

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

Number 910

Konkoly Observatory
Budapest
1974 July 19

A SUSPECTED PERIOD INCREASE IN THE ECLIPSING BINARY RW Per

The purpose of this note is to draw attention to a possible period change that has occurred in the eclipsing binary RW Per. Spectroscopic observations of RW Per were made at the Dominion Astrophysical Observatory on March 19, 1974 with the hope of observing circumstellar emission lines during totality. According to the ephemeris of Woodward (Harvard Bull. 917,7,1943), as listed by Kordylewski (Rocznik Astronomiczny Observatorium Krakowskiego, 1973), mid-eclipse was predicted to occur at 04:12 UT March 19. Two spectrograms were obtained:

Plate Number	Time of mid-exposure (UT)	Exposure Time (min.)
76046	04:10	63 ^m
76047	05:39	113 ^m

On the first plate there was an A-type spectrum, with no evidence of any lines of the secondary, while on the second plate the prominent hydrogen lines were weaker, and metallic lines from the secondary component had begun to show up. From this spectroscopic evidence, it appears that the eclipse was 3 to 5 hours later than predicted.

Hall (Mass Loss From Stars, pp.171-83,1969) has listed all available times of primary minimum for RW Per. The corresponding (O-C) diagram, based on Woodward's ephemeris, reveals that the four most recent times of minima deviate systematically from the course of the earlier ones. These four times are listed below and are plotted in the following (O-C) diagram. The time of minimum estimated spectroscopically has also been included as a vertical bar in the diagram and it is apparent that it confirms the trend in the residuals.

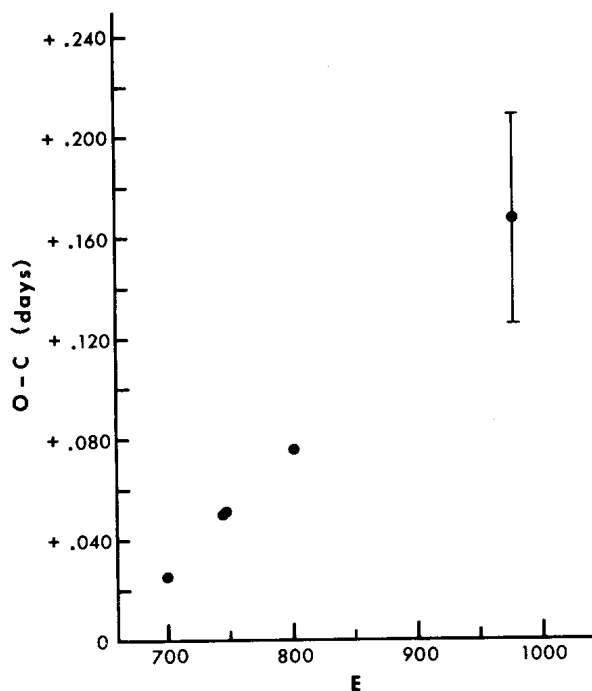
The following ephemeris is based on a least-squares fit to the four photometric times of minima:

$$T_{\min} = \text{JD } 2429217.274 + 13^{\text{d}}19894 \cdot E$$

Certainly this new ephemeris is only a provisional one, and times of minima are needed in the future in order to confirm it. If it proves to be correct, then it can be concluded that a period increase of magnitude $\Delta P/P \approx 4 \times 10^{-5}$ occurred at $E \approx +700$.

Recent times of Minima for RW Per

Heliocentric JD 2400000.+	Epoch	(O-C) days	Reference
38456.53	+700	+0.025	Kordylewski (IBVS No.46,1964)
39063.684	+746	+0.050	Hall (Mass Loss From Stars,171,1969)
39076.883	+747	+0.051	Hall (Mass Loss From Stars,171,1969)
39802.822	+802	+0.075	Hall (Mass Loss From Stars,171,1969)



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