

A fifth point of structure, producing mechanical advantage, is exhibited in the *Distances* at which these successive transverse Plates are set from one another. See Pl. 31, Fig. 1. and Pl. 32, Fig. 1, 2). Had these distances increased in the same proportion as the area of the air chambers, the external shell would have been without due support beneath those sides of the largest chambers, where the pressure is greatest: for this a remedy is provided in the simple contrivance of placing the transverse plates proportionally nearer to one another, as the chambers, from becoming larger, require an increased degree of support.

Sixthly, the last contrivance, I shall here notice, is that which regulates the ascent and descent of the animal by the mechanism of the *Siphuncle*. The use of this organ has never yet been satisfactorily made out; even Mr. Owen's most important Memoir leaves its manner of operation uncertain; but the appearances it occasionally presents in a fossil state, (See Pl. 32, Fig. 2, 3,* and Pl. 33,) supply evidence, which taken in conjunction with Mr. Owen's representation of its termination in a large sac (Pl. 34, p, p.) surrounding the heart of the animal (a, a.), appears sufficient to decide this long disputed question. If we suppose this sac (p, p.) to con-

* Pl. 32, Fig. 2, represents a fractured portion of the interior of a *Nautilus Hexagonus*, having the transverse plates (c. c'.) encrusted with calcareous spar; the Siphuncle also is similarly