

ON THE GENUS *STRIGILLA* IN INDIA (MOLLUSCA : BIVALVIA : TELLINIDAE).

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INTRODUCTION

Members of the genus *Strigilla* have been recorded from eastern Atlantic, western Atlantic, eastern Pacific and Indo-pacific regions, Admans and Adam 1858, Bertin 1878, Dall 1901, Boss 1966, 1969, Afshar 1969). From the western Atalantic coast Boss (1969) recognised four subgenera viz. i) *Strigilla* s.st. ii) *Aeretica* Dall iii) *Simplistrigilla* Olsson iv) *Pisostrigilla* Olsson. In India, the genus is represented by only one species, viz. *Strigilla (Aeretica) splendida* (Anton). Since the species is less known, an attempt is made to present an account of its habitat and morphology.

MATERIAL AND METHODS

Morphological examinations of shells was carried out with the help of magnifying glass (IOX) or under a binocular microscope. The measurements are given in millimeters (mm). Three specimens, one largest, one smallest and one average were selected for measurements. Shell measurements are given in terms of maximum length (Length), maximum width (Width) and maximum thickness (Height). All these measurements were taken with the help of a dial caliper.

The burrowing process was studied by keeping the live specimens in an enamel tray filled with a layer of sand, mud and water from same locality. Burrowing time was recorded with the help of a stop watch.

The population density was estimated with the help of a square steel frame of half a meter length. The frame was inserted deep into substratum and the mud/sand within the frame was scooped and sieved through a net having 1 mm mesh.

***Strigilla (Aeretica) splendida* (Anton)** (Pl. I, figs. 1-4; Pl. II, figs. 1-3)

1839. *Tellina splendida* Anton, *Verz. Conch.*, p. 5, (type locality, Isle of Samar, Philippines).

1908. *Strigilla denestriata* Preston, *Rec. Indian Mus.*, 2 : 210, (type locality, Andaman : Holotype, ZSI Regd. no. M 4065/1).

Material examined : i) 1 ex. Andaman ii) 20 exs. Digha coast, W. Bengal iii) 208 exs. Kakdwip, W. Bengal iv) 20 exs. Bakkhali, W. Bengal v) 10 exs., Halliday Island, Sundayban, W. Bengal vi) 20 exs., Saimari, Sundarban, W. Bengal vii) 4 exs.,

Kakinda Bay, Andhra Pradesh.

Description : Shell medium, orbicular, moderately strong or very thin, delicate, inequivalve, the right valve more convex than the left. Shell white with yellow or rosy suffused. Umbo acuminate, elevated and anterior in position. Anterior margin rounded; ventral margin convex; anterior dorsal margin straight and abruptly sloping; posterior dorsal margin straight and gradually sloping; posterior margin rounded. Sculptured with oblique scissulation on the posterior part of the both the valves but anterior and with fine closely spaced concentric striae. Ligament sunken and small, flexure not conspicuous; lunule moderate and partly situated on the left valve; umbonal ridge obsolete (Plate-I).

In the left valve the cardinal complex consists of a narrow, elongated, laminate bifid anterior tooth and a thin laminate posterior tooth, closely depressed to the calcareous element of the ligament; laterals pointed and posterior proximal to the cardinal complex. In the right valve the cardinal complex consist of a small, thin, anterior and strong bifid posterior tooth with a large posterior lobe; laterals strong, socketed above with anterior proximal and posterior distal to the cardinal complex.

Muscle scars moderately impressed. Adductor scars elongate and narrow. Cruciform scars close to the ventral boundary and rounded. Pallial sinus discrepant in two valves. Sinus rising abruptly and convex shaped, falls obliquely to the pallial line without touching the anterior adductor scar, but more close to the anterior adductor scar in the case of right valve (Plate-II).

