stars,* and from his ingenious experiments on the space-penetrating power of his great telescopes, seem to show, that if the light of Sirius in its passage to us through a gaseous or ethereal fluid loses only $\frac{1}{800}$th of its intensity, this assumption, which gives the amount of the density of a fluid capable of diminishing light, would suffice to explain the phenomena as they manifest themselves. Among the doubts advanced by the celebrated author of "The New Outlines of Astronomy" against the views of Olbers and Struve, one of the most important is that his twenty-feet telescope shows, throughout the greater portion of the Milky Way in both hemispheres, the smallest stars projected on a black ground.†

A better proof, and one based, as we have already stated, upon direct observation of the existence of a resisting fluid,‡ is afforded by Encke's comet, and by the ingenious and important conclusion to which my friend was led in his observations on this body. This resisting medium must, however, be regarded as different from the all-penetrating light-ether, because the former is only capable of offering resistance inasmuch as it can not penetrate through solid matter. These observations require the assumption of a tangential force to explain the diminished period of revolution (the diminished major axis of the ellipse), and this is most directly afforded by the hypothesis of a resisting fluid.§ The greatest action

* *Cosmos*, vol. i., p. 86, 87.

† "Throughout by far the larger portion of the extent of the Milky Way in both hemispheres, the *general blackness* of the ground of the heavens, on which its stars are projected . . . . In those regions where the zone is clearly resolved into stars, well separated, and seen projected *on a black ground*, and where we look out beyond them into space. . . ." —Sir John Herschel, *Outlines of Astr.*, p. 537, 539.

‡ *Cosmos*, vol. i., p. 85, 86, 107; compare also Laplace, *Essai Philosophique sur les Probabilités*, 1825, p. 133; Arago, in the *Annuaire du Bureau des Long. pour* 1832, p. 188, pour 1836, p. 216; and Sir John Herschel, *Outlines of Astr.*, § 577.

§ The oscillatory movement of the emanations from the head of some comets, as in that of 1744, and in Halley's, as observed by Bessel, between the 12th and 22d of October, 1835 (Schumacher, *Astron. Nachr.*, Nos. 300, 302, § 185, 232), "may indeed, in the case of some individuals of this class of cosmical bodies, exert an influence on the translatory and rotatory motion, and lead us to infer the action of polar forces (§ 201, 229), which differ from the ordinary attracting force of the sun;" but the regular acceleration observable for sixty-three years in Encke's comet (whose period of revolution is $3\frac{1}{3}$ years), can not be regarded as the result of incidental emanations. Compare, on this cosmically important subject, Bessel, in Schum., *Astron. Nachr.*, No. 289, s. 6, and No. 310, s. 345–350, with Encke's Treatise on the hypothesis of the resisting medium, in Schum., No. 305. s. 265–274