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Notes on the Bionomics of *Trochus niloticus* Linn. II. On two Limpet-like Gastropods from the Andaman waters.

By
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CALCUTTA:
MARCH, 1934

EXPLANATION OF PLATE I.

Patella (*Patellidea*) *tara*, sp. nov.

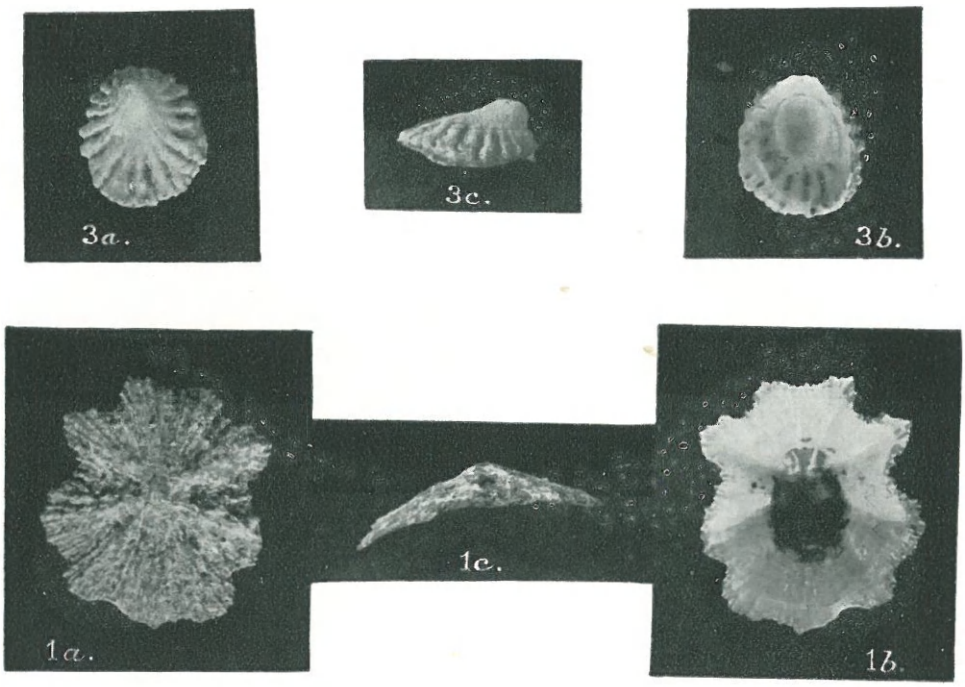
FIGS. 1*a*-1*c*, dorsal, ventral, and lateral views of the holotype (×2½).

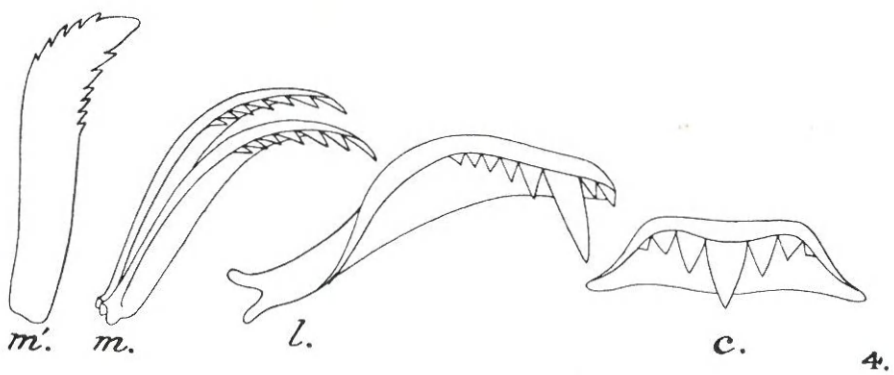
FIG. 2.—Radular teeth—*c*. central; *l*. outer lateral; *l'*. inner laterals; *l''*. side view of an inner lateral; *m*. marginals. (×250).

