

3. The Rudd Exploration of South Africa.—VII. List of Mammals obtained by Mr. Grant at Coguno, Inhambane. By OLDFIELD THOMAS, F.R.S., F.Z.S., and R. C. WROUGHTON, F.Z.S.

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No part of South Africa was more inadequately represented in our National Museum than the Portuguese territories north-east of Delagoa Bay, and we are glad to say that the fine collection from Inhambane of which we now give an account does much towards filling up the lacunæ. Mr. Grant found a good collecting place at Coguno, about 75 miles to the south-west of the town of Inhambane, and obtained there the whole of the present series, which numbers 212 specimens, belonging to 39 species.

Of these we have described 6 as new, several of them being particularly striking forms, notably a *Galago* and a *Petrodromus*.

And besides the novelties, specimens that are of very special value are the topotypes of such of Peters's species as were described from Inhambane, these being the first of a series of Petersian topotypes which we hope Mr. Grant may in time be able to complete, since all S.E. African Mammalogy seems to circle round the species obtained during the epoch-making voyage of the famous German zoologist, and but little satisfactory work can be done until good modern specimens of all his species are available for study.

As before the whole of this valuable collection is presented to the National Museum by Mr. C. D. Rudd.

Mr. Grant's notes on the Inhambane District are as follows:—

“Inland from Inhambane the country is composed of more or less undulating, sandy flats, densely bushed and timbered; often for many miles the only open spaces are the clearings made by the natives for their kraals and cultivated lands.

“Some of the river-valleys are more open, consisting of patches and stretches of forest alternating with open plains, generally thickly covered with palmetto.

“The rivers, excepting the Intanime, are merely huge, dense reed-beds, through which the actual watercourse is often traceable only with difficulty.

“The natives are very numerous and are mostly Mchopee, with a small sprinkling of Machangaan, and all are great hunters and trappers, and gave considerable help throughout the trip, either by giving information as regards species or in bringing in specimens.

“My head camp lay close to the Commando of Coguno, which is about 130 kilometres by the Panda Road from Inhambane; thence short trips and excursions were made into the surrounding country as necessity demanded.

“Owing to the denseness of the bush and the comparative flatness of the veldt local guides were always necessary.

"So far as I could learn, the District has never been surveyed, so that the altitude of Coguno, or other places, is unknown, but probably no part exceeds 1000 ft. The actual position of rivers and localities can only be roughly estimated.

"Throughout my stay the climate was delightful; the average temperature being around 80° in the shade, occasionally reaching 88°; it being the dry season, there was little rain.

"The following species were not obtained but exist at Coguno, and the native names may be of interest. They are:

" <i>Lutra</i>	Shalu.
<i>Mungos gracilis</i>	Lengo.
<i>Thryonomys swinderenianus</i> ...	Shleti."—C. H. B. G.

1. PAPIO PORCARIUS Bodd.

Flat skin.

"Native name, 'Infeni.'

"This species was not seen in the neighbourhood of Coguno Camp, but is said to be common to the North and West. The flat skin sent was obtained from a native who killed it some 20 miles to the northward of my camp."—C. H. B. G.

2. CERCOPITHECUS PYGERYTHRUS ERYTHRARCHUS Peters.

♂. 1492, 1594. ♀. 1493, 1599.

Mr. Pocock informs us that he considers Peters's *erythrarchus*, of which these are topotypes, should be ranked as a subspecies of *pygerythrus* F. Cuv.

"Native name, 'Makaku' or 'Ihow.'

"Common and inhabiting the denser forests where it lives on the wild fruit and berries. Never observed in large troops; single old males were sometimes seen, but were usually unapproachable. They are at all times wary and extremely difficult to secure. *Cercopithecus albigularis* exists in the district, but is very rare and local and even the natives were unable to obtain me specimens; it is known to them as 'Glanglanu'."—C. H. B. G.

3. GALAGO GRANTI, sp. n.

♂. 1617, 1618, 1619, 1660, 1662. ♀. 1517, 1653, 1663.

A member of the *moholi* group, with an unusually bushy black-tipped tail.

Fur fine and soft, about 15 mm. in length on the back. General colour above drab-brown, rather darker than Ridgway's "drab." Under surface cream-buff, the basal three-fifths of the hairs slaty. Light nose-line and black orbital patches as in *G. moholi*. Outer side of fore limbs light drab, lightening to white on the hands; inner side like belly. Hind limbs as usual dull cream-buff throughout, rather duller than on the belly. Tail long, unusually bushy, the hairs attaining a length of 20–25 mm., those of true *moholi* but little more than half this length; in colour the basal three-fifths of the tail is drab-brown like the body, gradually darkening terminally to blackish brown.

Skull readily distinguishable from that of *G. moholi* by its much longer muzzle, the palate-length being over 17 mm., as compared with 15 in the type of *moholi*, and all the other muzzle measurements in proportion. The bullæ also are lower and less abruptly swollen anteriorly, and the canines appear to be rather heavier.

Dimensions of the type:—

Head and body 158 mm.; tail 237; hind foot 63; ear 43.

Skull—greatest length 45 mm.; basal length 35; zygomatic breadth 28; mastoid breadth 23.5; tip of nasals to back of orbits 25; palate-length 18; front of canine to back of m³ 15.6.

Type. Adult male. B.M. no. 6.11.8.7. Original number 1662. Collected 26 August, 1906.

This *Galago* differs from *G. moholi* by its long bushy black-tipped tail and by its markedly longer muzzle. Peters's *G. mosambicus*, the skull of which is figured by him under the name of *senegalensis*, has a short muzzle as in the true *moholi*.

With regard to *G. conspicillatus* I. Geoff., Prof. Trouessart kindly informs us that the tail of the type is only 20 mm. in total breadth, therefore exactly as in *moholi*, not as in the Inhambane species.

We have had great pleasure in naming this interesting little "Bush-baby" after its captor, Mr. C. H. B. Grant, who has collected the whole of the immense number of mammals recorded in the present series of papers, and has thus ably utilised the splendid opportunity afforded him by the generosity of Mr. Rudd.

"Native name, 'Suwanjati.'

"Common and inhabiting the forests. It is strictly nocturnal, sleeping during the day in the hollow trees, where it may generally be taken in small family parties. This species like many others is eaten by the natives.

"*G. crassicaudatus* was several times heard calling in these parts at night, and I saw one skin worn by a boy; none, however, could be secured by myself or the natives, although I offered good rewards for a specimen. It is known to the natives as 'Gerile'."—C. H. B. G.

4. SCOTOPHILUS NIGRITA Schreb.

♂. 1577, 1578, 1621, 1656. ♀. 1579, 1616, 1665, 1671, 1672, 1673.

In this series there would seem to be two forms distinguished by size. The larger corresponding closely to, if not identical with, the specimens from Klein Letaba provisionally identified by Thomas & Schwann (P. Z. S. 1906, p. 577) as *nigrita*. The presence in one place of two forms differing in size seems to be a common occurrence in this group, as for instance, *planirostris* and *viridis* of Peters from the Zambesi Valley, and *nigrita herero* and *damarensis* of Thomas from S. W. Africa. We are of opinion that it is safer to include all these specimens provisionally under *nigrita* until the group can be worked out in its entirety.

