THE TERRESTRIAL GLOBE

Again it will next be observed, as a consequence of terrestrial curviture, the twilight lengthens as we proceed from the Equator to the poles. At the Equator every degree of longitude being equal to four minutes of time, and the zone 18° in width. It follows that the length of twilight will be 10×4 or 72 minutes of time.

In acquiring a knowledge of the actual history of the difference of time any place is in twilight, the following may be attended to. That at the parallel 72° north every place NORTH is below the zone after sunset at the equinoxes, and consequently midnight darkness there entirely ceases, there being 12 hours of sunlight and 12 hours of twilight. Thus in both hemispheres the twilight varies from 72 minutes at the equator to 12 hours, at all latitudes north or south of 72 degrees; that is within 18° of the poles. It is worthy to note here by bringing the sun's place to the northern tropic Gemini, the sun then has a declination of 23° 28'. Yet notwithstanding that obliquity, the duration of the twilight at the equator is practically the same as at the equinoxes, about 72 minutes. At the parallel of Toronto, for example, about 44° N., it will be found that the twilight has extended so obliquely on the globe when the sun is in Gemini-the time of the city's passage through it, is fully two hours and twenty minutes-so that real night, then, only lasts about three hours and twenty minutes. Moreover, north of the latitude 66° 30' at the above time in the year, the sun does not set during the twenty-four hours, so that there, there is neither night nor twilight at the above day in the year.

At the autumnal equinox, all the conditions as regards twilight, are identically the same as at the vernal equinox, excepting that the globe's axis, when viewed by the astronomical system of study, it inclines now to the left hand, instead of, as before, to the right of the ecliptic axis.

In the annual progress of the twilight round the ecliptic axis it will be observed when the sun reaches the southern solstice (Sagittarius), the twilight is now in the equinoxial plane, and that all the illuminating phases observed in the summer of the northern hemisphere takes place now in the southern. From the parallel 66° 30' south to the pole it is constant day, and at all latitudes between 66° 30' south of the equator there are alterations of DAY, TWILIGHT and NIGHT.

The reader, who may now have attended practically to the foregoing explanations, may quite readily discover with what ease and accuracy all the new problems can be solved by the Astronomical Globe, and we presume it is almost unnecessary to allude to its importance in the study of the globe's surface, since you cannot reason or point out intelligently any particular phase in the work without its use. In a gr. it measure the terrestrial globe, without all the astronomical mechanical details, is very similar to a chronometer without either dial or index. In fine, in revising and tracing the causes of the distribution of wi va

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