. 4).

i. **sladeni millardi**, Thos. and Wrought.

*Op. cit. supra*, p. 233, pl. fig. 5.

*Typical locality*.—Pyaungbyin, 40 miles north of Kindat, Upper Chindwin.

*Type*.—In British Museum.

### **Callosciurus ferrugineus.**

a. **ferrugineus ferrugineus** (F. Cuv.).

*Hist. Nat. Mamm.* III, pl. 238 (1829).

*Typical locality*.—Pegu.

*Type*.—In Mus. Hist. Nat., Paris.

9464. Rangoon (H. Fielden) [C.]; skin and skull.  
 9465-6 (A. S. B.). Burma, 1865 (Dr. C. Williams) [C.]; skins and skulls.  
 9469, 9470. ♀ Syriam, Pegu, 1876 (J. Armstrong) [C.]; skins and skulls.  
 9468 (A. S. B.). No history; skin and skull.  
 9467. No history (E. R. Alston) [P.]; skin and skull.

b. **ferrugineus cinnamomeus** (Temm.).

*Esq. Zool. Guiné*, p. 250 (1853).

*Typical locality*.—Cambodia.

*Type*.—In Leyden Museum.

c. **ferrugineus frandseni** (Kloss).

*P. Z. S.*, 1916, p. 46.

*Typical locality*.—Koh Chang Island, South-east Siam.

*Type*.—In British Museum.

**Callosciurus finlaysoni**.

a. **finlaysoni finlaysoni** (Horsf.).

*Zool. Res. Java*, unpagéd (1824).

*Typical locality*.—Koh Si Chang Islands.

*Type*.—In British Museum.

*Sciurus finlaysoni portus*, Kloss (*Journ. Nat. Hist. Soc. Siam*, I, p. 158 ; 1915) from the above locality is in the opinion of the senior author of this catalogue a pure synonym of this form (*cf.* Thomas, *Journ. Nat. Hist. Soc. Siam*, II, p. 343 ; 1917).

b. **finlaysoni folletti** (Kloss).

*Journ. Nat. Hist. Soc. Siam*, I, p. 159 (1915).

*Typical locality*.—Koh Phai, Inner Gulf of Siam.

*Type*.—In private possession.

c. **finlaysoni trotteri** (Kloss).

*Journ. Nat. Hist. Soc. Siam*, II, p. 178 (1916).

*Typical locality*.—Koh Lan Island, Inner Gulf of Siam.

*Type*.—In private possession.

d. **finlaysoni tachardi** (Robinson).

*Journ. Fed. Malay States Mus.*, VII, p. 35 (1916).

*Typical locality*.—Krahin, Central Siam.

*Type*.—In private possession.

**Callosciurus bocourti.**a. **bocourti bocourti** (A. Milne-Edw.).

*Rev. Zool.*, p. 193 (1867).

*Typical locality.*—Ayuthia, Siam.

*Type.*—In Mus. Hist. Nat., Paris.

b. **bocourti harmandi** (A. Milne-Edw.).

*Bull. Soc. Philomath.*, (6), XII, p. 8 (1876).

*Typical locality.*—Island Phu Quoc, off Chantabun.

*Type.*—In Mus. Hist. Nat., Paris.

c. **bocourti sinistralis** (Wroughton).

*Ann. Mag. Nat. Hist.*, (8), II, p. 399 (1908).

*Typical locality.*—Pichit, Menam River, Central Siam.

*Type.*—In British Museum.

d. **bocourti dextralis** (Wroughton).

*Loc. cit. supra*, p. 400.

*Typical locality.*—Lower Me-Ping Valley, Siam.

*Type.*—In British Museum.

e. **bocourti lylei** (Wroughton).

*Loc. cit. supra*, p. 401.

*Typical locality.*—Chiengmai, North Siam.

*Type.*—In British Museum.

f. **bocourti gruti** (Gyldenstolpe).

*Kungl. Svenska Vet. Akad. Handl.*, LVII, No. 2, p. 37 (1917).

*Typical locality.*—Bang Hue Pong, North Siam.

*Type.*—In Natural History Museum, Stockholm.

g. **bocourti floweri** (Bonh.).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 455.

*Typical locality.*—Klong Morn (near Bangkok), Siam.

*Type.*—In British Museum.

We are unable to place this species with certainty but in all probability it is a form of *bocourti* and possibly in view of its locality quite identical with the typical race. Recent collectors do not appear to have met with it.

**Callosciurus germaini.**a. **germaini germaini** (A. Milne-Edw.).

*Rev. Zool.*, p. 193 (1867).

*Typical locality.*—Pulau Condor, off Cambodian coast.

*Type*.—In Mus. Hist. Nat., Paris.

9471. Pulau Condor (A. Germaine) [C.]; Museum of Natural History, Paris [E.];  
A paratype of the species; skin and skull.

b. **germaini albivexilli** (Kloss).

*P. Z. S.*, 1916, p. 47.

*Typical locality*.—Koh Kut Island, South-east Siam.

*Type*.—In British Museum.

c. **germaini nox** (Wroughton).

*Ann. Mag. Nat. Hist.*, (8), II, p. 397 (1918).

*Typical locality*.—Sea coast, south-east of Bangkok, Siam.

*Type*.—In British Museum.

### **Collosciurus atrodorsalis.**

a. **atrodorsalis atrodorsalis** (Gray).

*Ann. Mag. Nat. Hist.*, X, p. 263 (1842).

*Typical locality*.—Bhutan (in error) substitute Moulmein.

*Type*.—In British Museum.

9330-4. South of Irrawaddy (T. H. Hood and Mus. Coll.); five skins only.

9335-9. Moulmein, March, 1873 (T. H. Hood); five skins only.

9360. Moulmein, March, 1873 (T. H. Hood); skin and skull.

9340-53. 3 ♀ Moulmein, October 1872 (T. H. Hood); 14 skins and 4 skulls.

9354. Moulmein, October 1873 (T. H. Hood); skin only.

9355. ♂ Moulmein, October 1872 (T. H. Hood); skin and skull.

9361-67. 2♂ 4♀ Moulmein, August 1872 (T. H. Hood) [C.]; 7 skins, 6 skulls.

9368. Skull only.

9357-8. Muleyit Range, Tenasserim; skins and skulls.

9356. Muleyit Range, Tenasserim, 1870 (J. Anderson) [C.]; skin and skull.

7592. Schwaygywin, January 1898 (A. R. S. Anderson); skin and skull.

The large majority of these specimens are very typical, about half with the black back patch highly developed and nearly all with the vibrissae mainly yellowish-white. Those from Muleyit are much colder greyish-yellow above, the tail much less richly coloured and the vibrissae mainly black. Possibly they represent a seasonal phase or more probably another subspecies which for the present I prefer not to name. Nos. 9330, 9331 marked vaguely south of the Irrawaddy have the back patch obsolescent and the tail mainly black, though the others from the same locality are quite similar to those from Moulmein.

b. **atrodorsalis thai** (Kloss).

*Journ. Nat. Hist. Soc. Siam*, II, p. 285 (1917).

*Typical locality*.—Raheng, Central Siam.

*Type*.—In private possession.

The last four specimens recorded above are almost certainly to be referred to this form. Pending direct comparison we have however left them under the typical race as some doubt exists as to the seasonal phases of these squirrels.

c. **atrodorsalis shanicus** (Ryley).

*Journ. Nat. Hist. Soc. Bombay*, XXII, p. 603 (1913).

*Typical locality*.—Gokteik, North Shan States, Upper Burma.

*Type*.—In British Museum.

8431. Mong Ha, North Shan States, April 1907 (J. Coggin Brown) [C.]; skin and skull (fragments).

d. **atrodorsalis zimmeensis** (Rob. and Wrought.).

*Journ. Fed. Malay States Mus.*, VII, p. 91 (1916).

*Typical locality*.—Chiengmai, North Siam.

*Type*.—In British Museum.

7595-6. Kolado, Salwin Hill tracts, Siamese border, January 1898 (Dr. A. R. S. Anderson) [C.]; skins and skulls.

At present I am inclined to regard these specimens as in the "eclipse" pelage of the above race though at one time both Mr. Wroughton and myself took the view that similar specimens from near the same locality represented yet another form.

Above a fairly uniform grizzle of black and buffy olivaceous more yellowish on the hands and feet. Sides of the face and back of the ears rufescent, vibrissae black. Tail regularly barred black and buffy ochraceous with an indication of a black tip. Beneath a drabby buff more rufescent in the axillary and inguinal region not very sharply defined from the sides.

e. **atrodorsalis tachin** (Kloss).

*Journ. Nat. Hist. Soc. Siam*, II, p. 178 (1916).

*Typical locality*.—Tachin, Central Siam.

*Type*.—In private possession.

f. **atrodorsalis pranis** (Kloss).

*Loc. cit. supra*, II, p. 178 (1916).

*Typical locality*.—Koh Lak, South-west Siam.

*Type*.—In private possession.

**Callosciurus caniceps.**a. **caniceps caniceps** (Gray).

*Typical locality*.—Bhutan (erroneous) substitute North Tenasserim.

*Type*.—In British Museum.

9308-15. ♂ 2 ♀ Moulmein District, Lower Burma (T. H. Hood) [C.]; 9 skins and 2 skulls.

9474-7 (A. S. B.). Amherst, Tenasserim, 1846 (Revd. J. Barbe and E. O'Ryley) [P.]; Types of *Sciurus chrysonotus* (Blyth) (*Journ. Asiat. Soc. Bengal*, XVI, p. 873, pl. xxxvii, fig. 1; 1847); skins and skulls.

9329. No history; skin and skull.

7672. Probably Salwin Hill Tracts (A. R. S. Anderson) [C.]; skin only.

Comparison of these specimens and of others from Central and Western Siam in the possession of one of us have convinced us that the

form described as *Sciurus epomophorus fluminalis* by Wroughton and Robinson (*Journ. Fed. Malay States Mus.*, IV, p. 233; 1911) from the Meping Rapids, North Siam, is only this race in its dull pelage.

b. **caniceps davisoni** (Bonh.).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 273 (1901).

*Typical locality*.—Bankachon, South Tenasserim.

*Type*.—In British Museum.

9316. Mergui, Lower Burma, 1854 (Major Berdmore) [C.]; skin and skull.

9322-5. ♂, 2 ♀ Mergui, October and December 1881, and March 1882 (Dr. J. Anderson) [C.]; skins and skulls.

c. **caniceps inexpectatus** (Kloss).

*Journ. Nat. Hist. Soc. Siam*, II, p. 178 (1916).

*Typical locality*.—Koh Lak, South-west Siam.

*Type*.—In private possession.

d. **caniceps sullivanus** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 17 (1903).

*Typical locality*.—Sullivan Island, Mergui Archipelago.

*Type*.—In United States National Museum.

9317. Lampei, Sullivan Island or King Island, Mergui (Dr. J. Anderson) [C.]; skin and skull.

9319. ♀ Padang Tebu, Sullivan Island or King Island, Mergui, February 1882 (Dr. J. Anderson) [C.]; skin and skull.

9318, 9320-1, 3. ♀ Pilai, Elphinstone Island, Mergui, March 1882 (Dr. J. Anderson) [C.]; skins and skulls.

The series listed under this race probably includes two forms but more precise identification is not feasible in view of the condition of the specimens.

e. **caniceps domelicus** (Miller).

*Loc. cit. supra*, p. 18.

*Typical locality*.—Domel Island, Mergui Archipelago.

*Type*.—In United States National Museum.

f. **caniceps bentincanus** (Miller).

*Loc. cit. supra*, p. 19.

*Typical locality*.—Bentinck Island, Mergui Archipelago.

*Type*.—In United States National Museum.

g. **caniceps matthaeus** (Miller).

*Loc. cit. supra*, p. 19.

*Typical locality*.—St. Matthew Island, Mergui Archipelago.

*Type*.—In United States National Museum.

h. **caniceps lucas** (Miller).

*Loc. cit. supra*, p. 20.

*Typical locality*.—St. Luke Island, Mergui Archipelago.

*Type*.—In United States National Museum.

i. **caniceps casensis** (Miller).

*Op. cit. supra*, p. 20.

*Typical locality*.—Chance Island, Mergui Archipelago.

*Type*.—In United States National Museum.

j. **caniceps altinsularis** (Miller).

*Op. cit. supra*, p. 21.

*Typical locality*.—High Island, Mergui Archipelago.

*Type*.—In United States National Museum.

k. **caniceps epomophorus** (Bonh.).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 272 (1901).

*Typical locality*.—Salanga or Junk Ceylon Island, Siamese Malaya.

*Type*.—In British Museum.

l. **caniceps milleri** (Robinson and Wroughton).

*Journ. Fed. Malay States Mus.*, IV, p. 233 (1911).

*Typical locality*.—Trang, Siamese Malaya.

*Type*.—In British Museum.

♂ Lamra, Trang, Siamese Malaya, January 1910 (Mus. Coll.); skin and skull.

♀ Krongmon, Trang, Siamese Malaya, February 1910 (Mus. Coll.); Federated Malay States Museum [P.]; skin and skull.

m. **caniceps samuiensis** (Rob. and Kloss).

*Ann. Mag. Nat. Hist.*, (8), XIII, p. 233 (1914).

*Typical locality*.—Koh Samui Bandon, Siamese Malaya.

*Type*.—In Federated Malay States Museum.

♂ ♀ Koh Samui Island, Bandon Bight, Siamese Malaya, May 1913 (H. C. Robinson and E. Siemund) [C.]; Federated Malay States Museum [P.]; skins and skulls.

n. **caniceps fallax** (Robinson and Kloss).

*Tom. cit. supra*, p. 225.

*Typical locality*.—Koh Pennan, Bandon, Siamese Malaya.

*Type*.—In Federated Malay States Museum.

