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NOTE ON THE VARIABLE RU CAM

In connection with the reports that the light amplitude of RU Cam became very small during the season of 1965/66 (Wamsteker 1966) it may be of interest to examine the behaviour of the variable in earlier epochs. There are two sets of photoelectric observations of the star, reduced to the B, V system, obtained by Eggen, Gascoigne and Burr (1957) (between JD 2432821 and JD 2433028) and by Mitchell, Iriarte, Steinmetz and Johnson (1964) (between JD 2437014 and JD 2437053). V and B-V observations of this two sets against phase = P^{-1} (JD -2430000) with $P = 22^d.134$ (from the GCVS 1958) are plotted on figure 1 (crosses: obs. of Eggen et al., filled circles: obs. of Mitchell et al.). The data show that between the two sets of observations there is

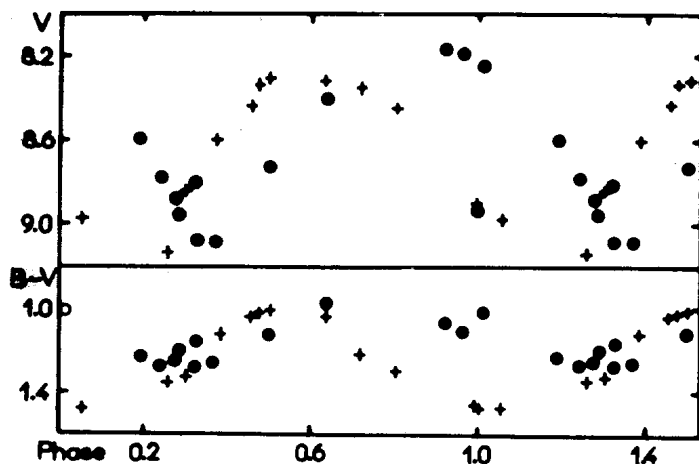


Fig 1

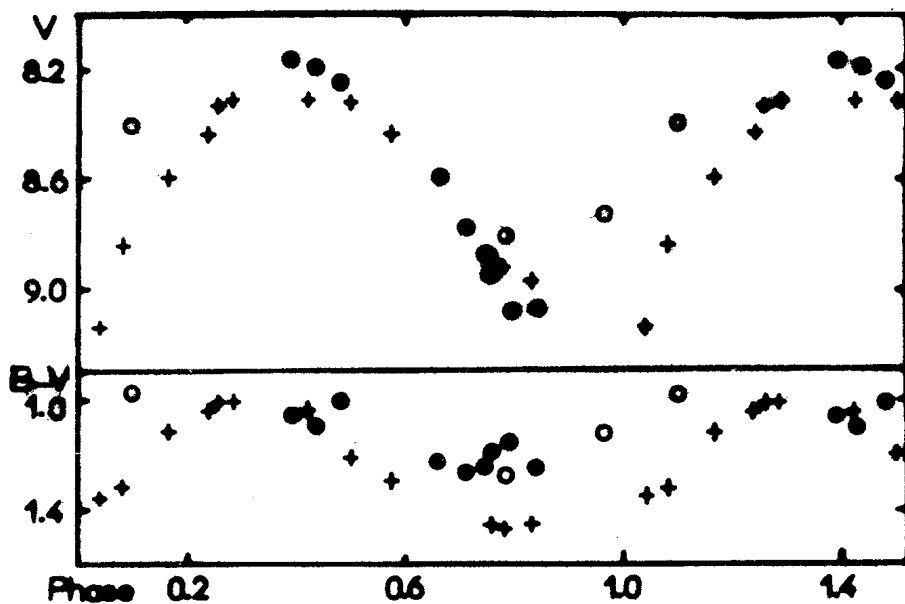


Fig 2

- a/ a phase shift;
- b/ a change of the shape of light and colour curves;
- c/ a change of amplitude of V and B-V.

In our catalogue of photoelectric observations of cepheids (Nikolov 1965) we have made an effort to accord the two series of observations, assuming for the period $P = 22^d.1711$. V and B-V against phase, computed with this period, are plotted on figure 2.

If this period is valid for the two sets of observation, one may conclude that there is

- a/ a significant decrease in amplitude of B-V from $0^m.48$ by Eggen and al. to $0^m.30$ by Mitchell and al.
- b/ a decrease of light amplitude after JD 2437045 (the three observations noted by open circles).

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CYCLIC AMPLITUDE VARIATIONS OF RU CAM

Nikolov's preceding note and Smak's report in IBVS No 135 are based on different material. Herewith I take into consideration all available photoelectric observations (Ref. 1-11).

