

The gemmules are all clothed with vibratile cilia similar to those of the tentacula of the parents. Sometime previous to their discharge from the polypidom they are observed to be in a constant rotatory motion, by

Fig. 6.



which their birth seems to be facilitated; and now at liberty in the water they move and swim about as if they were guided by volition and sense, whirling at the same time on their own axis.\* This freedom to move whither they list may continue for several hours, or even for two or three days, before a proper site for their permanent stay and future growth is found, when they begin to shoot up rapidly into those beautiful forms particular to each species, as the Supreme Being has ordered and determined. The transformation of the ova, says Dr Grant, "from their moving, irritable, and free condition of animalcules, to that of fixed and almost inert zoophytes, exhibits a new metamorphosis in the animal kingdom, not less remarkable than that of many reptiles from their first aquatic condition, or that of insects from their larva state." One purpose of this mobility in the ova is obvious;—it is a means ordained for their diffusion, for the parents being fixed immoveably to one spot, the reproductive germs would have dropt and sprung up at their roots, had they not, by some such mechanism as we have described, been carried to a distance, and spread over the bosom of the deep.

The evolution of the gemmules, subsequent to their fixation, has been minutely traced by Professor Grant and Sir J. G. Dalyell. When the bud falls from the crested head of *Tubularia indivisa*, slight prominences, enlarged at the tips, pullulate from the under surface, and the "nascent animal" elevating itself on these rudiments of the tentacula, as on so many feet, enjoys the faculty of locomotion. "Apparently selecting a site, it reverses

\* In reference to those of *Flustra carbacea*—and the observation appears to be very generally applicable—Dr Grant says—"they are very irritable, and are frequently observed to contract the circular margin of their broad extremity, and to stop suddenly in their course when swimming; they swim with a gentle gliding motion, often appear stationary, revolving rapidly round their long axis, with their broad end uppermost, and they bound straight forward, or in circles, without any other apparent object, than to keep themselves afloat till they find themselves in a favourable situation for fixing and assuming the perfect state."—Edin. New Phil. Journ. iii. 117.