Sternbedeckungen durch Planeten im Jahre 1894.

Von A. Berberich.

Stern	Gr.	AR. app.	Decl. app.	M. Berl. Zeit der Conj. in AR.	Pl. — St. Ab	Max.- Dauer	Sterncataloge
1) Mars.							
1	9.0	20 ^h 26 ^m 27 ^s .52	—20° 19' 38".2	April 2	15 ^h 55 ^m	+ 98"	3 ^m .5 Cinc.
2	9.3	20 31 20.7	—20 1 3	» 4	7 46	—101	3.5 BD. —20°5987
3	9.5	20 35 32.2	—19 50 5	» 5	18 2	+ 40	3.5 BD. —19°5891
*4	7.3	20 37 51.44	—19 43 31.0	» 6	13 4	+ 99	3.5 Cinc.
5	9.5	20 42 54.7	—19 25 2	» 8	6 35	0	3.6 BD. —19°5930
6	9.3	20 53 54.7	—18 46 10	» 12	1 27	— 24	3.7 BD. —18°5825
7	9.3	20 57 52.1	—18 32 6	» 13	10 19	— 2	3.7 BD. —18°5847
*8	8.0	20 58 3.12	—18 31 53.5	» 13	11 51	+ 26	3.7 Cord. GC.
*9	6.5	21 9 11.24	—17 47 3.4	» 17	8 50	—121	3.8 Cord. GC.
10	9.3	21 11 2.68	—17 41 32.6	» 18	0 26	— 12	3.9 M ₁ , M ₂
11	9.4	21 13 2.8	—17 33 23	» 18	17 15	— 25	3.9 BD. —17°6232
12	9.1	21 14 24.92	—17 27 32.8	» 19	4 46	— 46	3.9 M ₁ , M ₂
*13	4.5	21 16 21.07	—17 17 12.2	» 19	21 5	—197	3.9 Y., Quet., Stone, Melb ₂
14	9.1	21 22 21.7	—16 56 38	» 21	23 52	+ 53	4.0 BD. —17°6286
15	8.4	21 24 26.30	—16 46 9.8	» 22	17 29	— 53	4.0 BB.VI, M ₁ , M ₂
16	9.5	21 29 31.5	—16 26 28	» 24	12 43	+ 66	4.1 BD. —16°5891
17	9.5	21 36 22.1	—15 56 1	» 26	23 10	+ 35	4.1 BD. —16°5921
18	9.5	21 39 34.2	—15 42 11	» 28	2 37	+ 62	4.2 BD. —15°6056
19	9.4	21 45 45.1	—15 14 30	» 30	7 50	+ 88	4.2 BD. —15°6079
20	9.5	21 54 25.2	—14 33 18	Mai 3	10 59	+ 49	4.3 BD. —14°6186
*21	7.2	22 3 5.13	—13 49 8.0	» 6	14 39	— 95	4.4 Cord. GC., Glasg.
22	9.5	22 6 38.1	—13 32 12	» 7	21 50	— 63	4.4 BD. —13°6127
23	9.4	22 6 38.75	—13 35 17.4	» 7	21 55	+125	4.4 Glasg.
24	8.5	22 19 53.58	—12 26 46.2	» 12	19 13	+ 25	4.5 M ₁
25	9.0	22 24 4.67	—12 3 53.3	» 14	8 35	— 47	4.5 Berl. Circ. 327
26	9.1	22 24 9.97	—12 3 52.8	» 14	9 22	— 20	4.5 W ₁
27	9.5	22 47 7.4	—10 2 5	» 23	0 58	+ 46	4.9 BD. —10°6007
28	9.4	22 58 23.3	— 8 59 10	» 27	8 34	+ 25	5.0 BD. —9°6110
*29	7.7	23 4 54.09	— 8 22 45.8	» 29	21 1	+ 46	5.1 Sj., M ₁
*30	7.3	23 11 29.60	— 7 44 22.3	Juni 1	10 39	— 3	5.2 Cord. GC.
31	8.7	23 17 33.93	— 7 10 30.7	» 3	19 50	+ 60	5.3 W ₁ , M ₁
32	9.1	23 19 8.6	— 7 0 0	» 4	10 45	— 24	5.4 BD. —7°6006.
33	9.2	23 28 43.44	— 6 4 7.6	» 8	6 0	— 34	5.6 W ₁
34	9.0	23 34 5.6	— 5 31 57	» 10	9 36	— 79	5.7 BD. —5°6028
35	8.8	23 49 17.16	— 4 2 19.8	» 16	13 37	— 79	5.9 Sj.
*36	7.2	23 56 37.83	— 3 21 13.2	» 19	14 15	+ 67	6.1 Y., Gl., Cord. GC.
37	9.5	23 58 29.8	— 3 8 48	» 20	8 49	— 13	6.2 BD. —3°5754
38	9.5	0 2 20.9	— 2 46 18	» 21	23 19	+ 10	6.2 BD. —2°2
39	9.1	0 6 23.0	— 2 22 12	» 23	15 56	+ 3	6.3 BD. —2°16
40	8.5	0 15 25.72	— 1 27 22.2	» 27	11 54	— 64	6.5 Gött., Paris
41	8.5	0 37 32.60	+ 0 42 56.5	Juli 7	3 46	— 53	7.5 Paris
*42	8.0	0 57 59.86	+ 2 41 26.2	» 16	13 47	— 49	8.5 Alb., Paris
43	9.0	1 19 2.02	+ 4 38 48.2	» 26	23 23	+ 26	9.9 Alb.
44	9.3	1 22 4.19	+ 4 57 16.1	» 28	13 28	— 66	10.3 Alb.
45	9.3	1 25 47.3	+ 5 16 50	» 30	13 3	— 26	10.8 BD. +5°199
46	8.8	1 30 49.33	+ 5 43 24.6	Aug. 2	7 18	+ 21	11.5 Sj.
47	9.5	1 51 45.08	+ 7 35 20.7	» 15	5 11	— 41	17.0 BB.VI
48	8.7	1 58 34.02	+ 8 9 20.8	» 20	6 30	+ 35	19.0 W ₁
49	8.7	2 11 2.90	+ 9 16 43.1	Sept. 1	17 7	—117	37.3 W ₁ , Rü ₂
50	8.6	2 11 15.60	+ 9 18 1.9	» 2	0 14	—127	37.3 W ₁ , Rü ₂

