mond, and all those bodies which possess what is called the *adamantive lustre* (a consequence of such high refractive power) it is considerable. From such bodies accordingly it is not possible, at any angle of incidence to obtain a reflected ray completely polarized in one plane. And when we come to reflexion from polished metals,* the ellipticity becomes very considerable. In consequence, only a very imperfect polarization of the reflected light in the plane of incidence can be obtained by reflexion from any metalic surface at any angle.

(156.) In all the above enumerated cases, the degree of ellipticity increases *with the reflective power* of the medium of which the reflecting surface is constituted; which itself stands in intimate connexion with the magnitude of the *refractive* index. It might naturally, therefore, be expected to attain its maximum possible amount, or that the ellipse should become a circle in the case of total reflexion. This can only take place, however, when the reflexion is made on the *internal* surface of a transparent medium. This accordingly happens in the case of a beautiful experiment of M. Fresnel, who found that a parallelopiped of glass,† A B C D, fig. 15, being cut and polished, having the acute angles at A and D,

* All metals, even the densest, are in some slight degree transparent, and all have enormously large refractive indices. The transparency of gold is perceptible in gold leaf, which transmits a green light. That of silver is perceptible in the thin films deposited on glass in Liebig's process for silvering mirrors—the transmitted light being bluish.

† The glass used was that known in France as "Verre de St. Gobain."