Le precedenti osservazioni hanno presentato qualche difficoltà a cagione della forma allungata del nucleo della Cometa. Come punto di mira si è procurato ogni volta di prendere il centro della massa nebulosa fusiforme, benchè non fosse certa la coincidenza di questo punto col centro di gravità.

Le riduzioni sono state eseguite colla cooperazione del Dr. Porro. Furono fatte anche annotazioni sull' aspetto della Cometa, e fu delineato il contorno della coda e delle sue varie appendici: ma la pubblicazione di questi risultati richiede un certo numero di disegni e perciò si riserva ad un' altra occasione.

Osservatorio Reale di Brera in Milano 1884 Settembre 24.

G. V. Schiaparelli.

Observations of Comet 1884 II (Barnard)

made at the Royal Observatory, Cape of Good Hope.

(Communicated by *David Gill* L.L.D. F.R.S. Her Majesty's Astronomer).

The following observations were made, with the 7 inch Equatoreal and Repsold-Filar-Micrometer, by Mr. W. H. Finlay, Chief Assistant. The comet was so situated that meridian observations of the comparison stars could always be secured with the transit circle within a few nights after their comparison with the Comet.

The observations are corrected for the effects of refraction.

The Comet throughout presented the appearance of a small diffused nebulous mass. A nucleus was seen by glimpses on July 28, but the bright moonlight on following nights prevented more than a suspicion of its existence. About the end of July the point of greatest condensation (within which the nucleus had been seen on July 28) was slightly towards the following part of the mass; this was

the point observed. In August the appearance of the Comet was reduced by moonlight to a small round mass slightly brighter towards the centre — the centre of this mass was observed. The Comet presented a similar appearance in September and was similarly observed.

An apparent increase of brightness on September 15 and following days, compared with the appearance of the Comet in the end of August, was very striking. The Comet as a rule was faint and difficult to observe in August, probably from its then being projected on the milky way as a back ground.

Observations of Comet 1884 I (Pons 1812) have been secured on 43 nights from January 16 to April 29 by Mr. Finlay, and will be published so soon as the meridian observations of the comparison stars have been completed.