♀ Koh Pennan Island, Bandon Bight, Siamese Malaya, May 1913 (H. C. Robinson and E. Siemund) [C.]; Federated Malay States Museum [P.]; skins and skulls.

o. **caniceps lancavensis** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 16 (1903).

*Typical locality*.—Pulau Langkawi, Straits of Malacca.

*Type*.—In United States National Museum.

♂ ♀ Pulau Langkawi, Straits of Malacca, February—March 1908 (Mus. Coll.); Federated Malay States Museum [P.]; skins and skulls.

p. **caniceps adangensis** (Miller).

*Loc. cit. supra*, p. 17.

*Typical locality*.—Pulau Adang, Butang Archipelago, Straits of Malacca.

*Type*.—In United States National Museum.

♀ Pulau Rawi, Butang Islands, Straits of Malacca, April 1911 (H. C. Robinson and E. Seimund) [C.]; skin and skull.

♂ Pulau Adang, Butang Archipelago, Straits of Malacca; Federated Malay States Museum [P.]; skin and skull.

q. **caniceps terutavensis** (Thos. and Wrought.).

*Ann. Mag. Nat. Hist.*, (8), IV, p. 535 (1909).

*Typical locality*.—Pulau Terutau, Straits of Malacca.

*Type*.—In British Museum.

♂ ♀ Pulau Terutau, Straits of Malacca, December 1907 and February 1909 (H. C. Robinson) [C.]; Federated Malay States Museum [P.]; skins and skulls.

r. **caniceps concolor** (Blyth).

*Journ. Asiat. Soc. Bengal*, XXIV, p. 263 (1855).

*Typical locality*.—Malacca.

*Type*.—In Indian Museum, Calcutta.

9328. Malacca, 1847 (G. Moxon) [C.]; type of the sub-species; skin and skull.

9326-7. Perak (Mus. Coll.); skins and skulls.

9108-9. 2 ♀ Bukit Jong, Trengganu, September 1910 (C. B. Kloss) [C.]; skins and skulls.

9110, 9111. ♂ ♀ Bentong, Pahang (Mus. Coll.); skins and skulls.

9112. ♀ Nyalas, Malacca, October 1910 (Mus. Coll.); Topotype; skin and skull.

♂ Klang Gates, Selangor, January 1908 (Mus. Coll.); skin and skull.

♀ Telom, Perak-Pahang border, 3,500 ft., December 1908 (H. C. Robinson and C. B. Kloss) [C.]; Federated Malay States Museum [P.]; skin and skull.

**Callosciurus griseimanus.**a. **griseimanus griseimanus** (A. Milne-Edw.).

*Rev. Zool.*, 1867, p. 195.

*Typical locality*.—Cambodia.

*Type*.—In Mus. Hist. Nat., Paris

b. *griseimanus leucopus* (Gray).

*Ann. Mag. Nat. Hist.*, (3), XX, p. 282 (1867).

*Typical locality*.—Cochin China.

*Type*.—In British Museum.

9306-7. Cochin China (Julien) [C.]; Mus. Hist. Nat., Paris [E.]; skins and one skull.

c. *griseimanus vassali* (Bonh.).

*P. Z. S.*, 1907, p. 9.

*Typical locality*.—Ninh Hoa, Annam.

*Type*.—In British Museum.

The relationship and pelage of this species, which is rare in collections, are by no means properly understood. It is by no means improbable that all three forms have one pelage in which the undersurface is more or less chestnut and another in which it is buff. The forms as named from such widely separated localities may nevertheless be expected to prove separable.

***Callosciurus prevosti*.**

In view of the fact that there is an almost complete gradation from forms with a broad white stripe from nose to hip to others with no stripe at all, we have considered it more correct to regard all the races here listed as merely subspecies, though there is apparently a far greater difference between those occupying the extremes of the series, as for example *Sc. prevosti prevosti* and *Sc. p. pluto*, than there is between many others generally regarded as perfectly distinct species. Moreover, the arrangement has the practical convenience of bringing to the notice of the student at a glance what races have been described, whereas the use of binomial nomenclature such as is adopted by Miller and Lyon causes an unnecessary amount of labour in searching the literature.

So far as is known the large majority of forms in this group undergo no seasonal change of pelage nor does the pelage of the young differ materially from that of the adult, though Anderson in his monograph of the genus states the contrary. As with *Ratufa*, however, the pelage bleaches considerably generally on the back and tail, thereby occasionally obscuring differential characters. As a rule, however, there is little difficulty in determining the race to which a specimen should be assigned, the characters within the local limits being fairly constant, though in the case of the Bornean forms there appears to be some intergradation.

a. *prevosti prevosti* (Desm.).

*Mamm.*, p. 335 (1822).

*Typical locality*.—Settlement of Malacca, Malay Peninsula.

*Type*.—In Mus. Hist. Nat., Paris.

♂ Nyalas, Malacca, 24th October, 1910; Federated Malay States Museum [P.]; skin and skull.

3653. Malacca (E. R. Alston) [P.]; skin.

9658. Malacca (A. Charlton) [C.]; skin and skull.

9659 (A. S. B.). Malacca (Revd. R. W. G. Frith) [C.]; skin and skull.

2948 (A. S. B.). ♀ Menagerie specimen (W. Rutledge) [P.]; skin and skull.

b. **prevosti wrayi** (Kloss).

*Journ. Fed. Malay States Mus.*, IV, p. 148 (1910).

*Typical locality*.—Kuala Lipis, Pahang.

*Type*.—In British Museum.

♂ Temengoh, Upper Perak, Malay Peninsula, 12th July, 1909 (H. C. Robinson) [C.]; Federated Malay States Museum [P.]; skin and skull.

c. **prevosti humei** (Bonhote).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 170 (1901).

*Typical locality*.—Klang, Selangor, Malay Peninsula.

*Type*.—In British Museum.

♀ Tanjong Malim, Perak-Selangor boundary, Malay Peninsula, 19th April 1908; Federated Malay States Museum [P.]; skin and skull.

d. **prevosti rafflesii** (Vig. and Horsf.).

*Zool. Journ.*, IV, p. 115, pl. iv (1828).

*Typical locality*.—Sumatra (probably Bencoolen).

*Type*.—In British Museum.

9657. Menagerie specimen (Zoological Garden, Calcutta); skin and [skull].

7529, 7880 [7487]. 2 ♀ Menagerie specimens (W. Rutledge) [P.]; skins and skulls.

e. **prevosti melanops** (Miller).

*Proc. Acad. Nat. Sci. Philadelphia*, 1902, p. 151.

*Typical locality*.—Indragiri River, South-east Sumatra.

*Type*.—In United States National Museum.

7428, 7488. 2 ♂ Menagerie specimens (W. Rutledge) [P.]; skins and skulls.

7685, 7922. ♂ Menagerie specimens (Zoological Garden, Calcutta); skins and skulls.

7490-1, [7395] 7489. 2 ♂, 2 ♀ Menagerie specimens (W. Rutledge) [P.]; skins and skulls.

f. **prevosti penialius** (Lyon).

*Proc. U. S. Nat. Mus.*, XXVI, p. 456 (1903).

*Typical locality*.—Pulau Penjalei, East Sumatra.

*Type*.—In United States National Museum.

g. **prevosti harrisoni** (Stone and Rehn.).

*Proc. Acad. Nat. Sci. Philadelphia*, 1902, p. 132.

*Typical locality*.—Gunong Sugi, Lampongs, South-east Sumatra.

*Type*.—In Coll. Acad. Nat. Sci., Philadelphia.

h. **prevosti condurensis** (Miller).

*Proc. U. S. Nat. Mus.*, XXXI, p. 260 (1906).

*Typical locality*.—Pulau Kundur, Rhio-Lingga Archipelago.

*Type*.—In United States National Museum.

♀ Bliah, Pulau Kundur, Rhio-Lingga Archipelago, 22nd August 1908 (E. Seimund) [C.]; Federated Malay States Museum [P.].

i. **prevosti carimonensis** (Miller).

*Loc. cit. supra*, p. 261.

*Typical locality*.—Great Karimon Island, Rhio-Lingga Archipelago.

*Type*.—In United States National Museum.

♂ Pernal, Great Karimon Island, Rhio-Lingga Archipelago, 13th August 1908 (E. Siemund) [C.]; Federated Malay States Museum [P.]; skin and skull.

j. **prevosti bangkanus** (Schlegel).

*Ned. Tijds. Dierk.*, I, p. 26, pl. i, fig. 2 (1863).

*Typical locality*.—Bangka Island, East Sumatra.

*Type*.—In Leyden Museum.

k. **prevosti mendanauus** (Lyon).

*Proc. U. S. Nat. Mus.*, XXXI, p. 589 (1906).

*Typical locality*.—Pulau Mendanau, West of Billiton.

*Type*.—In United States National Museum.

l. **prevosti carimatae** (Miller).

*Proc. U. S. Nat. Mus.*, XXXI, p. 57 (1906).

*Typical locality*.—Karimata Island, off Bornean coast.

*Type*.—In United States National Museum.

m. **prevosti sanggaus** (Lyon).

*Proc. U. S. Nat. Mus.*, XXXIII, p. 554 (1907).

*Typical locality*.—Sanggau, Western Borneo.

*Type*.—In United States National Museum.

n. **prevosti armalis** (Lyon).

*Proc. U. S. Nat. Mus.*, XL, p. 821 (1911).

*Typical locality*.—Pulau Panebangan, West coast of Borneo.

*Type*.—In United States National Museum.

o. **prevosti pelapis** (Lyon).

*Loc. cit. supra*.

*Typical locality*.—Pulau Pelapis, West coast of Borneo.

*Type*.—In United States National Museum.

p. **prevosti borneoensis** (Mueller and Schlegel).

*Verhandl.*, p. 86 (1839-44).

*Typical locality*.—Pontianak, Borneo.

*Type*.—In Leyden Museum.

9660. Borneo, 1844 (Batavian Society) [P.]; skin and [skull].

**q. prevosti palustris** (Lyon).

*Proc. U. S. Nat. Mus.*, XXXIII, p. 552 (1907).

*Typical locality*.—North bank of Kapuas River, Western Borneo.

*Type*.—In United States National Museum.

**r. prevosti proserpinae** (Lyon).

*Smithsonian Misc. Coll.*, XLVIII, p. 275 (1907).

*Typical locality*.—Pulau Ternajau, Western Borneo.

*Type*.—In United States National Museum.

**s. prevosti sarawakensis** (Gray).

*Ann. Mag. Nat. Hist.*, XX, p. 277 (1867).

*Typical locality*.—Sarawak.

*Type*.—In British Museum.

**t. prevosti kuchingensis** (Bonhote).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 170 (1901).

*Typical locality*.—Kuching, Sarawak.

*Type*.—In British Museum.

9654. Matang, Sarawak, 1870 (E. R. Alston) [P.]; skin and skull.

**u. prevosti atricapillus** (Schlegel).

*Ned. Tijd. Dierk.*, I, p. 27, pl. ii, fig. 1 (1863).

*Typical locality*.—Kapuas River, Western Borneo.

*Type*.—In Leyden Museum.

♂ Ulu Anyut, Paku Saribas, Sarawak, Borneo, 5th August 1915 (H. C. Robinson) [P.]; skin and skull.

**v. prevosti atrox** (Miller).

*Smithsonian Misc. Coll.*, LXI, No. 21, p. 23 (1913).

*Typical locality*.—Talisaian Mountain, Dutch South-East Borneo.

*Type*.—In United States National Museum.

**w. prevosti caroli** (Bonhote).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 173 (1901).

*Typical locality*.—Baram, Borneo (low country).

*Type*.—In British Museum.

**x. prevosti griseicauda** (Bonhote).

*Loc. cit. supra*, p. 174.

*Typical locality*.—Mount Kalulong, Baram, Borneo.

*Type*.—In British Museum.

9655. "Borneo" (E. R. Alston) [P.]; skin and skull.

y. **prevosti erythromelas** (Temm.).

*Esq. Zool. Guin.*, p. 248 (1853).

*Typical locality.*—Menado, North-West Celebes.

*Type.*—In Leyden Museum.

z. **prevosti schlegeli** (Gray).

*Ann. Mag. Nat. Hist.*, XX, p. 278 (1867).

*Typical locality.*—Koma, Celebes.

*Type.*—In British Museum.

a<sup>1</sup>. **prevosti baluensis** (Bonhote).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 174 (1901).

*Typical locality.*—Mount Kina Balu, North Borneo. 1,000 ft.

*Type.*—In British Museum.

b<sup>1</sup>. **prevosti suffusus** (Bonhote).

*Loc. cit. supra*, p. 175.

*Typical locality.*—Tutong River, North-West Borneo.

*Type.*—In British Museum.

c<sup>1</sup>. **prevosti rufoniger** (Gray).

*Ann. Mag. Nat. Hist.*, X, p. 263 (1842).

*Typical locality.*—Uncertain.

*Type.*—In British Museum.

d<sup>1</sup>. **prevosti pluto** (Gray).

*Ann. Mag. Nat. Hist.*, XX, p. 283 (1842).

*Typical locality.*—Sarawak.

*Type.*—In British Museum.

9656. "Borneo" (E. R. Alston) [P.]; skin and [skuli].

e<sup>1</sup>. **prevosti piceus** \* (Peters).

*Proc. Zool. Soc.*, 1866, p. 429.

*Typical locality.*—Uncertain.

*Type.*—In Berlin Museum.

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\* This species is attributed by the describer to Tenasserim which is certainly an erroneous locality. It was received at the museum with specimens of *Presbytes potenzi*, whose true locality has since been ascertained to be Mentawai Islands, off the Coast of Sumatra. The species was later described as *Sc. erebus*, Miller (*Proc. U. S. Nat. Mus.*, XXVI, p. 456; 1903) from Tapanuli Bay, North-West Sumatra, but the author now considers his specimens as identical with *S. piceus*.

**f<sup>1</sup>. prevosti nyx** (Miller).

*Proc. U. S. Nat. Mus.*, XXXIV, p. 638 (1907).

