

ASTRONOMISCHE NACHRICHTEN.

N^o 2629.

Observations of Comet 1882 I

with the thirteen-inch Refractor of the Dudley Observatory.

By *Lewis Boss*.

| 1882 | Albany M.T. | $\Delta\alpha$ | $\Delta\delta$ | Comp. | α app. | Par. | δ app. | Par. | Obs. | * |
|---------|---|-------------------------------------|----------------|-------|---|---------------------|----------------|--------|------|----|
| Mar. 19 | 13 ^h 27 ^m 18 ^s | +1 ^m 38 ^s .74 | + 2' 44".3 | 27.9 | 17 ^h 54 ^m 45 ^s .59 | —0 ^s .28 | +33° 27' 24".4 | + 2".1 | B | 1 |
| 19 | 15 18 12 | +1 40.55 | + 5 11.5 | 9.3 | 17 54 53.40 | —0.20 | +33 29 51.6 | + 1.3 | B | 1 |
| 24 | 11 47 21 | —6 48.97 | + 1 30.0 | 15.5 | 18 3 11.98 | —0.33 | +36 10 33.9 | + 3.0 | B | 2 |
| 28 | 12 59 30 | +1 30.02 | — 5 12.4 | 15.5 | 18 10 40.10 | —0.34 | +38 39 2.2 | + 2.2 | B | 3 |
| 30 | 11 36 13 | +3 20.94 | + 4 18.5 | 18.6 | 18 14 28.41 | —0.37 | +39 55 21.5 | + 3.1 | B | 4 |
| Apr. 5 | 12 18 11 | +2 39.51 | + 3 43.7 | 7.4 | 18 27 29.49 | —0.43 | +44 14 19.4 | + 2.4 | E | 5 |
| 14 | 10 46 4 | +0 45.26 | + 0 52.8 | 10.5 | 18 52 19.50 | —0.56 | +51 45 4.7 | + 3.6 | E | 6 |
| 15 | 14 31 12 | +7 19.53 | + 0 15.7 | 15.5 | 18 56 17.43 | —0.40 | +52 49 26.0 | — 0.4 | B | 7 |
| 16 | 9 46 29 | +1 0.10 | — 0 0.7 | 20.10 | 18 59 12.45 | —0.56 | +53 34 47.9 | + 4.7 | E | 8 |
| 16 | 10 33 27 | —1 10.01 | + 0 10.8 | 18.9 | 18 59 19.60 | —0.60 | +53 36 37.6 | + 3.8 | E | 9 |
| 17 | 10 0 50 | —0 15.90 | — 1 36.5 | 12.6 | 19 3 2.49 | —0.60 | +54 32 51.5 | + 4.4 | E | 10 |
| 23 | 12 5 5 | +2 2.08 | + 4 36.9 | 15.5 | 19 32 5.86 | —0.78 | +60 41 13.0 | + 1.7 | B | 11 |
| 24 | 8 54 5 | —5 12.20 | + 0 13.4 | 10.5 | 19 37 21.55 | —0.67 | +61 35 34.9 | + 5.9 | E | 12 |
| 24 | 9 33 9 | —1 48.13 | — 1 17.2 | 10.5 | 19 37 32.40 | —0.75 | +61 37 14.4 | + 5.1 | E | 13 |
| 30 | 9 32 52 | +2 37.11 | — 0 25.9 | 31.12 | 20 27 20.49 | —0.94 | +67 53 8.1 | + 5.6 | E | 14 |
| May 1 | 9 40 59 | —4 59.65 | — 0 34.0 | 30.10 | 20 38 52.81 | —1.00 | +68 53 12.5 | + 5.6 | E | 15 |
| 3 | 9 14 15 | +0 24.32 | + 0 7.1 | 40.20 | 21 5 25.51 | —0.94 | +70 45 4.5 | + 6.5 | E | 16 |
| 6 | 10 45 54 | +7 11.64 | — 0 5.4 | 30.10 | 21 58 36.00 | —1.32 | +73 8 26.2 | + 5.4 | E | 17 |
| 7 | 9 11 6 | +4 16.05 | — 1 47.7 | 15.5 | 22 18 2.03 | —0.80 | +73 41 16.4 | + 7.6 | E | 18 |
| 15 | 10 3 3 | —2 21.09 | — 4 36.6 | 30.10 | 1 30 51.12 | —0.06 | +72 41 29.5 | + 8.9 | E | 19 |
| 16 | 10 38 30 | —1 45.29 | — 3 38.4 | 30.10 | 1 51 38.11 | —0.17 | +71 47 17.1 | + 8.9 | E | 20 |
| 23 | 8 9 59 | —4 48.27 | — 2 41.2 | 9.3 | 3 27 8.31 | +0.79 | +62 47 14.7 | + 7.4 | E | 21 |
| 25 | 9 16 20 | —2 47.90 | — 5 34.6 | 15.5 | 3 44 25.05 | +0.53 | +59 27 16.8 | + 8.6 | E | 22 |
| 25 | 11 19 23 | —1 23.90 | + 1 31.1 | 30.10 | 3 45 3.97 | +0.05 | +59 18 42.1 | + 9.6 | E | 23 |
| 29 | 8 47 33 | +1 53.89 | — 0 53.2 | 18.6 | 4 9 30.92 | +0.54 | +52 23 7.5 | + 8.1 | E | 24 |
| June 1 | 8 53 14 | +4 34.21 | — 3 45.5 | 18.6 | 4 23 24.00 | +0.45 | +46 31 48.1 | + 8.1 | E | 25 |

