

In addition to the meridional canals, a second set of more or less radial canals, crossing the others more or less transversely, characterise this type of canal-system. The most marked of these radial canals originate at the general surface of the sponge, their circular mouths being generally and without order scattered over the exterior; these no doubt are incurrent in function; others, which are not so long as the foregoing, can be traced into the meridional canals and are evidently excurrent; it is only the incurrent canals that need engage our attention, for these are without corresponding excurrent, as the meridional excurrent canals are without corresponding incurrent ones; this naturally suggests the inquiry whether the radial incurrent canals may not really represent the missing companions of the meridional excurrent canals? In reply, I will only say that I leave it to any one who thinks so to work out the details of this reconciliation. To my mind these radial canals are to be regarded as special ectodermal invaginations, or as incurrent canals, which originated in the usual way, but which by a kind of prepotency have continued their existence through several successive generations of meridional canals.

*Canal-System in Thenea.*—In *Thenea* we seem to meet with a special case of the foregoing type; longitudinal or meridional excurrent canals proceed from a cloaca, which opens in an oscule at the summit of the sponge, and in addition to the smaller incurrent canals, which enter the sponge from the surface generally, others of a much larger size, which originate in a special equatorial recess, are present, and these entering the sponge in an obliquely inwards and upwards direction, interdigitate with the corresponding excurrent canals descending from the cloaca; it is to be observed that the equatorial recess and the canals proceeding from it are not present in young examples of the sponge, and that in some species (*Thenea fenestrata*, O. Schmidt), in which the recess is restricted to one or more small areas in small specimens of the sponge, additional areas are added with growth; it would, therefore, appear that in this case the equatorial recess is to be regarded as a series of overgrown incurrent canals or subdermal cavities, for morphologically there is no distinction between these two in this sponge. No doubt similar poriferous recesses in other sponges, such as the Desmacidonidæ, are to be similarly explained. In *Thenea*, however, an interesting relation exists between these recesses and the habit of the sponge; it always grows in a definitely fixed position, the oscule is always uppermost, and the antoscular surface faces the sea-floor, to which it is usually attached by rooting fibres; further, the sponge is a characteristically deep-water form, and presumably therefore is surrounded by tranquil water, not disturbed by currents; given these conditions it is obvious that the water most richly laden with food will be that which the sponge inhales by its equatorial surface, and if, as seems very possible, the ectoderm as well as the endoderm is an ingestive layer, the canals through which this water enters will be better fed than the others, and tend, therefore, to a preponderant growth; by this specialisation of the