ROYAL ASTRONOMICAL SOCIETY OF NEW ZEALAND.

VARIABLE STAR SECTION.

CIRCULAR No. 123.

VISUAL OBSERVATIONS OF 090031 T PYXIDIS.

Circular 121 announced the discovery by Albert Jones of the brightening of this recurrent nova. A chart was distributed with Circular 121. This contained one error, which has been drawn to the attention of most observers, viz the star marked "76" in the N.W. corner should read "96".

The first few observations received were published in Circular 122. Observations received since are published below up to 1967 January 31.

In Table 1 are listed the observers who have contributed results together with the abbreviations used for each observer.

Mean visual magnitude for each night is listed in Table 2. A total of 430 observations have been used to determine these means. No night since the outburst has been entirely missed, although on three nights there was only one observation. The average number of estimates included in the means is 8.

Column 1 of Table 2 gives the mean J.D. for each night; the second column the mean visual magnitude and the third column the number of estimates included in each mean.

Table 3 lists the individual observations. The first column gives the J.D. to two decimal places, except where an observer has kept the star under almost continuous observation for a period. Then the J.D. is given to four decimals. The second column gives the deduced magnitude, followed by a question mark when, for some reason, the observation is considered doubtful. In the third column is the observer's abbreviation. A figure in the fourth column indicates the degree of reliability attached to his observation by the observer. 1 indicates a good, reliable observation; 2, fair, due to hindrance from clouds, haze, moonlight, etc and 3 a poor observation.

The nightly means are plotted in Figure 1. Maximum took place on J.D. 2,439, 501. When the individual observations from the most experienced observers are plotted it appears that T Pyxidis was subject to short period changes of small range on which was superimposed both the larger fluctuations, apparent in Figure 1, and the steadily increasing or decreasing mean magnitude.

In addition to the visual observations now published, a large number of photographs have been taken by I. Stranson, A.A. and B. Page. These are at present being reduced and will be published later.

When the present outburst has subsided a full discussion of all results will be published.

1967 February 27

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TABLE 1.--LIST OF OBSERVERS.

ABB.	OBSERVER	No. of OBS.	Abb.	OBSERVER.	No. of OBS.
Ac	ALCOCK, (Mrs). B.J.	7			
Ak	ALCOCK, D.M.	36	Ld	Lauder, C.S.	6
Bd	BALDWIN, A.J.	9	Lm	LUMLEY, E.	23
By	BARRY, R.	5	Mt	MATCHETT, V.L.	30
Bt	BATESON, F.M.	38	Mg	McGLASSON, J.	8
Bk	BRYANT, K.	6	Mz	MENZEL, H.H.	10
Gm	GRIMMETT, M.J.	16	Mn	MENZEL, K.	21
Hi	HARRIES-HARRIS, E.	16	Oj	ORR, J.	5
Hn	HUNTER, K.	7	Sh	SHINKFIELD, R.C.	22
Jo	JONES, A.F.	35	Sr	STRANSON, I.	87
Jn	JONES, M.V.	47	Tr	TREGASKIS, T.B.	15

TABLE 2. NIGHTLY MEANS FOR 090031 T PYXIDIS.

MEAN. J.D.	MEAN. MAG. v	No. of OBS.	MEAN J.D.	MEAN MAG.	No. of OBS.
2,439, 467.14	12.9	1	2,439, 496.02	7.16	7
468.99	9.16	10	497.08	7.73	3
470.09	8.50	2	498.02	6.85	12
471.08	8.02	5	499.02	6.82	17
472.08	8.30	3	500.00	6.76	16
.92	7.7	1	501.00	6.45	16
474.02	7.87	3	502.00	7.11	20
475.05	7.77	12	.99	6.63	14
476.06	7.77	3	504.02	7.54	28
477.05	7.69	7	.99	7.70	16
478.05	7.40	4	506.00	6.64	17
479.06	7.56	8	507.04	7.64	12
.99	7.74	5	508.03	7.93	9
481.10	8.02	6	.99	7.25	11
482.00	7.93	3	510.00	7.37	6
.99	8.00	3	511.01	7.57	16
484.08	7.90	2	512.00	7.30	25
485.02	7.82	4	.99	7.18	6
486.03	7.82	5	514.00	7.41	7
.97	7.7	1	.98	7.6	1
488.05	7.30	2	515.97	7.50	3
.99	7.70	2	516.95	7.35	6
490.03	7.63	3	517.92	7.72	4
.98	7.62	8	518.91	7.94	5
492.08	7.37	3	519.96	8.07	3
493.02	7.08	13	520.95	7.44	13
494.03	7.56	8	521.95	7.73	7
495.02	7.13	3			

