his *Supplement to Vitello*, published in 1604, Kepler attempts to reduce to a rule the measured quantities of refraction. The reader who recollects what we have already narrated, the manner in which Kepler attempted to reduce to law the astronomical observations of Tycho,—devising an almost endless variety of possible formulæ, tracing their consequences with undaunted industry, and relating, with a vivacious garrulity, his disappointments and his hopes,—will not be surprised to find that he proceeded in the same manner with regard to the Tables of Observed Refractions. He tried a variety of constructions by triangles, conic sections, &c., without being able to satisfy himself; and he at last[1] is obliged to content himself with an approximate rule, which makes the refraction partly proportional to the angle of incidence, and partly, to the secant of that angle. In this way he satisfies the observed refractions within a difference of less than half a degree each way. When we consider how simple the law of refraction is, (that the ratio of the sines of the angles of incidence and refraction is constant for the same medium,) it appears strange that a person attempting to discover it, and drawing triangles for the purpose, should fail; but this lot of missing what afterwards seems to have been obvious, is a common one in the pursuit of truth.

The person who did discover the Law of the Sines, was Willebrord Snell, about 1621; but the law was first published by Descartes, who had seen Snell's papers.[2] Descartes does not acknowledge this law to have been first detected by another; and after his manner, instead of establishing its reality by reference to experiment, he pretends to prove *à priori* that it must be true,[3] comparing, for this purpose, the particles of light to balls striking a substance which *accelerates* them.

[2nd Ed.] [Huyghens says of Snell's papers, " Quæ et nos vidimus aliquando, et Cartesium quoque vidisse accepimus, et hinc fortasse mensuram illam quæ in sinibus consistit elicuerit." Isaac Vossius, *De Lucis Naturâ et Proprietate*, says that he also had seen this law in Snell's unpublished optical Treatise. The same writer says, "Quod itaque (Cartesius) habet, refractionum momenta non exigenda esse ad angulos sed ad lineas, id tuo Snellio, acceptum ferre debuisset, cujus nomen *more solito* dissimulavit." "Cartesius got his law from Snell, and *in his usual way*, concealed it."

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[1] L. U. K. *Life of Kepler*, p. 115.
[2] Huyghens, *Dioptrica;* p. 2.   [3] *Diopt.* p. 53.