

18. On the Mammals obtained in Darfur by the Lynes-Lowe Expedition. By OLDFIELD THOMAS, F.R.S., F.Z.S., and MARTIN A. C. HINTON, F.Z.S.

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Thanks to the generosity and public spirit of the two explorers, the British Museum has received as a donation the whole of the fine collection of Mammals made by Rear-Admiral Hubert Lynes and Mr. Willoughby P. Lowe during their recent expedition to Darfur.

The expedition took place during the whole of 1921 and the early part of last year, and a complete survey of the country was made, equally of the comparatively flat desert region round El Fasher, the capital of Darfur, the still more desert area northward to the bare and unproductive Jebel Maidob, the zoologically unknown dominating mountain Jebel Marra, running up to a height of 10,000', and, finally, of the lower region of Wadi Aribo, in the south-western part of Darfur, where the drainage is towards Lake Chad.

No mammal collection had ever been made in this area, so that the present fine series (which numbers upwards of 800 specimens) adds very greatly to the material available for the study of African Mammalia, and we have reason to be most grateful to the donors for the generosity and patriotism which have resulted in this notable accession to the Museum—the largest single collection that the latter has ever received.

On the whole, the species contained in the collection are most nearly related, as is natural, to those of Kordofan and other parts of the Egyptian Sudan, and are generally different from those of the more humid Bahr-el-Ghazal.

So far as the mammals are concerned, Darfur would seem to be just on the southern boundary of the northern desert fauna, the collection containing quite a number of forms which are either the most southern records of northern species (*Jaculus jaculus*, *Dipodillus campestris* group, etc.) or the most northern records of southern ones (*Steatomys*, &c.).

The great mountain Jebel Marra, isolated as it is from other high ground, has naturally a number of interesting forms peculiar to it and different from those of the plains. Thus there is a mountain species of Striped Mouse (*Lemniscomys*) found on it, which we have named in honour of Admiral Lynes, and a Gerbil (*Dipodillus lowei*), whose nearest ally is found in Algiers.

In all, the collection proves to consist of 62 species, of which we have had occasion to describe 19 as new, either as species or subspecies.

A few mammals were obtained by Admiral Lynes on a previous visit to the country, and these have been here incorporated. Their numbers run from 1 to 24, while those of the main collection start at 400.

1. *ERYTHROCEBUS PYRRHONOTUS* Hempr. & Ehr.

♂. 648. ♀. 672. Foot-hills, S. Jebel Marra. 4000'.

Practically the first satisfactory examples of this species to reach the Museum.

2. *CERCOPITHECUS TANTALUS MARRENSIS*, subsp. n.

♂. 631. Foot-hills, S. Jebel Marra. 4000'.

♀. 626, juv. S.W. Jebel Marra. 5000'.

A very brightly coloured subspecies.

Face and chin black. White brow-line well defined, with an anterior edging of black hairs. Whiskers yellowish white, directed backwards and upwards, completely concealing ears. A sharply defined black streak from outer canthus of eye to neighbourhood of ear, separated from the crown-patch by a narrow tract of white whisker-hairs. Predominant hue of upper parts (crown of head, back to rump, and flanks) bright buff or golden, darkened on crown of head and rump by black hair-tips and to some extent by the hair-bases of slate-grey, which are darkest on the crown of the head. The golden tint is especially bright and clear upon the withers and flanks. Under surface of body, with inner surfaces of limbs, well-haired, pure white and rather sharply contrasted with flanks. Outer surfaces of arms and hands from shoulders, and of the legs and feet, from the thighs, of a general light grey colour of cold tone, produced by a mixture of pale slate-grey and dirty white, without any trace of buff. A tuft of white hair on each side of the root of the tail above. Upper surface of tail, in its proximal two-thirds, like the rump; its lower surface in the same region white, becoming yellower distally. Distal third of tail, above and below, dull yellow.

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

Head and body 830 mm.; tail 1140; hind foot 145; ear 32.

Skull: extreme length 118.6; condylo-basal length 88; zygomatic breadth 68.2; external orbital width 62.6; postorbital constriction 44; width of brain-case 56.5; canine to m^3 34.2; p^3-m^3 25.4.

Hab. Foot-hills of Jebel Marra.

Type. Adult male. B.M. No. 23.1.1.1. Original No. 631. Collected April 1, 1921.

This is a very well-marked subspecies of *C. tantalus*, a species known to range from Nigeria and the West Coast eastwards to the shores of Lake Albert. *C. toldti* Wettstein, described from Kadugli, S. Kordofan, on the basis of rather unsatisfactory material, appears to be a member of the "*callitrichus*" or *sabæus* group.

3. *PAPIO ANUBIS* F. Cuv.

♂. 8. Jebel Marra. 7000'.

Shot and presented to Admiral Lynes by Mr. Cecil McConnel.

4. *GALAGO SENNAARIENSIS* Less.

♂. 781, 804. ♀. 783. Kulme, Wadi Aribo. 3300'.

5. *EIDOLON HELVUM* Kerr.

No specimens of this bat were obtained. But a stem of a small tree, which Mr. A. S. Brown has identified as being either an *Odina* or a *Sclerocarya*, completely gnawed through, was found on Jebel Marra and brought home by the collectors as evidence of the existence of some large rodent upon the mountain. The tooth-marks, however, are very different from those of any rodent.

In 1920 Mr. R. H. Bunting, of the Agricultural Department of the Gold Coast, sent us some specimens of *Ararucaria*, from a grove at Aburi, which had been seriously damaged by large bats in a time of drought. With the timber came some of the bats, caught in the act, and they proved to be *Eidolon helvum*. The bitten wood from Jebel Marra is exactly like that from Aburi, and may be regarded, perhaps, as good evidence of the presence of this bat in certain seasons upon the mountain.

6. *HIPPOSIDEROS CAFFER* Sund.

♂. 887. ♀. 885, 886. Kulme, Wadi Aribo, 3300'.

♂. 939. ♀. 954. Zalingei. 3300'.

1174. 170 miles E. of El Fasher.

Forearm 48-49 mm.

7. *ASELLIA TRIDENS* Geoff.

♂. 6, 17, 18. ♀. 5, 19, 20, 24. Um Esheishat Well, 104 miles E. of El Fasher. 2200'.

These specimens were collected by Admiral Lynes during his preliminary visit to Darfur. Two of them were obtained on February 2, 1920, the others on May 13 following; all are in the brilliant red phase.

8. *PIPISTRELLUS MARRENSIS*, sp. n.

♂. 633, 653, 656. Foot-hills of S. Jebel Marra. 4000'.

Essentially as in *P. deserti* Thos., but of smaller size and darker colour.

Colour comparatively dark and rich, much like that of Egyptian specimens of *P. kuhli*, the general hue of the upper parts being near "Dresden brown" of Ridgway. Ears noticeably darker than back. Wings dark brown, with usual whitish edgings; interfemoral paler. Tragus shorter and broader than in *deserti*, with

broadly rounded tip and parallel borders; the inner border the longer. Forearm not exceeding 28 mm. (29·8 in *deserti*).

Apart from its slightly smaller size, the skull agrees with that of *P. deserti*. The outer upper incisor and the small upper premolar p^2 appear to be a little more reduced than in *deserti*, but the available material shows a rather wide range of variation in these respects. In the type-skull i^2 is both absolutely and relatively much smaller than in the only known skull of *deserti*; and the point of the tooth does not rise above the cingulum of i^1 . The small premolar is also greatly reduced, and so crowded between the canine and p^4 that it is not easy to detect. But in the fragments, all that is left of the two other skulls from Jebel Marra, the teeth in question, though rather smaller than in *deserti*, are considerably larger than in the type.