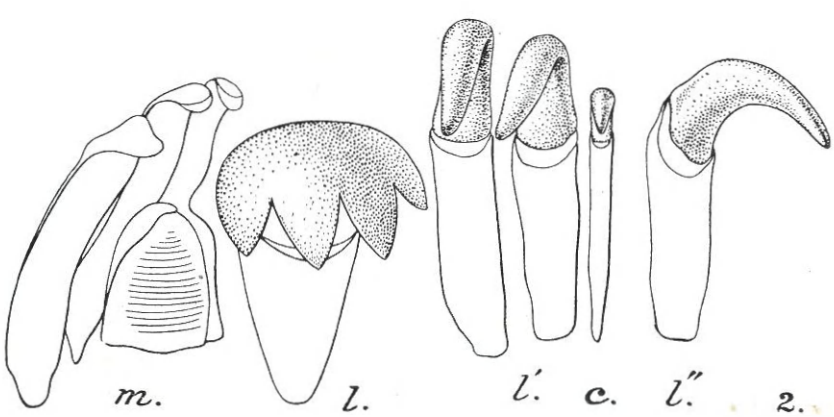
Saptadanta nasika gen. *et.* sp. nov.

FIGS. 3*a*-3*c*, dorsal, ventral, and lateral views of the holotype. (×2½).

FIG. 4.—Radular teeth—*c*. central; *l*. lateral; *m*. marginal; *m'*. side view of outer marginal (×250).







New Limpet-like Gastropods.

NOTES ON THE BIONOMICS OF *TROCHUS NILOTICUS* LINN.

II. On two new Limpet-like Gastropods from the Andaman waters.

By Baini Prashad, *D.Sc., F.R.S.E., F.A.S.B.,* and H. Srinivasa Rao, *M.A., D.Sc., Zoological Survey of India, Indian Museum, Calcutta.*

(PLATE I.)

In a recent paper of this series a new species of Vermetid living on the shell of *Trochus niloticus* and causing damage to the periostracal layer was described[1]. In this paper the description of two other Gastropod molluscs found on the shells of *T. niloticus* on which they had made moderately deep excavations is given. The animals were found living, and could be removed only with considerable difficulty by means of a sharp knife. Examination of the soft parts and the radula has shown that one of the Gastropods is a true Patellid of the sub-genus *Patellidea* Thiele, and the other is an undescribed genus of the family Lepetellidae described here under the name *Saptadanta*,[2] gen. nov.

Family PATELLIDAE.

Subgenus **Patellidea** Thiele.

1891. *Patellidea*, Thiele in *Troschel's Gebiss der Schnecken*, II, p. 315.
1929. *Patellidea*, Thiele, *Handbuch Syst. Weichtierkunde*, p. 40.

Thiele proposed this genus in 1891 for forms of the type of *Patella granularis* Linn. on the basis of differences in the radular teeth. In his later work in 1929, however, he considered *Patellidea* to be a group of the subgenus *Scutellastra* H. and A. Adams. In view of characteristic difference in the form and disposition of the central tooth we are of the opinion that *Patellidea* should be treated as a separate subgenus equal in rank to *Scutellastra*.

According to Pilsbry[3] the shell of the group of *P. granularis* Linn. is "oval, sculptured with numerous granulose riblets, none of them notably larger. Central tract of the inside and border generally dark", while Thiele only remarks under the subgenus *Scutellastra* that the inner surface of the shell is porcellanous and not iridescent.

Patella (Patellidea)[4] tara, sp. nov.

The shell is of small size, ovoid in outline, star-shaped, solid, slightly conical with the apex subcentral. It is 14 mm. long. 12 mm. broad, and 3·5 mm. high. The sculpture consists of 9 main groups of somewhat raised, radial ridges, each with 5-6 radial subgranulose riblets, and 3-5

[1] *Rec. Ind. Mus.* XXXV, p. pl.X (1933).
[2] From the Sanskrit words *Sapta* seven, and *Danta* teeth.
[3] *Man. Conch.* XII, p. 102 (1891).
[4] From the Sanskrit word *Tara* meaning a star.

low ridges in the interspace between two main ridges, which give the shell a star-like appearance. The colour is a dull greyish brown on the outside, and white porcellanous with a large orange-yellow central tract on the inside, with 2 or 3 rows of elongated black spots along the periphery of this tract.

