though not at regular intervals. The distance between annulations varies from 0·51 to 1·08 mm, average being 0·81 mm. Between the annulations, thin transverse lines parallel to annulations are present. The annulations are not flared up. The mean diameter of the tubes is 1·02 mm and the maximum length of the erect tubes 6·5 cm The colonies are 10–12 cm long.

The creeping form of colonies, as found in the present material, is characteristic of *R. normani, R. annulata* and *R. striata*. The annulations are not flared up in *R. striata* and in *R, annulata* as also in the present material. The size of the colonies and dimensions of tubes in the present material are comparable to the 7 to 8 cm. long colonies of the giant of the genus *R. striata*. Therefore, the present material is assignable to *R. striata*.

Members of the Class Pterobranchia have been encountered by relatively few zoologists in contrast to the familiar acorn worms such as *Balanoglossus* and *Saccoglossus*. 21 known living pterobranchs are placed within three genera, *Cephalodiscus, Atubaria* and *Rhabdopleura. Cephalodiscus* contains the majority of species, most of which are found in cold waters of the Southern Hemisphere[3]. A few species have been reported from the tropical Indo-Pacific, one species from the Straits of Florida[2] and one from Japanese waters. All have been found at depths of 50 m or more. *Atubaria* contains a single non-tubicolous species dredged off Japan.

Of the four species of *Rhabdopleura, R. normani* is the most frequently collected pterobranch at several hundred metres depth off Greenland, in the Arctic, off Norway, Britain, the Azores, in the Mediterranean and in the Subantarctic and Antarctic. *R. compacta* has been recently described from specimens attached to shells dredged from British waters at 23 to 100 m[6], *R. annulata* is found off Australia and New Zealand at depths between 100 and 200 m[4]. *R. striata* was described only once from a coral reef off Ceylon in shallow water[5]. Rhabdopleuran pterobranchs are probably not as rare as the small number of records would suggest. Their minute size and the similarity of tubes to old hydroid skeletons make them easily overlooked[1]. The present report of occurrence of a pterobranch from the seas around India is the first for this region and the third for the occurrence of pterobranchs in coastal waters. Though generally known from great depths, the earlier two records of pterobranchs in shallow waters off Ceylon and Bermuda and the present one from India indicate that they abound in coastal waters as well.

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HISTOPATHOLOGY OF *HETEROPNEUSTES FOSSILIS* (BL.) INFECTED BY *PROCAMALLANUS (MONOSPICULUS) DEVENDRI*

INFECTION of the cat fish *Heteropneustes fossilis* (Bl.) by *Procamallanus* (Monospiculus) *devendri* (Nematoda) has been studied. The worm enters the stomach wall of the host by destroying the mucosa and submucosa. At some places the worm is attached to the host stomach wall by its buccal capsule (Fig. 1). In heavy infection the surface epithelial