Dimensions of the type:—

Head and body 37 mm.; tail 21; hind foot 5·5; ear 12. Forearm 26·5; third finger 46 (m.c. 24·5; phalanges 8·7—7·5—5·5); lower leg and hind foot (c.u.) 14·5.

Skull: greatest length 11·2; median length above 9·6; median length below 8·1; interorbital breadth 4·3; intertemporal breadth 3·4; breadth of brain-case 6·7; canine to m^3 3·8.

Hab. Foot-hills, S. Jebel Marra; altitude 4000'.

Type. Adult male. B.M. No. 23.1.1.15. Original No. 633. Collected April 3, 1921.

This interesting little bat is, no doubt, closely related to *P. deserti*, described from Tripoli. Its smaller size, darker colour, shorter tragus, and possibly more reduced dentition seem to warrant its receiving distinct specific rather than subspecific rank. The individual variation noticed in the dentition is of some interest in a group in which, normally, even minute dental characters are surprisingly constant.

Both *marrensis* and *deserti* are apparently closely allied to *P. kuhli*; and we can see no good reason for placing them in the genus *Scotozous* (cf. Miller, *Fam. & Gen. Bats*, p. 206, 1907).

9. SCOTOPHILUS NIGRITA Schreb.

♂. 401. 60 miles W. of El Obeid.

♂. 639. ♀. 660, 662. Foot-hills, S. Jebel Marra. 4000'.

♀. 734, 735, 738, 743, 744, 745, 746, 748, 749. Zalingei. 2800'.

At Zalingei: "Very common around swampy ground" in May 1921. In a note dated Oct. 27, Mr. Lowe says "I believe all these bats are migratory, as I have not seen any since the last obtained" (Zalingei, May 31).

10. SCOTEINUS SCHLIEFFENI Pet.

♂. 411. 70 miles W. of Nahud, Kordofan.

♂. 1187, 1188. ♀. 1186. 35 miles E. of Nahud.

♂. 1197. 50 miles W. of El Obeid.

11. *TAPHOZOUS MAURITIANUS* Geoff.

♂. 794. Kulme, Wadi Aribo. 3300'.

12. *NYCTINOMUS TONGAENSIS* Wettst.

♀. 1171. 125 miles E. of El Fasher.

Forearm 49 mm.

We are agreed that, on the whole, it would be advisable to separate generically the species of this group with 4 lower incisors—*Nyctinomus* (genotype, *egyptiacus*)—from those with 6—*Tadarida* (type, *teniotis*). No species seem doubtful as to their allocation in one or other of the genera, and the separation will clearly be a convenience. And at the same time it will elude the disputed question as to whether *Tadarida* or *Nyctinomus* is the earlier name for the combined genus.

13. *ATELERIX ALBIVENTRIS* Wagn.

♂. 1159, 1165. Um Kedada.

Skull only: 1153. 32 miles E. of El Fasher.

14. *CROCIDURA DARFUREA*, sp. n.

♂. 740, 750, 751, 754, 755, 877, 878, 909, 929, 931, 937, 943, 945, 946, 950, 955. ♀. 733, 739, 758, 876, 893, 934, 941, 944. Zalingei, Darfur. 2800-3300'.

♂. 827, juv. ♀. 833, 894, 919. Unsexed. 892, 907, 926. Kulme, Wadi Aribo. 3300'.

A large species resembling *C. sururæ* in colour, but with much shorter tail.

Size large (hind foot about 18 mm.; condylo-incisive length of skull in adult male about 29). Tail short, about half the length of the head and body. General colour of dorsal surface pale, in lighter specimens near "citrine-drab" of Ridgway, in darker ones approaching "hair-brown." Underparts lighter and greyer, with a decided wash of silver in fresh full fur. No sharp flank-line. Flank-gland on each side marked by a small patch of white hairs. Upper surfaces of hands, feet, and tail essentially concolorous with back; but tail often a little darker and sometimes dusky, its lower and upper surfaces similar.

Skull essentially as in *nyansæ* and *sururæ*.

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

Head and body 122 mm.; tail 65; hind foot 18; ear 13.

Skull-measurements of type (with those of an adult female in parentheses): condylo-incisive length 29.4 (27.3); greatest breadth 12.2 (11.4); least interorbital breadth 4.9 (5); upper tooth-row 13 (12.4).

Hab. Darfur.

Type. Adult male. B.M. No. 23.1.1.40. Original No. 755. Collected June 4, 1921, at Zalingei, Darfur. Altitude 2800'.

This Shrew is the local representative of *C. nyansa* and *C. sururæ*. Resembling the latter in colour, it is distinguished from both by its relatively shorter tail. In the type of *sururæ*, the tail measures only 64 mm. with a head and body measurement of 111; but the material in the Museum indicates that *sururæ* normally has a tail of 75 or 80 mm., which is therefore considerably more than half the length of the head and body.

In this species there seems to be a well-marked sexual difference of size—female skulls being usually less, and males more than 28 mm. in condylo-incisive length.

15. *CROCIDURA HINDEI* MARRENSIS, subsp. n.

♂. 545. Wadi Kongei, East Central Jebel Marra. 6200'.

♀. 544. Wadi Barei, N.W. Jebel Marra. 6000'.

Closely resembling *C. h. diana* Dollman, but darker in colour and with a longer tail.

Size slightly smaller than in *diana*, but tail considerably longer (58 mm. instead of 48). Colour of upper parts darker, near the "snuff-brown" of Ridgway. Under parts greyish white. Flank-lines of demarcation regular, though not sharply defined. Hands and feet yellowish white above. Tail dark brown above, paler below.

Skull and teeth nearly as in *diana*; tooth-row a little shorter. The unicuspid teeth above without the peculiar narrowing and elongation of their crowns seen in *diana*.

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

Head and body 74 mm.; tail 57; hind foot 12.5; ear 13.

Skull (posterior part broken): condylo-incisive length probably about 23; breadth of brain-case 9.5; least interorbital width 4.1; tooth-row 9.3.

Hab. Jebel Marra, at about 6000'.

Type. Adult male. B.M. No. 23.1.1.57. Original No. 545. Collected Feb. 27, 1921, at Wadi Kongei, East Central Jebel Marra.

C. h. diana, described from Lake Chad, is apparently the nearest ally of this Shrew. The darker colour, longer tail, and more normal dentition of *marrensis* force us, however, to treat it as a distinct subspecies.

16. *CROCIDURA ARIDULA*, sp. n.

♂. 846, 861, 928. ♀. 872. Kulme, Wadi Aribo. 3300'.

A grey Shrew resembling *C. butleri* Thos., but with a longer and unswollen tail.

Size medium. Tail normal, more than half the length of the head and body.

Colour of upper parts cold-grey, near the "deep greyish olive" of Ridgway. Under parts white, in sharp contrast with upper

parts along flanks. Hands and feet white above. Tail above concolorous with back, white below.

Skull essentially as in *butleri*.

Dimensions of type (measured in the flesh):—

Head and body 88 mm.; tail 43; hind foot 14; ear 12.

Skull: condylo-incisive length 23·3; breadth of brain-case 9·8; least interorbital width 4·2; tooth-row 9·8.

Hab. as above.

Type. Adult male. B.M. No. 23. 1. 1. 61. Original No. 928. Collected Sept. 21, 1921, at Kulme, Wadi Aribo. 3300'.

This species is sufficiently distinguished from *C. butleri* by its normal tail and somewhat colder colour.

17. *CROCIDURA MARITA*, sp. n.

♀. 673. S.E. Downs, Jebel Marra. 8650'.

A very small Shrew, related to *nana* and *religiosa*. Fur moderately long, hair of back measuring 3-4 mm. in length.

Colour of dorsal surface dark olivaceous grey; underparts greyish white; without any hard flank-line of demarcation. Hands and feet whitish. Tail indistinctly bicolor, dusky above, whitish below.

