

XXX.—*Seven new African Dormice.*

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*Graphiurus crassicaudatus dorotheæ*, subsp. n.

A brownish-red-coloured form allied to and rather larger than *Graphiurus crassicaudatus*, Jenk.

Size and general proportions greater than in *crassicaudatus*. General colour of back a rich rusty brown (between snuff-brown no. 4 and raw umber no. 3, 'Répertoire de Couleurs'); flanks a trifle lighter than back, the rusty-brown tint passing fairly abruptly into the grey colour of the ventral surface. Forehead and sides of face paler and greyer than general colour of back. Hairs of face like those of back, all with grey bases and rusty-brown tips. Dark rings around eyes well marked. Backs of hands and feet dirty white tinted with buff. Under surface of body pale slaty grey, washed with pale buffy white. Tail rather darker in colour than body. Unfortunately the tail of the type specimen is broken, while that of the other specimen sent by Mr. Talbot and referable to this new form is of the regenerated kind and therefore useless for comparative purposes. The basal portion of the tail of the type specimen appears to be rather more of the distichous than the bushy kind, and therefore markedly different from the *murinus* group, in which the tail is always bushy. There is not sufficient evidence to show whether the tail is really as distichous as that of *G. hueti*, but the arrangement of the hairs on the basal portion of the tail seems to indicate a much more distichous condition than is found in any of the "*murinus*" group. The closely allied form, *crassicaudatus*, probably has a similar semi- or wholly distichous tail, but here, again, the type and only known specimen possesses a regenerated club-shaped tail.

Skull presenting the same unusual characters as exhibited in *crassicaudatus*. The skulls of these two forms are so unlike all the other small and medium-sized *Graphiurus* that a note as to their chief characters may not be out of place here. Brain-case unusually broad, both in the squamosal and occipital regions; interorbital breadth much greater than in the "*murinus*" group. Nasals narrow and parallel-sided, not expanded anteriorly, a very marked departure from the usual form of *Graphiurus* nasals, which are



considerably broader in front than behind. Palatal region excessively broad. Auditory bullæ smaller and flatter than usual. Incisor teeth slanting slightly forward, a most exceptional feature, the incisors in this genus being, as a rule, set in a vertical or slightly recurved position. Molar teeth comparatively large. The skulls of *crassicaudatus* and this new form would appear to have many points in common, the difference in size not being nearly so well marked as in the skin-dimensions. On this account, it seems best to consider the colour and size differences as of subspecific value and to regard this Nigerian dormouse as a geographical race of *crassicaudatus*.

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

Head and body 89 mm.; tail 45\*; hind foot 17; ear 12.

Skull: greatest length 27·5; basilar length 20·8; condylo-basilar length 23·5; condylo-incisive length 25; zygomatic breadth 16; interorbital constriction 5·5; squamosal breadth of brain-case 13; occipital breadth of brain-case 12; length of nasals 9; greatest width of nasals 2·7; palatilar length 10; width of palate (inside  $m^1$ ) 3·3; width across palate (outside  $m^1$ ) 6·2; length of palatal foramina 2·7; postpalatal length 11; length of upper tooth-row 4·2.

*Hab.* Oban District, Southern Nigeria.

*Type.* Adult female. B.M. no. 12. 1. 12. 1. Original number 61. Collected and presented to the British Museum by P. A. Talbot, Esq.

This Nigerian dormouse appears closely allied to the Liberian *crassicaudatus*, and, at present, represents the eastern limit of that group. The cranial characters exhibited by these two forms are quite unlike those found in the "*murinus*" group, and the only approach to these conditions is found in the large *Graphiurus hueti*, which agrees with the *crassicaudatus* group as regards the broad cranial and interorbital regions and the narrow parallel-sided nasals. These cranial characters considered together with the question of the distichous tail appear to justify the conclusion that the *crassicaudatus* group are diminutive allies of the large West-African dormice belonging to the *hueti* group.

