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LVI.—*On some new Bornean Mammalia.*
By OLDFIELD THOMAS.

THE British Museum has recently received from Mr. Alfred Everett a further considerable consignment of small mammals from Sarawak and North Borneo, and in working them out in conjunction with others received of late years from the same region the following species prove to need description:—

Cynopterus maculatus, sp. n.

Size very small, the smallest of the genus. Muzzle with its central groove almost obsolete. Ears small, oval, laid forward they barely reach to the posterior corner of the eye; their tip rounded; their outer base with a distinct rounded lobe, as in *C. brachysoma*; their colour black, but with a distinct white or yellowish spot on the centre of their inner margin. Thumb involved in membrane for half its length. Calcar and interfemoral membrane fairly well developed. Tail wholly absent. Palate with about twelve simple ridges, the anterior ones much curved, the posterior two or three directly transverse.

Fur above thinly covering the membranes near the body and the base of the forearm, but not extending on the tibiæ, although the backs of the feet are fairly well clothed.

Colour of fur above sooty grey, paler, with a tinge of

rufous, on the back, darker, almost black, on the head. Below dull uniform grey, paler than the back.

Ground-colour of ears and membranes black, but on all the finger-joints and on the membranes between them there are numerous prominent yellow spots, forming a most obvious and peculiar characteristic. As already noted, there is also one of these spots on the anterior margin of each ear.

Skull with the usual short muzzle of *Cynopterus* and showing no tendency towards that of *Xantharpyia*.

Teeth different in number to those of any other known species, viz.:—I. $\frac{2}{1}$, C. $\frac{1}{1}$, P. $\frac{3}{3}$, M. $\frac{2}{2} \times 2 = 30$.

Inner upper incisors nearly twice the length of the outer ones; canines short, not much exceeding in length the middle premolar. Anterior premolar and last molar both very minute, about equal in section to one of the inner upper incisors. Lower anterior premolar and posterior molar also very small, equal to each other, and about two or three times the size of the corresponding upper teeth.

Dimensions of the type (an adult male in spirit):—

Forearm 41 millim.

Head and body 65; ear from notch 10; thumb (including claw) 16.6; index finger (including claw) 31.5; metacarpal of third finger 30; lower leg 14.5; calcar 4.4; depth of interfemoral in centre 4.

Skull: basal length 20.6; greatest length 23; greatest breadth 15.7; interorbital breadth 5.2; palate length 11.9.

Hab. Sarawak. Coll. A. Everett, June 1892.

This most remarkable little species, of which six specimens were obtained, is distinguished from all others by its extra posterior molars, two instead of four lower incisors, and by the characteristic spotting of the wing-membranes and joints. In other respects, in colour, size, and the absence of a tail, it appears to agree with *C. melanocephalus*, Temm., which Dobson erroneously placed with the tailed species of the genus, and to which it is probably most nearly allied. That species, a native of Java, is as yet only represented by the typical examples in the Leyden Museum, and these are so faded that little stress can be laid on their coloration. At the same time Dr. Jentink has kindly reexamined them at my request, and informs me that all the three skulls in that museum have four lower incisors as usual, that none of them have any trace of the minute extra molars in the upper jaw, and that, so far as he can tell, the wing-membranes are quite without the white spots present in *C. maculatus*.

Tupaia ferruginea longipes, subsp. n.

Hind feet conspicuously longer than in the typical Sumatran form. General colour less ferruginous above, but more so below; the shoulder-streak also, instead of being yellowish or whitish, is rich rufous. Upperside of tail concolorous with the back, instead of being markedly greyer.

Skull and teeth apparently as in the typical subspecies.

Dimensions of the type (a skin):—

Head and body 192 millim.; tail 190; hind foot 48.5.

Hab. N.W. Borneo. Coll. H. Low, 1876.

This long-footed form of *T. ferruginea* has been long known to me, and, as all the further specimens from the same region fully agree with Mr. Low's example, I take the present opportunity of describing it, and am only doubtful whether it should be described as a species or subspecies. The specimen which, on account of its having been the first collected, I have selected as the type, has no exact locality, but others since sent home by Messrs. Hose and Everett show the same elongate feet and define more precisely the range of the subspecies. Thus, there is a skin from Spitang, opposite Labuan (*Everett*), with a hind foot 48 millim. in length, one from Baram (*Hose*) of exactly the same length, and, finally, Mr. Everett has sent a full-grown male in spirit from Sarawak which presents the following dimensions:—Head and body 215 millim., tail 210, hind foot 52.5. The type specimen of *T. ferruginea typica* has a hind foot of only 42 millim., and this length does not appear to be exceeded by any other of our Sumatran or Malaccan examples.

