

ance.* This appearance is caused by the peculiar thinness, transparency, and regularity of arrangement of the outer layers of the membrane, which, in conjunction with the particles of carbonate of lime, enter into the formation of that part of the surface of the shell. The surface, which has thus acquired a pearly lustre, was formerly believed to be a peculiar substance, and was dignified with the appellation of *mother of pearl*, from the notion that was entertained of its being the material of which pearls are formed. It is true, indeed, that pearls are actually composed of the same materials, and have the same laminated structure as the membranous shells; being formed by very thin concentric plates of membrane and carbonate of lime, disposed alternately,



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and often surrounding a central body, or nucleus: but Sir David Brewster has satisfactorily shown that the iridescent colours exhibited by these surfaces are wholly the effect of the parallel grooves consequent upon the regularity of arrangement in the successive deposits of shell.† The appearance of these grooves or striae when highly magnified is shown in Fig. 106.‡

This iridescent property may be communicated to shell lac, sealing-wax, gum Arabic, balsam of Tolu, or fusible metal, by taking an accurate cast or impression of the surface of mother of pearl with any one of these substances.§

Porcellaneous shells have a more uniform and compact texture than those of the former class. The animal matter

* Examples of this *nacreous structure*, as it is termed, occur in the shells of the *Haliotis*, or Sea-ear, and of the *Anodon*, or fresh water-muscle.

† Philosophical Transactions for 1814, p. 397.

‡ See also a paper on this subject by Herschel in the Edinburgh Philosophical Journal, ii. 114, from which the annexed figure is taken.

§ When these shells decay and fall to pieces, they separate into numerous thin scales of a pearly lustre. The fine scales thus obtained from the *Placuna*, or window oyster, are employed by the Chinese in their water-colour drawings to produce the effect of silver. Some of this powder has been brought to England and used for this purpose. (Gray, Phil. Trans. for 1833, p. 794.)