TABLE 3.
VISUAL OBSERVATIONS of 090031 T PYXIDIS.

J.D.	MAG.	OBS.	CLASS.	J.D.	MAG.	OBS	CLASS.
2,439,000 +				474.03	8.0	Jn	1
470.06	8.5	Sr	1	.05	7.7	Lm	1
.12	8.5	Jo	1	.95	7.7	Jo	1
.92	8.2	Jo	2	475.0062	7.8	Sr	2
471.0667	7.9	Sr	1	.0222	7.8	Sr	1
.0729	7.9	Sr.	1	.02	7.8	Tr	1
.1597	8.1	Sr.	1	.03	7.7	Lm	1
.1868	8.0	Sr.	1	.0403	7.8	Sr	1
472.06	8.6	Bt	1	.05	7.7	Sh	1
.07	8.4	Bt	1	.0792	7.7	Sr	1
.12	7.9?	Sr	3	.08	8.0	Mt	1
.92	7.7	Jo	3	.0833	7.6	Sr	1
473.97	7.9	Jo	1	.12	7.8	Jn	2
				.13	7.9	Hi	1

TABLE 3 (cont)

2,439,000 +

J.D.	Mag	Obs.	Class
476.03	7.7	Lm	1
.05	8.0	Sh	1
.09	7.6	Hi	2
.94	7.8	Gm	1
477.03	7.5	Sr	1
.03	7.6	Bk	1
.05	7.9	Sh	1
.05	7.7	Lm	1
.10	7.3	Sr	1
.14	8.0	Jn	2
478.02	7.6	Lm	2
.0347	7.5	Sr	1
.0590	7.2	Sr	1
.10	7.3	Gm	1
.98	8.0	Jn	2
479.0243	7.3	Sr	1
.0347	7.3	Sr	1
.03	7.7	Lm	2
.0520	7.5	Sr	1
.08	7.8	Jn	2
.09	7.6	Bk	2
.19	7.3	Gm	1
.91	7.7	Jo	2
.95	7.8	Jo	1
480.02	7.5	Hi	2
.03	7.6	Sr	1
.06	8.1	Sh	1
481.02	7.5	Hi	2
.04	8.1	Bk	2
.08	8.2	Sh	1
.09	8.0	Tr	2
.16	8.2	Jn	2
.21	8.1	Jn	2
.99	7.7	Lm	3
482.00	8.0	Tr	2
.01	8.1	Bk	2
.97	8.0	Tr	2
483.00	8.0	Jn	2
.01	8.0	Mt	2
484.03	8.0	Jn	2
.13	7.8	Mt	2
.95	7.8	Jo	2
.99	7.8	Mt	2
485.01	7.8	Jn	2
.15	7.9	Jo	1
.95	7.9	Mt	3
.98	8.0	Tr	2
.99	7.7	Jn	2
486.08	7.7	Jn	2
.14	7.8	Mt	2
.97	7.7	Jn	2
488.04	7.4	Sh	1
.06	7.2	Hi	1
,92	7.9	Jo	1
489.06	7.5	Sh	2
.08	8.7	?Mn	2
.99	8.0	Tr	1
490.03	7.4	Sh	1
.06	7.5	Hi	1
.9396	7.6	Bt	1
.9465	7.6	Bt	1
.96	7.3	Lm	2
.9597	7.8	Bt	1
.97	8.1	Jo	1
.9847	7.6	Bt	2