Skull flattened. Second and third unicusps about equal in size.

Dimensions (measured in the flesh):—

Head and body 56·5 mm.; tail 38; hind foot 10·5; ear 7·5.

Skull: condylo-incisive length 16·6; breadth of brain-case 7·5; least interorbital breadth 3·4; tooth-row 7·3.

Hab. as above.

Type. Adult female. B.M. No. 23. 1. 1. 63. Original No. 673. Collected April 21, 1921. S.E. Downs, Jebel Marra, altitude 8650'.

18. *FELIS OCREATA* Gmel.

♂. 450. El Fasher.

♂. 1062. 35 miles N. of El Fasher.

♀. 655. Foot-hills, S. Jebel Marra. 4000'.

"Lives in company with Fennec Fox. Said to be rare and local, living in colonies like rabbits."

19. *FELIS SERVAL* Schr.

♀. 855. Kulme, Wadi Aribo. 3300'.

"Native name Git."

20. *HERPESTES SANGUINEUS* Rüpp.

♂. 1141. El Fasher.

♂. 1061. 35 miles N. of El Fasher.

♂. 607, 611. ♀. 610, 974, 1019. Jebel Marra. 7100'-8000'.

♀. 758, 759, 762. Kulme, Wadi Aribo. 3300'.

Of this strongly-marked species the Museum previously possessed only a single specimen, which was also obtained by Admiral Lynes in this same region. It was originally described from Kordofan.

21. *HYÆNA HYÆNA* Linn.

♂. 412. 100 miles W. of Nahud.

♂. 641. Foot-hills, S. Jebel Marra. 4500'.

♀. 874 (skull only). Kulme, Wadi Aribo. 3300'.

"Does not appear to be found over 5000'."

22. *CROCUTA CROCOTTA* Erxl.

♂. 911. Kulme, Wadi Aribo. 3300'.

"This is the common species found here. Very destructive to sheep, goats, and donkeys. This individual stole three sheep out of our servants' huts."

23. *CANIS ANTHUS SOUDANICUS* Thos.

♂. 426. 16 miles E. of El Fasher, Darfur. Jan. 29, 1921.

♂. 596, 597. Central Jebel Marra. 10,000'. March 10, 1921.

"Very common, and noisy at night. Usually seen in pairs."

♂. 683. S.E. Downs, Jebel Marra. 8000'. April 25, 1921.

"Very abundant on Downs."

♂. 935 (skull only). Jebel Marra. 9500'. "Feeds on insects which it obtains by scratching in the grass-roots. Stomach contained a large amount of vegetable matter, no doubt swallowed in the process."

♀. 1001. Jebel Marra. Dec. 6, 1921.

♀. 1015. Niurmya, Jebel Marra. 7000'. Dec. 29, 1921.

24. *VULPES PALLIDA* Rüpp.

♂. 829, 857. ♀. 858, and male skulls 914, 923. Kulme, Wadi Aribo. 3300'.

♂. 971. S.E. Jebel Marra. 8000'.

"Native name [at Wadi Aribo] Doctorri."

"Found in large colonies [at Jebel Marra]."

25. *ICTONYX STRIATUS SUDANICUS*, subsp. n.

♂. 666. Foot-hills of Jebel Marra, 4000'. April 16. B.M. No. 23.1.1.95. *Type*.

An even lighter-coloured form than *intermedius*, with which it shares the narrowing of the black hairs of the nape and fore-back, and the breaking of the supraorbital black bar. Size decidedly larger than in *intermedius*, but only one specimen of each available for comparison. Fur long, loose, and shaggy.

Frontal white spots of medium size, the bar separating it from the temporal one on each side considerably broken by white hairs. Black lines of nape very narrow, much overlaid by the white hairs. Posterior black lines also at a minimum, the median one on the loins scarcely more than an inch broad, and its intensity much reduced by the long overhanging white hairs, the lines throughout less developed and sharply defined than in any other form. Chin and interramia largely intermixed with white hairs, a few only being present in *intermedius* and none in other forms. Black of under surface considerably narrowed in the ventral region, the white of the flank-bands encroaching on the belly on each side, while all across the latter there is an admixture of white with the black hairs. Tail with the basal portions of the hairs black as usual.

Skull fairly large, decidedly larger than in the type of *intermedius*, but smaller than in *shoæ*.

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

Head and body 355 mm.; tail 255 (not quite perfect); hind foot 58; ear 24.

Skull: greatest length (median) 68.5; condylo-basal length 66.5; zygomatic breadth 38.7; interorbital breadth 18; intertemporal breadth 16.3; mastoid breadth 33.7; palatal length 32.4; maxillary tooth-series 20; p^1 on outer edge 6.5.

Hab. and *Type* as above.

A form with the white markings at a maximum, in correlation with the desert characteristics of its habitat. *I. erythreæ* is smaller, *shoæ* larger and very dark-coloured, and *intermedius* somewhat similar in colour, but with much smaller skull and the usual wholly black underside.

26. EUXERUS CHADENSIS Thos.

♂. 436. El Fasher.

♀. 460. 35 miles S.W. of El Fasher.

♀. 1114. Jebel Maidob.

This desert Ground-Squirrel ranges along a strip at about 14° N. lat. for a considerable distance, as Capt. Buchanan obtained it at Zinder, French Nigeria; the typical series came from Lake Chad, and the present region is again much to the east of that lake. It is of very pale colour, and comparatively small (skull 58–61 mm.), though still much larger than the little *E. agadius* of the Air region (51.5 mm.).

27. EUXERUS ERYTHROPUS LIMITANEUS, subsp. n.

♀. 722. Zalingei, mouth of Wadi Aribi. 2800'.

♂. 803. ♀. 837, 854. Kulme, Wadi Aribi. 3300'.

♂. 657. Foot-hills of Jebel Marra. 4000'.

♀. 609. Central Jebel Marra. 7200'.

♂. 1. Dilling, Nuba Land. 2300'.

Larger than *chadensis* and *leucoumbrinus*. Colour about as in the latter.

Upper surface of body very much as in *leucoumbrinus*, that is to say near "sayal-brown," decidedly darker than in *chadensis*. Light lateral line sharply defined white. Dull lateral line darker than the back.

Skull decidedly larger than in *chadensis* and *leucoumbrinus*, the total length of the skull about 61–63 mm.

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

Head and body 270 mm.; tail 246; hind foot 65; ear 17.

Skull: greatest length 62; condylo-incisive length 58·5; zygomatic breadth 33·5; nasals 19; palatilar length 31·7; cheek-teeth exclusive of p^3 12; lower cheek-teeth 13.

Hab. Region of Wadi Aribo, extending eastward to Jebel Marra. Type from Zalingei.

Type. Adult female. B.M. No. 23.1.1.99. Original number 722. Collected 20 May, 1921.

Distinguished both from *leucoumbrinus** and *chadensis* by its larger size, and from *chadensis* by its darker colour, though the Jebel Marra specimens are a little paler than those from the Wadi Aribo.

28. *HELIOSCIURUS BONGENSIS* CANASTER, subsp. n.

♂. 671, 705. ♀. 663, 706. Foot-hills of Jebel Marra. 4000'.

A paler and greyer form of the *H. bongensis* of the Bahr-el-Ghazal.

Size as in *bongensis*. Dorsal colour as in that animal or inconspicuously paler. But sides, forearms, hips, and backs of legs far paler, whitish or greyish white. Under surface quite white to the bases of the hairs, a patch of buffy on each side of tarsus. Top of muzzle greyish white, much paler than the crown. White supra- and infra-orbital lines well marked; ears prominently whitish. Upper surface of hands and feet greyish white. Tail similarly ringed to that of *bongensis*, but paler throughout.

Skull about as in *bongensis*, equally smaller than that of *multicolor*. Nasals rather longer.