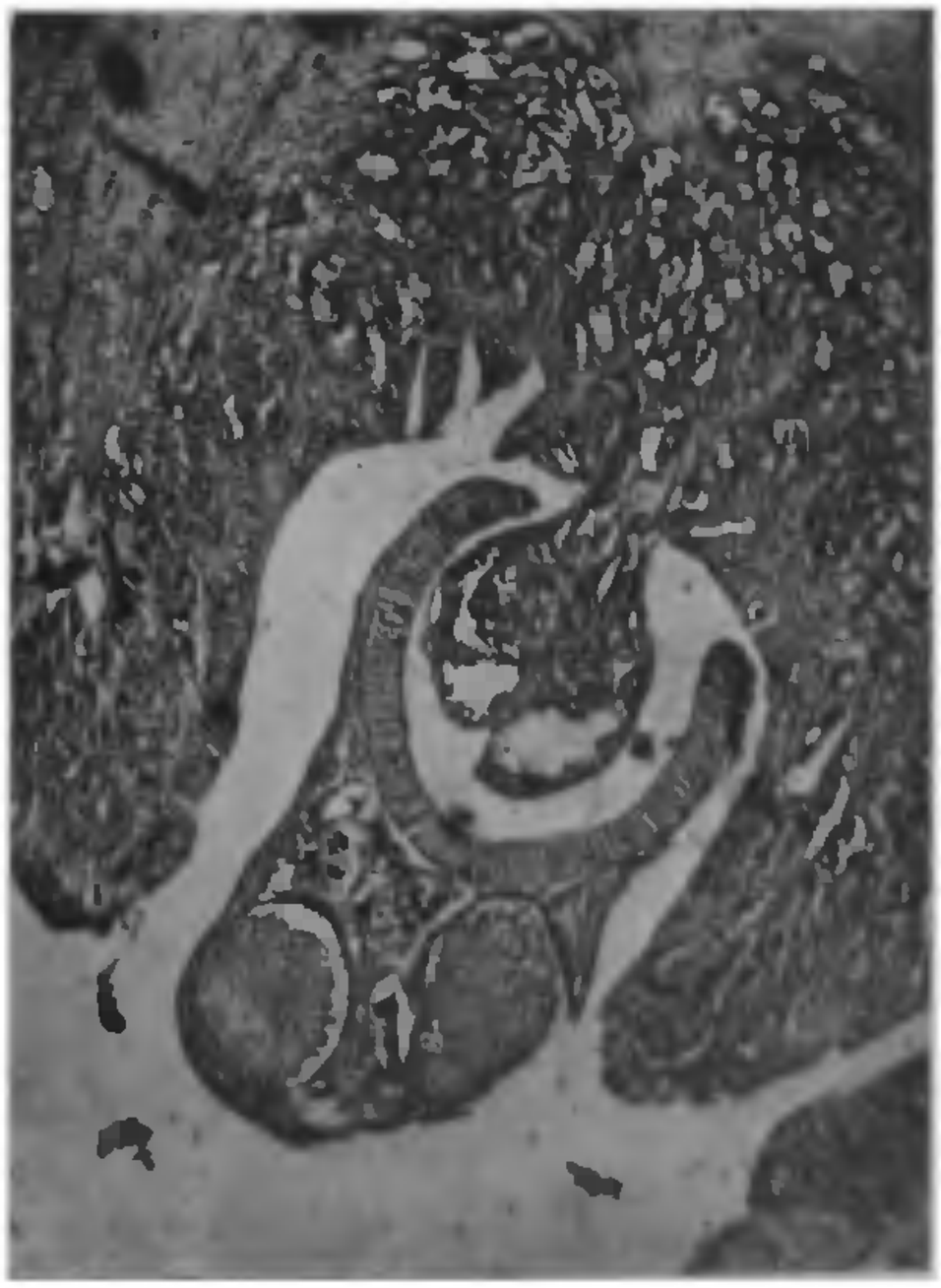

FIG. 1. Showing attachment of the worm to the stomach wall of host. × 150.

cells of stomach wall become flattened, rounded or otherwise distorted without definite boundaries. The surface epithelium is completely denuded at some places. The lamina propria is disorganized and distorted. Heavy infiltration of fibroblasts and histiocytes has been observed in the lamina propria. The submucosa is vacuolated. Portions of the body of the worm have been observed throughout the mucosa and submucosa (Fig. 2). Blood cells are seen in the submucosa and at the site of attachment of the worm. Thinning of muscular layers, and in heavy infection total loss, results in a thinning of the stomach wall at the site of attachment of the worm. The entire stomach wall of host is undermined as a result of heavy infection.

