

XXI. THE LAND MOLLUSCA COLLECTED
ON THE ISLAND OF BARKUDA IN THE
CHILKA LAKE, GANJAM

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Dr. Annandale, Director of the Zoological Survey of India, and Mr. F. H. Gravely, Asst. Superintendent, have very recently (July, 1916) been investigating the fauna of this island, and obtained there three species of land shells, which Dr. Annandale has kindly sent to me for examination. The specimens are well preserved in spirit. One turns out to be a most interesting species both from its history, habitat and morphological characters. It proves to be a species described by W. Blanford in 1866 (*Journ. As. Soc. Bengal*, XXXV (2), p. 36) as *Nanina (Macrochlamys) infausta*, and occurred among Captain Beddome's Anamullay collections, but in the *Fauna of British India, Mollusca* vol. I, p. 134, Blanford says: "The locality originally assigned to this species, the Anaimalai Hills, appears to have been given in error, as in the case of *M. lixa*." He compared it in 1866 with *Helix vitrinoides*, Desh., which at that date included several distinct species such as *hardwickei*, G.-A.; *indica*, G.-A.; *petrosa*, Hutton; *perplana*, G.-A. and *pedina*, Bs.; all differing widely in their anatomy. At that period the animals of Indian molluscs had received little attention. Wm. Blanford led the way to a better state of things by the copious notes he made in the field of the outward form of the animal, and the examination of the radula, while it was Stoliczka who gave us the first insight into the internal anatomy of many Indian genera. In the *Fauna of British India, Mollusca* vol. I (1908), p. 133, nothing being known of its anatomy, it was on shell character placed in *Macrochlamys*. The species now described shows conclusively that it belongs to the genus *Ariophanta*, of my section *Nilgiria*, a group of the land mollusca, together with *Euplecta* and *Eurychlamys*, not hitherto found outside Peninsular India, with one exception. *Ariophanta interrupta*, Bs. is common in Calcutta and in 1865 I found it in Jessore. This extension into the delta from the side of Orissa is however probably due to the agency of man.

Ariophanta infausta, W. Blf.

Forbes and Hanley, *Conch. Ind.*, pl. clix, figs. 2, 3 (*Helix*).

W. T. Blanford, *Fourn. As. Soc. Bengal*, XXXV (2), 1866, p. 36 [*Nanina (Macrochlamys)*].

W. T. Blanford and H. H. Godwin-Austen, *Faun. Brit. Ind., Moll.* 1 1908, p. 133 (*Macrochlamys*).

Locality.—Banks of Chilka Lake.

Sculpture very finely decussate.

Animal (fig. 1, A, B, C). The spirit specimen is colourless, with the exception of a darkish narrow patch on the right dorsal lobe near the rectum, and a conspicuous long narrow black line on the visceral sac bordering the renal organ (fig. 1, B).

The sole of the foot is divided and wide V-shaped segments cross it. The peripodial margin is broad with the usual two grooves above it; they are indistinctly seen in these specimens. The mucous gland at the extremity of the foot is large and vertical (fig. 1, D).

The edge of the peristome is overlapped slightly by the mantle edge (*m*), and there is a thin, narrow separate expansion of this for a short distance backwards over the shell on the upper margin, a character I have never yet met with in any other species. It is due no doubt to the very perfect state of preservation and freshness of these specimens. The right dorsal lobe (*rd. l.*) is large triangulate, the left in two parts, quite separate; the anterior part is small in comparison with the right dorsal, and a posterior (*post. ldl.*) which is narrow and

elongate and extends narrowing to the hinder part of the shell. From this it is clear that the position of this mollusc is in the Ariophantinae and certainly not in the Macrochlamyinae, which section of it only the generative organs will show.

