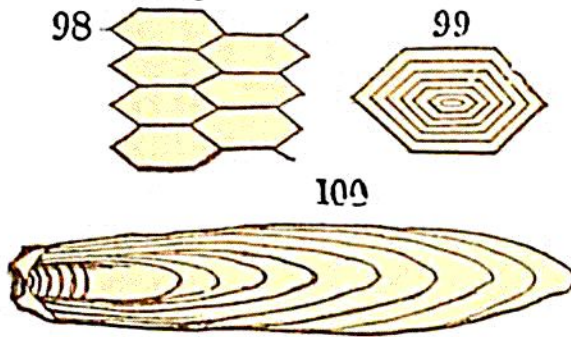


number, the advance which this animal can make in any particular direction is excessively slow.

Besides this movement of creeping, the *Asterias* is capable of bending and unbending each of its rays; actions, however, which it can perform but very slowly, and not to an extent sufficient to accomplish its removal from one place to another.\*

The skeleton of the *Echinus* or sea-urchin, (Fig. 91,) is still more artificially framed than that of the *Asterias*. It has a spheroidal form, like that of an orange; the calcareous material employed in its construction, instead of forming isolated grains, is accumulated and extended into polygonal plates (Fig. 98,) the edges



of which are dove-tailed into each other. The form of each piece is that of a lengthened hexagon; and the whole are regularly arranged in rows, like a mosaic or tessellated pavement.

Ambulacra are also seen on the surface of the shell, passing vertically down the sides of the sphere, similar to the meridians of a globe; and containing, like those of the *Asterias*, a double row of perforations.†

On the outer spherical surface of the external crust, there are formed a great number of calcareous tubercles, arranged with beautiful regularity and symmetry in double lines, passing, like meridian circles, from the upper to the lower pole of the sphere. Each appears, when magnified, to be a smooth and solid ball, projecting from the surface of one of

\* In addition to these larger tubes, there exists also a smaller set, which pierce the skin in different places, and are channels for the absorption of the water used in respiration. These I shall have occasion to notice more particularly hereafter.

† An architecture of a still more curious description is exhibited in the calcareous frame-work which has been provided for the support of the teeth, and other organs of mastication, with which this animal is furnished. The structure of these organs will be noticed when treating of that function.