This handsome new form is named after Mrs. Talbot; it forms a most worthy addition to the long list of new and rare Nigerian mammals collected by Mr. Talbot and presented by him to the National Collection.

\* Broken.



*Graphiurus surdus*, sp. n.

A small-eared species allied to *murinus*.

Size of body a trifle less than in *murinus*; hind foot large; ears remarkably small, about 5 mm. shorter than those of the South-African species. Fur rather short and thick; hairs on back measuring about 7 or 8 mm. in length. General colour of upper surface of body greyish brown. Individual hairs of back slate-grey with light brownish tips. Flanks similar in colour to back. Muzzle and face between eyes paler and yellower than rest of upper surface. Eyes surrounded with dark rings; dark markings on muzzle, in front of eyes, very indistinct. Sides of face, below eyes, white; hairs grey with long white tips. Upper lip covered with short white hairs. Backs of hands and feet yellowish white. Under surface of body greyish white, tinged with buff; hairs of belly with dark grey bases and white tips. Chin and lower lip, as usual in this genus, covered with short white hairs. Tail cylindrical and rather less bushy than in *murinus*; hairs of tip about 22 mm. in length; upper side of tail similar in colour to back, lower surface rather greyer.

Skull markedly different from that of any other known form, the occipital part of the brain-case broad and almost rectangular in shape, giving the skull a very unusual appearance. Nasals broad anteriorly. Auditory bullæ rather flat. Cheek-teeth comparatively small.

Dimensions of the type (measured from spirit-specimen):—

Head and body 87 mm.; tail 67; hind foot 19; ear 9.

Skull: greatest length 28; basal length 23·5; condylo-basal length 25·8; basilar length 21; condylo-basilar length 23·5; condylo-incisive length 25·3; zygomatic breadth 15; interorbital constriction 4·5; squamosal breadth of brain-case 13; occipital breadth 12·4; greatest length of nasals 11·4; greatest breadth across nasals 3·5; least breadth across nasals 1·8; palatal length 11·8; palatilar length 9·5; width of palate (inside *m*<sup>1</sup>) 3·5; width across palate (outside *m*<sup>1</sup>) 5·5; length of palatal foramina 3; postpalatal length 12·3; length of upper tooth-row 3.

*Hab.* Benito River, French Congo.

*Type.* Adult female. B.M. no. 0.2.5.55. Collected by Mr. G. L. Bates in July 1899.

The small ears, large hind feet, and unusual shape of the occipital region immediately distinguish this dormouse from all the other allied forms.

Mr. Bates collected four specimens of this interesting



species, all at the type locality, and as the specimens are preserved in spirit, the true colour of *surdus* cannot be described with certainty; it appears to have been very much like that of the South African *murinus*, judging by the similarity between alcoholic specimens of each species.

*Graphiurus spurrelli*, sp. n.

Allied to *G. lorrainus*, Dollm., but paler in colour and with smaller teeth.

Size of body greater than in *lorrainus*; hind foot larger. General colour of back very much paler and less rufous than in *lorrainus*, more like the olive tint of *microtis*, but washed with pale brown (otter-brown no. 3 mixed with chocolate no. 1, 'Répertoire,' represents the general colour of the dorsal surface). Hairs of back with slaty black bases and olive-brown tips. Flanks paler and yellower than back. Muzzle lighter and greyer than rest of dorsal surface. Dark rings around eyes faintly developed; dark markings on sides of muzzle in front of eyes practically absent. Cheeks white, hairs with slate-grey bases and whitish tips. Backs of hands and feet dirty white. Ventral surface of body slate-grey washed with white, less buffy than in *lorrainus*. Tail fairly long, about like that of *microtis saturatus*; in colour pale liver-brown, above and below.

Skull rather larger than that of *lorrainus*, with a narrower interorbital region. Nasals broader anteriorly. Cheek-teeth smaller and narrower.

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

Head and body 100 mm.\*; tail 75\*; hind foot 18; ear 14.

