

Otina was formerly confounded with *Velutina*, a marine genus. I showed that it was a lung-breathing animal, and arranged it with *Auriculidæ*, on account of the position of the eyes; but the form of the tentacles induced me, in my last work, to place it as a tribe in the family *Lymneadæ*. The discovery of *Camptonyx*, however, with its similar terrestrial habitat, and having eyes in the same position, indicates the necessity of forming a family *Otinidæ* for the two genera.

The form of the muscular scars in shells depends in great measure on the form of the shell: thus, all very open-mouthed shells, except *Haliotis*, have a large horse-shoe-shaped muscular scar, as that form of adductor muscle is required to keep the shell on the back of the animal; so that the form of the muscular scar and of the shell depend on each other.

May 1, 1858.

XXXVIII.—*Characters of Tanysiphon, a new genus of Fluvatile Shells, allied to the Myacidæ.* By W. H. BENSON, Esq.

[With a Plate.]

IN January 1846, when making one of my latest conchological explorations in the vicinity of Calcutta, I procured on the muddy shore of Tolly's Nullah, near the bridge leading to Allipore, a single valve of a *Potamomya*, and of another bivalve, apparently allied to my ancient acquaintance *Novaculina*, which also inhabits the same water, but differing from it so much in the structure of the hinge, and the greater comparative length of the siphonal scar, that I felt assured of its being the type of a distinct genus, to which I assigned, in MS., the name *Tanysiphonia*. Ten years later, Dr. Theodore Cantor having been appointed to a medical charge on the banks of the small tidal stream in question, I entreated his attention to a search for living specimens, which I felt assured would be found at some depth in the mud at low-water. He kindly answered my call, and after much search by his people, transmitted to me a packet which contained a few specimens of the desiderated shell among a greater number of *Novaculina*. When shown by me to a well-known conchological author, he doubted whether I had sufficient grounds for separating the form from *Novaculina*. Dr. Cantor's attention being then called to the acquisition of the smaller form in a living state, his kind exertions were rewarded by the capture of live specimens in the following spring. These were transmitted, in spirits, with a drawing, and some observations on the external characters of the animal and its affinity, which I find fully borne out by the specimens received.

The examination of the animal not only proved that it was distinct as a genus from *Novaculina*, but that it must be separated from the family of Solenidæ and annexed to that of the Myacidæ. Its nearest relations in that group are probably *Glycimeris* and *Saxicava*, the young of the latter being furnished with cardinal teeth. *Tanysiphon* is found at extreme low-water, by digging to a depth of six inches, or even a foot, in the mud, and occurs in a vertical position. Dr. Cantor states that it is not abundant, and that it was obtainable by his people only in February and March.

I now proceed to describe the shell.

TANYSIPHON, Benson, nov. gen.

Testa subinæquivalvis, inæquilateralis, transverse oblonga, umbo-nibus prominentibus obtusis, extremitatibus (postica maxime) hian-tibus, margine superiori subarcuato, ventrali subrecto. Cicatrix siphonalis elongata $\frac{6}{10}$ longitudinis testæ invadens. Valvæ dextræ dentes tres, 1 anterior angustus prominens intrans, 2 laminares transversi, medianus prominens, posterior major obtusus; valvæ sinistræ dentes duo, anterior bilobatus, posterior major. Ligamen-tum duplex, externum parvum ellipticum, vix convexiusculum, inter-num lineare foveam posteriorem occupans, demum laminam cardina-lem perpendiculariter truncans. Epidermis tenuis. Area interior testæ nitida, non margaritacea.

T. rivalis, Bens., n. s. Pl. XII. B. fig. 3.

Testa tenui, transverse oblonga, antice breviori obtusa, postice lon-giori, angustiori, extus tenuiter striata et irregulariter remote rugosa, epidermide pallide cornea; natibus decorticatis latis pro-minentibus, umbonibus obtusis; valvis male congruentibus, per spatium breve cardinale et ventrale solum tactum exhibentibus; humero umbonali antico breviter compressiusculo; area interiori cærulescenti-alba.

Lat. 21, alt. 11, crass. 9 mill.

Habitat in rivo, prope urbem Calcutta Bengalensem.

Some of the teeth are apt, in large specimens, to become obsolete.

The following account is extracted from Dr. Cantor's letter accompanying his interesting drawing of the animal:—

“The siphons closely resemble those organs in *Mya truncata*, Linn., Woodward, p. 317. fig. 220. Both are united in a finely annulated compressed scabbard nearly equalling the length of the shell. A raphe or seam appears along the inferior margin of the scabbard. The free extremity is surrounded by tentacula, which are distant, and of unequal length. The orifices of the siphons are papillular; that of the branchial siphon, the larger, is

provided with minute tentacula, but the orifice of the exhalant siphon is naked. The small foot is hatchet-shaped, with the posterior margin notched. Both the siphons and the foot are wholly retractile, and highly sensitive. The foot is sometimes extended and tongue-shaped, but generally of the outline represented."

