

see, is not the case; and this instance ought to serve to make us extremely cautious how we employ, in stating physical laws derived from experiment, language which involves any thing in the slightest degree theoretical, if we would present the laws themselves in a form which no future research shall modify or subvert.

(279.) A third class of optical phenomena, which were likewise discovered while Newton was yet engaged in his optical researches, was that exhibited by doubly refracting crystals. In what the phenomenon of double refraction consists, we have already had occasion to explain. The fact itself was first noticed by Erasmus Bartolin in the crystal called Iceland spar; and was studied with attention by Huyghens, who ascertained its laws, and referred it, with remarkable ingenuity and success, to his theory of light, by the additional hypothesis of such a constitution of his ethereal medium within the crystal as should enable it to convey an impulse faster in one direction than another; as if, for example's sake, we should suppose a sound conveyed through the air with different degrees of rapidity in a vertical and horizontal direction.

(280.) Some remarkable facts accompanying the double refraction produced by Iceland spar, which Bartolin, Huyghens, and Newton, had observed, led the latter to conceive the singular idea that a ray of light after its emergence from such a crystal acquires *sides*, that is to say, distinct relations to surrounding space, which it carries with it through its whole subsequent course, and which give rise to all those curious and complicated phenomena which are now known under the name of the *polarization of light*. These results, however, appeared so extraordinary, and offered so little handle for further inquiry, that their examination dropped, as if by common consent; Newton himself resting content with urging strongly the apparent incompatibility of these properties with the Huyghenian doctrine, but without making any attempt to explain them by his own.

(281.) From the period of Newton's optical discoveries to the commencement of the present century, no