Remarks : *S. (Aeretica) splendida* (Anton) can be distinguished by its sculpture which has oblique scissulation on the posterior part, but fine closely spaced concentric striae on the anterior part. The colour of the shell very variable. The specimens from Andaman are rosy suffused and thick, while the specimens from Digha and other places are very thin, white, yellowish, or with pinkish umbonal region.

Preston (1908) described a new species *S. denestriata* from Andaman (Pl. I, Figs 3 & 4). After a through examination of the type specimen, it is synonymised with *S. splendida* as the former resembles the latter in its sculpture, cardinal complex, adductor muscle impressions, pallial line and pallial sinus (Pl-II, Fig. 1).

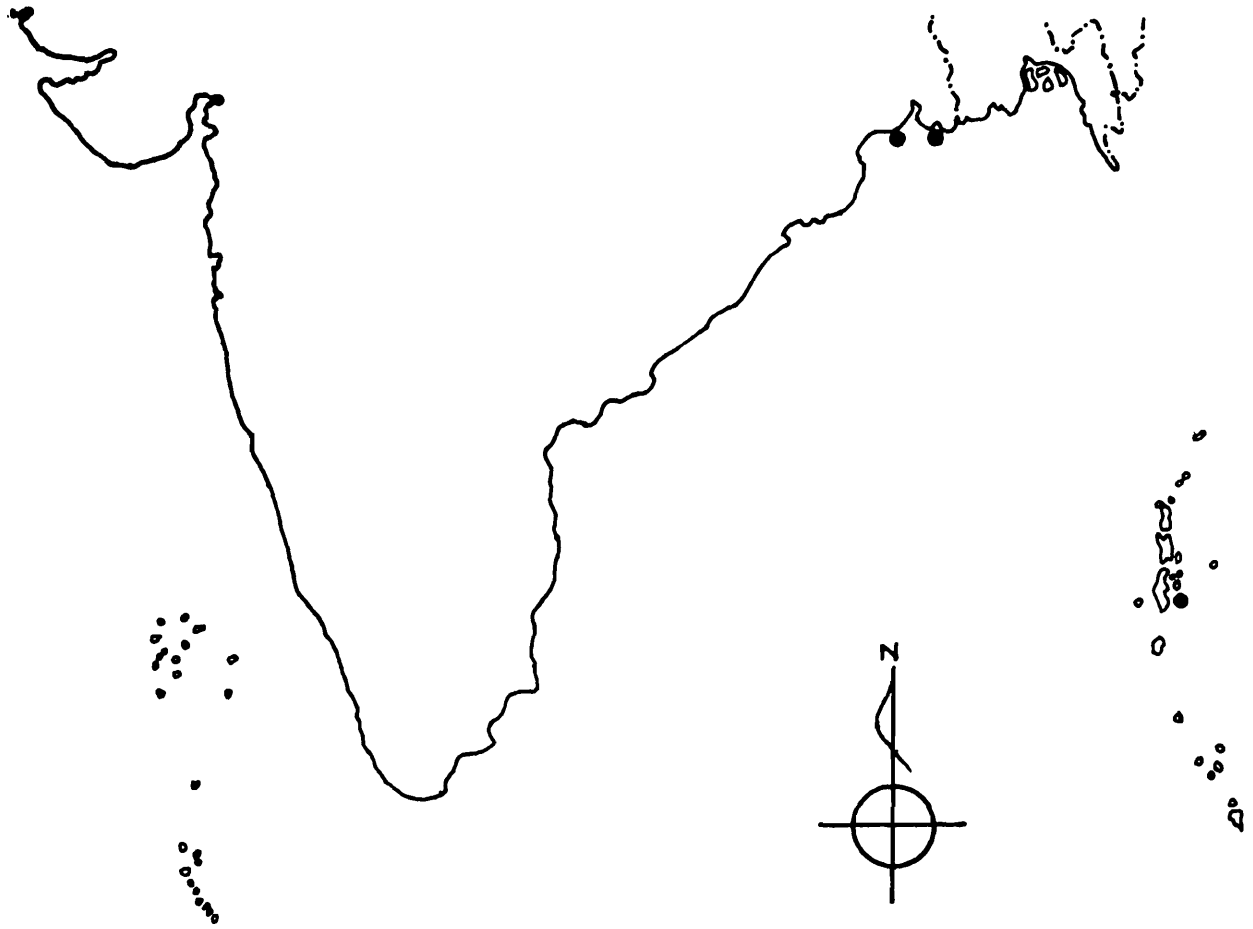
Measurements (in mm) :

