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OBSERVATIONS OF COMETS AND OF REINMUTH'S OBJECT

By

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Most of the observations which are given herewith were made in order to furnish data for use in connection with the orbit investigations being carried on at the Berkeley Astronomical Department.

In conformity with present practice, the positions given are all referred to the mean equinox of the beginning of the year of observation. The observed differences in right ascension and declination, corrected, if necessary, for differential refraction, have been applied directly to the mean places of the comparison stars. Corrections for the effects of differential precession, etc., were not warranted here, and were not applied.

Wherever possible the differences in right ascension

were measured directly, with the clock running. A "t" following the number of comparisons in right ascension indicates that the measure was by transits. For differences observed in this way the times were recorded on a chronograph.

Some of these determinations of position were made photographically by the measurements of plates taken with the Crossley reflector. Such observations are distinguished from the visual measures by the fact that for them no differences "comet-star," and no "number of comparisons" are given. The coordinates of the reference stars used for reducing the plates have all been taken from the Astrographic Catalogues.

COMET 1929*d* (WILK)

1929	Gr. C. T.	Star	No. of Comp.	Comet-Star		α 1929.0	δ 1929.0	Log $p\Delta$	
				$\Delta\alpha$	$\Delta\delta$			α	δ
Dec. 22	3 ^h 10 ^m 43 ^s	1	10, 10	- 6.72	-1' 42".6	18 ^h 24 ^m 57 ^s .68	+34° 58' 43".5	9.749	0.703
Dec. 23	2 36 48	2	10, 11	+ 9.57	+8 22.7	18 36 14.38	+33 55 20.5	9.750	0.642
Dec. 23	3 05 16	3	10, 10	-32.75	+4 43.9	18 36 28.00	+33 54 1.0	9.747	0.687
Dec. 24	2 23 02	4	12, 12	+16.77	+3 0.6	18 47 24.06	+32 46 48.3	9.743	0.612

MEAN PLACES OF COMPARISON STARS, 1929.0

	α	δ	Authority
1.	18 ^h 25 ^m 4 ^s .40	+35° 00' 26".1	A. G. Leiden 6672
2.	18 36 4.81	+33 46 57.8	A. G. Leiden 6780
3.	18 37 0.75	+33 49 17.1	A. G. Leiden 6784
4.	18 47 7.29	+32 43 47.7	A. G. Leiden 6903 (Also Boss 4772)

On December 23 the comet was noted as being nearly 1'.5 in diameter, and of about 9^m.2, as judged by out of focus comparisons with the reference star. It was round,

and condensed in the middle to a not quite stellar nucleus. All measures were made with the 12-inch telescope.

COMET 1930b (BEYER)

1930	Gr. C. T.	Star	No. of Comp.	Comet-Star		α 1930.0	δ 1930.0	Log $p\Delta$	
				$\Delta\alpha$	$\Delta\delta$			α	δ
Mar. 18	4 ^h 31 ^m 50 ^s	1	10, 10	+ 15 ^s .02	+6' 32".0	6 ^h 05 ^m 23 ^s .46	+35°05' 32".0	9.455	9.933
Mar. 21	5 52 08	2	9t, 8	+197.80	+1 26.9	6 05 59.93	+36 18 27.1	9.665	0.250

MEAN PLACES OF COMPARISON STARS, 1930.0

	α	δ	Authority
1.	6 ^h 05 ^m 8 ^s .44	+34°59' 0".0	A. G. Lund 3140, A. G. Leiden 2467
2.	6 02 42.13	+36 17 0.2	A. G. Lund 3108

On March 18 the comet was noted as being "10^m, small, condensed, but no stellar nucleus." Measures were with the 12-inch telescope.

COMET 1930c (WILK)

1930	Gr. C. T.	Star	No. of Comp.	Comet-Star		α 1930.0	δ 1930.0	Log $p\Delta$	
				$\Delta\alpha$	$\Delta\delta$			α	δ
Mar. 25	3 ^h 37 ^m 56 ^s	1	12t, 8	+99 ^s .88	+1' 37".8	1 ^h 24 ^m 49 ^s .44	+23°12' 27".9	9.705	0.703
Mar. 27	3 44 36	2	10, 11	- 6.42	+8 8.9	1 19 54.78	+25 55 15.9	9.711	0.718

MEAN PLACES OF COMPARISON STARS, 1930.0

	α	δ	Authority
1.	1 ^h 23 ^m 9 ^s .56	+23°10' 50".1	A. G. Berlin B 441
2.	1 20 1.20	+25 47 7.0	A. G. Cam. E. 790, Oxf. ph. +25.4759

On March 25 the comet was of about the 6th magnitude. It had a short, broad, but faint tail directed away from the Sun, and a nearly stellar nucleus. The 12-inch telescope was used.

