

Section 5.—The Meteorological Service of Canada.

Under the above heading Sir Frederic Stupart contributed a short article descriptive of the growth and present activities of the Meteorological Service, to the 1922-23 edition of the Year Book (pp. 43-47); to it the interested reader is referred.

Section 6.—Meteorological Tables.

Tables showing the normal temperature and precipitation at selected Canadian stations in each of the provinces, together with the recorded extremes, also the averages of sunshine, wind, and weather at such stations, will be found at pp. 51-63, inclusive, of the 1927-28 edition of the Year Book. The 1931 edition of the Year Book contains at pp. 48-76 additional and more comprehensive tables, contributed by A. J. Connor, of monthly average temperatures and precipitation throughout Canada, as well as of normal snowfall and duration of bright sunshine.

Times of Sunrise and Sunset in Canada.*—The table between pp. 68 and 69 gives the times of sunrise and sunset for places in latitudes 44°, 46°, 48°, 50°, and 52°. These latitudes cover what is pretty well the populated belt across Canada.

Times are given in mean solar time. The moment when the sun is over the meridian which passes through a certain place is not constant on any two consecutive days and a clock cannot be constructed to keep true meridian time. For this reason, mean or average time is used. It will be clear that no two places, unless they are exactly on the same meridian of longitude, have either the same meridian time or the same mean time. It follows that, for convenience in every-day life and to facilitate transportation schedules, a system of standard time has to be adopted.

The surface of the earth is divided into belts each of which extends approximately 7½ degrees east and west of a central meridian whose local time is an exact number of hours from Greenwich time. These central meridians are, of course, 15°, 30°, 45°, etc. from Greenwich. On the ocean the boundaries of the belts are also true meridians, but on the land they are drawn to suit local circumstances. An examination of the map on page 67 will show this.

Within a certain belt or zone all the clocks are set to show the same time, and in passing from one such zone to another the hands of the clock are moved forward or backward one hour.

In Canada we have six standard time zones, as follows: the Atlantic (or 60th Meridian) Time Zone, which is 4 hours slower than Greenwich; the Eastern (or 75th Meridian) Time Zone, which is 5 hours behind Greenwich; the Central (or 90th Meridian) Time Zone, which is 6 hours behind; the Mountain (or 105th Meridian) Time Zone, which is 7 hours behind; the Pacific (or 120th Meridian) Time Zone, which is 8 hours behind; and the Yukon (or 135th Meridian) Time Zone, 9 hours slower than Greenwich. The boundaries of the zones are laid down in the Statutes of the several provinces and territories and are shown on the map.

Since, as stated, the tables are given in mean solar time for the five latitudes named, correction must be made, according to the following instructions, to change these times to standard or railroad times of cities and towns in the respective latitudes.

* By permission of the Royal Astronomical Society of Canada, the calculations facing p. 68 and instructions for correction given below are reproduced from *The Observers' Handbook*, 1931, published by the Society.