The radula is a narrow ribbon with 13 teeth in each row with the formula 3·3·1·3·3. The disposition and form of the teeth in one half of each row are shown in pl. I, fig. 2, and it is only necessary to direct attention to the following peculiarities of the dentition: (1) the central tooth is very narrow and inconspicuous being wedged in between the inner laterals; its cutting margin is at a distinctly lower level than that of the inner lateral, (2) the inner laterals have simple, sickle-shaped hooks on their cutting margin, (3) the single outer lateral has a broad cutting margin with 4 denticles and lies at a much lower level than the inner laterals, (4) the outermost of the three marginals is broad and short while the innermost is broader in the middle with its outer margin reflexed in the form of an elongated cusp in addition to the usual cusp of the cutting margin.

Holotype M. $\frac{14908}{2}$ on *Trochus niloticus* from S. Corbyn's Cove, Port Blair, Andamans, in the collection of the Zoological Survey of India, Indian Museum, Calcutta.

Remarks.—Although described from a single specimen we have no hesitation in giving it a new name, as our careful comparison with the descriptions and figures of known species belonging to the *P. granularis* or any other allied group shows it to be quite distinct, both in anatomical and shell characters, from any of the previously described species.

Family LEPETELLIDAE.

The characters of the four genera included in the family are dealt with in detail by Thiele in his monograph in the *Conch. Cab.*[5], and in his recent *Handbuch.*[6] Opinion is divided as to whether the genus *Lepetella* Verrill should be included in this family, on account of the character of the radula, but we have no doubt that the form from the Andamans which we described below under a new generic name is very closely allied to *Lepetella* in the form of the radula.

Genus **Saptadanta**, gen. nov.

The form from the Andamans has quite a different type of shell from that of any of the previously described genera, and although it resembles *Lepetella* Verrill in the number of teeth in each row of the radula, there are several distinctive features in the form and disposition of the individual teeth. The central tooth is not merely a broad quadrate plate with traces of two denticles near the outer margin as in *Lepetella*, but has a distinct broad cutting margin with five well-developed and two rudimentary denticles.

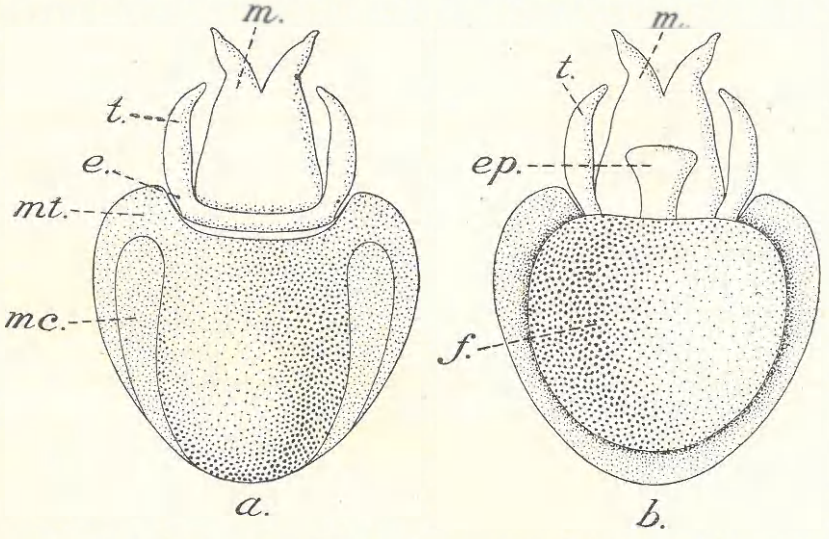
[5] Thiele, J.—Martini-Chemnitz's *Conch.-Cab.* II (Heft XXXIII), *Cocculinoidea*, p. 21 (1909).

