

PLANETARY SECTION

POSSIBLE MAGNITUDE VARIATIONS OF SATURN'S SATELLITES:

For many years it has been known that the magnitude of Iapetus, Saturn's eighth moon, is variable. Recent observations have indicated that some of the other moons may vary in brightness too (ref. 1, 2). This was pointed out in Planetary Bulletin No.9. However, observers were left to their own devices to work out the positions of the satellites.

Now that Saturn is approaching a favourable period for observation, it may be possible that the observers of the RASC may be able to measure the variations and arrive at some conclusion. Therefore I have constructed the following diagrams which, when combined with the ephemerides, will indicate the approximate position of the satellite on any given night for the remainder of 1970. (These diagrams may also be used in future years when the ephemerides are released.)

The procedure is relatively simple. One has to calculate the elapsed time from Eastern Elongation as given in the accompanying ephemeris. The satellite will appear in the eyepiece of an inverting telescope in the position corresponding to the position for that elapsed time on the diagram.

Magnitude estimates may be made in two ways: (a) by the "variable star" method, comparing the magnitudes to those of background stars as found in a good star atlas, or (b) assuming that Titan is of constant magnitude 8.3 and working from there.

There are a few other factors to remember while attempting this work. The observer should keep in mind that the scale of these diagrams differs with the individual satellite. Saturn's rings are approximately 40" of arc across, so that Tethys and Dione will be difficult to see due to glare, as they will never appear to be very far from the outer extremities of the rings. If possible, an occulting apparatus should be used.

Estimating the magnitudes of these moons will make an interesting project for amateur astronomers with moderate-sized telescopes throughout the autumn of the year.

Ref. 1--Moore, Patrick, J. Brit. Ast. Assoc. Vol. 79, No.2, p.121.

Ref. 2--Delano, Rev. K., J. Brit. Ast. Assoc. Vol.79, No.2, p.124.

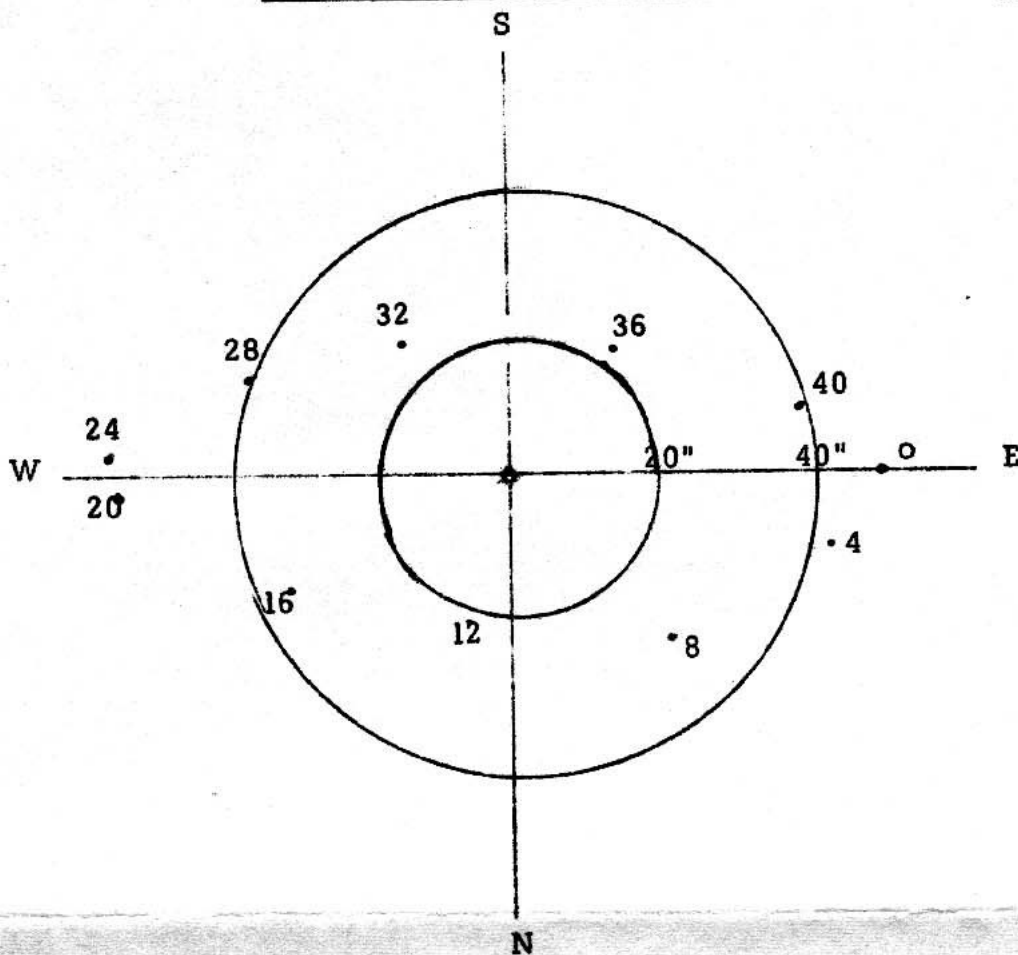
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17 July, 1970.