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

Head and body 178 mm.; tail 217; hind foot 44; ear 15.

Skull: greatest length 44; condylo-incisive length 38·7; zygomatic breadth 26; nasals $14 \times 6\cdot8$; interorbital breadth 13; maxillary tooth-row 8·8.

* With regard to *leucoumbrinus*, that species was founded by Rüppell in so vague and general a manner that it needs pinning down to some particular form, as it may have included quite a number of distinct races. There is in the British Museum one of his original specimens, purchased of the Senckenburg Museum (B.M. No. 79 b), and this we propose to select as a lectotype. It is of a pale cinnamon-brown colour, and corresponds in size with specimens having a skull-length of about 58 mm., its lower cheek-teeth 12 mm. It was received as from "Abyssinia," but how far this is trustworthy we are not in a position to state.

Hab. as above.

Type. Adult male. B.M. No. 23.1.1.107. Original number 705. Collected 8 May, 1921.

This Squirrel is a whitened desert representative of the Bahr-el-Ghazal *H. bongensis* Heuglin, a species distinguished from the better-known and widely distributed *H. multicolor* by its decidedly smaller size.

29. *GRAPHIURUS OROBINUS* Wagn.

♂. 963, 965. W. of Jebel Marra. 4000'.

♂. 771. ♀. 809, 918, 922. Kulme, Wadi Aribo. 3300'.

♀. 882, 930. Zalingei. 2800'.

Type-locality, Sennaar.

30. *TATERA ROBUSTA* Cr.

♂. 462, 463, 464, 466, 467, 499, 1068, 1086, 1128. ♀. 424, 443, 447, 456, 457, 458, 459, 460, 461, 465, 470, 480, 481, 482, 483, 484, 485, 490, 494, 495, 1144, 1152, 1154, 1155, 1173, 1175. El Fasher and neighbourhood.

♂. 1185. Nahud, Kordofan.

♂. 1193. ♀. 402, 1194, 1208. El Obeid.

♂. 1112. ♀. 1087, 1088, 1089. Jebel Maidob. 2750'.

♀. 1038. Tina Wells.

31. *TATERA BENVENUTA* Hint. & Kersh.

♂. 784, 807, 832, 836. ♀. 729, 801, 873. Kulme, Wadi Aribo. 3300'.

♂. 549. ♀. 548, 550. Wadi Kongei. 6200'.

♂. 529. ♀. 508, 523, 531, 585, 586, 649, 658, 700. Jebel Marra. 4000'-7900'.

TATERILLUS.

The genus *Taterillus* is represented by nearly 70 specimens, covering the whole area explored, except the upper part of Jebel Marra, where its place is taken by the special local form of *Dipodillus* described below.

In the district round El Fasher, two forms are found—the large bright-coloured *T. rufus*, with its naked whitish soles, and also a smaller species.

The other members of *Taterillus* in the collection all have the hair-band on the soles, and are related to *T. butleri* of Bahr-el-Ghazal, which seems to extend northwards into Kordofan, and we confess we do not see any reason to distinguish from it either *T. kadugliensis* or *Taterina lorentzi* of Wettstein. The distinction of *Taterina* from *Taterillus* as a genus is based on a character—

the presence of an extra cusp in m_1^* —which is far from constant, and many specimens of *Taterillus* have a rudimentary cusp in the same position. Major Graham has sent examples of *Taterillus* from S. Kordofan, which we may take as representing both *kadugliensis* and *lorentzi*, and these quite agree with the type of *butleri* from Bahr-el-Ghazal.

32. *TATERILLUS CLIVOSUS*, sp. n.

♂. 509, 516, 522, 525, 539, 645, 707. ♀. 519, 520, 521, 524, 647, 698, 699, 708, 1032. Jebel Marra. 4000'–5500'.

♂. 770, 830, 847, 860. ♀. 820, 848, 850, 862, 864, 865, 869. Kulme, Wadi Aribo. 3300'.

♀. 726. Zalingei. 2800'.

♂. 473. 35 miles W.S.W. of El Fasher.

♀. 1102, 1106. Jebel Maidob.

Like *T. butleri*, but with longer and rather more bushy tail.

Size about as in *butleri*, or a little larger. General colour buffy brown, a little lighter than in *butleri*, but decidedly darker than in the plains form to be described below. Face without special white markings. Ears of medium size, buffy brown, scarcely different from the back. Hands and feet white, soles blackish, generally with well-marked and often with very broad hair-bands. Tail decidedly larger than in *butleri*, and more heavily pencilled, its terminal two-fifths with blackish hairs upwards of 13 mm. in length, its upper surface brown, its lower buffy whitish. The type has a white tail-tip, but this is evidently abnormal.

Skull without special peculiarities, about 35–37 mm. in length.

Dimensions of type (measured in the flesh):—

Head and body 126 mm.; tail 182; hind foot 33; ear 20.

Skull: greatest length 37.5; condylo-incisive length 34; posterior palatine foramina 4.2; bulla 10; upper molar series 5.4.

Hab. Slopes of Jebel Marra below about 6000', and region of Wadi Aribo. Type from Jebel Marra, south, 5300'.

Type. Adult female. B.M. No. 23.1.1.127. Original number 698. Collected May 5, 1921.

* We are quite agreed that in systematic work it is, at least for the present and for a long time to come, better to use the conventional notation of m^1 , m^2 , m^3 for the three cheek-teeth of Muridæ, rather than any notation which attempts to indicate their real homologies as compared with the cheek-teeth of other rodents. Mr. Kellogg has recently, in a paper dealing with certain Californian Voles (Univ. Calif. Publ. Zool. xxi. p. 245, 1922), described and figured the anterior tooth as the last premolar (p^4), the second tooth therefore as m^1 , and the third m^2 , a method which is liable, in systematic work, to give rise to a good deal of confusion. All the more that his revised nomenclature is by no means acceptable to other writers, as will be seen from a paper by Hinton (Ann. & Mag. N. H. (9) xi. p. 162, 1923), who reviews the whole question, and has reason to confirm the view that the anterior tooth is a milk-premolar (mp^4) and not a permanent one, a conclusion which Thomas also thinks may be the true one.

But in either case the conventional notation m^1 , m^2 , m^3 would seem to be the best for current systematic work.

This Gerbil, which is found in a more elevated region than *T. butleri*, resembles that species in its general colour, but differs by its longer and more bushy tail.

The determination of the last three specimens in the list is a little doubtful, but they may be provisionally assigned to the present form.

33. *TATERILLUS PERLUTEUS*, sp. n.

♂. 417. ♀. 416, 418, 419, 1160, 1161, 1178. Um Kedada, 100 miles E. of El Fasher. 2400'.

♀. 444, 446, 491, 492, 501, 1069, 1151, 1180. Neighbourhood of El Fasher.

♀. 1084, 1122, 1123. Tagbo Hills, 95 miles N.E. of El Fasher.

A smaller species of vivid buffy colour.

Size decidedly less than in *butleri* and *clivosus*. General colour bright clear buffy, about as in *rufus* and in *gracilis angelus*, much paler and clearer than in *butleri* and *clivosus*. Upper surface near "warm buff," darkened a little along the median basal area, clearer on the sides. A patch behind eye and another behind ear white. Ears buffy. Hands and feet white; soles brown with well-marked hair-band. Tail pale buffy above, white below, its terminal third with a brown pencil.

Skull distinctly smaller than that of *T. clivosus*.

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

Head and body 106 mm.; tail 149; hind foot 30; ear 18.

Skull: greatest length 34; condylo-incisive length 30; nasals 13.3; palatine foramina, anterior 5.4, posterior 3.7; bulla 10; upper molar series 5.

Hab. Plains of Darfur, round and to the east of El Fasher. Type from Um Kedada, about 100 miles E. of the capital.