J.D.	Mag.	Obs	Class
491.06	7.4	Mn	1
.06	7.6	Sh	1
492.02	7.4	Hi	1
.02	7.6	Sh	1
.21	7.1	Mn	1
.96	7.0	Mt	1
.96	6.9	Gm	1
.97	7.1	Tr	1
.99	7.5	Jn	2
.99	6.7	Lm	2
493.00	6.9	Mt	1
.03	7.2	Sr	2
.05	7.0	Bk	2
.06	7.6	Jn	2
.07	7.3	Sh	1
.10	6.9	Mt	2
.12	7.0	Mn	1
.96	7.9	Jn	1
.96	6.9	?Gm	1
494.01	7.5	Sh	1
.02	7.9	Tr	2
.06	8.0	Jn	2
.06	7.3	Mz	1
.07	7.5	Mn	1
.12	7.3	Mn	1
.97	7.1	Tr	1
495.04	7.0	Bk	2
.06	7.3	Sh	1
.96	6.7	Lm	1
.97	7.4	Tr	1
496.00	6.9	Mt	2
.00	7.3	Hi	1
.02	7.4	Sh	1
.06	7.4	Mn	1
.10	7.0	Mz	2
.99	7.8	Tr	2
497.04	7.8	Lm	1
.22	7.6	Mz	1
.9396	6.9	Sr	1
.94	6.8	Jo	1
.94	6.7	Mt	1
.95	6.7	Gm	1
.95	6.6	Lm	1
.98	6.5	Jn	2
498.02	7.1	Tr	1
.0417	6.8	Sr	1
.04	7.0	Mn	1
.07	6.7	Jn	2
.0931	7.0	Sr	2
.23	7.4	Mn	1
.9514	6.8	Sr	1
.95	6.7	Lm	2
.9715	6.9	Sr	1
.98	6.6	Jn	2
.98	6.8	Mt	1
.9889	6.6	Bt	1
499.00	7.1	Tr	1
.00	7.3	Ld	1
.0007	6.8	Ac	1
.0125	6.6	Ac	1
.01	7.2	Sh	1
.0312	6.7	Bt	2
.06	6.8	Mn	1
.06	6.8	Mz	1
.0708	6.9	Sr	1

J.D.	Mag.	Obs	Class
499.08	6.6	Jn	2
.23	6.7	Mz	1
.94	6.6	Gm	1
.9479	6.7	Bt	1
.9479	6.8	Ac	1
.9757	6.8	Ac	1
.98	7.1	Tr	1
.99	6.5	Jn	2
.9896	6.8	Ac	1
.9944	6.9	Bt	1
500.00	6.9	Mt	1
.0028	6.8	Sr	1
.0097	6.8	Sr	1
.03	6.7	Lm	1
.0285	6.8	Sr	1
.0424	6.6	Sr	1
.0681	6.7	Bt	1
.0937	6.7	Sr	1
.92	6.7	Oj	1
.9229	6.6	Bt	1
.9368	6.7	Sr	1
.9826	6.6	Sr	1
.99	6.6	Gm	1
.99	6.3	Mt	1
.99	6.4	Jn	1
.9924	6.4	Bt	1
501.00	6.2	Hi	2
.01	6.1	Mt	1
.0167	6.5	Sr	1
.0278	6.6	Sr	1
.04	6.4	Jn	1
.0590	6.5	Sr	1
.07	6.1	Mt	1
.14	6.5	Jo	1
.9118	7.1	Bt	2
.9146	7.2	Bd	1
.9201	7.3	Bd	1
.9361	7.1	Bt	1
.94	6.9	Mt	1
.94	6.6	By	1
.96	6.6	Gm	1
.9757	7.1	Sr	1
.9896	7.2	Sr	1
502.00	7.0	Jn	1
.0208	7.3	Sr	1
.04	6.9	Mt	1
.0556	7.3	Sr	1
.0625	7.2	Sr	1
.0646	7.3	Sr	1
.0660	7.4	Sr	1
.09	7.1	Jn	2
.12	7.5	Jo	1
.15	7.1	Mn	1
.91	6.9	Bd	2
.9306	6.7	Sr	1
.9437	6.8	Sr	1
.9618	6.6	Sr	1
.9660	6.5	Sr	1
.9750	6.7	Sr	1
.97	6.3	Jn	2
.99	6.6	Gm	2
.9868	7.0	Sr	1
.9965	6.5	Sr	1
503.0097	6.7	Sr	1
.0243	6.3	Mt	1
.05	6.6	Mn	1

