

A well marked species, both by its peculiarly subcylindrical shape and by the denticulations of the apertural margins; it is not uncommon on the Arakan coast.

MACROCHLAMYS [DURGELLA] KUMAHENSIS, n. sp. Pl. xi. Fgs. 9 and 10.

Macr. testa convexiuscule orbiculata, polita, tenui, cornea, anguste perforata, spira modice elevata; anfractibus $4\frac{1}{2}$ convexis, regulariter accrescentibus, sutura simplici adpresssa junctis, infra suturam distincte depressis atque subcanaliculatis, transversim exilissime obsoleteque striolatis; ultimo anfractu ad ambitum regulariter convexo, ad basin convexiusculo, in spatio umbilici rugulose spiraliter striato; apertura ampla, semilunata, paulo obliqua, margine externo simplici, columellari supra reflexiusculo, umbilicum partim tegente. Diam. maj. 9.6, min. 8.3. alt. 6; lat. apert. perist. incl. 5.4, ejusd. alt. 4.3 m.m. Speciminis secundi ejusdem magnitudinis altitudo testæ est 6.5 m.m., apertura 5.2 lata, et 4.5 m.m. alta.

Hab. 'Kumah hill' in montibus Arakanensibus, regione Sandoway.

Only the two figured specimens of this shell were found by Mr. Theobald at the above named locality. The species is intermediate between Blanford's *compluvialis* and *nebulosa*, differing from the former by being somewhat depressed, by a comparatively slight sutural depression and larger umbilicus; from the latter it differs by its polished surface, less numerous and regularly convex whorls, particularly at the periphery of the last. These differences also apply in a comparison with *M. honesta* of Gould.

Besides the above described new species, *Glessula Peguensis*, *Gless. hastula*, (somewhat larger than the Sikkim type shell), *Succinea semicerica*, *Sesara Basseinensis*, *Helicina Arakanensis*, *Pupina Blanfordi*, *Pterocyclus parvus*, several *Alycæi* and *Diplommatinæ* occurred on the Kumah hill and near Mai-i in the Sandoway district of Arakan.



ON THE OSTEOLOGY OF SOME SPECIES OF BATS,—by G. E. DOBSON, B. A.,
M. B., ASSISTANT SURGEON, H. M.'s BRITISH FORCES.

Having lately obtained additional specimens of *Macroglossus spelæus*, from Mr. Theobald,* I have been enabled to have a complete skeleton made from an adult male.

As previously remarked by me, the index finger possesses no trace of a claw, but has instead a small, but distinct third phalanx connected with the

* Collected at the Farm Caves near Moulmain where the specimens, from which the description of the species was taken, were obtained by Dr. Stoliczka. (See Journ. As. Soc. Beng. Vol. xl, p. 261.)

second phalanx by a perfect joint. This phalanx is scarcely $\frac{1}{10}$ inch in length, and is wholly contained within the wing membrane.

If we compare the skull of *M. spelæus* with that of *Pteropus medius*, it will be found to resemble it very closely, differing from it only in size, and in the following points:—

In *Pt. medius*, the sagittal crest is very prominent, forming a sharp ridge continued forwards beyond the middle of the zygomatic arches, dividing at a short distance behind the post-orbital processes of the frontal into two ridges which become continuous with their posterior margins. In *M. spelæus*, the sagittal crest is very short, dividing, at a point corresponding to a line connecting the mastoid processes, into two widely separated very slightly elevated ridges continued forwards to the posterior margins of the post-orbital processes. In *Pt. medius*, the frontal is deeply furrowed between the roots of the post-orbital processes, in *M. spelæus* it is elevated. In *Pt. medius*, the post-orbital processes are very long and curved downwards, separated by a very short interval (in a skull before me 0.15 inch) from a corresponding process sent upwards from the zygoma, thus almost completely circumscribing with bone the margin of the orbit. In *M. spelæus*, the post-orbital processes of the frontals are short, and almost horizontal; the zygoma is slender, and there is no trace of an ascending process.

The bases of the skulls of *Pt. medius* and *M. spelæus* are very similiar, the only difference noticeable being, that, in the former the foramen rotundum and foramen ovale are represented by a single opening, in the latter they are distinct.

In *Pt. medius*, the caudal vertebræ are wanting, in *M. spelæus* they are five in number, very short and rather thick.

The remainder of the skeleton of *M. spelæus* corresponds closely in form, and in the relative proportion of its parts, with that of *Pt. medius*.

I have read with some surprise Prof. Flower's statement* that, in the genus *Pteropus*, "there is no corresponding ascending process from the zygomatic arch,"—for, in a skull of *Pteropus medius*, Tem., (compared, above, with that of *Macroglossus spelæus*) the post-orbital process sent upwards from the zygomatic arch measures 0.15 inch along its anterior margin, 0.15 inch across its base, with a vertical height, posteriorly, of more than 0.10 inch.

The same author, at l. c. p. 153, remarks that Insectivorous Bats have no post-orbital processes of the frontals. This statement is only partially correct, for although many, perhaps most, genera of insectivorous bats do not possess post-orbital processes, yet in some genera they are not only present,

* Introduction to the Osteology of the Mammalia, by W. H. Flower, F. R. S. 1870, page 152.

but also,—in one genus especially,—quite as well developed as in the frugivorous.

In every species of the genus *Taphozous*, Geoff., examined by me, I have found well developed post-orbital processes. In a skull of *T. melanopogon*, Tem., before me, a long and slender post-orbital process of the frontal extends more than half the distance between the frontal bone and the zygomatic arch, forming nearly one-third of the entire circumference of the orbit.

Post-orbital processes of the frontals are also found in the genera *Megaderma* and *Nycteris*. In the latter genus the post-orbital process may be described as a triangular expanded lamina of bone, of which the base extends from the sagittal crest to the maxilla; in the former it is short and blunt, and its base is perforated, as in *Pteropus*, by a supra-orbital foramen.

In *Vesperus pachypus*, Tem., a small post-orbital process exists.

The above examples show that in many species of insectivorous bats post-orbital processes of the frontals are present. In no species, however, have I succeeded in detecting corresponding zygomatic processes, as in the genus *Pteropus*.

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BRIEF DESCRIPTIONS OF FIVE NEW SPECIES OF RHINOLOPHINE BATS,—  
by G. E. DOBSON, B. A., M. B.

The following short descriptions of new species of Rhinolophine bats in the collection of *Chiroptera* in the Indian Museum are intended as prefatory to more detailed descriptions, to be published hereafter with illustrations.

1. RHINOLOPHUS YUNANENSIS, n. sp.

Ears large; antitragus separated from the outer margin by a deep, angular incision. Nose-leaf large; the horizontal horse-shoe shaped portion concealing the upper lip as in *Rh. luctus*. The upper edge of the central erect, anteriorly flattened, nasal crest meets, at the same level, the upper edge of the posterior vertical membrane. Lower lip divided by a single vertical incision. Wings from the ankles; tail contained within the interfemoral membrane, with the exception of the extreme tip; interfemoral membrane cut square behind, or slightly concave.

Length, head and body, 2·7 inches; tail 0·9; ear (anteriorly) 1·0; nose-leaf 0·7; forearm 2·2; tibia 1·1.

*Hab.*—Hotha, Yunan; collected by Dr. Anderson during the Yunan expedition.\*

\* Other new species of bats obtained by Dr. Anderson during the Yunan Expedition have been shortly described by the writer in the Proc. As. Soc. Beng. for Sept. 1871.



Dobson, G. E. 1872. "On the Osteology of Some Species of Bats," *The journal of the Asiatic Society of Bengal* 41(IV), 334–336.

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