The present form of things, and the exact numerical determinations of their relations, has not hitherto been able to lead us to a knowledge of the past states, or a clear insight into the conditions under which they originated. These conditions must not, however, on that account, be called *accidental*, as men call every thing whose genetic organ they are not able to explain.

3. *Absolute and apparent Magnitude; Configuration.* —The diameter of the largest of all the planets (Jupiter) is 30 times as great as the diameter of the smallest of those which have been determined with certainty (Mercury); nearly 11 times as great as the diameter of the Earth. Very nearly the same relations obtain between Jupiter and the Sun. Their diameters are nearly as 1 to 10. It has been asserted, perhaps erroneously, that the distance of the meteoric stones, which there is a tendency to consider as small planetary bodies, from Vesta, which, according to a measurement by Mädler, is 66 geographical miles in diameter, therefore 80 miles less than the diameter of Pallas according to Lamont, is not greater than the distance of Vesta from the Sun. According to these relations, there must be meteoric stones of 517 feet in diameter. Fire-balls certainly have, while they retain a disk-like appearance, a diameter amounting to 2600 feet.

The dependence of the flattening at the poles upon the velocity of rotation appears most strikingly in the comparison of the Earth as a planet of the interior group (Rot., 23^h 56′; Flattening, $\frac{1}{299}$) with the exterior planet Jupiter (Rot., 9^h 55′; Flattening, according to Arago, $\frac{1}{17}$; according to John Herschel, $\frac{1}{15}$), and Saturn (Rot., 10^h 29′; Flattening, $\frac{1}{10}$). But Mars, whose rotation is still 41 minutes slower than the rotation of the Earth, has, even when a much smaller result is assumed than that of William Herschel, very probably a much greater flattening. Does the reason of this anomaly, inasmuch as the figure of the surface of an elliptical spheroid ought to correspond with the velocity of rotation, consist in the difference of the law of the increasing density toward the center of the superincumbent strata? or in the circumstance that the liquid surface of some planets was solidified before they could assume the figure appertaining to their velocity of rotation? The important phenomena of the backward motion of the equinoctial points or the apparent advance of the stars (precession), that of *nutation* (oscillation of the Earth's axis), and the variation of the inclination of the