

At Plate 41. we have a rare and most beautiful example of the preservation of the transverse plates of the *Ammonites giganteus* converted to chalcedony, without the introduction of any earthy matter into the area of the air-chambers.

This shell is so laid open as to shew the manner in which each transverse plate forms a tortuous partition between the successive air-chambers. By means of these winding plates, the external shell, being itself a continuous arch, is further fortified with a succession of compound arches, passing transversely across its internal cavity; each arch being disposed in the form of a double tunnel, vaulted not only at the top, but having a corresponding series of inverted arches along the bottom.

We can scarcely imagine a more perfect instrument than this for affording universal resistance to external pressure, in which the greatest possible degree of lightness is combined with the greatest strength.

similar increase of support; whilst in those species to which the more circular form of the sides gives greater strength (as in *A. obtusus*, Pl. 35.) the sinuosities of the septa are proportionately few.

It seems probable that some improvement might be made, in fortifying the cylindrical air-tube of Massey's Patent Log for taking soundings at great depths, by the introduction of transverse plates, acting on the principle of the transverse plates of the chambered portion of the shells of *Nautili* and *Ammonites*, or rather of *Orthoceratites*, and *Baculites*, (see Pl. 44, Figs. 4. and 5.)