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

Number 2957

Konkoly Observatory
Budapest
21 November 1986
HU ISSN 0374-0676

NEW EPHEMERIS AND LIGHT CURVE OF CF Pup

Eclipsing variable star CF Pup (CoD -49° 2046, S3270, CPD -49° 856, discovery number 10.1942 Pup) was discovered by Hoffmeister (1943). So far the existence of the secondary minimum had not been known. Because the duration of the flat part of the primary minimum (totality) is comparable with the duration of the night, the ephemeris based on Hoffmeister's photographic survey plates gave the wrong period.

The new ephemeris (error estimates under resp. digits)

$$T\ (\text{min HJD}) = 2445742.5663_{2} + 7^{d}.649590_{5}.E$$

is based on the observations in the Geneva photometric system of Golay (1974, 1980) and Rufener (1964, 1981) performed during the interval 1978 - 1985 with the 70 cm Swiss telescope at La Silla Observatory, Chile. The photometer P7, described by Burnet (1976) and by Burnet and Rufener (1979) was used for all observations.

As the two branches of the primary minimum were never observed during the same night the ephemeris and its errors were estimated from the geometrical fitting of individual observations into one light curve. Accurate determination of the times of minima would thus be a very suitable project for a multisite photometric observing programme (Chile, South Africa, Australia and/or New Zealand).

For the filter V the following preliminary parameters have been derived:

Magnitude V = 10.15
Duration of totality d = 0.03 P or 5.5 hours
Duration of eclipse D = 0.12 P or 22 hours
Depth of primary minimum 1.9 mag.
Depth of secondary min. 0.08 mag.
Ratio of stellar radii k = 0.6 (eclipse duration)

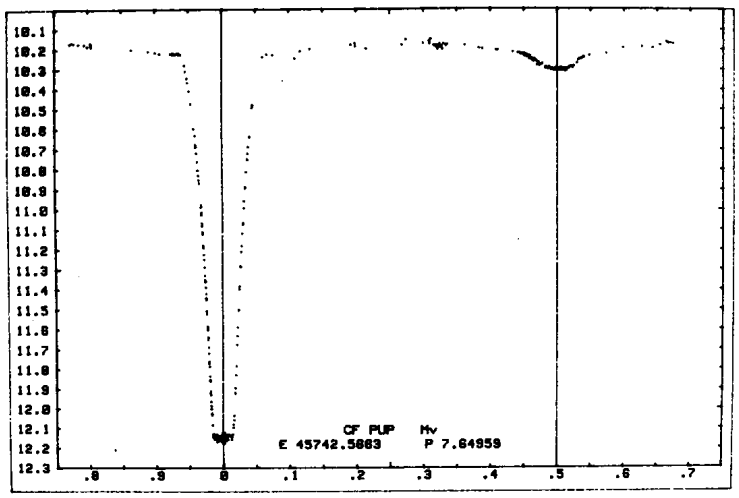

Fig 1. Light curve of CF Puppis. Points represent individual observations in filter V in the GENEVA photometric system. Ordinates: V magnitudes. Abscissae: Phase.

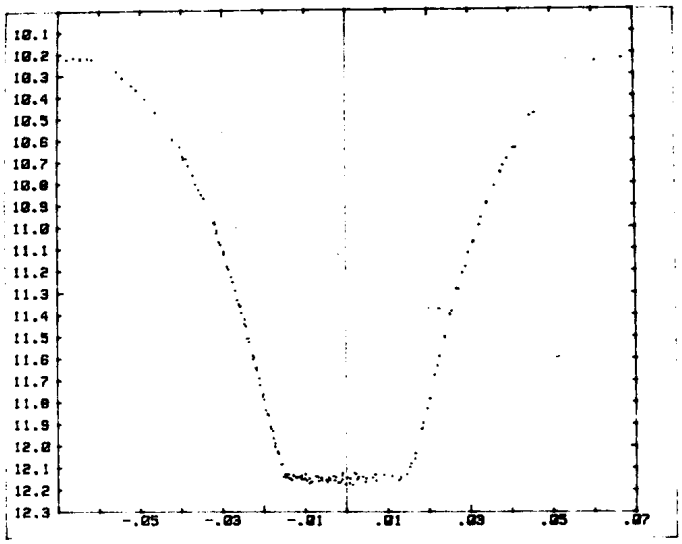

Fig. 2. Primary minimum of CF Puppis, detail from Fig. 1. Axes as in Fig. 1.

The light-curve represented by individual measurements in the colour V of the Geneva photometric system (which is the same as V in the UBV system) is shown in Figs. 1. and 2. First rough estimates of spectral types based on the colours of Geneva photometry indicate F4 III and K2 III for primary and secondary component respectively.

These are only preliminary results. We publish them now to make this information available to other observers, mainly spectroscopists. After filling a few gaps in the light curve, full details and the solution will be published elsewhere.

One of the authors (Z.K.) wishes to express his gratitude to the director of Geneva Observatory Prof. M. Golay for the support during the stay at ESO, La Silla, and at the Geneva Observatory. We acknowledge the excellent assistance of the constructor of the photometer Dr. M. Burnet for keeping the P7 photometer in good condition and for some additional observations of this star.

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References:

Burnet M. 1976, Thesis No. 235, Ecole Polytechnique Federal de Lausanne.
Burnet M., Rufener F. 1979, Astron. Astrophys. 74, 54.
Golay M., 1974, Introduction to Astronomical Photometry, Reidel, Holland.
1980, Vistas in Astronomy, 24, 141.
Hoffmeister C. 1943, Klein. Veröff. Berlin-Babelsberg No 27.
Rufener F., 1964, Publ. Obs. Geneve, ser. A, 66 (Thesis).
1981, Astron. Astrophys. Suppl. Ser., 45, 207.