V788 CYGNI -- A PERIOD CORRECTION

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ABSTRACT

Recent visual observations of V788 Cygni reveal
that its photometric period must be doubled.

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Following its discovery by E. Geyer (Geyer et al. 1955), the
eclipsing binary, V788 Cygni, was investigated by Tsesevich (1956)
who determined a period of 47.85 days. Later, Geyer (1956), having
made further observations from photographic plates,stated that
Tsesevich's period must be halved. He gave the following minimum
prediction elements:

$$JD (min) = 2426620.421 + 23.9252 E$$

These elements by Geyer are referenced by both the 1969 General
Catalog of Variable Stars and SAC 48. Further refinement of Geyer's
elements is given by Ahnert (1976):

$$JD (min) = 2426620.54 + 23.9235 E$$

However, 94 observations of this star visually obtained by the
writer on 67 nights between JD 2442911 and JD 2443145 failed to
confirm this fundamental period. Primary eclipses occurred only on
even numbered cycles. The star was clearly seen to enter eclipse
near the times predicted at E = 682, 684, 688 and 690. No visually
detectable eclipses occurred at the predicted time for E = 683, 685
or 687. This phenomenon is clearly seen in Figures 1a and 1b. Ob-
servations were made at various phase positions, as shown in Figure
2, eliminating the possibility of unobserved primary eclipses
occurring on a shorter cycle. Secondary eclipses were not detected.
Further examination of Geyer (1956) and Tsesevich (1956) re-
veals that they observed a total of 11 minima. Excepting one, all
occurred on even numbered cycles compared to Geyer's elements.
Furthermore, the 0 - C's given by Geyer for the odd numbered minimum,
E = 29, and one other, E = 32, do not concur with the time of mini-
mum given. Either some typographical or calculating error must
exist. Ahnert (1976) notes that he observed 22 minima on the
Sonneberg patrol plates but he does not specify which minima were
observed.
Since the writer finds no visually detectable eclipse on odd
numbered cycles and since the only odd-numbered minimum found in
the literature appears doubtful, it is concluded that the fundamen-
tal period of V788 Cygni is near that originally determined by
Tsesevich and double that given by Geyer as refined by Ahnert.
Accordingly, the corrected prediction elements are:

$$JD (min) = 2426620.54 + 47.84870 E$$

REFERENCES

Ahnert, P. 1976, I.A.U. Information Bulletin on Variable Stars, 1150.

Geyer, E. 1956, Kleine Veröffentlichungen der Remeis-Sternwarte Bamberg, Nr. 16.

Geyer, E., Kippenhahn, R. and Strohmeier, W. 1955, ibid, Nr. 11.

Koziel, K. 1976, Rocznik International Supplement, 48 (SAC 48).

Kukarkin, B., et al. 1969, General Catalog of Variable Stars, Moscow.

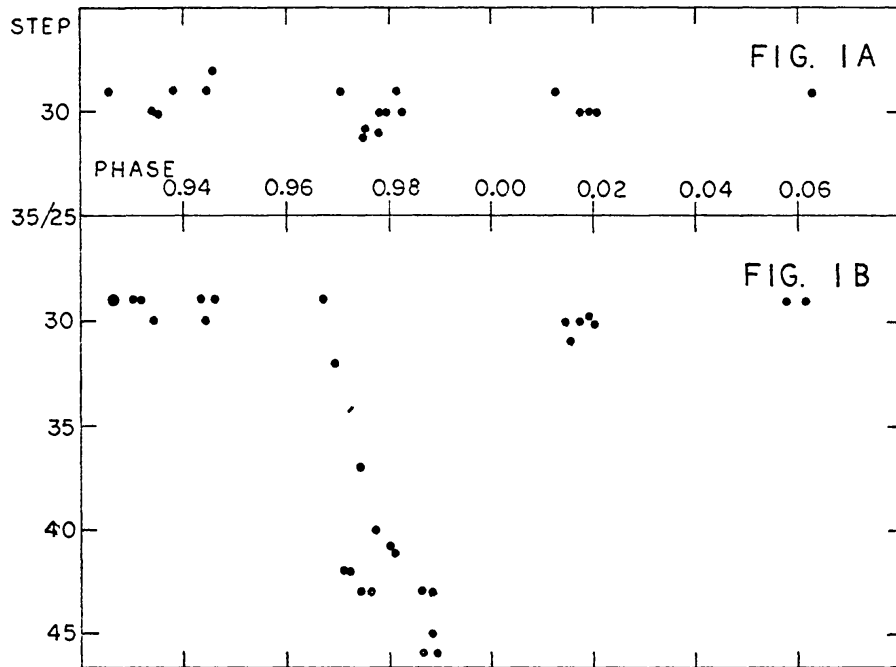Tsesevich, V. 1956, Astron. Zirkular Kasan, 170, 12.