"Native name, 'Mongavilane.'

"Quite the commonest of the Bats at Coguno. Generally appears long before dark, flying fairly high, and can be easily secured with a shot-gun. Numbers 1621 and 1673 appeared to me different from the others, from which they were easily distinguishable on the wing."—C. H. B. G.

5. *SCOTOPHILUS SCHLIEFFENI* Peters.

♂. 1595, 1631.

This is the most southern locality from which this small *Scotophilus* has been recorded, the next being Marungu, whence Dr. Noack described his *S. minimus*.

6. *GLAUCONYCTERIS PAPILIO* Thos.*

♂. 1580, 1603. ♀. 1620.

Additional specimens of the rare and remarkable Butterfly-bats of the genus *Glauconycteris* are extremely welcome. The present examples agree in size and the colour of their heads with *G. papilio*, and equally differ from the white-headed and white-bellied *G. variegatus* Tomes, of Damara-land.

"Native name, 'Mongavilane.'

"Apparently uncommon, as the three specimens taken were the only ones observed. They appear about the same time as *Scotophilus*, but have a more butterfly-like flight, which easily distinguishes the species at a good distance."—C. H. B. G.

7. *PIPISTRELLUS NANUS* Peters.

♀. 1668.

Quite like the specimens from Legogot mentioned in the last paper on the Rudd Collections (Thomas & Schwann, P. Z. S. 1906, p. 780).

"Native name, 'Mongavilane.'

"These little Bats were fairly common, but, owing to their small size and rather late appearance, a big series was not obtainable."—C. H. B. G.

8. *AMBLYSOMUS OBTUSIROSTRIS* Peters.

♂. 1635, 1637, 1670. ♀. 1649.

"Caught in run in thick bush."

These valuable specimens are practically topotypes of Peters's species, which was described from the neighbourhood of Inhambane town.

Their bellies are of a peculiar coppery brown, and the lighter basal portion of their dorsal hairs is also strongly tinged with the same colour. In *A. chrysillus* Thos. & Schw., from Delagoa Bay the same parts are white or yellowish white. The hairs of the back are about 5 mm. long in *A. obtusirostris*, 6.5 mm. in *A. chrysillus*.

* Ann. & Mag. N. H. (7) xv. p. 77, 1905.

"Native name, 'Tukunve.'

"Fairly common and forming runs just below the surface in the sandy ground, in the forest and bush. Owing to the peculiar nature and smallness of the runs it was found impossible to trap it and it could only be taken when seen working."—C. H. B. G.

9. *PETRODROMUS SCHWANNI*, sp. n.

♂. 1521, 1523, 1536 1539, 1557. ♀. 1500, 1515, 1522, 1524, 1537, 1538, 1552, 1553, 1554, 1555, 1556.

Allied to *P. sultan** Thos., but skull shorter and the tail more hairy and more finely scaled.

General characters as in *P. sultan*, the peculiar round-headed bristles underneath the tail quite as in that species. Colour similar throughout, except that the dull russet-brown dorsal area is broader and more diffused, extending nearly across the back, instead of forming a comparatively narrow line down the spine sharply separated from the grey of the shoulders and flanks. Face-markings, limbs, and under surface all quite as in *sultan*.

Tail rather longer than in *sultan*, and the scaling finer, 13 rings of scales to the centimetre instead of 10 as in *sultan*; upper surface well haired throughout, the scales nearly or quite hidden—(in *P. sultan* the upper side of the tail is practically naked and the large scales are clearly visible). In colour the upper surface is deep black throughout, and the lower dull buffy, not sharply contrasted; extreme base below pale flesh-colour. Long knob-headed bristles black throughout.

Skull markedly shorter than in *P. sultan*, but the shortening is chiefly in the muzzle, the brain-case being of about the same size. Hinder edge of nasals level with the front of the anteorbital rim, and falling about one millimetre short of the frontal processes of the maxillæ. In *P. sultan* the nasals are of about the same length, but end further forward. P³ (the fourth tooth from the back) comparatively small and narrow.

Dimensions of the type (measured in the flesh):—

Head and body 192 mm.; tail 181; hind foot 57; ear 36.

Skull—greatest length 53 mm.; basal length 47; greatest breadth 29.5; length of nasals 20; interorbital breadth 9; breadth of brain-case 20; length of upper tooth-series 27; front of p³ to back of m² 11.5.

Type. Old male. B.M. no. 6.11.8.32. Original number 1557. Collected 5 July, 1906.

The occurrence of this handsome *Petrodromus* in Inhambane was already recorded by W. L. Sclater†, who had received a specimen collected there by Mr. H. F. Francis. With only a single specimen, however, he did not think himself justified in distinguishing it from *P. sultan*, and it is therefore placed in the 'Mammals of South Africa' under the latter name.

* P. Z. S. 1897, p. 435. Originally published as *P. sultani* by a printer's error, but the mistake was corrected P. Z. S. 1897, p. 928.

† Mamm. S. Afr. ii. p. 155, 1901.

In Herr O. Neumann's revision of the genus* the primary division of the species is made by the hairiness or nakedness of the upper side of the tail, but the occurrence of this species, obviously a close ally of *P. sultan* but with a hairy tail, shows that this character is of but little importance. We should rather divide the species, as in Thomas's original paper, by the structure of the caudal bristles, in which respect *P. schwanni* agrees with *P. sultan* alone of all the described forms.

No *Petrodromi* of this type have been as yet recorded between Inhambane and the mainland opposite Zanzibar, a distance of some 1200 miles.

We are glad of the opportunity of linking with this fine species the name of Mr. Harold Schwann, who has hitherto been so closely connected with the working out of the Rudd Collection.

"Native name, 'Nyakole.'

"Very common and inhabiting only the dense thickets, where it has regular runs, in which it is easily trapped. It has all the actions of the *Macroscelididae*, carrying the tail almost perpendicular when running. Exclusively diurnal and insectivorous."—C. H. B. G.

10. *CROCIDURA SYLVIA* Thos. & Schw.

♂. 1573.

"Native name, 'Nongi' (without distinguishing species).

"Not common and confined to the reed-beds and swamps along the river-valleys, especially the Inyasuni."—C. H. B. G.

11. *CROCIDURA FLAVESCENS FLAVIDULA* Thos. & Schw.

♂. 1572, 1574.

12. *FELIS OCREATA* Gmel.

♀. 1636.

We hesitate to identify this single specimen with any particular subspecies until the arrival of further specimens from Portuguese East Africa.

"Native name, 'Igoye' or 'Simange.'

"Apparently very uncommon, as the specimen obtained was the only one taken or observed."—C. H. B. G.

13. *VIVERRA CIVETTA* Schreb.

♀. 1567.

"Native name, 'Fungwi.'

"According to the natives common, although I did not observe more than the one specimen, except a couple of skins in the possession of natives. Apparently inhabits the thickest of forests."—C. H. B. G.

