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PHOTOELECTRIC OBSERVATIONS OF THE 1946 OUTBURST OF THE  
RECURRENT NOVA T CORONAE BOREALIS

The outburst of T CrB on 9 February 1946 occurred just as a study of the characteristics of photomultipliers, wide-band filters, amplifiers, and recording devices was getting under way at the Lick Observatory. Now, these many years later, with the benefit of experience and photometric catalogs, it is possible to reduce some photoelectric observations made at that time to the UBV system.

The observations consist of tracings of the brightness of T CrB and comparison stars on an Esterline-Angus recorder made with the Lick 12-inch (30cm) refractor. Magnitude differences between T CrB and Delta CrB were measured through no filter at all or a neutral glass filter to equalize the size of the deflections. Colors were measured through two Corning filters: 5mm BPu for the blue and 2.01mm Noviol A for the yellow. Three multipliers were used: RCA 931A on 10 February, 1P21b on 12, 13, and 14 February, and 1P21a on the rest of the nights. The effective wavelength of the unfiltered observations is about  $4300 \text{ \AA}$ ; hence, in Table I the brightness of T CrB is expressed as B. It is based on the difference in magnitude, corrected for the difference in color between the two stars, and  $V = +4^m.64$  and  $B-V = +0^m.80$  for Delta CrB.

TABLE I

Observations of the 1946 Outburst of T CrB

Date (UT)	JD (Hel) 2430000+	B	average deviation	B-V	average deviation	no. of obser.
10 Feb.	1861.961	3. <sup>m</sup> 68	$\pm 0.m10$			4
	1862.021	3.66	$\pm 0.05$			11
	.063			+0. <sup>m</sup> 1		1
12 Feb.	1863.925			+0.27		1
	.951	4.85	$\pm 0.01$			4
	.984	4.87				3
13 Feb.	1864.942	5.29				3
	.985			+0.07	$\pm 0.m01$	5
	1865.003	5.35				3
14 Feb.	1865.949	5.71				3
	.979			+0.13	$\pm 0.05$	5
	1866.013	5.70				3
23 Feb.	1874.964	9.11				3
	.965			+0.4		2
24 Feb.	1875.907	9.44				2
	.909			+0.52		2
26 Feb.	1877.906	9.35				3
	.909			+0.50		2
1 Mar.	1880.904			+0.50		2
	.905	9.66	$\pm 0.01$			4
5 Mar.	1884.889	10.10				3
	.891			+0.55		2
8 Mar.	1887.903	10.17				3
	.903			+0.63		2

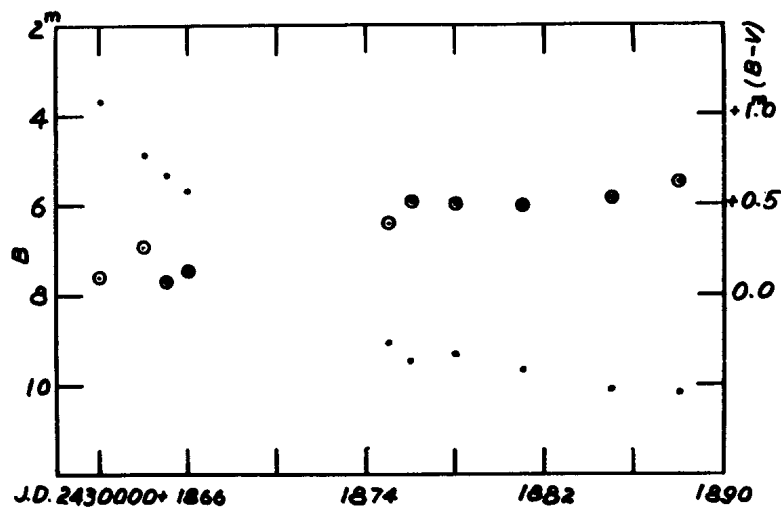


Figure 1. Magnitude (dots) and color (circled dots) of T CrB after the 1946 outburst.

The transformation from the photoelectric b-y system to B-V is linear in the range of color variation observed in T CrB. Delta CrB was the primary comparison star among the eight observed. The observations were made by G.E. Kron assisted by H.L. Johnson. The data of Table I are plotted in Fig. 1 where smaller dots indicate greater uncertainty.

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