by supposing that the rays in a denser medium move more easily, and hence that the pulses become oblique; a far less satisfactory and consistent hypothesis than that of Huyghens, of which we shall next have to speak. But Hooke has the merit of having also combined with his theory, though somewhat obscurely, the *Principle of Interferences*, in the application which he makes of it to the colors of thin plates. Thus[5] he supposes the light to be reflected at the first surface of such plates; and he adds, "after two refractions and one reflection (from the second surface) there is propagated a kind of fainter ray," which comes behind the other reflected pulse; "so that hereby (the surfaces AB and EF being so near together that the eye cannot discriminate them from one), this compound or duplicated pulse does produce on the retina the sensation of a yellow." The reason for the production of this particular color, in the case of which he here speaks, depends on his views concerning the kind of pulses appropriate to each color; and, for the same reason, when the thickness is different, he finds that the result will be a red or a green. This is a very remarkable anticipation of the explanation ultimately given of these colors; and we may observe that if Hooke could have measured the thickness of his thin plates, he could hardly have avoided making considerable progress in the doctrine of interferences.

But the person who is generally, and with justice, looked upon as the great author of the undulatory theory, at the period now under notice, is Huyghens, whose *Traité de la Lumière*, containing a developement of his theory, was written in 1678, though not published till 1690. In this work he maintained, as Hooke had done, that light consists in undulations, and expands itself spherically, nearly in the same manner as sound does; and he referred to the observations of Römer on Jupiter's satellites, both to prove that this difference takes place successively, and to show its exceeding swiftness. In order to trace the effect of an undulation, Huyghens considers that every point of a wave diffuses its motion in all directions; and hence he draws the conclusion, so long looked upon as the turning-point of the combat between the rival theories, that the light will not be *diffused* beyond the rectilinear space, when it passes through an aperture; "for," says he,[6] "although the *partial* waves, produced by the particles comprised in the aperture, do diffuse themselves beyond the rectilinear space, these waves do not *concur* anywhere except in front of the

[5] *Micrographia*, p. 66.

[6] *Tracts on Optics*, p. 209.