*Typical locality*.—Pulau Rupert, East Sumatra.

*Type*.—In United States National Museum.

**g<sup>1</sup>. prevosti navigator** (Bonhote).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 171 (1901).

*Typical locality*.—Sirhassen, Natuna Islands.

*Type*.—In British Museum.

**h<sup>1</sup>. prevosti mimelus** (Miller).

*Proc. Acad. Sci. Washington*, II, p. 18 (1900).

*Typical locality*.—Pulau Wai, Tambelan Islands.

*Type*.—In United States National Museum.

**i<sup>1</sup>. prevosti mimiculus** (Miller).

*Loc. cit. supra*, p. 219.

*Typical locality*.—Sainte Barbe Island, South China Sea.

*Type*.—In United States National Museum.

The three preceding races are placed apart from the other forms of *prevosti* and are perhaps not in their proper sequence. They are very dwarfed forms inhabiting small islands but there is no reason to suppose that they are of any higher value than the other races listed.

***Callosciurus vittatus*.****a. vittatus vittatus\*** (Raffles).

*Trans. Linn. Soc.*, XIII, p. 259 (1822).

*Typical locality*.—Bencoolen, West Sumatra.

*Type*.—In British Museum.

**b. vittatus saturatus** (Miller).

*Proc. U. S. Nat. Mus.*, XXVI, p. 453 (1903).

*Typical locality*.—Pulau Mansalar, off Tapanuli Bay, West Sumatra.

*Type*.—In United States National Museum.

**c. vittatus pretiosus** (Miller).

*Proc. U. S. Nat. Mus.*, XXVI, p. 454 (1903).

*Typical locality*.—Pulau Bangkaru, Banjak Islands, West Sumatra.

*Type*.—In United States National Museum.

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\* *Sciurus vittatus tarussanus*, Lyon (*Smiths. Misc. Coll.* XLVIII, p. 279; 1907) from Tarussan Bay, West Sumatra, is a pure synonym of this form.

i. **vittatus ubericolor** (Miller).

*Proc. U. S. Nat. Mus.*, XXVI, p. 455 (1903).

*Typical locality*.—Pulau Tuangku, Banjak Islands.

*Type*.—In United States National Museum.

e. **vittatus tapanulius** (Lyon).

*Smithsonian Misc. Coll.*, XLVIII, p. 280 (1907).

*Typical locality*.—Tapanuli Bay, West Sumatra.

*Type*.—In United States National Museum.

f. **vittatus peninsularis** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 10 (1903).

*Typical locality*.—North bank of Endau River, South-East Pahang.

*Type*.—In United States National Museum.

g. **vittatus rupatius** (Lyon).

*Proc. U. S. Nat. Mus.*, XXXIV, p. 640 (1908).

*Typical locality*.—Pulau Rupert, East Sumatra.

*Type*.—In United States National Museum.

h. **vittatus subluteus** (Thos. and Wrought.).

*Ann. Mag. Nat. Hist.*, (8), III, p. 440 (1869).

*Typical locality*.—Si Karang, South-East Johore.

*Type*.—In British Museum.

♀ Tanjong Surat, Johore, 26th July 1908 (H. C. Robinson and E. Seemund)  
[C.]; Federated Malay States Museum [P.]; skin and skull.

i. **vittatus singaporensis** (Robinson).

*Journ. Fed. Malay States Mus.*, VII, p. 73 (1916).

*Typical locality*.—Changi, Singapore Island.

*Type*.—In Federated Malay States Museum.

j. **vittatis maporensis** (Robinson).

*Journ. Fed. Malay States Mus.*, VII, p. 64 (1916).

*Typical locality*.—Pulau Mapor, Rhio-Lingga Archipelago.

*Type*.—In Federated Malay States Museum.

k. **vittatus nesiotus** (Thos. and Wrought.).

*Ann. Mag. Nat. Hist.*, (8), III, p. 439 (1909).

*Typical locality*.—Pulau Batam, Rhio-Lingga Archipelago.

*Type*.—In British Museum.

l. **vittatus tenuirostris** (Miller).

*Proc. Acad. Sci. Washington*, III, p. 221 (1900).

*Typical locality*.—Tioman Island, off coast of Pahang

*Type*.—In United States National Museum.

♂ ♀ Juara Bay, Pulau Tioman, South China Sea, 9th September 1907, 15th June 1912 (H. C. Robinson and E. Seimund) [C.]; Federated Malay States Museums [P.]; skins and skulls.

m. **vittatus anambensis** (Miller).

*Proc. Acad. Sci. Washington*, III, p. 223 (1900).

*Typical locality*.—Pulau Siantan, Anamba Islands.

*Type*.—In United States National Museum.

n. **vittatus abbottii** (Miller).

*Typical locality*.—Big Tambelan Island, South China Sea.

*Type*.—In United States National Museum.

o. **vittatus aoris** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 10 (1903).

*Typical locality*.—Pulau Aor, near Pulau Tioman.

*Type*.—In United States National Museum.

♂ ♀ Pulau Aor, South China Sea, 12th June 1912, 14th June 1912 (H. C. Robinson and E. Seimund) [C.]; Federated Malay States Museum [P.]; skins and skulls.

p. **vittatus famulus** (Robinson).

*Ann. Mag. Nat. Hist.*, (8), X, p. 592 (1912).

*Typical locality*.—Pulau Dayang, near Pulau Aor, South China Sea.

*Type*.—In Federated Malay States Museum.

♂ Pulau Dayang, near P. Aor, S. China Sea, 13th June 1912 (H. C. Robinson and E. Seimund) [C.]; Federated Malay States Museum [P.]; skin and skull.

q. **vittatus pannovianus** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 11 (1903).

*Typical locality*.—Pulau Panau, Atas Islands, South China Sea.

*Type*.—In United States National Museum.

r. **vittatus pemangilensis** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 9 (1903).

*Typical locality*.—Pemanggil Island, near Pulau Tioman.

*Type*.—In United States National Museum.

♂ ♀ Pulau Pemanggil, Johore Archipelago, 7th July, 12th July 1915 (H. C. Robinson) [C.]; Federated Malay States Museum [P.]; skins and skulls.

s. **vittatus ictericus** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 12 (1903).

*Typical locality*.—Tana Bala, Batu Island, West Sumatra.

*Type*.—In United States National Museum.

t. **vittatus serutus** (Miller).

*Proc. U. S. Nat. Mus.*, XXXI, p. 58 (1906).

*Typical locality*.—Pulau Serutu, Karimata Islands.

*Type*.—In United States National Museum.

u. **vittatus director** (Lyon).

*Proc. U. S. Nat. Mus.*, XXXVI, p. 509 (1909).

*Typical locality*.—Direction Island, South China Sea.

*Type*.—In United States National Museum.

v. **vittatus lutescens** (Miller).

*Proc. Acad. Sci. Washington*, III, p. 124 (1901).

*Typical locality*.—Sirhassen Island, Natunas.

*Type*.—In United States National Museum.

w. **vittatus lamucotanus** (Lyon).

*Proc. U. S. Nat. Mus.*, XL, p. 85 (1911).

*Typical locality*.—Pulau Lamukotan, West Borneo.

*Type*.—In United States National Museum.

x. **vittatus datus** (Lyon).

*Loc. cit. supra*, p. 86.

*Typical locality*.—Pulau Dato, West Borneo.

*Type*.—In United States National Museum.

y. **vittatus siriensis** (Lyon).

*Loc. cit. supra*, p. 87.

*Typical locality*.—Pulau Mata Siri, Java Sea.

*Type*.—In United States National Museum.

z. **vittatus arendsis** (Lyon).

*Loc. cit. supra*, p. 87.

*Typical locality*.—Arends Island, Java Sea.

*Type*.—In United States National Museum.

a<sup>1</sup>. **vittatus marinsularis** (Lyon).

*Loc. cit. supra*, p. 89.

*Typical locality*.—Pulau Laut, off South-east Borneo.

*Type*.—In United States National Museum.

**b<sup>1</sup>. vittatus lautensis** (Miller).

*Proc. Acad. Sci. Washington*, III, p. 128 (1901).

*Typical locality*.—Pulau Laut, North Natuna Islands.

*Type*.—In United States National Museum.

**c<sup>1</sup>. vittatus rubidiventris** (Miller).

*Proc. Acad. Sci. Washington*, III, p. 127 (1901).

*Typical locality*.—Bunguran, Natuna Islands.

*Type*.—In United States National Museum.

**d<sup>1</sup>. vittatus rutiliventris** (Miller).

*Proc. Acad. Sci. Washington*, III, p. 126 (1901).

*Typical locality*.—Pulau Midei, South Natuna Islands.

*Type*.—In United States National Museum.

**e<sup>1</sup>. vittatus seraiiae** (Miller).

*Proc. Acad. Sci. Washington*, III, p. 125 (1901).

*Typical locality*.—Pulau Seraia, Natuna Islands.

*Type*.—In United States National Museum.

**f<sup>1</sup>. vittatus albescens** (Bonh.).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 446 (1901).

*Typical locality*.—Acheen, North Sumatra.

*Type*.—In United States National Museum.

**g<sup>1</sup>. vittatus dulitensis** (Bonh.).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 451 (1901).

*Typical locality*.—Mount Dulit, Baram, Borneo.

*Type*.—In British Museum.

♂ Sungei Pelandok, Paku Saribas, Sarawak, October 1915 (Mus. Coll.); skins and skulls.

♀ Ulu Anyut, Paku Saribas, Sarawak (Mus. Coll.); skins and skulls.

♂ Kuala Selanoi, Paku Saribas, Sarawak (Mus. Coll.); skins and skulls.  
9502. ♂ Sarawak (Wallace) [C]; skin and skull.

**h<sup>1</sup>. vittatus dilutus** (Miller).

*Smithsonian Misc. Coll.*, LXI, No. 21, p. 23 (1913).

*Typical locality*.—Tanjong Batu, South-east Borneo.

*Type*.—In United States National Museum.

**i<sup>1</sup>. vittatus conipus** (Lyon).

*Proc. Biol. Soc. Washington*, XXIV, p. 98 (1911).

*Typical locality*.—Pamukang Bay, Southern Borneo.

*Type*.—In United States National Museum.

**j<sup>1</sup>. vittatus tedongus** (Miller).

*Proc. U. S. Nat. Mus.*, XXXI, p. 591 (1906).

*Typical locality*.—Tanjong Tedong, Banka.

*Type*.—In United States National Museum.

**k<sup>1</sup>. vittatus billitonus** (Miller).

*Proc. U. S. Nat. Mus.*, XXXI, p. 593 (1906).

*Typical locality*.—Buding Bay, Billiton.

*Type*.—In United States National Museum.

**l<sup>1</sup>. vittatus miniatus** (Miller).

*Proc. Acad. Sci. Washington*, II, p. 79 (1900).

*Typical locality*.—Trang, Siamese Malaya.

*Type*.—In United States National Museum.

9102. ♂ Chong, Trang, Siamese Malaya; Topotype of the species; skins and skull.

9103, 5, 6. ♂, 2 ♀ Bukit Jong, Trengganu, East Malay Peninsula; skins and skulls.

9104, 7. 2 ♀ Nyalas, Malacca; Federated Malay States Museum [P.]; skins and skulls.

9512. ♂ Zoological Gardens [P.]; skin only.

9510, 11. Malay Peninsula (E. Linstedt) [C.]; skins and skulls.

9509 (A. S. B.). Malay Peninsula (G. Moxon) [C.]; skin and skull.

9498. Malacca (F. Stoliczka) [C.]; skin and skull.

9503. ♂ (E. R. Alston) [P.]; skin and skull.

9504. ♂ (W. Rutledge) [P.]; skin and skull.

♀ Bukit Kutu, Selangor, 3,400 ft., August 1915 (C. B. Kloss) [C.]; Federated Malay States Museum [P.]; skin and skull.

**m<sup>1</sup>. vittatus scotti** (Kloss).

*Ann. Mag. Nat. Hist.*, (8), XV, p. 117 (1911).

*Typical locality*.—Bedung Island, off Trengganu, East Malay Peninsula.

*Type*.—In Federated Malay States Museum.

♂ Redang Island, off Trengganu, East Malay Peninsula, August 1910; Paratype; skin and skull.

**n<sup>1</sup>. vittatus plasticus** (Kloss).

*Loc. cit. supra*, p. 117 (1911).

*Typical locality*.—Great Redang Island, off Trengganu, East Malay Peninsula.

*Type*.—In Federated Malay States Museum.

♂ ♀ Great Redang Island, off Trengganu, East Malay Peninsula; Paratypes; skins and skulls.

**o<sup>1</sup>. vittatus perhentiani** (Kloss).

*Ann. Mag. Nat. Hist.*, (8), VII, p. 118 (1911).

*Typical locality*.—West Perhentian Island, off Trengganu, East Malay Peninsula.

*Type*.—In Federated Malay States Museum.

♂ ♀ West Perhentian Island, off Trengganu, East Malay Peninsula, September 1910. (C. B. Kloss) [C.]; Paratypes; Federated Malay States Museum [P.]; skins and skulls.

p<sup>1</sup>. **vittatus proteus** (Kloss).

*Loc. cit. supra*, p. 118 (1911).

*Typical locality*.—East Perhentian Island, off Trengganu, East Malay Peninsula.

*Type*.—In Federated Malay States Museum.

♂ ♀ East Perhentian Island, off Trengganu, East Malay Peninsula; skins and skulls.

q<sup>1</sup>. **vittatus watsoni** (Kloss).

*Loc. cit. supra*, p. 118.

*Typical locality*.—Lantinga Island, off Trengganu, East Malay Peninsula.

*Type*.—In Federated Malay States Museum.

♀ Lantinga Island, off Trengganu, East Malay Peninsula, September 1910; skin and skull.

### **Callosciurus notatus.**

a. **notatus notatus** (Bodd.).