[6] Thiele, J.—*Handbuch Syst. Weichtierkunde*, p. 93 (1929).

Saptadanta nasika[1], gen. *et* sp. nov.

The shell is moderately thick, irregularly, oblong or oval, conical with the more or less well-marked recurved obtuse apex placed in the posterior third of the length of the shell, and has 19 distinct convex, radiating ridges some of which are forked near the outer margin of the shell. The ground colour of the shell is white to dirty yellowish brown. The interspaces between the ridges at the anterior end are brownish in colour. The peripheral margin of the shell is comparatively thin and is separated from the rest of the shell by a shallow groove, and when viewed from the sides exhibits distinct lines of growth at the thickened outer ends of the radiating ridges. The inner surface of the shell is smooth, porcellanous, with the central tract distinctly whiter than the rest of the area. The inter-spatial brown markings between the ridges on the outer surface are seen as radiating bands which end peripherally in yellowish spots. Owing to the worn condition of the outer surface of the shell, which also bears traces of minute excavations by boring organisms, the sculpture is not evident, but on the smooth inner surface the minute irregularly concentric impressed lines and the radiating lines outside the central tract are very clearly seen under a fairly high magnifying lens. The dimensions of the shell are 8 mm. long, 6-7 mm. broad, and 3 mm. high.

The muzzle is more or less triangular in form, stout, compressed from above downwards, forked at the distal extremity, each prong of the fork being leaf-shaped with its tip acuminate. The tentacles arise from the outer side of the muzzle, and are elongate, broad at the base and tapering



TEXT-FIG. 1.—*Saptadanta nasika*, gen. et. sp. nov. *a* and *b* dorsal and ventral views of the animal (× *ca* 10) ; *e.* eye ; *ep.* epipodium ; *f.* foot ; *m.* muzzle ; *mc.* muscle ; *mt.* mantle.

[1] The specific name in Sanskrit meaning nose has reference to the nose-shaped projecting apex of the shell.

gradually towards the extremity. A dark circular spot at the outer base of each tentacle represents the eye. On the underside of the muzzle, between it and the foot lies a fan-shaped lamellar structure which probably represents an epipodium.

The radular formula is 2·1·1·1·2. The central is much broader than high; it bears a strongly reflected cutting edge with seven cusps, and is produced into a narrow process at the base of each side. The median cusp is nearly as long as the tooth is high, the two cusps on each side of the median are half as long as the median, while the outermost cusp at each end of the cutting margin is rudimentary. The single lateral, as we think it should be called, has a characteristic bow-shape and lies at right angles to the long axis of the lingual ribbon, and bears on the first third of its cutting margin a series of well-developed cusps, 8 or 9 in number. The 3rd or 4th cusps from the inner end of the tooth is enlarged, much longer and sharper than the cusps on either side of it. The series outside the enlarged cusp usually consists of five cusps, progressively smaller as the base of the tooth is reached. The cusps on the inner side of the enlarged one are usually relatively larger than those on the outer side. The marginals are shorter than the lateral and lie parallel to the latter, and have sharp and narrow cusps on both edges of the tooth, those on the outer edge being slightly more numerous.

Holotype. M. $\frac{14310}{2}$ Zoological Survey of India, Indian Museum, Calcutta.

Remarks.—The only representative of the species was found living firmly attached to the shell of *Trochus niloticus* collected at N. W. Ross, Port Blair, Andamans. The removal of the animal without damage, to it from the shell of *T. niloticus* was attended with considerable difficulty and it was found that a saucer-shaped excavation corresponding in outline to that of the shell, and about 2 mm. in depth had been made on the periostracal layer by the close apposition of this Gastropod to the outer surface of the shell of *Trochus niloticus*. The commercial value of *Trochus* is diminished by the excavations in the periostracal, and more rarely, in the ostracal layers of the shell made by such epizoic forms as *Vermetus* (*Spiroglyphus*) *andamanicus* Prashad and Rao and the species described in the present paper.