Type. Adult female. B.M. No. 23.1.1.143. Original number 1160. Collected March 15, 1922.

The bright buffy colour of this Gerbil distinguishes it from *butleri* and *clivosus*, while from the equally bright *rufus* it differs by its smaller size and the presence of hair-bands on its soles.

34. *TATERILLUS RUFUS* Wettst.

Tatera rufa Wettstein, *t. c.* p. 111.

♂. 479, 493, 506, 1080, 1169. ♀. 507. W. of El Fasher.

♀. 1166. Um Kedada, 100 miles E. of El Fasher.

♀. 1090. Jebel Maidob. 2750'.

Dr. Wettstein has in our opinion laid too much stress on the presence of the hair-band on the sole as diagnostic of the genus *Taterillus*, while quite ignoring the length of the posterior palatal foramina. It is clear from his excellent photographs that his *Tatera rufa* has the long foramina characteristic of *Taterillus*,

while, as Thomas has shown, *Taterillus* is often without the hair-band.

In this species the sole is whitish and generally completely naked, the ears are unusually large, and the general colour is particularly bright and vivid.

T. gyas Thos., from the Dinder River, is related to *T. rufus*, but is larger.

"Soles of feet white."—W. P. L.

35. TATERILLUS BUTLERI Wrought.

♂. 1200, 1202, 1206. ♀. 404, 404*, 1199, 1201. El Obeid and neighbourhood.

♀. 409, 1189. Near Nahud, Kordofan.

A rather dark form with comparatively short tail.

36. GERBILLUS PYGARGUS F. Cuv.

♂. 1091. ♀. 1092, 1104. Jebel Maidob. 2750'.

♀. 1083. El Fasher.

37. GERBILLUS AGAG Thos.

♀. 406, 408. Nahud, Kordofan.

♀. 413, 414, 415. 100 miles W. of Nahud.

♀. 423. 65 miles E. of Nahud.

♂. 445, 476, 1060, 1129, 1148. ♀. 451, 474, 475, 476, 486, 487, 503, 1079, 1081, 1085, 1126, 1130, 1132, 1133, 1136, 1137, 1146, 1156, 1157. El Fasher and neighbourhood.

♀. 1168. Um Kedada, Darfur.

Hitherto only known from the type, a male obtained in November 1902, at Agageh Wells, by Capt. Dunn.

38. GERBILLUS NANCILLUS, sp. n.

♀. 425. 16 miles E. of El Fasher.

♀. 1078. 45 miles N. of El Fasher.

A minute species smaller than any hitherto known.

Size even less than in *Dipodillus henleyi*. General colour above very pale gerbil-colour; only a narrow dorsal area with the usual dark bases to the hairs, those of the flanks with white bases and buffy tips. Under surface snowy-white, the white area taking in the whole of the fore limbs. Middle of face buffy; cheeks, a ring round the eyes, patch at base of ears, and another behind them white. Ears small, their proectote contrasted brown, with the tip whitish, their metectote buffy. Soles of hind feet partly naked behind, but with the hairy terminal part of metatarsus characteristic of *Gerbillus*. Tail practically white, the upper surface very slightly more buffy, the end lightly pencilled with brown.

Skull with proportionally large brain-case and short muzzle. Bulla fairly large, much smaller than in *Dipodillus henleyi*.

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

Head and body 54 mm.; tail 79; hind foot 17·5; ear 11.

Skull: greatest length 20·5; condylo-incisive length 17; nasals 7·1; breadth of brain-case 10·2; anterior palatine foramina 3·2; posterior palatine foramina 2·2; bulla 7; upper molar series 3·2.

Hab. Plains of Darfur. Type from 45 miles N. of El Fasher.

Type. Adult female. B.M. No. 23.1.1.169. Original number 1078. Collected February 6, 1922.

This pretty little Gerbil reminds one of the tiny *Dipodillus henleyi* of Lower Egypt, but the soles, though partly naked behind, are distinctly those of *Gerbillus*, in which genus this is much the smallest species known.

39. DIPODILLUS LOWEI, sp. n.

♂. 566, 577, 583, 587, 595, 600, 601, 603, 605, 625, 676, 677, 678, 679, 684, 685, 975, 979, 981, 986, 990, 992, 995, 1005, 1010, 1105.

♀. 564, 565, 578, 581, 582, 584, 588, 591, 592, 593, 594, 602, 604, 618, 620, 624, 674, 675, 680, 681, 688, 689, 693, 694, 906, 973, 976, 978, 980, 982, 983, 984, 987, 988, 989, 991, 993, 995, 997, 998, 999, 1000, 1002, 1004, 1007, 1008. Jebel Marra. 6650'–9750'.

A dark-coloured mountain form of the *D. campestris* group.

Size about as in *D. campestris*. General colour dark, much darker than the clear gerbil-colour of most members of this genus, though occasional or younger specimens of *campestris* are similar. Back dark buffy grizzled with the brown tips of the hairs, the general tone near "Brussels-brown," while some specimens even approach sepia. Sides a little clearer buffy. Under surface as usual wholly white. Ears brown, with the conspicuous whitish markings behind eyes and at base of ears. Legs buffy brownish; hands and feet white. Tail with a fairly well-developed blackish tuft on its terminal third, its hairs ordinarily attaining 8–9 mm. in length; under surface of tail dull buffy brownish.

Skull, on the whole, like that of *D. campestris*, but rather more robust, and the zygomatic plate projecting slightly further forward, so that its anterior point stands about 3·5 instead of 3·0 mm. in front of the base of the notch, as viewed from above. The bullæ are of about the same length, but, apparently owing to a less convex inner side, the slit between them and the front part of the basioccipital is nearly invariably broader. Molars slightly heavier.

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

Head and body 110 mm.; tail 143; hind foot 25·5; ear 17.

Skull: greatest length 31·5 mm.; condylo-incisive length 28·5; zygomatic breadth 15·7; nasals 12·5; palatal foramina 6·3; bulla 9; upper molar series 4·4.

Hab. Jebel Marra, above 6000'. Type from 9500'.

Type. Adult female. B.M. No. 23.1.1.212. Original number 982. Collected December 3, 1921.

"Lives under rocks; feeding on grass and flower-seeds. These animals appear to be strictly nocturnal."—W. P. L.

This Gerbil is of considerable interest, for while it is nearly allied to the Algerian and Saharan *D. campestris*, no relative of it is recorded from anywhere near Darfur; nor did the Lynes-Lowe expedition obtain a single specimen of the group in all the low country round Jebel Marra, so that we may be confident that it is really isolated high up on the mountain. In the plains its place would seem to be taken by *Taterillus butleri*, which, like other Gerbils, is pale sandy-coloured, while the present animal has become darkened to suit its rocky environment, just as has happened with *Lemniscorys lynesi* and other members of the mountain fauna.

We have much pleasure in naming it after Mr. Willoughby Lowe, to whose energy the great extent of the Darfur mammal collection is mainly due.

40. *DIPODILLUS PRINCIPULUS*, sp. n.

♀. 1119. El Malha, Jebel Maidob, N. Darfur. 2700'.

♂. 1127. 90 miles N.E. of El Fasher.

A bright buffy species with long tail and swollen brain-case.

Size medium, about as in *D. stigmonyx*. General colour bright sandy buffy, without the slight dorsal darkening generally found in *stigmonyx*. Sides and posterior part of rump above tail without slaty bases to the hairs, these being white with buffy tips. A white patch behind eye and another behind ear. Ears buffy. Hands and feet white, the soles naked. Tail longer and rather more bushy than in *stigmonyx*, the upper surface lined buffy brown, the lower side white; terminal two-fifths with a well-marked brownish pencil.

Skull about as long as in *stigmonyx*, but much more swollen posteriorly, the brain-case more convex above and considerably broader; bullæ much larger. Palatal foramina shorter. Molars about as in that species.