*Elench. Mamm.*, p. 119 (1775).

*Typical locality*.—West Java.

*Type*.—Not in existence.

9500-1. West Java (A. R. Wallace) [C.]; skins and skulls.

b. **notatus madurae** (Thomas).

*Ann. Mag. Nat. Hist.*, (8), V, p. 386 (1910).

*Typical locality*.—East part of Madura Island.

*Type*.—In British Museum.

c. **notatus balstoni** (Robinson and Wroughton).

*Journ. Fed. Malay States Museum*, IV, p. 234 (1911).

*Typical locality*.—South Central Java.

*Type*.—In British Museum.

d. **notatus stresemanni** (Thomas).

*Ann. Mag. Nat. Hist.*, (8), XI, p. 505 (1913).

*Typical locality*.—Baleling, Bali.

*Type*.—In British Museum.

e. **notatus microtis** (Jentink).

*Notes Leyden Museum*, I, p. 40 (1879).

*Typical locality*.—Saleyer Island, Java Sea.

*Type*.—In Leyden Museum.

**Callosciurus nigrovittatus.**a. **nigrovittatus nigrovittatus** (Horsf.).

*Zool. Res. Java*, (1824).

*Typical locality*.—Java (probably East central parts).

*Type*.—? In British Museum.

♂ ♀ Tjibodas, West Java, 5,000 ft., February 1916 (Mus. Coll.); Federated Malay States Museum [P.]; skins and skulls.

b. **nigrovittatus bilimitatus** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 2 (1903).

*Typical locality*.—Tanjong Laboha, Trengganu, East Malay Peninsula.

*Type*.—In United States National Museum.

♀ Ulu Selama, North-East Perak, May 1909 (Mus. Coll.); Federated Malay States Museum [P.]; skin and skull.

c. **nigrovittatus johorensis** (Rob. and Wrought.).

*Journ. Fed. Malay States Mus.*, IV, p. 167 (1911).

*Typical locality*.—Pelepak, Johore.

*Type*.—In British Museum.

9499. Malay Peninsula (Revd. J. Lindstedt) [C.]; skin and skull.

9505. ♀ Zoological Gardens; skin only.

9507-8. Malay Peninsula (G. Moxon) [C.]; skins and one skull.

♂ Batu Caves, near Kuala Lumpur, Selangor, January 1912 (Mus. Coll.); skins and skulls.

♀ Triang, North-West Pahang, September 1912 (Mus. Coll.); Federated Malay States Museum [P.]; skin and skull.

9506. Skull only.

d. **nigrovittatus microrhynchus** (Kloss).

*Op. cit. supra*, II, p. 144 (1908).

*Typical locality*.—Juara Bay, Pulau Tioman, Coast of Pahang.

*Type*.—In British Museum.

♂ ♀ Juara Bay, Pulau Tioman, Coast of Pahang, June, July 1915 (H. C. Robinson) [C.]; Topotypes; Federated Malay States Museum [P.]; skins and skulls.

e. **nigrovittatus bocki** (Rob. and Wrought.).

*Journ. Fed. Malay States Mus.*, IV, p. 167 (1911).

*Typical locality*.—Pajo, Padang Highlands, West Sumatra.

*Type*.—In British Museum.

♂ ♀ Sungei Kumbang, Korinchi, 4,500 ft., West Sumatra, April, 1914 (H. C. Robinson and C. B. Kloss) [C.]; Federated Malay States Museum [P.]; skins and skulls.

f. **nigrovittatus orestes** (Thos.).

*Ann. Mag. Nat. Hist.*, (6), V, p. 529 (1895).

*Typical locality*.—Mount Dulit, Baram, Borneo.

*Type*.—In British Museum.

Pending the statement of differential characters we cannot regard *Sciurus atristriatus*, Miller, described from a half-grown female from Lo Bon Bon, Dutch South-East Borneo [*Smithsonian Misc. Coll.*, No. 21, Vol. 61, p. 22 (1913)] as other than this form, which is not mentioned in the text and has possibly been overlooked by Mr. Miller.

g. **nigrovittatus klossii** (Miller).

*Proc. Acad. Sci. Washington*, II, p. 225 (1900).

*Typical locality*.—Saddle Island, Tambelan Group.

*Type*.—In United States National Museum.

Genus **TOMEUTES**, Thomas, 1915.

*Ann. Mag. Nat. Hist.*, (8) XV, p. 386 (1915).

**lokroides and mearsi.**

This group is so difficult that fresh specimens properly dated and with measurements are required to deal with it satisfactorily. The specimens in the Indian Museum appear mainly to belong to two forms in winter and in summer pelage. Adequate material would doubtless enable separations to be made.

**Tomeutes lokroides.**a. **lokroides lokroides** (Hodgson).

*Journ. Asiat. Soc. Bengal*, V, p. 232 (1836).

*Typical locality*.—Sikkim.

*Type*.—In British Museum.

8404-6. Khatmandu, Nepal (Major Manners-Smith).

9377. Below Bhimphe, Nepal (J. Scully); skin and skull.

9378. Hetowra, Nepal (J. Scully).

9381-2. Darjiling (W. T. Blanford); skins and skulls.

9384-6. Darjiling, 4,000 ft. (G. Masson); skins and skulls.

9393. Darjiling (J. Anderson); skin and skull.

9394, 9430. Darjiling (C. J. Bonieri); skins and skulls.

9431. Darjiling (E. Blyth); skin and skull.

7300. Sukna, 2,000 ft. (Base of Darjiling Himalayas); skin and skull.

9387-91. Darjiling (Terai) (J. Anderson); (9387, 90 skins and skulls).

9380. Sikkim (H. J. Elwes).

? Sikkim (H. J. Elwes).

9392. Sikkim Himalayas (J. Anderson); skin and skull.

9428. Sikkim (L. Mandelli); skin and skull.

9379. Sikkim (H. J. Elwes); skin and skull.

9437. Darjeeling (A. S. B.); skull only.

9438-9. ? (A. S. B.); skulls only.

9436. (A. Grote); skin and skull.

Black specimens juv. *germaini* ?

8042. ? ? skin and skull.

9383. Sikkim (L. Mandelli); skin and skull.

b. **lokroides owensi** (Thos. and Wrought.).

*Journ. Bombay Nat. Hist. Soc.*, XXIV, p. 336 (1916).

*Typical locality*.—Minsin (East Bank), Upper Chindwin.

*Type*.—In British Museum.

**Tomeutes mearsi.**a. **mearsi mearsi** (Bonhote).

*Ann. Mag. Nat. Hist.*, (7), XVIII, p. 338 (1906).

*Typical locality*.—Chinbyit, Lower Chindwin.

*Type*.—In British Museum.

b. **mearsi bellona**, Thos. and Wrought.

*Journ. Bombay Nat. Hist. Soc.*, XXIV, p. 420 (1916).

*Typical locality*.—Kin, Middle Chindwin.

*Type*.—In British Museum.

10051. ♂ Rangamatti, Chittagong Hill Tracts (Mus. Coll.); skin and skull.

c. **mearsi virgo**, Thos. and Wrought.

*Journ. Bombay Nat. Hist. Soc.*, XXIV, p. 421 (1916).

*Typical locality*.—Tatken, Upper Chindwin.

*Type*.—In British Museum.

10200, 12207-8. Above Tura, Garo Hills, Assam, 13-1400 feet, June 1917 (S. W. Kemp [C]).

9398-9400. Garo Hills, Assam (Dr. J. Anderson); (9400 no skull); skin and skull.

9442 Nongjuri, Khasi Hills, Cherrapunji (B. Warren); skin and skull.

9432-3. Assam (Col. Jenkins); skins and skulls.

9418. Harmuth Dikrang, Assam (H. H. Godwin-Austen); skin and skull.

9407-9. Samagooting, Assam (Capt. Butler); skins and skulls.

9410-13 juv. Samagooting, Assam (Capt. Butler); (9413 hind foot only); skins and skulls.

9401-4, 9429. Naga Hills (H. H. Godwin-Austen) (9401 no skull); skins and skulls.

9405-6. Naga Hills (A. W. Chennell); skins and skulls.

942. Naga Hills (A. W. Chennell).

9414-7. Manipur Hills (H. H. Godwin-Austen) (9416-7 no skulls); skins and skulls.

9419. Bhamo, Burma (Dr. J. Anderson); skin and skull.

9395. Dacca (Mus. Coll.); skin and skull.

9396, 7. Lushai Country (Mus. Coll.); skins and skulls.

9434-5. Arakan (Sir A. Phayre) (9434 no skull).

9420, 2. Arakan (Mus. Coll.); (21, 22 no skulls).

9426-7. Amherst Isle, Arakan (J. Armstrong); skins and skulls.

9423. Jergo Isle, Arakan (Marine Survey); skin and skull.

subsp. nov. ?

9424. Preparis Island (V. Ball); skin and skull.

9425. Preparis Island (F. Stoticzka); skin only.

**Tomeutes stevensi** (Thomas).

*Journ. Nat. Hist. Soc. Bombay*, XVIII, p. 246 (1908).

*Typical locality*.—Beni-chang, Abor-Miri Hills, Upper Assam, 4,000.

*Type*.—In British Museum.

9139, 9140, 9143. 3 ♀ Balek, Abor Hills, March 1912 (S. W. Kemp) [C.]; skins and skulls.

9141, 9146. 2 ♀ Rotung, 1,300 ft., Abor Hills, March 1912 (S. W. Kemp) [C.]; skins and skulls.

9147. ♂ Between Kalek and Misshing, March 1912 (S. W. Kemp) [C.]; skin and skull.

9440. East Naga Hills (H. H. Godwin-Austen).

**Tomeutes quinquestratus** (Anderson).

*P. Z. S.*, 1871, p. 142, pl. x.

*Typical locality*.—Ponsee, Kakhyen Hills.

*Type*.—In Indian Museum, Calcutta.

9463. Ponsee, Kakhyen Hills, 3,200 ft., Yunnan Border, 24th February 1868 (J. Anderson) [C.]; Type of the species; skin and skull.

9461-2 and 10163. Ponsee, Kakhyen Hills, 3,200 ft., Yunnan Border, March and April 1868; skins and two skulls.

7558. No locality (Capt. E. Pottinger) [C.]; skin and skull.

*Sciurus beebeyi*, Allen (*Bull. Amer. Mus. Nat. Hist.*, XXX, p. 338; 1911) described from a single specimen without skull from Kuching, Sarawak, is obviously this species. It is significant that Mr. Beebe also obtained specimens of the true *quinquestratus* in the vicinity of the type locality so that some transposition of labels has evidently taken place.

**Tomeutes phayrei**.**a. phayrei phayrei** (Blyth).

*Journ. Asiat. Soc. Bengal*, XXIV, pp. 472, 476 (1855).

*Typical locality*.—Sent from Moulmein.

*Type*.—In Indian Museum, Calcutta.

9300, 9301 (A. S. B. 330, 330c). Martaban, Lower Burma, 1861 (E. Blyth) [C.]; skins and skulls.

9302 (A. S. B. 330a). Martaban, Lower Burma, 1861 (E. Blyth) [C.]; skull only.

9473 (A. S. B. 330b). [Martaban, Lower Burma, 1861 (E. Blyth) [C.]]; skin and skull.

Though marked as from the above locality and date the specimen (No. 9473) which has once been mounted and now lacks its tail is probably the specimen sent by Sir A. Phayre (then Captain) to Blyth and is therefore the type of the species. In any event all four specimens mentioned above are lectotypes.

7593-4. ♂ ♀ Kollado, Salwin Hill Tracts, 22nd January, 1873; (Dr. A. R. S. Anderson) [C.]; skins and skulls.

10178. ♂ Heho, Southern Shan States, March 1917 (Dr. N. Annandale) [C.]; skin and skull.

10179, 10181-2. 2 ♂ 2 ♀ Fort Stedman, Southern Shan States, March 1917; (Dr. N. Annandale) [C.]; skins and skulls.

b. **phayrei blanfordi** (Blyth).

*Journ. Asiat. Soc. Bengal*, XXXI, p. 333 (1862).

*Typical locality*.—Ava, Upper Burma.

*Type*.—In Indian Museum, Calcutta.

9298. ♂ Ava, Upper Burma (W. T. Blanford) [C.]; type of the subspecies; skin and skull.

9299. ♀ Pudeepyo, Upper Burma, 10th January 1875 (Dr. J. Anderson) [C.]; skin and skeleton.

The latter specimen shows faint indications of dark lateral bands.

**Tomeutes pygerythrus.**a. **pygerythrus pygerythrus** (Is. Geoff.).

*Mag. Zool.* Cl. 1 (1832); Belanger, *Voyage Zool.*, p. 145, pl. vii (1847).

*Typical locality*.—Pegu.

*Type*.—In Mus. Hist. Nat., Paris.

9782 (A. S. B.). Lower Pegu (Berdmore) [C.]; skin and skull.

9284 (A. S. B.). Burma, 1865 (Dr. C. Williams) [C.]; skin and skull.

9285, 9286 (A. S. B.). Rangoon (Sir J. Fayerer) [C.]; skin only.

Rangoon (Sir A. Phayre) [C.]; skin and skull.

9287-90. 2 ♂ Rangoon, January 1876 (J. Armstrong) [C.]; skins and skulls.

b. **pygerythrus janetta** (Thos.).

*Journ. Nat. Hist. Soc. Bombay*, XXIII, p. 203 (1914).

*Typical locality*.—Mandalay, Upper Burma.

*Type*.—In British Museum.

10163. Mandalay, Upper Burma; skin and skull.

9291. Upper Burma, 1865 (Dr. C. Williams) [C.]; skin and skull.

9292-4. ♂ ♂ ♀ Sagaing, Upper Burma, October 1868 (Dr. J. Anderson) [C.]; skins and skulls.

9295-6. ♂ ♀ Ava, Upper Burma, October 1868 (Dr. J. Anderson) [C.]; skins and skulls.

