MEASURES OF THE FIFTH SATELLITE OF *JUPITER*,

MADE WITH THE 24-INCH REFRACTOR OF THE LOWELL OBSERVATORY,

BY T. J. J. SEE.

The following are a few measures of the Fifth Satellite of *Jupiter* attempted at the request of Professor BARNARD. As the telescope during these hours of the night was generally used by Mr. DOUGLASS in his work on the other satellites, only a short time was available for measurement of the Fifth, which is always difficult in an instrument of this size. A screen of yellow mica was used to cut off the light of *Jupiter*, and under a steady black sky the satellite appeared quite distinct, and just like a small star of $14^m.5$. However, desultory measures like these can hardly be so accurate as might be expected in work of a more systematic character, and I have indicated this uncertainty by the remarks appended to the observations. The time is seven hours slow of Greenwich, or what is known as Mountain Time.

MEASURES OF THE FIFTH SATELLITE OF *Jupiter*.

t	θ_o	ρ_o
	°	″
1898 April 18 $12^h 49^m.5$	287.2	44.10 [1]
22 13 10.0	289.5	49,03 [2]
13 20.0	289.2	53.51 [3]
23 8 33.0	114.5	51.37 [4]
12 47.5	287.3	52.54 [5]

NOTES: [1] Like a small star, magnitude 14.8; quite distinct, but the central wire behind the screen is seen with difficulty. [2] and [3] Fairly good measures, magnitude 14.5. [4] At first quite distinct, but afterwards very difficult. [This distance appears to be abnormally large.] [5] Fairly well seen, and measures satisfactory.

Lowell Observatory, Flagstaff, Arizona, 1898 *June* 16.

COMET c 1898.

In addition to the observations communicated in *A.J.* 438, the following additional positions obtained at the Lick Observatory have been telegraphically received.

1898 Gr. M.T.	a	δ	Observer
	h m s	° ′ ″	
June 13.7583	16 18 5.0	−26 31 48	Coddington
13.7876	16 17 58.4	−26 33 3	Tucker (Merid. Circle)

Three sets of elements have been telegraphically communicated, as follows:

ELEMENTS.

$$T = 1898 \text{ Sept. } 10.31 \text{ Gr. M.T.}$$

$$\left. \begin{array}{l} \omega = 229° 28′ \\ \Omega = 73 \ 59 \\ i = 71 \ 18 \end{array} \right\} 1898.0$$

$$q = 1.7685$$

EPHEMERIS FOR GREENWICH MIDNIGHT.

	a	δ	Br.
	h m s	° ′	
1898 June 20.5	15 54 32	−30 41	1.07
24.5	40 20	32 59	
28.5	26 24	35 7	
July 2.5	15 12 52	−37 5	1.05

Computed by Messrs. HUSSEY and CODDINGTON from observations on June 11, 13 and 15. They also send by mail the following particulars:

"This comet was discovered by Mr. CODDINGTON, June 11, 1898, on a photographic plate taken by him with the Crocker Photographic Telescope on the evening of June 9, 1898. Owing to changes that were being made in his dark room this plate was not developed until June 11. On developing the plate a strong trail was found. The region was at once examined with the 12-inch telescope, and an observation of the comet made by Professor HUSSEY."

ELEMENTS.

$$T = 1898 \text{ Sept. } 8.36 \text{ Gr. M.T.}$$

$$\left. \begin{array}{l} \omega = 227° 40′ \\ \Omega = 73 \ 58 \\ i = 71 \ 47 \end{array} \right\} 1898.0$$

$$q = 1.8003$$

EPHEMERIS FOR GREENWICH MIDNIGHT.

	a	δ	Br.
	h m s	° ′	
1898 June 20.5	15 54 40	−30 40	1.06
24.5	40 36	32 57	
28.5	26 44	35 4	
July 2.5	15 13 24	−37 1	1.04

Computed by Mr. CRAWFORD from observations on June 11, 12 and 13.

ELEMENTS.

$$T = \text{Aug. } 4.44 \text{ Gr. M.T.}$$

$$\left. \begin{array}{l} \omega = 206° 9′ \\ \Omega = 73 \ 59 \\ i = 76 \ 48 \end{array} \right\} 1898.0$$

$$q = 2.0821$$

EPHEMERIS FOR GREENWICH MIDNIGHT.

	a	δ	Br.
	h m s	° ′	
1898 June 19.5	15 58 24	−30 2	0.99
23.5	44 56	32 16	
27.5	31 48	34 19	
July 1.5	15 19 24	−36 10	0.89

Computed by Mr. BERBERICH from observations on June 11, 13 and 15.