

COMMISSION 27 OF THE I. A. U.  
 INFORMATION BULLETIN ON VARIABLE STARS

Number 2335

Konkoly Observatory  
 Budapest  
 16 May 1983  
 HU ISSN 0374-0676

XY Leo AND THE STAR BD+18°2304

XY Leo (BD+18°2307) is a well-known W Ursae Majoris system, which has undergone a large number of period changes. A recent period study (Gehlich, et al., 1972), using photoelectric observations made in 1971, found a period of 0.<sup>d</sup>28411. De Carlo and Sabatini (1967) discovered that the nearby star BD+18°2304 is an eclipsing binary having a period of 0.<sup>d</sup>290. The close proximity of the two systems ( $\frac{1}{2}^{\circ}$  apart), their similar periods, and the similarity in the depths of the eclipses in each system suggest the possibility that De Carlo and Sabatini may have observed XY Leo and misidentified it as BD+18°2304.

To test this hypothesis both XY Leo and BD+18°2304 were observed on five nights during the spring of 1983 using the 41cm reflector of the Morgan-Monroe Station of the Goethe Link Observatory. Johnson UBV filters were used with a 1P21 photomultiplier tube cooled with dry ice. The comparison star used was BD+18°2306. Between sky and comparison star readings, observations of both XY Leo and BD+18°2304 were made. For XY Leo the Hertzsprung method was used to determine times of minimum light from the observations in each filter. These results were averaged and are presented in the Table I.

Table I

Hel. J.D. 2440000+	Min	(O-C)
5396.6566	I	0.0001
5416.6904	II	0.0051
5444.6685	I	-0.0004
5449.6432	II	0.0026

The residuals were calculated using the light elements published by Kaluzny and Pojmanski (1982), namely:

$$\text{Min. I} = 2445074.4906 + {}^d.2840969E$$

Our primary minima are consistent with these light elements, but our secondary minima show a displacement. Gehlich et al., noted a smaller, time-varying displacement in the secondary.

The complete light curve of XY Leo was observed, thus if BD+18<sup>o</sup>2304 is a variable having a similar period, variations in its brightness should have been apparent. However, the magnitude of BD+18<sup>o</sup>2304 as determined with each filter remained constant within 0.<sup>m</sup>05. From this we conclude that BD+18<sup>o</sup>2304 is not an eclipsing binary and suggest that De Carlo and Sabatini unknowingly observed XY Leo.

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