The phase shifts between different sets of observations of RU Cam can be seen from the O-C diagram in Fig. 1. The observed photoelectric V magnitudes of maximum and minimum light are plotted against epoch number in Fig. 2. Both maxima and minima show cyclic variations, but with opposite phase. The amplitude variations are primarily due to differences in the brightness of the minima. The broken curves in Fig. 2 are tentative representations of the observational data with a cycle of $84 P \sim 5.1$ years. This cycle-length is corroborated by visual observations of amateur observers of the Danish "Astronomisk Selskab", who found very faint minima around the epochs $E = -148$ and $E = +20$ respectively (Edelberg, M. 1932, AN 246, 176; Nielsen, A. and Sjøgren, T. 1943, AN 273, 270). The cycles are of very different amplitude and shape. Secondary cycles are very common in RR Lyrae variables, and as we now see, they may be present also in Population II Cepheids.

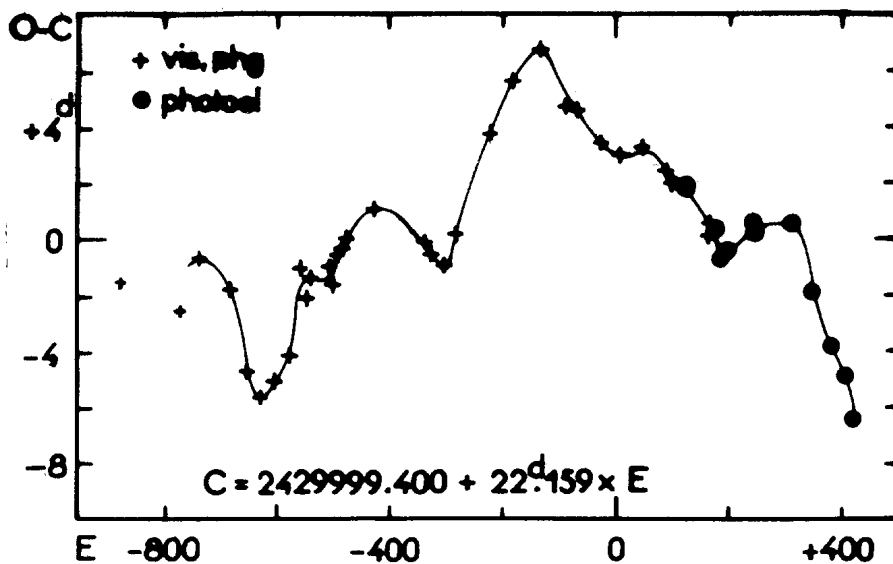


Fig. 1

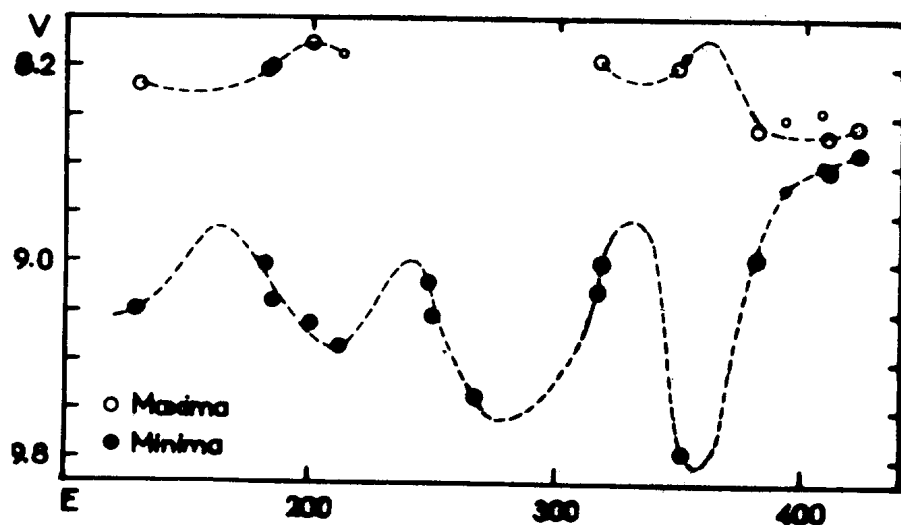


Fig. 2

If the above interpretation is correct, we may expect in the next months, or at latest next year, an increase of the amplitude. At present (1966 August) the amplitude in V is only $0^{\text{m}}08$ (Ref. 11).

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