Length	Height	Width
20.24	17.81	Andamans
17.90	16.42	8.0
10.34	8.28	3.88 Digha, W Bengal

Range : India to Philippines.

Distribution : India : Andaman and Nicobar Islands, Andhra Pradesh, West Bengal.

Elsewhere : Indonesia : Sumatra; Philippines : Isle of Luzon, Isle of Samar, Mindanao.



MAP OF INDIA SHOWING THE DISTRIBUTION OF
STRIGILLA (A) SPLENDIDA (ANTON)

S. (A.) splendida (Anton) has been recorded from the sandy beds along the coasta of Andaman and Nicobar Islands, Andhra Pradesh and West Bengal (Map-I). A total of 283 specimens (one from Andaman, 20 from Digha, 208 from Kakdwip, 20 from Bakkhali, 20 from halliday Island, 10 from Saimari (West Bengal) and 4 from Kakinada Bay (Andhra Pradesh) were examined. though the specimens were morphologically close to each other variations in shell length, height, width, colour have been noted with the change of locality. The specimens collected from Andaman were 17.90 to 20.24 in length and greyish white in colour, while those collected from Digha, Kakdwip, Bakkhali, Halliday, Saimari were 10.30 mm to 16.90 and yellowish or pinkish in colour.

They are equally apt to make their way deep into the soil, be it sand or clay. The foot was soon protruded and extended forward. The posterior end of the animal was pushed into the soil, through repeated jerking moments. The entire process was completed within 30-60 seconds. Inside the soil the animals were seen to position themselves in vertical direction and the siphons were extruded out.

Population density was observed in Muriganga (Kakdwip), Bakkhali and Digha. The population varied from 1.6 to 22.8 nos/sq meter on an average. The maximum population was observed during June/July and minimum during February/March.

The breeding season varied from March to May when the salinity content is higher.

General morphology

The mantle is a thin and transparent structure covering the whole visceral mass. It is united dorsally and fused ventrally in the cruciform muscles region, where it is thickened at the edge. The foot is large, elongated and pointed at the posterior end. The anterior and posterior adductor muscles are well developed. The pedal retractors are inserted into the foot. The foot and viscera posses many intrinsic adductor muscle fibres, while special siphonal muscles and cruciform muscles are posteriorly developed. The cruciform muscles consist of two compact bundles of transverse running fibres which stretch diagonally between the shell valves running through one another in the middle of their length.

The otenidia and palps are paired structures situated in the mantle cavity. The labial palps are trigonal and smaller than the ctenidia, having 19 folds in each. The ctenidium consists of a very large inner end and smaller, upturned demibranch. The ctenidium lacks the anterior portion in the case of outer demibranch and the inner demibranch extends dorsally and superficially over the pericardium. Centrally and along most of the ctenidial length, the outer demibranch is present and it consists of a single dorsally upturned direct lamella (Pl. III).

The siphons are separate, elongate and have constricted tips. The length of incurrent siphon is more than the body in a few cases (Pl. III).

The oesophagus is straight, long and leads directly to stomach. Stomach consists of two portions, the median globular portion and the ventral posterior portion, the style sac united with the midgut. The midgut terminated at the beginning of the rectum and enters into the pericardium, continuous around the dorsal surface of the posterior adductor muscle and terminated at the anus near the opening of excurrent siphon.