It seems probable that this form represents *T. ferruginea* throughout Sarawak and Northern Borneo, and perhaps over the whole island, as I have seen no Bornean specimens of the usual Sumatran type.

Crocidura (Pachyura) Hosei, sp. n.

Size very small, scarcely exceeding that of the minute Indian species *C. Perotteti*, *Hodgsoni*, &c., and belonging evidently to the same group, which has not hitherto been recorded from the Malay region. Fur close, crisp, and velvety. Colour deep smoky grey, finely grizzled with whitish; belly rather paler; ears, feet, and tail dark brown. Tail very short and slender, closely haired, with a few longish hairs as usual scattered among the shorter ones.

Anterior part of first incisor short and thick; posterior cusp about equal in size to one of the two posterior unicuspidis;

first unicuspid large, its tip reaching the same level as the first incisor and the tip of the large premolar; second and third unicuspids about equal in size, the second slightly longer but slenderer than the third; fourth well developed, its tip just visible externally, and about equal in height to the basal process of the large premolar and about half the height of the third. Anterior lower incisor long and slender, without denticulations; second lower unicuspid just exceeding in height the anterior cusp of the large premolar.

Dimensions of the type (an adult skin):—

Head and body (probably stretched) 59 millim.; tail 20; hind foot 8.6.

Front of $i.^1$ to back of $m.^3$ 6.4; breadth of palate outside $m.^1$ 4.1, inside $m.^1$ 1.6; distance from tip of $i.^1$ to tip of the large premolar 3.1; length of lower tooth-row 5.8.

Hab. Bakong River, Baram, East Sarawak. Coll. Charles Hose, Dec. 1891.

This species is larger than any of the Indian pigmy shrews, while it is far smaller than any other Oriental *Pachyura* as yet described. Its short tail seems also to distinguish it from all its allies.

Mr. Everett has also collected a minute shrew in Sarawak, but it proves to be a true *Crocidura* (*s. s.*), and, judging merely from the description, I do not at present feel justified in distinguishing it from the Javan *C. monticola*, Pet.

Chiropodomys major, sp. n.

Colour and proportions very much as in *Ch. gliroides*, but size conspicuously greater, especially so far as the skull is concerned (see dimensions below). Upper surface fawn, the bases of the hairs slate-coloured; whole of lower surface pure white. Ears large, naked. Tail long, hairy, and pencilled as usual; uniformly brown above and below.

Skull with a flatter profile than in *Ch. gliroides*; anterior palatine foramina very short, ending half their own length in front of the molars. Molars broad and rounded.

Dimensions of the type (an adult female, stuffed):—

Head and body 100 millim.; tail 109; hind foot 21.5; ear from notch 14.

Skull: upper length 30; breadth of brain-case 14; length of nasals 10; interorbital breadth 5.3; interparietal, length 5.2, breadth 10.4; anterior zygoma-root 3.1; palate, length 15.2, breadth outside $m.^1$ 5.8, inside $m.^1$ 3.4; diastema 8.5; anterior palatine foramina 3.8; length of upper molar series 4.4.

Hab. Sadong, Sarawak. Coll. A. R. Wallace, Esq.

A second specimen from the same place agrees with the type in every respect.

Chiropodomys pusillus, sp. n.

Size smaller than in *Ch. gliroides*. Ears and feet decidedly smaller and tail shorter than in that species. Fur crisp, close and velvety. General colour tawny fawn, head and centre of back darker, sides paler, outer sides of arms and legs like back, but the wrists and ankles greyish, a colour which also extends upon the metatarsus; fingers and toes white; under surface from chin to anus pure white; no darker markings on face; ears small, evenly oval, practically naked. Tail but little longer than the head and body combined, uniformly brown above and below, its terminal tuft of hairs of about the same thickness, but less extended and commencing more abruptly than in the allied species.

Skull smaller and rather more delicately built than in the other species and showing even more markedly the roundness, simulating immaturity, characteristic of the genus; supra-orbital bead but slightly developed; anterior palatine foramina very short. Molars small, their structure as usual.

Measurements of the type (skin):—

Head and body 76 millim.; tail 81; hind foot 15·8; heel to front of last foot-pad 7·2; ear from notch 11·5.

Skull: upper length 22·2; breadth of brain-case 11·6; nasals, length 7·2; interorbital breadth 4·2; interparietal, length 4·2, breadth 9·2; anterior zygoma-root 2·1; diastema 6·2; anterior palatine foramina 2·7; combined lengths of $\underline{m.1}$ and $\underline{m.2}$ ($\underline{m.3}$ is unfortunately lost) 2·5; length of lower molar series 3·1.

Hab. Mount Kina Balu, 1000 feet.