* Zool. Jahrb., Syst. xiii. p. 541, 1900.

14. GENETTA sp.

♂. 1566. ♀. 1562.

Allied to *G. letabæ* Thos. & Schw.

“Native name, ‘Simba.’

“Not very common and found everywhere, especially near native habitations. This species, with all the cats, is eaten by the natives.”—C. H. B. G.

15. MUNGOS GALERA Erxleb.

♂. 1645.

“Native name, ‘Shikoko.’

“Apparently common and generally living in the reed-beds and swamps; the specimen sent, however, was caught some little distance from water and near a Kaffir kraal, where it was probably on the prowl after a stray chicken. Nocturnal only.”—C. H. B. G.

16. MUNGOS (ICHNEUMIA) GRANDIS Thos.

♂. 1535.

Whether this animal, the external characters of which are quite as in southern examples of *M. albicauda*, should be treated as one of the subspecies of that form, or whether several of these should be raised to specific rank, is a question which cannot be settled without further material. Immature specimens would be of particular value as the characters rest mainly on the structure of the teeth, which get worn down in adult life.

“Native name, ‘Sanganye.’

“By no means common and generally found near habitations, which they visit for the chickens, &c.”—C. H. B. G.

17. MUNGOS CAFER Gm.

“Native name, ‘Shlaushlwa.’

“The flat skin sent was the only one seen during the trip. It is evidently rare, as many of the natives did not know its name and some even had never before seen one. The boy from whom I took it said he caught it in the reedy bed of the Inyamatanda River.”—C. H. B. G.

18. CROSSARCHUS FASCIATUS SENESCENS, subsp. n.

♂. 1558, 1628, 1654.

“Shot in thick bush.”—C. H. B. G.

Much greyer than the true *fasciatus*.

Size rather larger than in Zululand examples of *fasciatus*, approaching that of the Ruwenzori form, *C. f. macrurus* Thos., but the tail not lengthened. General colour conspicuously greyer than in *fasciatus*, the nape, fore-back and flanks of a clear cinereous grey, entirely without fulvous suffusion. The stripes normal in number and position, but the light ones white along

their anterior edge, only becoming a little fulvous posteriorly; in *fasciatus* each light stripe is fulvous anteriorly becoming darker fulvous posteriorly. Head finely grizzled grey, blacker on the top of the muzzle. Ears grey, without fulvous suffusion. Limbs grizzled grey, darkening terminally on the hands and feet to black.

Skull of normal proportions, but the teeth unusually large.

Dimensions of the type (measured in the flesh):—

Head and body 364 mm.; tail 236; hind foot 73; ear 24.

Skull—condylo-basal length 73 mm.; basal length 68; zygomatic breadth 39; palate-length 39; greatest diameter of p⁴ 7.4.

Type. Adult male. B.M. no. 6.11.8.51. Original number 1628. Collected 13 August, 1906.

This beautiful grey form of the Striped Mongoose may be readily distinguished by the reduction of the fulvous suffusion of the fur, this being only present along the posterior border of each dorsal light band, while in the other forms some trace of it occurs all over the body; the clear grey nape and shoulders of *C. f. senescens* are especially noticeable.

The young specimen no. 1558 is more like the typical form.

“Native name, ‘Gale.’

“Apparently fairly common, but difficult to secure owing partly to its wariness and partly to its often inhabiting the denser parts of the bush. The specimens obtained were shot during native hunts and were taken from troops of perhaps eight individuals. It is distinctly gregarious and diurnal in habits, living principally on coleopterous insects and the eggs and young of ground-breeding birds.”—C. H. B. G.

19. MELLIVORA RATEL Sparrm.

“Native name, ‘Sididi.’”—C. H. B. G.

20. ICTONYX CAPENSIS Kaup.

♂. 1534, 1655. ♀. 1575.

“Native name, ‘Shingemani.’

“Fairly common everywhere, especially near native kraals, where it makes itself a considerable nuisance by stealing chickens. Nocturnal only.”—C. H. B. G.

21. FUNISCIURUS SPONSUS, sp. n.

♂. 1596, 1600, 1608 (yg.), 1609, 1610. ♀. 1547, 1560, 1561, 1611, 1612.

A *Funisciurus* intermediate in size between *cepapi* and *palliatus*, with the colour pattern of the former and the bright colouring of the latter.

Size rather smaller than in *F. palliatus*.

Fur of back soft, 12 mm. long; that of tail 30–40 mm.

General colour above grey-brown freely grizzled with very pale buff or yellow; the individual hairs black or dark brown, each

with two rings (one near base and one subterminal) yellowish white; the belly orange-red, the hairs unicoloured to their bases. Head from the forehead backwards coloured the same as the back; face below the eyes, chin and throat orange like the belly. Outer side of limbs coloured like the back, but a strong rufous tinge on thighs; inner side orange like the belly. Tail coloured like the back but with a strong rufous tinge at the sides and below; the individual hairs with two pale rings, each 5 mm. wide, separating three black rings of same width, with a long (10-12 mm.) ferruginous tip.

Skull as in *palliatus* but decidedly smaller.

The following are measurements of the type (which scarcely differ from those of others of the series). For convenience of comparison corresponding measurements of a normal adult specimen of *F. palliatus ornatus* Gray from Zululand are added between brackets.

Head and body 197 (200) mm.; tail (circ.) 195 (218); hind foot 41 (45); ear 20 (18).

Skull—greatest length 48 (52) mm.; basilar length 37 (40); zygomatic breadth 28 (30); interorbital breadth 13.5 (15); nasals 13.7 (15.5); upper molar series 8.7 (9.5); bullæ 10.5 (11).

Type. Adult female. B.M. no. 6.11.8.63. Original number 1560. Collected 5 July, 1906.

Through the courtesy of Dr. Péringuey we have been able to examine a Squirrel from St. Lucia Bay, Zululand (South African Museum, no. 4361), assigned by Mr. W. Sclater* to *frerei* Gray, under the impression that the type of the latter was obtained by Sir Bartle Frere in Natal. But the typical specimen was received by the British Museum in 1873, about which date Sir B. Frere returned to England from Zanzibar, and he did not go to South Africa till some years later. The type locality "Zanzibar" given by Gray for his "*Macroxus annulatus frerei*" is therefore undoubtedly correct. The Zululand specimen, though paler in colour, agrees in all essential characters with the present species, to which we have no hesitation in assigning it. The range of *sponsus* is therefore from Inhambane to Zululand, where it coexists with *F. palliatus ornatus* Gray, and this fact and its smaller size amply justify us in classing it as a distinct species.

"Native name, 'Shintsi.'

"Extremely common and found everywhere in the forests and thickets, especially near native clearings; as many as half a dozen can be seen at one time running about in the trees. The alarm call is a bird-like chatter. It is taken in vast numbers by the natives, with whom it is an especial delicacy."—C. H. B. G.

As we have had occasion to refer to the true locality of *frerei*, we further take this opportunity of recording that, allowing for the fact that it is a young individual, we find on comparison that the type of *frerei* agrees quite closely with the specimens assigned

* Mamm. S. Afr. ii. p. 7 (footnote), 1901.

by Herr Neumann to his *F. palliatus suahelicus* from the same region, and we have no doubt as to their identity; *suahelicus* Neum. must therefore give way to the older *frerei* Gray.