The kidney lies in between the heart and the posterior adductor muscle. The pericardium is located dorsally between the kidney and digestive diverticula. The heart consists of two large thin walled auricles connected with muscular ventricle which is transversed by the rectum (Boss, 1966). The nervous system is similar to that noted in other lamellibranchs. Gonads embedded into the foot and surrounds much of style sac and midgut.

SUMMARY

In India the genus *Strigilla* is represented by a single species *S. (Aeretica) splendida* (Anton). The Members of this are distributed along the east coast and in Andaman and Nicobar Islands. It is recognised by its oblique incised rugose sculpture on the middle which is diverticulate on both posterior and anterior ends.

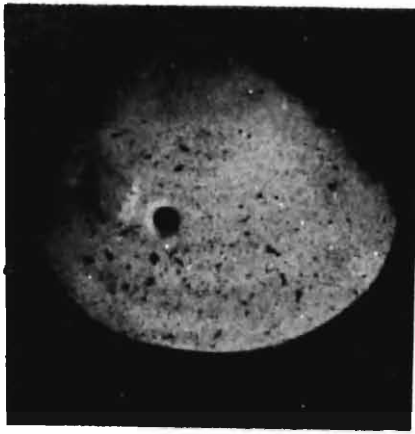
The species was found burrowing in sand as well as muddy stretches of sea and estuary, particularly where the clay contains high percentage of organic carbon. The population density was however, observed to be higher in the muddy areas of estuaries than that of sandy coastal areas.

ACKNOWLEDGEMENTS

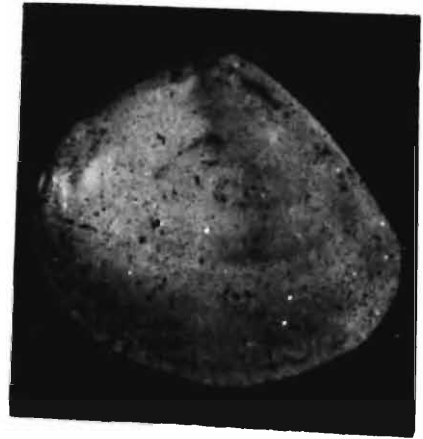
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2

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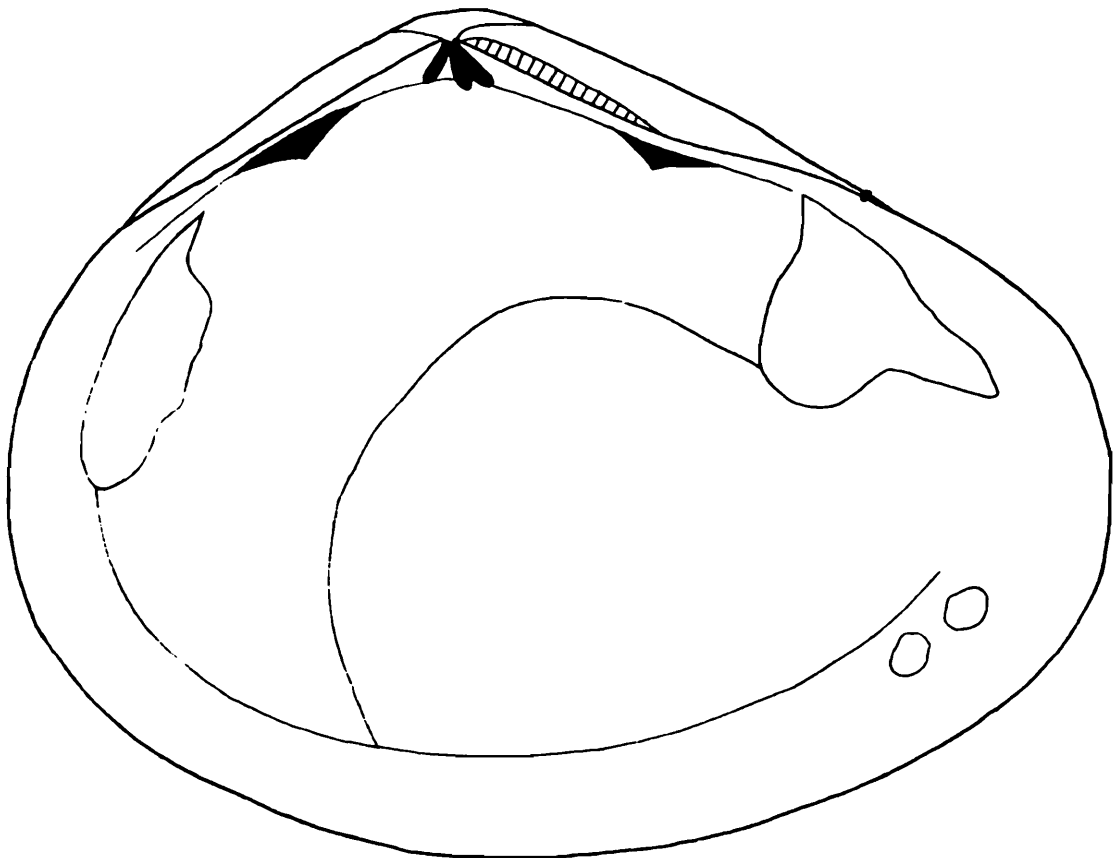


