

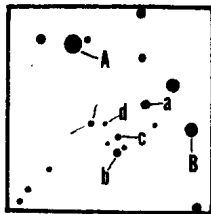
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S4802 IN CYGNUS, AN SR STAR

Using data obtained from the Maria Mitchell Observatory, the light curve for the suspected variable S4802, (Figure 1), located in the Cygnus region, appears to have a large amount of scatter associated with the data points. This is not consistent throughout the entire curve, however, because there are definite periodic cycles apparent. These cycles, each lasting on the average about eighty days, suggest that S4802 is a semi-regular star.

Figure 1



Magnitude of Comparison Stars	Bonner Durchmusterung Catalog Number
a 12.1	A 3865
b 12.7	B 3860
c 13.2	
d 14.4	

During these cycles, the shape of the light curve is fairly symmetrical about a horizontal axis, but the amplitudes of successive peaks do not remain the same. There are three strips of the light curve which show these cycles and their varying amplitudes quite well:

Julian Date of Maximum	Maximum Magnitude
29810	12.8
29885	12.9
29960	13.0

Table (cont.)

Julian Date of Maximum	Maximum Magnitude
41190	12.9
41540	12.1
(41830	13.1)
42280	12.9
42580	13.0
42660	13.3

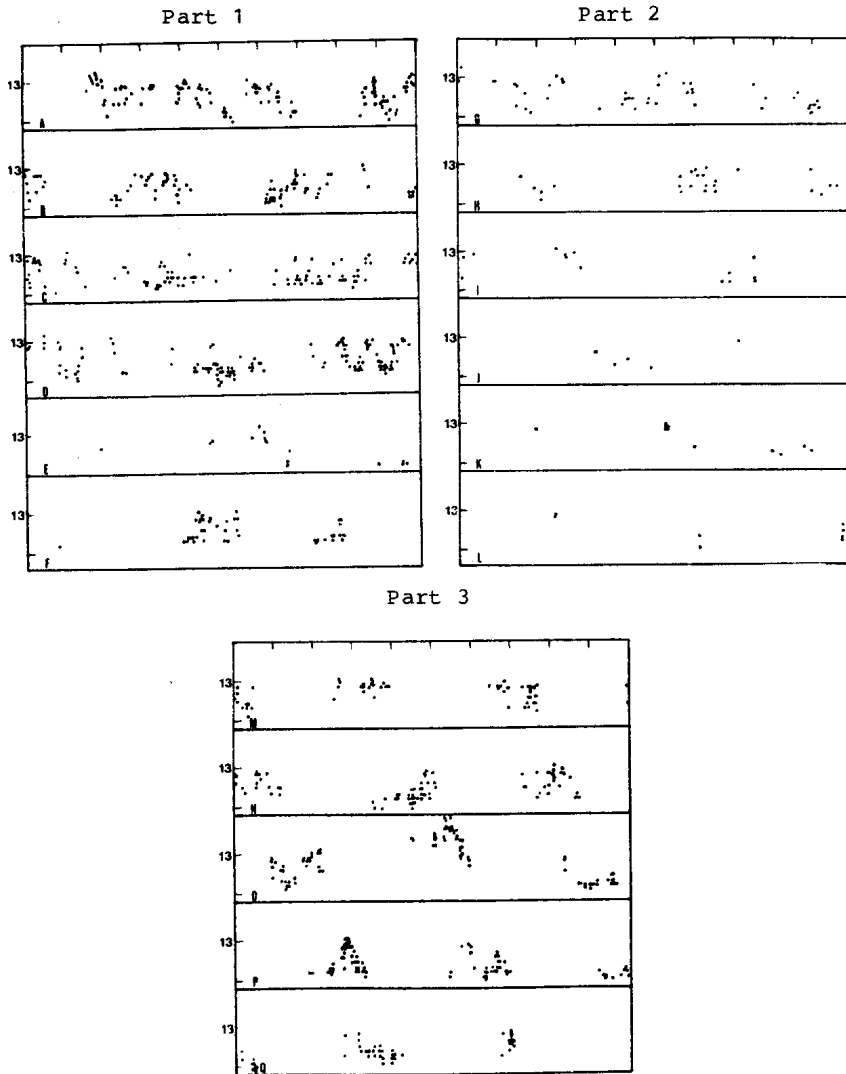
These smooth increases and decreases in the magnitudes of the maxima suggest that there are two periods for S4802 - creating a beat phenomenon. Perhaps the portions of the light curve in which there is much scatter, or where the cycles are indistinguishable from the mean curve, are simply the results of the interference of two periods. Intervals of little variation could likewise be caused by the cancellation of the two periods.

The star varies in amplitude from 12.1 at maximum to about 14.3 at minimum ($\Delta m = 2.2^m$). Many more observations are needed to verify the possible beat phenomenon for this star.

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Figure 2



Ordinate axis - marked at one-magnitude intervals. Each strip is 1000 days, markers at 100-day intervals:

Part 1	Part 2	Part 3
A 26000-27000	G 33000-34000	M 39000-40000
B 27000-28000	H 34000-35000	N 40000-41000
C 28000-29000	I 35000-36000	O 41000-42000
D 29000-30000	J 36000-37000	P 42000-43000
E 30000-31000	K 37000-38000	Q 43000-44000
F 32000-33000	L 38000-39000	