

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 1052

Konkoly Observatory
Budapest
1975 October 16

A SHORT PERIOD LIGHT VARIATION IN NOVA CYGNI 1975

As already announced (Tempesti 1975) photoelectric monitoring of Nova Cygni 1975 performed on September 9 with the 40 cm refractor of the Teramo Observatory showed the existence of periodic brightness fluctuations having an amplitude of $0^m.15$ in V light and a period estimated at first glance at 3.2 hours. The observations carried out during subsequent nights have shown the persistence of the fluctuations and confirmed their periodic character; the accurate elaboration of all the observational material will take several months: here only a short report is given, based on a preliminary coarse reduction.

Fig. 1a and 1c show the light-curves obtained during the nights September 9/10 and 14/15, respectively. BD +47^o3348, with the assumed V magnitude 6.46 (Ljunggren and Oja 1964), has been used as comparison star; the star BD +47^o3340 has been measured each night alternatively with the comparison star along all the night runs: in Fig. 1b and 1d the magnitude differences between these two stars (check minus comparison) are plotted.

On September 9/10 the amplitude resulted at least $0^m.15$ (not all the observations are reported in Fig. 1a); on September 14/15 the amplitude seems to be decreased to $0^m.12$ and also the shape of the light-curve appears notably different from that one of September 9. On the other hand the period is fairly well kept: the four minima of Fig. 1 allow to derive the value $P = 0^d.137$ and a preliminary computation with the times of these minima gives residuals not exceeding $0^p.007$. The minimum of September 15.00 appears $0^m.03$ deeper than the preceding one; whereas the second observed minimum of September 9/10 appears only $0^m.01$ deeper than the preceding one; considering the 3-hours wave as a distinct phenomenon overlapping the steady decline of the nova, the two minima of September 9/10 are of equal depth, because the magnitude difference roughly equals the light decay of the nova, at that epoch, in 0.14 days.

I have ascribed the slight decrease of ΔV which is noticeable in Fig. 1b to a brightening of the check star; if, however, the trend of the ΔV is due to a fading of the comparison star, then in reality the depth of the two minima differs in magnitude by $0^m.03$ like the two minima of September 14/15. I hope that a closer examination of the observational material will allow to settle the question.

The observational program is still going on: a detailed account will be submitted for publication to the European Journal Astronomy and Astrophysics.

P. TEMPESTI
Collurania Observatory
64100 Teramo, Italy.

References:

- Ljunggren, B., Oja, T. 1964, Arkiv för Astronomi 3, 439
Tempesti, P. 1975, I.A.U. Circ. 2834

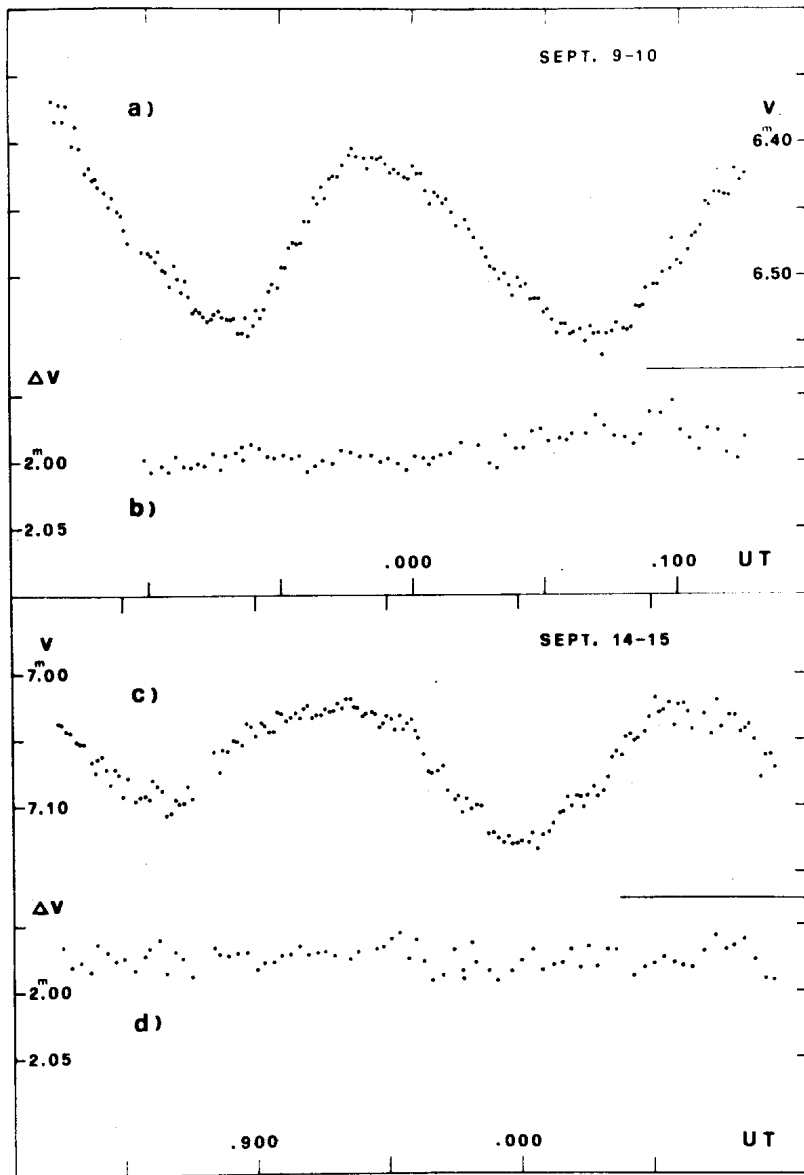


Fig. 1. A) and c): light-curves of the nova. B) and d): magnitude differences between check and comparison stars (check minus comparison). All the plotted data are corrected for extinction.