

A PERIOD FOR RY LYNCIS

GERRY SAMOLYK
4483 N. 53rd Street
Milwaukee, WI 53218

GARY WEDEMAYER
918 S. 115th Street
West Allis, WI 53214

Abstract

Newly determined times of minima, combined with published values, permit a determination of the period, 1.43497 days, for this eclipsing binary.

* * * * *

Finding no published period for the eclipsing binary RY Lyncis, the writers began observing the system whenever possible in search of minima.

One of us (Samolyk) found this star in eclipse on JD 2443066, and an ascending leg was observed by both writers on JD 2443165. Three additional partial minima were observed within the next few weeks. As the pattern emerged a minimum was observed by Samolyk on JD 2443204, although the descending leg was short, due to twilight. A period of 1.435 days fit all the observed data and was used to predict two more minima observed in the spring of 1977.

Additional minima were found published in the BBSAG Bull., (Locher 1976a, 1976b, 1977). All minima available to the writers are listed in Table 1. The following elements were derived using the reliable minima:

$$\text{JD (min)} = 2442887.443 + 1.43497 E \quad (1)$$

Parenago (1938) lists 15 photographic observations of RY Lyncis. His listing includes insufficient data to determine an accurate time of minimum. However, his data show that RY Lyncis was in eclipse at JD 2428609.32 and 2428629.35. Both his eclipse photographs were a few hours earlier than the minimum times calculated from our elements and, therefore, indicate either a small change of period within the past 40 years or a need for further refinement of our period when more data are available.

Although all phases of the light curve, except phase $0^{\text{P}}.08$ to $0^{\text{P}}.27$, were adequately observed by the writers to detect a visually observable secondary minimum, none was found. We feel all observed minima are primary because the light curve resembles that of a deep Algol type system. Therefore the period should not be doubled. The duration of the primary eclipse is $0^{\text{P}}.10$.

TABLE I

Minima of RY Lyncis

JD(hel)	E	O-C (Eqn.1)	Observer
2442887.447	0	+0.004	R. Diethelm
2442900.352	9	-0.006	R. Diethelm
2442900.394:	9	+0.036:	R. Germann
2443175.877 ¹	201	+0.005	G. Wedemayer
2443204.577:	221	+0.006:	G. Samolyk
2443220.350	232	-0.006	R. Diethelm
2443244.752	249	+0.001	G. Samolyk

2443290.672	281	+0.002	G. Samolyk
2443429.860	378	-0.002	G. Samolyk

¹Determined by combining portions of eclipses observed on JD 2443165, 2443175, and 2443211.

REFERENCES

Kukarkin, B.V. et al. 1969, General Catalogue of Variable Stars, (Moscow).
 Locher, K. 1976a, BBSAG Bull., 27.
 _____ 1976b, BBSAG Bull., 28
 _____ 1977, BBSAG Bull., 33
 Parenago, P. 1938, Peremennye Zvezdy, 5, 206.

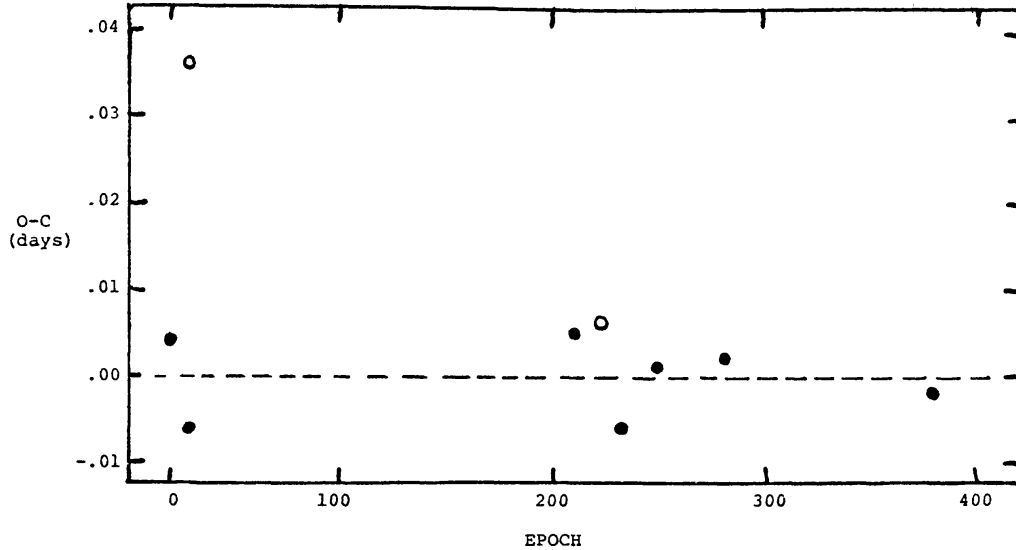


Figure 1. O-C diagram for RY Lyncis based on equation 1. Open circles represent minima that are uncertain or that could not be determined with the desired accuracy due to insufficient data.

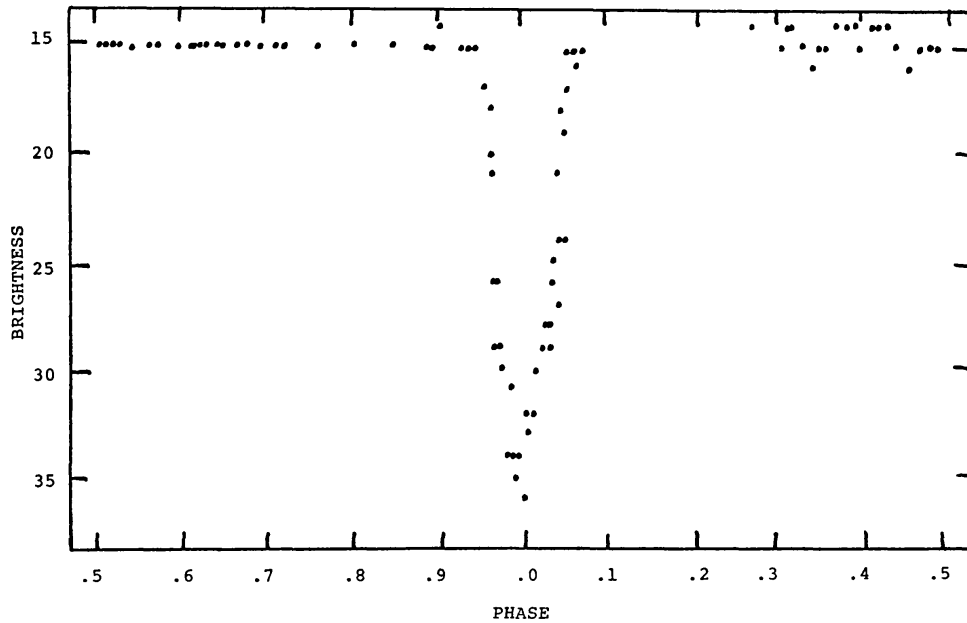


Figure 2. Visual observations by the writers plotted by phase, (equation 1). Arbitrary brightness steps were used because no magnitudes were available.