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ORBIT OF THE SPECTROSCOPIC BINARY BOSS 3511

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This star ($\alpha = 13^h\ 30^m$, $\delta = 37°\ 42'$) was announced a spectroscopic binary by Wright and Allen in *Lick Observatory Bulletin*, No. 173, from four plates which showed a range of about 12 km. For a single-prism instrument, this range is rather small for successful work on the star but in this case the small variation in velocity is offset by an excellent F-type spectrum, the lines of which can be very accurately measured. For this reason it was placed on the programme. The star's photographic magnitude is 5·3. Thirty-two plates were secured in 1917 and six in 1918, and upon these the orbit is based. A preliminary value of the period was arrived at from a comparison of the 1917 observations with the early Lick observations. There was some uncertainty in the exact number of cycles elapsing between the two sets of observations, and the period, accepted as best at that time, required a small correction in order to suit the 1918 observations. While the period of 1·61100 days here determined suits our own observations and the 1908 and 1909 observations of the Lick Observatory, it fails to suit their 1905 observation, so that even yet some uncertainty exists though this value seems to be the only possible one from the observations.

About 15 or 20 lines were measured on each plate. Their wave-lengths are given in the following table, which shows how often they were measured, with the residuals, numerical and algebraic. These are taken in the sense, mean of plate minus line velocity. There are a few whose values should in future be adjusted but such has not been done in the case of this star.

LINES USED IN BOSS 3511

λ	n	Residual		λ	n	Residual	
		Numerical	Algebraic			Numerical	Algebraic
4584·018	14	11·2	+ 4·2	4290·053	13	6·7	+ 2·6
4572·190	28	9·2	+ 6·1	4271·675	38	4·0	+ 0·2
4549·743	38	5·1	+ 0·2	4260·537	25	3·6	+ 1·3
4534·158	12	7·3	− 0·2	4250·586	18	3·5	− 2·6
4501·417	18	9·9	− 6·0	4236·000	16	6·5	+ 0·2
4481·477	30	10·4	− 8·0	4233·425	30	6·8	− 4·7
4468·663	7	6·4	− 2·3	4227·107	5	7·4	+ 2·7
4415·345	33	5·0	− 1·9	4215·733	26	4·1	− 0·8
4404·861	22	5·5	− 2·1	4202·366	16	12·0	+11·5
4395·155	5	20·0	−17·5	4198·677	9	5·7	− 3·2
4351·977	17	9·5	− 1·4	4143·839	28	5·7	+ 1·0
4340·645	29	6·6	− 1·7	4071·865	14	4·0	+ 2·8
4325·698	25	6·2	+ 2·8	4063·730	23	5·7	+ 3·0
4307·974	29	5·1	− 0·9	4045·940	34	3·4	+ 1·4
4294·359	14	8·9	+ 5·1				