TABLE 3 (cont).

2,439, 000 + J.D.	Mag.	Obs	Class	J.D.	Mag.	Obs	Class	J.D.	Mag.	Obs	Class
503.9028	7.5	Bt	2	507.00	7.8	Mg	1	511.9826	7.3	Sr	1
.9299	7.6	Bd	1	.02	8.0	Sh	1	.98	6.9	Mt	2
.9347	7.3	Bd	1	.02	7.8	Mn	1	.9931	7.3	Ac	2
.9375	7.6	Bd	1	.03	6.7	?By	1	.9965	7.2	Ak	2
.9424	7.5	Bd	1	.08	7.9	Mn	1	512.0215	7.5	Jn	2
.96	7.8	Jo	1	.11	7.9	Jo	1	.05	7.1	Mt	2
.96	7.4	Jn	2	.15	7.8	Jo	1	.07	7.1	Gm	2
.97	7.8	Ld	1	.17	7.9	Mn	1	.12	7.4	Mz	1
.97	7.6	Bt	1	.95	8.1	Ac	2	.15	7.6	Hn	2
.99	7.1	Lm	1	.98	7.9	Mg	1	.19	7.6	Hn	2
.99	6.8	Gm	2	508.00	7.8	Lm	2	.90	7.3	Oj	2
504.0062	7.0	Mt	1	.02	7.6	Hi	2	.96	7.1	Ac	3
.0076	7.1	Mt	1	.02	7.9	Mn	1	.98	7.1	Ac	3
.01	7.3	Hn	1	.03	8.0	Sh	2	513.00	7.4	Mg	2
.01	7.7	Ac	1	.06	8.1	Hn	1	.02	7.0	Jn	2
.03	8.0	Mt	3	.08	8.1	Ac	1	.10	7.2	Jo	2
.04	7.8	Mt	1	.10	7.9	Mn	1	.95	7.6	Jn	2
.0431	7.8	Sr	2	.9000	7.5	Bt	2	.9847	7.3	Sr	2
.0472	7.5	Sr	2	.91	6.7	Jo	1	.9896	7.2	Sr	3
.0500	7.3	Sr	1	.9285	7.4	Bt	2	.9901	7.3	Sr	3
.0528	7.8	Sr	1	.9493	7.4	Ak	2	.9965	7.5	Sr	3
.0590	7.9	Sr	1	.9542	7.3	Ac	1	514.03	7.5	Jn	2
.0625	7.8	Sr	1	.97	7.6	Ld	1	.11	7.5	Jo	1
.06	7.7	Ac	1	.9729	7.6	Bt	1	.98	7.6	Jn	2
.0833	7.5	Sr	1	509.0319	7.3	Bt	2	515.94	7.7	Jn	2
.10	7.3	Mn	1	.0333	7.1	Ac	1	.97	7.4	Mg	2
.13	7.7	Jn	1	.08	6.9	Mz	1	516.00	7.4	Sh	2
.20	7.9	Jn	1	.12	6.9	Mz	1	.89	7.2	Oj	2
.9187	7.7	Bt	2	.92	7.5	Bt	2	.92	7.6	Ld	1
.93	7.1	Gm	2	.93	7.9	Ld	1	.93	7.3	Jn	2
.93	8.0	Jn	1	.94	7.5	Jo	1	.96	7.3	Sr	2
.9458	7.8	Bt	1	.94	7.3	Ac	1	.96	7.4	Hi	3
