CORRECTED ELEMENTS OF (599) 1906 UJ1.

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Based upon the corrections to the ephemeris derived from the provisional elements given in the preceding article six normal places were formed and the elements of the orbit were corrected. The heliocentric spherical coordinates for the extreme places were found by the formulæ given on pages 358-359 of WATSON'S Theoretical Astronomy, and the coordinate x_0 was varied as in the case of (554) Peraga, see page B 90.

Normal Places.	Berlin Mean Time.	Mean Equinox of 1906.0	
		α	δ
	1906	h m s	° ' "
I	Apr. 28.5	14 40 26.24	-13 10 49.7
II	May 7.5	14 30 57.78	-13 11 51.9
III	22.5	14 15 51.70	-13 17 35.3
IV	June 20.5	13 58 15.40	-14 10 43.0
V	July 10.5	13 58 36.43	-15 32 52.5
VI	21.5	14 2 59.69	-16 33 23.2

The corrected elements are as follows:

Corrected Elements.

Epoch: 1906, April 28.5, Berlin Mean Time.

$$\begin{aligned}
 & \begin{array}{l} M = 278 \quad 5 \quad 44.3 \\ \omega = 290 \quad 3 \quad 43.5 \\ \Omega = 45 \quad 29 \quad 46.7 \\ i = 16 \quad 33 \quad 44.8 \end{array} \left. \vphantom{\begin{array}{l} M \\ \omega \\ \Omega \\ i \end{array}} \right\} 1906.0 \\
 & \varphi = 17 \quad 15 \quad 7.2 \\
 & \mu = 768''.430 \\
 & \log a = 0.442935
 \end{aligned}$$

Residuals.

Date.	May 7.5	May 22.5	June 20.5	July 10.5
O-C { λ	-0.4	+0.7	-0.7	0.0
β	+0.5	+1.3	-1.4	-0.3

Heliocentric Coordinates 1907.0

$$\begin{aligned}
 x &= r [9.990829] \sin (64^\circ 21' 30.5'' + v) \\
 y &= r [9.916601] \sin (342^\circ 31' 44.8'' + v) \\
 z &= r [9.778312] \sin (318^\circ 17' 28.4'' + v)
 \end{aligned}$$

Ephemeris for 1907.

Berlin Mean Midnight.	Apparent α .	Apparent δ .	Log J .	Aberr. Time.
1907	h m s	° ' "		m s
Oct. 1	3 4 7.00	+ 8 57 18.3	0.105520	10 36
5	3 1 24.18	9 16 21.3	0.099703	10 27
9	2 58 9.72	9 35 8.2	0.094916	10 20
13	2 54 26.93	9 53 43.0	0.091291	10 15
17	2 50 19.71	10 12 6.9	0.088960	10 12
21	2 45 53.10	10 30 22.4	0.088007	10 10
25	2 41 12.24	10 48 30.1	0.088513	10 11
29	2 36 23.02	11 6 32.4	0.090521	10 14
Nov. 2	2 31 31.66	11 24 30.5	0.094052	10 19
6	2 26 44.43	11 42 29.3	0.099093	10 26
10	2 22 7.67	12 0 35.6	0.105585	10 36
14	2 17 47.07	12 18 55.3	0.113432	10 47
18	2 13 47.24	12 37 35.0	0.122514	11 1
22	2 10 12.05	12 56 39.3	0.132694	11 17
26	2 7 4.28	13 16 13.5	0.143837	11 34
30	2 4 26.09	13 36 21.9	0.155803	11 54
Dec. 4	2 2 18.96	+13 57 9.7	0.168455	12 15

The observations at Jena, Copenhagen, Nice, Kasan, Düsseldorf, and Washington give the following corrections to this ephemeris:

Corrections to the Ephemeris.

Date.	Place.	O-C		Date.	Place.	O-C	
		α	δ			α	δ
1907		m s	' "	1907		m s	' "
Sept. 29	Washington.....	-0 19.99	-4 10.1	Nov. 6	Jena.....	-0 23.82	-3 44.2
Oct. 1	Washington.....	-0 20.46	-4 8.7	6	Padua.....	-0 22.92	-3 46.5
5	Washington.....	-0 21.19	-4 8.9	7	Kasan.....	-0 24.03	-3 45.4
6	Washington.....	-0 21.31	-4 11.0	7	Düsseldorf.....	-0 23.65	-3 44.3
13	Washington.....	-0 22.45	-4 8.1	7	Copenhagen....	-0 23.76	-3 44.2
18	Copenhagen....	-0 22.96	-4 5.7	7	Copenhagen....	-0 24.18	-3 44.4
Nov. 3	Washington.....	-0 23.73	-3 49.3	8	Copenhagen....	-0 23.83	-3 44.1
3	Jena.....	-0 23.78	-3 51.7	9	Copenhagen....	-0 23.75	-3 41.9
4	Nice.....	-0 23.68	-3 47.0	12	Nice.....	-0 23.39	-3 37.0
4	Jena.....	-0 23.63	-3 46.3	22	Kasan.....	-0 22.58	-3 21.0
6	Nice.....	-0 24.08	-3 45.7	24	Kasan.....	-0 22.13	-3 17.1