of chambers that are separated from each other by transverse plates; these plates are perforated to admit the passage of a membranous tube or siphuncle either through their *centre*, or near their *internal* margin. (Pl. 1. Fig. 31. Pl. 32. Fig. 2. and Pl. 33.)

The *external* open chamber is very large, and forms the receptacle of the body of the animal. The *internal* close chambers contain only air, and have no communication with the outer chamber, excepting by one small aperture in each plate for the passage of a membranous tube, which descends through the entire series of plates to the innermost extremity of the shell, (Pl. 31, y. y. a. b. c. d. e. and Pl. 32, a. b. d. e. f.). These air chambers are destined to counterbalance the weight of the shell, and thereby to render the body and shell together so nearly of the weight of water, that the difference arising from the *siphuncle* being either empty, or filled with a fluid, may cause the animal to swim or sink.*

As neither the siphuncle, nor the external

* The siphuncle represented in Pl. 31, Fig. 1, illustrates the structure and uses of that organ; in the smallest whorls, from d. inwards, it is enclosed by a thin and almost pulverulent calcareous covering, or *sheath*, of so soft a nature as to be readily scraped off by the point of a quill: this sheath may admit of the same expansion or contraction, as the membranous tube enclosed within it. In the fossil Nautili, a similar calcareous sheath is often preserved, as in Pl. 32, Figs. 2, 3, and Pl. 33, forming a connected series of tubes of carbonate of lime, closely fitted to the collar of each transverse plate. In four chambers of the recent shell (Pl. 31, Fig. 1, a. b. c. d.) this sheath is partially