.97	7.6	Lm	1	510.12	6.8	Mz	1	517.05	7.3	Sh	2
.9757	8.0	Ac	1	.17	7.2	Mz	1	.87	7.7	Oj	1
.9778	8.0	Ac	1	.92	7.7	Jn	2	.91	7.6	Sr	2
.98	8.0	Jn	1	.93	7.1	Gm	1	.94	7.8	Jo	2
.99	8.0	Ak	1	.9653	7.6	Sr	1	.98	7.8	Hi	1
505.00	7.9	Ak	1	.9687	7.7	Sr	1	518.89	8.0	Jo	1
.01	7.6	Hn	2	.97	7.4	Hi	2	.89	8.0	Oj	1
.01	6.7	?Gm	1	.98	7.8	Jn	2	.90	7.8	Bt	2
.0222	7.9	Ac	1	511.00	7.8	Ac	2	.92	7.7	Lm	1
.0292	7.9	Ac	2	.01	7.7	Hn	2	.93	8.2	Ac	2
.05	7.3	Mn	1	.01	7.8	Ac	2	519.88	8.0	Jo	2
.1264	7.7	Bt	1	.02	7.9	Mg	1	.99	8.1	Mg	1
.91	7.1	Bd	1	.0222	7.6	Sr	1	520.00	8.1	Sh	2
.9257	6.6	Bt	1	.02	7.8	Lm	2	.92	7.5	Jn	2
.93	6.5	Jn	2	.05	7.6	Jn	2	.94	7.6	Jo	2
.94	6.6	Jo	1	.07	7.4	Sh	1	.94	7.7	Lm	2
.94	6.4	Mt	2	.10	6.7	?By	1	.9444	7.2	Sr	2
.9562	6.7	Bt	1	.12	7.5	By	2	.9479	7.3	Sr	1
.96	6.6	Lm	2	.93	7.6	Jn	2	.9500	7.5	Sr	1
.98	6.4	Jn	2	.9575	7.2	Sr	1	.9521	7.3	Sr	1
.98	6.6	Jo	2	.9444	7.6	Sr	1	.9549	7.4	Sr	1
.99	6.3	Mt	1	.9465	7.3	Sr	1	.97	7.0	Mt	2
506.01	6.6	Jn	2	.9479	7.2	Sr	1	.97	7.7	Mg	1
.02	6.4	Sr	2	.9514	7.1	Sr	1	.9708	7.5	Sr	1
.03	6.1	Mt	1	.9604	7.3	Sr	1	.97	7.7	Hi	1
.07	7.7	?By	2	.9618	7.5	Sr	1	.9826	7.3	Sr	1
.1236	7.1	Bt	1	.9639	7.3	Sr	1	521.90	7.6	Bt	2
.15	6.5	Mn	1	.9653	7.5	Sr	1	.91	8.0	Jo	1
.16	6.7	Mn	1	.9667	7.3	Ac	2	.93	7.7	Lm	2
.94	7.9	Ld	1	.9687	7.2	Ac	2	.95	7.6	Ac	2
.96	7.1	?Gm	2	.97	6.8	Lm	2	.97	7.7	Mg	1
.96	7.8	Jn	2	.9687	7.3	Sr	1	.98	7.6	Sh	1
.99	7.1	Hi	1	.9757	7.2	Sr	1	522.01	7.9	Hi	2
								.91	7.9	Bt	1

