

folded in zig-zags, the next and longest region (œsophagus) is mostly devoid of them, but they again become very well marked in front of the dilatation (stomach proper) generally found at the posterior end of the body. The intestinal canal then bends forward along the neural aspect to terminate in the anus—on the elevation between the two branchial fans. The œsophageal and stomachal regions are fixed by a median ventral mesentery and the various radiate muscles formerly described, and by the two intestinal mesenteries on its posterior face; one of these mesenteries (the right) and a median dorsal, moreover, fixing the intestine in a special manner.

The mucous surface of the canal is composed of a cylindrical cellular layer somewhat resembling the hypoderm. It forms a thick and richly folded granular and streaked tissue in the region at the base of the branchial fans. In the narrow pharyngeal division the layer attains considerable thickness, the folds forming numerous areolæ when viewed from the surface. This condition is less marked in the œsophageal region. In what may be termed the first stomachal region immediately behind the former, the streaked glandular tissue has a finely cellular and granular aspect on the surface. In the dilated stomachal region proper, the folds of this tissue again increase in thickness. The mucous coat of the intestine is similar in structure, but much thinner.

Towards its termination the rectal portion of the gut generally retains a somewhat triangular outline in the preparations. On approaching the level of the constricted canals of the nephridia, the basement-layer of the rectum shows externally and posteriorly crenate processes; then a kind of reticulation occurs in the same tissue with muscular fibres (Pl. II. fig. 1), and the canal terminates in a small circular aperture, which still has a ring of basement-tissue beneath the mucous lining. The terminal part is thus very muscular as well as elastic, and well fitted to send a jet of fæces a considerable distance. Dyster, indeed, observed the latter in the living form voided by jerks, the fusiform pellets being connected by slender filaments. These fusiform pellets are common in *Appendicularia*, which feeds on similar food.

Food seldom occurs in the first regions of the alimentary canal, but in the stomachal and intestinal portions the granular contents abound in Foraminifera, Radiolarians, Diatoms, spicules of Echinoderms and sponges, with other organic debris. Very little mud and few or no sand-grains occur in the intestine, the organisms just noted forming elongated and coherent masses by aid of a translucent and finely granular stroma, probably the result of secretion, though in some the great abundance of minute greenish granules suggested the possible presence of such low gelatinous organisms as occasionally occur in our own seas.

In the larval form (*Actinotrocha*) R. Wagener found *Bacillaria*, *Peridinia*, and spores of *Algæ*, and Schneider mentions similar forms with Diatoms in the same stage; moreover, in the Sipunculoid form into which the larva is metamorphosed, he describes