Phone: 416-388-0586

Hours after Eastern Elongation

TETHYS

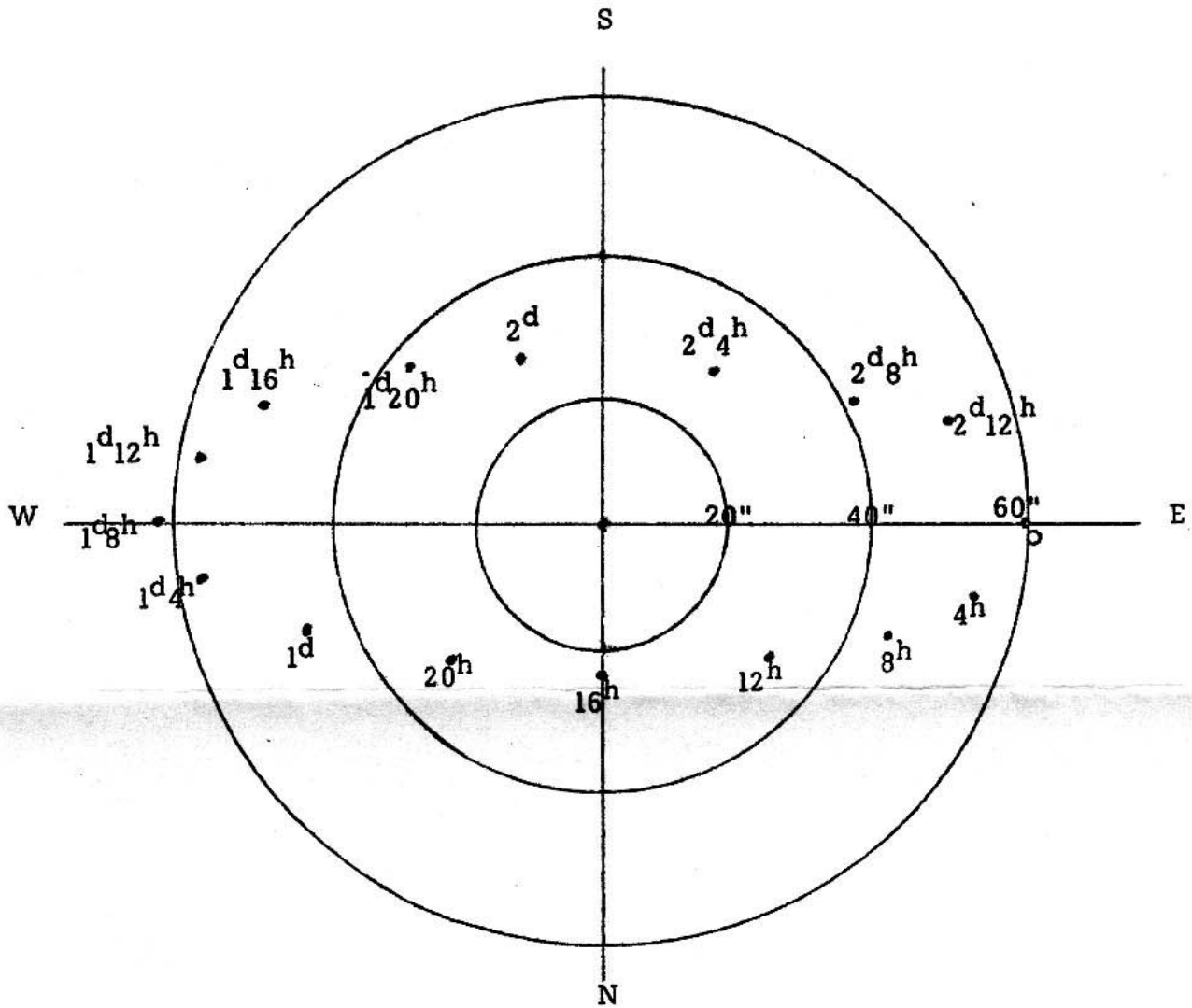


Times of Eastern Elongation (U.T.)

d	h	d	h	d	h	d	h	d	h
Aug. 5	21.8	Sept. 1	08.2	Oct. 1	12.9	Nov. 2	15.9	Dec. 2	19.5
7	19.1	3	05.5	3	10.2	4	12.1	4	16.8
9	16.4	5	02.8	5	07.5	6	09.4	6	14.1
11	13.8	7	00.1	7	04.8	8	06.7	8	11.3
13	11.1	8	21.4	9	02.1	10	04.0	10	08.6
15	08.4	10	18.7	10	23.4	12	01.3	12	05.9
17	05.7	12	16.0	12	20.7	13	22.6	14	03.2
19	03.0	14	13.3	14	18.0	15	19.9	16	00.5
21	00.3	16	10.6	15	15.3	17	17.2	17	21.8
22	21.6	17	07.9	18	12.6	19	14.5	19	19.1
24	18.9	20	05.2	20	09.9	21	11.7	21	16.4
26	16.2	22	02.5	22	07.2	23	09.0	23	13.7
28	13.6	23	23.8	24	04.4	25	06.3	25	11.0
30	10.9	25	21.1	26	01.7	27	03.6	27	08.3
		27	18.4	27	23.0	29	00.9	29	05.6
		29	15.7	29	20.3	30	22.2	31	02.9
				31	17.6				