Generative organs (fig. 2, A). The species has a long caecum or diverticulum (*crp.*) at the end of which the retractor muscle is given off. The calc-sac or flagellum (*fl.*) is short, the spermatheca (*sp.*) is globose and sessile; the amatorial organ

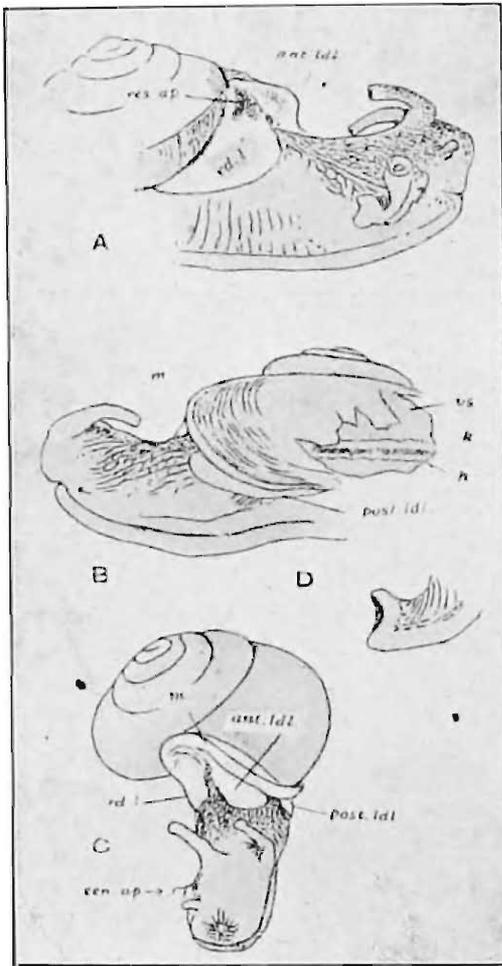


FIG. 1.—*Ariophanta infausta*, W. Blf.

A, B, C. Animal.

D. Extremity of foot.

(*am. or.*) very long. In every respect the genitalia are similar to those of the subgenus *Nilgiria*, as represented by *N. bistrialis*, Beck., vide *Moll. India*, vol. II, p. 80, pl. lxxxii, fig. 4-4a.

The radula differs very considerably from that of *Nilgiria bistrialis* both in the form of the marginals and in the formula, which is 38. 2. 12. 1. 12. 2. 38 or 52-1-52, the marginals being unevenly bicuspid, the inner cusp the longest. It thus falls into the group B δ , vide *Moll. Ind.* p. 82, with *solata*, *tranquebarica*, *maderaspata* and *ligulata*, species with very different shells, *tranquebarica* being the nearest to *infausta*. The jaw (fig. 2, B) is rather straight in front with a central projection, similar to that of *bistrialis*.

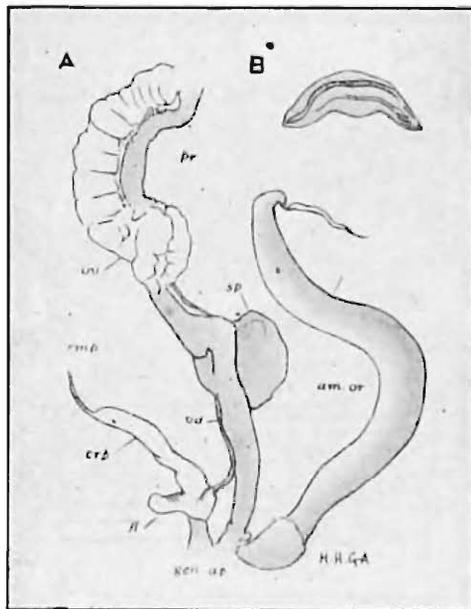


FIG. 2.—*Ariophanta infausta*, W. Blf.

A. Generative organs $\times 9$.

B. Jaw $\times 9$.

The other two land shells from this small island are *Rachisellus praetermissus*, W. T. & H. F. Blf. and *Opeas gracilis*, Hutton. I have compared this last, a single specimen, with some from the typical locality Mirzapur, described by Captain Hutton. There are points of difference, but a series from the Chilka Lake is wanted. The genitalia of both genera appears to be unknown and the specimens will be most useful when the time comes to examine them.

[The *Ariophanta* and the *Rachisellus* are both abundant on the leaves of shrubs in the rainy season. In periods of temporary drought they secrete a false operculum of mucus, but remain in exposed positions. The *Opeas*, on the other hand, was found in the earth under a log of wood.—N. A.]

As the original blocks for the two text-figures have been lost in transit, they have had to be reproduced from the proofs.