9297. ♀ Kabuet, Upper Burma, January 1875 (Dr. J. Anderson) [C.]; skin and skull.

Agree well with the characters as given for this pale Upper Burma race by Thomas (*loc. cit. supra*).

**Tomeutes hippurus.**a. **hippurus hippurus** (Is. Geoffr.).

*Mag. de Zool.*, Cl. 8, No. 6, pl. vi (1832).

*Typical locality*.—Java (almost certainly erroneous); Malacca substituted.

*Type*.—In Mus. Nat. Hist., Paris.

9376 (A. S. B.). Malacca, 1844 (W. Frith); skin and skull.

♀ Taiping, Perak, September 1913; skin and skull.

♂ Bukit Tinggi, 1,300 ft., Negri Sembilan, April 1914 (Mus. Coll.); Federated Malay States Museum [P.].

b. **hippurus hippurosus** (Lyon).

*Smithsonian Misc. Coll.*, L, p. 26 (1907).

*Typical locality*.—Tarussan Bay, West Sumatra.

*Type*.—In United States National Museum.

c. **hippurus hippurellus** (Lyon).

*Loc. cit. supra*, p. 27.

*Typical locality*.—Batu Ampar, Landak River, West Borneo.

*Type*.—In United States National Museum.

d. **hippurus grayi** (Bonh.).

*Ann. Mag. Nat. Hist.*, (7), VII, p. 171 (1901).

*Typical locality*.—Sarawak, Borneo.

*Type*.—In British Museum.

9375. Borneo (Dr. J. Anderson) [P.]; skin and skull.

**Tomeutes pryeri.**a. **pryeri pryeri** (Thos.).

*Ann. Mag. Nat. Hist.*, (6), X, p. 214 (1892).

*Typical locality*.—Near Sandakan, British North Borneo.

*Type*.—In British Museum.

b. **pryeri inquinatus** (Thos.).

*Journ. Nat. Hist. Soc. Bombay*, XVIII, p. 247 (1908).

*Typical locality*.—Lawas River, North-West Borneo.

*Type*.—In British Museum.

These two forms *hippurus* and *pryeri* do not appear to us to be naturally placed with *Tomeutes*. On external and cranial characters their alliances would seem rather with *Callosciurus prevosti*.

**Tomeutes rubriventer** (Forsten).

Mueller and Schlegel, *Verhandl. Nat. Gesch.*, p. 86 (1839-44).

*Typical locality*.—Minahassa, North Celebes.

*Type*.—In Leyden Museum.

**Tomeutes melanogaster.**a. **melanogaster melanogaster** (Thos.).

*Ann. Mus. Civ. Gen.*, XIV, p. 668 (1896).

*Typical locality*.—Sipora, Mentawai Ids., W Sumatra.

*Type*.—In Genoa Museum; cotype in British Museum.

b. **melanogaster atratus** (Miller).

*Smiths. Misc. Coll.*, XLV, p. 13 (1903).

*Typical locality*.—North Pagi Island, W. Sumatra.

*Type*.—In United States National Museum.

But for the fact that Thomas categorically states (*Ann. Mag. Nat. Hist.* (8), XV, p. 386 ; 1915) that the penis bone of these forms is that of *Tomeutes* we should have placed them as somewhat abnormal forms of *Callosciurus nigrovittatus*.

**Tomeutes tenuis.**a. **tenuis tenuis** (Horsf.).

*Zool. Researches in Java*, 1824.

*Typical locality*.—Singapore Island.

*Type*.—In British Museum ; probably not now extant.

9457. Malacca (A. R. Wallace) [C.] ; skin.

7075. ♀ Perak (Mus. Coll.) [C] ; skin.

Perak specimens show an approach to the northern form *T. t. surdus* (Mill).

b. **tenuis surdus** (Miller).

*Proc. Wash. Acad. Sci.*, II, p. 80 (1900).

*Typical locality*.—Trang, Siamese Malaya.

*Type*.—In United States National Museum.

c. **tenuis sordidus** (Kloss).

*Ann. Mag. Nat. Hist.*, (8), VII, p. 119 (1911).

*Typical locality*.—Great Redang Island, off Trengganu, Eastern Malay Peninsula.

*Type*.—In Federated Malay States Museum.

d. **tenuis tiomanicus**, Robinson.

*Journ. Fed. Malay States Museum*, VII, p. 103 (1917).

*Typical locality*.—Tioman Island, East Coast, Malay Peninsula.

*Type*.—In Federated Malay States Museum.

c. **tenuis tahan** (Bonhote).

*Journ. Fed. Malay States Museum*, III, p. 6 (1908).

*Typical locality*.—Mount Tahan, Pahang, Malay Peninsula, 3,000 ft.

*Type*.—In British Museum.

f. **tenuis gunong** (Robinson and Kloss).

*Journ. Fed. Malay States Museum*, V, p. 119 (1914).

*Typical locality*.—Kao Nong, Bandon, Siamese Malaya, 3,000 ft.

*Type*.—In Federated Malay States Museum.

g. **tenuis modestus** (S. Müller).

Temminck's *Verhandelingen, Zoologie*, Inleiding, p. 55 (1839).

*Typical locality*.—Mount Singgalang, Sumatra, 3,000 ft.

*Type*.—In Leyden Museum.

h. **tenuis altitudinis** (Robinson and Kloss).

*Journ. Straits Branch Roy. Asiat. Soc.*, No. 73, p. 270 (1916).

*Typical locality*.—Korinchi Peak, Sumatra, 7,300 ft.

*Type*.—In Federated Malay States Museum.

i. **tenuis mansalaris** (Miller).

*Proc. U. S. Nat. Mus.*, XXVI, p. 451 (1903).

*Typical locality*.—Mansalar Island, West Sumatra.

*Type*.—In United States National Museum.

j. **tenuis batus** (Lyon).

*Proc. U. S. Nat. Mus.*, LII, p. 443 (1916).

*Typical locality*.—Tana Bala, Batu Islands, West Sumatra.

*Type*.—In United States National Museum.

k. **tenuis bancarus** (Miller).

*Proc. U. S. Nat. Mus.*, XXVI, p. 451 (1903).

*Typical locality*.—Bangkaru Island, Banjak Islands, West Sumatra.

*Type*.—In United States National Museum.

l. **tenuis pumilus** (Miller).

*Smithsonian Miscellaneous Collections*, XLV, p. 15 (1903).

*Typical locality*.—South Pagi Island, West Sumatra.

*Type*.—In United States National Museum.

m. **tenuis parvus** (Miller).

*Proc. Biol. Soc. Washington*, XIV, p. 33 (1901).

*Typical locality*.—Sarawak, Borneo.

*Type*.—In United States National Museum.

We are unable to precisely identify the following specimen on account of its poor condition.

9458. (329-A. S. B.) Java (Batavian Society) (P).

No squirrel of this type is known from Java; the present specimen probably came from South Borneo and is provisionally referred to this race.

**Tomeutes lowii.**a. **lowii lowii** (Thomas).

*Ann. Mag. Nat. Hist.*, (6), IX, p. 253 (1892).

*Typical locality*.—Sarawak, Borneo.

*Type*.—In British Museum.

b. **lowii bangueyae** (Thomas).

*Ann. Mag. Nat. Hist.*, (8), V, p. 386 (1910).

*Typical locality*.—Banguey Island, North Borneo.

*Type*.—In British Museum.

c. **lowii natunensis** (Thomas).

*Nov. Zool.*, II, p. 26 (1895).

*Typical locality*.—Sirhassen Island, Natuna Group, South China Sea.

*Type*.—In British Museum.

d. **lowii robinsoni** (Bonhote).

*Fasciculi Malayenses*, Zool., I, p. 24, pl. i (1903).  
(Synonym *robinsoni alacris*, Thomas.)

*Typical locality*.—Bukit Besar, Patani, Malay Peninsula.

*Type*.—In British Museum.

e. **lowii humilis** (Miller).

*Smithsonian Miscellaneous Collections*, LXI, p. 24 (1913).

*Typical locality*.—Kateman River district, East Sumatra.

*Type*.—In United States National Museum.

f. **lowii vanakeni** (Robinson and Kloss).

*Journ. Straits Branch Roy. Asiat. Soc.*, No. 73, p. 270 (1916).

*Typical locality*.—Barisan Range, Korinchi, Sumatra, 4,000 ft.

*Type*.—In Federated Malay States Museum.

g. **lowii piniensis** (Miller).

*Smithsonian Miscellaneous Collections*, XLV, p. 14 (1903).

*Typical locality*.—Pinie Island, Batu Group, West Sumatra.

*Type*.—In United States National Museum.

h. **lowii balae** (Miller).

*Op. cit. supra*, XLV, p. 14 (1903).

*Typical locality*.—Tana Bala Island, Batu Group, West Sumatra.

*Type*.—In United States National Museum.

i. **lowii seimundi** (Thomas and Wroughton).

*Ann. Mag. Nat. Hist.*, (8), III, p. 440 (1909).

*Typical locality*.—Kundur Island, Rhio-Lingga Archipelago, East Sumatra.

*Type*.—In British Museum.

**Tomeutes brookei** (Thomas).

*Ann. Mag. Nat. Hist.*, (6), IX, p. 253 (1892).

*Typical locality*.—Sarawak, Borneo.

*Type*.—In British Museum.

**Tomeutes jentinki** (Thomas).

*Ann. Mag. Nat. Hist.*, XX, p. 128 (1887).

*Typical locality*.—Kinabalu, North Borneo.

*Type*.—In British Museum.

7233. Kinabalu (J. Whitehead) [C.]; skin and skull.

**Tomeutes (?) helgei** (Gyldenstolpe).

*Kungl. Svenska Vet. Akad. Handl.*, LVII, No. 2, p. 34, pl. vi, figs. 3 and 4 (1917).

*Typical locality*.—South of Koh Lak, South-west Siam.

*Type*.—In Natural History Museum, Stockholm.

(Underparts slaty grey: greatest length of skull 50-51 mm. We are quite unable to place this form which is perhaps best regarded as a race of *Callosciurus caniceps*).

Genus **MENETES**, Thomas, 1908.**Menetes berdmorei**.a. **berdmorei berdmorei** (Blyth).

*Journ. Asiat. Soc. Bengal*, XVIII, p. 603 (1849).

*Typical locality*.—Thoungyeen District, Lower Burma.

*Type*.—Apparently not in existence unless the skull 9669 belongs to it.

9665-6. (A. S. B. 338a, b). Martaban, Burma (E. Blyth) [C.]; skins and skulls.  
9667-8. ♂ ♀ Thaing, King Island, Mergui, January 1882 (Dr. J. Anderson) [C.];  
skins and one skull.

9669. (?) Skull.

♂ Ban Kok Klap, Bandon, Siamese Malaya, July 4th, 1913 (H. C. Robinson) [C.]; Federated Malay States Museum.

b. **berdmorei amotus** (Miller).

*Smithsonian Miscellaneous Collections*, LXI, p. 24 (1913).

*Typical locality*.—Domel Island, Mergui Archipelago.

*Type*.—In United States National Museum.

c. **berdmorei koratensis** (Gyldenstolpe).

*Kungl. Svenska Vet. Akad. Handl.*, LVII, No. 2, p. 39 (1917).

*Typical locality*.—Sakerat, near, Korat, Eastern Siam.

*Type*.—In Natural History Museum, Stockholm.

d. **berdmorei mouhoti**<sup>1</sup> (Gray).

*P. Z. S.*, 1861, p. 137.

*Typical locality*.—Cambodia.

*Type*.—In British Museum.

e. **berdmorei decoratus** (Thomas).

*Journ. Nat. Hist. Soc. Bombay*, XXIII, p. 23 (1914).

*Typical locality*.—Mount Popa, Burma (dry zone).

*Type*.—In British Museum.

f. **berdmorei moerescens** (Thomas).

*Loc. cit. supra*, p. 24.

*Typical locality*.—Bali, near Nhatrang, Annam.

*Type*.—In British Museum.

g. **berdmorei consularis** (Thomas).

*Loc. cit. supra*, p. 24.

*Typical locality*.—Nan, Siam.

*Type*.—In British Museum.

h. **berdmorei umbrosus** (Kloss).

*Proc. Zool. Soc. London*, 1916, p. 49.

*Typical locality*.—Koh Chang Island, South-east Siam.

*Type*.—In British Museum.

i. **berdmorei rufescens** (Kloss).

*Loc. cit. supra*, p. 50.

*Typical locality*.—Koh Kut Island, South-east Siam.

*Type*.—In British Museum.

Genus **LARISCUS**, Thomas and Wroughton, 1909.

*Proc. Zool. Soc. London*, 1909, p. 389.

With the exception of *L. hosei*, which on account of its brilliant and striking colouration and the possession of four stripes on the back has strong claims to be regarded as specifically distinct, we have arranged all the races of this genus as subspecies of the original "*Sciurus insignis*, F. Cuv." from Sumatra. All are closely allied to each other though it might be possible and convenient to regard *L. niobe* (Thomas) and *javanus* (Thomas and Wrought.) and possibly *rostratus* and *obscurus*, which we have not seen, as belonging to a different specific group.

<sup>1</sup> Synonym: *Sciurus pyrrocephalus*, Milne-Edwards, *Rev. et Mag. de Zool.* (2), XIX, p. 225 (1867), Cochin China.

The genus is apparently confined to the Malay Peninsula and greater Sunda Islands and is not as yet known to occur within the limits of the Indian Empire or in Indo-China.

**Lariscus insignis.**

a. **insignis insignis** (Cuv.).

*Mamm. pl.* 233 (1818).

*Typical locality*.—Sumatra.

*Type*.—In Mus. Hist. Nat., Paris.

b. **insignis jalorensis** (Bonhote).

*Fascic. Malay., Zool. I*, p. 24 (1903).

*Typical locality*.—Jalor, North Malay Peninsula.

*Type*.—In British Museum.