DIONE

Days and Hours after Eastern Elongation

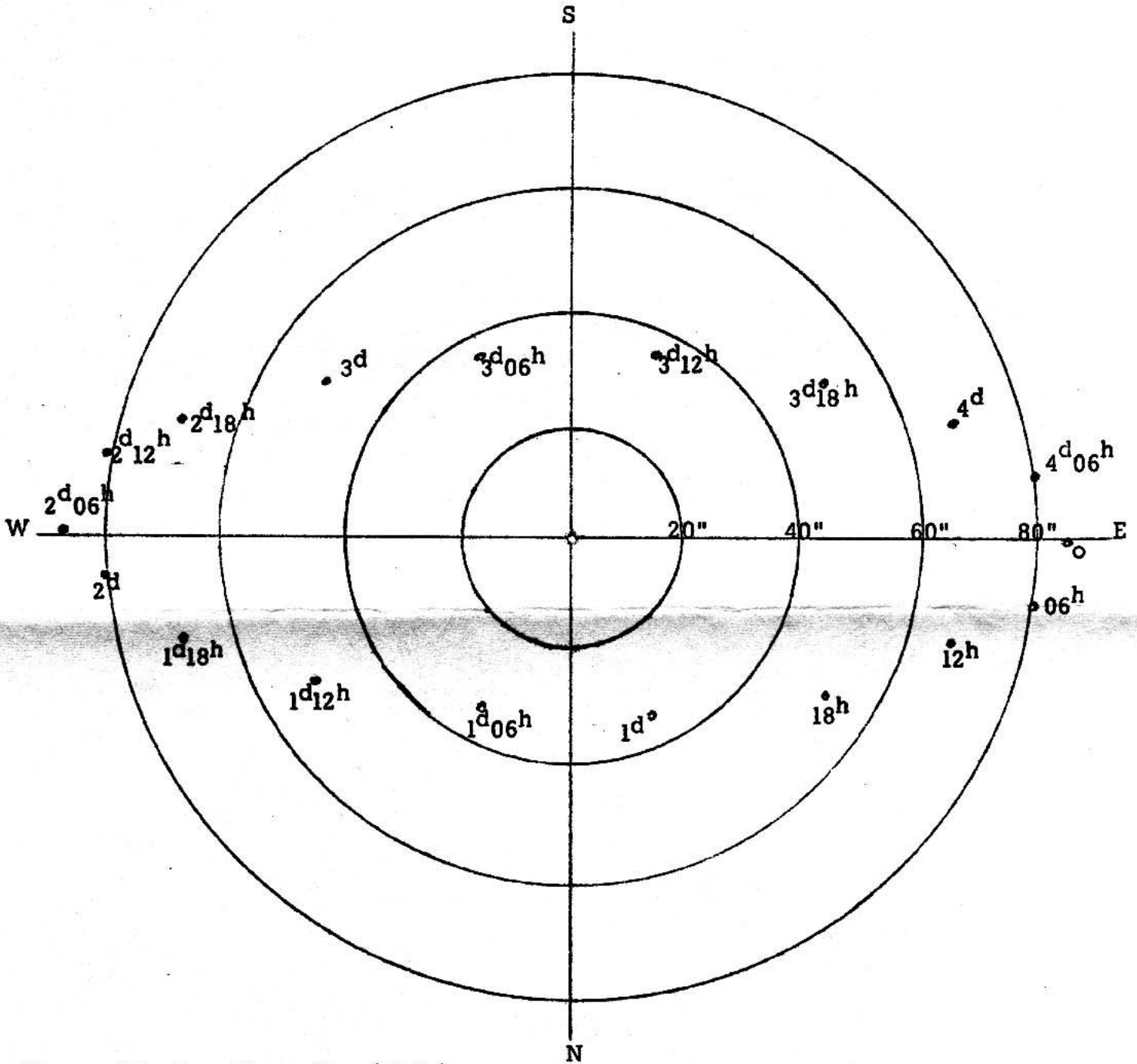


Times of Eastern Elongation (U. T.)

d	h	d	h	d	h	d	h	d	h
Aug. 5	15.1	Sept. 2	00.1	Oct. 2	02.5	Nov. 1	04.6	Dec. 1	06.7
8	08.8	4	17.8	4	20.1	3	22.3	4	00.3
11	02.5	7	11.4	7	15.8	6	15.8	6	18.0
13	20.2	10	05.1	10	07.4	9	09.5	9	11.6
16	13.9	12	22.8	13	01.1	12	03.1	12	05.3
19	07.6	15	16.5	15	18.7	14	20.8	14	22.9
22	01.3	18	10.1	18	12.4	17	14.4	17	16.6
24	19.0	21	03.8	21	06.0	20	08.1	20	10.3
27	12.7	23	21.4	23	23.7	23	01.7	23	04.0
30	06.4	26	15.1	26	17.3	25	19.4	25	21.6
		29	08.8	29	11.0	28	13.0	28	15.3
								31	08.9

