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

Number 1939

Konkoly Observatory
Budapest
1981 March 23

HU ISSN 0374-0676

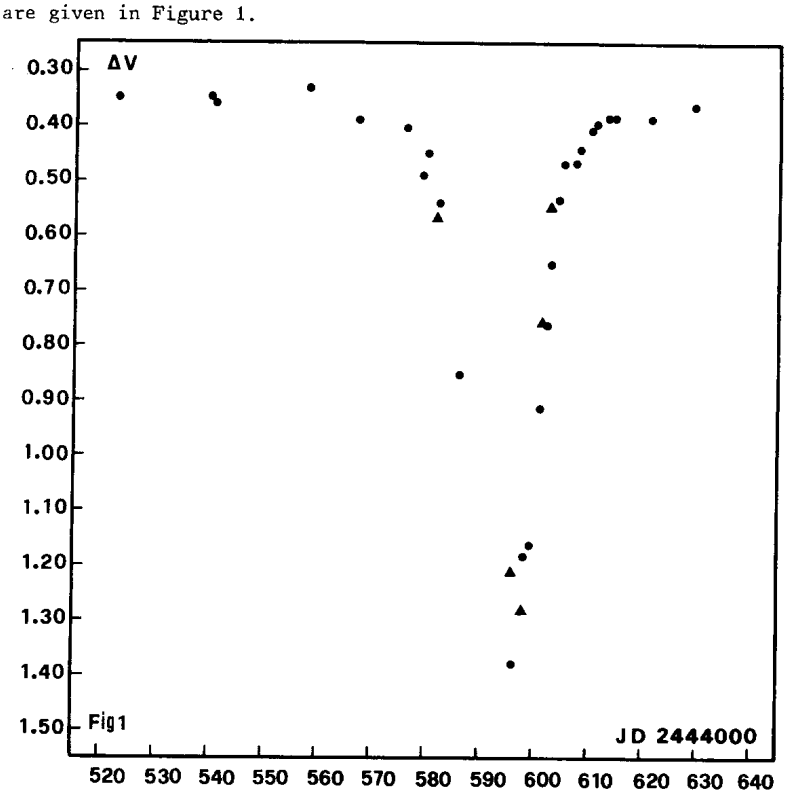
1980 ECLIPSE OF EE CEPHEI: LIGHT CURVES AND TIME OF MINIMUM

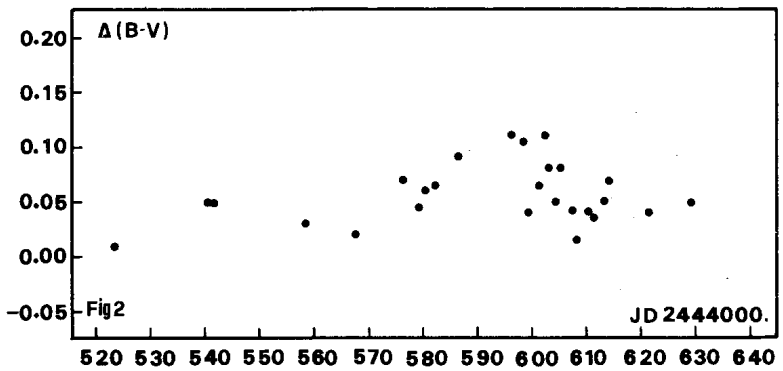
The star was observed as follows:

Tizzano observatory: 350 mm reflector f:5.2; photographic observations in U (IIaO + UG1, 1mm), B (IIaO + GG385, 2mm), V (IIaD + GG455, 2mm).

Tignano observatory: 400 mm reflector f:5; photoelectric observations with a single channel photometer (unrefrigerated 1P21) in UBV (Johnson system) and reduction to the International System; photographic observations in I (1N + RG695, 2mm).

BD +55°2690 was used as comparison star for photoelectric observations. Differential magnitudes in the sense variable star less comparison star in V are given in Figure 1.





Observations made during 26 nights, covered better the ascending branch of the light curve, for we had bad weather conditions during the first part of the eclipse.

