

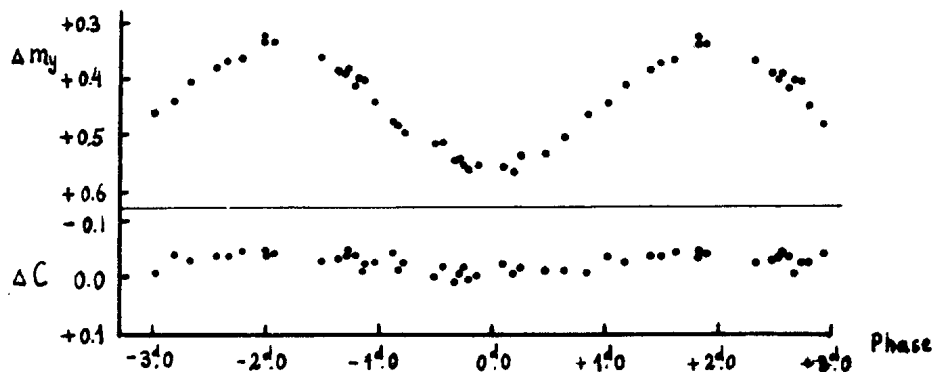
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ON THE VARIABILITY OF HD 234677

This star was observed spectroscopically by D. M. Popper in 1950-53⁽¹⁾. He found the hydrogen $H\beta$ - $H\epsilon$ and the calcium H and K lines to be in emission. The spectral type was estimated as K6V. He also noticed that the hydrogen lines on one of the spectrograms were much stronger than on the others. It was supposed that this intensification was due to a flare process like that observed in UV Ceti stars.

Attempts to observe the flares of this star photoelectrically were made by A. Masani et al. in 1954⁽²⁾ and P. F. Chugainov in 1960⁽³⁾ but no flares have been observed. The light of the star was constant in 1954 and 1960.



New series of photoelectric observations of HD 234677 have been obtained in 1965. The photometer equipped with blue and yellow filters on the 64 cm telescope was used. The comparison stars in both series of observations, 1960 and 1965, were HD 172268 and HD 172468. No flares of HD 234677 were observed in 1965 too, but it was found that its light varies periodically. The light and colour curves obtained are given in the figure where Δm_y and ΔC are the magnitudes and the colour differences with respect to HD 172268.

The elements of the light variation are:

$$\text{Min. hel.} = 2439033.48 + 3^d.826 \text{ E.}$$

The differences of the yellow and blue magnitudes HD 234677- HD 172268 in 1954-65 are given in the following table. The value for 1954 is given by A. Masani et al. with respect to HD 171911. We reduced it to HD 172268 using the magnitude differences HD 171911-HD 172268 obtained by us.

	Δm_{blue}	Δm_{yellow}
1954	+0.19	+0.24
1960	+0.20	-
1965	(+0.29)-(+0.55)	(+0.33)-(+0.56)

It must be noticed that the magnitudes of HD 234677 in 1954 were the same as in 1960. The star was observed in 1954 in 3 nights and in 1960 in 18 nights. If the periodical variation had existed at that time, it would have been observed. Taking into account all these data, it is difficult to say what is the cause of the periodical variations of HD 234677 at the present time.

The star is not known as a spectroscopic binary, but even if the eclipse-hypothesis is taken into consideration, it would be necessary to suppose that the inclination of its orbit has been changed between 1954-60 and 1965. The star differs from pulsating variables by its small colour-variations. The existence of a spot on the surface of a rotating star may be proposed as the cause of the observed light variations. In this case not only the light but also the colour would be variable because the temperature of a spot may be smaller than the other parts of the surface of the star.

During the period of the photometric observations three spectrograms of HD 234677 with a dispersion of 80 Å/mm were obtained by Dr. R. E. Gershberg on the 2.6 m reflector. The phases were 0^d.90, 1^d.06 and 3^d.80 respectively. The main features of the spectrum are in good agreement with D. M. Popper's description. H β , H γ , H δ and CaII H and K are in emission and the spectral type of the star is K6V. The intensity of the emissions is probably variable but no definite correlation with phase was noticed.

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- (1) D. M. Popper, 1953, Publ. Astron. Soc. of the Pacific, 65, 278..
- (2) A. Masani, P. Broglia, E. Pestarino, 1955, Contr. dell'Osserv. Astron. di Milano-Merate, Nuov. Ser. N 59.
- (3) P. F. Chugainov, 1961, Izvestia Crim. Astroph. Obs., 26, 171.