This species is founded on the specimen referred by me in 1889* to *Ch. gliroides*, a reference mainly induced by the peculiar rounded and immature appearance of the skull; but this appearance has since proved to be a characteristic of the whole genus, and an examination of the teeth shows that the specimen is after all fairly adult. This being the case, the marked differences in the dimensions of the ears, feet, and tail will readily distinguish it from the older known species.

* P. Z. S. 1889, p. 235.

Mus Margarette, sp. n.

Size, form, and general appearance very much as in *Vandeleuria oleracea*. Whiskers numerous and prominent, black. Ears small, oval, practically naked. Colour, so far as can be made out in a specimen in spirit, deep rufous chestnut, mixed on the back with the grey of the bases of the hairs, but clearing on the sides, where it seems to form a rufous lateral band. Chin, chest, and belly white. Hands and feet also white, but the metapodials with darker median patches. Thumbs prominent, opposable, with a large nail; claws of fingers short and curved. Hallux also opposable, its claw reduced to a minute conical point, not surpassing in length the pad below it; other toes all with their claws very short and curved, and surpassed in length by the prominent terminal pads. Soles naked, with six large rounded pads. Tail very long, slender, finely haired, almost naked; scales very small, averaging about seventeen to the centimetre, their colour a sort of pale greenish grey, the same above as below. Mammæ 1—2=6. Palate-ridges 3—5.

Skull with a very peculiar and noteworthy resemblance to that of *Chiropodomys*, agreeing with that of *Ch. gliroides* so closely that it is not until a close examination is made that the differences become apparent. General proportions short and broad, the brain-case especially broad and rounded. Interorbital space flat, its edges sharply beaded, converging strongly forwards. Interparietal very large, its anterior edge nearly directly transverse, its posterior one boldly bowed out backwards. Anteorbital plate of zygoma not projected forwards at all. Anterior palatine foramina very small and narrow. Molars of very much the rounded shape and general proportions of those of *Chiropodomys*, but their structure as in *Mus*.

Dimensions of the type (an adult female in alcohol):—

Head and body 76 millim.; tail 144; hind foot 19.7; ear, above head 11, from notch 13; length of head 28.

Skull: basal length 21.5; upper length 25.5; zygomatic breadth 13; breadth of brain-case 12.2; nasals, length 7.6; interorbital breadth 4.1; interparietal, length 4.2, breadth 9; anterior zygoma-root 2.3; palate, length 13; diastema 6.8; anterior palatine foramina 3.6; length of upper molar series 3.7.

Hab. Penrisen Hills, Sarawak. Coll. A. Everett, June 1892.

This very remarkable species will no doubt need in the future the erection of a special genus or subgenus for its

reception, and will perhaps prove to be congeneric with *Mus chiropus*, lately described by me*, which also has the molar teeth of *Mus* combined with an opposable hallux and a general *Chiropodomys*- or *Vandeleuria*-like form. Pending further investigation, however, I prefer to do as I did then, and leave the new form in the genus *Mus*.

I have taken the liberty of naming this beautiful little species, which looks as if it would make a most enchanting pet, in honour of Her Highness the Ranee of Sarawak, a lady whose interest in the zoology of that country is scarcely inferior to that of her husband the Rajah.

LVII.—*On a Small Collection of Land-Shells from Palawan and Balabac, Philippine Islands.* By EDGAR A. SMITH.

[Plate XVIII.]

THE British Museum has recently obtained a small collection of land-shells, collected by Mr. A. Everett in Palawan and Balabac. Of the thirteen species it contains five appear to be new. This large proportion of undescribed species is not altogether surprising, as neither of these islands has been thoroughly searched for Mollusca. A list of the known species was given by the Rev. A. H. Cooke in the Proc. Zool. Soc. 1892, pp. 461–463. It comprises the species quoted in the various papers by Hidalgo in the 'Journal de Conchyliologie,' 1887, pp. 36, 37–58, 93–192, 1888, pp. 30–97, and in Dohrn's "Beitrag zur Conchylienfauna des philippinischen Insel Palawan" †.

Including the new *Lagochilus similis* here described fourteen species of land-mollusks have now been recorded from Balabac. The *Amphidromus quadrasi*, although appearing in Mr. Cooke's list, was not previously known from Balabac, but only from a small adjacent island called "Isla de Candaramanes" (*Hidalgo*). Another species from this island quoted by Hidalgo ‡ and not in Mr. Cooke's list of the Balabac shells is *Corasia zamboangæ*, Hombron and Jacquinot.

* Ann. Mus. Genov. (2) x. p. 884 (1891), and p. 935 (1892), pl. xi. figs. 4–7.

† Nachrichtenblatt deutsch. mal. Gesell. 1889, pp. 53–63.

‡ Mem. Acad. Madrid, 1890, vol. xiv. p. 151.