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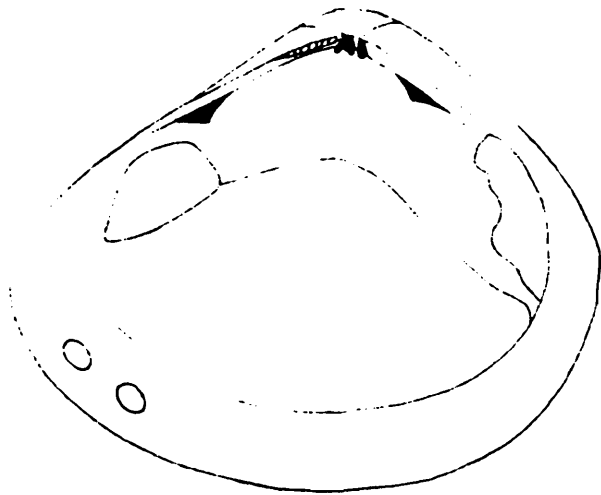


PLATE—I

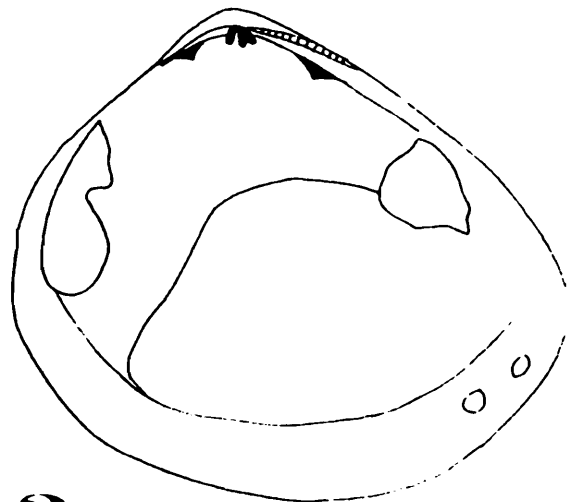
- Fig. 1. External view of left valve of *Strigilla (Aeretica) splendida* (Anton).
Fig. 2. Internal view of right valve of *Strigilla (Aeretica) splendida* (Anton).
Fig. 3. External view of right valve of *Strigilla denestriata* Preston (Type).
Fig. 4. Internal view of right valve of *Strigilla denestriata* Preston (Type).



1 ————— 5 mm.



2
————— 5 mm.



3
————— 5 mm.

