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Konkoly Observatory
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GL 851.1 - ANOTHER BY Dra-TYPE STAR ?

According to UBV photometry by this author (Krisciunas 1976-1977, JAAVSO 5, 74) the star Gl 851.1 (Gliese 1969, Veröffentl. Astron.-Rechen Inst. Heidelberg No.22) is most likely a dK5e star lying 1 magnitude below the main sequence in the colour-magnitude diagram. It has a (mean) apparent magnitude $V=10.12$ and a $B-V$ of $+1.17$. A small variation of 0.03 mag in V was observed, using BD $+30^{\circ}4634$ ($V=10.15$, $B-V=+1.36$) as a comparison star. Also, the star was monitored visually for flares for a total of 24 hours on 7 nights from September 1975 to September 1976 with a 15 cm reflector. No flares ($\Delta V \geq 0.1$ mag) were noted.

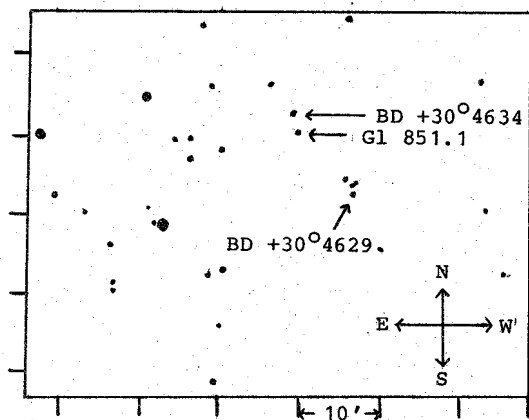
In addition to this, Gl 851.1 has been spot checked visually on 34 other nights. Normally, one can tell that Gl 851.1 is just noticeably brighter than BD $+30^{\circ}4634$. However, on one night the reverse was apparently the case. At 0430 UT on 20 September 1977 the red dwarf star was observed to be at least 0.1 magnitude fainter than BD $+30^{\circ}4634$. By 0450 UT it was back to "normal".

It is well known to visual variable star observers that red stars grow brighter with prolonged observations. The possible variation of Gl 851.1 on 20 September 1977 could not have been the result of this phenomenon, as the comparison star is 0.2 magnitudes redder.

Red dwarf stars with emission line spectra can be flare stars or BY Dra-type spot stars (Bopp and Espenak 1977, preprint). It appears that Gl 851.1 is not an active flare star, but it could likely be a BY Dra-type star. It would be of value to recheck its spectral type and obtain more UBV photometry. Gl 851.1, in Pegasus, is a fall object.

Finder Chart for Gl 851.1

1950 RA $22^{\text{h}} 9^{\text{m}} 53^{\text{s}}$
 1950 Dec $+31^{\circ} 19' 12''$



Star	V	B-V	U-B	Number of observations
BD +30°4629	9.90	+1.62	+1.7	1
Gl 851.1	10.12	+1.17	+1.1	2
BD +30°4634	10.15	+1.36	+1.5	2

Photometry done with Leuschner Observatory 76 cm reflector,
 1-3 August, 1975.

K. KRISCIUNAS
 NASA/Ames Research Center
 Mail Stop 248-1
 Moffett Field
 California 94035
 U.S.A.