PHOTOELECTRIC MINIMA OF BZ ERIDANI

The observations of the eclipsing binary BZ Eridani (BD – 6°841) were initiated long back in 1928, but it was discovered as an Algol type eclipsing binary system by Hoffmeister (1934). Since its discovery it has remained neglected photoelectrically till 1975 when Srivastava collected photoelectric observations of BZ Eri in the 1975-76 observing season, and the first photo-electric results were published by Srivastava and Sinha (1981).

The photoelectric minima of BZ Eri are lacking in the literature. Since the publication of Srivastava and Sinha (1981) one photoelectric minimum has only appeared in the literature (cf. Wolf et al., 1982). Considering this situation Srivastava reobserved this system in December 1980 using the same set of instrument, filters and the comparison star as described earlier (cf. Srivastava and Sinha, 1981), and in all six nights of observations have been secured which include two primary and three secondary minima. The times of minima of JD 244 4835 have been determined using the graphical method due to scanty coverage of the minima, while the times of remaining minima have been derived using the method of Kwee and van Woerden (1952).

The purpose of this communication is to present all the available photo-electric minima of BZ Eri and to make some comments on their behaviour with respect to the O-C values or the orbital period of the system. In all, twenty five photoelectric minima of BZ Eri in different filters are so far available and are presented in Table I along with the O-C values based on Srivastava and Sinha's (1981) epoch and period, viz.:

$$\text{Min.I} = \text{JD 244 2836.1605} + 0\overset{d}{.}664\,1700\, \cdot E$$

The mean O-C values of U,B and V filters are plotted in Figure 1 against cycles, while the individual O-C values of U, B and V filters for the years 1976, 1979 and 1980 are plotted in Figures 2a, 2b and 2c, respectively. Figure 1 shows that the period of the system BZ Eri has slightly decreased from 1976 to 1979 as suggested by Srivastava (1985), and from 1979 it increased up to JD 244 4835 (the first minimum of 1980). Although the observations are lacking

Table I. Photoelectric minima of BZ Eri

J.D.Hel.	Error	Min.	Filter	Cycle	O-C	Reference
2442835.1813	±0.0007	II	U	-2.5	-0.0170^d	Srivastava and Sinha (1981)
.1729	7	II	B	-2.5	-0.0086	"
.1604	7	II	V	-2.5	+0.0039	"
836.1605	7	I	U	0	0.000	"
.1619	7	I	B	0	+0.0014	"
.1702	7	I	V	0	+0.0097	"
840.1628	7	I	U	6	+0.0173	"
.1517	7	I	B	6	+0.0062	"
.1517	7	I	V	6	+0.0062	"
2444233.5800	-	I	uvbyβ	2104	+0.0058	Wolf et al.(1982)
581.3037	7	II	U	2627.5	+0.0365	present paper
.2919	7	II	B	2627.5	+0.0247	"
.2960	7	II	V	2627.5	+0.0288	"
590.2395	6	I	U	2641	+0.0060	"
.2459	5	I	B	2641	+0.0124	"
.2494	4	I	V	2641	+0.0159	"
591.2086	16	II	U	2642.5	-0.0211	"
.2198	32	II	B	2642.5	-0.0099	"
.2215	5	II	V	2642.5	-0.0082	"
604.1902	2	I	U	2662	+0.0092	"
.1880	4	I	B	2662	+0.0070	"
.1882	10	I	V	2662	+0.0072	"
605.1899	72	II	U	2663.5	+0.0126	"
.1895	8	II	B	2663.5	+0.0122	"
.1777	±0.0007	II	V	2663.5	+0.0004	"
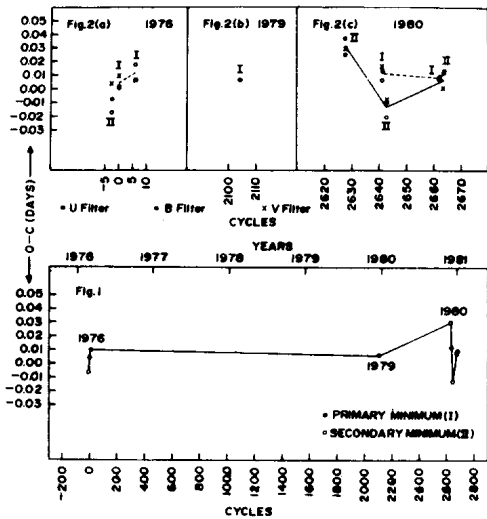
Figures 1 and 2

between 1976 and 1979, and 1979 and 1980, yet for the sake of visual inspection we have drawn straight lines assuming that the period of BZ Eri was constant in these time intervals.

In 1980 the period also shows one sharp decrease and one slow increase. In Figures 2a and 2c the points of the average O-C values of U, B and V filters of the primary and the secondary minima are connected by solid and dashed lines, respectively. Figure 2c reveals an important fact that the primary minima show little variation in the O-C values or the orbital period of the system with respect to O-C value of $0^{d}00$, while the secondary minima show large variation in the O-C values. Figure 2a also suggests that the O-C values of the secondary minimum show steeper slope that the primary minimum with respect to O-C value $0^{d}00$. Recently, Srivastava and Uddin (1985) derived the geometrical elements of BZ Eri and found that the secondary minimum is subjected to wave-like distortion. It may be possible that some physical change is taking place in the system at the time of the secondary minimum as suggested by Srivastava and Uddin (1985). We mean that more photoelectric minima of BZ Eri are desired to understand the O-C fluctuations of the secondary minima and to confirm their reality.

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