Ring-Micrometer Observations.

| | | | | | | | | | | |
|--------|---------|---------|--------|-----|------------|-------|-----------|-------|---|----|
| July 6 | 9 3 7 | —2 9.6 | — 0 9 | 4.4 | 10 11 4.8 | +0.36 | +10 30 20 | + 4.7 | E | 26 |
| 7 | 9 8 5 | —5 36.4 | + 4 31 | 3.3 | 10 17 7.5 | +0.35 | +10 14 26 | + 4.6 | E | 27 |
| 15 | 9 12 29 | +2 22.8 | + 3 45 | 8.8 | 10 57 12.7 | +0.29 | + 8 18 37 | + 3.8 | E | 28 |

Observers: B Boss, E Egbert.

The positions of nearly all the comparison stars were determined by Mr. Tucker with the Transit circle of this observatory. In the comparison which follows, I have added positions of some stars elsewhere used in comparisons with the comet. Positions of Numbers 20 and 21 were adopted from 539 Sternen for 1882. For the position of Number 24 I am indebted to the kindness of Professor Pickering of Harvard Observatory.

| *(DM.) | α 1882.0 | δ 1882.0 | *(DM.) | α 1882.0 | δ 1882.0 |
|-------------------------|--|---|--------------------------------------|---|--|
| 1 33°2995 1882.4 | 17 ^h 53 ^m 5 ^s .68 5.63 5.66 +1 ^s .19 | +33° 24' 54".7 53.5 54.1 —14".0 | 14 67°1248 1882.7 | 20 ^h 24 ^m 42 ^s .23 42.37 42.30 +1 ^s .08 | +67° 53' 43".3 43.8 43.6 — 9".6 |
| 3 38°3113 1882.5 | 18 9 8.75 8.80 8.78 +1.30 | +38 44 28.4 28.3 28.4 —13.8 | 15 68°1150 1882.7 | 20 43 51.49 51.51 51.50 +0.96 | +68 53 56.4 57.4 56.9 —10.4 |
| 2 36°3062 1882.5 | 18 9 59.79 59.71 59.75 +1.20 | +36 9 17.2 17.6 17.4 —13.5 | 16 70°1164 1882.7 | 21 5 0.39 0.38 0.38 +0.81 | +70 45 5.6 6.3 5.9 — 8.5 |
| 4 39°3367 1882.6 | 18 11 6.04 6.24 6.14 +1.33 | +39 51 17.0 16.7 16.9 —13.9 | 17 73°1003 1882.7 | 21 51 23.65 23.85 23.75 +0.61 | +73 8 38.9 38.8 38.8 — 7.2 |
| 36°3067 1882.5 | 18 11 13.34 13.39 13.36 | +36 44 0.8 1.8 1.3 | 18 73°969 1882.7 | 22 13 45.43 45.57 45.50 +0.48 | +73 43 10.3 11.1 10.7 — 6.6 |
| 5 44°2906 1882.5 | 18 24 48.63 48.62 48.62 +1.36 | +44 10 50.0 48.3 49.2 —13.5 | 19 72°93 1882.7 | 1 33 11.85 11.87 11.89 11.99 11.90 +0.31 | +72 46 8.7 8.9 7.9 7.1 8.1 — 2.0 |
| 7 52°2294 1882.5 | 18 48 56.49 56.42 56.46 +1.44 | +52 49 23.6 22.5 23.1 —12.8 | 23 59°736 1882.7 | 3 46 26.72 26.84 26.78 +1.09 | +59 17 12.2 12.7 12.4 — 1.4 |
| 6 51°2456 1882.5 | 18 51 32.79 32.89 32.84 +1.40 | +51 44 25.3 23.6 24.4 —12.7 | 22 59°737 1882.7 | 3 47 11.88 11.86 11.87 +1.08 | +59 32 52.3 53.1 52.7 — 1.3 |
