

If we assume the surface intensity of a B8 star to be -2.2^* magnitudes and the sun's absolute magnitude to be 4.86 the absolute magnitude of the brighter component of R S Vulpeculae, with apparent magnitude 7.75, is $+4.09$ and the parallax is $0''.0046$.

T W Draconis

The eclipsing variable T W Draconis (α 15h 32.4m., δ $+64^\circ 14'$, 1900; vis. mag. 7.45; spectral type B9) was first observed on April 13, 1919, and the last plate obtained on July 17. During this interval 14 plates were obtained, all of which are used in the orbit. They are not so well distributed as in R S Vulpeculae, owing to the depth of primary minimum, when the star falls to 9.8 magnitude, making it impracticable to obtain plates at this epoch. The comparative faintness of the secondary, its light being 0.115 of the system, of course renders its spectrum unobservable.

The spectrum classed as B9 is in reality A3 judging by the relative strength of hydrogen and K and the number and intensity of the metallic lines, and in consequence should be capable of accurate measurement. Although the interagreement among the lines is fairly good, the velocities of the plates are disappointing, the residuals unexpectedly high, resulting in a plate error of ± 2.6 km per second. This is probably due to the rather wide and diffuse character of the metallic lines, making the settings uncertain. That the lines are wide should not be a cause for surprise when we consider the nearness of the two bodies and the probable rapid rotation of the bright body in the period of the system.

The data of the observations are given in Table IV, where column 1 contains the number of the plate, columns 2 and 3 the date and Julian date of the observation. Column 4 contains the phase from primary minimum computed from initial photometric phase 2.418,906-453 with period 2.80654 days, and column 5 the velocity determined from measures of the number of lines in column 6. Column 7 contains the residuals in the sense observed minus computed from the final orbit.

TABLE IV. OBSERVATIONS OF T W DRACONIS

Plate Number	Date	Julian Date	Phase	Velocity	No. of Lines	Residuals O-C
1919						
1802	April 13	2,422.062-890	1.886	+50.8	12	-2.33
1883	" 26	075.862	0.825	-63.2	20	-0.76
1909	" 29	078.922	1.078	-38.7	17	+3.99
1936	May 3	082.810	2.190	+62.2	12	-3.19
1982	" 6	085.865	2.408	+51.1	12	-1.17
2217	June 30	110.731	1.117	-37.3	17	-2.16
2233	July 1	111.721	2.131	+67.6	11	-2.10
2247	" 2	112.716	0.322	-17.9	7	-2.71
2275	" 6	116.733	1.532	+18.6	13	+4.53
2289	" 7	117.726	2.525	+50.3	11	+6.15
2306	" 8	118.726	0.719	-61.1	14	+1.37
2363	" 11	151.718	1.098	-18.1	15	-7.41
2383	" 15	155.722	2.102	+65.1	9	+0.15
2398	" 17	157.717	1.290	-16.1	11	+1.29

* Astrophysical Journal 40, 115, 1914