ator and denominator of the fraction expressing it,—so that, for instance, in the passage of light out of water into air, the "law of the sines" is expressed in the same general terms, but the "refractive index" (by which is meant the *number* expressing the proportion in question) has to be changed into its numerical reciprocal. In the case supposed, when light passes out of air into water, the proportion of the sines is that of 1336 to 1000, or almost exactly 4 to 3; and the "refractive index" is accordingly expressed by the fraction $\frac{4}{3}$, or the almost exactly equivalent decimal 1·336. In the reversed case, then, when the transmission is out of water into air, it will be $\frac{3}{4}=0·75$, or more precisely 0·749.

(26.) As a matter of experiment, it is found that between transparent media, or substances capable of being traversed by light, there exists a very wide diversity in this ratio of the sines of the two angles in question, or in the numerical values of the "refractive indices." Thus when light passes out of air into the less refractive species of plate-glass, the index instead of $\frac{4}{3}$ is $\frac{3}{2}$ or 1·5; into sulphur (which in its crystalline form is transparent), 2·0; and into diamond, or the mineral called octohedrite, 2·5. In fact, each particular transparent substance, solid, liquid, *or gaseous*, has its own peculiar, and, so to speak, *characteristic* index of refraction, which is found to stand in relation to its physical habitudes in many other respects, especially with its chemical composition, and its state of aggregation and density.

(27.) Even common air, in respect of a vacuum, has its refractive index—viz., 1·0003—the effect of which is