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ELEMENTS AND EPHEMERIS OF COMET *c* 1915 (TAYLOR)

The elements given below were derived from three normal places, formed from observations over as long an arc as was available. The adopted normal places corrected for parallax are:

Gr.M.T.	α (1916.0)	δ (1916.0)
1915 Dec. 8.5000	80° 25' 40".7	+ 0° 21' 48".6
1916 Jan. 8.5000	76 40 33.4	+10 36 28.4
1916 Apr. 5.6669	113 54 38.7	+33 03 48.4

The dates of the normal places have been corrected for aberration. The resulting elements are:

Epoch = 1916 Jan. 8.5 Gr. M. T.

$M_0 = 356^\circ 31' 33".0$

$$\left. \begin{array}{l} \omega = 354^\circ 49' 00".1 \\ \Omega = 113 \ 53 \ 16.3 \\ i = 15 \ 31 \ 43.7 \end{array} \right\} 1915.0 \quad \left. \begin{array}{l} \omega = 354^\circ 49' 01".6 \\ \Omega = 113 \ 54 \ 05.1 \\ i = 15 \ 31 \ 43.5 \end{array} \right\} 1916.0$$

$$e = 0.546458$$

$$\log a = 0.535922$$

$$\mu = 557''.3450$$

$$T = 1916 \text{ Jan. } 30.9403 \text{ Gr. M. T.}$$

$$P = 6.3662 \text{ years}$$

CONSTANTS FOR THE EQUATOR, 1915.0

$$x = r [9.986582] \sin (199^\circ 30' 11".9 + v)$$

$$y = r [9.981743] \sin (113 \ 47 \ 29.1 + v)$$

$$z = r [9.573930] \sin (70 \ 52 \ 22.8 + v)$$

CONSTANTS FOR THE EQUATOR, 1916.0

$$x = r [9.986585] \sin (199^\circ 31' 03".4 + v)$$

$$y = r [9.981752] \sin (113 \ 48 \ 15.3 + v)$$

$$z = r [9.573864] \sin (70 \ 53 \ 04.2 + v)$$

In the formation of the normal places all observations at hand which were near the adopted dates were investigated, and the more consistent of them were utilized. The observations used, together with their representations by the final elements, are:

		Comet's Apparent						O — C		Observer, place	
Gr.M.T.		α		δ		$\cos\delta\Delta\alpha$		$\Delta\delta$			
1915	Dec.	5 ^h	23 ^m	24 ^s .12	— 0°	11'	43".7	+5".2	+5".3	Millosevich, Rome	
	6.6957	5	22	42.9	+ 0	01	36	+2	+3	Burton, Washington	
	7.7719	5	22	07.5	+ 0	13	24	—2	+4	Van Biesbroeck, Yerkes	
	8.5337	5	21	41.90	+ 0	22	03.6	—2.6	0.0	Thiele, Hamburg	
	8.7004	5	21	36.8	+ 0	24	05	+1	+1	Burton	
	9.6935	5	21	02.60	+ 0	36	04.8	—3.5	—1.1	Van Biesbroeck	
	9.7877	5	20	59.6	+ 0	37	16	0	—1	Aitken	
	10.4364	5	20	36.93	+ 0	45	30.5	+1.7	+2.2	Palisa, Vienna	
1916	Jan.	7.6431	5	06	49.73	+10	14	31.7	—2.3	—1.5	Dawson, Ann Arbor
	7.6736	5	06	49.28	+10	15	19.4	—2.9	—0.4		Dawson
	8.4104	5	06	43.81	+10	34	02.9	+2.0	—1.5		Palisa, Vienna
	8.6645				+10	40	34.1		—0.9		Dawson
	8.6751	5	06	42.35				+5.5			Dawson
	9.4956	5	06	37.30	+11	01	48.7	—1.8	—1.3		Hartwig, Bamberg
	11.2661	5	06	34.86	+11	47	29.1	+0.7	+3.0		Strömgren, Copenhagen

The observations used to form the third normal place are photographic. They were made with the

Crossley reflector, and are point images. The positions are (uncorrected for parallax):

	Gr.M.T.	α (1916.0)	δ (1916.0)	$\frac{O-C}{\cos \delta \Delta \alpha}$	$\Delta \delta$	Observer
1916 Apr.	5.6663	7 ^h 35 ^m 36 ^s .96	+33° 03' 47".3	-2".2	-0".8	Green
	5.6825	7 35 39.88	33 03 48.0	+2.9	-0.1	Green

The residuals used in forming the normal places were derived by a comparison of the foregoing observations with the elements given in A. N. 4827.

The comet is quite well situated for further observation, and, since more observations are desirable, an ephemeris has been computed. It is now a rather difficult object for visual observation, being only of about the fifteenth magnitude, and probably it will be impossible to observe the comet when the Moon is between the first and last quarter. However, for the sake of continuity, the ephemeris has been continued over these intervals. The estimates made of the brightness at the date for which the brightness is taken as unity varied between the tenth and twelfth magnitudes.

1916	True α	True δ	$\log \Delta$	Br.
July 7.5	11 ^h 16 ^m 12 ^s	+18° 32' 0"		
9.5	20 06	18 05.6		
11.5	23 57	17 39.2		
13.5	27 47	17 12.8	0.4180	0.04
15.5	31 36	16 46.4		
17.5	35 23	16 20.1		
19.5	39 08	15 53.8		
21.5	42 52	15 27.6		
23.5	46 35	15 01.4		
25.5	50 16	14 35.2	0.4455	0.03
27.5	53 55	14 09.1		
29.5	11 57 34	13 43.1		
July 31.5	12 01 11	13 17.3		
Aug. 2.5	04 47	12 51.5		
4.5	08 22	12 25.9		
Aug. 6.5	12 11 56	+12 00.4	0.4707	0.03

Brightness December 8 = 1.00

EPHEMERIS FOR GREENWICH MEAN MIDNIGHT					
1916	True α	True δ	$\log \Delta$	Br.	
May 26.5	9 ^h 46 ^m 40 ^s	+27° 19' 1"	0.2864	0.09	
28.5	51 19	26 56.4			
May 30.5	9 55 55	26 33.4			
June 1.5	10 00 29	26 10.1			
3.5	05 01	25 46.4			
5.5	09 30	25 22.4			
7.5	13 57	24 58.1	0.3225	0.07	
9.5	18 22	24 33.5			
11.5	22 44	24 08.7			
13.5	27 03	23 43.7			
15.5	31 20	23 18.5			
17.5	35 35	22 53.1			
19.5	39 48	22 27.4	0.3565	0.06	
21.5	43 59	22 01.7			
23.5	48 08	21 35.8			
25.5	52 14	21 09.8			
27.5	10 56 19	20 43.7			
June 29.5	11 00 21	20 17.5			
July 1.5	04 22	19 51.2	0.3883	0.05	
3.5	08 20	19 24.8			
July 5.5	11 12 17	+18 58.4			

While the proofs of this Bulletin were being read a letter was received from Professor E. E. Barnard, giving details as to the physical appearance of the comet. The comet was observed to be double on February 9, the nuclei being 10" apart. By March 24 the southern comet, which was originally brighter by two magnitudes, had faded until it was no longer visible, and the companion of the original comet was all there was to be seen. These observations would seem to indicate a possibility of the third normal place being in error by a few seconds of arc, owing to the fact that the center of illumination may not have coincided with the center of mass.

It is interesting to note that, with the exception of the longitude of the node, the elements of this comet are in general agreement with those of Comet *e* 1909 (Daniel).

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BERKELEY ASTRONOMICAL DEPARTMENT,
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