

IV.—DETERMINATION OF THE AZIMUTH OF POLARIS AND TRUE MERIDIAN  
AT ANY HOUR, THE STAR BEING VISIBLE AND THE CORRECT LOCAL  
MEAN TIME BEING KNOWN.

Many years ago a table was published giving azimuths of Polaris at stated times during one year, but as it was arranged for a kind of time with which surveyors are generally unacquainted, and was explained in unfamiliar astronomical terms, and required the use of tables and data not always accessible, it met with little favor and never came into general use.

In this article it is proposed to simplify the work, omit all technicalities requiring a knowledge of astronomy, and present the method with two new and compact tables adapted to common clock time, with such plain directions for use that any person of ordinary intelligence can understand and apply them.<sup>1</sup>

As the surveyor should have a perfectly clear idea of what is meant by *astronomical time* (used to simplify computations) and the *hour angle of Polaris*, these terms will now be explained.

The *Civil Day*, according to customs of society, commences at midnight and comprises twenty-four hours from one midnight to the next following. The hours are counted from 0 to 12 from midnight to noon, after which they are again reckoned from 0 to 12 from noon to midnight. Thus the day is divided into two portions of 12 hours each, the first of which is marked a. m., the last p. m.

The *Astronomical Day* commences at noon on the civil day of the same date. It also comprises twenty-four hours; but they are reckoned from 0 to 24, and from the noon of one day to that of the next following.

The *civil day begins twelve hours before the astronomical day*; therefore the first period of the civil day answers to the last part of the preceding astronomical day, and the last part of the civil day corresponds to the first part of the astronomical day. Thus, January 9, 2 o'clock p. m., civil time, is also January 9, 2h astronomical time; and January 9, 2 o'clock a. m., civil time, is January 8, 14h, astronomical time.

The rule, then, for the transformation of civil time into astronomical time is this: *If the civil time is marked p. m., take away the designation p. m., and the astronomical time is had without further change; if the civil time is marked a. m., take one from the day and add twelve to the hours, remove the initials a. m., and the result is the astronomical time wanted.*

<sup>1</sup> See foot-note, p. 511.