RHEA

Days and Hours from Eastern Elongation

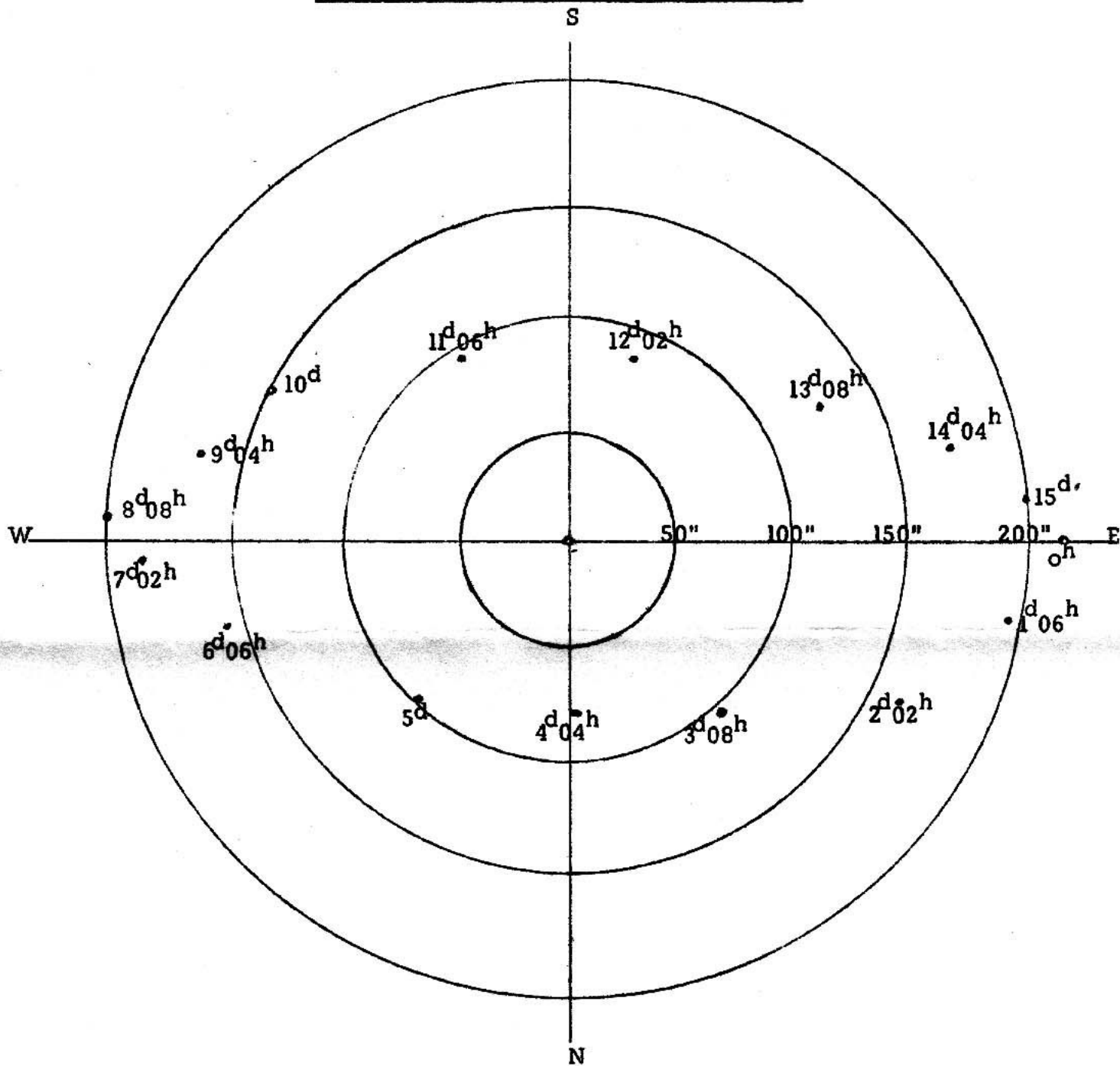


Times of Eastern Elongation (U.T.)

d	h	d	h	d	h	d	h	d	h
Aug. 3	09.7	Sept. 4	00.9	Oct. 1	03.1	Nov. 1	17.4	Dec. 3	07.6
7	22.2	8	13.3	5	15.5	6	05.7	7	19.9
12	10.6	13	01.7	10	03.8	10	18.0	12	08.2
16	23.1	17	14.0	14	16.1	15	06.3	16	20.6
21	11.6	22	02.4	19	04.5	19	18.6	21	08.9
26	00.0	26	14.8	23	16.8	24	06.9	25	21.3
30	12.4			28	05.1	28	19.2	30	09.7

