The Great Comet 1882II. Observations of Position.

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Observations of position of Comet 1882 II were made at the Naval Observatory from September 19, 1882, the day on which it was first seen in Washington, to Apr. 4, 1883, the instruments employed being the 9.6 inch Equatorial, the Transit Circle and the 26 inch Equatorial.

I present, herewith, the results of the observations made with the Transit Circle, seventeen in number, extending from Sept. 19.97, 1882 to March 3.30, 1883. A preliminary reduction has been made, since the final results will not appear before the publication of the annual volumes for 1882 and 1883, and this will not be for at least two years.

The reduction was according to the method adopted at this observatory and may be found fully explained in the volumes of »Washington Observations« for 1876 and subsequent years.

In Right Ascension no appreciable change will be introduced by the final reduction.

The North Polar Distances have been corrected for refraction (but not for parallax) and for flexure of the circle and telescope, but the corrections $\Delta\phi$ and Δz to the assumed latitude and zenith point have not been applied, as they are obtained from a discussion of observations covering the entire year.

In the Table below, the first column contains the mean solar date to hundredths of a day;

The second column the initial of the observer; E standing for Prof. J. R. Eastman; S, Assistant Astronomer A. N. Skinner, and W, Assistant Astronomer William C. Winlock;

The third column gives the number of threads observed in Right Ascension;

Fourth and fifth columns Right Ascension and North Polar Distances respectively;

And the sixth column the number of »bisections« made with the Zenith Distance micrometer.

Transit Circle Observations of the Great Comet of 1882.

1882-83	Obs.	Nr. of Threads R.A.	Right Ascens.	North Pol. Dist.	Nr. of bisect. Z.D.
Sept. 19.97	W	9	11 ^h 14 ^m 18.95	90° 34' 29".4	4
20.96	S	9	11 9 10.93	91 19 21.9	4
Nov. 15.74	W	11	9 27 50.72	114 49 19.9	2
18.73	W	11	9 21 4.44	115 43 19.6	2
20.72	W	11	9 16 18.88	116 17 36.2	4
21.71	W	11	9 13 51.33	116 34 6.6	2
22.71	W	11	9 11 21.67	116 50 12.0	4
24.70	W	11	9 6 16.21	117 21 26.4	2
Dec. 3.65	W	—	8 42 —	119 16 17.4	2
4.65	W	11	8 38 5.15	119 26 9.6	2
7.64	W	11	8 28 55.34	119 51 58.1	2
11.62	W	11	8 16 21.69	120 16 28.9	2
28.54	W	11	7 22 50.81	119 53 11.3	2
30.53	W	2	7 16 55.29	119 53 23.6	1
Feb. 1.39	W	9	6 9 4.98	111 55 14.6	4
28.30	E	9	5 51 45.20	105 16 8.7	2
Mar. 3.30	W	6	5 51 17.49	104 38 6.0	2

The difficulties encountered on account of the extended and complex character of the nucleus have been remarked by all observers. The following notes will show, as well as it is possible to indicate verbally, the part of the nucleus which was observed on each occasion.

Sept. 19.97. Observed the following or main part of nucleus. Observation very satisfactory.

Sept. 20.96. Observ. »region of greatest condensation«.

Nov. 15.74. Observed main condensation near foll. end.
18.73. » » » » »
20.72. » » » » »

Brightest part of nucleus.

Nov. 21.71. Observed main condensation near foll. end.

22.71. Point observed perhaps a little preceding that observed on previous mornings.

Nov. 24.70. Brightest part towards foll. end.

Dec. 3.65. Main condensation near foll. end.

Dec. 4.65. Main condensation near foll. end. Obs. difficult.

Dec. 7.64. Main condensation near foll. end.

11.62. Main condensation near foll. end.

28.54. Center of light. Perhaps a little north of the point previously observed.

Dec. 30.53. Obs. only approximate; comet too faint.

Feb. 1.39. Center of illumination. Obs. not very satisfactory.

Feb. 28.30. Observed the middle point between the 2nd and 3rd points in the nucleus.

Mar. 3.30. Observed the foll. and brighter of two stellar-like points.

U. S. Naval Observatory 1883 May 21.

Observations of Comet 1883I (Brooks-Swift) at Harvard College Observatory.

The following positions of Comet 1883 Brooks-Swift were obtained with a ring-micrometer on the refractor of 6 $\frac{1}{4}$ inches aperture constructed by Mr. John Clacey of Boston, and mounted in the West dome of the Harvard College observatory. Differential refraction has been applied wherever appreciable.

It may also be of interest to give the results of

some observations on March 5, when, just before the position measurements, the comet passed nearly centrally over an 8 mag. star. The opportunity was utilized to determine the relative light of this star and that of its neighbors in order to detect any change in the apparent brilliancy of the occulted star. The comparison stars used are:

	Mag. in DM.	1855	Adopted mag.
<i>a</i>	8.5	0 ^h 31 ^m 45 ^s .4 + 31° 50' 3	8.20
<i>b</i>	8.5	31 19.1 32 23.5	8.58
<i>c</i>	8.5	30 14.5 31 24.5	8.60
<i>d</i>	8.1	34 18.3 31 48.9	7.76
<i>e</i>	7.9	26 7.0 32 4.2	8.20
<i>f</i>	8.0	33 7.6 + 30 19.3	7.92

The light comparisons were as follow:

M. T. Cambr.	Difference in light of occulted star <i>a</i> and					Deduced magn. of <i>a</i>
	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	
6 ^h 45 ^m	+5	+4	-6	—	—	8.21
6 54	+4	+5	-5	-1	—	8.24
6 59	+5	+4	—	-1	-3	8.20
7 4	+3	+4	-5	-2	-3	8.26
7 8	+4	+4	-5	0	-4	8.23
7 11	+4	+4	-3	+1	-2	8.13
7 16	+3	+4	-3	+1	-2	8.15

When the observations began, the twilight was strong and the comet was in close proximity to *a*, which was just outside the coma. At 6^h 52^m the comet was almost centrally over the star, its point of greatest condensation being 16" south of it, as it appeared in the telescope and also according to my orbit, A. N. 2504, which is without sensible error. At 6^h 59^m it was a little past the star and at 7^h 4^m completely separated from it.

In the last column of the table of comparison stars I give the magnitudes as determined from the series excluding the estimates at 6^h 54^m and 6^h 59^m. From these values the magnitude of *a* is deduced in the last column of the second table. It will be seen that there is no appreciable effect either of apparent augmentation or diminution of the star's light during occultation. It may be added that the total impression of the comet's light was estimated as equal to *b*, or 3 steps fainter than *a*. The star *a* has a reddish tinge.

1883	M.T. Cambr.	$\Delta\alpha$	$\Delta\delta$	Comp.	α app.	$\log p.\Delta$	δ app.	$\log p.\Delta$	*
Feb. 26	7 ^h 34 ^m 45 ^s	+3 ^m 15 ^s 78	+ 1' 12".4	3	23 ^h 26 ^m 19 ^s 93	9.703	+31° 10' 25".2	0.746	1
27	7 26 29	-4 13.69	- 2 58.4	8	23 35 50.61	9.708	31 27 14.1	0.731	2
Mar. 4	7 4 35	-1 7.70	- 2 57.9	5	0 23 49.70	9.708	32 1 40.8	0.664	3
5	7 43 14	+0 19.76	- 0 27.0	6	0 33 34.27	9.712	31 58 48.6	0.708	4
8	7 25 1	+1 30.02	- 0 5.2	2	1 1 15.48	9.706	+31 33 18.8	0.667	5