Figure 1a. The writer's visual observations taken near the time of scheduled odd numbered minima are plotted to phase relative to Geyer's elements. No appreciable depression of the light curve is evident to indicate occurrence of minimum.

Figure 1b. Here, visual observations taken near the time of even numbered minima are plotted. The entry into eclipse at phase position 0.97 is well defined, in sharp contrast to Figure 1a. where no minimum is evident. Due to this star's period being nearly synchronous with the sidereal day, only the descending leg of the eclipse light curve could be obtained during the months the observations were made. The data are sufficient, however, to support Ahnert's findings that eclipses occur earlier than predicted by Geyer's elements.
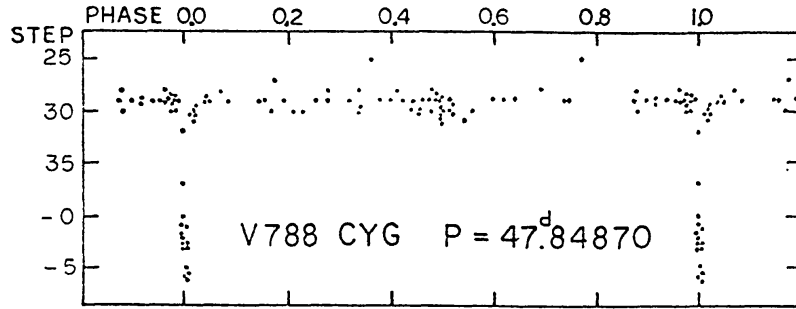
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Figure 2. This light curve is formed from the writer's visual observations. The source of the inconsistency between the period of this light curve and that of an apparently well defined light curve given by Geyer (1956) is not fully understood.
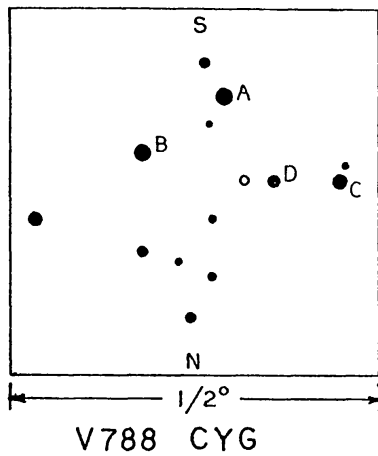

V788 CYG

STEP SEQUENCE
A = 20
B = 26
C = 33
D = 42

Figure 3. Finder chart for V788 Cygni. Comparison visual step values were assigned by the writer and used for his observations.

POSSIBLE OBSERVATION OF A SATELLITE OF A MINOR PLANET

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ABSTRACT

On March 5, just before $2^h 35^m$ U.T., an occultation of 3.6-mag. γ Ceti by the minor planet (6) Hebe was observed from locations in and near Mexico City. Simultaneously, Paul Maley, an amateur astronomer from Houston, observed a short secondary occultation from a location near Victoria, Texas, 900 km to the north, possibly caused by a satellite of Hebe. Dynamical considerations show that such a satellite is possible. Confirmation of such ev ents during future occultations would be desirable. This underscores the need for observation by as many professional and amateur astronomers as possible, visually and photoelectrically, during predicted special occultation events.