

The variable star SU Tauri.

(From Harvard College Observatory Circular No. 151).

The star SU (47.1908) Tauri whose position for 1900 is RA. = $5^h 43^m 12^s$, Decl. = $+19^\circ 2'0''$, and which follows the Durchmusterung star, +19°1081, about 3^s and is south $0'2''$, was announced to be variable by Miss Cannon on July 13, 1908, in Harv. Circ. 140 (A. N. 179.39). It is also stated in that circular, »The variation is large, but it appears uncertain whether this star belongs to Class II, variables of long period, or is peculiar and resembles R Coronae Borealis«. The latter view is confirmed and measures of this object have been made by Miss C. E. Burns on 408 Harvard photographs, taken between Dec. 16, 1885 and Dec. 14, 1908. During this period of time, only four minima are shown on the photographs. The first of these minima occurred in February, 1891, but its duration has not been determined, since there is no photograph between Febr. 22, 1891, when the star was invisible and fainter than magnitude 12.4, and Nov. 13, 1891, when it was magnitude 10.3, full brightness. The next minimum lasted from December, 1898 to December, 1899, the third from September, 1904 to August, 1905, and the fourth, which commenced in November, 1908, is still in progress. No trace of the star was visible on a plate taken Sept. 6, 1909, and showing stars of the magnitude 12.5. The photographic magnitude at maximum is about $10^m 3$. The light is often nearly constant for several years. Thus, 112 photographs well distributed between Febr. 15, 1900 and April 12, 1904, show the star to be at or near maximum brightness. The minimum magnitude is evidently very faint. No trace of the star is seen on two good plates taken with the Bruce Photographic Telescope and showing stars as faint as the magnitude 15. The star was looked for by Miss Cannon, but was not visible in the 6-inch telescope of this observatory in December, 1908, January, February and March, 1909. It was not seen by Mr. Leon Campbell with the 24-inch reflector on April 10 and April 22, 1909, and was probably fainter than the magnitude 14 on these dates.

The following tables give, in a condensed form, the principal facts concerning the star as photographed here. Table I gives the number of plates on which the star was observed at full brightness, and the mean magnitude.

Table I. Observations at full brightness.

Year	No.	Magn.	Year	No.	Magn.
1886	8	$10^m 24$	1898	6	$10^m 23$
1887	2	10.15	1900	19	10.59
1889	4	10.32	1901	21	10.39
1890	2	10.35	1902	30	10.34
1891	7	10.29	1903	35	10.32
1892	1	10.30	1904	13	10.31
1893	3	10.30	1905	22	10.33
1894	3	10.27	1906	34	10.27
1895	3	10.17	1907	16	10.29
1896	4	10.25	1908	12	10.25
1897	4	10.30			

It will be seen that the magnitude was nearly constant on the 249 plates included in Table I. The faintest mean magnitude occurred in 1900, and may be due to the incomplete recovery of the star from the long minimum phase, lasting from December, 1898 to December, 1899.

Table II gives a few of the dates, Julian Days, and magnitudes when this star was faint or invisible on the photographs examined. The last observation at full brightness preceding the minimum and the first following the minimum, are also given, except for the last minimum, which is still in progress. Thus, on Oct. 16, 1898, the star was of normal brightness, magnitude 10.2, on Dec. 15, 1898, it was invisible and fainter than magnitude 11.3, on Dec. 23, 1898, it was invisible and fainter than magnitude 12.7, and on May 16, 1899, the last photograph obtained before the star's conjunction with the Sun, it was fainter than magnitude 11.8. When again photographed in September, 1899, the object was still faint and on Oct. 11, 1899, an excellent Bruce photograph shows no trace of the star, although stars of magnitude 15.5 are visible. On Nov. 25, 1899, it was visible, magnitude 12.4, and with some fluctuations regained full brightness by Febr. 15, 1900.

Table II. Observations at or near minimum.

Date	J. D.	Magn.
1890 Dec. 29	2411731	$10^m 2$
1891 Febr. 13	11777	< 11.8
» » 22	11786	< 12.4
» Nov. 13	12050	10.2
1898 Oct. 16	14579	10.2
» Dec. 15	14639	< 11.3
» » 23	14647	< 12.7
1899 Jan. 12	14667	< 12.9
» » 18	14673	< 12.4
» Mar. 29	14743	< 12.8
» » 30	14744	< 12.7
» April 1	14746	< 12.9
» May 16	14791	< 11.8
» Oct. 11	14939	< 15.5
» » 14	14942	< 12.5
» » 27	14955	< 13.0
» Nov. 25	14984	12.4
» » 30	14989	12.5
» Dec. 13	15002	12.4
1900 Febr. 15	15066	10.3
1904 April 12	16583	10.3
» Sept. 15	16739	< 11.8
» Oct. 15	16769	< 11.3
» » 22	16776	< 11.3
» Nov. 14	16799	< 12.3
» » 16	16801	< 13.9
» Dec. 11	16826	< 12.4
» » 14	16829	< 11.8

Date	J. D.	Magn.
1904 Dec. 28	2416843	< 11 ^m 8
1905 Jan. 28	16874	< 12.4
» Mar. 4	16909	< 11.8
» April 6	16942	< 10.9
» Aug. 31	17089	10.5

Date	J. D.	Magn.
1905 Sept. 8	2417097	10 ^m 2
1908 April 16	18048	10.2
» Nov. 5	18251	< 12.4
1909 Aug. 22	18541	< 12.0
» Sept. 6	18556	< 12.5

The light curve of this star resembles that of R Coronae Borealis in having long periods of normal light, followed by sudden diminutions of large range, and thus an-

other star is added to that rare class of variables of which only R Coronae Borealis and RY Sagittarii have hitherto been known.

