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ELEMENTS AND EPHEMERIS OF COMET *a* 1904 (BROOKS)

From the observations secured with the 12-inch telescope on the nights of April 17, May 8, and May 24 (given on another page of this Bulletin) we have derived the following set of parabolic elements for this comet:

$T = 1904 \text{ March } 6.9049 \text{ G.M.T.}$

$$\left. \begin{array}{l} \omega = 53^\circ 27' 13''.8 \\ \Omega = 275 \quad 46 \quad 05.5 \\ i = 125 \quad 07 \quad 33.1 \end{array} \right\} \text{Mean equinox of } 1904.0$$

$\log q = 0.432475$

Residuals (O—C)

$$\Delta\lambda' \cos \beta', -1''.0; \Delta\beta', +1''.7$$

CONSTANTS FOR THE EQUATOR OF 1904.0.

$$x = r [9.764337] \sin (223^\circ 29' 46''.2 + v)$$

$$y = r [9.994816] \sin (300 \quad 55 \quad 42.1 + v)$$

$$z = r [9.918088] \sin (\quad 24 \quad 53 \quad 21.4 + v)$$

EPHEMERIS FOR GREENWICH MEAN MIDNIGHT.

1904	True α			True δ	$\log \Delta$	$\log r$	Brightness
June 12.5	13 ^h	15 ^m	57 ^s .2	+56° 40' 07"	0.4471	0.4610	0.57
	14.5	10	32.0	20 34			
	16.5	05	29.8	55 59 58	0.4578	0.4632	0.54
	18.5	00	48.3	38 30			
	20.5	12	56	27.2 16 21	0.4683	0.4655	0.51
	22.5	52	24.7	54 53 40			
	24.5	48	39.9	30 35	0.4787	0.4678	0.48
	26.5	45	12.1	07 13			
	28.5	42	00.5	53 43 40	0.4887	0.4702	0.45
June 30.5	39	04.1	20 02				
July 2.5	36	22.0	52 56 22	0.4986	0.4726	0.43	
	4.5	33	53.4	32 47			
	6.5	31	37.6	09 19	0.5080	0.4751	0.41
	10.5	27	41.7	51 23 02			
	14.5	24	28.6	50 37 50	0.5258	0.4802	0.37
	18.5	21	53.0	49 54 02			
	22.5	19	50.5	11 51	0.5420	0.4855	0.33
	26.5	18	17.0	48 31 30			
July 30.5	17	09.1	47 53 04	0.5565	0.4909	0.30	
Aug. 3.5	16	23.9	16 33				
	7.5	15	58.6	46 42 03	0.5693	0.4965	0.28
	11.5	15	51.1	09 38			
	15.5	15	58.9	45 39 22	0.5802	0.5021	0.26
	19.5	16	20.3	11 17			
	23.5	16	53.4	44 45 25	0.5893	0.5079	0.24
	27.5	17	36.7	21 47			
Aug. 31.5	18	28.9	00 24	0.5966	0.5138	0.23	
Sept. 4.5	19	28.7	43 41 17				
	8.5	12	20 35.2	43 24 29	0.6023	0.5198	0.21
Nov. 11.5	12	39	00.6	45 06 20	0.5917	0.5687	0.18

R. G. AITKEN,
J. D. MADDRILL.

May 27, 1904.

OBSERVATIONS OF COMET *a* 1904 (BROOKS)

The following observations were made by Dr. Aitken and myself, with the 12-inch equatorial. $\Delta\alpha$ measures marked *d* were made directly with the micrometer, and those marked *t* by transits.

1904	Mt. Hamilton M. T.	Star.	No. of Comparisons.	Comet — Star		Comet's Apparent		$\log p\Delta$		Obsr.
				$\Delta\alpha$	$\Delta\delta$	α	δ	α	δ	
April 17 ^d	9 ^h 00 ^m 28 ^s	2	10 <i>d</i> , 8	+	0 ^s 92	+1' 38".5	16 ^h 55 ^m 40 ^s 80	+44° 53' 37".0	n9.819 0.603	A
18	9 42 31	3	10 <i>d</i> , 8	—	13.76	—8 12.9	16 49 54.49	+46 09 07.1	n9.821 0.431	A
23	14 00 12	4	10 <i>d</i> , 8	+	10.32	—0 49.3	16 36 46.88	+48 37 22.0	n8.202 0.243	M
29	8 48 04	6	10 <i>d</i> , 8	—	13.88	+7 17.2	16 15 53.91	+51 40 58.1	n9.860 0.255	M
May 2	9 06 08	7	14 <i>t</i> , 8	+1 ^m	41.34	+5 19.6	16 03 50.05	+53 04 31.9	n9.843 9.853	M
3	9 14 11	8	14 <i>t</i> , 8	—1	14.19	+1 39.6	15 59 38.91	+53 30 24.8	n9.831 9.499	M
5	9 32 55	9	10 <i>d</i> , 8	+	22.52	+9 22.1	15 51 02.34	+54 18 57.4	n9.793 n9.693	M
8	10 51 24	10	10 <i>d</i> , 8	—	30.22	+7 46.2	15 37 29.33	+55 23 49.9	n9.539 n0.346	M
15	10 54 49	11	10 <i>d</i> , 8	—	8.89	+7 29.5	15 05 03.54	+57 11 47.1	n9.129 n0.468	M
18	8 56 28	12	10 <i>d</i> , 8	—	6.34	+6 34.9	14 51 25.54	+57 40 02.4	n9.669 n0.335	M
19	8 40 27	13	10 <i>d</i> , 8	—1	22.25	—0 52.1	14 46 50.26	+57 47 29.4	n9.692 n0.317	M
24	9 11 02	14	10 <i>d</i> , 8	+	37.68	—1 45.6	14 24 08.25	+58 09 33.2	n9.385 n0.466	M

MEAN PLACES OF COMPARISON STARS FOR 1904.0.

Star.	α	Red. to app. place.	δ	Red. to app. place.	Authority.
1	16 ^h 56 ^m 26 ^s 34	+1.57	+44° 53' 36".7	—7".2	A.G. Bonn 10878
2	16 55 38.31	+1.57	+44 52 05.7	—7.2	Micrometer comparison with (1)
3	16 50 06.59	+1.66	+46 17 36.8	—6.8	A.G. Bonn 10796
4	16 36 34.73	+1.83	+48 38 17.2	—5.9	Micrometer comparison with (5)
5	16 36 16.05	+1.83	+48 49 38.6	—5.9	A.G. Bonn 10664
6	16 06 05.77	+2.02	+51 33 44.8	—3.9	A.G. Harvard 4960
7	16 02 06.60	+2.11	+52 59 14.9	—2.6	" " 4911
8	16 00 50.96	+2.14	+53 28 47.4	—2.2	" " 4903
9	15 50 37.63	+2.19	+54 09 36.7	—1.4	" " 4862
10	15 37 57.32	+2.23	+55 16 03.8	—0.1	A.G. Helsingfors-Götha 8455
11	15 05 10.20	+2.23	+57 04 14.4	+3.2	" " 8240
12	14 51 29.71	+2.17	+57 33 23.2	+4.3	" " 8172
13	14 48 10.35	+2.16	+57 48 16.8	+4.7	" " 8149
14	14 23 28.57	+2.00	+58 11 12.2	+6.6	Mean of micrometer comparisons with (15) and (16)
15	14 22 16.29	+2.00	+58 03 56.9	+6.6	A.G. Helsingfors-Götha 7966
16	14 22 01.63	+1.99	+58 17 59.1	+6.6	" " 7965

J. D. MADDRILL.

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