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VII.—*New African Mammals of the Genera Glauconycteris, Lutra, Funisciurus, Arvicanthis, Lophiomys, and Procavia.*
By OLDFIELD THOMAS.

Glauconycteris papilio, sp. n.

Allied to *G. variegatus*, Tomes, with which it has hitherto been confounded; but the acquisition by the British Museum of the co-types of that species in the Tomes collection enables me to clear up the confusion.

Size smaller than in *variegatus* (forearm 41 instead of 45). General colour of the ends of the hairs above uniform clay-colour from head to rump, exactly matching the posterior back of *variegatus*, but in the latter the head and shoulders are whitish, the clay-colour being only present posteriorly. Individually the hairs are pale slaty basally, then silvery cream-colour, the tips being pale brownish clay-colour. Under surface uniform cream-buff from chin to anus, the corresponding part of *G. variegatus* being white. Wings and interfemoral membrane variegated as in the allied species. Inner basal lobe of ear rounded.

Skull as in *G. variegatus*, but shorter, while nearly as broad. Inner upper incisors similarly unicuspid; outer minute.

Dimensions of the type (measured in skin):—

Forearm 41 mm.

Third finger, metacarpus 40, first phalanx 15, second phalanx 27; fifth finger, metacarpus 38, first phalanx 9, second phalanx 9; lower leg and foot (c. u.) 27.

Skull: greatest length 13·2; median basal length 10·2; breadth of brain-case 8·2; front of canine to back of m^3 5.

Hab. (of type). Entebbi, Uganda. Other specimens from Gambaga, Gold Coast (*Giffard*), and Tette, Zambesi (*Boyd Alexander*).

Type. B.M. no. 99. 8. 4. 14. Collected 10th April, 1895, and presented by F. J. Jackson, Esq.

Mr. Tomes's collection contains six specimens of "*Scotophilus variegatus*," among which two labelled in his handwriting can be identified as those of which he gave the dimensions in his original description*. Dobson's statement that the type of this species was in the Berlin Museum was therefore erroneous.

The beautiful "butterfly-bat" now described has been

* P. Z. S. 1891, p. 26.

hitherto considered by de Winton * and myself as *G. variegatus*, but it may be readily distinguished by the characters above described.

Lutra capensis Hindei, subsp. n.

Two years ago I described the Abyssinian representative of the large Cape clawless otter (*Lutra capensis*) as a special subspecies under the name of *Lutra c. Meneleki* †.

The British Museum has now received from Dr. S. L. Hinde the skin and skull of an old male otter of this group from Fort Hall, British East Africa, where it had been found drowned in a native fish-net. The specimen was skinned and prepared by Mrs. Hinde, whose scientific enthusiasm in performing so serious a task is worthy of much admiration. The only other East-African otter that I have seen is the skin mentioned by W. L. Sclater ‡, which was taken in the Victoria Nyanza and sent home by Col. Delmé-Radcliffe; but that having no skull is of little help for purposes of comparison.

In external characters the Fort Hall otter agrees more closely with South-African specimens than with that from Abyssinia, as it has the wool-hairs of the body broadly tipped with brown as in the former animal, while in the latter they are nearly wholly white. Throughout it is a dark form, the throat less white than in most members of the group, and the dark patches at the bases of the whiskers unusually well marked. Ears entirely brown, without white edging.

The skull is remarkably small as compared with that of either the Abyssinian or Cape forms, and on this account I think it necessary to give a special name to the animal, calling it *Lutra capensis Hindei*. The difference may be seen on a comparison of the measurements now given with those of the type of *L. c. Meneleki*.

The forehead is narrow, the postorbital processes little developed, although the individual is an old one with much worn teeth, and the cranial ridges comparatively low. Nasal opening shaped as in *Meneleki*, but much smaller. The teeth are of the usual character, but the upper molar is not so large in area or so produced postero-internally as it is in *Meneleki*.

The following are the dimensions of the skull:—

Basal length 118 mm.; zygomatic breadth 94; mastoid breadth 80; breadth of nasal opening 18; interorbital

* Ann. & Mag. N. H. (6) xx. p. 317 (1897), and (7) iv. p. 351 (1899).

† P. Z. S. 1902, ii. p. 303.

‡ P. Z. S. 1903, i. p. 101.

breadth 29·5; tip to tip of interorbital processes 31·5; interorbital breadth 26·5; palate length (exclusive of median spine) 62·5; breadth of posterior palate 16; antero-posterior diameter of p^1 12·9; greatest diameter of m^1 17·5, antero-posterior diameter of its inner lobe 12·1.

The length of the hind foot (s. u.) is 134 mm.; ear 21.

Hab. Fort Hall, Kenya District, British East Africa.

Type. Old male, B.M. no. 4. 12. 6. 8. Presented by Mrs. S. L. Hinde.

Since the above was written, Mr. F. J. Jackson has presented to the Museum another specimen of this otter, also a male, obtained some years ago on Lake Naivasha. It agrees very closely with Mrs. Hinde's example in colour and size, the basal length of the skull being 116 mm. The nasal opening, however, is narrower and higher, its shape being therefore less constant than might have been expected.

