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ON THE VARIABILITY OF θ CORONAE BOREALIS

The first indication of photometric variability of θ CrB has been reported by T.P. Roark (1). According to his four-colour ubvy and H_{α} -filter observations on June 16, 17, 18 and 19, 1970 θ CrB showed rapid variations as large as $0^m.7$ in the u and v bands. But at the same time the star was nearly constant when observed in the y and H_{α} filters. On June 20, September 15 and 16, 1970 the star did not show significant light variations in any colours.

Our UBV photoelectric observations of β CrB could be used to check the variability of θ CrB as this star was used as a comparison star together with another one - μ BooA. These UBV observations were obtained with the 13" reflector of the Simais Branch of the Crimea Observatory on 21 nights between June 22 and August 24, 1970. Adopting for μ Boo $A_V=4^m.29$, $B-V=0^m.32$, $U-B=0^m.04$ (2) UBV values for θ CrB have been obtained. They are given in Table 1, showing no significant light variations of θ CrB in any wave band during the observations.

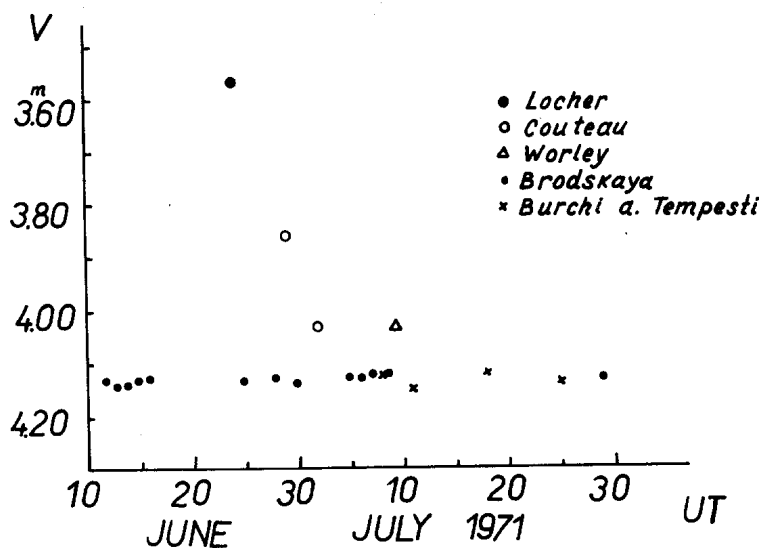
On July 1971 the Bureau for Astronomical Telegrams informed that on June 29 and July 2 P. Couteau observed θ CrB as a double star with a companion at the distances $0".46$ and $0".47$ of brightness $5^m.5$ and $6^m.7$, respectively (3). But on May 10 the star under consideration was observed as a single one. On July 9 C.E. Worley observed the companion at $0".55$ with $\Delta m_V \sim 2^m.5$ (4).

Table 1

1970	UT	V	B-V	U-B	n
June	22.3	4.130	-0.122	-0.560	5
	23.3	4.135	-0.118	-0.570	5
	26.3	4.130	-0.118	-0.550	10
	27.3	4.120	-0.128	-0.558	7
	30.3	4.128	-0.127	-0.581	6
July	4.3	4.129	-0.139	-0.580	7
	5.3	4.131	-0.127	-0.581	9
	6.3	4.130	-0.124	-0.577	4
	7.3	4.131	-0.112	-0.564	5
	11.3	4.130	-0.121	-0.560	8
	15.3	4.121	-0.117	-0.548	7

Table 1(cont.)

1970	UT	V	B-V	U-B	n
July	16.3	4.123	-0.115	-0.577	4
	17.3	4.124	-0.115	-0.569	8
	26.3	4.130	-0.112	-0.524	8
August	3.3	4.121	-0.122	-0.560	4
	10.3	4.137	-0.127	-0.536	7
	14.3	4.136	-0.130	-0.565	7
	17.3	4.124	-0.116	-0.552	7
	20.3	4.139	-0.115	-0.555	7
	22.3	4.132	-0.130	-0.563	7
	24.3	4.118	-0.116	-0.569	5



Later on it was communicated that K.Locher estimated on a panchromatic plate taken on June 24, 1971, that θ CrB was by 0.^m5 brighter than usually (.5).

From July 8, 1971 after the announcement of Couteau's observations θ CrB was observed by R.Burchi and P.Tempesti at Teramo Observatory (6). Their observations did not show any brightness variations of θ CrB.

In summer 1971 our observations of θ CrB were continued using only one comparison star θ CrB. Taking into account the regular, and well known variability of β CrB from previous observations with an amplitude as small as 0.^m03 it was possible to check the constancy of θ CrB using now β CrB as comparison star. The results are given in Table 2. No light variations

of θ CrB are to be found, confirming the results of R.Burchi and P.Tempesti. For illustration the results of Teramo and Crimean observations are plotted in Fig.1. Locher's magnitude of June 24, 1971 and the magnitudes of June 29, July 2 and 9, 1971 given by Couteau and Worley are also plotted.

Further regular photographic observations of θ CrB and the check of its visual duplicity are of great interest.

Table 2

1971	UT	V	n
June	12.3	4.133	5
	13.3	4.142	5
	14.3	4.139	9
	15.3	4.134	9
	16.3	4.127	7
	25.3	4.134	6
	28.3	4.133	6
	30.3	4.135	6
July	5.3	4.125	8
	6.3	4.124	5
	7.3	4.118	7
	8.3	4.118	6
	29.3	4.130	8

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References:

- (1.) T.P.Roark, Astron.J. 76,634, 1971.
- (2.) Tolbert, C.R., Astrophys.J. 139,1105, 1964.
- (3.) Couteau, P., Circ.Bur. cent.int.Telegr.astr.n.2339,1971.
- (4.) Worley, C.E., Circ.Bur.cent.int.Telegr.astr.n.2340, 1971.
- (5.) Locher, K., Circ.Bur.cent.int.telegr.astr.n. 2342, 1971.
- (6.) Burchi R. and Tempesti P., IBVS n.619, 1972.