

The form of the air-chambers in Ammonites is much more complex than in the Nautili, in consequence of the tortuous windings of the foliated margin of the transverse plates.*

Siphuncle.

It remains to consider the mechanism of the Siphuncle, that important organ of hydraulic adjustment, by means of which the specific gravity of the Ammonites was regulated. Its

* Pl. 42, Fig. 1, represents the cast of a single chamber of *N. Hexagonus*, convex inwards, and concave outwards, and bounded at its margin by lines of simple curvature. In a few species only of *Nautilus* the margin is undulated, (as in Pl. 43, Fig. 3, 4,) but it is never jagged, or denticulated like the margin of the casts of the chambers of Ammonites.

In Ammonites, the chambers have a double curvature, and are, at their centre, convex outwards (see Pl. 36. d. and Pl. 39. d. V.). Pl. 42, Fig. 2, represents the front view of the cast of a single chamber of *A. excavatus*; d, is the dorsal lobe enclosing the siphuncle, and e. f. the auxiliary ventral lobes, which open to receive the inner whorl of the shell. Pl. 42. Fig. 3. represents a cast of three chambers of *A. catena*, having two transverse plates still retained in their proper place between them. The foliated edges of these transverse plates have regulated the foliations of the calcareous casts, which, after the shell has perished, remain locked into one another, like the sutures of a skull.

The substance of the casts in all these cases is pure crystalline carbonate of lime, introduced by infiltration through the pores of the decaying shell. Each species of Ammonite has its peculiar form of air-chamber, depending on the specific form of its transverse plates. Analogous variations in the form of the air-chambers are co-extensive with the entire range of species in the family of Nautili.