

Owen affirms, the pericardial fluid is more dense than water, its transfer into the siphuncle will be more efficacious in causing the shell to sink, because a fluid, whose specific gravity is greater than that of an equal bulk of water, is added to the shell, without increasing its magnitude; but when the same fluid returns into the body, the consequent addition to the specific gravity of the body, is only the *difference* between the specific gravity of this fluid and that of water; and this is more than counterbalanced by the *diminution of specific gravity* which the body undergoes from the expansion of the retractile tentacula, and consequent enlargement of their magnitude. The same tentacula, when the animal shrinks back into its shell, are contracted into a smaller magnitude, and increase the tendency of the shell to sink.

In the Water balloon and apparatus connected with it, referred to at p. 318 and p. 327, the tall glass, and membrane which covers it, represent the Pericardium of the Nautilus; the water which fills the glass acts like the pericardial fluid, and if a small empty bladder were attached to the neck of the Balloon, and suspended, like an artificial siphuncle, within its cavity, the bladder, when filled with water, would represent the siphuncle of the Nautilus, when filled with pericardial fluid; and the air within the chamber of the Balloon, would represent that within the chambers of the Nautilus.

The difference would be, that in the case of the Nautilus, the *entire* Pericardium is a flexible membrane, and that nearly the *whole* of the pericardial fluid may be forced into the siphuncle; whilst in the water Balloon, *the membrane only* at the top of the glass is flexible, and a *small part* only of the water in the glass can be forced into the Balloon.

The principle which causes a change in the specific gravity, by varying the quantity of matter, within the shell and within the Balloon, without varying their respective magnitudes, is the same.

P. 329 *. The Tentacula which when expanded around the head, would impede any *progressive* motion of the animal, would follow the *retrograde* body and shell, without causing any