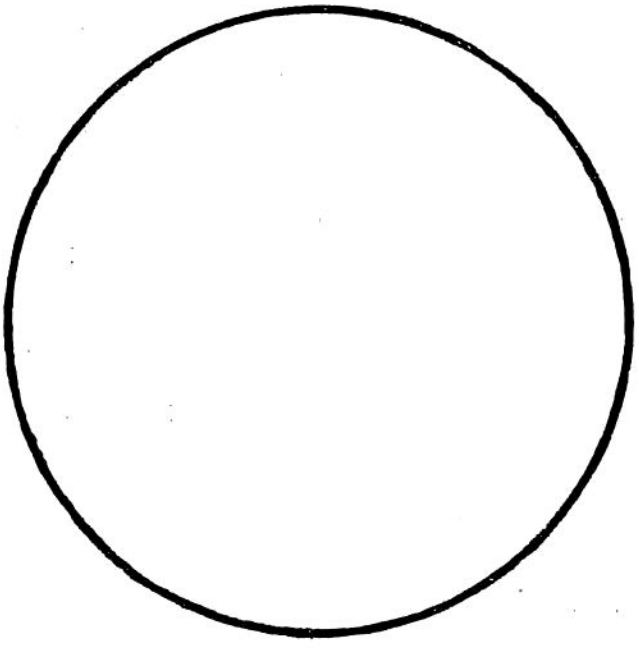
Fig. 124.



not appear to be at the same rate in all countries. The mean of all the observations which have been made in England, gives 44 feet for a change of one degree. In some mines in France the increase is much slower, and in a few it is faster. The mean is reckoned at about 45 feet for each degree. In Mexico according to the only observation given above, it is 45.8 feet. In Saxony it is considerably greater, not far from 65 feet to a degree. The few observations in this country, given in the preceding table, indicate an increase of 57 feet to a degree.

The average increase for all the countries where observations have been made is stated by the British Association to be at the rate of 45 feet to each degree, and this may be used for the present.

At this rate, assuming the temperature of the surface to be 50°, a heat sufficient to boil water would be reached at the depth of 7,290 feet, or more than a mile; a heat of 6,400°, sufficient to melt all known rocks, would be reached at 59.23 miles; and if the temperature continued to increase uniformly, at the center of the earth it would amount to 475,000°. But it is probable that the degree of heat is uniform after reaching a certain point.

Another method of calculating the thickness of the crust has been proposed from the Precession of the Equinoxes. This change of the earth's position is caused by the attraction of the sun and moon upon the protuberant ring of matter around the equator. It is claimed that the amount of this attraction will vary in proportion to the amount of fluid matter in the earth. If the earth were entirely fluid or entirely solid, the amount of precession would vary to the one or other side of its present rate. Thus the present rate is a sort of medium between two extremes; and hence it is calculated that the solid crust of the earth must be at least 800 miles thick to be consistent with the present amount of precession. This view would relieve many of the difficulties urged against the doctrine of internal heat; but the