

ON THE COMMON ANASCAN GENUS *ELECTRA* FROM VISAKHAPATNAM AND ITS VICINITY

by K. SATYANARAYANA RAO and P. N. GANAPATI, *Department of Zoology, Andhra University, Waltair*

Four species belonging to the genus *Electra*, have been described from Waltair-Visakhapatnam coast. They are *E. pilosa*, *E. bellula*, *E. angulata* and *E. bengalensis*. All the four species are described for the first time from the local coast. Of these, *E. pilosa*, *E. bellula* and *E. angulata* are new records to the Bay of Bengal. One interesting feature about the distribution of these forms in Visakhapatnam area is the restricted distribution of *E. bengalensis* (found only within the harbour) and *E. angulata* (found only in the intertidal region of the coast).

Mention has also been made of the members belonging to an allied genus *Membranipora* occurring in the area.

INTRODUCTION

The anascan genus *Electra* Lamouroux is well represented in the bryozoan collections all over the world. Along with *Membranipora* with which it has often been confused, this genus comprises probably one of the two most widely distributed Ectoproct genera. The colonies of the members of this genus are usually membranipori form, but cellularii forms are also not uncommon. They occur on almost any type of substratum in the intertidal region—be it a rock, a molluscan shell, a crab carapace, or alga—and a number of species have also been reported as entering into the fouling complex. *Electra* colonies have been reported previously from the Indian region by Harmer (1926), Stolickza (1869), Thorneley (1907), Robertson (1921) and more recently by Menon and Nair (1967) and Ganapati and Rao (1968).

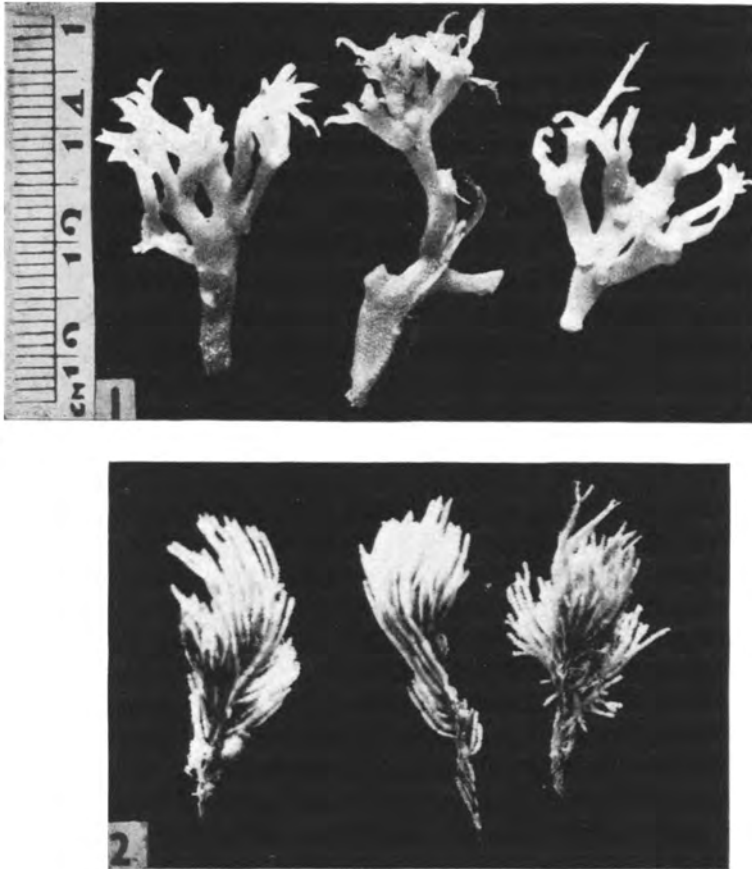
While engaged in the study of the bryozoans at Waltair-Visakhapatnam, four species belonging to this genus were collected and are described below. This is the first report on this genus from this area, except for a brief mention of *E. bengalensis* by Ganapati and Rao (1968).

SYSTEMATIC ACCOUNT

Genus : *Electra* Lamouroux

1. *Electra pilosa* (Lamouroux) (Fig. 1)

Gray-whitish colonies of this species are very often found on the rocks, algae and hydroid stems at various localities of the Waltair-Visakhapatnam coast. During certain seasons of the year (March-May), huge beds of algae particularly those belonging to the genus *Gracilaria*, have been found entirely covered by the colonies of *E. pilosa*. The colonization is so intense, that an onlooker would view only a white bed of the red alga. Similar algal associations of this form have been reported



FIGS. 1-2. 1, *Electra pilosa*—encrusting *Gracilaria* sp. 2, Three colonies of *Electra bellula*.

elsewhere by several workers. At Woods Hole and its vicinity, for example *E. pilosa* has been reported as occurring on 17 species of algae, of which some are found practically 'encased' by this bryozoan (Rogick and Croasdale 1949).

