

Value of one division of transit level No. 2, &amp;c.—Continued.

| T.   | No. of obs. | Readings of— |        |      | Difference. |        | d     | e     | ee     |
|------|-------------|--------------|--------|------|-------------|--------|-------|-------|--------|
|      |             | Micrometer.  | Level. |      | Micr.       | Level. |       |       |        |
|      |             |              | N.     | S.   |             |        |       |       |        |
| 72.5 | 17          | 1147.8       | 17.0   | 73.0 |             |        |       |       |        |
|      |             | 1498.9       | 77.0   | 14.0 | 351.1       | 59.50  | 5.901 | 0.032 | 0.0010 |
| 72.0 | 18          | 1521.7       | 12.0   | 79.0 |             |        |       |       |        |
|      |             | 1880.6       | 73.0   | 18.0 | 352.9       | 61.00  | 5.884 | 0.049 | 0.0024 |
| 71.5 | 19          | 1886.5       | 13.0   | 77.5 |             |        |       |       |        |
|      |             | 2066.3       | 77.5   | 14.0 | 379.8       | 64.00  | 5.934 | 0.041 | 0.0000 |
| 71.5 | 20          | 2066.3       | 16.0   | 75.0 |             |        |       |       |        |
|      |             | 2751.4       | 82.0   | 10.0 | 385.1       | 65.50  | 5.879 | 0.054 | 0.0026 |

$$x_0 = 5.934$$

$$[r] = 0.8821$$

$$r = 0.6745 \sqrt{\frac{0.8821}{12 \times 17}} = 0.115$$

$$d = 5.933 \pm 0.115$$

$$R = 62^{\circ}.00$$

$$d = 3^{\circ}.673$$

## CHANGE OF RIGHT ASCENSION AND DECLINATION.\*

## UPPER TRANSIT.

$$\frac{R}{10}(t+0.1865) + \frac{d}{200}(t+0.1864)^2$$

Tabulated values of  $\frac{1}{20}(t+0.1864)^2$  Arguments,  $\frac{d}{10} t$ .

| d<br>10 | t       |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|         | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       |
| 1       | 0.00000 | 0.20000 | 0.50000 | 0.80000 | 1.30000 | 1.90000 | 2.50000 | 3.30000 | 4.20000 |
| 2       | 0.14725 | 0.59375 | 1.04125 | 1.58875 | 2.24625 | 3.01375 | 3.89125 | 4.87875 | 5.97625 |
| 3       | 0.21117 | 0.71867 | 1.22617 | 1.73367 | 2.34117 | 3.04867 | 3.85617 | 4.76367 | 5.77117 |
| 4       | 0.28120 | 0.78870 | 1.29620 | 1.80370 | 2.41120 | 3.11870 | 3.92620 | 4.83370 | 5.84120 |
| 5       | 0.35745 | 1.06495 | 1.57245 | 2.07995 | 2.68745 | 3.39495 | 4.20245 | 5.10995 | 6.11745 |
| 6       | 0.43990 | 1.14740 | 1.65490 | 2.16240 | 2.76990 | 3.47740 | 4.28490 | 5.19240 | 6.20000 |
| 7       | 0.52845 | 1.23595 | 1.74345 | 2.25095 | 2.85845 | 3.56595 | 4.37345 | 5.28095 | 6.28845 |
| 8       | 0.62310 | 1.33060 | 1.83810 | 2.34560 | 2.95310 | 3.66060 | 4.46810 | 5.37560 | 6.38310 |
| 9       | 0.72385 | 1.43135 | 1.93885 | 2.44635 | 3.05385 | 3.76135 | 4.56885 | 5.47635 | 6.48385 |

## LOWER TRANSIT.

$$\frac{R}{10}(t+0.685) + \frac{d}{200}(t+0.685)^2$$

Tabulated values of  $\frac{1}{20}(t+0.685)^2$  Arguments,  $\frac{d}{10} t$ .

| d<br>10 | t        |          |          |          |           |           |           |           |           |
|---------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
|         | 1        | 2        | 3        | 4        | 5         | 6         | 7         | 8         | 9         |
| 1       | 0.141961 | 0.369461 | 0.678961 | 1.070461 | 1.543961  | 2.099461  | 2.736961  | 3.455461  | 4.254961  |
| 2       | 0.283922 | 0.739422 | 1.357922 | 2.149422 | 3.123922  | 4.289422  | 5.645922  | 7.193422  | 8.931922  |
| 3       | 0.425883 | 1.091383 | 2.029883 | 3.241383 | 4.815883  | 6.753383  | 8.955883  | 11.423383 | 14.155883 |
| 4       | 0.567844 | 1.441344 | 2.715844 | 4.389344 | 6.463844  | 8.938344  | 11.812844 | 15.086344 | 18.749844 |
| 5       | 0.709805 | 1.692305 | 3.394805 | 5.479305 | 8.053805  | 11.128305 | 14.702805 | 18.777305 | 23.351805 |
| 6       | 0.851766 | 2.162266 | 4.073766 | 6.584266 | 9.695766  | 13.407266 | 17.719766 | 22.532266 | 27.844766 |
| 7       | 0.993727 | 2.562227 | 4.794727 | 7.689227 | 11.311727 | 15.644227 | 20.606727 | 26.209227 | 32.351727 |
| 8       | 1.135688 | 2.961728 | 5.431228 | 8.779728 | 12.927228 | 17.859728 | 23.422228 | 29.534728 | 36.199728 |
| 9       | 1.277649 | 3.401169 | 6.110669 | 9.877169 | 14.543669 | 20.110169 | 26.576669 | 33.943169 | 42.209669 |

\* Explanation and notation in Part II, Chapter I, of the report.