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No. 1

OBSERVATIONS OF COMETS AT THE YERKES OBSERVATORY,*

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(A) MICROMETRICAL MEASURES WITH THE 40-INCH TELESCOPE.

U. T.	$\Delta\alpha$	$\Delta\delta$	n	α	δ	Parall. Fact.		★
Comet 1930a (PELTIER)								
1930	m s	' "		h m s	° ' "			
Feb. 21.18050	+0 11.83	-2 11.9	8-8	9 9 19.73	+44 4 48.6	9.042 _n	9.267 _n	1
23.15260	+0 4.76	+0 12.2	6-8	8 44 27.36	49 43 24.8	9.158 _n	0.003 _n	2
Mar. 5.20979	-0 25.50	+0 10.7	8-8	7 15 8.18	+61 3 44.6	9.763	0.164 _n	3
Comet 1930c (WILK)								
May 5.33882	-6 25.41	+4 16.8	25-5	22 4 31.34	+45 9 50.3	9.773 _n	0.478	4
9.29905	+0 10.09	+0 48.5	8-8	21 39 1.39	44 44 15.3	9.777 _n	0.526	5
17.28808	+0 39.26	+1 25.7	25-5	20 43 0.91	42 28 25.6	9.711 _n	0.353	6
21.22877	-1 52.02	-1 38.4	25-5	20 13 46.19	40 29 7.5	9.732 _n	0.501	7
25.21064	-1 32.27	-2 52.6	8-8	19 44 1.77	37 48 12.4	9.702 _n	0.606	8
31.23990	-1 26.34	+4 7.8	25-5	19 0 41.33	32 29 25.6	9.512 _n	0.362	9
June 1.20993	-0 7.91	+1 58.6	8-8	18 54 6.56	31 30 51.7	9.574 _n	0.441	10
2.29203	+0 5.53	-1 17.9	8-8	18 46 53.13	30 23 42.0	9.117 _n	0.287	11
21.21272	-2 10.16	-3 25.3	25-5	17 13 22.09	9 51 42.4	8.099 _n	0.674	12
22.20112	-0 7.51	-0 11.5	8-8	17 10 8.15	8 55 23.7	8.489 _n	0.684	13
23.30417	+0 15.63	-0 40.9	8-8	17 6 40.93	7 54 8.6	9.402	0.710	14
25.22176	+0 11.68	-2 10.9	8-8	17 1 6.20	6 11 47.4	8.815	0.716	15
28.18986	+0 14.66	-2 29.6	8-8	16 53 23.78	3 43 44.9	8.231	0.739	16
29.18222	-0 12.67	-1 25.8	8-8	16 51 6.08	+ 2 57 0.1	7.78	0.747	17
July 3.27811	+0 5.78	-6 51.7	8-8	16 42 33.68	- 0 1 14.5	9.457	0.772	18
Comet 1930d (SCHWASSMANN-WACHMANN).								
May 5.37030	+1 56.82	-2 55.3	25-5	16 11 11.36	+36 33 22.0	9.348	0.093	19
9.20530	+2 37.88	+2 13.1	25-5	16 25 6.30	37 6 22.7	9.490 _n	0.165	20
17.23504	-5 5.69	-1 20.6	25-5	17 12 12.82	37 5 27.8	9.662 _n	0.422	21
21.20796	-0 3.60	-0 13.4	8-8	17 52 45.97	35 32 49.8	9.658 _n	0.457	22
23.14483	+1 1.40	-1 6.1	25-5	18 19 35.76	33 52 27.1	9.693 _n	0.575	23
24.21716	+1 50.25	+0 12.2	25-5	18 36 54.94	32 31 37.0	9.585 _n	0.428	24
25.18762	+0 1.61	-2 40.5	8-8	18 54 15.71	30 53 43.8	9.651 _n	0.550	25
31.28538	+0 57.33	+0 18.1	8-8	21 13 35.66	10 23 55.3	9.563 _n	0.714	26
31.31611	-0 1.12	+0 34.4	8-8	21 14 20.02	10 15 12.5	9.495 _n	0.701	27
June 2.34292	+0 5.19	+2 53.8	8-8	22 2 47.02	+ 0 30 56.5	9.491 _n	0.769	28

