Observations of Eclipses of the Satellites of Jupiter, made at Washington during the Opposition of 1879.

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From my series of observations of the phenomena of the Satellites of Jupiter during the opposition of 1879, I select the eclipses for present publication. The instruments used in making these observations are the property of the Nautical Almanac office.

(1) An equatorial refractor of 3^{inch}5 aperture, and a focal length of forty-eight inches.

(2) An equatorial refractor of 3^{inch}0 aperture, and a focal length of forty-four inches.

The scale of weights embraces 1 to 5, as follows: — 1 uncertain, 2 indifferent, 3 average, 4 good, 5 excellent.

Not having been able to use the method of observing with the occulting-bar in the observations made before August 30th, it was not employed after that time, in order that the conditions of observing might be kept as nearly as possible symmetrical with reference to the date of opposition.

I am indebted to Professor *J. R. Eastman*, U. S. Navy, for some of the data necessary in reducing my chronometer-corrections to the standard time of the Naval Observatory.

Date	Satellite	Phase	Washington Mean Time	Weight.	Aperture of Instrument	Magnifying Power	R e m a r k.
1879							
May 30	II	Dis.	{ 15 ^h 10 ^m 43 ^s 15 13 58.3	— 2	3.0 3.0	120 120	First diminution of brightness. Day just breaking.
August 2	IV	-	9 1 39.7	2	3.0	65	Moon 0 ^h 8 past full, and 21° from Jupiter.
	IV	Re.	{ 13 22 59.1 13 36 8	4 —	3.0 3.0	65 65	Moon 1 ^h 0 past full, and 19° from Jupiter. Full brightness.
2	II	Dis.	{ 14 17 8 14 25 11.8	2 3	3.0 3.0	65 65	First diminution of brightness. Moon 1 ^h 0 past full, and 18° from Jupiter.
12	I	-	{ 9 52 13 9 55 19.8	2 2.5	3.0 3.0	65 65	First diminution of brightness. Last seen.
19	I	-	{ 11 47 21 11 50 18.0	— 2.5	3.0 3.0	120 120	First diminution of brightness. Last seen.
20	III	-	8 35 32.4	2	3.0	65	Satellites II and III were so near together that the observation was difficult.
20	II	-	8 51 58.0	3	3.0	65	A suspicion that the satellite was seen 12 ^s later.
28	I	-	8 13 54.7	2.5	3.0	120	Jupiter only two days from opposition, and the satellite disappeared very near the limb of the planet. Moon 2 7 before full, and 36° from Jupiter.
Sept. 4	I	Re.	12 23 29.5	3	3.5	75	Moon 3 ^h 6 before last quarter, and 56° from Jupiter.
6	I	-	6 53 25.4	1	3.0	65	Twilight still visible. Sky somewhat smoky, and seeing bad.
25	III	-	{ 8 4 0.7 8 10 55	4 —	3.5 3.5	75 75	Moon 3 ^h 2 after first quarter, and 23° from Jupiter. Full brightness.
27	I	-	{ 12 38 1.8 12 40 52	3 —	3.5 3.5	140 140	Moon 2 ^h 2 before full, and 7°+ from Jupiter. Full brightness.

Date	Satellite.	Phase.	Washington Mean Time	Weight.	Aperture of Instrument	Magnifying Power	R e m a r k.
1879							
Sept. 29	I	Re.	{ 7 ^h 8 ^m 2 ^s 0 7 10 54	{ 2	{ 3.5 3.5	{ 140 140	First seen. Full brightness. At the time recorded „first seen“, the planet was behind passing clouds which were almost dense enough to obscure the three other satellites. The first satellite was already too far past actual reappearance for this time to be assigned by estimation even: it was fully one-third its full brightness.
Oct. 2	III	-	{ 12 6 5.0 12 14 37 9 2 57.1	{ 3 2 1.5	{ 3.5 3.5 3.5	{ 140 140 140	Moon 2 ^d 8 past full, and 67° from Jupiter. Full brightness. First seen. Came into view quite suddenly. I think the planet was behind thin flying clouds which passed off at the time recorded. Seeing not good.
6	I	-	{ 9 7 3	2	3.5	140	Full brightness.
13	I	-	{ 10 58 9.0 11 2 19	{ 2.5 2	{ 3.5 3.5	{ 140 140	Full brightness.
15	I	-	{ 5 27 46.2 5 29 41	{ 1.5 2	{ 3.5 3.5	{ 140 140	First seen. Very bright twilight. Full brightness.
16	II	-	{ 8 20 5.4 8 23 52	{ 3 3	{ 3.5 3.5	{ 140 140	First seen. Possibly an extremely thin haze over the sky. Full brightness.
25	IV	-	8 16 1.8	3	3.5	140	Moon 4 th 0 before full, and 14°+ from Jupiter.
29	I	-	{ 9 18 28.6 9 22 10	{ 3 3	{ 3.5 3.5	{ 140 140	Moon at full, and 64° from Jupiter. Full brightness.
Nov. 7	III	Dis.	4 56 55.3	1	3.5	140	Time of observation near sunset. Observation quite uncertain.
7	I	Re.	{ 5 42 48.4 5 46 3	{ 4 3	{ 3.5 3.5	{ 140 140	Full brightness.
7	III	-	{ 8 13 37.6 8 20 44	{ 2.5 2.5	{ 3.5 3.5	{ 140 140	Full brightness.
10	II	-	5 28 1.5	2.5	3.5	140	Not long after sunset. Possibly a thin cloud rested over the planet at the moment of observation. The reappearance was quite definite.
14	I	-	{ 7 38 39.8 7 41 34	{ 3 2	{ 3.5 3.5	{ 140 140	Full brightness.
14	III	Dis.	{ 8 53 19 8 59 38.4	{ 3 3	{ 3.5 3.5	{ 140 140	First diminution of brightness. Disappearance. Portions of the sky were dimmed by a thin haziness. I do not think, however, that it rested over the planet at the moment of observation.