Skull: greatest length 27.5; basilar length 20.5; condylo-basilar length 22.5; condylo-incisive length 24; zygomatic breadth 15; interorbital constriction 4.7; squamosal breadth of brain-case 12.3; greatest occipital breadth 11.3; length of nasals 10; greatest anterior width of nasals 4; palatilar length 8.9; breadth of palate (inside  $m^1$ ) 3.7; width across palate (outside  $m^1$ ) 5.9; length of palatal foramina 2.9; length of upper cheek-teeth 2.9.

*Hab.* Bibianaha, 60 miles west of Kumasi, Gold Coast Colony.

*Type.* Adult female. B.M. no. 10.4.13.2. Collected by Dr. H. G. F. Spurrell and presented by him to the British Museum.

\* Measured from dry skin.



This species is distinguished from the allied form *lorrainensis* by its larger size, paler colour, and smaller teeth. There are in the Museum collection five further specimens referable to *Graphiurus spurrelli*, four collected by Dr. Spurrell at the type locality and one from Sierra Leone.

It is with pleasure that I associate this new species with the name of Dr. Spurrell, to whom Zoology is already indebted for the discovery of many new and interesting West-African Mammalia.

*Graphiurus hædulus*, sp. n.

A rather small yellowish-olive-coloured species, probably allied to *Graphiurus spurrelli*, described above.

Skin-dimensions not markedly different from those of the Gold Coast species. General colour of back bright yellowish olive (olive-brown washed with cinnamon no. 1, 'Répertoire'), like that of *microtis* but purer and yellower in colour. Hairs of back with slaty grey bases, buffy subterminal rings, and brownish tips. Flanks washed with yellowish buff, the buff colour sharply defined against the white of the ventral surface. Muzzle and head similar in colour to back. Dark ocular rings and markings on sides of muzzle rather better defined than in *spurrelli*. Cheeks pure white; hairs with grey bases and white tips. Backs of hands and feet white. Entire underparts dark slate-grey washed over with pure white. Tail like that of *spurrelli* in colour; in general form the tail of this specimen, although apparently of the bushy kind, exhibits a distinct tendency to become distichous.

Skull smaller than that of *spurrelli*, but with larger cheek-teeth.

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

Head and body 88 mm.; tail 70; hind foot 18; ear 12.

Skull: greatest length 24.9; basilar length 19; condylo-basilar length 21.2; zygomatic breadth 14.9; interorbital constriction 4.3; squamosal breadth of brain-case 12; occipital breadth 10; length of nasals 9.5; greatest anterior breadth across nasals 3.1; palatal length 10.1; width of palate (inside  $m^1$ ) 3.4; width across palate (outside  $m^1$ ) 5.7; length of palatal foramina 2.7; postpalatal length 10.4; length of upper tooth-row 3.3.

*Hab.* Assobam, Bumba River, Cameroons. Altitude 2000 feet.

*Type.* Adult male. B.M. no. 9.10.2.21. Original number D. 28. Collected by Mr. G. L. Bates on December 15th, 1908.



The colour of this species is so unlike that of all the other West-African forms that it is readily distinguished from its near allies. In addition to these colour-differences the cranial and dental characters serve to distinguish this Cameroon species from the Gold Coast dormouse, *Graphiurus spurrelli*.

*Graphiurus ansorgei*, sp. n.

Allied to *G. murinus*, Desm., lighter in colour and with no dark markings on sides of muzzle.

Size and general proportions rather less than in *murinus*. Fur quite similar to that of the other medium-sized *Graphiurus*. General colour of upper surface light ashy grey (between ashy grey no. 1 and smoke-grey no. 1, 'Répertoire de Couleurs'). Individual hairs of back dark slaty grey with long light greyish tips; a number of longer hairs, with rather darker tips, evenly scattered over the whole of the dorsal surface. Flanks similar in colour to back, the grey tint gradually fading into the whitish colour of the ventral surface. Face and top of head rather lighter than back. Eyes surrounded with narrow blackish-brown rings. No dark marks on sides of muzzle, in front of eyes, such as occur in *murinus* and the allied forms. Cheeks white; hairs dark slate-coloured with long white tips. Backs of hands and feet white. Under parts of body slate-grey, overlaid with white. Tail similar to that of *murinus*, rather lighter in colour and with the extreme tip whitish, but not to such a marked extent as in the Tanganyika species, *G. microtis*, Noack.

