vember periods alone attracted attention, has been increased by recent observations, whose results present a high degree of probability. From the meritorious labors, first of Brandes, Benzenberg, Olbers, and Bessel, subsequently of Erman, Boguslawski, Quetelet, Feldt, Saigey, Edward Heis, and Julius Schmidt, corresponding measurements have been commenced, and a more generally diffused mathematical spirit has rendered it more difficult, through self-deception, to make uncertain observations agree with a preconceived theory.

The progress in the study of fire-meteors would be so much the quicker in proportion as facts are impartially separated from opinions, and details put to the test; but not every thing discarded as being imperfectly observed which can not yet be explained. It appears to me most important to separate the *physical* relations from the *geometrical* and *numerical* relations, which latter are, upon the whole, capable of being established with greater certainty. To this class belong altitude, velocity, individuality, and multiplicity, of the points of departure when divergence is detected; the mean number of fire-meteors in *sporadic* or *periodic* appearances, reduced, according to their frequency, to the same measure of time; the magnitude and configuration in connection with the time of year, or with the length of time from midnight. The investigation of both kinds of relations, the *physical* and the *geometrical*, will gradually lead to one and the same end—to *genetic* considerations as to the intrinsic nature of the phenomenon.

I have already pointed out the fact that, *upon the whole*, *intercourse* with universal space and its contents is restricted to that which we acquire through oscillations exciting *light* and *heat*, as well as by the mysterious attractive forces which remote *masses* (cosmical bodies) exercise upon our terrestrial globe, its oceans and atmospheric envelope, according to the quantity of their material particles. The luminous vibrations which proceed from the smallest telescopic stars of a *resolvable* nebula, and of which our eyes are sensible, brings us a *testimony of the oldest existence of matter*, in the same way that it mathematically demonstrates to us the certain knowledge of the *velocity* and *aberration* of light.* A sen-

* The aspect of the starry heavens presents to us objects of *unequal date*. Much has long ceased to exist before the knowledge of its presence reaches us; much has been otherwise arranged. *Cosmos*, vol. i., p. 154, and vol. iii., p. 89, and note. (Compare also Bacon, *Nov. Organ.*, Lond., 1733, p. 371, and W. Herschel, in *Phil. Trans.* for 1802, p. 498.)