LONG-TERM BRIGHTNESS CHANGES OF TWO CVS

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Abstract. The long-term light curves of the AM Her type binary BY Cam and the nova-like variable PG 2133+115 are presented. The *BVR* observations were carried out at a 0.5 m telescope equipped with a high sensitive TV tube superisocon (Abramenko et al. 1978), the *UBV* photoelectric data were obtained at 0.6 and 1.25 m telescopes and the photographic estimates were made from the negatives obtained at the 0.4 m astrograph in Crimea.

Both stars show high and low brightness states. They show similar behaviour in some respects: the amplitude between high and low states was about two magnitudes in B, but the duration of a low state was approximately two months for BY Cam and 1...2 years for PG 2133+115.

1. PG 2133+115

Green, Ferguson & Liebert (1982) noted that this star has a UV excess and so is possibly a CV. We obtained *UBV* (1984–95) and photographic (1960–95) observations of this CV. On average, magnitudes and colours were as follows: $V = 14.7$ mag, $B - V = 0.0$ mag, $U - B = -0.9$ mag. Misselt & Shafter (1995) and the current authors did not detect the period of 2.9 h, found earlier from radial velocity variations. According to the photographic observations in 1969–70 the object was 2 mag fainter than the mean level and 1 mag light variations with a time-scale of 10...20 days were observed (see Fig. 1).

We suggest that PG 2133+115 is a CV which is principally in the 'on' brightness state and is observed at a comparatively small inclination angle.

A. Evans and J. H. Wood (eds.), Cataclysmic Variables and Related Objects, 219–220.

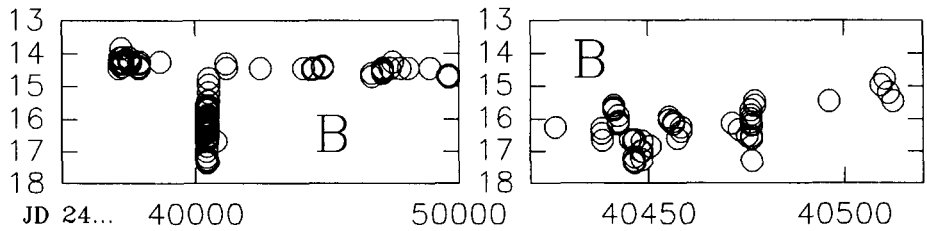

Figure 1. **Left**: PG 2133+115 in 1960-94. **Right**: The low state in 1969.

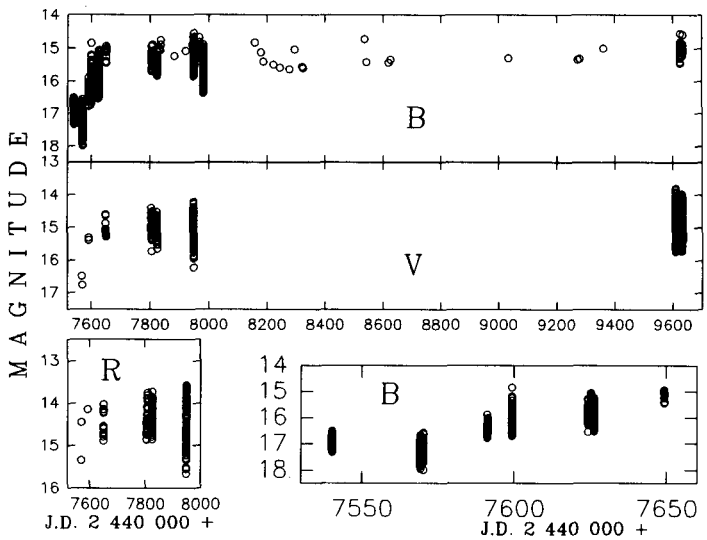

Figure 2. **Left**: BY Cam in 1989-94. **Right**: Low and intermediate states of BY Cam.

2. BY Cam

TV observations of BY Cam were obtained in 1989–90 and in 1994, photoelectric in 1994, and photographic estimates in 1953–93. The *BVR* light curve is shown in Fig. 2 (left), which demonstrates the low and high brightness states. In more detail the low and intermediate states are shown in Fig. 2 (right). The low state duration was a brief episode lasting two months only, returning to the high brightness level during three months. The maximal amplitude of the long-term variations was detected in B (2 mag).

References

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