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PHOTOELECTRIC OBSERVATIONS OF 441 BOOTIS  
 Veröffentlichung der Wilhelm Foerster Sternwarte Nr.48

This bright W UMA type variable was investigated for sudden period changes and disturbances in the light curve by Bergeat et al. (1972) and Duerbeck (1977). From their investigations a period jump and lightcurve activity could be expected in 1977.

A total of 375 V observations were carried out in six nights. An unrefrigerated RCA 1P21 multiplier, attached at the 75 cm reflector (2 nights) or at the 31.4 cm refractor (4 nights) of the Wilhelm Foerster Observatory was used. The comparison star was 47 k Boo in all nights. A correction for extinction was made in the usual way.

From this material, the minima of Table 1 were determined by Pogson's method:

Table 1: Minimum times

Epoch	Minimum	O-C	Instrument
12621	2443232 <sup>d</sup> 5917 ± 0.0005	-0 <sup>d</sup> .0031	75 cm
12695	252.4113 ± 0.0010	-0.0019	31.4 cm
12826	287.4937 ± 0.0005	-0.0033	31.4 cm

The ephemeris is adopted from Duerbeck (1975).

Unfortunately only the primary minima of the star were observed. But in all cases there are evidences for activities in the curves, observed as small minima in the descending branches.

Table 2 gives the dates, phases, amplitudes and durations:

Table 2: Lightcurve activities

Date	Phase	Amplitude	Duration
2443232 <sup>d</sup>	0 <sup>p</sup> .865	0 <sup>m</sup> .02	0 <sup>d</sup> .008
252	0.873	0.02	0.010
287	0.771	0.03	0.010
295	0.731	0.03	0.03

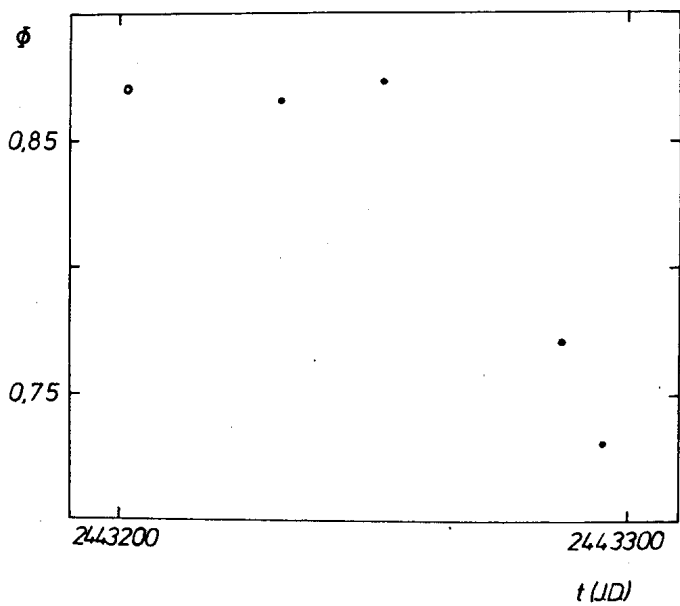


Fig.1. Phase drift of the light-curve disturbances. Circles-Duerbeck (1977), dots-this paper.

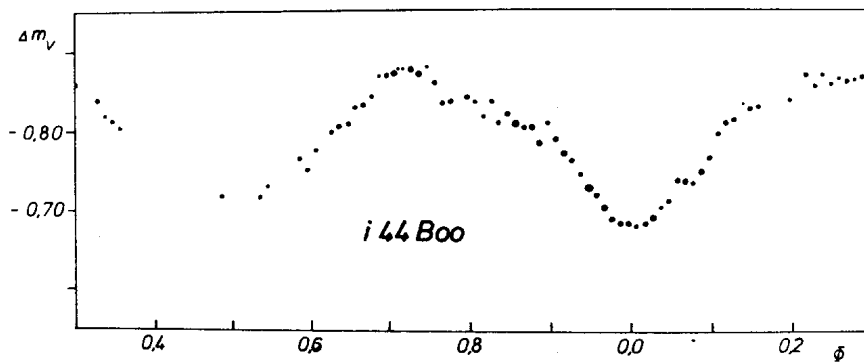


Fig.2. Mean light-curve of all observations of this paper. Diameter of dots represents the number of observations.

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The "shoulders" - as named by Duerbeck (1977) - are constant in phase in Duerbeck's observations from 1975 up to J.D. 2443252<sup>d</sup> in this paper at 0<sup>P</sup>.870. Then a drift started as shown in Fig.1. Also the amplitude increased. This is the reason why the disturbances in the mean lightcurve of Fig. 2 reach from the phase 0<sup>F</sup>.75 to 0<sup>P</sup>.89. At least one can notice that the maxima are of unequal height, the primary maximum is 0<sup>m</sup>.01 less than the secondary. Around the phase 0<sup>P</sup>.06 a larger scatter as usual was observed on J.D. 2443252<sup>d</sup> and J.D. 2443287<sup>d</sup>.

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References:

- Bergeat, J., Lunel, M. and Sibille, F., *Astron.Astrophys.* 17, 215, 1972  
Duerbeck, H., I.B.V.S. No. 1023, 1975  
Duerbeck, H., private communication, in press, 1977