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OBSERVATIONS OF PRIMARY MINIMUM OF  $\theta^1$ Ori A

Photoelectric observations of the January 1, 1977 (UT), primary minimum of  $\theta^1$ Ori A were obtained by the writer using the 24-inch reflector of the Lick Observatory. The photometer employed a refrigerated 1P21 photomultiplier and the observations were made in yellow light through a Corning 3384 (standard thickness) filter. Owing to poor seeing, it was necessary to use a focal plane diaphragm 17" in diameter.  $\theta^1$ Ori D was used as the comparison star, and sky readings were taken as follows:  $\theta^1$ Ori A, 17" east of the star;  $\theta^1$ Ori D, 17" west of the star. To avoid the effects of neighboring stars, the observations were made with the stars de-centered in the diaphragm by about half the radius of the diaphragm,  $\theta^1$ Ori A being displaced to the east of the diaphragm center and  $\theta^1$ Ori D to the west of the center.

The observing conditions were rather poor during this night. The early portion of the night was completely cloudy, and the observations were later interrupted several times by clouds. During most of the night, the humidity was extremely high so that even during clear periods it was only possible to observe occasionally for short intervals of time in order to prevent condensation of moisture on the telescope and optics.

The observations obtained are listed in the accompanying table in terms of the instrumental magnitude difference,  $\theta^1$ Ori A minus  $\theta^1$ Ori D. It is to be noted that  $\theta^1$ Ori E was included in the diaphragm with  $\theta^1$ Ori A.

An attempt to measure the contribution from  $\theta^1$  Ori E on this night using a focal plane diaphragm 11" in diameter gave a  $\Delta V$  for  $\theta^1$  Ori E minus  $\theta^1$  Ori D of +3.21. However, this measure may be somewhat uncertain owing to the poor seeing. A similar measurement on March 22, 1976 (UT), using the 11" diaphragm in better seeing gave  $\Delta V = +3.62$ . Both of these observations give visual magnitudes for  $\theta^1$  Ori E substantially brighter than those given by Jeffers, Van den Bos, and Greeby (1963) ( $V = 11.1$ ) and Parenago (1954) ( $V = 11.4$ ). This difference could result from the difficulty in making photoelectric observations in this crowded, nebulous field, but it is also possible that  $\theta^1$  Ori E may be variable; variability of this star was suspected by the earliest observers (Webb 1881). While the observations of  $\theta^1$  Ori A should be corrected for the effect of  $\theta^1$  Ori E, it is not clear from the present data how this should properly be done, and it has therefore seemed better to list them here without correction.

JD <sub>☉</sub> 2443140.+	$\Delta V$ mag	JD <sub>☉</sub> 2443140.+	$\Delta V$ mag	JD <sub>☉</sub> 2443140.+	$\Delta V$ mag
4.6498	+0.960	4.8819	+0.318	4.9593	+0.142
4.6537	0.954	4.8849	0.318	4.9630	0.185
4.7630	0.705	4.9075	0.260	4.9658	0.156
4.7652	0.695	4.9106	0.261	4.9720	0.065
4.8061	0.583	4.9145	0.247	4.9776	0.145
4.8094	0.553	4.9175	0.242	4.9804	0.090
4.8114	0.542	4.9415	0.190	4.9843	0.100
4.8150	0.537	4.9444	0.183	4.9869	0.100
4.8506	0.418	4.9477	0.185	4.9901	0.093
4.8533	0.414	4.9520	0.173	4.9942	+0.085
4.8562	+0.390	4.9551	+0.173		

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