22. *TATERA LOBENGULÆ BECHUANÆ* Wrought.

♂. 1484, 1488, 1491, 1499, 1531, 1532. ♀. 1483, 1487, 1489, 1494, 1514, 1533.

These specimens, though less pale than typical *bechuanae* from the Bechuana Desert, are very close to that form. Their receipt from Inhambane is interesting from the point of view of the distribution of the species. The type of *lobengulae* was described from Matabililand and local races were subsequently named from Kuruman, Matopo, and Salisbury, all places which may be described as on the left bank of the Limpopo. In the collection from the Zoutpansberg District on the right bank, though more than one species of *Tatera* were found, there was no specimen referable to *lobengulae*. More recently, however, in a small collection from Pietersberg District on the right bank of the Limpopo but much lower down than Zoutpansberg, some specimens scarcely distinguishable from the present series were found. Broadly, however, the area between the Limpopo and Zambesi Rivers would seem to be the home of the species, which takes quite well-marked local forms in various parts of its habitat.

"Native name, 'Singaan.'

"Quite the commonest rat in the district and found everywhere, especially in and around the native clearings."—C. H. B. G.

23. *OTOMYS IRRORATUS CUPREUS* Wrought.

♂. 1583, 1584, 1586. ♀. 1585, 1587, 1588.

These specimens are all young but agree closely with *O. irroratus cupreus* from Zoutpansberg.

"Native name, 'Woti.'

"Not common and only taken in the reed-bed and swamps along the river."—C. H. B. G.

24. *ARVICANTHIS DORSALIS* A. Sm.

♂. 1498, 1519, 1614, 1625, 1626, 1630, 1634, 1647. ♀. 1486, 1607, 1615, 1623, 1633, 1638.

"Native name, 'Maklangane.'

"It is here far commoner than in any locality where I have previously taken it. Found everywhere, both in the forest and bush and the native lands, where it has regular tracks and runs, similar to its congener at the Klein Letaba. Exclusively diurnal."—C. H. B. G.

25. *SACCOSTOMUS CAMPESTRIS* Peters.

♂. 1495, 1505, 1506, 1508, 1509, 1597, 1606, 1629, 1639. ♀. 1479, 1481, 1482, 1490, 1501.

These specimens are practically topotypes of *S. fuscus* Peters,

described from Inhambane, but as they are indistinguishable from *S. campestris*, it seems probable that *fuscus* was based on a dark coloured specimen and represents no more than an individual variation.

"Native name, 'Sikwikle.'

"Very common and frequenting the native lands and the adjacent bush."—C. H. B. G.

26. *MUS RATTUS* L.

♂. 1520, 1526, 1527, 1551, 1581, 1652, 1657, 1658. ♀. 1528.

"Native name, 'Tikonso.'

"Very common and confined to the kraals and houses, never apparently visiting even the adjacent cultivated land. Several other examples besides the specimens sent were seen and all were very small in size. Apparently exclusively nocturnal."—C. H. B. G.

27. *MUS COUCHA* Smith.

♂. 1497, 1502, 1511, 1512, 1605, 1624, 1666. ♀. 1480, 1504, 1648.

"Native name, 'Supwisne.'

"Common and habits similar to those of members of the species in other parts of S. Africa."—C. H. B. G.

28. *MUS CHRYSOPHILUS* de Wint.

♂. 1507, 1510, 1513, 1529, 1548, 1601. ♀. 1530, 1540, 1541, 1549, 1550.

"Native name, 'Sinse.'

"Common; habits similar to those of members of the species in other parts of S. Africa."—C. H. B. G.

29. *THAMNOMYS ARBORARIUS* Peters.

♂. 1604, 1643. ♀. 1644.

"Native name, 'Shikoloveta'

"According to the natives this species is fairly plentiful, although they were unable to get me specimens; the three secured being the only examples I saw. It is arboreal in habits, forming, according to native report, nests similar to *Dendromus* or *Th. dolichurus*."—C. H. B. G.

30. *LEGGADA MINUTOIDES* A. Sm.

♂. 1490.

"Native name, 'Senbendenyumbe'

"Apparently rare, as the specimen sent was the only one taken or observed."—C. H. B. G.

31. *CRICETOMYS GAMBIANUS* ADVENTOR, subsp. n.

♂. 1632, 1641, 1651. ♀. 1642, 1650, 1659.

Size and general characters as in *gambianus* and *g. viator*; the

body-colour above much as in *viator*. The sharp line of demarcation between the colour of the back and the white of the belly, which is strongly pronounced in typical *gambianus*, and plainly though less markedly so in *viator*, completely absent; the cheeks and flanks lighter than in *viator*, the lower part of the former white like the belly. Otherwise the colour-pattern quite as in *viator*.

Skull in size and other essential characters as in *viator*; but the upper molar series rather stronger, the anteorbital foramina slightly broader, and the rudimentary postorbital processes more distinct.

Dimensions of the type:—

Head and body 358 mm.; tail 438; hind foot 71; ear 40.

Skull—greatest length 75 mm.; basilar length 65; zygomatic breadth 36; nasals 32×11 ; interorbital breadth 11.8; palatal foramina 8.6; length of upper molar series 11.

Type. Adult male. B.M. no. 6.11.8.125. Original number 1632. Collected 14 Aug. 1906.

These specimens are from the S.E. limit of the range of the species, and it is consequently not surprising to find such small differences as those recorded above between this and the Nyasa form, from which it is separated by nearly two degrees of latitude.

“Native name, ‘Sigwinye.’

“Fairly common and generally found in thickets and densely wooded places, where it forms burrows of 2–6 holes, almost indistinguishable from those of *Pedetes cafer*. It is exclusively nocturnal in habits, and usually is only to be obtained during the dark phase of the moon; on moonlight nights it seldom comes out, owing, according to the natives, to its great fear of the larger owls. During the dark nights it lays in a store of food to tide it over the moonlight nights, until it can again venture out. I have observed that it also loosely fills the entrance of the burrow with dead leaves during the time the moon is visible. It is a vegetarian, and in search of food often climbs shrubs and small trees. A great article of food with the natives.”—C. H. B. G.

32. PEDETES CAFER Pall.

♂. 1569 (immature).

“Native name, ‘Masengwi.’

“Not very common, and apparently somewhat locally distributed. Habits similar to its congeners in other parts of S. Africa, forming the usual burrows in the more open forests, never in the thickets where *Cricetomys gambianus* is usually observed. They were extremely wary and difficult to trap and bad luck was experienced with them, inasmuch as in several instances only the toes were left in the trap and in one case the black end of the tail. ‘Majengwi’ was the name given to this species by the natives at the Klein Letaba, hence this is an added proof of the existence of the Springhaas in that locality.”—C. H. B. G.

33. *LEPUS CAPENSIS* AQUILO, subsp. n.

♂. 1518, 1542, 1563, 1565. ♀. 1568, 1667, 1669.