| 8 53°2167 1882.5 | 18 58 11.09 10.83 10.96 +1.39 | +53 35 0.2 0.0 0.1 —11.5 | 25* 46°884 1882.7 | 4 18 48.57 48.53 48.54 +1.25 | +46 35 35.5 36.4 36.2 — 2.6 |
| 9 53°2175 1882.5 | 19 0 28.36 28.10 28.23 +1.38 | +53 36 39.8 38.6 39.2 —12.4 | 26 10°2139 1883.1 | 10 13 12.84 12.72 12.78 +1.66 | +10 30 42.2 41.4 41.8 —12.2 |
| 10 54°2084 1882.5 | 19 3 16.93 17.05 17.05 17.01 +1.38 | +54 34 42.4 39.0 39.5 40.3 —12.3 | 27 10°2157 1883.1 | 10 22 42.25 42.19 42.22 +1.68 | +10 10 8.2 6.6 7.4 —12.2 |
| 11 60°1963 1882.5 | 19 30 2.51 2.37 2.44 +1.34 | +60 36 46.9 47.5 47.2 —11.1 | 28 8°2446 1883.1 | 10 54 48.09 48.01 48.05 +1.78 | + 8 15 5.2 3.8 4.5 —12.4 |
| 13 61°1889 1882.5 | 19 39 19.27 19.19 19.23 +1.30 | +61 38 42.1 42.9 42.5 —10.9 | 9 ^m 3 5°2562 1883.2 | 11 52 16.66 16.73 16.71 16.70 | + 5 13 47.3 47.8 47.4 47.5 |
| 12 61°1900 1882.6 | 19 42 32.52 32.41 32.50 32.48 +1.27 | +61 35 31.7 32.8 32.5 32.3 —10.8 | 8 ^m 5 5°2563 1879.3 | 11 52 27.55 27.61 27.58 | + 4 59 56.2 55.8 56.0 |

| *(DM.) | α 1882.0 | δ 1882.0 |
|-------------------|---|-----------------|
| 10 ^m 5 | 11 ^h 56 ^m 12 ^s .27 | +4°55'48".0 |
| 5°2573 | 12.40 | 51.9 |
| 1883.3 | 12.28 | 52.7 |
| | 12.32 | 50.9 |
| 8 ^m 8 | 11 56 22.96 | +4 52 39.1 |
| 5°2574 | 22.95 | 38.3 |
| 1881.3 | 22.96 | 38.7 |
| 9 ^m 5 | 11 59 41.56 | +4 45 2.7 |
| 4°2572 | 41.67 | 3.4 |
| 1883.3 | 41.51 | 3.9 |
| | 41.58 | 3.3 |
| 8 ^m 1 | 12 6 28.41 | +4 3 35.0 |
| 4°2585 | 28.29 | 35.9 |
| 1879.6 | 28.42 | 35.2 |
| | 28.37 | 35.4 |
| 9 ^m 3 | 12 14 13.27 | +3 43 0.9 |
| 3°2632 | 13.31 | 0.7 |
| 1883.2 | 13.38 | 0.6 |
| | 13.32 | 0.7 |

| *(DM.) | α 1882.0 | δ 1882.0 |
|------------------|---|-----------------|
| 9 ^m 1 | 12 ^h 17 ^m 28 ^s .73 | +3°30'28".6 |
| 3°2638 | 28.81 | 27.1 |
| 1883.3 | 28.66 | 28.1 |
| | 28.73 | 27.9 |
| 9 ^m 0 | 12 20 57.17 | +3 19 33.5 |
| 3°2645 | 57.11 | 36.1 |
| 1879.3 | 57.14 | 34.8 |
| 9 ^m 5 | 12 26 51.59 | +3 3 60.8 |
| 3°2663 | 51.58 | 59.8 |
| 1883.2 | 51.74 | 59.4 |
| | 51.64 | 60.0 |

| # | α 1882.0 | δ 1882.0 | Authority |
|----|---|----------------------|--------------------|
| 20 | 1 ^h 53 ^m 22 ^s .93 +0.47 | +71°50'57".3 —1.8 | 539 Sterne |
| 21 | 3 31 55.57 +1.01 | +62 49 57.3 —1.4 | 539 Sterne |
| 24 | 4 7 35.85 +1.18 | +52 24 2.8 —2.1 | Harvard A. G. Zon. |