9670. ♂ Malacca, Malay Peninsula (E. R. Alston) [P.]; skin and skull.

♀ Benom Foothills, Pahang, Malay Peninsula, 2nd November, 1913.

♀ Ayer Kring, Negri Sembilan-Pahang border, 17th March, 1918; skin and skull.

♂ Bukit Tangga, Negri Sembilan, Malay Peninsula, 13th January, 1914.

♂ Batu Tegur, Taiping, Perak, Malay Peninsula, 31st October, 1908; Federated Malay States Museum [P.].

c. **insignis meridionalis** (Robinson and Kloss).

*Journ. Fed. Malay. States Mus.*, IV, p. 172 (1911).

*Typical locality*.—Changi, Singapore Island.

*Type*.—In British Museum.

d. **insignis fornicatus**, Robinson.

*Op. cit. supra*, VII, p. 102 (1917).

*Typical locality*.—Tioman Island, East Coast, Malay Peninsula.

*Type*.—In Federated Malay States Museum.

e. **insignis diversus** (Thomas).

*Ann. Mag. Nat. Hist.*, (7), II, p. 248 (1898).

*Typical locality*.—Baram District, Borneo.

*Type*.—In British Museum.

f. **insignis castaneus** (Miller).

*Proc. Acad. Sci. Washington*, II, p. 217 (1900).

*Typical locality*.—Pulau Siantan, Anamba Islands.

*Type*.—In United States National Museum.

g. **insignis niobe** (Thomas).

*Ann. Mag. Nat. Hist.*, (7), II, p. 249 (1898).

*Typical locality*.—Pajo, Highlands of West Sumatra.

*Type*.—In British Museum.

♀ Sungei Kumbang, Korinchi, West Sumatra, 15th April, 1914; Federated Malay States Museum (H. C. Robinson and C. B. Kloss) [C.]; skin and skull.

h. **insignis javanus**, Thomas and Wroughton.

*P. Z. S.* (Abstract) 1909, p. 19; *id.*, *tom. cit.*, p. 38.

*Typical locality*.—Buitenzorg, West Java

*Type*.—In British Museum.

♀ Tjibodas, West Java, 29th February, 1916 (H. C. Robinson) [C.]; Federated Malay States Museum [P.]; skin and skull.

i. **insignis obscurus** (Miller).

*Smithsonian Misc. Coll.*, XLV, p. 23, pl. i, fig. 2 (1903).

*Typical locality*.—South Pagi Island, West Sumatra.

*Type*.—In United States National Museum.

j. **insignis rostratus** (Miller).

*Loc. cit. supra*, p. 24.

*Typical locality*.—Tana Bala, Batu Islands, West Sumatra.

*Type*.—In United States National Museum.

**Lariscus hosei** (Thomas).

*Ann. Mag. Nat. Hist.*, (6), X, pp. 215, 216 (1892).

*Typical locality*.—Mount Dulit, Baram District, Borneo.

*Type*.—In British Museum.

Genus **DREMOMYS**, Heude, 1898.

*Mem. Hist. Nat. Empire Chinois*, IV, pt. 2, p. 54 (1898).

*Zetis*, Thomas, *Journ. Nat. Hist. Soc. Bombay*, XVIII, p. 244 (1908).

**Dremomys pernyi**.a. **pernyi pernyi** (Milne-Edw.).

*Rev. et. Mag. de Zool.*, 1867, p. 230, pl. xix.

*Typical locality*.—Sze-chwan, China.

*Type*.—In Mus. Hist. Nat., Paris.

9138. Sirpo Valley, Abor Hills (Capt. I. Burn Murdoch) [C.] and [P.]; skin and skull.

b. **pernyi flavior**, Allen.

*Proc. Biol. Soc. Washington*, XXV, p. 178 (1912).

*Typical locality*.—South-east Yunnan.

*Type*.—In Museum of Comparative Zoology, Harvard, U. S. A.

c. **pernyi griselda**, Thos.

*Ann. Mag. Nat. Hist.*, (8), XVII, p. 392 (1916).

*Typical locality*.—Western Sze-chwan (Nagchuka).

*Type*.—In British Museum.

d. **pernyi modestus**, Thos.*Loc. cit. supra*, p. 393.*Typical locality*.—Kwei-chow (Sui-yang), China.*Type*.—In British Museum.e. **pernyi senex**, Allen.*Mem. Mus. Harvard*, XL, No. 4, p. 229 (1912).*Typical locality*.—Ichang, China.*Type*.—In Museum of Comparative Zoology, Harvard, U. S. A.f. **pernyi chintalis**, Thos.*Loc. cit. supra*, p. 394.*Typical locality*.—An-hwei (Chinteh), China.*Type*.—In British Museum.g. **pernyi calidior**, Thos.*Loc. cit. supra*, p. 394.*Typical locality*.—North-West Fokien (Kuatun), China.*Type*.—In British Museum.**Dremomys lokriah.**a. **lokriah lokriah** (Hodgs.).*Journ. Asiat. Soc. Bengal*, V, p. 232 (1836).*Typical locality*.—Nepal.*Type*.—In British Museum. Co-type in Indian Museum, Calcutta.

9447. Nepal (Brian Hodgson) [C.]; India Museum, London [P.]; co-type of the species; skin and skull.

9443-5. 2 ♂, ♀ Sheopuri Ridge, Nepal Valley, February-June 1878 (J. Scully) [C.]; skins and skull.

9446. Sisagutu, Nepal, December 1877 (J. Scully) [C.]; skin and skull.

9448. Darjiling (Dr. J. Anderson) [C.]; skin and skull.

9450 (A. S. B. 327a.). Juv. Darjiling (Mrs. Oakes) [P.]; skin and skull.

9449. ♀ Sikkim (L. Mandelli) [C.]; skin and skull.

9453 Uncertain skull only.

b. **lokriah bhotia**, Thos.*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 426 (1916).*Typical locality*.—Sedonchen, East Sikkim.*Type*.—In British Museum.

10202, 10204-5. ♂, ♀ Above Tura, Garo Hills, Assam, 3,900 feet, August 1917, (S. W. Kemp) [C.]; skins and skulls.

9451. Naga Hills (H. H. Godwin-Austen) [C.]; skin.

9452. Naga Hills (A. W. Chennell) [C.]; skin and skull.

9455. Shillong, Assam (T. la Touche) [C.]; skin and skull.

9441. ♂ Nongjuri, Khasi Hills, Cherrapunji, Assam, May 1909 (B. Warren) [C.]; skin and skull.

9149. ♀ Komsing, Abor Hills, February 1912 (S. W. Kemp) [C.]; skin and skull.

These specimens which are more ochraceous and less ferruginous below than most specimens from Nepal have been referred to in the literature as *Sc. subflaviventris*, G. R. Gr. (*Hand-list Mamm. Brit. Mus.*, p. 144 ; 1843), a form which has never been properly described and must therefore be regarded as a *nomen nudum*.

Arakan specimens referred to this species by Blyth and others do not, so far as can be judged from the skins in the collection which are now in an excessively bad state of preservation, belong to this genus at all.

**Dremomys macmillani** (Thos.).

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 238 (1916).

*Typical locality*.—Kindat, Chindwin River, Upper Burma.

*Type*.—In British Museum.

**Dremomys owstoni** (Thos.).

*Journ. Nat. Hist. Soc. Bombay*, XVIII, p. 248 (1908).

*Typical locality*.—Mount Arizan, Central Formosa.

*Type*.—In British Museum.

**Dremomys everetti** (Thos.).

*Ann. Mag. Nat. Hist.*, (6), VI, p. 171 (1890).

*Typical locality*.—Penrisen, Sarawak, Borneo.

*Type*.—In British Museum.

**Dremomys rufigenis**.

a. **rufigenis rufigenis** (Blanford).

*Journ. Asiat. Soc. Bengal*, XLVII (2), p. 156, pl. viii (1878).

*Typical locality*.—Mount Mooleyit, Central Tenasserim.

*Type*.—In British Museum. Co-type in Indian Museum.

7167. ♀ Mount Mooleyit, Central Tenasserim, 5,500 ft., January 1877 (W. Davison) [C.]; skin and skull.

b. **rufigenis belfieldi** (Bonhote).

*Journ. Fed. Malay States Mus.*, III, p. 9, pl. i (1908).

*Typical locality*.—Mountains of Selangor (4,800-5,800 ft.), Malay Peninsula.

*Type*.—In British Museum.

c. **rufigenis fuscus** (Bonhote).

*P. Z. S.* (Abstr.) 1907, p. 2; *P. Z. S. id.* 1907 (i), p. 10.

*Typical locality*.—Bali, Annam.

*Type*.—In British Museum.

**d. rufigenis adamsoni**, Thos.*Journ. Nat. Hist. Soc. Bombay*, XXIII, p. 25 (1914).*Typical locality*.—Maymyo, Upper Burma.*Type*.—In British Museum.**e. rufigenis ornatus**, Thos.*Loc. cit. supra*, p. 26.*Typical locality*.—Yunnan (?), near Mong-tze.*Type*.—In British Museum.**f. rufigenis opimus**, Thos.*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 237 (1916).*Typical locality*.—Hkamti, Upper Chindwin, Burma.*Type*.—In British Museum.8432. Mong-ha, North Shan States, Upper Burma, April, 1907 (J. Coggin Brown)  
[C.]; skin and skull.

This specimen agrees in colour more with this subspecies than with *D. r. adamsoni* but is smaller than the type specimen of *opimus*. It has the appearance of having been in spirit and we therefore prefer not to describe it. Greatest length of skull about 52 mm., agreeing with *adamsoni* in this respect, but much smaller than the Yunnan form. The specimen is adult but not old.

**g. rufigenis pyrrhomerus** (Thos.).*Ann. Mag. Nat. Hist.*, (6), XVI, p. 242 (1895).*Typical locality*.—Ichang, China.*Type*.—In British Museum.**h. rufigenis riudonensis** (Allen).*Bull. Amer. Mus. Nat. H. st.*, XXII, p. 472 (1906).*Typical locality*.—Riudon, Hainan.*Type*.—In American Museum of Natural History, New York.Genus **RHINOSCIURUS**, Gray, 1843.**Rhinosciurus laticaudatus**.**a. laticaudatus laticaudatus** (Muell. and Schleg.).*Verhandl.*, p. 100, pl. xv, figs. 1, 2, 3 (1839-44).*Typical locality*.—Pontianak, Borneo.*Type*.—In Leyden Museum.

b. **laticaudatus tupaoides**<sup>1</sup> (Blyth).

*Journ. Asiat. Soc. Bengal*, XXIV, p. 477 (1855).

*Typical locality*.—Malacca, Malay Peninsula.

*Type*.—In Indian Museum.

9664 (A. S. B.). Malacca, Malay Peninsula, 1851 (J. Moxon) [C.]; Type; skin only.

♂ Kao Nawng, Bandon, Siamese Malaya, 16th June 1913 (H. C. Robinson) [C.]; Federated Malay States Museum [P.]; skin and skull.

♂ Parit, Perak, 16th September 1911, Federated Malay States Museum [P.]; skin and skull.

c. **laticaudatus leo**, Thomas and Wroughton.

*Ann. Mag. Nat. Hist.*, (8) III, p. 440 (1909).

*Typical locality*.—Changi, Singapore Island.

*Type*.—In British Museum.

d. **laticaudatus rhionis**, Thomas and Wroughton.

*Loc. cit. supra*, p. 441.

*Typical locality*.—Karimon Island, Rhio-Lingga Archipelago.

*Type*.—In British Museum.

e. **laticaudatus robinsoni**, Thomas.

*Journ. Fed. Malay States Mus.*, II, p. 104 (1908).

*Typical locality*.—Tioman Island, East Coast, Malay Peninsula.

*Type*.—In British Museum.

♂ ♀ Juara Bay, Pulau Tioman, June-July 1915 (H. C. Robinson) [C.]; Federated Malay States Museum [P.]; skins and skulls.

f. **laticaudatus incultus**, Lyon.

*Proc. U. S. Nat. Mus.*, LII, p. 444 (1916).

*Typical locality*.—Pulau Tuanku, Banjak Islands, West Sumatra.

*Type*.—In United States National Museum.

Genus **RHEITHROSCIURUS**, Gray, 1867

*Ann. Mag. Nat. Hist.*, XX, p. 272 (1867).

**Rheithrosciurus macrotis** (Gray).

*P. Z. S.*, 1856, p. 341, pl. xlvi.

*Typical locality*.—Sarawak.

*Type*.—In British Museum.

Genus **GLYPHOTES**, Thomas, 1898.

*Ann. Mag. Nat. Hist.*, (7), II, p. 251 (1898).

<sup>1</sup> *Rhinosciurus peracer*, Thos. and Wrought. (*Ann. Mag. Nat. Hist.* (8), III, p. 440; 1909) cannot be separated with certainty from this form.

**Glyphotes simus**, Thomas.*Op. cit. supra.**Typical locality*.—Kinabalu, North Borneo.*Type*.—In British Museum.Genus **TAMIOPS**, Allen.*Bull. Amer. Mus. Nat. Hist.*, XXII, p. 475 (1906).**Tamiops macclellandi**.a. **macclellandi macclellandi** (Horsf.).*P. Zool.* 1839, p. 152.*Typical locality*.—"Assam"*Type*.—In British Museum.

9671-4. Sikkim (L. Mandelli) [C.]; skins and skulls.

9675-6. Sikkim (H. J. Elwes) [E.]; skins and skulls.

9677. Rinok, Sikkim, 5,000 ft., Aug. 1870 (W. T. Blanford) [C.]; skin and skull.

9678. Darjiling (W. G. Masson) [P.]; skin and skull.

9679-80 (A. S. B. 344a, b.). Darjiling (Mrs. Cakes) [P.]; skins and skulls.

9681-82. ♂ Naga Hills (H. H. Godwin-Austen) [C.]; skins and skulls.

