hourly rate of the watch, + when losing — if gaining $(T - T_o)$ being expressed in hours.

Correction for Diurnal Aberration.—This correction is very small, and unless the observation is taken in conjunction with a chronometer and chronograph had better be neglected. The formula is:

The correction for diurnal aberration, $k = 0^s.0207 \sin \varphi_o$ (9)
This correction is to be subtracted from the observed time of transit.

3. Separate the Time stars from the Latitude stars, and arrange each in pairs east and west, pairing according to their respective hour angles t.

4. Compute rigorously and tabulate for each star, the value of θ by (1) and (2), using seven-figure logarithms and taking angles out to seconds of arc.

5. Compute also and tabulate $Z = \dfrac{1}{\sin t \,.\, \cos \delta}$ (10)

+ for west and — for east stars

$$L = \frac{1}{15 \,.\, \sin 2\varphi_o} \,.\, \cot. \, t \tag{11}$$

same sign as Z.

Four-figure logarithms are sufficient in both cases.

6. Form the quantity $(\theta - Tc)$ for each star. If the watch is fast this quantity will probably be negative, and if slow, positive.

7. Distinguish all western observations with an accent, thus $(\theta' - Tc')$, Z', L'.

COMPUTATION FOR TIME.

8. Tabulate for each pair of Time stars

$$z = \frac{(\theta' - Tc') - (\theta - Tc)}{Z' - Z} \tag{12}$$

Be careful about the sign of z, as the correction to the latitude depends upon this.

9. The watch error ΔTc as given by each pair

$$= \frac{\{(\theta' - Tc') - Z'z\} + \{(\theta - Tc) - Zz\}}{2} \tag{13}$$

ΔTc_o is the mean of the ΔTc for all the pairs.

COMPUTATION FOR LATITUDE.

10. Find the mean z_o of all the z's in the Time stars.

11. If Z_o, Z'_o, L_o, L'_o, represent the mean of all the Z's, Z''s, L's, L''s in the Time stars.

Then
$$\left.\begin{aligned} Z_1 &= \frac{Z'_o - Z_o}{2} \\ L_1 &= \frac{L'_o - L_o}{2} \end{aligned}\right\} \text{ for Time stars} \tag{14}$$