and *Mastacembelus* (Bhargava, 1958). In these cases it arises at the 31.5 mm. and 21.6 mm. stages respectively. In *Tilapia mossambica* it arises at the 18 mm. stage and reaches obliquely up to the prootic bridge as in *Amia* and *Mastacembelus*. Although pila-lateralis is present in the above three fishes, they do not resemble closely otherwise and hence its presence is of little phylogenetic significance.

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ON THE OCCURRENCE OF *SIPHONOSOMA AUSTRALE* (KEFERSTEIN) AT THE VISAKHAPATNAM HARBOUR

While engaged in studying the bentthic fauna in the Visakhapatnam harbour we have frequently come across large numbers of a Sipunculid, *Siphonosoma australis* (Keferstein) in the intertidal region of the harbour in the Southern Lighter Channel. Existing records show that the salinity varies from 5.85%, (October) to 33.43% (March) in this area and the water is also highly polluted with effluents from the town's sewage. The oxygen concentration never goes above 4 ml./L and very often the worms are subjected to practically anoxic conditions. The temperature ranges from 28° C. to 30.7° C. in December and May respectively. The polychete worm *Marphysa gravellyi* and an oligochaete, *Pontodrilus bermudensis* live in the same habitat as the sipunculid. The substratum where the sipunculid is found is an admixture of sand and mud in about equal parts with small pebbles interspersed.

All available information show that most sipunculids are exclusively marine in distribution. In his investigations on the fauna of the brackish parts of the Baltic Sea, Fischer even commented that the members of the phylum Sipuncula were absent in the brackish zones and increased in numbers from Skagerrak with increasing salinities (at least 30%0) into the North Sea. *Siphonosoma australis* has a wide distribution and has been reported from Sydney, Australia; the Philippines; Fiji; Loyalty Islands; Ambon; Zanzibar; Gulf of Mannar; Samoa; and New Zealand (see Prashad, 1938 and Edmonds, 1961 for relevant literature). Among the Indian coasts, Gravely first reported its occurrence under the name *Sipunculus australis* Keferstein from the Gulf of Mannar "in mud exposed at low water on the west side of the Porites Bay" and later Prashad assigned it to the species *Siphonosoma australis* (Keferstein) in his report on the Indian Sipunculoidea. The recent report of *Siphonosoma australis* from Madagascar also indicates that the habitat from where the worms were collected salinity ranged from 29.05% to 35.57%. Cutler commenting on the hydrographical conditions of the stations from where the two genera *Sipunculus* and *Siphonosoma* were collected has observed that the two genera *Siphonosoma* may be much more tolerant than *Sipunculus* with regard to at least three parameters: temperature, salinity and oxygen. Our observations have largely confirmed Cutler's assumption.

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HAPLORCHIASIS TAICHUI IN PARIAH DOGS

Haplorchiasis taichui has been reported from cat, fox and dog in India, but information on the pathology of its infection is lacking. During the survey of helminth parasites of dogs at Bareilly about 25-5% were found to harbour H. taichui. In this communication the pathological changes caused by this parasite are reported.

The parasites were recovered in large numbers from the small intestine. The anterior portion of the small intestine was slightly inflamed. The mucosa was covered with excessive secretion. The worms were found embedded in the deeper layer of the mucosa. Lesions were more prominent in the duodenum than in the rest of the small intestine. There was a mild hyperemia of the mucous coat of the small intestine. The histo-pathological examinations revealed the cross-sections of the parasite in the crypt of Lieberkühn showing pressure atrophy in the neighbouring villi (Fig. 1). The goblet cells lining the villi were either atrophied or had completely disappeared. Infiltration of the lamina propria with large mononuclear cells was also observed. In heterophyid infections in man, Africa et al. found marked interstitial and sub-epicardial edema, intense capillary injection with hemorrhages in the epicardium, fragmentation of muscle fibres and embolism of the vessels. They recovered heterophyid ova in sclerosed mitral valves of human beings who had died of heart failure. They also reported that heterophyid parasites penetrated into the deeper layers of the intestinal mucosa and the liberated eggs were caught up in the cardiac vessels. They observed visceral complications in intestinal heterophyidiasis of man. Cameron reported the presence of Heterophyes heterophyes in between the villi of a cat, but without any significant lesions in the adjacent tissues.

FIG. 1. Section of the intestine showing H. taichui in between two villi (× 25).

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