

not *very* large, they will require a magnifier to be well seen, their diameters being in that case very small; but with a lens of 20 or 30 feet focal length it is considerable, and the rings may be seen, and their diameters measured, with ease. Now it is found that these *diameters*, for the first, second, third, &c., dark rings in order (reckoned from the centre), are not in the proportion of the numbers 1, 2, 3, &c., but of the numbers 1, 1.414, 1.732, 2.000, &c., which are their exact *square roots*, giving to their system the appearance represented in the preceding diagram; and this is exactly the progression of distances from the point of contact measured on the surface of the plane glass which correspond to the series of *perpendicular distances between it and the convex spherical surface of the upper glass* in the proportion of the arithmetical series, as may be seen in Fig. 7.

(79.) So far, then, the Newtonian hypothesis affords a satisfactory account of the facts; in all, that is, but that one particular already adverted to. This, however, must be considered as conclusive against it; while, on a consideration of the whole case, there remains outstanding this strange *fact*—that at certain distances between two partially reflecting surfaces, forming a regular arithmetical progression from *nil* upwards, the portion of a beam of light reflected from the second, after passing back through the first, so far from augmenting the first reflected light, *annihilates it*, and furnishes us with an instance (which is, as we shall see hereafter, not the only one) of *the combination of lights creating darkness!*

(80.) The question now arises,—Will the undulatory