

incurvati, paulo ante medium locati, approximati; margo dorsalis anticus valde declivis, leviter concavus, posticus convexus, area ligamenti angusta. Pagina interna alba, ad marginem crenulata, duplicata; cardo normalis.

Alt. (umbono-marg.) 8, lat. (antero-post.) 9, diam. 6 millim.

*Hab.* Hirado Higen.

Somewhat resembling a small specimen of the Tasmanian *C. Gunni*, Desh., but the ribs are broader, less numerous, and with narrower interstices.

*Felania minor*, sp. n.

Testa cordato-ovata, compressiuscula, paulo altiore quam lata, pallida, nitens, leviter concentrice striata; umbones prominentes, acuti, leviter incurvati; margo dorsalis utrinque valde declivis, lunula nulla, ligamentum parvum. Pagina interna albo irregulariter fasciata, ad marginem lævis; impressiones musculares elongati, linea pallii haud sinuata; cardo dentibus centralibus duobus, unus bifidus in utraque valva, munitus.

Alt.  $4\frac{1}{2}$ , lat. 4 millim.

*Hab.* Hirado Higen.

A shell somewhat resembling *F. sericata*, Reeve, on a small scale.

*Pectunculus mundus*, sp. n.

Testa oblique suborbicularis, depressiuscula, albida, maculis fuscis paucis sæpe angularibus picta, concentrice sulcata, radiatim costata, costis planulatis latiusculis confertissimis, superne subgranulosis, interstitiis angustissimis; umbones prominentes, approximati; area ligamenti brevis, angustissima. Pagina interna obscure radiatim lirata ad marginem crenulata; cardo normalis.

Alt. 11, lat.  $11\frac{1}{2}$  millim.

*Hab.* Hirado Higen.

This pretty little species is allied to *P. pectinatus*, Lamk., and *P. pallium* and *morum*, Reeve. The radiating ribs are peculiarly flat, and the spaces between them very narrow.

XLIX.—Three new Species of Nyctinomus.

By OLDFIELD THOMAS.

*Nyctinomus fulminans*, sp. n.

General characters of *N. africanus*, Dobs., but with whitish belly and conspicuously smaller skull.

Size large, though rather smaller than in *africanus*. Ears  
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large, evenly rounded, rising from the same spot on the muzzle; their anterior edge with four or five minute and inconspicuous warts; their keel moderately developed, not broadened or folded externally; antitragus as in *africanus*; tragus large, quadrangular, with rounded corners; a small angular projection present halfway down its outer margin. Wings to the ankles. Callosity at base of thumb unusually large. No gular sac.

Colour of body above dark chestnut-brown; below brown laterally, the median area of throat, chest, and belly white. Wings and interfemoral membrane above brown, below white, becoming rather browner distally.

Skull smaller and conspicuously narrower than in *N. africanus*. A median crest developed along parietal suture, more developed than in *africanus*, but disappearing on interparietal, where the bone is smooth and transparent. Anteorbital and mastoid projections comparatively little developed. Pre-maxillæ incomplete mesially. Incisors  $\frac{2}{4}$ . Anterior upper premolar small, in the general line of the tooth-row.

Dimensions of the type (measured in spirit):—

Forearm 60 millim.

Head and body 80; tail 53; ear 22; tragus on outer edge 7, breadth 4; height of antitragus behind 4; diameter of pollical callosity 3.2; third finger, metacarpal 57, first phalanx 25, second phalanx 21; fifth finger, metacarpal 32, first phalanx 15, second phalanx 7; lower leg and foot (s. u.) 28.

Skull: greatest length 22.5; basal length in middle line 17.7; zygomatic breadth 14; anteorbital breadth 8.5; inter-orbital constriction 4.7; mastoid breadth 13.2; front of canine to back of  $m^3$  8.8; front of lower canine to back of  $m_3$  10.

*Hab.* Fianarantsoa, E. Betsileo, Madagascar.

*Type.* Male. B.M. no. 82. 3. 1. 34. Collected by the Rev. W. Deans Cowan.

This is the "rather smaller, white-bellied, and light-winged form" of *N. africanus* referred to in Mr. de Winton's paper on the group\*. It is, I think, fully distinct enough to be separated specifically, as the skull-differences are very strongly marked, in addition to those of colour and locality.

### *Nyctinomus cisturus*, sp. n.

A medium-sized species, with imperfect premaxillæ, united ears, and a peculiar swollen gland at the base of the tail.

\* Ann. & Mag. Nat. Hist. (7) vii. p. 37 (1901).



Ears thin, united at their bases, but not forming a prominent folded lobe at their junction; their anterior edge evenly but slightly convex, not folded back, without minute warts; tip broadly rounded off; outer edge strongly convex; antitragus high, broadly triangular; keel low, not flattened or thickened externally; tragus minute, triangular. Lips with vertical wrinkles. Apparently no gular sac. Pad at base of thumb not specially large. Wings to the distal third of the tibiæ, on their inner aspect. Tail involved in membrane for about three fifths of its length; at its base, on the upper surface, occupying the middle of the interfemoral area, there is a large glandular swelling, 8 millim. long by 6 broad, covered with fine fur; this swelling is caused by the presence of a pair of glands, presumably of a scent-secreting nature, which open on the under surface of the interfemoral by two large mouths, each over 3 millim. in length, placed diagonally on the two sides of the tail some 5 millim. behind the anus; the area round these mouths well covered with fine silky white hair; internally some sort of dark-coloured glandular secretion is present.