* For this form of publication, see *Astronomical Journal* 38, 157, 1928,

U. T.	$\Delta\alpha$	$\Delta\delta$	n	α	δ	Parall. Fact.	★
<i>Comet 1930e (FORBES)</i>							
1930	m s	' "		h m s	° ' "		
June 21.29873	-1 1.33	-0 47.7	25-5	20 9 39.16	- 6 16 25.3	9.039 _n 0.818	29
22.21913	-0 54.61	+0 2.7	25-5	19 56 24.62	- 3 59 19.2	9.484 _n 0.796	30
23.28111	-0 15.00	-2 42.4	8-8	19 41 20.29	- 1 22 41.7	9.034 _n 0.783	31
25.29549	+0 1.17	+3 56.6	8-8	19 13 49.29	+ 3 21 24.9	8.194 0.743	32
28.21014	-0 9.23	+0 1.2	8-8	18 37 42.76	+ 9 18 33.0	9.103 _n 0.684	33
29.22201	-0 9.59	+0 47.1	8-8	18 26 22.88	+11 1 56.7	8.822 0.661	34
July 2.26240	-0 32.74	+1 1.7	25-5	17 56 15.86	+15 27 22.3	9.103 0.607	35
3.24779	+0 13.07	+2 15.3	8-8	17 47 44.03	+16 36 14.9	9.072 0.590	36
7.32527	-0 28.31	+0 18.4	8-8	17 18 6.15	+20 13 4.8	9.569 0.626	37

Comparison Stars

★	α	δ	Authority
	h m s	° ' "	
1	9 9 7.90	+44 7 0.5	L.O. B. 391 Nr. 248
2	8 44 22.60	49 43 12.6	BD 49°1774. Yale 4 +p.m.
3	7 15 33.68	61 3 33.9	BD 61°959. Cin ₃ 1399
4	22 10 56.75	45 5 33.5	Boss P. G. C. 5734
5	21 38 51.30	44 43 26.8	AG Bo 15859
6	20 42 21.65	42 26 59.9	AG Bo 14624
7	20 15 38.21	40 30 45.9	Boss P. G. C. 5210
8	19 45 34.04	37 51 5.0	Prager 7260
9	19 2 7.67	32 25 17.8	A. G. Lei 7081
10	18 54 14.47	31 28 53.1	Oxf. ph. 31°44469
11	18 46 47.60	30 24 59.9	Oxf. ph. 30°47175; 31°44208
12	17 15 32.25	9 55 7.7	Tou ph. 9°, 17 ^h 16 ^m , 27
13	17 10 15.66	8 55 35.2	Tou ph. 9°, 17 ^h 8 ^m , 177
14	17 6 25.30	7 54 49.5	Tou ph. 7°, 17 ^h 8 ^m , 7; 9°, 17 ^h 8 ^m , 123
15	17 0 54.52	6 13 58.3	Tou ph. 7°, 17 ^h 0 ^m , 299
16	16 53 9.12	3 46 14.5	Abbadia 9152
17	16 51 18.75	2 58 25.9	Alger ph. 3°, 16 ^h 52 ^m , 39
18	16 42 27.90	0 5 37.2	Alger ph. 0°, 16 ^h 40 ^m , 24; +1°, 16 ^h 44 ^m , 159
19	16 9 14.54	36 36 17.3	Gyll. 6856
20	16 22 28.42	37 4 9.6	Prager 6002
21	17 17 18.51	37 6 48.4	Gyll. 7311
22	17 52 49.57	35 33 3.2	Prager 6561
23	18 18 34.36	33 53 33.2	Prager 6723
24	18 35 4.69	32 31 24.8	A. G. Lei 6763
25	18 54 14.10	30 56 24.3	Oxf. ph. 31°44331
26	21 12 38.33	10 23 37.2	Tou. ph. 11°, 21 ^h 8 ^m , 554
27	21 14 20.02	10 15 12.5	Kü. 9429
28	22 2 41.83	+ 0 28 2.7	Alger ph. +1°, 22 ^h 4 ^m , 112
29	20 10 40.49	- 6 15 37.6	Abb. 6260
30	19 57 19.23	- 3 59 21.9	A. G. Str. 6892
31	19 41 35.29	- 1 19 59.3	Abb. 10996
32	19 13 48.12	+ 3 17 28.3	Alger ph. +3°, 19 ^h 16 ^m , 12; +4°, 19 ^h 12 ^m , 313
33	18 37 51.99	9 18 31.8	Tou. ph. +9°, 18 ^h 36 ^m , 464
34	18 26 32.47	11 1 9.6	Tou. ph. +11°, 18 ^h 28 ^m , 119
35	17 56 48.60	15 26 20.6	Bord. ph. +15°, 17 ^h 56 ^m , 35; +16°, 17 ^h 52 ^m , 324
36	17 47 44.03	16 36 14.9	Bord. ph. +16°, 17 ^h 44 ^m , 120; +17 ^m , 17 ^h 48°, 267
37	17 18 34.46	+20 12 46.4	Abb. 8938

(B) MEASURES ON PLATES TAKEN WITH THE 24-INCH REFLECTOR.