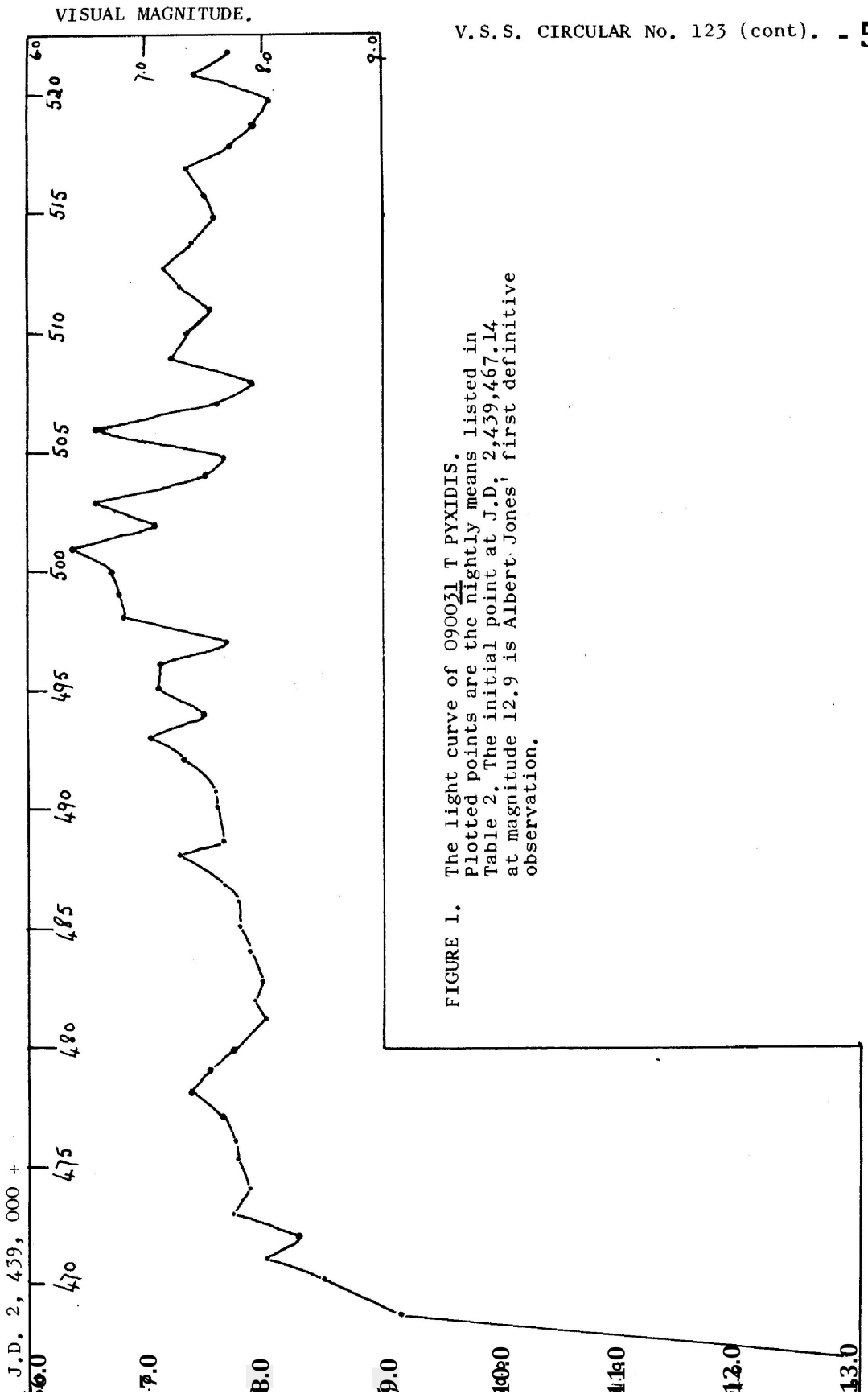

FIGURE 1. The light curve of 090031 T PYXIDIS. Plotted points are the nightly means listed in Table 2. The initial point at J.D. 2,439,467.14 at magnitude 12.9 is Albert Jones' first definitive observation.