A Hare of the *capensis* group with the nuchal patch grey, and the chin, chest, and belly snowy white.

Fur long, soft, and very fine, length on middle of back about 25 mm. General colour of upper surface "broccoli-brown" tinged with "drab-grey," becoming lighter and gradually suffused with buffy on the flanks. Individual hairs divided into five rings of the following colours and approximate dimensions:—proximal ring "grey no. 9," 7 mm. in length; second ring very pale ecru-drab, 5 mm.; third ring jetty black, 4 mm.; fourth ring light pinkish buff, 6 mm.; distal ring black, 3 mm. Individual hairs of belly about 30 mm. in length, soft, silky, and entirely snow-white. Nostrils and lips edged with white, muzzle and vibrissate area between wood-brown and isabella colour; a broad line extending from upper edge of orbit to within half an inch of muzzle, and thence spreading downwards over lower region of cheek sandy grey; infraorbital area between wood-brown and isabella colour. Eyes ringed with white; forehead coloured like back. Ears distinctly smaller than in the other subspecies, with the proectote* coloured like forehead and back, fringed with yellowish-buff hairs intermixed with white; metentote sparsely covered with minute white hairs, outer fringe snowy white, absent terminally; metectote white, the terminal margin black. Nape-patch between "smoke-grey" and "drab-grey." Interramia white. Throat-patch "pinkish buff." Chest and belly snowy white. Outer side of fore and hind limbs deep buff, becoming lighter and interspersed with white on fore and hind feet. Tail short, compactly haired, not loose and straggling as is generally the case in specimens of *ochropus*, black above, white below.

Skull as in true *capensis*.

Dimensions of the type (measured in the flesh):—

Head and body 472 mm.; tail 95; hind foot 113; ear 92.

Skull—greatest length 85.5 mm.; basilar length 70; zygomatic breadth 40.1; nasals, oblique length 38.2; brain-case breadth 28.0; diastema 24.4; palatal length 36.0; palatal foramina 22.7; upper molar series 14.7; antero-posterior diameter of bulla 11.3.

Type. Male. B.M. no. 6.11.8.132. Original number 1565. Collected 6 July, 1906.

This subspecies may be distinguished from *L. ochropus* by its white chin and chest and the buffy colour of its flanks, in contrast with the yellow of the latter on the sides and nape. It can be easily separated from *Lepus capensis centralis* and *L. c. granti* by their having a vinaceous buffy or pinkish buffy chest and flanks. It bears more superficial resemblance to *L. c. capensis* however, but is distinguishable by having a white chest and chin and a white border *surrounding the tip of the ear*, instead of, as is usual,

* Thomas, P. Z. S. 1905, vol. ii. p. 359 (1906).

the terminal portion edged with black. A comparison with a considerable series of all the forms mentioned above shows that examples of the present subspecies have a considerably shorter tail and ears than is usual in any of them. Further material will probably show that intergradation takes place between this form and *L. ochropus*, in which case the latter will take its place in the group as a subspecies.

"Native name, 'Nfundla.'

"Common everywhere, especially in the valley of the Inyasuni. Generally lying up during the daytime in the clumps of small bush or grass, and feeding throughout the night, when they can be taken with a noose on the numerous footpaths. Numbers are caught by the natives in this way, the animal being with them a staple article of food."—C. H. B. G.

34. *POTAMOCHÆRUS CHÆROPOTAMUS NYASÆ* Maj.

♀. 1870.

In its strong ferruginous colouring this specimen quite agrees with examples from Zomba, B. C. Africa, to which Dr. Forsyth Major has given (P. Z. S. 1897, p. 367) the subspecific name *nyasæ*.

"Native name, 'Ngulubi.'

"Plentiful in the thickets and dense forests, but extremely difficult to secure. Always observed in pairs, and more or less nocturnal in habits. When pursued, they savagely attack the dogs, repeatedly charging until killed by the hunters."—C. H. B. G.

35. *CEPHALOPHUS NATALENSIS* A. Sm.

♂. 1613. ♀. 1485, 1675.

"Native name, 'Mungulwi' or 'Munguli.'

"Not common, and found in the dense forest and thickets, which the 'Nhlangane' loves; even there it is locally distributed, seeming to confine itself to certain patches, from which it never wanders far. Only one or two others, besides the specimen sent, were observed, they were not however secured."—C. H. B. G.

36. *CEPHALOPHUS GRIMMI* L.

♀. 1503, 1582, 1640.

"Native name, 'Munti.'

"Not too common, and found both in the river-valleys and the forests, visiting the Kaffir lands at night. Numbers of this and other buck are taken by the natives for food."—C. H. B. G.

37. *RAPHICERUS NEUMANNI CAPRICORNIS* Thos. & Schw.

♂. 1571, 1592. ♀. 1589.

These specimens quite agree with those from Klein Letaba, N.E. Transvaal.

"Native name, 'Isipenu.'

"Fairly plentiful but locally distributed, confining itself to the more open forest and plain, along the river-valleys, away from habitations. Generally observed in pairs."—C. H. B. G.

38. NESOTRAGUS ZULUENSIS Thos.

♂. 1627, 1674. ♀. 1525, 1576, 1622.

The examination of these specimens makes it clear that the subspecies *zuluensis* Thos. of the Nyasan *livingstonianus* is quite constant in the essential characters in which it differs from the latter, and we think ourselves justified in regarding *zuluensis* as a distinct species.

"Native name, 'Nhlengane.'

"Very common at Coguno and the whole country inland, but unknown in the immediate neighbourhood of Inhambane. It inhabits the dense thickets and undergrowth, where it has regular tracks, and is generally observed in twos, and occasionally threes. It can be easily obtained in the early mornings and late afternoons, when it is found out feeding in the more open patches of bush and along the Kaffir footpaths that intersect the thickets in every direction, or by joining a hunt which the natives organise for the special purpose of taking this species for food. It is an extremely difficult buck to see when standing in the thickets, and can often be heard giving a goat-like snort of alarm, although quite invisible at only a few yards distance. The does greatly outnumber the bucks, and it is impossible to make out the sexes in their habitat; a great proportion of the former are killed, and very old examples of the latter are not often obtained."—C. H. B. G.

39. CERVICAPRA ARUNDINUM Bodd.

♂. 1591, 1593. ♀. 1646.

"Native name, 'Mhlangu.'

"Observed only in the river-valleys, in many of which they are very plentiful, often being seen six and eight together. In the valley of the Inyasuni, where they are little disturbed, they feed throughout the day, and are remarkably tame. Individual males vary much in the thickness of the neck."—C. H. B. G.

April 9, 1907.

Dr. HENRY WOODWARD, F.R.S., Vice-President, in the Chair.