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

Head and body 73 mm.; tail 115; hind foot 21; ear 11.

Skull: greatest length 26·3; condylo-incisive length 23; zygomatic breadth 14·5; breadth of brain-case 13; height from crown to lowest point of bulla 10·8; palatal foramina, anterior 4·1, posterior 2·4; bulla 10 × 5·5; bi-meatal breadth 14; upper molar series 3·5.

Hab. N. Darfur. Type from El Malha, Jebel Maidob. 2700'.

Type. Adult female. B.M. No. 23.1.1.218. Original number 1119. Collected 10 February, 1922.

The members of the genus *Dipodillus* may be arranged according to the extent to which the brain-case and bullæ are swollen up in proportion to the face, or are of more or less normal Murine development. This species and the much smaller *D. henleyi* are at the swollen-headed end of the series; then among Egyptian species follows *amœnus*; then *stigmonyx* with its allies or synonyms *luteolus* and *bottæ*, and the smaller-toothed *watersi*. Then comes *campestris* and its ally *lowei*; and finally, and most extremely murine, the small species next to be described.

This pretty and distinct species is one of the few novelties resulting from the visit of the Expedition to the black rocky mountain Jebel Maidob, in N. Darfur, whose mammal fauna has proved far less striking than that of Jebel Marra.

41. *DIPODILLUS MURICULUS*, sp. n.

♂. 1082. Madu, 80 miles N.E. of El Fasher. 2900'.

A small species with a very murine-shaped skull.

Size very small, considerably less than in *principulus*, little larger than in *henleyi*. General external characters as in *principulus*, except for the markedly shorter tail. Colours as described in *principulus*, with similar white bases to the lateral and anal hairs. The general tone is, however, more strongly buffy, but how far this is affected by the only specimen being tinted with the reddish sand of its locality, we are unable to say. Eye and ear markings present. Hinder soles quite naked. Tail much shorter than in *principulus*, scarcely pencilled, the proximal portion thinly haired and showing the scales.

Skull, for a Gerbilline, of a remarkably murine shape, the cranial region neither broadened nor inflated and the bullæ small, so that at first sight, at least from above, the skull might be taken for that of a *Mus*. Supraorbital edges well marked. Palatal foramina narrow. Bullæ comparatively small, oval, the mastoid portion almost without inflation.

Teeth apparently as usual, but much worn in the only specimen.

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

Head and body 65 mm.; tail 82; hind foot 18; ear 12.

Skull: greatest length 23 mm.; condylo-incisive length 20; zygomatic breadth 12; nasals 8.5; interorbital breadth 4; greatest breadth of brain-case 10.3; height from crown to lowest point of bulla 8.8; palatal foramina, anterior 3.7, posterior 2.1; bulla 7.5 × 4.5; bi-meatal breadth 10.6; upper molar series 3.1.

Hab. as above.

Type. Old male. B.M. No. 23.1.1.220. Original number 1082. Collected 3 February, 1922.

A very striking little Gerbil, distinguishable by its short tail and very murine skull.

42. *DESMODILLISCUS BRAUERI* Wettst.

♂. 1192. 75 miles W. of El Obeid.

♀. 1172. 140 miles E. of El Obeid.

The type of this remarkable little Gerbil was described from El Obeid. These almost topotypical specimens are most welcome additions to the collection.

They show that the Nigerian species *D. buchanani* is more nearly allied to *braueri* than we had supposed, as the difference that we had observed in the first lower molar seems to be only due to Dr. Wettstein's photograph having been taken at an angle which gave a misleading outline to the tooth. And as to the difference in the bullæ, those of *buchanani* had had the meatal inflation broken off, an accident which was only perceived on the examination of the present specimens. But the two species are, however, still distinguishable by the greater size of the molars of *buchanani*—3.2 mm. in length above as compared with 2.9*.

43. *STEATOMYS AQUILO*, sp. n.

♀. 1013. Niurmeya, Jebel Marra. 7000'. Collected 23 December, 1921. B.M. No. 23. 1. 1. 438. *Type*.

A small species related to the Nigerian *cuppedius*.

Size about as in *cuppedius*. General colour above pale wood-brown, washed laterally with buffy. Under surface white, less sharply defined than usual. Face rather more buffy than back. Ears brown with a small whitish patch behind them. Forearms and hands, and hind feet white. Tail brown above, whitish below.

Skull very much as in *cuppedius*, but the palatal foramina longer, extending nearly to the level of the middle lamina of m^1 and narrower.

Incisors unusually strongly bevelled, so much so that in side-view the part of the tooth behind the groove appears little broader than that in front. In the type the upper incisors are white, but we suppose this to be due to some accidental chemical deterioration; the lower ones are yellow as usual.

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

Head and body 69 mm.; tail 39; hind foot 14; ear 13.

Skull: greatest length (c.) 19.5; nasals 7.5; interorbital breadth 4; front of incisors to back of m^3 9.7; palatal foramina 4.5; upper molar series 3.7.

Hab. and *Type* as above.

"Found dead on native trail with throat cut."—W. P. L.

This represents the most northern occurrence of the genus *Steatomys*, although on the west side of Africa it ranges nearly as far—to Kano, Nigeria. The species would seem to be nearly allied to *S. cuppedius*, unless the peculiar white coloration of the

* Alveolar lengths—*buchanani* 3.7, *braueri* 3.2–3.4 (Wettstein 3.5).

upper incisors is a normal character, a point which can only be settled on the arrival of further specimens.

[The description of the following *Steatomys*, distinguished and labelled some years ago, seems accidentally never to have been published:—

Steatomys gazellæ, sp. n.

A large species, with large bullæ and very large molars.

General colour above dark wood-brown, darker than in most species. Under surface white, but only along a narrower area than usual. Ears dark brown, without postaural whitish patch. Hands and feet dull whitish.

Skull of about the same large size as in *pratensis* and *caurinus*, but the bullæ larger than in either, and the molars very much larger. Palatal foramina long, widely open.

Dimensions of the type (measured on the skin):—

Head and body (c.) 100 mm.; tail 52; hind foot 18.5.

Skull: greatest length 26 mm.; condylo-incisive length 24.5; palatilar length 12.2; palatal foramina 5.4×2.4 ; bulla 6.3; upper molar series 4.7.

Hab. Bahr-el-Ghazal; type from Tamburas.

Type. Adult male. B.M. No. 5.10.7.4. Collected and presented by Maj. H. Bray.

Readily distinguishable by its large size and very large molars.]

44. RATTUS (MASTOMYS) MACROLEPIS Sund.

♂. 453, 471, 505. ♀. 452, 472, 496, 497, 500. El Fasher.

♂. 510, 518, 519. ♀. 511, 512, 514, 515, 532, 533, 534, 535, 536, 538, 540, 1021, 1022, 1026, 1033, 1034, 1035. N.E. Jebel Marra. 5500'.

♂. 542. ♀. 543, 1023, 1027. N.W. Jebel Marra. 6000'.

♂. 637, 668, 703, 704. ♀. 634, 635, 636, 640, 646, 650, 651, 652, 654, 659, 662, 667, 669, 701, 702. Foot-hills, S. Jebel Marra. 4000'.

♂. 970. ♀. 962, 972. S.E. Jebel Marra. 8000'.

♂. 621, 623. ♀. 622. S.W. Jebel Marra. 6650'.

♂. 554, 561. ♀. 551, 555, 556, 558. Niurmya, Central Jebel Marra. 7100'.

♂. 619, 710, 713, 719. ♀. 546, 547, 579, 580, 613, 714, 715, 716, 717, 964. Central Jebel Marra. 5000'–7900'.

♂. 724, 940, 947, 956. ♀. 723, 756, 938, 952, 961. Zalingei. 3300'.

