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PHOTOELECTRIC LIGHT CURVES OF TY BOOTIS

The eclipsing binary system TY Boo was discovered by Guthnick and Prager (1926). Carr (1972) published the first photoelectric light curves and determined seven times of minimum light. He attempted a Russel-Merrill solution of the system but stated that nonrectifiable distortions in this W Ursae Majoris-type light curve limited the accuracy of his results. One subsequent photoelectric minimum has been determined (1982) since Carr's observations.

The present observations of TY Boo were made on five nights during June, 1986. The 31 inch F/16 telescope at Lowell Observatory was used with standard B,V filters and a thermoelectrically cooled EMI 6256 photomultiplier. The comparison and check star were those designated by Szafraniec (1953) as "f" and "g" respectively. The positional information is given in Table I. Neither TY Boo, nor the check or comparison star, has a catalogue identification. Approximately 350 observations were obtained at each effective wavelength.

Table I

STAR	R.A. (1950)	Dec. (1950)
TY Boo	14 <sup>h</sup> 58 <sup>m</sup> 47 <sup>s</sup>	35 <sup>o</sup> 19!8
Comparison	14 <sup>h</sup> 58 <sup>m</sup> 54 <sup>s</sup>	35 <sup>o</sup> 16!1
Check	14 <sup>h</sup> 58 <sup>m</sup> 05 <sup>s</sup>	35 <sup>o</sup> 22!0

Four epochs of minimum light were determined from the observations made during two primary and two secondary eclipses using the Hertzsprung technique (1928). These are given in Table II.

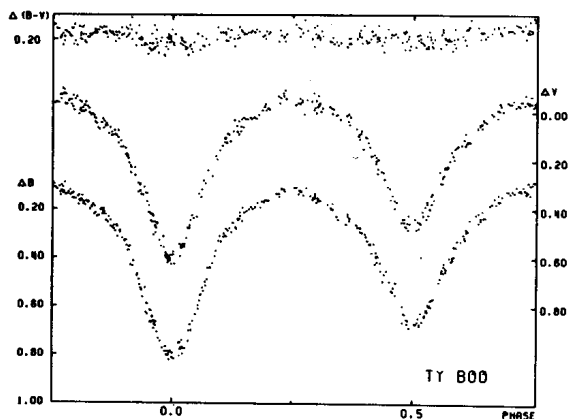


Fig. 1 - Light curve of TY Boo defined by the individual observations.

Table II

JD Hel	Minimum	Cycles	(O-C)
2446500+			
87.7281	II	-6.5	-0.0011
88.8392	I	-3.0	-0.0000
89.7908	I	0.0	-0.0000
91.8510	II	6.5	-0.0012

These four minima along with the eight other photoelectric minima were introduced with varying weights into a least squares solution to obtain the following improved ephemeris:

$$\text{JD Hel Min. I} = 2446589.7907 \pm 5 \pm 3 \text{ (p.e.)} + 0.31714964 \text{ d}$$

This ephemeris was used in calculating the O-C's in Table II.

The B and V light curves of TY Boo defined by the individual observations are shown in Figure 1 as  $\Delta m$  versus phase. The analysis of the observations is underway.

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References:

- BAV 34 (1982)  
 Carr, R. B. 1972, Astron. J. 77, 155  
 Guthnick, P., and Prager, R. 1926, Astron. Nachr. 228, 99.  
 Hertzprung, E. 1928. Bull. Astron. Inst. Neth. 4, 179.  
 Szafraniec, R. 1953, Acta Astron. Ser. b, 2, 100.