Funisciurus pyrrhopus leonis, subsp. n.

Closely allied to the Gold-Coast *F. p. leucostigma*, Temm., but with the following differences:—Middle of crown and top of muzzle dark olivaceous like the back, the rufous or yellowish which surrounds the eyes not extending across the muzzle as it does in *leucostigma*. Ears larger, conspicuously white behind, the white forming also a prominent postauricular patch behind their posterior bases; in *leucostigma*, although there is some white behind the ears, it is much less conspicuous and less extended. Light lateral band narrower. Flanks a richer rufous than in *leucostigma*; the outer sides of the hips especially rich rufous; in *leucostigma* the sides of the hips are only a dull suffused fulvous. Middle of underside of tail dull and inconspicuous rufous, instead of bright and prominent fulvous or rufous.

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

Head and body 200 mm.; tail 150; hind foot (s. u.) 44; ear 12·5.

Skull: greatest length 49; length of upper tooth-series 9·5.

Hab. Bo, Sierra Leone. Altitude 120 m.

Type. Female. B.M. no. 4. 11. 1. 5. Collected 20th January, 1904, by Mr. Robin Kemp. Two specimens.

It is to be noticed that while the flanks and sides of hips are more rufous than in *leucostigma*, the muzzle and the underside of the tail are less so. The white on and behind the ears is also noticeably more conspicuous.

Arvicanthis setosus, sp. n.

A pale-coloured species without dorsal stripes.

Size medium. Fur long, the ordinary hairs of the back about 11–12 mm. in length, profusely mixed with much longer bristly hairs, averaging 20–22 mm. in length on the rump. General colour pale yellowish grey, the hairs each with a broad buffy yellow subterminal ring, the whole very heavily lined with the black tips to the ordinary hairs. Tips of long setæ of rump buffy yellowish. Under surface greyish white, the bases of the hairs slaty, their tips white; no sharp line of demarcation on sides. Sides of muzzle and orbital rings yellow. Ears yellowish brown. Outer side of limbs like body; inner side thinly haired, but not naked, whitish; upper surface of hands and feet dull buffy white. Tail black above, dull whitish below and on the sides.

Skull of normal size and proportions, the incisors not unusually large. Palatal foramina narrow, little open, reaching just behind the anterior point of m^1 .

Dimensions of the type (measured by the collector):—

Head and body “110” mm. (probably more); tail 112; hind foot 29; ear 17.

Skull: greatest length 32; basilar length 26.3; zygomatic breadth 17; length of nasals 11; interorbital breadth 4.5; breadth of brain-case 14; palate length 14.5; diastema 8; palatal foramina 6.1×1.8 ; length of upper molar series 6.8; breadth of m^1 2.1.

Hab. Fra-Fra Country, Gold Coast Hinterland. Alt. 150 m.

Type. Male. B.M. no. 99. G. 15. 13. Collected 7th February, 1899, and presented by Capt. W. Giffard.

This species is much paler and yellower than *A. rufinus*, the only other W.-African species without dorsal lineation.

Lophiomys testudo, sp. n.

As long ago as 1898 Mr. F. J. Jackson made the first discovery of the remarkable genus *Lophiomys* in East Africa, and presented the specimen which he had captured at the Ravine Station to the National Museum. Being in doubt as to its relationship with the Somali *Lophiomys Smithii*, Rhoads, Mr. de Winton, when working out Mr. Jackson's collection, made no reference to the *Lophiomys*, but afterwards incidentally mentioned it in Anderson's 'Mammals of Egypt'*.

In 1902 Mr. C. S. Betton presented to the Museum two further specimens, which had been captured, the one by himself and the other by Mr. S. Couper, in very much the same region.

A comparison of this material with an Abyssinian example

* P. 291 (1902).

of *L. Imhausi*, and with Mr. Rhoads's description* of *L. Smithii*, convinces me that the E.-African form is quite distinct from the others, and I would propose to call it *Lophiomys testudo*.

Size smaller than in *L. Imhausi*, larger than in *L. Smithii*. Long hairs of back about 65 mm. in length, broadly tipped with white on body, limbs, and tail. Underfur about 45-50 mm. long, as compared to 20 in *L. Smithii*, the length to the base of the black terminal band about 27 mm. Basal third of the underfur dark brown, middle third white, tip black, the contrast between the colours more marked than in *L. Imhausi*. Suborbital white spot well marked. Dark band dividing the frontal from the auricular white patch scarcely perceptible. Inner aspect of ears broadly margined above with white, but the lower half is dark brown, including the base of the outer margin. Hairs of lateral line olive. Under surface hoary grey, not darker along the median line. Upper surface of hands and feet blackish. Tail with its underfur mixed whitish and black, the tip for a length of about half an inch sharply contrasted white.

Skull larger and, especially, markedly broader than in *L. Smithii*. Nasals narrower behind than in front. Interorbital more than half the total frontal breadth. Small key-stone portion of squamosals separating the frontals from the rugose wing of the molars long antero-posteriorly (4.5 mm.), narrow (2 mm.) transversely. A marked angular concavity on the outer side of the maxillary zygomatic process just in front of the anterior angle of the malar. Palatal foramina comparatively short, ending just anterior to the front edge of m^1 .