1884	Cape M. T.	Δ RA.	Δ NPD.	Comp.	RA. app.	log f. p.	NPD. app.	log f. p.	Star
July 24	10 ^h 8 ^m 8 ^s .1	—0 ^m 13 ^s .00	+6' 57".1	4.4	16 ^h 5 ^m 30 ^s .56	8.617	127° 14' 49".1	8.580	<i>a</i>
26	10 38 4.0	+4 30.38	—6 29.0	4.4	16 10 14.75	8.668	127 15 34.1	8.839	<i>b</i>
27	10 54 54.1	+0 10.09	—1 14.3	16.16	16 12 41.63	8.703	127 15 35.5	8.987	<i>c</i>
28	11 6 15.8	—0 14.11	+6 33.3	16.16	16 15 14.61	8.725	127 15 30.4	9.072	Stone 8897
29	11 10 32.2	+1 0.99	—2 26.8	16.16	16 17 52.45	8.734	127 15 15.1	9.107	Stone 8913
30	11 5 15.7	+0 47.41	+1 59.5	16.16	16 20 33.87	8.727	127 14 46.8	9.079	<i>d</i>
Aug. 1	10 19 53.3	—0 7.04	+1 31.0	10.6	16 26 5.69	8.644	127 13 19.6	8.591	<i>e</i>
5	9 35 49.5	+0 32.05	+0 53.5	16.16	16 38 8.32	8.530	127 7 6.2	7.699	<i>f</i>
6	9 53 49.7	+0 30.12	+2 18.8	16.16	16 41 24.38	8.580	127 4 44.4	8.447	<i>g</i>
7	10 10 18.4	+0 21.60	+1 31.6	16.16	16 44 43.78	8.633	127 2 3.0	8.708	<i>h</i>
8	10 10 5.0	—0 20.07	—0 46.7	20.16	16 48 4.67	8.633	126 59 9.8	8.708	<i>i</i>
11	10 4 50.4	—0 22.80	—1 2.6	20.16	16 58 29.35	8.622	126 48 5.2	8.690	<i>k</i>
13	10 14 35.2	+0 23.13	—3 30.7	20.16	17 5 45.67	8.646	126 38 44.6	8.820	<i>l</i>
14	9 45 9.5	—0 21.98	—3 17.2	12.12	17 9 23.79	8.580	126 33 25.7	8.532	<i>m</i>
17	9 47 36.8	+0 29.46	+0 0.8	16.16	17 20 47.58	8.576	126 14 54.6	8.580	<i>n</i>
19	10 10 4.8	—0 17.79	—2 37.2	15.16	17 28 40.96	8.635	126 0 4.9	8.833	<i>o</i>
20	10 12 46.7	—0 25.26	—0 12.9	16.8	17 32 39.96	8.640	125 52 10.9	8.771	<i>p</i>
22	10 26 1.8	+0 10.08	+4 52.3	16.16	17 40 44.45	8.667	125 34 24.9	9.000	<i>q</i>
23	10 4 39.6	+0 35.86	+5 4.2	16.16	17 44 44.83	8.617	125 24 54.1	8.851	Y. 7433
Sept. 15	10 19 31.8	+0 11.50	+5 7.9	24.18	19 20 3.95	8.614	119 37 5.7	9.236	AOe ₂ 19534
17	10 27 13.5	—0 51.09	+2 12.9	16.16	19 28 0.71	8.626	118 57 17.5	9.272	AOe ₂ 19737
21	9 44 44.1	—0 16.20	—2 26.6	17.12	19 43 25.02	8.513	117 35 48.0	9.225	AOe ₂ 19997
22	10 12 12.9	+0 54.93	+0 7.3	12.16	19 47 16.36	8.587	117 14 19.4	9.295	AOe ₂ 20039

The comet was also observed with the transit-circle by Mr. Finlay on August 14 and 16, with the following result:

1884	Cape M. T.	RA. app.	NPD. app.	log f. p.
Aug. 14	7 ^h 34 ^m 48 ^s .8	17 ^h 9 ^m 6 ^s .19	126° 33' 57".5	8.681 _n
16	7 34 26.0	17 16 36.39	126 22 6.6	8.644 _n

Notes.

July 24. Comet exceedingly faint and difficult — hazy. 28. Comet much easier to-night; distinct appearance of nucleus or condensation. Aug. 1. Comet very faint; bright moonlight. 5. Moon very bright, but fair observations. 7. Bright moonlight; air very damp and hazy; Comet very faint.	Aug. 13. Comet faint. 19. Comet very faint; very difficult. 20. Comet exceedingly faint, scarcely possible to observe at all. 22. Fair observations. Sept. 15. Comet much easier and brighter than when last observed.

Adopted Right Ascensions and North Polar Distances of Stars observed with the Comet.