9683-5. East Naga Hills, August 1875 (H. H. Godwin-Austen) [C.]; skins and skulls.

9686. ♂ Near Peak 24, Naga Hills, February 1875 (H. H. Godwin-Austen) [C.]; skin and skull.

The specimen 9686 differs from all others of this race in having three distinct black stripes on the back, the lateral ones quite as well marked as the median one.

9687. ♂ Chota Naga Hills, December 1875 (A. W. Chennell) [C.]; skin and skull.

9688. ♀ Naga Hills, April 1876 (A. W. Chennell) [C.]; skin and skull.

9691-2. ♀ Duffla Hills, Assam (H. H. Godwin-Austen) [C.]; skin and skull.

9689-90. Asalu, North Cachar, May 1876 (H. H. Godwin-Austen) [C.]; skins and skulls.

One of these specimens (9690) in being lighter and greyer above shows an approach to the succeeding subspecies.

9135-6. ♂ Kobo, Abor Hills, 400 ft. (S. W. Kemp) [C.]; skins and skulls

9142 ♀ Rotung, Abor Hills, 1,300 ft. (S. W. Kemp) [C.]; skin and skull.

The types of *Sciurus pembertonii*, Blyth (*Journ. Asiat. Soc. Bengal*, XI, p. 887; 1842) from Bhutan, which is probably a pure synonym of this race, do not now appear to be in existence.

b. **macclellandi manipurensis** (Bonhote).*Ann. Mag. Nat. Hist.*, (7), V, p. 51 (1900).*Typical locality*.—Aimole, Manipur.*Type*.—In British Museum.

9693. Pensee, Kakhyen Hills, 3,500 ft., Upper Burma (Dr. J. Anderson) [C.]; skin and skull.

Probably belonging to this form but the specimen is not in very good condition.

c. **maccelellandi maritimus** (Bonhote).

*Loc. cit. supra*, p. 51.

*Typical locality*.—Foochow, China.

*Type*.—In British Museum.

7372. Foochow, China, April 1892 (C. B. Rickett) [C.]; (Topotype); skin and skull.

d. **maccelellandi monticolus** (Bonhote).

*Loc. cit. supra*, p. 52.

*Typical locality*.—Ching Feng Ling, 2000 ft.

*Type*.—In British Museum.

e. **maccelellandi formosanus** (Bonhote).

*Loc. cit. supra*, p. 52.

*Typical locality*.—North Formosa.

*Type*.—In British Museum.

9701. Formosa (R. Swinhoe) [C.], (A. R. Alston) [P.]; skin and skull.

f. **maccelellandi barbei** (Blyth).

*Journ. Asiat. Soc. Bengal*, XVI, p. 875 (1847).

*Typical locality*.—Yé, Tenasserim.

*Type*.—In Indian Museum.

9482-3 (A. S. B. 343a, b.). Yé, Tenasserim (Revd. J. Barbe) [C.]; (types of the subspecies); skins and skulls.

9698 (A. S. B. 343c). Tenasserim (Major Berdmore) [C.]; skin and skull.

9694-7. Moulmein, October 1872 (Museum Collector) [C.]; skins and two skulls.

g. **maccelellandi kongensis** (Bonhote).

*P. Z. S.*, 1901 (i), p. 55.

*Typical locality*.—Raheng, Siam.

*Type*.—In British Museum.

9702. ♀ Yebok, 3,000 ft., Southern Shan States, December (Col. Bingham) [C.]; skin and skull.

If we are right in assigning the above specimen to this race its affinities are rather with the Malayan *novemlineatus* from which it differs only in the narrower internal pale stripes on the back than with *barbei* from Tenasserim. All three forms are, however, exceedingly closely allied.

h. **maccelellandi novemlineatus** (Miller).

*Proc. Biol. Soc. Washington*, XVI, p. 147 (1903).

*Typical locality*.—Trang, Siamese Malaya.

*Type*.—In United States National Museum.

9778. No history; skin and skull.

9018-19. ♂ ♀ Selangor-Pahang border, 4,000 ft., Malay Peninsula, October 1909 (F. M. S. Museum) [E.]; skins and skulls.

♀ Menuang Gasing, Ulu Langat, Selangor, 3,000 ft., 23th May 1911 (F. M. S. Museum) [P.]; skins and skulls.

♂ Bukit Kutu, Ulu Selangor, 3,400 ft., 21st August 1915.

We have not used Temminck's name for this species [*Tamias leucotis*, Zool. sur la Cote de Guenée, p. 252 (1853)] as adopted by Bonhote seeing that as pointed out by Miller (*loc. cit.*) the description does not fit the Malayan animal.

There is no ambiguity about Miller's description and failing a re-examination of Temminck's type Miller's name has been adopted.

i. **macclellandi rodolphi** (Milne-Edwards).

*Rev. et Mag. de Zool.*, XIX, p. 227 (1867)

*Typical locality*.—Cochin China.

*Type*.—In Paris Museum.

j. **macclellandi hainanus**, Allen.

*Bull. Amer. Mus. Nat. Hist.*, XXII, p. 476 (1906).

*Typical locality*.—Lei-Mui Mon, Hainan (mountains).

*Type*.—In American Museum of Natural History, New York.

k. **macclellandi riudoni**, Allen.

*Loc. cit.*, *supra*, p. 477.

*Typical locality*.—Riudon, Hainan (plains).

*Type*.—In American Museum of Natural History, New York.

l. **macclellandi sauteri**, Allen.

*Op. cit.*, XXX, p. 339 (1911).

*Typical locality*.—Chip Chip, Northern Formosa.

*Type*.—In American Museum of Natural History, New York.

We are not acquainted with these three races and are therefore unable to place them in their correct positions; the last race is recorded as having been collected in the same place on the same dates as a series of *T. m. formosanus*.

**Tamiops swinhoei** (Milne-Edw.).

*Rech. des. Mamm.*, p. 308 (1874).

*Typical locality*.—Moupin, China.

*Type*.—In Mus. Nat. Hist., Paris.

9700. Miwan, Kiangsi, China (Père David) [E.]; skin.

9699. Moupin, W. China (Père David); skin and skull.

This Chinese form is we think sufficiently distinct from the races of *T. macclellandi* to merit specific distinction.

The two specimens listed above from very widely separated localities are very different in appearance and probably represent distinct subspecies though possibly they are seasonal phases. That from Moupin has the dorsal stripes inconspicuous and almost obsolete, while the Kiangsi specimen has them very conspicuous, the two inner pale stripes being almost the colour of the back, while the outer ones are buff white. The three black stripes are broad and strongly marked.

Genus **FUNAMBULUS**, Lesson, 1836.

**Funambulus palmarum.**

a. **palmarum palmarum** (Linn.).

*Syst. Nat.*, I, p. 86 (1766).

*Typical locality*.—Madras (by selection).

*Type*.—Not in existence.

- 9642-6. 3♂ 2♀ Madras Museum compound, 27th November, 1908 (Dr. N. Annandale) [C.]; skins and skulls.  
 9636-41. 4♂, ♀ Shencottah, east side of Western Ghats, Travancore, 24th November, 1908 (Dr. N. Annandale) [C.]; skins and skulls.  
 9514 (A. S. B. 340A). Midnapur, Bengal (E. Blyth) [C.]; skin and skull.  
 9515 (A. S. B. 340B). Midnapur, Bengal (E. Blyth) [C.]; skin and skull.  
 9524. No history (Dr. Day); skin and skull.  
 9525. No history (Dr. Day) skin only.  
 9517. Trombay Island, Bombay, 28th January 1875 (H. H. Godwin-Austen) [C.]; skin and skull.  
 8081. ♂ Mandapan, Ramanad, South India (Dr. N. Annandale) [C.]; skin and skull.  
 9777. ♂ Kalakhul, February 1875; skin and skull.

b. **palmarum comorinus**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XVI, p. 411 (1905).

*Typical locality*.—Trivandrum, Travancore.

*Type*.—In British Museum.

- 9773-6. imm. Western side of Western Ghats, Travancore (Dr. N. Annandale) [C.]; skins and skulls.

We are rather doubtful about the validity of this subspecies, which would appear to be confined to the western side of the Western Ghats, as specimens from Shencottah on the eastern side are richer in colour and smaller and agree closely with typical specimens from Madras.

We have, however, listed them under Wroughton's name as the largest specimen has a maximum skull length of 42 mm.

c. **palmarum bellaricus**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 647 (1916).

*Typical locality*.—Vizayanagar, Bellary, South India.

*Type*.—In British Museum.

- 9792.5. Vizayanagar, Bellary, S. India, 1,500 feet, July 1912 (G. C. Shortridge) [C.]; skins and skulls.  
 9794. Houslayi, South Dharwar, South Mahratta Country, 2,000 feet, 18th February 1912 (G. C. Shortridge) [C.]; skin and skull.  
 9791. Dharwar, South Mahratta Country, 29th October 1911 (G. C. Shortridge) [C.]; skin and skull.  
 Bombay Nat. Hist. Soc. Mammal Survey [P.]

d. **palmarum favonicus**, Thos. and Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 39 (1915).

*Typical locality*.—Udugama, Southern Province, Ceylon.

*Type*.—In British Museum.

e. **palmarum kelaarti** (Layard).

Blyth, *Journ. Asiat. Soc. Bengal*, XVIII, p. 602 footnote (1849), *id.*, *op. cit.*, XX, p. 166 (1852).

*Typical locality*.—Hambalotte, Ceylon.

*Type*.—In Indian Museum, Calcutta.

9479. Hambalotte, Ceylon (E. L. Layard) [C.]; skin and portions of skull.

This specimen is evidently Layard's type but is so deteriorated that but little can be made out of it. The head to level of ears is ferruginous and the dorsal stripes very clearly defined and rather broad, the central one narrower. The face, however, does not appear to be ferruginous as stated in Thomas and Wroughton's key (*loc. cit. supra.*).

9523. Ceylon (Colombo Mus.) [P.], skin and skull.

This specimen agrees with the above type but has the ferruginous cap not quite so pronounced. All three back stripes buffy white, the median one paler. Midrib of tail rufous nearly to the tip.

f. **palmarum brodiei** (Blyth).

*Journ. Asiat. Soc. Bengal*, XVIII, p. 602 (1849).

*Typical locality*.—Point Pedro, Ceylon.

*Type*.—In Indian Museum, Calcutta.

9480. Point Pedro, Ceylon (E. L. Layard) [C.]; type of the subspecies; skin and imperfect skull.

Not much can be made out of this specimen which has been exposed to light mounted in a gallery for 60 years.

9522. Ceylon (Dr. Kelaart) [C.]; skin and fragmentary skull.

g. **palmarum olympius**, Thos. and Wrought.

*Op. cit. supra*, p. 41.

*Typical locality*.—Unugalla, Highlands of Central Ceylon.

*Type*.—In British Museum.

9521 (A. S. B.). Ceylon (R. Templeton); skin and fragmentary skull, also another skull with this number.

This specimen recorded by W. L. Sclater (*Cat. Mamm. Ind. Mus.*, II, p. 25; 1891) as one of the types of *F. p. kelaarti* is obviously not so. It is, allowing for deterioration in both specimens, a much darker, richer coloured specimen than Layard's type, with broader buffy stripes and with no ferruginous cap. We have therefore assigned it to this race.

h. **palmarum robertsoni** (Wroughton).

*Loc. cit. supra*, p. 647.

*Typical locality*.—Pachmarhi, Hosengabad, Central Provinces.

*Type*.—In British Museum.

9793.6. Pachmarhi, Hosengabad, Central Provinces, 3,000 feet, March 1912, skins and skulls: Topotypes.

C. M. Crump [C.]; Bombay Nat. Hist. Soc. Mamm. Survey (P.)

i. **palmarum bengalensis** (Wroughton).

*Loc. cit. supra*, p. 648.

*Typical locality*.—Hazaribagh, Bengal (now Bihar).

*Type*.—In British Museum.

The specimens from Midnapur, listed above under *F palmarum palmarum*, presumably belong to this form but for the present we prefer to leave them under the original name as we have not been able to compare them with the description.

**Funambulus pennanti.**a. **pennanti argentescens**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XVI, p. 413 (1905).

*Typical locality*.—Rawalpindi.

*Type*.—In British Museum.

10210. ♂ Rawalpindi, Punjab, June 1917 (R. A. Hodgart) [C.]; skin and skull.  
 9618. ♀ Pishin, Persian Baluchistan, 7th February 1872 (W. T. Blanford) [C.]; skin and skull.  
 9799. ♂ Bhuj, Cutch, 1st August 1911 (C. H. Crump) [C.]; Bombay Nat. Hist. Soc. Mammal Survey [P.]; skin and skull.

Though Mr. Wroughton (*Journ. Bombay Nat. Hist. Soc.*, XXI, p. 839; 1912) has identified this last specimen as typical *F p. pennanti*, it must, we think on account of its pale colour, small size and narrowed skull, be regarded as belonging to this desert form.

b. **pennanti lutescens**, Wroughton.

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 429 (1916).

*Typical locality*.—Deesa, Palanpur.

*Type*.—In British Museum.

c. **pennanti pennanti**, Wroughton.

*Typical locality*.—Mandvi Taluka, Surat District, Bombay.

*Type*.—In British Museum.

9635. ♂ Agra Fort, 10th January 1908 (R. A. Hodgart) [C.]; skin only.  
 9631-3. ♂, 2♀ Lucknow, 17th January 1908 (R. A. Hodgart) [C.]; skins and two skulls.  
 9630, 8433, 8435. 2♂, ♀ Bareilli, March 1907; skins and skulls.  
 9634, 8434, 8436. 3♀ Bijnor, January 1907 (R. A. Hodgart) [C.]; skins and skulls.  
 9619. Bichiakoh, Nepal Terai, 21st December, 1877 (J. Scully) [C.]; skin and skull.  
 9622-6. 3♂ Calcutta, 1869-70 (J. Anderson) [C.]; skins and skulls.  
 9493-6. ♂, 3♀ Calcutta, August, 1911 (R. A. Hodgart) [C.]; skins and skulls.  
 7562 imm. Albino, Paresnath Hill, Bengal, 11th April 1909 (Drs. N. Annandale and J. T. Jenkins) [C.]; skin and skull.  
 9649-51. 2♂ Balur, Lower Bengal, November 1908 (J. Caunter) [C.]; skins and skulls.  
 9620-1. 2♂ Manbhoom, Bengal (Mus. Coll.); skin and one skull.  
 9516. Ranchi, Chota Nagpur, May 1870 (W. T. Blanford) [C.]; skin.