* Number 25. The meridian observations of this star are reduced to the beginning of the year with proper motion respectively of +0".0096 and —0".337. The adopted position is $\alpha = 4^h 18^m 48^s.53 + (4^s.3184 + 0^s.0096)(t - 1882)$ $\delta = +46^\circ 35' 36".3 + (9".140 - 0".337)(t - 1882)$. This compares with observations according to the following table:

| Authority | Epoch | Syst. Corr. | α (Obs.) | α (Calc.) | Syst. Corr. | δ (Obs.) | δ (Calc.) | Obs. |
|-----------------------|--------|-------------|--|---------------------|-------------|-----------------|------------------|------|
| Lal. 8248 | 1798.1 | +0".20 | 4 ^h 12 ^m 52 ^s .10 | 52 ^s .03 | +0".2 | +46°24' 1".2 | 2".5 | 1 |
| AOe ₁ 1206 | 1842.1 | 0.00 | 15 54.40 | 54.39 | +0.3 | 30 3.0 | 2.3 | 2 |
| Rad. 1225 | 1851.3 | —0.01 | 16 7.44 | 7.48 | —0.2 | 30 25.3 | 25.2 | 3.5 |
| Albany | 1882.7 | 0.00 | 18 48.55 | 48.54 | —0.1 | 35 35.9 | 36.0 | 2 |

The positions from Lalande and Argelander were reduced by me from the zone observations.

Comparison (C—O) with an Ephemeris computed from the elements of Mr. Wells, A. N. 2441.

| 1882 | $\Delta\alpha$ | $\Delta\alpha \cos \delta$ | $\Delta\delta$ | 1882 | $\Delta\alpha$ | $\Delta\alpha \cos \delta$ | $\Delta\delta$ | 1882 | $\Delta\alpha$ | $\Delta\alpha \cos \delta$ | $\Delta\delta$ |
|---------|----------------|----------------------------|----------------|---------|----------------|----------------------------|----------------|--------|----------------|----------------------------|----------------|
| Mar. 19 | +0".01 | +0".2 | —0".9 | Apr. 17 | —0".14 | —1".2 | +1".5 | May 16 | —0".54 | —2".6 | +2".8 |
| 19 | —0.24 | —3.0 | —2.9 | 23 | +0.10 | +0.8 | —1.6 | 23 | —0.39 | —2.7 | —3.5 |
| 24 | +0.14 | +1.6 | —2.6 | 24 | +0.36 | +2.6 | —1.4 | 25 | —0.77 | —5.8 | +5.0 |
| 28 | +0.09 | +1.0 | +3.2 | 24 | —0.17 | —1.2 | +2.4 | 25 | —0.46 | —3.6 | +0.9 |
| 30 | —0.17 | —2.0 | —2.4 | 30 | —0.04 | —0.3 | +1.4 | 29 | —0.37 | —3.8 | +4.5 |
| Apr. 5 | +0.23 | +2.4 | —1.4 | May 1 | —0.27 | —1.5 | +3.5 | June 1 | —0.31 | —3.2 | +0.2 |
| 14 | —0.11 | —1.0 | +0.1 | 3 | —0.08 | —0.4 | —0.9 | July 6 | —0.8 | —13 | —13 |
| 15 | +0.36 | +3.3 | +2.8 | 6 | —0.23 | —1.0 | —0.1 | 7 | —0.8 | —12 | —10 |
| 16 | —0.39 | —3.4 | +1.1 | 7 | —0.19 | —0.8 | +1.0 | 15 | —1.4 | —20 | +6 |
| 16 | —0.26 | —2.2 | +3.8 | 15 | —0.15 | —0.6 | +2.5 | | | | |

The larger errors in this series of observations probably spring from instability in the mounting of the telescope and defective illumination of the micrometer threads. The tremors produced by passing rail-road trains are sufficient in some cases to effect a sensible displacement in the position of the telescope even when it is clamped. In general these errors should be more important when either $\Delta\alpha$ or $\Delta\delta$ are large.

Lewis Boss, Director.