the immutable laws of nature constrain to gyrate incessantly in their prescribed course. Like its sister spheres, it obeys a twofold movement: a *movement of rotation* upon its own axis, which it accomplishes in a period of 24 hours [23 hours, 56 min., 4 sec.], and a *movement of translation* round the Sun, which it performs in the space of $365\frac{1}{4}$ days nearly.

The Earth's *movement of rotation* upon its axis produces the regular alternation of day and night. During a part of the twenty-four hours that this rotation endures, the luminous disc of the Sun is hidden from the inhabitants of one-half the Earth, which is then involved in a more or less complete darkness. In our next chapter we shall explain why the night increases and decreases at different epochs of the year.

The Earth's *movement of translation* round the Sun is accomplished, as we have stated, in the course of twelve months. The ideal track of this movement of translation in space is called the *terrestrial orbit*, or *ecliptic*;* which is not an exact circle, with the Sun for its centre, but a nearly circular ellipse, one of whose foci is occupied by the Sun. In geometry, we call a slightly elongated circle an *ellipse*, or *oval*; let a cylinder be cut obliquely, and the contour of the section will represent the figure we mean.

The ellipse not being, like a circle, symmetrically disposed around a centre, it results that the Earth is not always at the same distance from the Sun. On the 2nd of July, it attains its extreme distance from the Sun [or its *aphelion*]; on the 1st of January, it comes nearest to it [or reaches its *perihelion*]. The mean distance between the two bodies is attained on the 1st of April and the 2nd of October. In midwinter, the Earth is nearer the Sun by 5500 million yards (nearly 3,100,000 miles) than in midsummer. This circumstance appears paradoxical; but we must not forget that at the epoch of our European summer the inhabitants of the opposite hemisphere are suffering the rigour of winter. Moreover, the annual

* [Ecliptic, from Eclipse (Gk., *ἐκλειπτικος*), because all eclipses of the Sun and Moon take place when the Moon crosses the line of the terrestrial orbit.]