These last three specimens are unusually dark with the final lateral light stripe poorly developed. They probably represent a distinct form as yet unnamed.

9647-8. 2♀ Balighai, Puri District, Orissa, 23rd October 1908 (Dr. N. Annandale) [C.]; skins.

9497. ♂ Balighai, Puri District, Orissa, 17th August 1911 (Dr. N. Annandale and F. H. Graveley) [C.]; skin and skull.

9046. Rambha State, Lake Chilka, Ganjam District (Dr. N. Annandale) [C.]; skin and skull.

These four specimens come from the meeting place of *pennanti* and *palmarum* and while one is indisputably the former race, the last-mentioned skin would, but for its locality, be assignable to the latter. Perhaps there has been some transposition of labels.

9628. Hyderabad, 1855 (Dr. H. Gould) [P.]; a sandy coloured form, by no means typical; skin only.

9629. No locality (E. R. Alston); skin and skull.

9627. ♀ Chanda, Central Provinces, 6th May 1867 (Mus. Coll.); skin and skull.

9798. ♂ Chanda, Central Provinces, 800 ft., June 1912; skin and skull.

9797. ♀ Chichpalli, Chanda, Central Provinces, June 1912, 1,300 ft. (C. M. Crump) [C.]; Bombay Nat. Hist. Soc. Mammal Survey [P.]; skin and skull.

### **Funambulus tristriatus.**

#### **a. tristriatus tristriatus (Waterh.).**

Charlesworth's *Mag. Nat. Hist.*, I, pp. 496-9 (1837).

*Typical locality*.—Non-cited. Madras by subsequent designation.

*Type*.—In British Museum.

9800. Dharwar, South Mahratta Country, 31st October 1911; skin and skull.

9803. Devikop, South Mahratta Country, 2,000 ft., 27th November 1911; skin and skull.

9801. Sirsi, Kanara, 1,500 ft., 6th April 1912; skin and skull.

9802. Potoi, North Kanara, 1,800 ft., 18th January 1912 (G. C. Shortridge) [C] Bombay Nat. Hist. Soc. Mammal Survey [P.]; skin and skull.

9518. Kalakhul (H. H. Godwin-Austen) [P.]; skin only.

9528. No history; skin only.

9526. No history; skin only.

9520, 9519. Travancore (probably eastern side of the Ghats); skins only.

#### **b. tristriatus numarius, Wroughton.**

*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 646 (1916).

*Typical locality*.—Helwak, Satara Dist., W. Ghats, Bombay.

*Type*.—In British Museum.

#### **c. tristriatus, subsp. nov ?**

9513. Sikkim (H. J. Elwes) [E.]; skin only.

This specimen is obviously subspecifically distinct from others of the group but as there is no skull or measurements we prefer not to name it. It differs from all others of the group in the great reduction of the longitudinal white stripes on the back, the median one being almost obsolete. The general colour above is darker and the "saddle" is not specially marked. It is possible that it is not referable to this genus at all but in the absence of a skull nothing can be definitely stated.

d. *tristriatus annandalei*,<sup>1</sup> Robinson.

*Rec. Ind. Mus.* XIII, p. 41 (1917).

*Type*.—Adult female. Indian Museum No. 8498, skin and skull (lower mandible missing), collected at Shasthancotta, west side of Western Ghats, Travancore, on 8th November 1908, by Dr. N. Annandale.

*Diagnosis*.—A large richly coloured form allied to *F. t. tristriatus* (Waterh.), but larger, smaller than *F. wroughtoni*, Ryley, from Coorg.<sup>2</sup> Longitudinal stripes on back narrow, whitish, traceable to neck. Saddle black, tail with white tips to hairs exceptionally well developed, anal region and midrib to tip rich chestnut.

*Colour*.—Head and cheeks to behind the eye ferruginous, speckled with black, richest on top of head; rest of upper surface speckled black greyish and fulvous, the rump with a strong ferruginous suffusion, the longitudinal stripes almost pure white, narrow and well defined except on the back of the neck, "saddle" almost pure black; hands speckled greyish-black, feet with a more fulvous tint. Tail black, with broad white tips to the hairs and a buff basal and sub-basal band when viewed from above, beneath rufous chestnut basally, black mesially with the apical part broadly white, anal region chestnut, undersurface pure white.

*Dimensions*.—External measurements, taken in the flesh: head and body, 170 (195)<sup>3</sup>; tail, 161 (172); hindfoot, 35 (46)<sup>4</sup>; ear, 20 (18) mm.

*Skull*.—Total length, 43.2 (48); condylo-basilar length, 37.8 (44.2); diastema, 10.4 (11.6); length of upper molar series including *pm.*, 8.4 (9.5); zygomatic breadth, 24.5 (26.7); median length of nasals, 14.0.

*Specimens examined*.—Five skins and skulls, four from the type locality and one from an unknown locality.

*Remarks*.—In default of authenticated specimens from Madras, we have taken modern skins from Kanara as typical of *F. t. tristriatus*, Waterh. though it is by no means impossible that these will prove to represent yet another form.<sup>5</sup> The present race will probably prove to be confined to the forest country west of the Ghats in Travancore being the analogue of *F. palmarum comorinus*. The differences in size have already been noted by Wroughton (*Journ. Nat. Hist. Soc. Bombay*, XVI, p. 411; 1905).

8496-9. 2♂, 2♀ Sasthancotta, west side of Western Ghats, Travancore, November 1908 (Dr. N. Annandale) [C.]; skins and skulls.

No. 8498 type of the subspecies.

9527. No particulars (Dr. Day); skin and skull.

***Funambulus wroughtoni*, Ryley.**

*Journ. Nat. Hist. Soc. Bombay*, XXII, p. 437 (1913).

*Typical locality*.—Makut, South Coorg.

*Type*.—In British Museum.

<sup>1</sup> It is this form apparently that Wroughton (*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 645; 1916) regards as typical *F. tristriatus*.

<sup>2</sup> Ryley, *Journ. Nat. Hist. Soc. Bombay*, XXII, p. 437 (1913).

<sup>3</sup> Measurements in parentheses those of the type of *Funambulus wroughtoni*.

<sup>4</sup> 40 mm. measured dry.

<sup>5</sup> *F. t. numarius*, antea.

**Funambulus layardi.**a. **layardi layardi** (Blyth).

*Journ. Asiat. Soc. Bengal*, XVIII, p. 602 (1849).

*Typical locality*.—Ambegamoa Hills, Ceylon.

*Type*.—In Indian Museum, Calcutta.

9481. Ambegamoa Hills, Ceylon (E. L. Layard) [C.]; type of the species; skin and skull.

b. **layardi dravidianus**, Robinson.

*Rec. Ind. Mus.* XIII, p. 42 (1917).

*Type of the subspecies*.—Immature skin and skull. Indian Museum No. 9773, collected by Dr. N. Annandale on the western side of the Western Ghats, Travancore.

*Diagnosis*.—Differs from the type in having the top of the head and cheeks rich rufous orange and the undersurface yellowish-orange instead of dull chestnut. Area between the light bands on the back deep lustrous black.

*Skull*.—The specimen is quite immature with the deciduous pre-molars in place and is much damaged so it is useless giving any measurements.

*Remarks*.—It is unfortunate that there is no original label attached to this specimen and that there are therefore no measurements to be quoted. It, however, serves to confirm Jerdon's statement that the species is found in Southern India and I have therefore ventured to name it. It is to be hoped that further specimens may shortly be available.

9773 imm. West side of Western Ghats, Travancore (Dr. N. Annandale) [C.]; type of the subspecies; skin and imperfect skull.

**Funambulus sublineatus.**a. **sublineatus sublineatus** (Waterhouse).

*P. Z. S.*, 1838, p. 19.

*Typical locality*.—Unknown. Nilgiris by subsequent designation.<sup>1</sup>

*Type*.—Originally in Zool. Soc. Coll.

7242. Panmudi, Travancore, December 1890 (H. S. Ferguson) [C.]; skin and skull.

9661 (A. S. B. 342a). Nilgiris, 1844 (T. C. Jerdon) [C.]; skin and skull.

9662 (A. S. B. 342b). Malabar, 1859 (Revd. H. Baker, junr.) [C.]; skin and skull.

b. **sublineatus obscurus** (Pelz, and Kohl.).

*Verh. Zool. Bot. Ges. Wien.*, XXXV, p. 525 (1886).

*Typical locality*.—Uplands of Ceylon.

*Type*.—In Vienna Museum.

9663 (A. S. B. 342c). Ceylon, 1859 (Dr. Kelaart); skin and skull.

<sup>1</sup> Blyth, *Journ. Asiat. Soc. Bengal*, XVI, p. 875.

The Ceylon race of this squirrel to which the above name must probably be ascribed appears to differ from the Southern Indian form in having the general colour darker and the back stripes much less distinct.

The specimen listed may be regarded as the type of *Sciurus trilineatus*, Kelaart (*Prodr. Faun. Zeylon*, p. 52; 1854), a name which had been inadvertently used by Blyth in speaking of *F. layardi*, thus rendering it unavailable. Under these circumstances the form has been re-named by Thomas *Funambulus kathleenae* (*Journ. Nat. Hist. Soc. Bombay*, XXIV, p. 38; 1915), which in its turn is preoccupied by the name at the head of this section.

### Subfamily *NANNOSCIURINAE*.

#### Genus **NANNOSCIURUS**, Trouessart, 1880.

*Le Naturaliste*, 1880, p. 290.

#### **Nannosciurus exilis.**

##### a. **exilis exilis** (Mueller and Schlegel).

*Tids. Natur. Ges.*, 1838, p. 148.

*Typical locality*.—Batang Singalang, Sumatra.

*Type*.—In Leyden Museum.

##### b. **exilis retectus**, Thomas.

*Ann. Mag. Nat. Hist.*, (8), V, p. 387 (1910).

*Typical locality*.—Banguay Island, North Borneo.

*Type*.—In British Museum.

##### c. **exilis concinnus**, Thomas.

*Ann. Mag. Nat. Hist.*, (6), II, p. 407 (1888).

*Typical locality*.—Basilan Island, Sulu Group.

*Type*.—In British Museum.

#### **Nannosciurus whiteheadi** (Thomas).

*Ann. Mag. Nat. Hist.*, (5), XX, p. 127 (1887).

*P. Z. S.*, 1889, pl. xxiv.

*Typical locality*.—Mount Kinabatu, North Borneo.

*Type*.—In British Museum.

7234. Kinabalu, North Borneo (J. Whitehead) [C.]; skin and skull.

#### **Nannosciurus melanotis.**

##### a. **melanotis melanotis**, Mueller and Schlegel.

Temminck's *Verhandelingen, Zoologie*, p. 98, pl. xiv, fig. 4 (1830-44).

*Typical locality*.—Java.

*Type*.—In Leyden Museum.

b. **melanotis sumatranus**, Lyon.*Proc. Biol. Soc. Washington*, XIX, p. 53 (1906).*Typical locality*.—Tarussan Bay, West Sumatra.*Type*.—In United States National Museum.c. **melanotis pulcher**, Lyon.*Op. cit. supra*, p. 53.*Typical locality*.—Singkep Island, near Sumatra.*Type*.—In United States National Museum.d. **melanotis bancanus**, Lyon.*Op. cit. supra*, p. 55.*Typical locality*.—Klabat Bay, Bangka Island.*Type*.—In United States National Museum.c. **melanotis borneanus**, Lyon.*Op. cit. supra*, p. 54.*Typical locality*.—Sanggau, West Borneo.*Type*.—In United States National Museum.

9460. Sarawak, Borneo (A. R. Wallace) [C]; skin and skull.

**ADDENDA.**p. 173. **Petaurista yunnanensis** (Anderson).

10335. Nam Tamai Valley, Putao, N.-E. Burma, 4,500 ft., 27° 50' N., 97° 50' E., 29th June 1918; skull and rostrum.

Though this specimen is not quite typical it is best referred to this species until better specimens are obtained. It is more profusely speckled with white above than the original typical series and the general colour is a less deep maroon.

p. 174. **Petaurista lylei**, Bonh.b. **lylei venningi**, Thos.

10339. Kalaw, Southern Shan States (G. Lee Tuppen) [C]; skin and skull.

Agrees fairly well with the original description, being a generally darker animal than the typical *P. l. lylei* from Siam with four specimens of which it has been compared.

p. 192. **Ratufa gigantea**.a. **gigantea gigantea** (McClell.)

10336-7. Putao Road (Hkamti Long), N. E. Burma, Lat. 27° 30' N ; 26th June 1918 (Dr. Murray Stuart) [C]; skins only (remade).

These specimens appear to be referable to *R. gigantea gigantea* (McClell.), which has also been obtained at Hkamti on the Upper

Chindwin (*Jour. Nat. Hist. Soc. Bombay*, XXIV, p. 226) and is known from N. Siam and the N. Shan States.

No. 10366 has an obscurely speckled appearance due to narrow hazel terminal annulations.

p. 198. **Callosciurus erythraeus** (Pallas).

g. **erythraeus gordonii** (Anderson).

10334. Nam Tisang Valley, Putao (Hkamti Long), N.-E. Burma, 2,000 ft.,  
Lat. 27° 30' N., April 1918 (Dr. Murray Stuart) [C]; skin.

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