U. T.	α	δ	Exp. in min.	Parall. Fact.	Authority for Cp. Stars
<i>Comet 1930a (PELTIER)</i>					
1930	h m s	° ' "			
Feb. 20.18054	9 22 38.94	+40 21 55.3	4	9.163 n 9.652	Hels. ph. 9 ^h 20 ^m , 40°, 52, 57, 78
20.19530	9 22 26.91	40 25 25.9	2	8.971 n 9.553	Hels. ph. 9 ^h 20 ^m , 40°, 52, 57, 78
20.20449	9 22 20.43	40 27 48.6	4	8.783 n 9.502	Hels. ph. 9 ^h 20 ^m , 40°, 52, 57, 78
22.10112	8 57 28.86	46 57 54.9	3	9.563 n 9.223	Cat. ph. 9 ^h 0 ^m , 48°, 16, 24, 31
Mar. 3.12816	7 28 37.97	59 57 41.5	8	8.922 0.420 n	Vat. ph. 60°18972, 18937, 18938
4.21238	7 21 17.73	60 34 37.0	15	9.742 0.175 n	Vat. ph. 61°18284, 18220, 18234
6.28670	7 9 3.50	61 30 50.8	20	9.933 9.971	Vat. ph. 61°17962, 17991, 17980
19.13263	6 28 15.52	64 0 34.3	30	9.784 0.301 n	Vat. ph. 64°9190, 9207, 9176
19.15520	6 28 13.36	+64 0 42.9	30	9.853 0.159 n	Vat. ph. 64°9190, 9207, 9176
<i>Comet 1930c (WILK)</i>					
1930					
Mar. 28.06361	1 17 22.47	+27 6 5.1	1	9.680 0.761	Oxf. ph. 27°, 2703, 2623, 2637
31.06022	1 7 38.34	30 44 7.0	2	9.687 0.774	Oxf. ph. 31°, 2005, 1961, 1966
Apr. 2.06399	1 0 2.94	32 56 3.5	2	9.685 0.791	Pots. ph. 0 ^h 58 ^m , 33°, 62, 82, 95
8.42537	0 31 35.80	38 25 56.5	3	9.722 n 0.767	Gyll. 231, 240, 241
9.42712	0 26 41.03	39 6 2.4	3	9.733 n 0.749	Prager 173, Gyll. 202, 209
9.43296	0 26 39.54	39 6 10.9	2	9.736 n 0.738	Prager 173, Gyll. 202, 209
22.39993	23 18 59.08	44 14 16.4	1	9.779 n 0.582	A. G. Bo. 17687, 17744, Kü 10350
23.40278	23 13 32.51	44 25 48.3	1	9.777 n 0.549	A. G. Bo. 17600, 17615, 17622
26.26575	22 57 46.73	44 51 45.5	1	9.705 n 0.829	A. G. Bo. 17304, 17339, 17386
May 2.39986	22 22 27.85	45 14 50.5	2	9.729 n 0.281	Hins 1377, Grb. 3765, Monn. 1978
2.40212	22 22 27.20	45 14 51.5	1	9.725 n 0.268	Hins 1377, Grb. 3765, Monn. 1978
4.30348	22 10 56.31	45 12 53.4	2	9.788 n 0.625	A. G. Bo. 16468, 16510, P. G. Boss 5734
June 27.21429	16 55 49.24	4 31 7.8	6	8.824 0.732	Tou. ph. +5°, 16 ^h 52 ^m , 251, 254, 256
July 1.20351	16 46 39.59	+ 1 26 20.7	20	8.939 0.769	Alger +1°, 16 ^h 44 ^m , 90, 94, 99
<i>Comet 1930d (SCHWASSMANN-WACHMANN)</i>					
1930					
May 4.14741	16 7 26.69	+36 20 22.3	2	9.650 n 0.420	Gyll. 6836, 6856, Pr. 5904
<i>Comet 1930e (FORBES)</i>					
1930					
June 20.31063	20 23 57.35	- 8 42 36.2	2	9.052 n 0.833	San. Fern. ph. -9°, 20 ^h 20 ^m , 339, 364, 371
27.23584	18 49 14.71	+ 7 28 2.3	2	8.934 n 0.703	Tou. ph. +7°, 18 ^h 44 ^m , 90, 93; 18 ^h 52 ^m , 15
July 1.22235	18 5 54.72	+14 6 30.8	2	8.050 n 0.619	Bord. ph. +14°, 18 ^h 8 ^m , 13, 15, 21
17.19510	16 34 7.34	+24 21 43.8	20	9.340 0.480	Par. ph. +24°, 16 ^h 32 ^m , 117, 123, 129

(C) REMARKS

Comet 1930a (PELTIER)

Feb. 20 — The discoverer wired the rough position 9^h25^m, +40°10'; comet picked up in 6-inch comet-seeker in which it appeared as a large diffuse nebosity with little condensation. Total magnitude about 11. The plates are exposed through haze and the image of the comet is extremely faint and diffuse. Settings uncertain.