♂. 634, 763, 769, 776, 778, 782, 785, 786, 787, 789, 792, 797, 798, 805, 806, 810, 812, 813, 816, 822, 825, 831, 835, 838, 839, 840, 842, 851, 863, 867, 868, 871, 912.

♀. 730, 731, 732, 761, 764, 772, 775, 780, 790, 793, 815, 821, 828, 841, 845, 858, 870, 901, 921. Kulme, Wadi Aribo. 3300'.

♀. 1182. Nahud, Kordofan.

♂. 1203. ♀. 1204. Abu Heraz, Kordofan.

A very fine series of these difficult field-mice, which will be of great use when a closer study can be made of the group. There is considerable variation in size among them, and perhaps more than one form is included.

The two members of the subgenus *Mastomys* in this region are respectively this wild-living form, more or less rufous, with a white or whitish sharply defined underside, and a house-haunting race, dark smoky grey, with little-defined dull greyish-buffy belly—indeed, corresponding closely in colour to house-haunting *Mus musculus*. A co-type of Sundevall's *Mus macrolepis* in the British Museum (No. 46. 6. 2. 58) certainly agrees more with the former than the latter, and we have therefore used that name for the species. We also consider that Wagner's *Mus limbatus* should be placed as a synonym of it.

45. *RATTUS* (*MASTOMYS*)—*ugandæ* group.

♂. 779, 866, 898, 899, 900, 904, 908, 913, 916, 917, 924.
♀. 780, 843, 853, 895, 897, 902, 905, 910, 925, 927. Kulme, Wadi Aribu. 3300'.

♂. 513, 643, 1017, 1030, 1031. ♀. 1016, 1018, 1024, 1028. Jebel Marra at various altitudes.

♂. 879. ♀. 938, 953. Zalingei. 2800'.

The house-haunting members of *Mastomys* are very much alike all over Northern Africa, and may even be all of one species. For the present, however, we do not venture to give an exact determination of these specimens.

46. *ACOMYS* *WITHERBYI* de Wint.

♂. 420, 428, 448, 477, 1059, 1138, 1142, 1177. ♀. 421, 429, 430, 431, 432, 433, 437, 438, 449, 455, 1070, 1076, 1093, 1125, 1139, 1140, 1143, 1145. El Fasher and neighbourhood.

♀. 1036. Kurra, Jebel Marra. 5200'.

♂. 606. Niurmeya, Central Jebel Marra. 7100'.

♀. 1121. Near Togato Hills.

♂. 407, 1184. ♀. 1119, 1183. Neighbourhood of Nahud.

♂. 403, 405, 1190, 1195, 1196. ♀. 1191. El Obeid and neighbourhood.

♂. 1020. N.E. Jebel Marra. 6500'.

♂. 1096, 1099, 1100, 1107, 1108, 1115, 1116, 1117, 1118.

♀. 1097, 1101, 1103, 1109, 1111, 1113. Jebel Maidob. 2700'.

47. *ARVICANTHIS* *TESTICULARIS* Sund.

♂. 1021, 1042, 1044, 1045, 1046, 1050, 1051, 1052, 1053, 1054, 1055, 1057, 1066. ♀. 434, 439, 440, 442, 454, 1039, 1040, 1041, 1043, 1047, 1048, 1049, 1056, 1074. El Fasher.

♂. 1067, 1072, 1075. ♀. 1073. 35 miles N. of El Fasher.

♂. 630, 664. ♀. 629, 697, 709. South Jebel Marra.

♀. 562. Niurmya, Central Jebel Marra.

♀. 517, 1025. N. Jebel Marra.

♂. 720, 741, 742, 935, 942, 962. ♀. 725, 727, 936, 947.
Zalingei.

♂. 768, 833, 896. ♀. 767, 884. Kulme, Wadi Aribo.

♂. 1110, 1120. Jebel Maidob.

♀. 1205. El Obeid, Kordofan.

48. *LEMNISCOMYS DUNNI* THOS.

♂. 1158, 1170. ♀. 435, 441. El Fasher.

♂. 1009, 1029. ♀. 541. Jebel Marra. 5200'–7700'.

♀. 1162, 1163, 1164, 1167. Um Kedada.

Fully agreeing with the type, which was obtained by Col. Dunn in the Kaga Hills in 1902. The species is apparently common on the plains of Darfur including the lower slopes of Jebel Marra, while it is replaced higher up on that mountain by *L. lynesi*.

Nearly related to it is the following form from the Nuba region of Southern Kordofan:—

LEMNISCOMYS DUNNI NUBALIS, sp. n.

Similar in essential characters, in size and spininess of form, to true *dunni*, but the colour throughout much intensified, the stripes and other parts, which in *dunni* are pale buffy, very strong and rich buffy, almost ochraceous. Ears very deep buffy. Under surface buffy laterally instead of white.

Skull as in *dunni*.

Dimensions of type:—

Head and body 103 mm.; tail 130; hind foot 24; ear 14.

Skull: greatest length 29.5; condylo-incisive length 26.7; bulla 6; upper molar series 5.

Hab. Nuba Country, Southern Kordofan. Type from Talodi. 1300'.

Type. Adult female. B.M. No. 18.7.2.14. Original number 5. Collected 21 February, 1917, and presented by Maj. C. Graham. Three specimens.

Lemniscomys zebra Heugl., of which Thomas has examined the type, has a wholly white underside, and is clearly a member of the other group of this genus, with much darker-coloured fur and smaller bullæ. To this latter group the next species belongs.

49. *LEMNISCOMYS LYNESI*, sp. n.

♂. 617, 690, 967. ♀. 563, 590, 598, 691, 968, 1003, 1006, 1011. Jebel Marra, at altitudes from 7700' to 9750', and to the crater.

A dark species with comparatively long soft fur.

Size fairly large. Fur comparatively long, and much softer and more spineless than in any allied species. General colour

dark, the light lines dull whitish, with a distinct tendency to break into spots. Under surface buffy whitish, the bases of the hairs broadly slaty, except on the chin. Ears dull ochraceous, a richer ochraceous tuft at their anterior base. Hands and feet dull buffy whitish. Tail black above, dull buffy whitish below.

Skull with distinctly smaller bullæ than in *L. dunni*.

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

Head and body 112 mm.; tail 125; hind foot 25; ear 17.

Skull: greatest length 29; condylo-incisive length 26.6; palatal foramina 5.1; bulla 5; upper molar series 5.3.

Hab. Jebel Marra, at various altitudes, from 7000' upwards to the crater. Type from Central Jebel Marra on western slope, 8000'.

Type. Adult male. B.M. No. 23.1.1.313. Original number 617. Collected March 22, 1921.

This distinct mountain species is readily distinguished by its comparatively long soft fur, which is practically without spines, in marked contrast with both *L. dunni* and *zebra*. Also by the slaty bases to its belly-hairs and by its small bullæ.

On freshly-killed specimens the attention of both collectors was specially attracted to this animal by the greenish iridescent sheen on its fur, though, as with so many mammals, this sheen fades away in the dried skin.

We have much pleasure in naming this well-marked species in honour of Admiral Lynes, to whose enthusiasm and scientific spirit the National Museum owes the present magnificent accession to its collections.

50. GRAMMOMYS ARIDULUS, sp. n.

♂. 826. Kulme, Wadi Aribo. 3300'.

An unusually pallid, desert-coloured species.

General colour of dorsal surface dull ochraceous lined with dark brown, brightest and clearest upon the flanks and rump. At the rump the tint is near Ridgway's "ochraceous-tawny." Top of head and nape duller and greyish. Region between eye and ear on each side grey. A small white patch behind each ear. Ears bright ochraceous tawny within and without, save for a marginal band of dark reddish brown extending from the base of the proectote to the tip of the ear. Underparts cream, in sharp contrast with flanks. Outer surface of forearms and upper surfaces of hands and feet cream-buff. Tail bicolored, dusky above, whitish below.

