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PHOTOMETRIC BEHAVIOUR OF OMICRON ANDROMEDAE

The star Omicron And has variously been attributed different kinds of light variation. Schmidt (1959) found the star to be an eclipsing binary with a period of $1^d.5998398$, whereas, spectrographic observations by Galeotti and Pasinetti (1968) did not support its eclipsing nature. Olsen (1972) suggests the star to have Beta-Lyrae type variations with a period of $1^d.0185$, or alternatively that the light variations may be due to the intrinsic variations of a single shell star. Bossi et al. (1976) correlate the brightness variation, of the order of $0^m.1$, with a shell which the star ejected in July 1975. They give no definite period. Recent work by Fracassini and Pasinetti (1977) indicates that period of shell phenomena may be about 23.5 years. Dworak (1976) has recorded a minimum of the star.

The star was observed by us photoelectrically on the 38-cm reflector of the Uttar Pradesh State Observatory on a total of 18 nights during the period October 1976 - December 1977, using a refrigerated (-20^oC) photomultiplier tube, the conventional U, B and V filters of the Johnson and Morgan system, and standard d.c. techniques. 2 And was used as a comparison star. The average standard deviations of the comparison star on 9 random nights are $0^m.011$, $0^m.011$ and $0^m.010$ in U, B and V filters, respectively.

Our observations were planned on the basis of the following two ephemeris:

(a) Primary minimum = JD 2436174.430 + $1^d.5998398$, Schmidt (1959);
(b) Primary minimum = JD 2439470.628 + $1^d.0185$, Olsen (1972).

The U, B, V light curves given in Figures 1 and 2, cover almost the entire phases respectively on the above two suspected periods with the $\pm 2\sigma$ error bars marked on them. The light curves do not show eclipses or any kind of intrinsic variation with periods of $1^d.5998398$ or $1^d.0185$. The light curves on individual

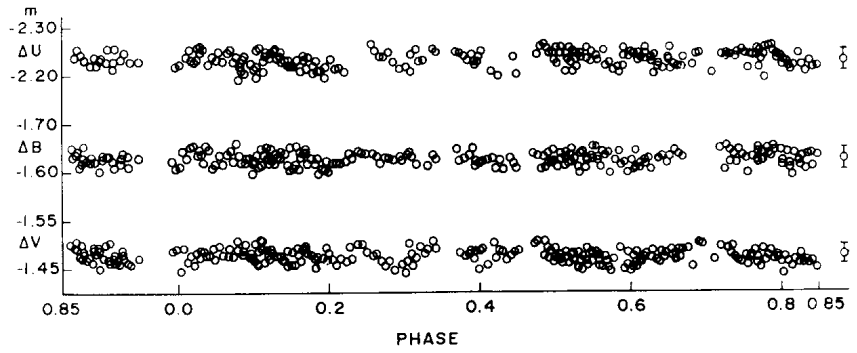

Figure 1. Light curves of o And on an assumed period of $1^{d}.5998398$. The differential magnitudes are in the sense variable minus comparison.

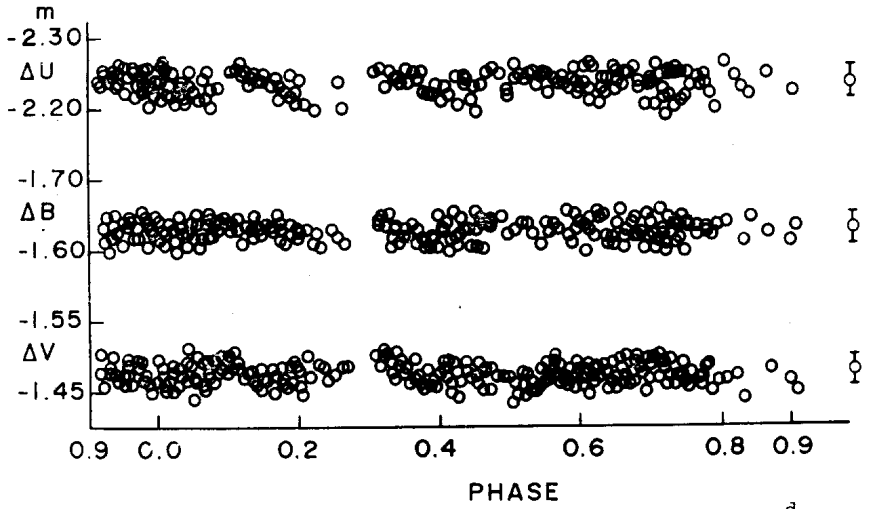

Figure 2. Light curves of o And on an assumed period of $1^{d}.0185$. The differential magnitudes are in the sense variable minus comparison.

nights, especially those when primary or secondary minima were predicted on the basis of either of the ephemerides, were also carefully examined, but failed to provide any evidence of light variation exceeding $\pm 2\sigma$. Thus, while it appears certain that the star is not a binary, the star did not show any kind of activity during the period covered by our observations.

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