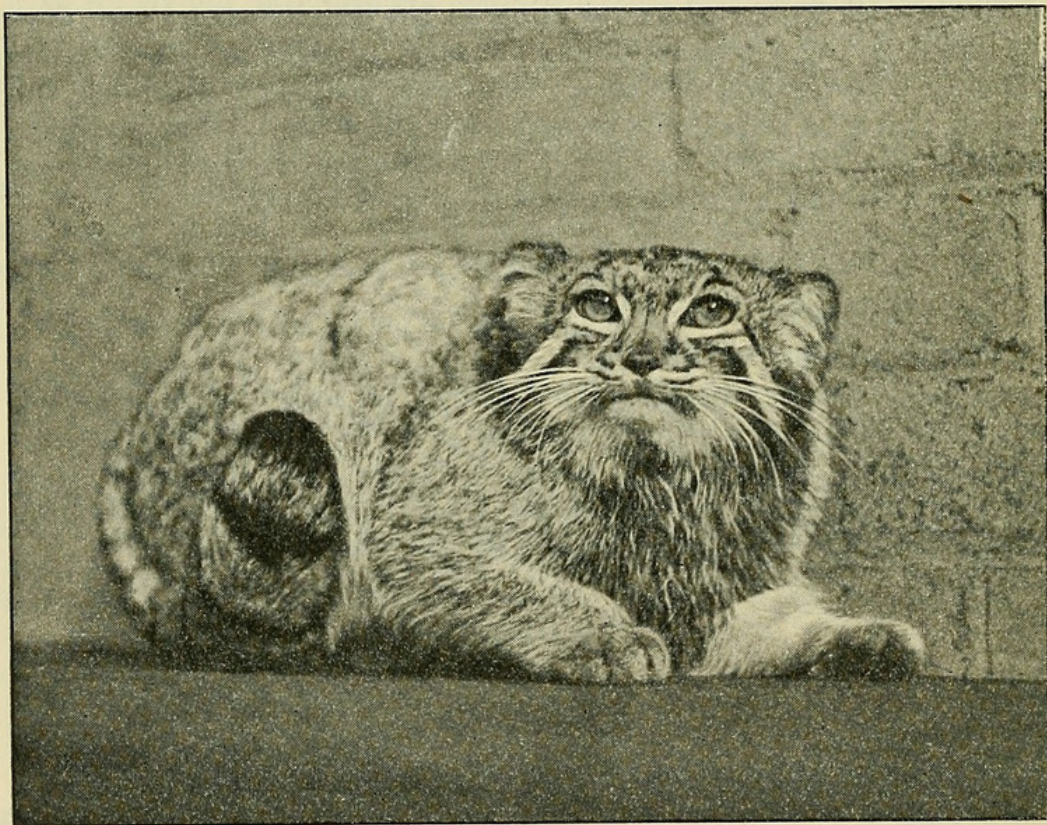
Mr. R. I. Pocock, the Superintendent of the Gardens, exhibited a photograph and the skull of a specimen of the Manul or Pallas's Cat (*Felis manul*) that had recently died in the Society's Menagerie, and made some remarks on the species.

The specimen (text-fig. 87) was received in exchange from the Zoological Gardens in Calcutta, in April 1906, and died from broncho-pneumonia in April 1907. It was alleged to have come from Tibet. Unfortunately no exact locality was recorded; but since the coloration of the skin and the structure of the skull agree with those of examples from Tibet that have been described,

there is no reason to doubt that the animal was captured in that country*.

When alive, this Cat differed markedly, both in behaviour and appearance, from most captive examples of the genus *Felis*. The latter, if they happen to be tame, usually evince gratification of notice by rubbing, with tail erect, against the bars of the cage. When wild, they are either contemptuously indifferent to friendly overtures or receive them, crouched in a corner, snarling. The Manul, on the contrary, although not tame enough to be handled or touched, nor sufficiently friendly to rub himself against the bars, showed no fear of spectators and no wish to avoid them. He would boldly and aggressively but silently advance to the front of the cage and, standing on his hind legs, grip the bars with his fore paws, ready to scratch at a confiding hand unwarily placed within reach.

Text-fig. 87.



Felis manul.

(From a photograph of a specimen living in the Society's Gardens.)

Like all the small Cats, he was usually very silent. He was never heard to utter the growling snarl and guttural expiratory hiss with open mouth so familiarly associated with irritation

* Except that the orbits are incomplete behind, the skull closely resembles that of a specimen from Ladak in the British Museum.

of temper in Cats; and the "spit" was a short, sharp sound like "ts," "ts," "ts," projected through nearly closed lips. According to the keeper, Dixon, the "mew" or "caterwaul" was a sound somewhat recalling a combination of the bark of a small dog and the "hoot" of an owl. This was heard on one occasion in reply to the typical "caterwaul" of a female Uganda Cat (*F. ocreata*), when "on heat."

The tail was almost invariably carried with its posterior half upcurled, so that the broad black confluent stripes on the under side of its distal end were in full view from behind. The conspicuousness of this jet-black area was enhanced in a marked degree by his peculiar habit of jerking the end of the tail smartly up and down. The lowness and width of the summit of the head and the lateral "set" of the ears imparted to this Cat an aspect totally different from that of all other species (text-fig. 87). In the latter the inner edge of the ear normally rises obliquely outwards from the top of the head to form, with the outer border, a continuous curve or an acute angle. But in *F. manul* the inner border lies normally in the same plane as the top of the head, and meets the vertical outer border at a right angle. This border rises from the head at a point on a level with the outer canthus of the eye. Since depression of the ears in Cats is an infallible sign of anger or of predatory excitement, the simulation of this act caused by the low and lateral setting of these organs in the Manul imparts to his face a permanent look of ferocity and unrest, quite unlike the placid aspect of other Cats with their ears normally erect.

So far as the Manul is concerned, one practical result of the lowness of the forehead and the lateral setting of the small ears is the power to peer over the edge of an object, like a rock or a fallen tree-trunk, without depressing and closing the ears, and without showing so much of the cranium as most of the "high-headed" Cats do when so occupied. Other Cats, when watching prey from behind some such point of vantage, always lower the ears so as to make them invisible and, at the same time, partially close them in such a way that quickness of hearing must be interfered with to a greater or less extent. In this, perhaps, may be found the explanation of the peculiar structural features in the head which give the Manul its remarkable physiognomy. Be this as it may, the above-proffered explanation was forcibly suggested by the observation of the living Manul peering over the edge of his sleeping-box and showing a relatively small amount of head above the eyes, the ears at the time being scarcely perceptibly depressed and not in any sense closed.

It has been stated by Gray*, on the authority of Hodgson, that the pupils of the eyes are linear and erect. This was not the case in the Society's specimen. Under the influence of sunlight the pupil contracted to a small circular or subcircular disk. The iris was yellowish.

* P. Z. S. 1867, p. 275. This statement probably misled Elliot into having the eyes of *F. manul* in his monograph drawn like those of a domestic Cat.

There was no marked seasonal change in colour, the coat merely becoming thicker in winter than in summer.

Satunin has recently made *Felis manul* the type of a new genus, *Trichælurus* (Ann. Mus. St. Pétersb. ix. pp. 495-506, 1905), being the first to point out in detail the structural peculiarities of the species. Unfortunately he overlooked the fact that Severtzow had already proposed the name *Otocolobus* for the same species (Rev. Mag. Zool. x. p. 386, 1858).

