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IMPROVED LIGHT ELEMENTS FOR THE ECLIPSING BINARIES  
RZ Cha, YZ Cha AND DZ Mus

Photoelectric UBV observations of these three stars have been carried out with the 50 cm photometric reflector of the European Southern Observatory by one of the authors (E.G.). The observed minima lead to a revision of the published light elements.

RZ Cha = BV 473.

With the elements given by Strohmeier, Knigge and Ott in IBVS No.66. 1964 no predicted minima during the observational period J.D.2442139 to 2442152 could be observed. By chance a minimum tip and the following light rise to maximum was caught. The period is slightly longer by 0<sup>d</sup>.0037. A weighted least square solution of the minima of Table 1 yields the following elements:

$$\text{Min} = \text{J.D.} \odot 2438439.410 + 2<sup>d</sup>.832093 \cdot E \\ \pm .002 \quad \pm .000061$$

The mean dispersion of the (O-C) in Table 1 is  $\pm 0<sup>d</sup>.038$ . The light curve is of EA-type with a deep secondary minimum.

YZ Cha = BV 704.

No trace of a secondary minimum of this EA-type eclipser was observed predicted by the light elements given by Strohmeier in IBVS No.184, 1967, though the two completely covered pe-minima are in accordance with these. Since they are extremely wide, and slightly different in depth by less than 0<sup>m</sup>.05 the period has to be doubled. A weighted least square solution of the minima of Table 2 gives the following elements with a mean dispersion of  $\pm 0<sup>d</sup>.031$  for (O-C):

$$\text{Min I} = \text{J.D.} \odot 2428820.613 + 4<sup>d</sup>.457357 \cdot E \\ \pm .002 \quad \pm .000184$$

Min I is shallower than Min II.

This double star system consists therefore of nearly equal components, similar to EI Cep or PV Cas.

DZ Mus = BV 1209

The two observed pe-minima show a slight phase displacement to the published light elements by Strohmeier and Patterson in IBVS No 330, 1969. This demands a slightly longer period. The weighted least square

solution of the minima of Table 3 gives the light elements:

$$\text{Min} = \text{J.D.} \odot \quad 2418093.728 + 3 \overset{d}{2} 247619 \cdot E$$

$$\pm .002 \quad \pm .000091$$

The (O-C) of Table 3 show a mean dispersion of  $\pm 0.028$ . The absence of a noticeable secondary minimum and the fairly large width of the photoelectrically observed minima would also favour the doubling of the period of this EA-system. A decision is perhaps only possible by spectrographic observations.

Table 1 : RZ Cha

Minima	E	O-C	Minima	E	O-C
243 8439.402	0	- 0.008	243 9181.375	262	- 0.044
.446	0	+ 0.036	.421	262	+ 0.002
.492	0	+ 0.082	.471	262	+ 0.052
8473.335	12	- 0.060	9235.230	281	+ 0.002
.378	12	- 0.017	9259.267	289.5	- 0.034
.423	12	+ 0.028	9269.238	293	+ 0.024
8500.263	21.5	- 0.037	9535.403	387	- 0.027
.307	21.5	+ 0.007	.450	387	+ 0.020
.352	21.5	+ 0.052	9562.303	396.5	- 0.032
8817.449	133.5	- 0.046	.349	396.5	+ 0.014
.494	133.5	- 0.001	.396	396.5	+ 0.061
8827.362	137	- 0.045	244 0026.802	560.5	+ 0.004
8878.311	155	- 0.074	0629.996	773.5	- 0.038
8915.208	168	+ 0.006	0630.045	773.5	+ 0.011
			2146.620 <sup>(pe)</sup>	1309	0.000

Table 2 : YZ Cha

Minima	E	O-C	Minima	E	O-C
242 8820.623 (S)	0	- 0.009	243.8914.254	2264.5	- 0.045
8878.553 (S)	13	- 0.006	9179.458:	2324	- 0.053
243 8524.254	2177	- 0.026	.503	2324	- 0.008
.299	2177	+ 0.019	.549	2324	+ 0.038
8553.199	2183.5	- 0.052	9197.344	2328	+ 0.003
.242	2183.5	- 0.011	9235.275	2336.5	+ 0.047
8562.201	2185.5	+ 0.034	9972.889	2502	- 0.032
8760.556	2230	+ 0.036	244 0712.842	2668	+ 0.000
8818.446	2243	- 0.021	.887	2668	+ 0.045
.492	2243	+ 0.027	1064.938	2747	- 0.035
8827.362	2245	- 0.018	.986	2747	+ 0.013
8885.266:2258		- 0.060	1093.910	2753.5	- 0.036
.312	2258	- 0.014	2143.655 <sup>(pe)</sup>	2989	0.000
.359	2258	+ 0.033	2145.881 <sup>(pe)</sup>	2989.5	0.000

Remarks: (S) = Minima from Sonneberg plate collection.

Table 3 : DZ Mus

Minima	E	O-C	Minima	E	O-C
241 8093.736 (H)	0	+ 0.008	243 4315.597 (S)	4995	+ 0.012
9509.675 (H)	436	- 0.015	4419.434 (S)	5027	- 0.075
242 1331.585 (H)	997	- 0.019	8206.220	6193	- 0.012
8710.211 (H)	3269	+ 0.016	8521.251	6290	- 0.001
9382.482 (H)	3476	+ 0.030	.296	6290	+ 0.044

Table 3 : DZ Mus (continued)

Minima	E	O-C	Minima	E	O-C
243 8547.198	6298	- 0.034	243 9268.214	6520	+ 0.014
.242	6298	+ 0.010	9294.208	6528	+ 0.023
8560.198	6302	- 0.025	9972.889	6737	- 0.048
.242	6302	+ 0.019	.934	6737	- 0.003
8901.213	6407	- 0.010	9998.872	6745	- 0.046
.258	6407	+ 0.035	.917	6745	- 0.001
8914.208	6411	- 0.005	244 1099.890	7084	+ 0.029
.254	6411	+ 0.041	2145.596 <sup>(pe)</sup>	7406	- 0.002
			2148.840 <sup>(pe)</sup>	7407	+ 0.002

Remarks:

(H) = Minima from Harvard  
 (S) = Minima from Sonneberg } plate collection

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