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

Head and body 296 mm.; tail 176; hind foot 41; ear 29.

Skull: greatest length 58.2; basilar length 47.4; greatest breadth 37.5; nasals, length 20.5, anterior breadth 8.8, posterior breadth 7.5; interorbital breadth 13.5; greatest frontal breadth 24.2; palate length 2.7; diastema 15.1; palatal foramina 9.3×4.3 ; length of upper molar series 12.6.

Hab. (of type). Ravine Station, British East Africa. Mr. Betton's specimens from El Burgon Station and Mile 513 of the Uganda Railway.

Type. Female. B.M. no. 99. 8. 4. 97. Collected 15th March, 1898, and presented by Mr. F. J. Jackson.

This East-African representative of the genus *Lophiomys* differs from its nearest ally, *L. Smithii*, Rhoads, by its longer

* Pr. Ac. Philad. 1896, p. 524.

underfur, much broader skull (37·5 mm. as compared with 31), and shorter palatal foramina, which do not penetrate between the molars.

There is a certain amount of difference between the typical skull obtained by Mr. Jackson and that presented by Mr. Betton in the detailed proportions of the parietals and squamosals and in the form of the anteorbital foramina; but without further specimens it is impossible to express any opinion as to the cause or value of these differences.

Since the above was written Mr. S. L. Hinde has presented to the Museum another specimen of this animal obtained by him on the Abudau Range at an altitude of 10,000 feet. It agrees with the type in all important respects.

Procavia Goslingi, sp. n.

A hypsodont species with an elongate orange-coloured dorsal spot.

Fur rather short, though not harsh; hairs of back about 16–17 mm. in length. General colour above from nape to rump dull sandy yellowish, something between Ridgway's "isabella" and "clay-colour," slightly speckled with black on the posterior back. Basal half of the hairs dark chocolate-brown. Under surface and inner side of limbs dark buffy, the line of demarcation on sides not sharply defined. Head greyish brown ("hair-brown") without yellowish suffusion, conspicuously different from the rest of the upper surface; top of muzzle darker. Ears of medium size, rounded, their outer surface yellowish grey, inconspicuously edged with black anteriorly; inner surface glossy yellowish. Outer side of limbs and upper surface of hands and feet to the hoofs greyish fawn, less suffused with yellow than the back. Dorsal spot narrow, elongate (40 × 7 mm.), its hairs uniformly deep orange from base to tip.

Skull as usual in this group, its general proportions as shown by the measurements.

Dimensions of the type (measured in skin):—

Head and body 450 mm.; hind foot 67.

Skull (stage iii.): basal length 72; greatest breadth 48; nasals 19 × 21·5; diastema 11; breadth of m^1 7·5; height of m^1 7·1.

Hab. Nertang, Yergum Country, Northern Nigeria. Alt. 360 m.

Type. Immature male. Original number 24. Collected 29th June, 1904, and presented by Capt. G. B. Gosling.

Native names: in Yerghum "Chium"; in Hausa, "Rema."
—G. B. Gosling.

This remarkably coloured dassy is quite unlike any species known to me. Its nearest ally is probably *P. Kerstingi*, Matschie*, from E. Togoland, but that has wholly black backs to its ears, and the hairs of its dorsal spot are dark for their basal halves.

VIII.—Eocene Shells from Nigeria.

By R. BULLEN NEWTON, F.G.S.

[Plate V.]

THE names of the shells about to be described in this paper have already been published in list-form by the present writer † in 'The Geographical Journal' for November 1904, accompanied by a digest of the literature bearing upon the paleontology of Nigeria and adjacent territories.

The specimens were collected by Colonel G. S. McD. Elliot, R.E., and Captain Lelean, R.A.M.C., of the Anglo-French Niger-Chad Boundary Commission, at Kalfu-Tamaskie and Garadimi, in Northern Nigeria, and subsequently presented to the Geological Department of the British Museum by those officers.

A few general points of interest connected with these shell-remains are referred to in the following quotation, from the article in 'The Geographical Journal':—

"Some of these specimens are preserved as limestone-casts, among them being several *Lucina*, which I have called *L. cf. Menardi* and *L. cf. pharaonis*, and which represent most probably the forms referred to in Lapparent's papers as *L. cf. gigantea*. All three species, however, are typically Eocene, and have mostly been recorded from Egypt or Southern European countries. The specimens of *Alectryonia cf. Martinsi*, originally described from India by J. de C. Sowerby under the name of *Ostrea orbicularis*, help to support the theory that this ancient sea had an extensive eastward direction in Eocene times. The peculiar Ostreiform genus *Pulsella*

* SB. Ges. Nat. Berl. 1899, p. 59.

† R. Bullen Newton, "A Notice of some Marine Tertiary Fossils from Northern Nigeria, collected by Colonel G. S. McD. Elliot, R.E., and Captain Lelean, R.A.M.C., of the Anglo-French Boundary Commission," The Geographical Journal, 1904, vol. xxiv. pp. 522-524.