COMET 1931b (NAGATA)

1931	Gr. C. T.	Star	No. of Comp.	Comet-Star		α 1931.0	δ 1931.0	Log $p\Delta$	
				$\Delta\alpha$	$\Delta\delta$			α	δ
July 22	4 ^h 48 ^m 32 ^s	1	10, 9	+31 ^s .78	-4' 14".4	10 ^h 57 ^m 56 ^s .31	+10°04' 27".2	9.674	0.709
July 25	4 38 19	2	11t, 8	+73.29	-3 6.2	11 10 20.83	+10 11 22.0	9.672	0.704
Nov. 2	2 31 44	3	12, 10	-20.70	- 45.7	15 48 23.48	+ 5 39 32.4	9.664	0.712
Nov. 3	2 35 59	4	11, 11	-13.10	+4 18.6	15 50 22.21	+ 5 38 8.7	9.666	0.714
Nov. 13	2 33 11	5	10, 10	-21.03	+2 52.0	16 09 34.69	+ 5 28 41.9	9.670	0.719
1932	Gr. C. T.	Star				α 1932.0	δ 1932.0	α	δ
April 9	11 16 39	6				18 54 26.22	+20 53 18.1	9.490n	0.478
April 9	12 09 39	6				18 54 26.39	+20 53 42.0	9.326n	0.432

MEAN PLACES OF COMPARISON STARS, 1931.0

	α	δ	Authority
1.	10 ^h 57 ^m 24 ^s .53	+10°08' 41".6	Toulouse ph. +11°, 10 ^h 52 ^m , No. 227
2.	11 09 7.54	+10 14 28.2	A. G. Leipzig I 4228
3.	15 48 44.18	+ 5 40 18.1	A. G. Leipzig II 7104, Tou. ph. +5°, 15 ^h 48 ^m , No. 23
4.	15 50 35.31	+ 5 33 50.1	A. G. Leipzig II 7113, Tou. ph. +5°, 15 ^h 48 ^m , No. 38
5.	16 09 55.72	+ 5 25 49.9	Tou. ph. +5°, 16 ^h 12 ^m , No. 14; mic. comp. with A. G. Leipzig II 7231, Tou. ph. +5°, 16 ^h 12 ^m , No. 17
6.	Three stars from Paris ph.		

Notes: July 22, about 9^m, good sharp nucleus, Mr. Conrad Swanson, recorder. July 23, 9^m, stellar nucleus. Nov. 2, comet had the appearance of a hazy condensation only, no nucleus. Nov. 13, comet 11^m or less, diffi-

cult in low altitude. Visual measures were made with 12-inch telescope. The two positions of April 9, 1932, are from Crossley photographs. The images were rather diffuse, and indicated an approximate magnitude of 18.

COMET 1931*d* (NEUJMIN PERIODIC)

1931	Gr. C. T.	α 1931.0	δ 1931.0	α	δ
Oct. 17	10 ^h 20 ^m 48 ^s	4 ^h 46 ^m 45 ^s .52	+42°37'58".4	9.161n	9.853n
Oct. 17	11 20 18	4 46 44.13	+42 38 14.7	8.288	9.923n

The above positions are from Crossley photographs. Several plates in October and two in November, one

exposed two hours, showed no trace of coma; the images were quite stellar.

REINMUTH'S OBJECT, 1932 HA

1932	Gr. C. T.	α 1932.0	δ 1932.0	α	δ
May 14	5 ^h 13 ^m 01 ^s	9 ^h 44 ^m 3:29	— 8°10' 12".6	9.502	0.778
May 14	5 21 31	9 43 53.60	— 8 09 53.9	9.520	0.776

The positions above are from Crossley photographs. Thanks are due to Dr. E. C. Bower for assistance at the telescope. The exceedingly rapid motion of this object

necessitated the cooperation of two observers at the instrument.

COMET 1932*f* (NEWMAN)

1932	Gr. C. T.	Star	No. of Comp.	Comet-Star $\Delta\alpha$ $\Delta\delta$	α 1932.0	δ 1932.0	α	δ
July 4	9 ^h 23 ^m 19 ^s	1	5, 7	+10°41' —2°47'9"	15 ^h 13 ^m 30 ^s .05	+16°15'54".5	9.668	0.655
July 5	7 03 16	2	10, 10	—11.54 — 35.5	15 12 15.76	+16 42 41.1	9.489	0.547
July 6	9 11 05				15 10 48.78	+17 14 6.9	9.669	0.648
July 6	9 30 05				15 10 47.74	+17 14 27.8	9.679	0.664
July 7	5 15 58				15 09 44.37	+17 37 38.1	9.100	0.478
July 7	5 34 58				15 09 43.34	+17 38 0.9	9.217	0.486

MEAN PLACES OF COMPARISON STARS, 1932.0

	α	δ	Authority
1.	15 ^h 13 ^m 19 ^s .64	+16°18'42".4	Bord. ph. +16°, 15 ^h 12 ^m , No. 29; +17°, 15 ^h 08 ^m , No. 153
2.	15 12 27.30	+16 43 16.6	Bord. ph. +17°, 15 ^h 08 ^m , No. 144; mic. comp. with Berlin A 5492

The above measures of Newman's Comet were obtained in the course of an unsuccessful search for Schmitt's Comet, 1932*h*. The 12-inch telescope was used for the first measure, the 36-inch for the second. The comet was of about the 12.5 magnitude; it was quite difficult to measure with the smaller instrument. The

photographic positions are from plates taken with the Crossley reflector. Exposures of 20^m on "Tillingworth Lightning" plates show a well condensed coma of about 7" in diameter with a faint fan shaped "tail" extending 10" towards the southeast. There was no stellar nucleus.

MOUNT HAMILTON, CALIFORNIA,
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