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PHOTOELECTRIC LIGHT CURVES OF CN And

The eclipsing binary CN And (BD + 39°0059) was observed photoelectrically between July 13 and September 12, 1972 on four nights with the 48 cm Cassegrain telescope of the Ege University Observatory. R C A 1P21 photomultiplier and the B, V filters, which are close to the standard system, were used.

The first photographic observations of the system were made by Tsesevich (1956) and the light elements obtained as follow:

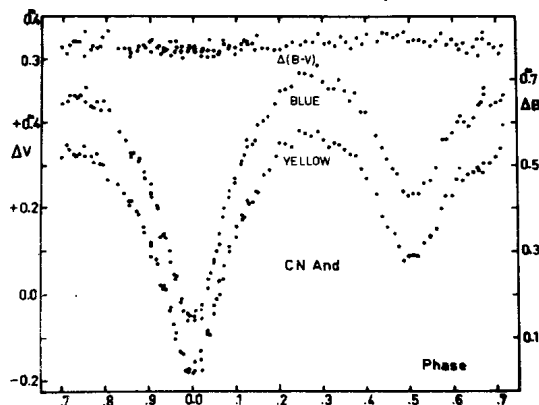
$$\text{Hel.Min.} = \text{JD } 2\ 433\ 913.386 + 2^{\text{d}}.2599 \text{ . E.}$$

In 1960 Löchel reobserved the star and calculated the light elements and found as,

$$\text{Hel.Min.} = \text{JD } 2\ 433\ 570.465 + 0^{\text{d}}.46\ 2798 \text{ . E.}$$

At the same time Löchel classified the system as a W UMa type close binary.

Our minimum times do not confirm the light elements of Tsesevich, but are in agreement with those of Löchel. However there is a difference of 56 minutes with the later elements.



The Table gives our minimum times:

Min.Hel	O-C <sub>I</sub>	O-C <sub>II</sub>	Color	Min.
2 441 509.4954	-0.0379	+0.0009	B	II
509.4930	-0.0403	-0.0015	V	II
512.5049	-0.0366	+0.0023	B	I
512.5044	-0.0371	+0.0018	V	I
567.5761	-0.0383	+0.0005	B	I
567.5746	-0.0398	-0.0010	V	I
568.5016	-0.0384	+0.0004	B	I
568.5012	-0.0388	0.0000	V	I
577.5282	-0.0364	+0.0024	B	II
577.5278	-0.0368	+0.0020	V	II

O-C<sub>I</sub> according to Löchel (1960)

O-C<sub>II</sub> according to our elements (this paper).

We couldn't find any published minimum times for this star and we have no enough minima for correctng the light elements. Therefore one of the times of minimum was chosen as T<sub>0</sub>. The phases of the individual observations were calculated with the following light elements:

$$\text{Hel.Min.} = \text{JD } 2 \text{ 441 } 568.5012 + O^d.462798 \cdot E.$$

The light and color curves are shown in the Figure where the magnitude differences between the variable and the comparison star (BD + 39<sup>o</sup>0051) have been plotted against the phases. The star varies about O<sup>m</sup>.565 and O<sup>m</sup>.550 at the primary minimum, O<sup>m</sup>.285 and O<sup>m</sup>.265 at the secondary minimum in blue and yellow, respectively. Indeed the light curves are similar to a W UMa type as classified by Löchel.

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Tsesevich, W. A.C. Kasan , 170, 14. 1956.  
Löchel, K. M.V.S. 457-458. 1960.