

axis and around the sun. Laplace has proved that its axial revolution has not changed to the hundredth part of a second during the last two thousand years. At the beginning of that period the time of the moon's journey round the earth was expressed in days and parts of a day, and the time then accurately determined is found to correspond exactly with the present period of lunar revolution, proving that the length of the day has not changed. Nor has the most rigid calculations detected any change in the time of the earth's revolution in its orbit. Whilst, as we have shown, its perihelion is ever advancing, the form of its orbit ever changing, and its motions are delicately sensitive to the attraction of the moon and the sister planets, yet its journey round the sun is ever performed without the alteration of the fractional part of a second as to annual time. The preservation of the present order of nature is dependent to a radical extent on such precision. The slightest annual *uncompensated* addition to the period of its diurnal revolution would ultimately destroy the harmonious action of its gravitating energy, hurling its matter into space, whilst a gradual diminution could not end otherwise than by terminating the alternations of day and night, leaving one half of the world constantly exposed to the scorching rays of the sun, and the other in perpetual darkness. On the other hand if its centrifugal force were increasing the earth would be gradually carried beyond the sun's influence, or on the supposition of its diminution it would at last be engulfed in the sun itself. Happily, however, both scientific theory and actual facts unite in corroborating the truth of God's word—"whilst the earth remaineth seed time and harvest, and summer and winter shall not cease."

But leaving the earth let us fix our attention on those orbs which are placed, in relation to the sun, exterior to it. The first planet we encounter on our outward flight is Mars. Its distance from the earth is about fifty-one millions of miles. It is easily distinguished in the sky from the other planets by its red colour, which is supposed to be owing to the ochrey tinge of its soil, just as the appearance of our planet might be af-

fected, as viewed from one of the other planets, by the predominance of red sand stone on its surface. Indeed Mars is regarded as presenting in its constitution and general aspect a nearer resemblance to the earth than any of the other planets. Its diameter is 4,100 miles—little more than half that of our world. Its density as compared with water is 2.93—that of the earth being 5.67. It performs a complete revolution round the sun in about 686 days, its rotation on its axis being accomplished like that of the earth in about 24 hours. Its seasons resemble those of the earth. When viewed through a powerful telescope the outlines of seas and continents are clearly discernable—the former presenting a greenish aspect. At its poles bright spots are seen which are supposed to be masses of ice and snow like those which abound in the polar regions of the earth—a conjecture which is all the more likely to be correct as these spots disappear to a great extent as they become exposed to the rays of the sun.

The great distance which separates Jupiter from Mars led to the supposition of the existence of an intervening planet, and on a systematic search being instituted several planets were discovered. In 1851 the number of these little worlds known was about fifteen, but since that year about eighty additional ones have been found, with the prospect of further discoveries. Olbers thinks that they are fragments of a large planet which has been shivered by some tremendous internal agency whose force has hurled them into space, and that being immediately seized by the sun, they have continued to describe orbits corresponding to the impulse thus imparted. From their small size the force of gravity on their surface offers such a trifling resistance to muscular energy that in the opinion of Sir John Herschel a man on the surface of one of them could, with the utmost ease, leap 60 feet high!

Leaving those small bodies we arrive on our outward flight at Jupiter—the largest of all the planets. We presume, as seen by the naked eye, it is familiar to almost all our readers. In point of brilliancy it is next to Venus. It shines with a steady lustre as compared with that planet or the star Sirius, which