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PERIOD CHANGE OF THE RADIO BINARY RY SCUTI

In a recent paper Cowley and Hutchings gave an analysis of tentative radial velocity and spectrophotometry data of this high-mass eclipsing radio binary (Publ.Astr.Soc.Pac. 88, p.456 ff). In their paper they raised the question about the reliability or constancy of the orbital period given by Gaposchkin (Harvard Ann. 105, p.511). Strange enough, this peculiar system has largely been overlooked by observers of photoelectric light curves.

In order to render possible a modern ephemeris the object was estimated on Sonneberg sky patrol plates of the years 1970 to 1976. The result is shown by the accompanying mean light curve, which was computed with the help of Gaposchkin's elements.

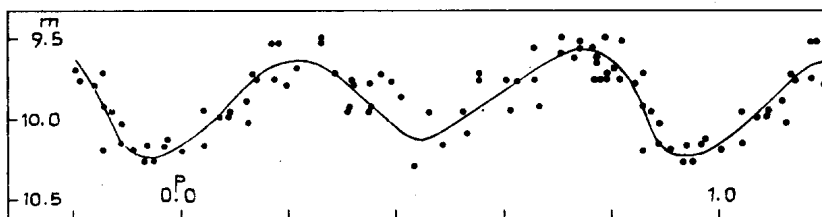
$$\text{Min. I} = 242\ 7979.34 + 11^{\text{d}}.124939 \cdot E = C$$

and which rests in the photometric system of O'Connell (Harvard Circ. 452, p.9). A phase shift of about $-0^{\text{p}}.06 = -0^{\text{d}}.66$ is clearly present. Doubtless this arises from a period change, but not even the search for further faint observations on plates from 1935 to 1969 enabled us to make certain the date or mode of this change. For the purpose of discussing mass transfer and mass loss it would be highly desirable that the owners of other plate collections contribute to this problem.

In the table we give (0) the deepest observations of ours for 1935 to 1969 ($E \leq +1120.5$), our normal minimum ($E = +1247$) from the above mentioned estimates of the seventies, normal minima from Gaposchkin's (l.c.), Tsesevich's (Odessa Izv. 4, 2, p.356), Filin's (Stalinabad Tsirk. 67-68), and O'Connell's (l.c.) data, and a faint photoelectric observation by Hilditch and Hill

(Victoria Contr. 268, p.122).

Especially noteworthy is also the variability of the form of the light curve: Compare Gaposchkin's, O'Connell's and our curve.



O J.D. 24...	E	O-C		
1 5519.41	-1120	-0.19	N	Gaposchkin
2 6599.85	- 124	-0.08	N	Gaposchkin
2 7823.58	- 14	-0.01	N	O'Connell
3 0582.39	+ 234	-0.19	S	
3 0849.53	+ 258	-0.05	S	
3 0938.71	+ 266	+0.14	N	Tsesevich
3 1238.95	+ 293	0.00	N	Filin
3 4653.30	+ 603.5	+0.05	S	
3 5933.62	+ 715	-0.05	S	
3 7079.52	+ 818	-0.02	S	
3 7190.31	+ 828	-0.48	S	
3 9293.47	+1017	+0.07	S	
3 9671.44	+1051	-0.22	S	
4 0444.36	+1120.5	-0.47	S	
4 1806.92:	+1243	-0.72:	S	Hilditch,Hill
4 1851.48	+1247	-0.66	N	from lightcurve

(N= normal minima, S= single faint observations)

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