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WHERE IS AK CANIS MINORIS?

The eclipsing binary AK CMI was photographically observed by Notni (1955) and was found to have a light curve with relatively undistorted maxima and a period of 0.56 days. The primary minimum was approximately 1.0 magnitude deep, and the secondary minimum was about 0.2 magnitudes in depth. No finder chart was given, but the star was indicated to be BD+4°1778. The same position is given by the General Catalog of Variable Stars (Kholopov 1985). Spectra taken with the 1.8m telescope of the Dominion Astrophysical Observatory showed BD+4° 1778 to be of spectral type near K2 and the nearby star we called "C", was about spectral type K4.

We observed the star BD+4° 1778 with the 0.50m reflector of the Climenhaga Observatory of the University of Victoria on 1986 February 5/6, 6/7, 11/12, and 12/13. A refrigerated EMI 9658R photomultiplier tube and filters matching the Cousins VRI system were used. The sky was observed nearly simultaneously with each star. The observations of BD+4° 1778 were bracketed by observations of the comparison star "C", which is about 1 arc minute south, and whose constant brightness was checked by 21 observations of BD+4° 1777 = SAO 115777. The mean check star minus comparison star magnitude was $-1.84 \pm .04$ in V, $-1.93 \pm .03$ in R and $-2.01 \pm .04$ in I.

The errors are standard deviations about the mean and are consistent with those expected. Mean extinction and transformation coefficients were used to correct all observations to the standard Cousins VRI system.

The star BD+4° 1778 was observed NOT to vary more than about 0.02 magnitudes in V during the time of our observations. The 98 observations cover all phases with no gaps larger than a few minutes. The mean difference of BD+4° 1778 minus "C" was $-0.42 \pm .04$ in V, $-.42 \pm .05$ in R and $-.40 \pm .06$ in I. These errors are also standard deviations around the mean and are consistent with those of the check star.

To answer "Where is AK CMI?" Photographs of five minute duration of this area were taken with our 0.25m Schmidt telescope on 1986 March 01.

The exposures were centred at $05^{\text{h}}27^{\text{m}}36^{\text{s}}$ and $07^{\text{h}}32^{\text{m}}36^{\text{s}}$ UT. The phases of AK CMi at these times calculated using the ephemeris of Flin et al. (1979) were 0.82 and 0.96. Inspection of the two plates revealed a variable star of the amplitude expected for AK CMi at the position of k3 π 1102 (Strohmeier et al. 1957.) This star is listed in the New Catalog of Suspected Variable Stars (Kholopov, 1982) as number 102559. We are certain that this star IS AK CMi.

Astrometric positions for the stars involved were measured from the first plate and are given in Table I. The solution used Turner's Method of plate constants as modified by Tatum (1982).

The use of nine SAO reference stars yielded an estimated precision of 0.2 arc seconds.

Table I

		RA (1950.0)	DEC
A	AK CMi	$07^{\text{h}}37^{\text{m}}37^{\text{s}}.50$	$+04^{\circ}04'08''.5$
B	BD+4 $^{\circ}$ 1778	$07^{\text{h}}37^{\text{m}}37^{\text{s}}.93$	$+04^{\circ}00'21''.0$
C	comp "C"	$07^{\text{h}}37^{\text{m}}37^{\text{s}}.26$	$+03^{\circ}59'25''.5$

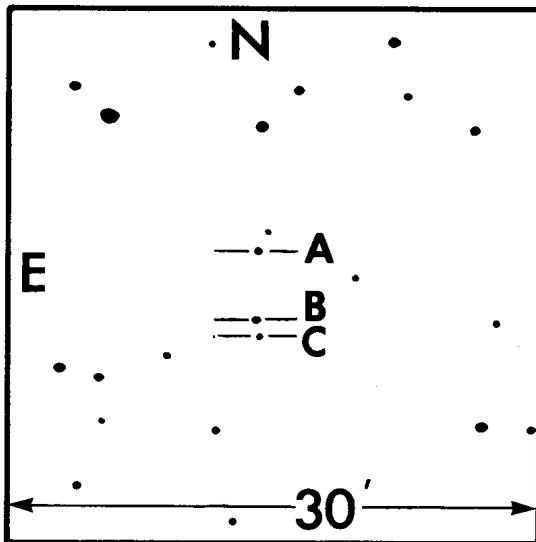


Figure 1

To facilitate further study of this system a finder chart identifying these stars is given in Figure 1.

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