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PHOTOELECTRIC MAXIMUM OF SZ LYNCIS

The variable star SZ Lyncis (BD+44°1718, HD67390) was discovered by Hoffmeister (1949). Broglia (1963) classified SZ Lyn as a dwarf cepheid (AI Vel stars), having a period of near 0.12 day and a large amplitude light variation of  $\Delta V \approx 5$  magnitude. Van Genderen (1967) found that the variation in the times of maximum might fit a sine curve with a period of 1129 days. However, that data only covered about 1.6 cycles so the believability of the sine curve was somewhat uncertain. Barnes and Moffett (1975) reexamined all the published times of maximum and added 4 new timings. They found the times of maximum to vary with a period of approximately 1146 days having an amplitude of approximately 1000 sec. They felt that any doubt of the reality of the sinusoidal variation was now removed since 3.8 cycles had been observed and interpreted it to be a light-travel-time effect coming from the orbital motion of SZ Lyn about an unseen companion.

To see if the times of maximum would continue to follow the sinusoidal curve we observed SZ Lyn with the 76-cm telescope at the McDonald Observatory using the high speed photometer described by Nather and Warner (1971). The observations were obtained with an Amperex 56DVP photomultiplier and a standard set of Johnson UBV filters. The integration time was 10 sec/filter, yielding a cycle time of 40 seconds, a fourth filter position contained no filter.

TABLE I.  
OBSERVED MAXIMA

JD <sub>max o</sub> <sup>+</sup>	CYCLE	(O-C)	ψ
2440000.			
2531.7560	36565	+ .0026	.846
2532.7210	36573	+ .0034	.846
2533.6852	36581	+ .0033	.846

The times of maximum brightness in the B bandpass, see Table I, were determined visually to an estimated accuracy of ±0.0007 day (1 min.). These times of maximum were compared to the non-linear ephemeris of Barnes and Moffett:

$$T_{(\max)}(\text{JD}_o) = 2,438,124.39828 + 0.120534906(E) - 0.00572 \cos 2\pi(1.0518 \times 10^{-4} + 0.010) \\ \pm 0.00017 \pm 0.00000002 \quad \pm 0.00019 \quad .0091 \times 10^{-4} \pm 0.008$$

We find that our average (O-C) value of 0.003 day is larger than the standard deviation (±0.002) for all the photoelectric data included in the determination of the non-linear ephemeris. This may suggest that a redetermination of the period be done with the new observations included. Before this is done, we feel that many more times of maximum are needed to achieve a greatly improved period. So it seems that the (O-C) diagram of SZ Lyn has followed a sine curve for at least 4.5 cycles having a period near 1150 days.

There is nothing in our observations to refute the idea that the variation in the times of maximum might be a light-travel-time effect.

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