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THE CHANGING PERIOD OF HQ LYRAE

HQ Lyrae ($19^{\text{h}}23^{\text{m}}19^{\text{s}} + 42^{\circ}20'.5$) is listed in the GCVS as a questioned Mira type star with a period of 322 days. This variable was rediscovered by Lucia Dexter at the Maria Mitchell Observatory. On the basis of approximately 150 plates taken in recent years she found a period of 290 days. I then examined the star on some 700 plates taken between JD21030 and 42300. These indicated that a constant period will not satisfy all of the observations. They are best represented by the formula,

$$\text{Max.} = \text{J.D.}2424770 + 289.5n + 30 \sin 8^{\circ}n.$$

The upper portion of the diagram shows the difference between observed and computed times of maximum for a constant period of 289.5 days, where the smooth curve represents the function $30 \sin 8^{\circ}n$. The lower diagram indicates that the observed (or interpolated) times of maximum show a spread of ± 10 days around the times of predicted maximum. This spread is smaller than the uncertainty in interpolation of time of maximum for some incompletely observed cycles.

The observations cover a span of 61 cycles after JD_0 , the first actually observed maximum. A number of earlier observations at cycle -12 are at minimum fainter than the limiting magnitude of the plates. The previously published JD_0 , 28020, is some 20 days past our observed maximum at that cycle. Our most recent well defined maximum, with observations on both the ascending branches of the light curve, occurred at JD 41880 (cycle 59).

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