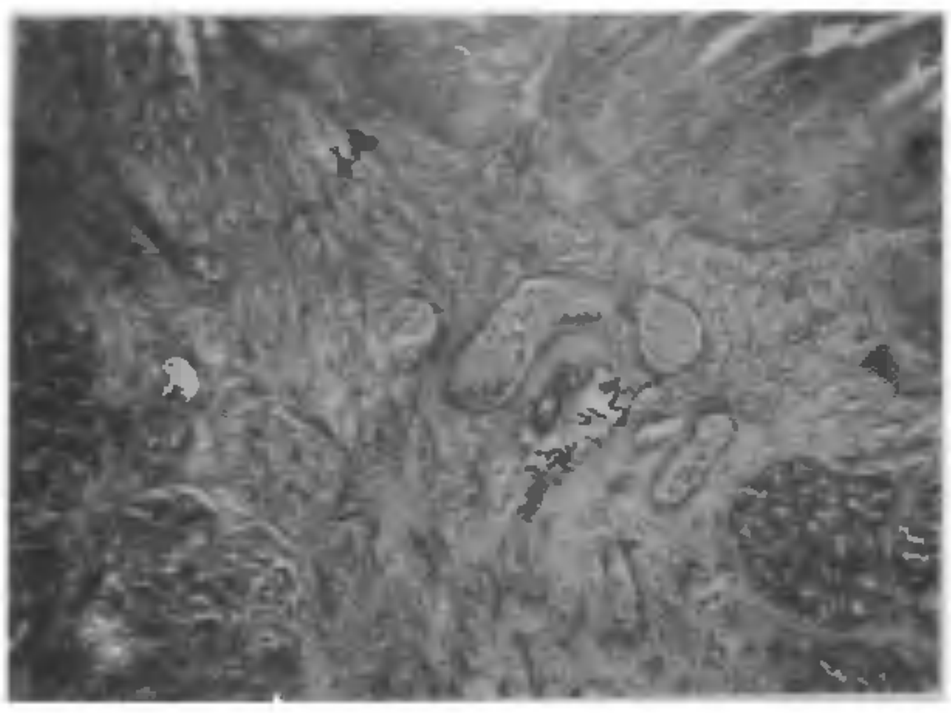

FIG. 2. Showing portions of the body of worm in the submucosa of stomach wall of host × 150.

These observations recall the changes seen in salmanoid fishes infected by *Acanthocephalus jacksoni* (Bullock[2]), in rats infected by *Moniliformis dubius* (Varute and Patil[3]) and in sheep infected by *Trichostrongylus colubriformis* (Barker[1]). Complete loss of muscular layers seen in heavily infected fishes, seen here has not been reported.

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SPODOPTERA LITURA (F.) AS A HOST FOR *NOSEMA* SP.

NEARLY 85 species of *Nosema* have been recorded as entomophilic[1]. In India, *Nosema* spp. has been reported to infect honey-bees[2] and silkworms[3]. Recently Narayanan and Subramaniam[4] and Srivastava and Ramakrishnan[5] have noticed the protozoan in the snakegourd semilooper, *Plusia peponis* F. and on potato cutworm, *Agrotis ypsilon* H. respectively. While examining the laboratory-reared tobacco caterpillar, *Spodoptera litura* (F.), some of them died in their last larval stage showing typical discoloration from dark to pale brown in the ventral aspect. The diseased larvae were sluggish and lagged behind in their development. On examination of infected tissue, numerous binucleate spores (Fig. 1, 4·21 × 1·85 μ in size) were noticed. The spores were separated by differential centrifugation and fed to third instar larvae by dipping castor leaves in the spore suspension. The larvae picked up the infection and showed the symptoms mentioned above.

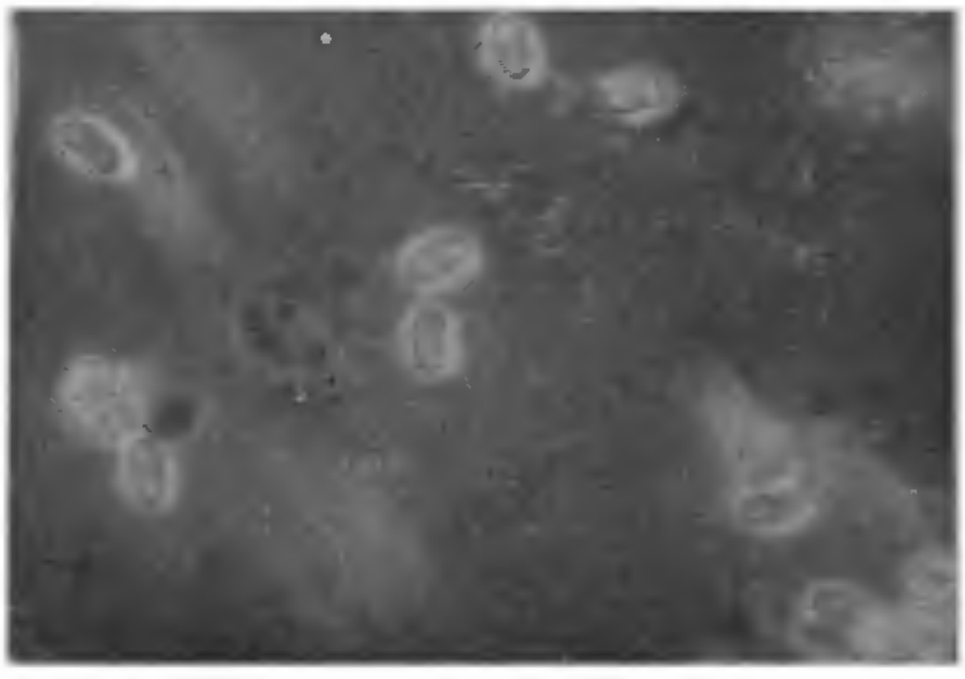

FIG. 1. Spores of *Nosema* sp. in *Spodoptera litura* under phase contrast.

This is the first record of *Nosema* sp. in S. *litura* from India.

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