The local forms agree well with the earlier descriptions of this species. In the present collections also, two types of forms—the 'long spined' forms (those with an unusually long median spine) and 'short spined' forms (those with a heavier and shorter lowest median spine) have been found. The operculum is crescent-shaped and the lower frontal wall is a tremocyst.

2. *Electra bellula* (Hincks) (Fig. 2)

Zoarium erect, cellularii-form, branching dichotomously. The colonies arising from algae. *Jania* sp., *Gracilaria corticata*, *Spongomorpha indica* are the algal species on which *E. bellula* has often been found occurring in the local coast. The branches are narrow, usually comprising of 4 rows of zooids. Gymnocyst well developed and



FIG. 3. *Electra bengalensis* spreading on a glass plate. $\times 40$.

non-porous. A pair of lateral oral spines and a proximal spine are present more or less in all the zooids, but the spines arising from the gymnocyst exhibit considerable variation.

The colonies of *E. bellula* occur abundantly at the palm beach, Rishikonda and Yarada beach areas, particularly during May–July. Many young colonies have been observed in the collections made during this period.

3. *Electra angulata*, Levinsen

Parches of this encrusting species are very common objects on the under-surfaces of rocks throughout the Waltair–Visakhapatnam coast excepting the harbour area. The colonies are sometimes quite extensive—reaching diameters

of up to even 25 cm. The zooids are moderately calcified and are variable in shape and size. The marginal spines are short and are usually 8–12 pairs in number. However, spineless zooids have also been noticed occasionally. A proximal spine and a distal spine on the inner side of the middle of the zooid are usually present in the zooid forming the commencement of a double row, as in the forms described by Harmer (1926). Lateral multiporous plates have also been found. Avicularia and ovicells are absent. *Electra angulata* occurs in great numbers during August–November, as well as during March–May. The under-surfaces of rocks in the mid-littoral region at shingles are inevitably covered by the white colonies of *E. angulata*.

4. *Electra bengalensis* (Stoliczka) (Fig. 3)

Zoarium encrusting, thin and pale-white, young colonies are first fan-shaped and then circular while the older ones are irregular, lobose or even undulate. Zooids are elongate oval, the distal ends being a little broader than the proximal. Size of the zooids variable.

The number of marginal spines extremely variable—usually 8 pairs but as many as 14 pairs have also been noticed. Some zooids are absolutely devoid of any spines. The spines are thin-walled, hollow, and extremely variable in shape even in the same zooid. They may be narrow, or broad, or single or bifurcated at the tips; while the distal spines remain free, the two rows of proximal spines often meet at the central line. The operculum is semi-elliptical and possesses the characteristic chitinous, opercular spines, which are very elongated and are bifurcated at the tips in the older zooids. The zooids lack avicularia and ovicells. The walls are separate, thin and are grooved. Multiporous plates in both the lateral and distal walls.

E. bengalensis is a common fouling bryozoan at the Visakhapatnam harbour. It occurs abundantly throughout the harbour area excepting at the Southern Lighter Channel. It is interesting to note that no specimen of *E. bengalensis* has so far been collected from anywhere in the coast beyond the harbour area. The seasonal distribution, abundance, and settlement of this species has been studied and the results are presented elsewhere. The peak period of settlement of this form is during November–December.

Other records of *E. bengalensis* from the Indian region are those of Stoliczka (1869) from Sunderbans, Thorneley (1907) from Snod Island and Menon and Nair (1967) from Cochin backwaters.

Genus : *Membranipora*

The long list of synonyms of various species of *Electra* reveal that this genus has most often been confused, mistaken or placed under *Membranipora*, a closely related genus which has been used according to Mary D. Rogick, as a 'dumping genus' for a number of anascan genera. It would therefore be appropriate to mention about the members of this genus also which are fairly frequent in the collections from the intertidal region of the local coast. Two species of

Membranipora have so far been identified from this region. They are : *Membranipora tuberculata* (Bosc) and *M. savartii* (Andouin).

Membranipora tuberculata occurs quite abundantly on the surface of rocks, algae and molluscan shells. *M. savartii*, has often been noticed on the drift wood. The membraniporiids are present in large numbers at the Pigeon island.

Both the species are recorded for the first time from this region of the East coast.

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