Feb. 21 — Total 12^m. Diameter about 6'. Central condensation 10'' in diameter in the center of which there is a 14^m stellar nucleus.

- Feb. 22 — Trail very faint on plate.
 Feb. 23 — Central core about 20'' in diameter with a tiny stellar nucleus 14^M. Coma appears round, about 4' in diameter. Total mag. 13.
 Mar. 4 — Total brightness 14^M.5 on plate guided for the motion. Size much smaller and nucleus diffuse. Measure hampered on account of a star trail passing across.
 Mar. 5 — Total brightness 15^M. Nucleus about 5'' in diameter. Coma 40'' in diameter.
 Mar. 6 — Total brightness 15^M.5 on plate guided for the motion. Coma hardly visible around a diffuse nucleus.
 Mar. 8 — No longer visible in 40-inch.
 Mar. 19 — Total brightness 16^M.5, nucleus 17^M. Coma about 40'' in diameter extending mostly in right ascension.

Comet 1930c (WILK)

- May 5 — Large diffuse spherical mass with little condensation, about 3' in diameter. Total 7^M.5.
 May 9 — Very diffuse and difficult to set on in bright moonlight.
 May 17 — Globular coma with little condensation. Diameter about 4'. Total 8^M.5. Difficult to bisect. The precession in α , given by the A. G. Catalogue, is in error.
 May 21 — Diameter nearly 10''. Total extrafocal 8^M.4.
 May 25 — Large amorphous mass with hardly a nucleus, nearly 10' in diameter. Difficult to set on.
 May 31 — Very diffuse. Diameter 8'. Hardly anything to set on.
 June 1 — Total extrafocal brightness 9^M.2. Diameter 6'. Condensation hardly perceptible.
 June 2 — Total brightness 9^M. Diameter about 8'. Extremely difficult to bisect.
 June 21 — Total 13^M. Diameter 4'. Hardly any nucleus.
 June 22 — Total 12^M.5. Settings quite uncertain.
 June 23 — Total 13^M. Round, 3' in diameter. No nucleus. Difficult to bisect.
 June 25 — Total 13^M.5. Diameter 4'. No nucleus.
 June 28 — Total 14^M. Vague nebulosity on which settings are very uncertain.
 June 29 — Total 14^M. Settings quite rough. Hardly any condensation.
 July 3 — Total 15^M. Near limit of what can be measured because of lack of nucleus.

Comet 1930d (SCHWASSMANN-WACHMANN)

- May 4 — In 40'' appears at first sight as a spiral nebula seen edgewise, but the two wings of the spindle-like comet are not symmetrically oriented: the brightest one is 2'.5 long in position angle 206° from the nucleus; the other slightly fainter is in position angle 8° and a little shorter, 2' long. There is a nearly stellar nucleus 12^M; the brightest part of the coma is elongated in the direction 15°.
 May 17 — Brightest shortest arm in 11° about 5' long. The other in 205° is now fainter but same length. Nucleus elongated in 15°. Total Mg. 8.
 May 21 — Northern tail in 16°, 5' long, by far the most conspicuous. The other tail in 214° is seen over 4'.
 May 23 — Sharp nucleus makes settings accurate. Total brightness 8^M.0. Tails in 24° and 224°, the former being brightest. Total 8^M.5. See the photograph in *Pop. Astr.* **38**, 374 (1930).
 May 25 — Total 8^M.0. Nucleus well defined but elongated in 30°. The identity of the comparison star is somewhat doubtful.
 May 31 — Double tail in 52° and 242°; the first one visible over 15', the second over 30' in the 4'' finder. The nucleus is elongated in 60°. The two tails start out very narrow at the nucleus but quickly broaden out. Both tails about the same brightness. Total 7^M.5. Nucleus 8^M.5. See the drawing in *Pop. Astr.* **38**, 441 (1930).
 June 2 — With binocular the total brightness is estimated as 6^M.5 extrafocally.

Comet 1930e (FORBES)

- June 21 — Diffuse nucleus. Coma 5' in diameter, brightest on south side. Total 11^M. Nucleus 13^M.5.
 June 22 — Total 11^M.5. Nucleus 13^M. Broad tail 3' long in 210°.
 June 23 — Tail better visible than yesterday. Total 11^M.5.
 June 29 — Settings sharp on well defined nucleus. Total 13^M. Nucleus 14^M.5.
 July 2 — Easy to bisect. Total 13^M.5. Diameter 2'. Tail no longer visible.
 July 7 — Nucleus no longer sharp. Diameter 3'. Total 13^M.5.
 July 17 — Total brightness 15^M. Diffuse nucleus in a coma 1' in diameter.