mentioned by Christian Mayer, William Herschel,* and Harding, also remains exceedingly mysterious. It is not probable that at so great a distance the reflected light of the Earth should produce an ash-colored illumination upon Venus as upon our Moon. Hitherto there has been no flattening observed in the disks of the two inferior planets, Mercury and Venus.

The Earth.

The mean distance of the Earth from the Sun is 12,032 times greater than the diameter of the Earth; therefore, 82,728,000 geographical miles, uncertain as to about 360,000 miles ($\frac{1}{230}$). The period of the sidereal revolution of the Earth round the Sun is 365d. 6h. 9′ 10″·7496. The eccentricity of the Earth's orbit amounts to 0·01679226; its mass is $\frac{1}{355951}$; its density in relation to water, 5·44. Bessel's investigation of ten measurements of degrees gave for the flattening of the Earth $\frac{1}{299 \cdot 153}$. The length of a geographical mile, sixty of which are contained in one equatorial degree, 951,807 toises, and the equatorial and polar diameters, 6875·6 and 6852·4 geographical miles. (*Cosmos*, vol. i., p. 65, note.) We restrict ourselves here to numerical data referring to the Earth's figure and motions: all that refers to its physical constitution is deferred until the concluding terrestrial portion of the Cosmos.

The Moon of the Earth.

The mean distance of the Moon from the Earth is 207,200 geographical miles; the period of sidereal revolution is 27d. 7h. 43′ 11″·5; the eccentricity of her orbit, 0·0548442; her diameter is 1816 geographical miles, nearly one fourth of the Earth's diameter; her material contents $\frac{1}{54}$ those of the Earth; the mass of the Moon is, according to Lindeman, $\frac{1}{87 \cdot 73}$ (according to Peters and Schidloffsky, $\frac{1}{81}$) of the mass of the Earth; her density, 0·619, therefore nearly three fifths of the density of the Earth. The moon has no perceptible flattening, but an extremely slight prolongation on the side toward the Earth, estimated theoretically. The rotation of the Moon upon its axis is completed exactly in the same time in which it revolves round the Earth, and this is probably the case with all other secondary planets.

The sunlight reflected from the Moon is in all zones more

* *Philos. Transact.*, 1795, vol. lxxxvi., p. 214.