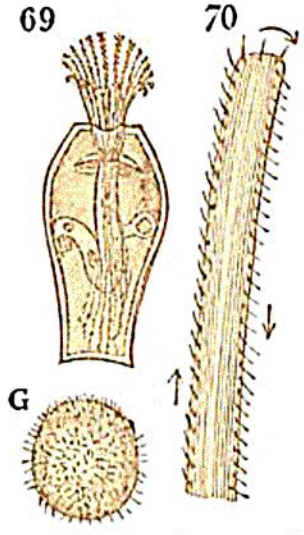
the aperture of the first cell, the upper part of the cell has already extended outwards to form the rudiment of a second: and so on, in succession, till the whole structure is completed.

The tentacula of polypi are exquisitely sensible, and are frequently seen, either singly or altogether, bending their extremities towards the mouth, when any minute floating body comes in contact with them. When a polype is expanded, a constant current of water is observed to take place, directed towards the mouth. These currents are never produced by the motions of the tentacula themselves; but are invariably the effects of the rapid vibrations of the cilia placed on the tentacula. In the polypes of the *Flustra carbasea*, (Fig. 69,) the tentacula have each a single row of cilia extending along both the lateral margins, from their base to their termination.* Each polype has usually twenty-two tentacula; and there are about fifty cilia on each side of a tentaculum, making 2200 cilia on each polype. As there are above 1800 cells in each square inch of surface, and the branches of an ordinary specimen present about ten square inches of surface, we may estimate that an ordinary specimen of this zoophyte presents more than 18,000 polypes, 396,000 tentacula, and 39,600,000 cilia. But other species certainly contain more than ten times these numbers.†



The vibrations of these cilia are far too rapid to be followed by the quickest eye, even when assisted by the most powerful microscope, and can be detected only at the times when they have become comparatively languid, by the diminished vigour of the animal: their motions may then be

* A portion of one of these tentacula is represented, highly magnified, in Fig. 70. The lower figure, (a) is the delineation of one of the gemmules of the same polypus, also greatly magnified.

† Dr. Grant has calculated that there are about 400,000,000 cilia on a single *Flustra foliacea*. Transactions of the Zoological Society of London, Vol. i. p. 11.