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ON THE PERIOD OF THE ECLIPSING BINARY UX Mon

The eclipsing binary UX Mon (BD -7°2291) was observed photoelectrically by the writer (Scaltriti 1973) during the winter 1972-73 with a yellow filter at the Astronomical Observatory of Torino and at McDonald Observatory with a V filter. The system is very interesting owing to the long-time changing features shown by the lightcurve, probably due to an intrinsic variability of the hotter component together with masses of gas flowing between the components whose evidence was pointed out by Struve (1947).

A study of the period was made by Whitney (1956) who concluded that the period was not constant.

From my observations, I obtained the following epoch of minimum light:  $\text{Min}_I(\text{Hel.}) = 2441719.203 \pm 0.006$ .

Most of the available epochs of primary minimum of UX Mon are listed by Whitney (1956). We may add the following ones, I could find in the literature:

2427536.506	(pg)	(Gaposchkin 1953)
35129.722	(ph)	(Lynds 1956)
36227.992	(ph)	(Whitney 1959)
36635.383	(ph)	(Whitney 1959)
41719.203	(ph)	(Present work)

Figure 1 represents the (O-C)'s of all the known epochs with respect to the ephemeris:

$$\text{Min}_I(\text{Hel.}) = 2433346.566 + 5^{\text{d}}.904574 \cdot E$$

Note the extremely high value of the (O-C)'s for the epoch given by Soloviev (1943).

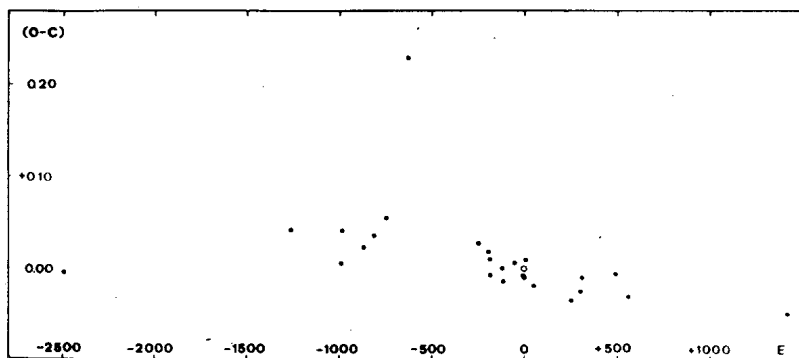


Figure 1. (O-C)'s of the epochs of minimum light of UX Mon with respect to the ephemeris:  
 $\text{Min}_I(\text{Hel.}) = 2433346.566 + 5.^d904574 \cdot E$

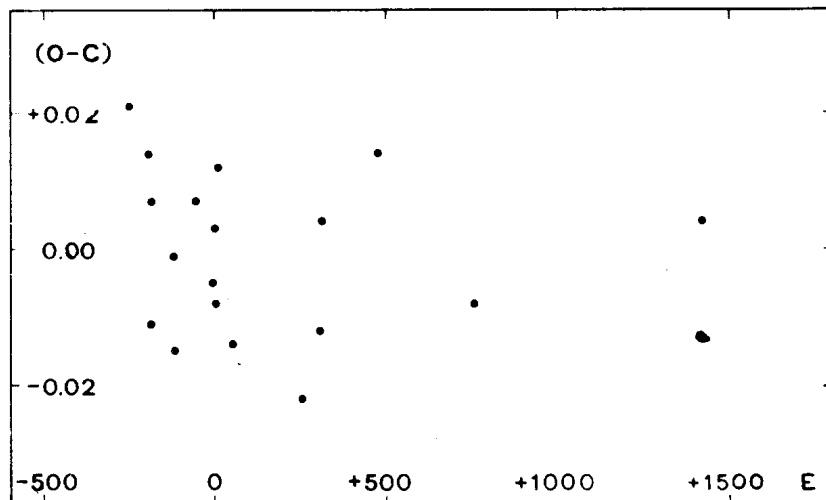


Figure 2. (O-C)'s of the epochs of minimum light of UX Mon ( $E > -300$ ) with respect to the ephemeris:  
 $\text{Min}_I(\text{Hel.}) = 2433346.563 + 5.^d904539 \cdot E$

It seems that at least two changes in the period occurred; the first one (if real) is abrupt, at about  $E = -650$ ; moreover the period before  $E \approx -700$  is longer than after  $E \approx -700$ . It can be noticed that for  $E > -300$  the epochs are well satisfied by a linear ephemeris; a weighted least-squares solution gives:

$$\text{Min}_I(\text{Hel.}) = 2433346.563 + 5.904539 \cdot E$$

$\pm .2 \quad \pm .4$

The corresponding (O-C)'s are shown in Figure 2.

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