

explain "in what manner the animal effected those modifications of the tube and its contained air, on which the variation of its buoyancy depended."* The theory which supposes *the chambers of the shell to be permanently filled with air alone, and the siphuncle to be the organ which regulates the rising or sinking of the animal, by changing the place of the pericardial fluid*, seems adequate to satisfy every hydraulic condition of a Problem that has hitherto received no satisfactory solution.

I have dwelt thus long upon this subject, on account of its importance, in explaining the complex structure, and hitherto imperfectly understood functions, of all the numerous and widely disseminated families of fossil chambered shells, that possessed siphunculi.† If, in all these families, it can be shewn that the same principles of mechanism, under various modifications, have prevailed from the first commencement of organic life unto the present hour, we can hardly avoid the conclusion which would refer such unity of organizations to the will and agency of one and the same intelligent First Cause, and lead us to regard them all as "emanations of that Infinite Wisdom, that appears in the shape and structure of all other created beings."‡

* The recent observations of Mr. Owen shew, that there is no gland connected with the siphuncle, similar to that which is supposed to secrete air in the air-bladder of fishes.

† See Sup. Note.

‡ Dr. Hook's Experiments, p. 306.