Star	Mag.	RA. 1884.0	NPD. 1884.0	Authority
<i>a</i>	9 ¹ / ₂	16 ^h 5 ^m 39 ^s .80 +3.83	127° 7' 47".3 + 5".7	Measures with Equatoreal
<i>a'</i>	8 ¹ / ₂	16 3 34.70 +3.83	127 9 18.1 + 5.7	3 Meridian Observations Cape 1884
<i>b</i>	9	16 5 40.52 +3.85	127 21 57.9 + 5.2	Measures with Equatoreal
<i>b'</i>	7 ¹ / ₂	16 10 2.52 +3.85	127 27 47.4 + 5.2	3 Meridian Observations
<i>c</i>	10	16 12 27.70 +3.84	127 16 44.8 + 5.0	Measures with Equatoreal
Stone 8897	7	16 15 24.88 +3.84	127 8 52.4 + 4.7	Stone 8897
Stone 8913	6	16 16 47.64 +3.82	127 17 37.2 + 4.7	Stone 8913
<i>d</i>	7 ¹ / ₂	16 19 42.64 +3.82	127 12 42.6 + 4.7	Measures with Equatoreal
<i>e</i>	10	16 26 8.91 +3.84	127 11 44.7 + 3.8	Measures with Equatoreal
<i>e'</i>	8	16 25 55.81 +3.84	127 8 1.6 + 3.8	2 Meridian Observations
Stone 9061	7	16 34 59.59 +3.83	127 6 55.4 + 3.0	Stone 9061
<i>f</i>	10	16 37 32.44 +3.83	127 6 9.7 + 3.0	Measures with Equatoreal
<i>g</i>	7 ¹ / ₂	16 40 50.42 +3.84	127 2 23.1 + 2.5	2 Meridian Observations
<i>h</i>	9 ¹ / ₂	16 44 18.34 +3.84	127 0 29.3 + 2.1	Measures with Equatoreal
<i>i</i>	7 ¹ / ₂	16 48 20.93 +3.85	126 59 54.7 + 1.8	3 Meridian Observations
Stone 9295	6 ¹ / ₂	16 58 30.01 +3.86	127 3 58.2 + 0.9	Stone 9295
<i>k'</i>	8 ¹ / ₂	16 58 33.17 +3.86	126 56 17.1 + 0.9	2 Meridian Observations
<i>k</i>	10	16 58 48.29 +3.86	126 49 6.9 + 0.9	Measures with Equatoreal
<i>l</i>	9 ¹ / ₂	17 5 18.69 +3.85	126 42 15.1 + 0.2	2 Meridian Observations
<i>m</i>	9	17 9 41.92 +3.85	126 36 43.1 — 0.2	3 Meridian Observations
<i>n</i>	9 ¹ / ₂	17 20 14.28 +3.84	126 14 55.0 — 1.2	2 Meridian Observations
<i>o</i>	10 ¹ / ₂	17 28 54.91 +3.84	126 2 44.1 — 2.1	Measures with Equatoreal
<i>o'</i>	8 ¹ / ₂	17 29 21.81 +3.84	126 5 17.6 — 2.1	2 Meridian Observations
<i>p</i>	9	17 33 1.39 +3.83	125 52 26.2 — 2.4	2 Meridian Observations
<i>q</i>	8	17 40 30.55 +3.82	125 29 35.7 — 3.2	2 Meridian Observations
Yarnall 7433	8 ¹ / ₂	17 44 5.16 +3.81	125 19 53.4 — 3.5	Cape and Yarnall
AOe ₂ 19534	8 ¹ / ₂	19 19 48.86 +3.59	119 32 10.0 — 12.2	AOe ₂ and 2 Cape Meridian Observations
AOe ₂ 19737	8 ¹ / ₂	19 28 48.23 +3.57	118 55 17.6 — 13.0	2 Meridian Observations
AOe ₂ 19997	8 ¹ / ₂	19 43 37.70 +3.52	117 38 28.8 — 14.2	Stone 10673
AOe ₂ 20039	7 ¹ / ₂	19 46 17.93 +3.50	117 14 26.5 — 14.4	AOe ₂ , Yarn. 8540 and Cape Merid.

The following Table gives the differences of RA. and NPD. between the Comparison stars and brighter stars, observed with the Equatoreal.

Star	Mag.	Δ RA.	Δ NPD.	Comp. with *
<i>a</i>	9 $\frac{1}{2}$	+2 ^m 5 ^s .10	-- 1' 30".8	<i>a'</i>
<i>b</i>	9	--4 22.00	--5 49.5	<i>b'</i>
<i>c</i>	10	--2 57.55	+7 51.9	Stone 8897
<i>c</i>	10	--4 19.75	--0 52.0	Stone 8913
<i>d</i>	7 $\frac{1}{2}$	+2 55.00	--4 54.6	Stone 8913
<i>e</i>	10	+0 13.10	+3 43.1	<i>e'</i>