Considering the magnitudes at maximum of EE Cep as

V_{max} = 10.72; $B-V_{max}$ = .37; $U-B_{max}$ = -.18 (Barbier et al. 1973)

the star reached during the 1980 minimum at least the V_{mag} = 11.75, and with $\Delta(B-V)_{min}-\Delta(B-V)_{max} = \sim.05$ (fig.2) is $B_{min} = \sim 12.17$.

The computed time of minimum in V is:

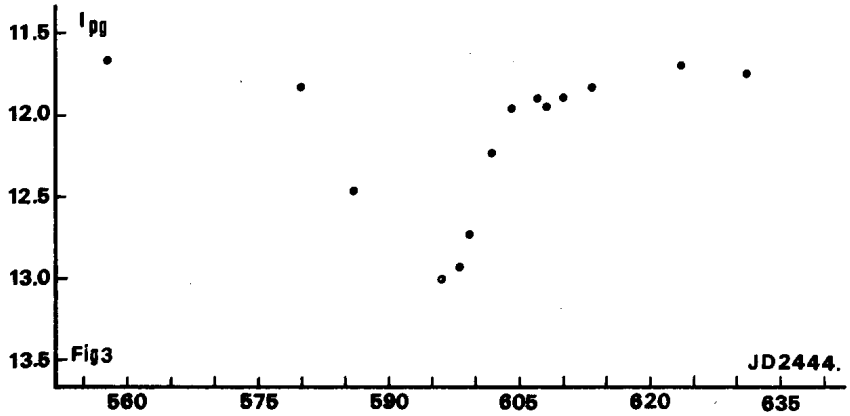
J.D.2444594.1 ± $0^d.4$

and the O-C computed on the basis of the elements

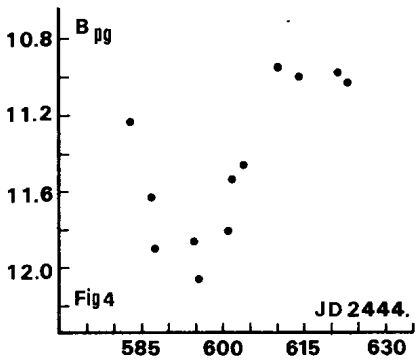
Min = J.D. 2434346.0 + 2049.53 E (Meinunger 1976)

is

$O-C_{1980} = 0^d.4 \pm 0^d.4$



All the photographic magnitudes must be considered provisional and subject to further revision. Some difficulties in checking the magnitudes came from the fact that we found the *b* and *c* stars (see identification chart from Meinunger 1975) as variables with an amplitude of ∿ 0.15 mag in V. Figure 3 report the infrared magnitudes and lightcurve, that are in the Johnson's system (sequence in NGC 2632=M44). Photographic magnitudes in V are in the same colour system as for the photoelectric observations, that must be revised in view of the variability of the *b* and *c* stars. For this provisional reductions we used the average value of the *b* star. V photographic light curve is superimposed to the photoelectric one in



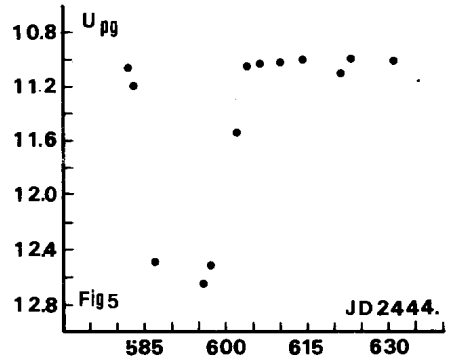


Fig. 1: points =photoelectric, triangles =photographic.

Ten spectra were taken by T.Iijima at the 122 cm telescope of the Asiago Observatory, with the VI camera and RCA image intensifier. The dispersion was 60 Å/mm at Hα wavelength. All the spectrograms show the Balmer series from Hα to H8, with broad absorption lines. Strong and broad Hα and narrow Hβ emission lines are superimposed. Absorption HeI line can be suspected. No appreciable spectral variations can be revealed during the eclipse. The spectrum is of a Be star of the B5 III-IV (more possible III) spectral type.

More detailed and revised results of both spectroscopic and photometric observations will be published thereafter.

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References:

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Meinunger, L.: 1975, I.B.V.S., 965.
Meinunger, L.: 1976, M.V.S., 7, 97.