

the current is always to and fro, from the main cavity to the tentacular bulb and back. These tubes do not anastomose with the tentacular tubes.

I have not succeeded in making out a distinct nervous system connected in any way with the central tubercle, though numerous fibres diverging in all directions may be seen in connection with the abactinal part of the funnel. But it has always seemed to me that they were contractile fibres, or rather the fibre-like angles of the motory cells, and not nervous threads, for they change their length, and are by no means so symmetrically arranged as might be expected in the nervous system of radiated animals, the disposition of which is known in some of their types. This point, however, and the periphery of the mouth, are the regions to which to look for it; but, notwithstanding all my efforts, I confess I have failed in the search, and only noticed the walls of motory cells. I have already expressed my opinion respecting the nature of the central black speck of *Pleurobrachia*. This organ presents precisely the same appearance in *Bolina*, and the same general relations with the surrounding parts.

The extraordinary transparency of the gelatinous mass, and the impossibility of preserving the animal after death in a contracted state, forbid the prospect of ever knowing fully the arrangement of the contractile fibres throughout the body, unless we obtain great improvements in the construction of the microscope, enabling us to examine bulky animals alive, and to bury the focus to any depth of the substance of their body without removing the superficial parts. As far as I have been able to trace the structure of the spherosome of *Bolina*, the general arrangement of its cells is to a great extent similar to that of *Pleurobrachia*. The radiating system of motory cells is unquestionably the most extensive, though the interambulacral system is the most conspicuous. Parts of the walls of its cells are easily seen as bunches of fibres converging toward the intervals of the successive combs of locomotive flappers, and extending brush-like across the interambulacral spaces, though diverging in each bundle. These fibres seem more powerful, and, at all events, far more distinct, than the vertical fibres, which I have never been able to trace in continuous rows.

Though I first obtained specimens of this species at short intervals through six successive months, from December to June, I never succeeded in discovering the sexual system, not even in the most rudimentary state, until I had an opportunity of watching them uninterruptedly in the latter part of the summer and during the autumn, when I found the ovaries and spermaries following the course of the ambulacral tubes, as first noticed by Will, in *Eucharis*, and alternating with one another in the eight interambulacra. The circumstance of my failing to trace the reproductive system for so long a time, may show how great difficulties these investigations are attended with, and how much remains to be done before the whole history