Skull most nearly resembling that of *G. buntingi*, described from Liberia, in form, but distinguished chiefly by its larger bullæ and heavier molars.

Dimensions (measured in the flesh):—

Head and body 115 mm.; tail 175; hind foot 24; ear 18.

Skull: condylo-incisive length 26.6; extreme length 29.4;

zygomatic breadth 14.4; interorbital construction 4.3; cranial width 12.8; dental length 13.5; cheek-teeth (crowns) 4.2.

Type. Old male. B.M. No. 23.1.1.324. Original number 826. Collected July 22, 1922, at Kulme, Wadi Aribo, Darfur. Altitude 3300'.

Hab. as above.

This is a very well-marked species distinguished by its bright coloration from all forms previously described. In outward appearance it is perhaps more like *G. s. elgonis* than any other, while in skull it resembles the outwardly very different *G. buntingi*.

51. *LEGGADA TENELLA* Thos.

♂. 400. 30 miles W. of El Obeid.

♂. 627. ♀. 628. Foot-hills, S.W. Jebel Marra. 4500'.

♂. 712, 718. South Central Jebel Marra. 4000'.

♂. 599. Central Jebel Marra. 9750'.

♀. 587. Niurmya, Central Jebel Marra. 7150'.

♂. 695, 818, 824. ♀. 903. Kulme, Wadi Aribo. 3300'.

52. *JACULUS GORDONI* Thos.

♀. 14. Near El Fasher. 2600'. May 1920 (20.7.30.17).

Incisor-bulla length 35.0 mm.

53. *JACULUS JACULUS* Linn.

♂. 1135. 55 miles N.E. of El Fasher.

While it is not unnatural that the Kordofan *J. gordonii* should be found in Darfur, the capture of this specimen, clearly referable to *J. jaculus*, so close to where the same collector found the first-named species in 1920, is worthy of note. Moreover, within the species *J. jaculus*, it has not the warm colour of the Khartoum *J. j. butleri*, but is very similar to the more buffy *J. j. jaculus*, which therefore would seem to range along the deserts to the west of the Nile as far south as Darfur. The nearest previous record for this form is Dongola.

54. *LEPUS HAWKERI* Thos.

♀. 1198. 50 miles W. of El Obeid.

♂. 410. 70 miles W. of Nahud.

♀. 422. 75 miles E. of El Fasher.

♂. 721, 736, 747, 757, 951. ♀. 737, 748. Zalingei, Darfur. 2800'–3000'.

♂. 692. ♀. 632. Foot-hills, S. of Jebel Marra. 4000'.

♀. 1014 juv. Niarmya, Jebel Marra. 7000'.

♂. 696. Deriba Lakes, Jebel Marra. 7400'.

♀. 977. Jebel Marra. 9500'.

♀. 765 juv., 808. ?sex. 796 juv. Kulme, Wadi Aribo. 3300'.

These agree very well with the type of *L. hawkeri*, described from Kaka, Sudan. *L. hawkeri* would seem to be the representative of *isabellinus* ("æthiopicus") in the open country west of the Nile.

55. PHACOCOERUS ÆTHIOPICUS subsp.

♂. 800. Kulme, Wadi Aribo. 3300'.

♀. 728 juv., skull only. Kulme, Wadi Aribo, 3300'.

Not improbably referable to *P. æthiopicus fossor* Schwarz., described from the Bagirmi District.

56. ALCELAPHUS LELWEL TSCHADENSIS Schwarz.

♂. 760. Kulme, Wadi Aribo. 3300'.

♂. 777, skull and head-skin only. Kulme, Wadi Aribo. 3300'.

♂. 856. Kulme, Wadi Aribo. "Skull, tail, and fore and hind legs only—the latter to show the black markings, which are unusually pronounced for these parts. Chin always black."

57. SYLVICAPRA GRIMMIA PALLIDIOR Schwarz.

♂. 644, 638. Foot-hills, S. Jebel Marra. 4000'. "Tolerably common on dry stony hill-sides."

♀. 823, 849. Kulme, Wadi Aribo. 3300'.

♀. 752. Zalingei, Darfur, Sudan. 2800'. "Native name 'Digi-dig.'"

A very distinct form, of which we have had no satisfactory material previously. Characterized by its pale colour and large size.

58. OUREBIA OUREBI SPLENDIDA Schwarz.

♂. 852. ♀. 791. Kulme, Wadi Aribo. 3300'.

"Found very sparingly in wooded country. Native name, 'Gazella amma.'"

The female captured on July 2 contained a well-developed foetus.

As the collectors noted, the female differs from the male in having a dark patch on the head.

59. GAZELLA RUFIFRONS Gray.

♀. 589. Central Jebel Marra. 10,000'. "Shot from a lot of 5 on plateau."

♂. 811. Kulme, Wadi Aribo. 3300'.

♂. 1181. Head only. 205 miles E. of El Fasher. "Rarely seen here and further E. along the road."

We are not at present prepared to determine this material subspecifically.

60. GAZELLA DORCAS Linn.

- ♂. 1058. 10 miles N. of El Fasher. Horns $11\frac{3}{4}$ ".
 ♂. 1094, 1095. 150 miles N.E. of El Fasher.
 ♂. 1147, skull only. 19 miles N. of El Fasher.
 ♂. 469. ♀. 470. Skulls only. 35 miles E. of El Fasher.
 ♀. 427. 10 miles E. of El Fasher.
 ♀. 1149, 1150. Near El Fasher.
 ♀. 915, no skin. Wadi Aribu.

61. PROCAVIA RUFICEPS H. & E.

- ♂. 1065. ♀. 1063, 1064. 35 miles N. of El Fasher.
 ♀. 1131. 60 miles N.E. of El Fasher.
 ♀. 773, 819. Kulme, Wadi Aribu.
 ♂. 957, 958. ♀. 880, 959, 960. Zalingei.
 ♂. 1098. Jebel Maidob.

Native name, "Bogos."

62. PROCAVIA RUFICEPS MARRENSIS, subsp. n.

- ♂. 665. ♀. 670. Foot-hills of Jebel Marra. 4000'.
 ♂. 552, 559, 516, 1012. ♀. 553, 566, 608. Jebel Marra.
 7100'.
 ♂. 527. ♀. 526, 528. Jebel Owi, N.E. Jebel Marra.
 6500'.

Rather larger on the average than true *ruficeps*; the fur longer, the colour darker, and the dorsal patch less conspicuous, more overlaid with the dark ends to the dorsal hairs. General colour approximating to "Saccardo's umber," but often darker, and always darker than the average in true *ruficeps*. Nape dark brown, like the crown. Hairs of back broadly tipped with blackish brown in a specimen in good pelage. Hind back and rump and the thighs dark brown. Under surface dull buffy, darker than in *ruficeps*.

Skull averaging larger than in *ruficeps*.

Dimensions of type (measured in the flesh):—

Head and body 504 mm.; hind foot 71; ear 30.

Skull: condylo-basal length 91.5; zygomatic breadth 55; front of p^1 to back of m^3 (teeth much worn) 33.

Hab. Jebel Marra. Type from the central part of the mountain at 7100'.

Type. Old male. B.M. No. 23.1.1.486. Original number 616. Collected March 19, 1921.

This is a dark mountain race of the widely spread *P. ruficeps* of the Soudan. It is unusually variable in colour, but certainly averages considerably darker than the Dassie of the plains.



Thomas, Oldfield and Hinton, Martin A. C. 1923. "On the Mammals obtained in Darfur by the Lynes-Lowe Expedition." *Proceedings of the Zoological Society of London* 1923, 247–271. <https://doi.org/10.1111/j.1096-3642.1923.tb02185.x>.

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