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A RED VARIABLE IN CIRCINUS

During a search for objects showing H- α line-emission a rather bright spectrum was found on an objective prism plate which corresponded to a faint star in the finding chart obtained from a direct plate taken at another epoch.

Since the star was not listed by Kukarkin et al. (1972) we decided to check its variability measuring with an iris photometer several B and V plates obtained by J.C. Muzzio from CTIO in May 1974 and April 1975. The star did not appear in U plates obtained in the same epochs and its ultraviolet magnitude was estimated fainter than 17.2 mag.

The 1950 coordinates are:

R.A= $15^{\text{h}}11^{\text{m}}7$ Decl.= $-58^{\circ}57'$

and its position is shown in the charts.

The small scale chart was obtained from one of our visual plates and its size is about 10' x 20'. The large scale chart is a drawing from the screen of the iris photometer and its size is about 3' x 3'. In both cases North is above and West to the right.

Also shown in the large scale chart are the comparison stars used, whose adopted magnitudes are:

Star	V	B-V
a	12.51	0.64
b	13.99	1.19
c	14.59	1.05
d	15.21	1.03
e	15.30	1.40
f	15.40	1.18
g	15.64	1.20

These values were determined photographically extrapolating a photoelectric sequence which reached only $V=13.66$ and $B=15.51$. They may be thus affected by systematic errors but, nevertheless, they are useful to derive the light changes of the variable star. The observed magnitudes of the variable star are:

Heliocentric J.D.	V	Heliocentric J.D.	B
2442191.6343	15.00	2442191.7126	16.68
2191.7443	14.94	2191.7269	16.74
2194.7409	14.72	2194.7724	16.52
2194.7544	14.66	2507.7049	17.16
2507.7167	15.66	2509.8400	17.37
2508.8666	15.72		
2509.7662	15.60		

We also derived red magnitudes for the comparison stars with the formula

$$R=V-0.5(B-V)$$

and estimated visually the brightness of the variable on our H- α objective prism plates. On the July 1976 plate (J.D. 2442980.4871) neither the continuum nor the emission can be seen and the star should have been fainter than $R=14.1$ mag. On all the plates obtained in April 1977 (J.D. between 2443250.6719 and 2443261.7907) the continuum is fairly bright and the estimated magnitude is about $R=12.1$ mag; also H- α emission can be seen in four of the plates where the spectra are properly exposed while in the other two plates the spectra were overexposed.

All these values suggest a rather long period variation with an amplitude of at least 2 mag. in the red. Considering also the very red colour and that H- α emission is present on the April 1977 plates (when the star was much brighter than on the July 1976 plate) this star is almost surely a long period variable.

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Reference:

Kukarkin, B.V. et al.: 1972, Special Supplement to the Third Edition of the General Catalogue of Variable Stars, Moscow

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