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PERIODIC SUPERHUMPS ON WX HYDRI

In I.B.V.S. No. 864 we drew attention to the occurrence of "humps" on the supermaximum outburst light-curve of the dwarf nova VW Hydri. These "superhumps" were displaced in phase from the normal humps which occur at minimum and appeared variable from cycle to cycle. The normal humps provided direct data for determination of the orbital period of the system.

Vogt (1974) and Warner (1975a) subsequently analysed the observations to show the superhumps were repetitive with a period approximately 3% greater than the orbital period. Warner (1975b) has drawn attention to a similar phenomenon on V436 Centauri. We report here the observation of superhumps on another dwarf nova, WX Hydri. We deduce a preliminary orbital period for the system from the superhump period and from a few observations when the star was at minimum.

WX Hydri was observed photo-electrically at Auckland Observatory on 1976 September 21 and September 22 with the Zeiss 500 mm Cassegrain telescope and an EMI 9502 photomultiplier. The observations cover an interval of six hours on September 21 and just under an hour on September 22 (when cloud cut short the programme). The star was monitored in white light but five sets of three colour UBV observations were obtained during the runs. The peak V magnitude of WX Hydri ($V \sim 11.35$) indicated that a supermaximum was in progress.

The observations are presented in Figure 1. These show three peaks on the first night and part of a peak on the following night. From these we have derived a period of 1 hour 52.7 minutes (0.0783 days). The peaks are similar in nature to those on VW Hydri.

We have also measured WX Hydri in December 1973 when it was not in outburst. The light-curve showed quasi-periodic vari-

ations with indications of shallow eclipse-like features having a period of 0.14989 days. The star at $V \sim 14.7$ is near our observing limit and so no further observations were obtained at minimum in the following two seasons. A period of half of this value, i.e. 0.0749 days, is $\sim 4\%$ less than the superhump period, compared with the 3% for VW Hydri, and appears probable as the orbital period of the system.

There are some peculiar indentations in the light-curve on 1976 September 21 which resemble shallow partial eclipses. These, together with the behaviour at minimum and the amplitude of the superhumps, indicate that WX Hydri may have a high inclination. Should these indentations be partial obscurations of the source of the superhumps further observations of the feature may provide a means of determining the nature of the superhump and its location in the system.

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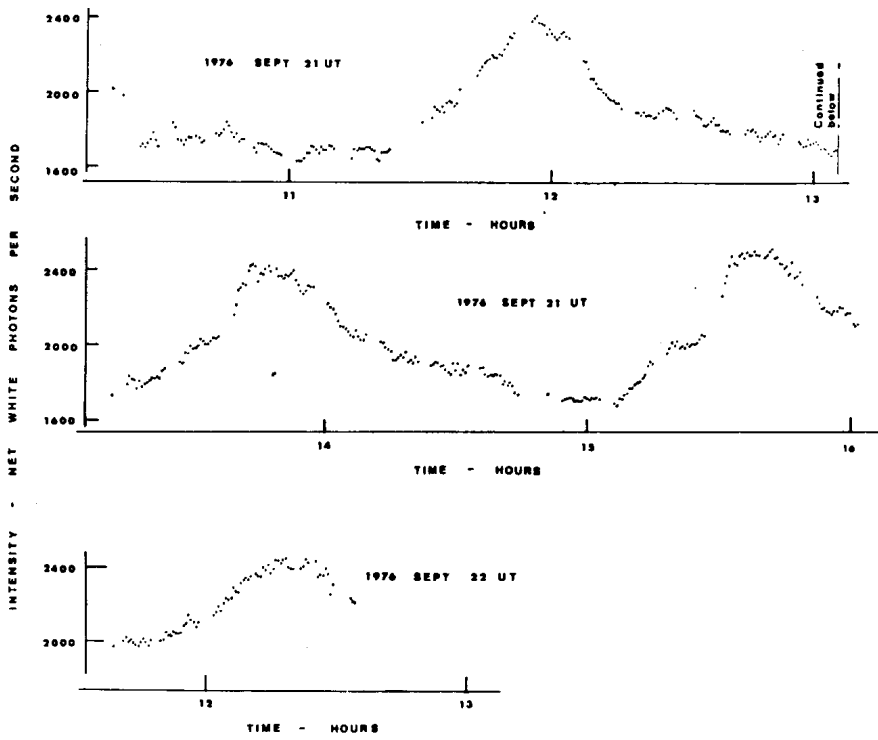


FIGURE 1 SUPERBUMPS ON WX HYDRI