Harvard College Observatory, Cambridge, Mass., 1909 Sept. 8.

E. C. Pickering.

Mitteilungen über Veränderliche.

Bestätigung der Veränderlichkeit von RW (127.1908) Aquarii.

Aus während dieses Sommers angestellten Beobachtungen konnte ich ein Maximum bestimmen 1909 Aug. 5 mit der Größe 8^m7, vielleicht einige Tage eher, wegen einiger Lücken während der Lichtzunahme nicht ganz sicher; doch konnte ich bemerken, daß die Lichtabnahme schneller war als die Zunahme.

Leiden, 1909 Sept. 30.

ƒ. Voûte.

SU Persei. Von diesem Veränderlichen, über den bisher außer dem A. N. 179.87 mitgeteilten nichts bekannt

geworden ist, finde ich A. N. 129.297 zwei Beobachtungen Espins: 1891 Dez. 22 7^m0, orangerot, Spektrum III!! und 1891 Dez. 29 7^m4 var.? Im Meridian ist der Stern beobachtet nach BoVI von Argelander 1861 Nov. 14 als 7^m9 und nach den AG Hels-Zonen von Krueger 1870 Okt. 12 als 7^m0 und 1871 Nov. 5 als 8^m5. Er kommt noch vor in Q 902 als 7^m.

M. Ebell.

SZ Persei war im Düsseldorfer Refraktor unsichtbar, also schwächer als 11^m5, zu folgenden Zeiten: 1908 Okt. 29, 30, 31, Nov. 15, 16, 19, 28, Dez. 15, 27, 1909 Jan. 15, 22, 27, Febr. 8, 12, 19, März 27, April 7, 15, Aug. 12, Sept. 12, Okt. 9, 21.

W. Luther.

Observations de la comète de Halley 1909 c

faites à l'Equatorial coudé (0.32 m) de l'Observatoire d'Alger, par MM. F. Gonnessiat et C. Rambaud.

1909	T. m. d'Alger	$\Delta\alpha$	$\Delta\delta$	Cp.	Obs.	α app.	$\log p/A$	δ app.	$\log p/A$	Red. ad l. app.	*
Oct. 11	15 ^h 22 ^m 55 ^s	+0 ^m 7 ^s 13	+2' 8 ^s 7	16,16	G	6 ^h 13 ^m 42 ^s 02	9.277 _n	+16° 59' 48 ^s .1	0.493	+1 ^s 91 +5 ^s .2	1
12	15 32 28	-0 10.86	+0 58.6	20,15	G	6 13 5.61	9.206 _n	+16 59 30.3	0.486	+1.94 +5.2	2
13	16 5 50	+0 6.82	+3 54.7	16,6	G	6 12 26.08	8.914 _n	+16 59 12.4	0.474	+1.97 +5.3	3
13	14 51 16	+0 2.98	+4 2.0	14,10	R	6 12 28.46	9.368 _n	+16 59 11.4	0.505	+1.97 +5.3	4
15	16 4 52	+0 18.30	+0 15.9	16,16	G	6 11 1.35	8.807 _n	+16 58 30.9	0.473	+2.05 +5.2	5
16	16 21 28	+0 8.88	+2 21.1	12,12	G	6 10 14.94	8.269 _n	+16 58 13.1	0.471	+2.08 +5.2	6
17	16 18 27	-0 1.92	+0 42.5	20,20	G	6 9 25.91	8.177 _n	+16 57 53.0	0.470	+2.11 +5.2	7
26	15 19 17	-0 3.82	+5 4.0	12,12	R	6 1 14.26	8.754 _n	+16 55 28.5	0.473	+2.40 +5.5	8

La comète a l'apparence d'une nébuleuse stellaire très faible.

Positions moyennes des étoiles de comparaison.

*	α 1909.0	δ 1909.0	Autorité	*	α 1909.0	δ 1909.0	Autorité
1	6 ^h 13 ^m 32 ^s 98	+16° 57' 34 ^s .2	Bord ph 907.24, 620.466	5	6 ^h 10 ^m 41 ^s 00	+16° 58' 9 ^s .8	Bord ph 620.385
2	6 13 14.53	+16 58 26.5	» 907.23, 620.465	6	6 10 3.98	+16 55 46.8	» 906.163, 620.360
3	6 12 17.29	+16 55 12.4	» 620.433	7	6 9 25.72	+16 57 5.3	» 906.139, 620.339
4	6 12 23.51	+16 55 4.2	» 907.5, 620.436	8	6 1 15.68	+16 50 19.0	» 38.164, 613.197

Bouzaréah, 1909 octobre 30.

F. Gonnessiat.