To Satunin also belongs the credit of showing that three distinct forms of Manul are recognisable, each typical of a particular geographical area. To two of these he gives subspecific and to one specific rank.

Substituting *Otocolobus* for *Trichælurus*, his classification is as follows :—

- 1 a. *Otocolobus manul* Pall. (typical form), from Transcaspia, Turkestan, and Siberia to the west of Lake Baikal.
- b. *Otocolobus manul mongolicus* Sat., from Mongolia and Siberia to the east of Lake Baikal.
2. *Otocolobus nigripictus* Hodgs., Tibet.

I have not seen skins of the typical or of the Mongolian forms, but, judging from Satunin's description and the published figures, I should say that the differences between them and the Tibetan form are only of subspecific value. The name for the latter therefore will be *Otocolobus manul nigripictus*.

The Society's specimen of this subspecies presented the following characters :—

Prevailing colour of face grey : some buff below and at the sides of the nose : the eyes surrounded by a greyish-white area which is bordered by a black streak above and below and partially on the inner side, giving a characteristic spectacled look to the face. The buff area round the nose set off by a black patch, whence arise some black moustachial bristles ; the rest of these bristles mostly white and arising from blackish lines on the whitish area of the upper lips. Some black spots running into abbreviated lines on the cheek below the eyes. The two genal stripes broad and jet-black, descending obliquely downwards and backwards, the inferior arising from a spot on a level with the middle of the eye, the superior from a point near the outer canthus of the eye ; area above the latter stripe grey, below the former pale grey turning to white posteriorly ; the area between them pale greyish white. Posteriorly the two stripes are confluent, and merge below the ear with the sooty-brown hue of the throat and chest. The dark hue of these areas relieved by the long white tips to the hairs. Summit of head black speckled with white ; its fore part or the area in front of the ears marked with some small asymmetrically disposed jet-black spots interspersed with a few greyish-white spots. Back of ears greyish, passing

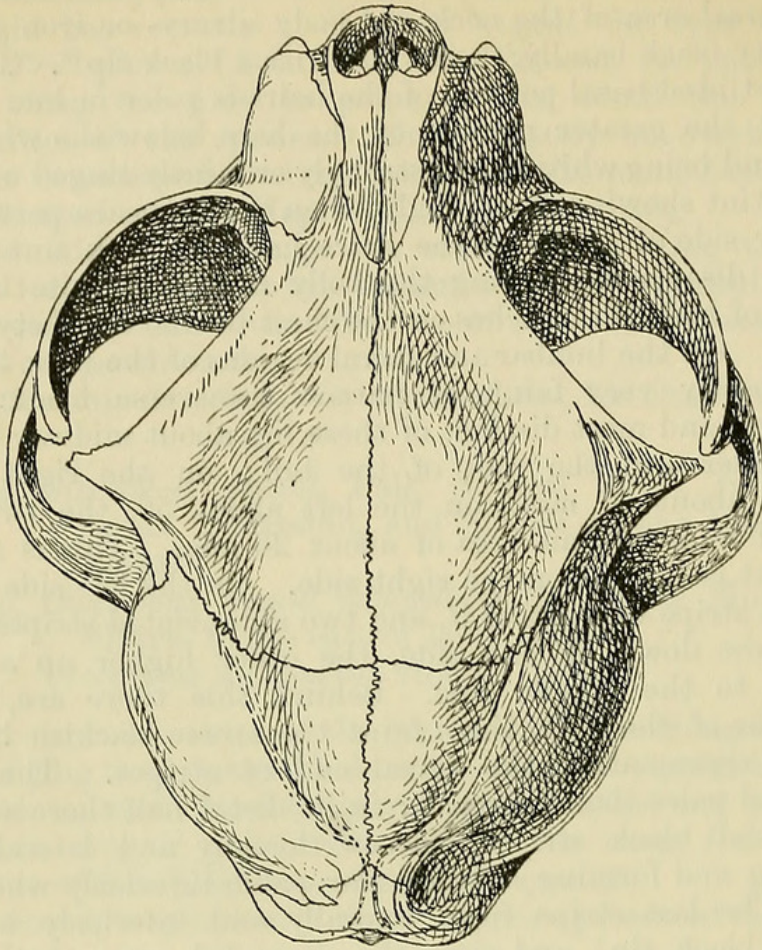
into black towards the head and with a darker rim; hairs on the inner side and in front of the ears whitish grey. Prevailing hue of the dorsal area of the neck and body silvery- or iron-grey, the hairs sooty black basally, then white with a black tip*. Laterally the dark-tinted basal portion of the hairs is paler in hue and less in extent, the greater portion of the hair below the white sub-apical band being whitish and strongly or faintly tinged with buff, the buff tint showing up strongly when the hairs are parted. On the lower side of the body the hairs have no black tint and the buff tint disappears, leaving the belly and chest white but for a clouding of blackish blotches on the chest behind and between the fore legs. On the lumbar and sacral regions of the back there are traces, mostly very faint, of narrow transverse black stripes. The largest and most distinct of these lies about midway between the shoulder and the root of the tail; on the right side it measures about 57 mm., on the left about 50, the two being separated by a median area of about 20 mm. This is the only stripe that is evident on the right side. On the left side there is one short stripe in front of it, and two abbreviated stripes behind it, one low down on the side, the other higher up and just traceable to the middle line. Behind this there are, on the middle line of the back, three faint transverse blackish blotches, probably representing the dorsal end of stripes. The tail is greyer and paler than the back; in its distal half there are three well-marked black stripes, narrow dorsally and laterally, but expanding and forming a triangular patch inferiorly where they meet. The last stripe fuses laterally and inferiorly with the terminal black tip; and since the expanded areas of the other stripes are only separated by the narrowest intervals, it follows that the distal half of the tail is practically black below. The proximal half of the tail is marked above with three narrow indistinct stripes, which, however, widen and become much more strongly defined below. Fore leg whitish grey turning to creamy buff on the paws; the brachial stripe distinct: other stripes represented by blackish patches. Hind legs with thighs grey like the body, and indistinctly spotted; front of the leg greyish, turning to pale buff on the paws; back of the leg up to the hock rusty cream, a black patch on each side of the paw above the median pad.

Measurement of dressed and flat skin:—Head and body 20 inches (= 500 mm.), tail 9 inches (= 225 mm.).

It is noticeable that the hair of the ventral surface, both on the throat, chest, belly, and thighs, is considerably longer than on the dorsal and lateral surfaces of the body. On the spinal region it measures about 23 mm., and on the belly about 43 mm. The coating of long hairs below is perhaps an adaptation to life in

* Satunin (*op. cit.* p. 497) says that the hairs on the back and sides have white tips. Did he overlook the slender black tip?

Text-fig 88.

Skull of *Felis manul*, viewed from above. Nat. size.

cold latitudes, where lying or sleeping in the snow is possibly not an uncommon occurrence. In that case the hairs would act as a protection against chill to the delicate internal organs, especially the intestinal portion of the alimentary canal*.

