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VARIABILITY OF V1165 Aql IS QUESTIONED

The light variation of V1165 Aql = BD +12^o4134 was reported by Golovatyj (Lvov Cirk., No.42, 13, 1967). On the basis of photographic observations the star was classified as a cepheid variable with an amplitude of 0.5 magnitude and a period of 6^d.82957. However, the light curve based on the Lvov photographic observations is rather strange. The steepness of the descending branch in absolute value is equal to that of the ascending branch, and the star remains at minimum brightness during half of the period. Such kind of cepheid light curve is unique.

The other problem with this star is its identification, because the star BD+12^o4134 has a companion to the NW with almost the same brightness. The identification chart given by Golovatyj indicates only one star at the approximate place of the variable. The relative position of this star to the other bright stars in the chart suggests that the new variable is the NW companion to the star BD+12^o4134 (see Fig.1.).

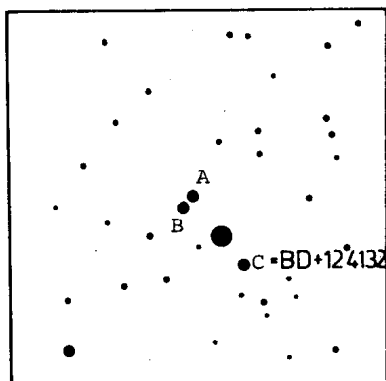


Fig.1. The identification chart of the observed stars. North is at the top.

The star V 1165 Aql was included in the photoelectric observational programme on cepheids carried out at the Konkoly Observatory. The observations were made with the 24" telescope in B and V colours of Johnson system. As to other information about the observing equipment and the programme see the author's paper published in the Mitteilungen der Sternwarte der Ungarischen Akad. der Wissenschaften, No.70 (1977). The star BD +12°4132 was used as comparison star. Its magnitudes are:

$$V = 10^m.24, \quad B - V = +0^m.28.$$

Both BD +12°4134 and its companion were observed in order to decide which is the variable. But the first observations have shown that neither of these two stars shows as considerable light variation as several tenths of a magnitude. If either star does vary its light amplitude has to be smaller than 0^m.05 in V (see Table I). Moreover, the B-V colour index of the star A is not appropriate to be a cepheid variable. This star is too blue for a cepheid variable even if there is no interstellar reddening in the given direction. The star B which is BD+12°4134 might be a cepheid variable at least on the basis of its B-V colour index but this star shows even more stable light intensity than the star A. The observations of both stars are plotted in Fig.2, using the published period (6.82957) and an arbitrary zero point (J.D. 2430000.0) in the phase calculation.

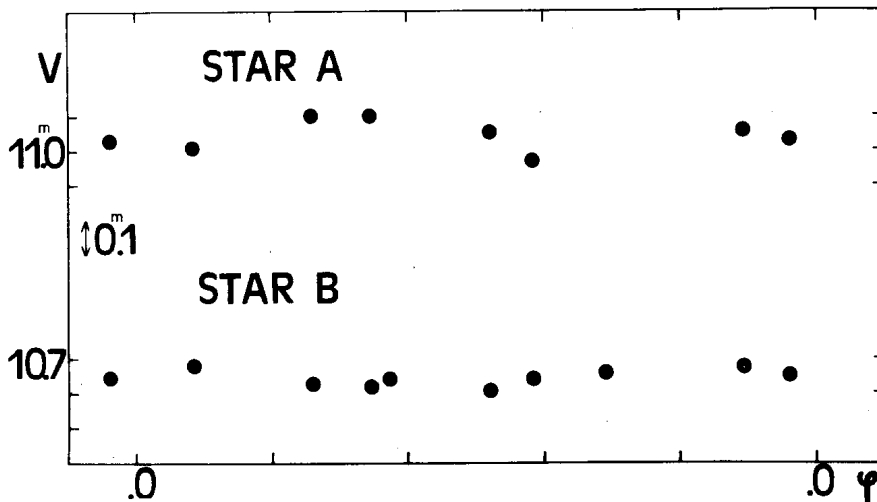


Fig. 2. The plot of the observations using the original determination of the period.

Table 1
The observations

J.D.Hel. 2440000+	Star A		Star B= BD+12 ^o 4134	
	V	B-V	V	B-V
2548.472			10 ^m 76	1 ^m 10
2623.420	10 ^m 90	0 ^m 36	10.78	1.03
2634.447	10.97	0.33	10.75	1.16
2636.491	10.90	0.40	10.77	1.21
2720.228	10.95	0.36	10.79	1.25
2728.209			10.74	1.24
2990.432	10.99	0.31	10.72	1.20
3287.517	11.03:	0.30:	10.76	1.13
3337.429	10.94	0.36	10.72	1.13

The above mentioned facts allow to draw the following conclusions:

1. Neither the star BD +12^o4134 nor its NW companion is a cepheid variable, however, a more precise photometry would be necessary to decide whether small amplitude light variation exists in either star.
2. A revision of the original photographic observational material would be desirable to determine which star was reported to be variable later on designated as V 1165 Aql.

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