Colour above chocolate-brown, rather paler below, the tips of the belly-hairs greyish. Wings and interfemoral membranes above brown, below brown outside of the elbow, white near the body and on the interfemoral.

Skull rather small in proportion, smoothly rounded, a low median crest present running from the level of the intertemporal constriction to the occiput. Premaxillæ imperfect mesially, but the opening between them unusually small.

Incisors  $\frac{2}{4}$ , the upper slender, not far apart, nearly parallel. Anterior upper premolar small but not crowded, standing in the line of the tooth-row, its conical point higher than the cingula of the neighbouring teeth.

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

Forearm 47 millim.

Head and body 63; tail 35; ear 15; tragus 1.3; height of antitragus 2.2; third finger, metacarpal 46, first phalanx 19, second phalanx 18; fifth finger, metacarpal 27, first phalanx 14, second phalanx 5; lower leg and foot (s. u.) 24.

Skull: greatest length 18.1; basal length in middle line 13.8; zygomatic breadth 11.2; anteorbital breadth 6.5; constriction 3.7; mastoid breadth 10.3; front of canine to back of  $m^3$  6.8; front of lower canine to back of  $m_3$  7.1.

*Hab.* Mangala, on the east bank of the Nile, 25 miles N. of Gondokoro.

*Type.* Adult male. B.M. no. 2. 7. 4. 4. Original number 2805. Collected and presented by W. L. S. Loat, Esq.



This bat differs from all known members of the genus by its possession of the unique caudal gland above described. In other respects it is a true *Nyctinomus*, belonging to the typical group with imperfect premaxillæ.

*Nyctinomus demonstrator*, sp. n.

A medium-sized thick-set species with united premaxillæ, conjoined ears, and small scent-glands on each side of the penis.

Ears rather small, rounded, united at their inner bases for a height of about 2.5 millim., but without any folded lobe: keel slightly thickened in lower third; antitragus higher than long, rounded above, with a broad base; tragus minute, broader above than below, with an incurved upper angle and concave anterior margin. Lips wrinkled. No gular sac. Pad at base of thumb rather small. Wings to the distal third of the tibia. Tail involved in membrane for about half its length. Penis unusually short, or at least appearing short, as it projects by its tip only from the swollen mass of a pair of scent-glands surrounding its base, their two openings separated by a narrow septum situated halfway along the penis on its lower surface.

Fur very short and close, that on the forehead behind the junction of the ears appearing to be suffused with some oily secretion.

Colour dark brown above, more blackish on head; below also brown, the median area more greyish brown. Wing-membranes brown above and below; interfemoral membrane brown above, whitish below.

Skull low, stout and strong; brain-case small; muzzle narrow. Median crest not developed except in the interorbital region; premaxillæ united round the small palatine foramina. Upper incisors long, straight, almost parallel, not far apart; lower incisors four, bilobate, the outer pair rather smaller than the inner; anterior upper premolar present, but exceedingly minute, placed in the outer angle between the canine and large premolar, which touch one another.

Dimensions of the type (measured in spirit):—

Forearm 44 millim.

Head and body 64; tail 32; ear 17; tragus 2.0; height of antitragus 3; third finger, metacarpus 43, first phalanx 18, second phalanx 18; fifth finger, metacarpus 27, first phalanx 12.4, second phalanx 5; lower leg and foot (s. u.) 22.

Skull: greatest length 19.7; basal length in middle line 15.8; zygomatic breadth 12.7; anteorbital breadth 7; con-



striction 3·8; mastoid breadth 11·6; front of canine to back of  $m^3$  7·5; front of lower canine to back of  $m_3$  8·5.

*Hab.* Mangala, N. of Gondokoro.

*Type.* Adult male. B.M. no. 2. 7. 4. 3. Collected and presented by W. L. S. Loat, Esq.

I cannot find any known species to which this *Nyctinomus* can be assigned. None of Heuglin's show any relation to it, even apart from the peculiar gland above described, which he might have overlooked. It is curious that the two Mangala species should each be distinguished by a glandular structure unique of its kind.

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L.—Notes on Irish Species of Eylais.

By J. N. HALBERT.

PREVIOUS to the publication of Dr. Koenike's paper on *Eylais* \* in 1897 only a single species—*E. extendens*, Müller—was recognized by zoologists; but it was apparent that the genus contained many type forms differing from one another quite as much as those of *Hydrachna*. Several papers on *Eylais* have since been published, containing descriptions of new species, so that the genus now promises to outnumber in species most genera of water-mites.

Many of the large red mites which may be commonly found during the summer months amongst plants growing in stagnant or slowly flowing water are referable to species of *Eylais*. In size they are the giants of the Hydrachnidæ, often reaching 5 or 6 millimetres in length.

Perhaps the most notable characteristics of this genus are, in the first place, the structure of the eye-plates, the four lenses of which are grouped together on a chitinous plate placed anteriorly in the middle line of the body, and the peculiar way in which these mites swim. Only the first three pairs of legs are then brought into play; the fourth pair, being without the long swimming-hairs, are trailed in an extended position, rather suggestive of a pair of rudders, while the animal swims.

The species of *Eylais* are very similar in general shape. The specific characters are founded on the comparative structure of the hard chitinous parts of the body, especially of the eye-plates, mouth-organs, and palps. All of these characters vary more or less in the same species, so that it is

\* 1897, Koenike, "Zur Systematik der Gattung *Eylais*, Latreille," Abh. Ver. Bremen, Bd. xiv. pp. 279-295.



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