PLATE—II

Diagrammatic illustrations of the internal surface of the valves showing the cardinal complex, adductor muscles impressions, cruciform muscles impressions, pallial line and pallial sinus.

Fig. 1. *Strigilla denestriata* Preston (Type), right valve.

Fig. 2. *Strigilla (Aeretica) splendida* (Anton), right valve.

Fig. 3. *Stioilla (Aeretica) splendida* (Anton), right valve.

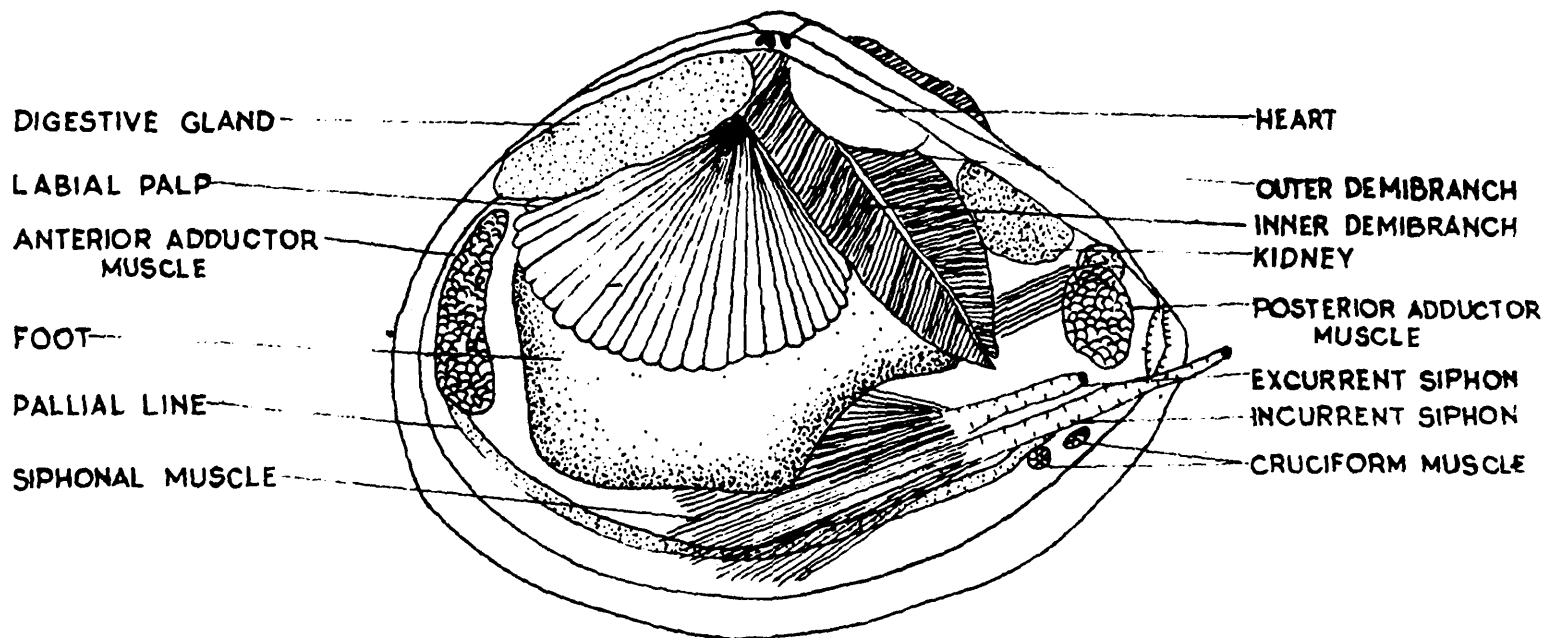


PLATE: III. Semidiagrammatic illustration of the anatomy of
Strigilla (Aeretica) Splendida (Anton)

PLATE—III

Semidiagrammatic illustration of the anatomy of *strigilla (Aeretica) splendida* (Anton).