Skull smaller than that of *murinus*, in general dimensions more resembling that of *griselda*, but not having the pre-maxillæ prolonged back beyond the nasals. Nasals fairly long, intermediate in length between those of *murinus* and *griselda*. Cheek-teeth rather small.

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

Head and body 90 mm.; tail 90; hind foot 16; ear 15.

Skull: greatest length 26; basal length 22.6; condylo-basal length 24.7; basilar length 20; condylo-basilar length 22; zygomatic breadth 14.4; interorbital constriction 4; squamosal breadth of cranium 11.6; greatest length of nasals 10; greatest breadth across nasals 3.2; palatal length 10.7; palatilar length 8.1; width of palate (inside  $m^1$ ) 3; width across palate (outside  $m^1$ ) 5; length of palatal foramina 3.3; postpalatal length 11.8; length of upper molar series 3.

*Hab.* Tala Kilau, Dongwenna, Mossamedes, South Angola. Altitude 3000 feet.



*Type.* Adult female. B.M. no. 9. 10. 1. 60. Original number 20. Collected by Dr. W. J. Ansorge on March 30th, 1906.

The pale ashy-grey colour of the fur and entire absence of dark markings on the muzzle, together with the general cranial characters noted above, readily distinguish this Angolan dormouse from *G. murinus* and the allied forms. In general colour, *ansorgei* approximates to the pale coloration of the Kalahari species, *G. woosnami*; the two forms, however, do not in any way appear to be closely allied, *woosnami* being a much larger animal with a different form of skull. *G. kelleni*, described by Reuvens from Damara Land, would appear to be much darker in colour and smaller in size than this new Angolan species.

*Graphiurus brockmani internus*, subsp. n.

About equal in size to *G. brockmani*, Dollm., darker in colour and with ocular rings and dark markings on muzzle more evident.

General proportions as in *brockmani*. Fur rather harsher, the hairs all comparatively short. Colour of back much as in *microtis* but rather less yellow, the whole back suffused with a brownish tint, the general effect resembling that met with in *microtis saturatus*, but paler and less slate-coloured (near smoke-grey no. 4 mixed with snuff-brown no. 1, 'Répertoire'). Hairs of back with slate-grey bases, pale buff subterminal rings, and brownish tips. Flanks more strongly tinted with buff than rest of dorsal surface, sharply contrasting with the white under surface, the contrast rather more marked than in *brockmani* owing to the darker colour of the flanks. Face and nasal region lighter than rest of upper parts. Dark ocular rings more in evidence than in the Somali form; dark markings on sides of muzzle fairly well defined, but not to such a marked extent as in *microtis saturatus*. Cheeks white; hairs, as in *brockmani*, white almost to roots. Sides of neck below ears white; hairs white with greyish bases. Backs of hands and feet white. Entire under parts white, faintly tinted with pale buff; hairs of belly with slate-grey bases and whitish tips. Tail about as in *brockmani*, rather darker in colour, especially on the ventral surface.

Skull very like that of *brockmani*.

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

Head and body 86 mm.; tail broken\*; hind foot 15; ear 14.

\* Tail in another specimen from Eusso Nyiro given as 75 mm. in length.



Skull: greatest length 24.9; basilar length 18.5; condylo-basilar length 20.7; condylo-incisive length 22; zygomatic breadth 13.5; interorbital constriction 4; squamosal breadth of brain-case 11.8; greatest occipital breadth 11; length of nasals 9; greatest anterior breadth of nasals 3.3; palatilar length 7.5; width of palate (inside  $m^1$ ) 2.9; width across palate (outside  $m^1$ ) 5.1; length of palatal foramina 3; postpalatal length 11.2; length of upper cheek-teeth 3.

