mutual and perfect junction, without leaving any intervening spaces. Thus, has she provided for the enlargement of the whole structure, by admitting of additions being made to the margins of each of the separate polygonal pieces; fresh layers of calcareous substance being deposited on the under side, and on the edges of each, in proportion as the expansion of the contents of the shell causes their separation. That such a succession of deposites has taken place, may easily be seen, by minutely examining the texture of the plates, which will be found marked by concentric polygonal lines. (Fig. 99.)

The spines of the Echinus must be formed by the successive deposition of layers on their outer surface, as appears from the examination of their structure, when a longitudinal section of them has been made. The lines exhibiting the succession of layers are seen in Fig. 100, which represents such a section. Hence, they are probably deposited by the membrane which covers them during the whole period of their growth.

There is probably no series of animals that exemplify in so marked a manner as the Echinodermata, the gradations which nature has observed in passing from one model of construction to another of a totally different aspect, through every intermediate form. What shapes can be more diversified, and apparently irreducible to a common standard, than those of the star-like Asterias, (Fig. 88) of the globular Echinus, (Fig. 91,) and of the lily-shaped Pentacrinus; (Fig. 94,) and yet we find these passing the one into the other by the most gradual transitions? Setting out from the star with five slender rays, which is the standard form of the Asterias, we find the rays, in succeeding species, assuming gradually a greater breadth at their base, and their sides joining at more obtuse angles: the star-like form is gradually effaced, and the outline is rather a pentagon, with its sides curved inwards (Fig. 89.) We soon perceive this curvature giving place to a straight line, so that the shape becomes an exact pentagon. The next change effected is in the angles of this pentagon, which by degrees are lost in a