lines, thus giving the field of view a striated appearance. As seen with a magnifying power of five hundred diameters, it is impracticable to represent these minute striæ with the pencil, except as the faintest lines possible. It will be noticed that the granules of the nodular fibres are not so large as those of the more interior layers; but this diminution is not constant, as will soon be seen.

In some species the different layers are very distinct from each other, (Pl. 9b, fig. 6e,) and keep their components so closely within themselves, that the passage from the one to the other seems almost an interval. This is particularly noticeable in Platypeltis ferox. Again, in others the irregularities of each layer fit into those of its neighbor; so that it is with difficulty that the respective boundaries of one or the other layer can be recognized.

As we advance outwardly, we do not find that the fibrous arrangement becomes regularly more and more apparent; but, on the contrary, here and there may be seen a layer, or rather two or three successive layers, composed of separate granular bodies, oftentimes much broader and coarser than the delicate fibres (Pl. 9b, fig. 6f, *b*) of the strata which lie on both sides of them, and still displaying their tendency to trend in particular directions (Pl. 9b, fig. 6f, *a*) in their respective layers. It is a very easy matter to peel off these coatings one from the other, and view them separately; yet, where three or four are superposed, there may be sufficient light transmitted to study them as they are naturally related. However, with these breaks in the continuity there occurs a pretty regular obliteration of the nodular appearance of the fibres, their components becoming gradually more and more intimately united to each other, as they are situated successively nearer and nearer to the outer surface of the shell membrane, till finally each fibre has become uniform and apparently structureless throughout its length. The outermost of these layers, next to the hard calcareous deposit, are composed of the smoothest and most uniform fibres, (Pl. 9a, fig. 45, and Pl. 9b, fig. 6g,) resembling at times excessively elongated tabular crystals. Before the shell is deposited, these layers may be recognized by the peculiarly brilliant nacreous appearance which strikes the eye. In Glyptemys insculpta, where this has been noticed most frequently, the component fibres are of excessive tenuity and compactness among each other, the latter feature tending, no doubt, to heighten the polished aspect of the surface of the layer.

The edge of a section made through the whole thickness of the shell membrane (Pl. 9a, fig. 43, *c*, *d*) appears more or less rough and dotted at intervals, where the ends of the fibres have been cut across at various obliquities; but between these the length of the threads may be recognized, and the layers distinguished, with more or less certainty, according to the species.

A few words are necessary in regard to the nature and origin of the gran-