

First, the circumference of the external shell is constructed every way upon the principles of an *Arch* (see Pl. 31, Fig. 1, and Pl. 32, Fig. 1.), so as to offer in all directions the greatest resistance to any pressure that tends to force it inwards.

Secondly, this arch is further fortified by the addition of numerous *minute Ribs*, which are beautifully marked in the fossil specimens represented at Pl. 32, Fig. 1. In this fossil the external shell exhibits fine wavy lines of growth, which, though individually small and feeble, are collectively of much avail as ribs to increase the aggregate amount of strength. (See Pl. 32, Fig. 1. a. to b.)

Thirdly, the arch is rendered still stronger by the disposition of the edges of the internal *Transverse plates*, nearly at right angles to the sides of the external shell, (see Pl. 32, Fig. 1, b. to c.) The course of the edges of these transverse plates beneath the ribs of the outer shell is so directed, that they act as cross braces, or spanners, to fortify the sides of the shell against the inward pressure of deep water. This contrivance is analogous to that adopted in fortifying a ship for voyages in the Arctic Seas, against the pressure of ice-bergs, by the introduction of an extraordinary number of transverse beams and bulk heads.*

* The disposition of the curvatures of the transverse ribs, or lines of growth, in a different direction from the curvatures of the internal transverse plates, affords an example of further contrivance for producing strength in the shells both of recent and