circles; among the rest, the equator, the tropics, and circles, at the same distance from the poles as the tropics are from the equator. One of the curious consequences of this division was the *assumption* that there must be some marked difference in the stripes or *zones* into which the earth's surface was thus divided. In going to the south, Europeans found countries hotter and hotter, in going to the north, colder and colder; and it was supposed that the space between the tropical circles must be uninhabitable from heat, and that within the polar circles, again, uninhabitable from cold. This fancy was, as we now know, entirely unfounded. But the principle of the globular form of the earth, when dealt with by means of spherical geometry, led to many true and important propositions concerning the lengths of days and nights at different places. These propositions still form a part of our Elementary Astronomy.

*Gnomonic.*—Another important result of the doctrine of the sphere was *Gnomonic* or *Dialling*. Anaximenes is said by Pliny to have first taught this art in Greece; and both he and Anaximander are reported to have erected the first dial at Lacedemon. Many of the ancient dials remain to us; some of these are of complex forms, and must have required great ingenuity and considerable geometrical knowledge in their construction.

*Measure of the Sun's Distance.*—The explanation of the phases of the moon led to no result so remarkable as the attempt of Aristarchus of Samos to obtain from this doctrine a measure of the Distance of the Sun as compared with that of the Moon. If the moon was a perfectly smooth sphere, when she was exactly midway between the new and full in position (that is, a quadrant from the sun), she would be somewhat more than a half moon; and the place when she was *dichotomized*, that is, was an exact semicircle, the bright part being bounded by a straight line, would depend upon the sun's distance from the earth. Aristarchus endeavored to fix the exact place of this Dichotomy; but the irregularity of the edge which bounds the bright part of the moon, and the difficulty of measuring with accuracy, by means then in use, either the precise time when the boundary was most nearly a straight line, or the exact distance of the moon from the sun at that time, rendered his conclusion false and valueless. He collected that the sun is at 18 times the distance of the moon from us; we now know that he is at 400 times the moon's distance.

It would be easy to dwell longer on subjects of this kind; but we have already perhaps entered too much in detail. We have been