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BZ URSAE MAJORIS - MISSING LINK BETWEEN THE DWARF NOVAE OF U GEMINORUM
 AND WZ SAGITAE TYPE

BZ UMa was discovered by Markaryan (Astrofizika 4, 144) on one of his objective prism plates. The star was bright (10.5^m pg) on one exposure and faint (16^m) at other dates. One further maximum (11.0^m vis.) has been observed since, by members of the AAVSO (Mayall, Journ. R. Astr. Soc. Canada 66, 181).

New interest in the star has been excited by the paper of Green et al. (Publ. Astron. Soc. Pac. 94, 560) who confirmed the dwarf nova nature of the object by spectroscopic classification. I checked the region of BZ UMa on Sonneberg patrol plates taken mainly by H. Huth. At our disposal were:

- I. 640 plates centred at 8^h+60^o of 1957 to 1982.4,
- II. 620 " " " 10^h+60^o " " " " "
- III. 190 " with various centres of 1928 to 1956.

The quality (limiting magnitude 13.5^m to 14.5^m) of the homogeneous series I and II is remarkably better than that of series III.

Table I shows the 4 maxima found on 6 plates of the series I and II, the only one of series III and the observations of Markaryan (M); the AAVSO maximum of 1971 Apr. 21 is confirmed.

Table I
 Maxima of BZ UMa

Date	m_{pg}	Source	Δt
1950 Oct. 14.0 UT	13^m	III	6.3 a
1957 Jan. 24.0	12.0	I	2.0
1959 Jan. 16.1	11.0	II	6.9
1965 Dec. 21	10.5	M	5.4
1971 Apr. 23	12.3	II (2 plates), AAVSO	2.6
1974 March 20.9	11.2	I, II (2 plates)	≥ 8.1

Three dwarf novae of U Gem type with very long mean outburst intervals C are: SW UMa ($C = 459^d$, mean duration of maxima $L = 15^d$), DX And (430^d and 20^d), and UV Per (360^d and 7^d). WZ Sge has $C = 32.6$ years and $L = 25^d$.

The mean cycle length of BZ UMa can be estimated by

$$C \approx L \cdot \frac{N}{n}$$

where N is the number of plates and n the number of maximum observations. In our case N/n for the series I + II will be 210 or 160 depending on the choice of N and n (whether each night is counted repeatedly in the case of several plates per night or only once). L should be in the range of $10^d \dots 20^d$. It follows:

$$C \approx 4.4 \dots 11.5 \text{ years.}$$

The figures quoted for N/n obviously also match the findings of series III.

Supposed that no maxima have been missed we get from the time intervals Δt of Table I the mean value

$$L \geq 5.2 \text{ years.}$$

It should be remarked that neither the observations of the AAVSO and the SUAA/VSS nor our plates yield any eruption later than 1974.

We conclude that BZ UMA might be an intermediate object in connecting the U Gem and WZ Sge classes. The presence of emission lines of doubly and triply ionized C and N at $\lambda = 4640 \dots 4650 \text{ \AA}$ detected by Green et al. (l.c.) is in nice agreement with that suggestion.

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