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NEW OBSERVATIONS OF THE WHITE DWARF ECLIPSING BINARY
V 471 TAURI

The eclipsing nature of the V 471 Tau (BD + 16^O516) was announced by Nelson and Young (1970). They have shown that it is an eclipsing binary consisting of a KOV star and a white dwarf. Hills (1971) calculated the temperature and luminosity of the white dwarf companion. In 1972, Vauclair investigated the evidence of mass loss from the system and the mass transfer between the components, and also showed that the system is a member of the Hyades cluster. Later on, a detailed analysis were made by Young and Nelson (1972).

We have observed this interesting close binary system during ten nights between 1973 and 1975 with the 48 cm Cassegrain telescope of the Ege University Observatory. A RCA 1P21 photomultiplier was used with B and V filters of the UBV system in these observations.

Four times of primary minima were obtained in blue light and are given in the following Table:

	<u>Min (hel.)</u>	<u>O - C</u>
2 442	006.3140	0.0000
	387.301	+ .002
	720.334	- .001
	723.464	+ .002

The O - C values and the phases of the observations were calculated with the following elements given by Warner et al. (1971):

$$\text{Min JD } 2\ 440\ 970.723705 + 0^d.52118286 \text{ . E.}$$

The star BD + 16^O515 was chosen as a comparison, BD + 16^O524 and HD 24040 as check stars. The comparison star was observed with

the check stars two or more times in each night. No variations in the brightness of the comparison star were observed. All the observations were corrected for differential extinction.

The light curves of the system are shown in Figures 1, 2, 3 and 4. The light curves, obtained in 1973, are similar with those of Nelson and Young (1970). Only, the difference in brightness between the maximum and mid-primary minimum is decreased about $0^m.1$ in two colors. The 1974 and January 1975 light curves are disappointing. The shape of the curves is distorted and the shift in the phases is clearly seen. On the other hand the system is brighter on the order of $0^m.14$ in 1974 and $0^m.07$ in January 1975 than in the year 1973. The November 1975 light curves show many characteristics of an intrinsic variable. The brightness of the system at the occultation of the hot companion is not constant, a steady decline has appeared. Following the primary minimum there is a constant light about 0.2 phase interval. The brightness of the system reaches a minimum approximately at phase 0.45. Thereafter a steady brightening is seen.

A successful model to explain the variations in shape and the shape of such a light curve of the system is not yet known. Only the intrinsic variability of the KOV star may be suggested.

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