*Hab.* Nyama Nyango, Eusso Nyiro, British East Africa. Altitude 3200 feet.

*Type.* Adult female. Original number 195. Collected on February 1st, 1911, by Mr. A. Blaney Percival.

In addition to the type Mr. Percival obtained four further specimens of this new dormouse—three from the type locality, and one from the Mara River. It is interesting to find a close ally of the Somali *Graphiurus* extending into British East Africa; the dormice collected by Mr. Percival as far east as Marsabit represented the true British East-African form, *microtis saturatus*, and were in no way related to this new race of *brockmani*.

*Graphiurus butleri*, sp. n.

A light ashy-grey-coloured species about equal in size to *murinus*.

Skin-dimensions fairly large; hind foot large, measuring 17.7 mm. in length. General colour of dorsal surface pale ashy grey (smoke-grey no. 3 tinted with otter-brown no. 1, 'Répertoire'), quite as pale as in *woosnami*, but washed over with a light ash-coloured tint. Hairs of back with slate-grey bases, light buffy-white subterminal rings, and liver-coloured tips, in some cases darkening to brown at the extreme ends of the hairs. Flanks rather more buffy than back; line of demarcation between flanks and light ventral surface irregular and ill-defined. Muzzle and head paler and greyer than back. Dark ocular rings present, but not in any way conspicuous; dark markings on sides of muzzle very faint. Cheeks and sides of neck pure white; hairs all with grey bases and white tips. Backs of hands and feet white. Ventral surface of body pale slate-grey, washed over with white and faintly tinted with a pale cream-coloured wash. Tail pale liver-coloured, lighter below than above. Hairs at distal end tipped with white; this may be an abnormal condition, as the tail appears to be of the regenerated kind and therefore the true tail tip is wanting.

Skull like that of *G. woosnami*, but smaller, possessing



the same flat brain-case and the constricted interorbital region.

Dimensions of the type (measured from the dry skin):—

Head and body 110 mm.; tail 63 \*; hind foot 17.7; ear 14.

Skull: greatest length 28.6; basilar length 22; condylo-basilar length 24; condylo-incisive length 26; zygomatic breadth 15.3; interorbital constriction 4; squamosal breadth of brain-case 11.9; greatest occipital breadth 12.3; greatest length of nasals 11.4; greatest anterior width across nasals 3.9; palatilar length 9; width of palate (inside  $m^1$ ) 3.7; width across palate (outside  $m^1$ ) 5.8; length of palatal foramina 3.7; postpalatal length 13; length of upper tooth-row 3.3.

*Hab.* Jebel Ahmed Aga, Sudan.

*Type.* Adult male. B.M. no. 11. 11. 25. 84. Original number 168. Collected by Mr. A. L. Butler on January 10th, 1910.

This Sudan dormouse is evidently closely related to *G. woosnami*, a species recently founded on a specimen collected by Mr. B. Woosnam in the Kalahari Desert, South Africa.

There is considerable difference in the colour of the two forms, the ashy suffusion which dominates the general greyish tint in *butleri* is almost entirely absent in *woosnami*. In general skin and cranial dimensions *butleri* is conspicuously smaller than the Kalahari species.

Geographically, *G. orobinus*, Wagn., is the nearest relative of Butler's dormouse. *Graphiurus orobinus* is said to come from "Sennaar"; the original description is so incomplete that it is quite impossible to form any definite idea as to the general characters of the species, even supposing it can be referred to this genus. Reuvens was unable to trace the whereabouts of the type and only quotes from Wagner's two descriptions. If *orobinus* is really a *Graphiurus* it would appear to be a darker and smaller species than *butleri*, the hind foot being given as only 10 mm. in length, and therefore it is probably more nearly related to *G. personatus* and the small *parvus* group than to the larger species.

\* Regenerated.





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