

The shape of the shell depends altogether on the extent and particular form and position of the secreting organ. The animal, on its exclusion from the egg, has already a small portion of shell formed, and the simplest case is that in which this rudiment of shell is a concave disk. We may conceive the animal, covered by its mantle, to expand the border of this organ, and extend it beyond the edge of the shell, where it then forms a new layer of shell; and this new layer, being applied to the inner or concave surface of the original shell, will, of course, extend a little way beyond its circumference. The same happens with the succeeding layers, each of which being larger than the one which has preceded it, projects in a circle beyond it; and the whole series of these conical layers, of increasing diameters, forms a compound cone, of which the outer surface exhibits transverse lines, showing the successive additions made to the shell in the progress of its increase. The *Patella*, or limpet, is an example of this form of structure.

But in by far the greater number of mollusca which inhabit univalve shells, the formation and deposition of the earthy material does not, as in the preceding instance; proceed equally on all sides. If the increase take place in front only, that is, in the fore part of the mantle, the continual deflexion thence arising necessarily gives the shell a spiral form, the coils being simply in one plane. This is the case in the *Planorbis*. (Fig. 105) the *Spirula*, and the *Nautilus*. Most, commonly, however, as in the *Buccinum*, and *Achatina* (Fig. 108) the deposit of shell takes place laterally, and more on one side than on the other; hence the coils produced descend as they advance, giving rise to a curve, which is continually changing its plane, being converted from a spiral into a *helix*, a term of Geometry borrowed from the Latin name of the common snail, which, as is well known, has a

calcareous covering to the mouth of the shell. Mr. Gray also ascertained that in the *Cymbia*, and *Olivæ* and the *Ancillarix*, shell is deposited, and most probably secreted by the upper surface of the foot, which is very large, and not by the mantle, which is small, and does not extend beyond the edge of the mouth. Phil. Trans. for 1833, p. 805.