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ON THE PERIOD AND ORBIT OF THE ECLIPSING BINARY ϑ^1 Ori A

Information Bulletin No. 988 by E. Lohsen announced the variability of ϑ^1 Ori A, with a period of 196.25 days and a one magnitude drop during eclipse which lasted not more than 24 hours. Lohsen mentioned the possibility of a period 1/3 or 1/2 of the above value. Subsequently, Strand confirmed the period to be 196.298 days (I.A.U. Information Bulletin No. 1025), based on Dearborn, Lowell and U. S. Naval Observatories data, but was unable to find a shorter period or secondary minimum at ± 1 day from the mid-point of the 196.298 day period.

Following these announcements, some 60 Allegheny plates taken with the 76cm refractor between 1963 and 1969 were searched for variability. Visual inspection showed that on 3 nights ϑ^1 Ori A was fainter than ϑ^1 Ori D. Variability of ϑ^1 Ori A was then confirmed by means of an ANTECH TV-Densitometer and by measuring image diameters with a Gaertner machine. The relevant data for ϑ^1 Ori A and ϑ^1 Ori D are:

Jan 3-4, 1966	$\Delta m = 0^m.8 \pm 0.1$
Jan 4-5, 1966	$\Delta m = 0^m.4 \pm 0.1$
Jan 30-31, 1967	$\Delta m = 0^m.8 \pm 0.1$

These data are interpreted as secondary minima that are wider and probably shallower than the primary minima, occurring about 9 days after the mid-point of the 196.298 day period and explain why they were not found by Strand. The displaced, wider secondary minima strongly suggest an eccentric orbit for ϑ^1 Ori A.

Lohsen and Strand predict the next (primary) minimum to occur on Dec. 5, 1975 and to last for ~24 hours. The next secondary minimum should occur near March 20, 1976 and should be observable for at least 2 nights.

Observations of ϑ^1 Ori A, including radial velocities, for a duration of at least a week centered on these dates appear desirable.

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