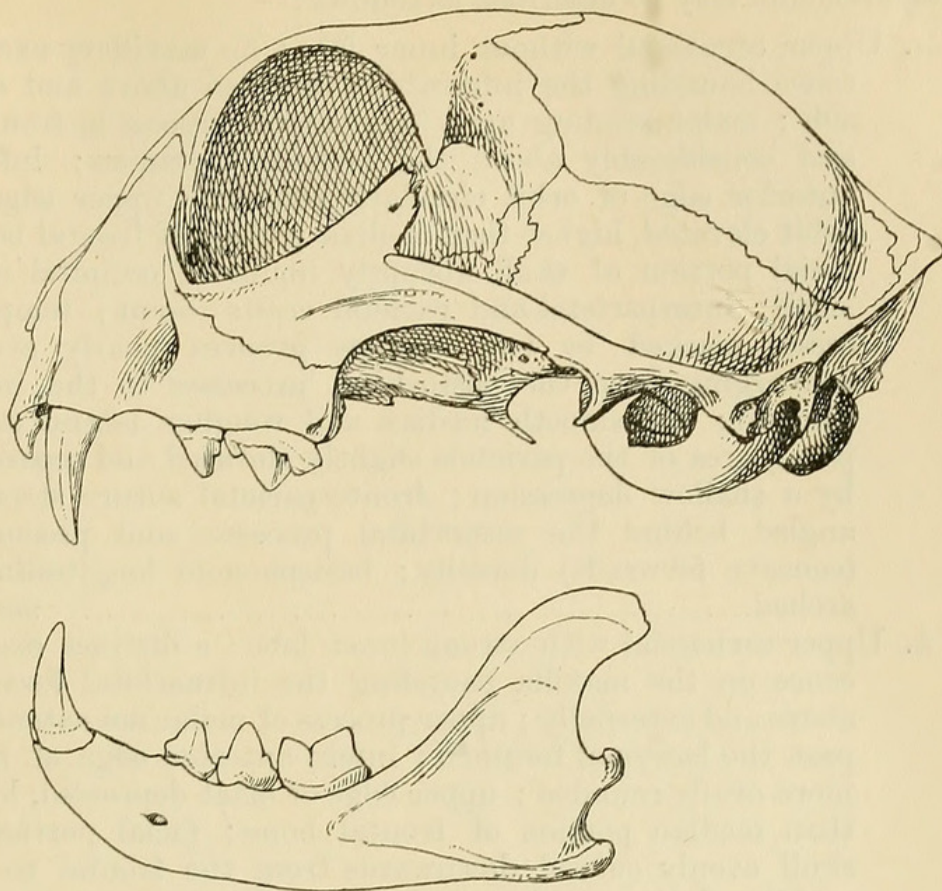
The skull of *F. manul* has been described briefly by Milne-Edwards† and Blanford‡, and more in detail by Satunin, who gives measurements of three examples. The skull of the specimen that lived in the Gardens (text-figs. 88, 89) does not apparently differ greatly from these. The chief peculiarities of the skull may be shown by comparing it with skulls of *Felis sylvestris* and *Felis ocreata*, since *F. manul* is, in my opinion, an aberrant form of the group exemplified by these two species.

* The ventral development of the hair in the Yak (*Bos grunniens*), also a denizen of cold countries, is a parallel case. The size of the tuft of hair at the end of the tail in this animal perhaps acts as a protection against frost-bite of a part of an organ where the circulation is weakest.

† Rech. Mamm. p. 226.

‡ Mamm. Brit. India, p. 83.

Text-fig. 89.

Skull of *Felis manul*, side view. Nat. size.

	<i>F. manul</i> (Tibet).	<i>F. sylvestris</i> (Scotland).	<i>F. ocreata</i> (Suakin).
Total length of skull	85	96	99
Basal length of skull	67	82	83
Width across zygomata	69	69	72
" across postorbital processes	55	49	54
" behind postorbital processes	41	34	36
" of brain-case	47	47	47
" between orbits	19	20	20
" of muzzle at base of canines	23	25	25
" of muzzle at infraorbital foramina ..	27	28	28
" between auditory orifices	23	34	32
" across upper carnassials	41	39	40
" of mesopterygoid fossa	12	12	12.5
Length of palate	31	35	36
" from palate to occipital foramen	36	45	46
" of zygomatic arch	43	48	50
" of mandible from condyle	56	64	65
Height from coronoid to angular process ..	25	30	28
Length of upper carnassial	10	10.5	11.5
" of lower carnassial	8.5	7.5	7.5
Median length of nasals	20		
Width of nasals in line with transverse distal edge	9		
" " across constriction	6.5		
" " just above constriction ..	7		

Some of the principal differences not shown in the above-given measurements may be described as follows:—

- a. Upper carnassial without inner lobe; no maxillary excrescence bounding the infraorbital foramen above and outside; malar sending up a long narrow process in front of and considerably above the lacrymal foramen; infero-anterior edge of orbit circularly rounded; upper edge of orbit elevated, higher than median portion of frontal bone; facial portion of skull abruptly inclined; occipital crest small; interparietal and parietal crests absent; temporal crests marked by two shallow grooves nearly evenly converging from the postorbital processes to the interparietal; the smooth median and rougher lateral (temporal) area of the parietals slightly elevated and separated by a shallow depression; fronto-parietal suture strongly angled behind the postorbital processes and procurved (concave forwards) dorsally; basisphenoid longitudinally arched..... *manul*.
- b. Upper carnassial with strong inner lobe; a distinct excrescence on the maxilla bounding the infraorbital foramen above and externally; upper process of malar not extending past the lacrymal foramen; infero-anterior edge of orbit more ovally rounded; upper edge of orbit depressed, lower than median portion of frontal bone; facial portion of skull evenly curved downwards from the frontal to the middle of the nasals; occipital and interparietal crests well-developed; temporal crests, when not mesially confluent, represented by a low ridge defining a median lyrate area forming a practically continuous curve with the temporal portion of the parietal bone; fronto-parietal suture forming a nearly straight transverse line; basisphenoid nearly flat, only lightly arched longitudinally.
sylvestris and *ocreata*.

The skulls of two Tibetan specimens that I have seen do not agree with Milne-Edwards's statement that the nasals in Mongolian specimens are strongly compressed in their posterior and correspondingly dilated in their anterior portion. Satunin also states that the nasals in the Tibet Manul (*F. nigripictus*) differ from those of the typical form in being constricted in the middle and distally expanded. In the skull of the animal in the Society's Collection, the constriction is very slight, amounting to only 1 mm. in transverse width across the two bones. From this constriction the bones expand very gradually forwards and backwards. They may be described as being of the broad type, such as is shown in *F. sylvestris*.

The infraorbital foramen is small and vertically oval, its greatest length being less than the distance between its upper extremity and the superjacent edge of the orbit.



Thomas, Oldfield and Wroughton, R C. 1907. "3. The Rudd Exploration of South Africa.-VII. List of Mammals obtained by Mr. Grant at Coguno, Inhambane." *Proceedings of the Zoological Society of London* 1907, 285–306.
<https://doi.org/10.1111/j.1096-3642.1907.tb01819.x>.

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