

* *DENDROTROCHUS*, Pilsbry, ASSIGNED TO
TROCHOMORPHA.

By C. HEDLEY, F.L.S.

[Plate XXI.]

FROM considerations of shell characters, and perhaps of geographical distribution, Pilsbry attached † to the genus *Papuina*, a compact and newly defined group, *Dendrotrochus*, embracing the species kindred to (*Helix*) *helicinoides*, Hombron and Jacquinot. The author of it added that the soft anatomy of the section was unknown to him.

Some examples of the animal of the type species collected by Dr. V. Gaunson Thorp, of H.M.S. "Penguin," presented by him to Dr. J. C. Cox, and transferred by the latter to the Australian Museum, have just been examined by myself. The result is to convince me that at least *T. helicinoides*, and probably the species Pilsbry associates with it, must be dismissed from the genus *Papuina*, and be ranked under the genus *Trochomorpha*. Those features in which *Dendrotrochus* leans from *Trochomorpha* towards more normal *Zonitidæ*, namely the tripartite sole, caudal mucous pore and side cusps of the rachidian tooth, induce me to hold it as closer than *Trochomorpha* proper to a primitive stock. The evidence furnished by the foot, dentition and genitalia of *Dendrotrochus* harmonise, in the classification I propose, with those characters of its shell which are emphasised in the diagnosis of the section. On page 1 of the work above cited, "columellar margin arcuate, short, not dilated or reflexed," is italicised as an important distinction of *Trochomorpha*; while on page 143, "columellar lip not expanded or reflexed" is given similar prominence in the description of *Dendrotrochus*.

It is a matter of regret to the writer that his inquiries should have led him to mar with corrections a single page of so brilliant a work as Pilsbry's "Guide to the Study of Helices;" but the progress of knowledge thus exacts its dues as we rise, to paraphrase the poet, on stepping-stones of our dead classifications to higher things.

* Since this article was in print, I have received a letter from Mr. Pilsbry, discussing this classification. Accepting the proposed reform, he points out to me that Stoliczka described (*Journ. Asiat. Soc. Bengal*, xlii., Pt. ii., p. 20) a rudimentary tail pore in *Sivella*. From my description he now considers "that *Dendrotrochus* is an arboreal section or subgenus of *Trochomorpha* retaining an old character in the tail pore."

† *Man. Conch.* (2) ix., p. 143.

The detailed description is as follows :—

Animal (fig. 1)—in spirits, with two small left and right mantle lobes, foot in length the shell's diameter, with pedal line, oblique grooves and caudal mucous pore, apparently surmounted by a horn, sole tripartite.

Genitalia (fig. 2)—penis broad, much twisted, containing a large blunt papilla, epiphallus more than twice the length of penis; vas deferens long, bound to wall of atrium. Spermatheca boot-shaped, duct moderately long. Base of vagina black, lobed, containing no follicles.

Jaw (fig. 4)—rather thin, arcuate, smooth, broad, without central projection.

In a slightly torn radula (fig. 3) I counted $140 = 4 = 12 = 1 = 12 = 4 = 140$ teeth in 103 rows. Rachidian twice as long as wide, basal plate rather hour-glass shaped, central cusp ovate-lanceolate, projecting half its length over the succeeding plate; small side cusps with distinct cutting points arise at two-thirds the length of the basal plate. Immediate laterals have the entocone suppressed, the ectocone appears as a small hook, the mesocone being broadly ovate. For three or four transition teeth the ectocone rapidly ascends the mesocone, till each of equal size form the bifid cusps of the marginals. These are minute, sinuous, and very numerous.

ON A CASE OF PRESUMED PROTECTIVE IMITATION.

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(Entomologist to the Australian Museum.)

[Plate XXII.]

That wonderful Hepialid, *Leto stacyi*, Scott, seems to claim a place among those famous examples of a similar nature advanced by Bates, Wallace, and others. The protective resemblances among animals is an established fact, and it is unnecessary to quote classical instances. But I cannot find any reference to such a protective feature as that of a moth which resembles *in situ* an approach to the head of a reptile known to possess an appetite for birds. In the case under notice it may fairly be claimed that such an example exists in nature.

After consulting my colleagues, by submitting to them photographs of actual specimens in their natural positions—and I am especially indebted to Mr. Edgar R. Waite, whose opinion, from his



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