Star	Mag.	Δ RA.	Δ NPD.	Comp. with *
<i>f</i>	10	+2 ^m 32 ^s .85	--0' 45".7	Stone 9061
<i>h</i>	9 $\frac{1}{2}$	+3 28.30	--1 55.0	<i>g'</i>
<i>h</i>	9 $\frac{1}{2}$	--4 2.95	+0 35.5	<i>i</i>
<i>k</i>	10	+0 15.12	--7 10.2	<i>k'</i>
<i>k'</i>	8 $\frac{1}{2}$	+0 3.10	--7 40.7	Stone 9295
<i>o</i>	10 $\frac{1}{2}$	--0 26.90	--2 33.5	<i>o'</i>

David Gill.

Beobachtungen des Cometen 1884 II (Barnard).

1884	M.Z.Strassb.	$\Delta\alpha$	$\Delta\delta$	α app.	$\log p.A$	δ app.	$\log p.A$	*
Oct. 19	7 ^h 31 ^m 42 ^s	--0 ^m 8 ^s .43	+3' 48".4	21 ^h 16 ^m 53 ^s .18	8.209	--17° 31' 3".2	0.909	1
21	7 59 52	--1 13.75	--0 29.5	21 22 41.74	8.843	--16 48 48.5	0.905	2
23	7 41 2	+2 14.43	+5 19.1	21 28 18.58	8.594	--16 7 37.9	0.904	3

Mittlere Oerter der Vergleichsterne für 1884.0.

*	α 1884.0	δ 1884.0	Autorität
1	21 ^h 16 ^m 58 ^s .42 +3 ^s .19	--17° 35' 11".9 +20".3	Anschluss an 32 Capr. (Melbourne und Stone)
2	21 23 52.29 +3.20	--16 48 39.7 +20.7	Anschluss an Yarn. 9405
3	21 26 0.97 +3.18	--16 13 17.8 +20.8	AOe ₂ 21457

Die Beobachtungen verursachten in den letzten Tagen schon bedeutende Schwierigkeiten, so dass ich nicht sicher bin, ob ich nach Verschwinden des Mondes zu weiteren Beobachtungen im Stande sein werde.

Strassburg 1884 Oct. 31.

Wilhelm Schur.

Approximate elliptic elements of Comet 1884 II (Barnard).

I computed a parabolic orbit for this comet in August but was unable to represent the middle place satisfactorily. As a similar result was found in Europe and as Mr. Stechert's ephemeris in Astr. Nachr. Nr. 2609 shewed large discordances from my later observations, I have computed elliptic elements with the following result. The observations used, viz. July 27, August 22 and September 17, were corrected for parallax from the parabolic orbit. The approximations to Q were not carried as far as perhaps they should have been, but the approximation was quite close enough to shew whether the comet was moving in an ellipse and, if so, to give a very fair value of the periodic time.

$$\begin{aligned}
 T &= 1884 \text{ August } 16.50950 \text{ Greenwich M. T.} \\
 \left. \begin{aligned} \pi &= 306^\circ 3' 40'' \\ \Omega &= 4 \ 54. \ 1 \\ i &= 5 \ 30 \ 36 \end{aligned} \right\} \text{Mean Equinox and Ecliptic } 1884.0 \\
 \log a &= 0.5017524 \\
 \varphi &= 36 \ 34 \ 31 \\
 \mu &= 627''.159 \\
 \text{Period} &= 5.6615 \text{ years}
 \end{aligned}$$

These elements leave a discordance (C—O) in the middle place of --8" in longitude and --1" in latitude. The month of October, since the Moon drew away from the evening sky, has been completely clouded until last night Oct. 14, when I secured a fair comparison of the comet with AOe₂ 21151. This observation compared with the above elements gives the discordance (C—O):

$$d\alpha \cos \delta = -5''.0 \quad d\delta = -11''$$

Royal Observatory, Cape of Good Hope 1884 Oct. 15.

W. H. Finlay.