The specimens received in spirits show that the mantle is closed at the basal edge, presenting narrow openings at either extremity for the passage of the siphonal sheath and foot. The suture is nearly straight, scarcely undulate. The foot is thick and cartilaginous, broad, and with a pit or depression at the anterior end, and laterally hamate, or bent like the crook of a walking-stick, the point being towards the hinge-side, and the hinder edge straight, not concave.

For comparison with *Novaculina*, I copy the following extracts from my paper published at Calcutta, in the 'Gleanings in Science' for February 1830, a work edited by the late Captain Herbert. It was the precursor of the 'Journal of the Asiatic Society,' and is now very scarce. Reference to that memoir would have probably prevented the form from being confounded as a subgenus under the awkwardly-named *Solecirtus* of Blainville, and from being regarded by several recent authors as merely an estuary shell. The living specimens, from which I drew the characters, were procured in large communities by digging in a strong slaty clay in the banks of the River Jumna, at Humeerpore in Bundelkhund, one thousand miles from the sea by the river line. The dead shells had previously occurred to me in the Ganges, and in the Goomty at Juanpore, between Lucknow and Benares.

The branchial siphon is ciliated in *Solecirtus*; in *Novaculina* both the siphons are destitute of cilia.

Extracts from Description of Novaculina, pp. 63 & 64.

"Animal. Mantle with the basal edges united, forming a tube which encloses the animal, longitudinally constricted at the suture. Foot proceeding from the anterior extremity, short, thick, cylindrical, and very muscular; enlarged at the extremity into a disk with a convex surface, the plane of which is at right angles with the axis of the foot and shell. Siphons separate, as long as the shell when fully extended; the anal one, or that nearest the hinge, half the thickness of the other; apertures constricted, not ciliated."

"As in the Solenaceæ, the edges of the mantle are soldered together at the base, forming a tube which confines the animal and gives more support to its muscular foot, the exertions of

which are principally required in the direction of the axis of the shell.....The animal differs from *Solen* in having its siphons free, instead of occupying a common tube; and in having an expanded instead of a conical termination to the foot."

I may also add the following from the characters of the shell: "Epidermis easily detached when dry, folding over the edges and extremities of the shell, and connecting the hinge-margins."

In *Novaculina* there is a strong prominent external ligament, and its internal prolongation is received into a cavity communicating by a lateral posterior opening with the interior of the shell; the salient re-entering teeth—three in the left valve, and two longer in the right—lie under the beaks anteriorly to and quite independent of the ligamental cavity; whereas in *Tanysiphon* two of the teeth in each valve form, as it were, a portion of the wall which separates the ligamental cavity from the interior of the shell, and the anterior tooth in the right valve alone inclines to an independent direction.

For comparison with Dr. Cantor's drawing of the animal of *Tanysiphon*, I add a sketch which I made from a living example of *Novaculina* in Calcutta. It will be observed that the animal failed to protrude the foot, so as to exhibit its form to the extent reached in the Jumna specimens, and that the siphons were also less extended.

Cheltenham, 29th April, 1858.

EXPLANATION OF PLATE XII. B.

Fig. 1. *Tanysiphon rivalis*, natural size (nearly).

Fig. 2. Siphonal tube and siphon, magnified.

Fig. 3. Left valve of *Tanysiphon rivalis*.

Fig. 4. *Novaculina Gangetica*, with animal.

Note.—Dr. Cantor's figure having reference chiefly to the animal of *Tanysiphon*, the part which represents the shell fails to exhibit the general form correctly, especially in the umbonal region. The beaks are too prominent, and are deficient in the breadth which characterizes the genus in this as in the corresponding part of *Novaculina*. Fig. 3 shows the true shape.

XXXIX.—*Observations on Dracunculus in the Island of Bombay.*

By H. J. CARTER, Esq., H.C.S. Bombay*.

SINCE my "Note on *Dracunculus* in the Island of Bombay" was communicated to the Society in October 1853, and published in the new series of their 'Transactions' (No. 2. p. 45), I have continued to give my attention to the subject when opportunity offered, and have thus been able to correct, to add to, and to

* Communicated by the author; having been read before the Medical and Physical Society of Bombay, Feb. 6, 1858.



Benson, W. H. 1858. "XXXVIII.—Characters of Tanysiphon, a new genus of fluviatile shells, allied to the Myacidæ." *The Annals and magazine of natural history; zoology, botany, and geology* 1, 407–410.

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