

ART. XV.—OBSERVATIONS ON THE TENTACLES OF THE ECHINUS—  
BY THE REV. MYTTON MAURY, D. D.

Having captured an Echinus on the shore of the harbor of Halifax, I placed him in a basin of sea-water for convenience of observation. A plentiful allowance of sea-weeds furnished him with vegetable diet, and almost gorgeously decorated his domicile with coloring such as modern æsthetic art delights in. His term of residence began at four p. m. At that time his tentacles were *all entirely pellucid*. Having noted this, I left him to ramble amid the floral beauty of his new abode. At ten p. m. I observed him again. To my surprise, the tentacles presented now an altogether different appearance. They were opaque, and bore a decided purplish tint. I snipped off a portion of one and placed it under the microscope, using an inch objective. The accompanying cut (Plate IV, Fig. 1) is copied from the drawing which I made of the amputated part. The corrugations indicated, and the quintuple division of the terminal disc, were perfectly distinct.

Applying the 8th objective, I obtained views represented in Plate IV., Figs. 2 and 3. Fig. 2 shews a pair of the corrugations on one side of the axis of the tentacle, which axis must be imagined as running at right angles to the length of the figure. Inside the walls are seen fine radiating muscular fibres which contract the organ toward the axis. But of greater interest are the contents of the interior of the sections. The dark irregular blotches indicate pieces of a purple seaweed which had been placed in the basin with the Echinus, while the hooked forms irregularly distributed in each and all of the corrugations convinced me that sponge spicules were present. I had unfortunately no nitric acid at hand to test them, but their shape and general appearance would almost identify them.

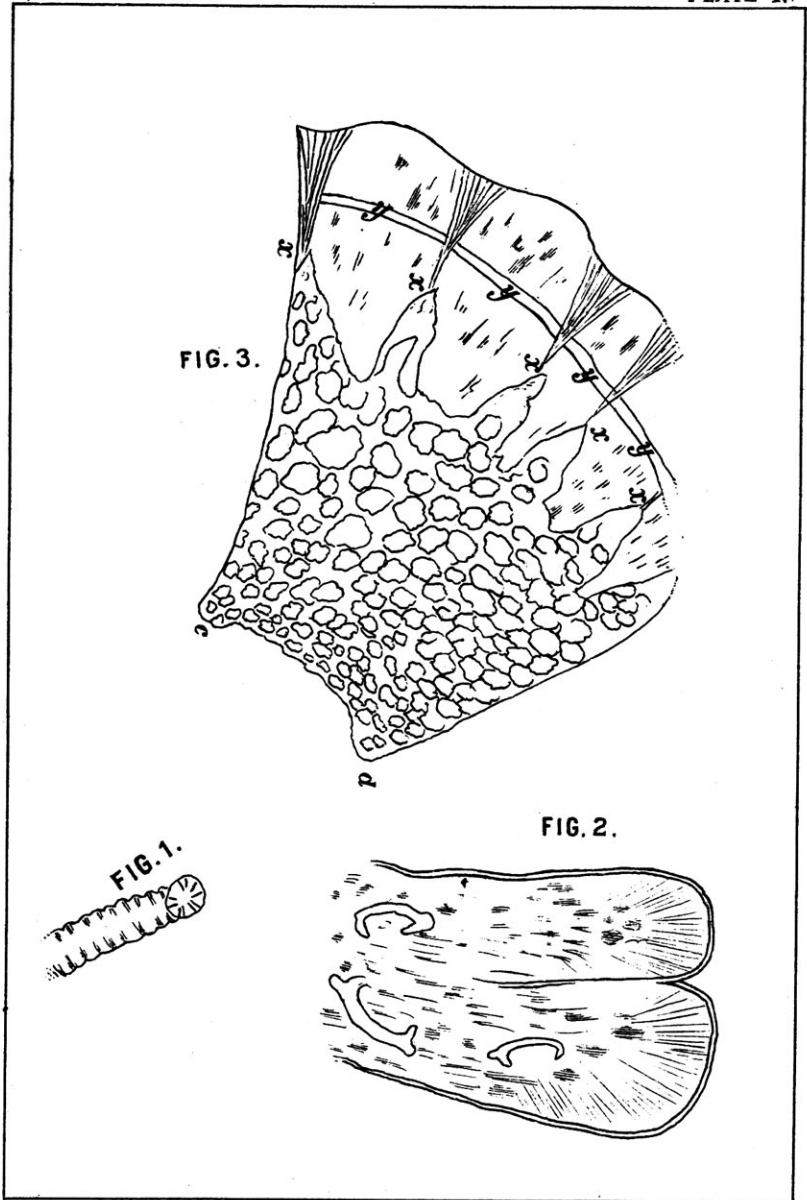
The question naturally forced itself on my mind, How did these materials find their way into the tentacles? For it was not one or one row that presented the recorded appearance, but

nearly all. Writing now from recollection, my impression is that a portion of one row was still pellucid. I hazard the conjecture that besides their locomotive function and their function of resisting motion, the tentacula of the Echinus have also the office of aiding in the nutrition of their possessor.

Fig. 3 presents a view which explains most interestingly the minute anatomy of the terminal disc. It exhibits, of course, only a portion of the organ. The area *cdeax* is composed of a formless material in which irregularly roundish masses (probably calcareous) are embedded. They are independent one of another. This secures perfect freedom of movement and enables the disc to apply itself to any conceivable form of surface, smooth or rough. Moreover, projecting in pairs from the outer portion of this plastic foot (?) are denticles (*axx*) which serve, I conjecture, the double purpose of clinging and of comminuting food. Their plasticity gives them a clawlike grasp.

It is to be observed that the bundles of muscular fibre, which seem in the figure to radiate from the points of the denticles, are not attached to these points. For, focussing upon the denticles, it is perfectly clear that the tendons of the muscular bundles are in a different plane from that of the denticles. They are hazy when the denticles are clear. They must, therefore, be attached at points interior to the denticles, these being absolutely superficial.

The double circular band, *yy*, is quite distinct. Whether it is nervous or muscular I could not safely say.



*Illustrating Rev. M. Maury's paper on the  
Tentacles of the Echinus.*