Date	Satellite	Phase	Washington Mean Time	Weight	Aperture of Instrument	Magnifying Power	R e m a r k.
1879							
Nov. 21	I	Re.	9 ^h 34 ^m 31 ^s .3	2.5	3.5	140	Moon 1 ^h 3 past first quarter, and 13°± from Jupiter.
24	II	-	10 43 14.9	1	3.5	140	Moon 4 ^h 4 past first quarter, and 49° from Jupiter. Just as I was expecting to observe the reappearance of the satellite, the planet passed from a perfectly clear sky into a rising cloud-bank, which, though not very dense, must have retarded the eclipse not far from forty seconds.
30	I	-	{ 5 58 49.5 6 2 9 7 55 28.0	3 3 1	3.5 3.5 3.5	140 140 140	Full brightness.
Dec. 7	I	-	{ 7 57 7 5 16 26.1	1 2.5	3.5 3.5	140 140	A dense haze over the sky. Jupiter appeared to shine at about one-third its usual brilliancy in a clear sky.
12	H	-	8 10 38.2	1	3.5	140	Full brightness.
30	I	-					Considerable twilight.
							Clouds were passing over the planet, and it shone with about one-half its usual brilliancy.
1880			{ 6 29 24.9 6 32 53	3 3	3 5 3.5	140 140	Moon 3 ^h 3 before first quarter, and about 7° from Jupiter.
Jan. 15	I	-	6 43 0.8	1.5	3.5	140	Full brightness.
Febr. 7	I	-					Planet rather low, and very faint twilight underneath it.

Washington, 13. February 1880.

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Todes-Anzeige.

Am 5. Februar starb der langjährige erste Assistent der Sternwarte in Madras, Herr Chintamanay Ragoonatha Charry. Seit mehr als 35 Jahren an der dortigen Sternwarte angestellt, hat er dreimal die Leitung derselben in andere Hände übergehen sehen, und sich die Achtung eines jeden seiner Vorgesetzten durch Zuverlässigkeit im Beobachten und Rechnen, und eine selbsterworbene tüchtige Kenntniss auf mathematischem und astronomischem Gebiete zu erwerben gewusst. In den Monthly Notices of the R. Astr. Soc. Vol. 19 findet sich ein Artikel des Verstorbenen über Bestimmung der persönlichen Gleichungen, ausserdem machte er sich bekannt durch Entdeckung zweier veränderlicher Sterne, *R Reticuli* im Jahre 1867, und *V Cephei* im Jahre 1878, und eine grosse Anzahl seit dem Jahre 1862 von ihm ausgeführter astronomischer Beobachtungen harret noch der Veröffentlichung. Ein in neueren Zeiten seltenes Beispiel von wissenschaftlicher Befähigung und ausdauerndem Fleisse bei einem Eingebornen Indiens, hat der Verstorbene sich durch Abfassung populärer Aufsätze in einheimischen Kalendern und öffentliche Vorträge um die Verbreitung richtiger Anschauungen unter seinen noch grossentheils in astrologischem Aberglauben befangenen Landsleuten nicht geringe Verdienste erworben.

Berichtigung.

Astr. Nachr. Nr. 2298 S. 282 Z. 28 v. unten statt „von Olbers“ lies „vor Olbers“.