TITAN

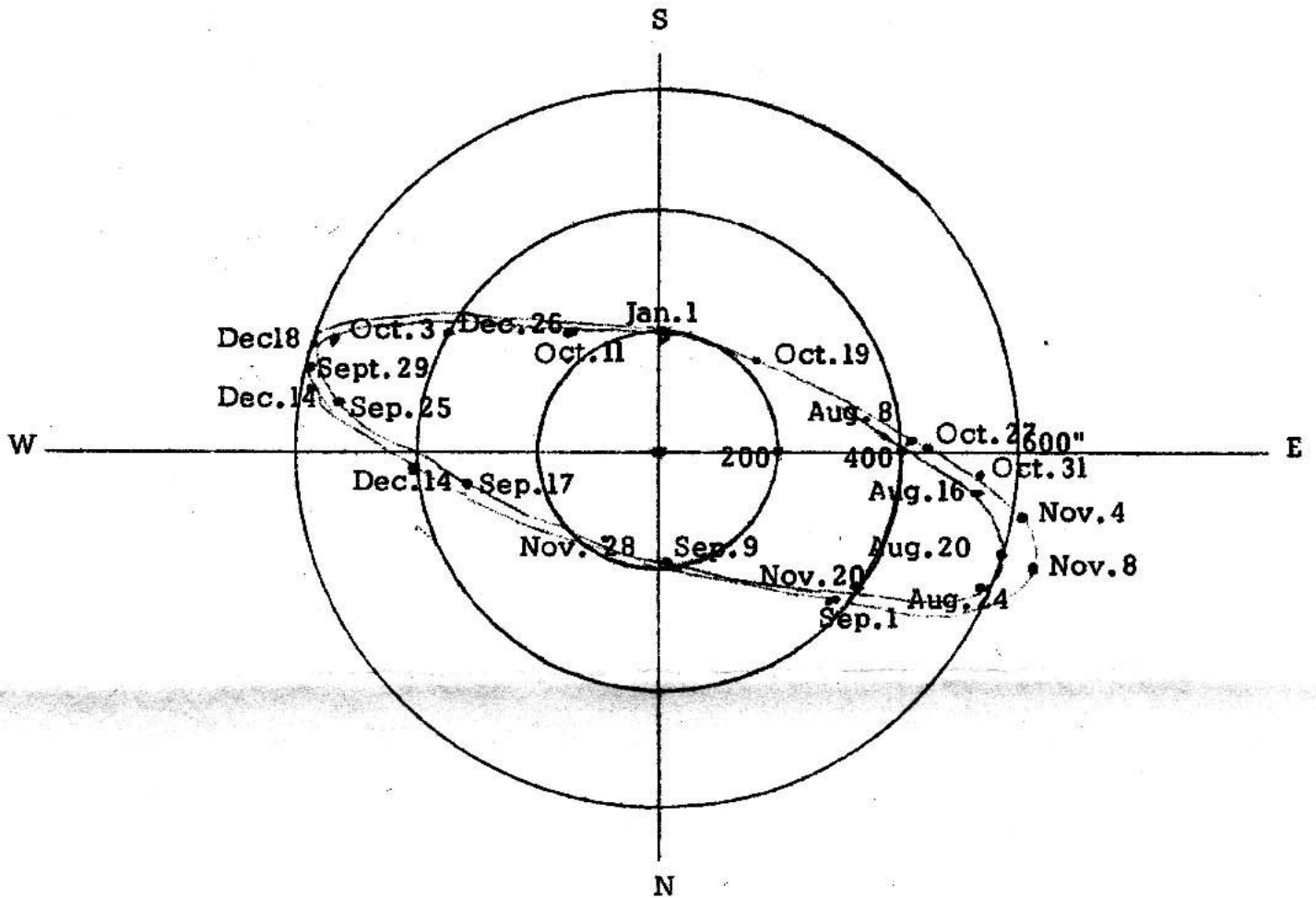
Days and Hours from Eastern Elongation



Times of Eastern Elongation (U.T.)

d	h	d	h
Aug. 15	09.9	Nov. 3	00.4
31	09.0	18	21.6
Sept. 16	07.5	Dec. 4	18.9
Oct. 2	05.6	20	16.5
18	03.1		

IAPETUS



**Iapetus is brighter at Western Elongations than at Eastern Elongations.
The variation is quite noticeable.**

**Western Elongations - Sept. 29
Dec. 16**

**Eastern Elongations - Aug. 20
Nov. 6**