

ing-point the meridian of the peak of Teneriffe. Most ancient geographers chose that of the island of Ferro, which lies in $18^{\circ} 9'$ W. longitude from Greenwich ; but this custom, which had no rational foundation, has fallen into desuetude.

It would be desirable that all nations should agree on the adoption of a universal first meridian ; but routine and national jealousy will long oppose themselves to this simplification.

Let us now pass to the consideration of what is understood by the word *latitude*. It expresses the distance from the equator valued in degrees of the circle. It is north latitude when referring to a place situated north of the equator, and south latitude in the contrary case. All places having the same latitude are situated on a circle *parallel* to the equator. The number of degrees of the circle indicates the distance of the equator in north and south latitude. Thus, London is $51\frac{1}{2}^{\circ}$ N. latitude, or $51\frac{1}{2}^{\circ}$ north of the equator.

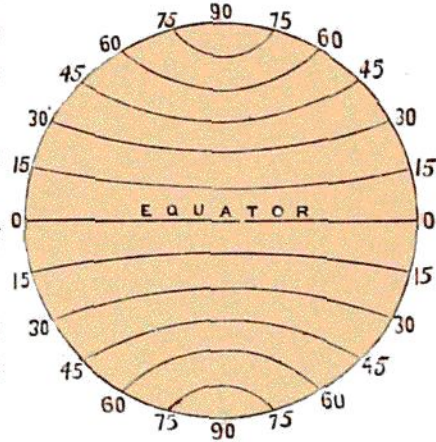


FIG. 30. . . LATITUDES OF THE GLOBE.

It is evident that by the employment of both latitude and longitude we can indicate with exactness the situation of any place on the surface of the globe.

But latitude is often considered from an astronomical point of view, and in this sense we think it desirable to regard it briefly, because it affects the determination of the Earth's figure—the special object of this chapter.

The latitude of a terrestrial place is equal to the elevation of the celestial pole above the horizon of that place, or rather to the distance of the zenith from the celestial equator. This is shown in Figure 31, where the reader may study the relation of the terrestrial equator and poles to the celestial equator and poles.

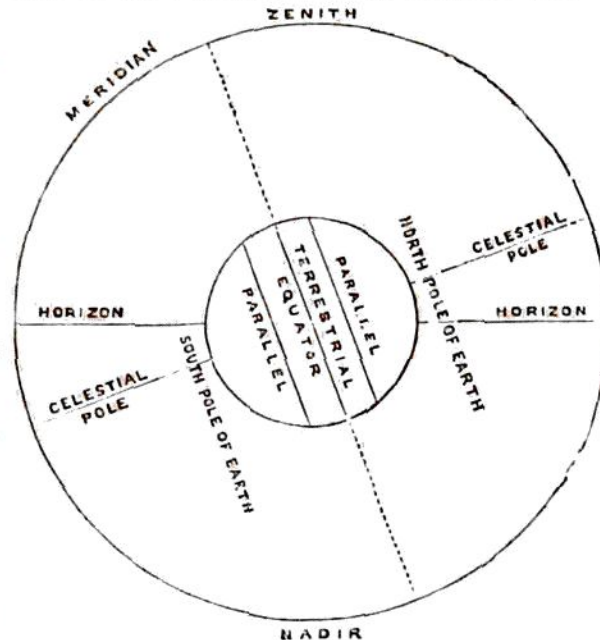


FIG. 31.—CELESTIAL EQUATOR, POLES, AND ZENITH.

Astronomers determine the latitude of a place by measuring the elevation of the Polar star above the horizon; or, rather, they calculate it by the elevation of the other stars and of the Sun at the moment that these stars traverse the meridian. Ascertaining the Sun's meridian elevation by observation, and its distance from the celestial equator by the astronomical tables, they deduce the altitude of the equator, subtracting from it 90° , the distance from the equator to the zenith—that is, the *geographical latitude*.

This last process furnished Snellius with the latitudes of the three Dutch towns