Stern	Gr.	AR. app.	Decl. app.	M. Berl. Zeit der Conj. in AR.		Pl.—St. Δδ	Max.- Dauer	Sterncataloge
51	9.3	1 ^h 55 ^m 40 ^s .75	+ 9° 1' 24".8	Oct. 12	16 ^h 37 ^m	— 45"	26 ^m .7	Rü ₂
52	9.4	1 49 27.6	+ 8.43 1	» 17	10 17	+ 32	25.6	BD. +8°297
53	9.4	1 34 18.9	+ 8 5 35	» 29	3 37	+ 1	28.2	BD. +7°257
54	9.2	1 24 1.17	+ 7 50 32.9	Nov. 8	23 42	— 25	43.7	BB.VI, Sj., Glasg.
55	9.3	1 37 20.56	+ 11 0 25.2	Dec. 21	2 33	+ 75	15.0	Berl. Circ. 312

2) Jupiter.

56	9.5	3 38 13.1	+ 18 46 25	März 14	16 55	+ 70	1 ^h .5	BD. +18°533
57	9.0	3 38 19.5	+ 18 49 37	» 14	20 44	— 99	1.5	BD. +18°534
58	9.5	3 41 14.9	+ 18 57 11	» 19	2 36	+ 82	1.4	BD. +18°540
59	9.5	3 45 49.3	+ 19 16 0	» 25	9 18	+ 85	1.3	BD. +19°605
60	8.5	3 46 28.41	+ 19 17 35.7	März 26	6 5	— 46	1.3	W ₂ , Rü ₂
61	9.5	3 49 11.3	+ 19 24 25	» 29	18 49	+ 94	1.2	BD. +19°618
62	9.5	3 49 42.7	+ 19 28 36	» 30	10 53	— 52	1.2	BD. +19°622
63	9.3	3 50 53.2	+ 19 31 14	» 31	22 37	+ 23	1.2	BD. +19°626
64	9.3	5 37 14.4	+ 22 56 25	Juli 22	15 46	+ 2	1.1	BD. +22°1008
65	8.4	5 38 13.86	+ 22 58 34.7	» 23	18 8	— 92	1.1	Rü ₁
66	9.5	5 39 54.8	+ 22 59 23	» 25	15 16	— 83	1.1	BD. +22°1027
67	9.5	5 56 57.4	+ 23 3 6	Aug. 14	23 55	+ 42	1.3	BD. +23°1166
68	9.5	5 59 14.1	+ 23 3 10	» 17	23 21	+ 53	1.3	BD. +23°1185
69	8.6	6 0 42.40	+ 23 3 58.1	» 19	22 32	+ 11	1.4	W ₂ , Paris
*70	6.5	6 3 19.35	+ 23 7 58.8	» 23	12 47	— 227	1.5	Yarn., Paris
71	9.5	6 5 13.5	+ 23 3 20	» 26	5 56	+ 47	1.5	BD. +23°1238
72	9.4	6 5 21.1	+ 23 3 31	» 26	10 16	+ 36	1.5	BD. +23°1240
73	9.0	6 6 24.20	+ 23 3 58.3	» 27	22 56	+ 4	1.5	W ₂
74	8.6	6 12 15.12	+ 23 2 59.7	Sept. 6	3 1	+ 10	1.8	Rü ₂
75	8.1	6 12 35.91	+ 23 2 38.2	» 6	17 3	+ 27	1.8	W ₂ , Rü ₂
76	9.3	6 13 13.5	+ 23 4 34	» 7	18 44	— 98	1.8	BD. +23°1303
77	9.5	6 16 34.5	+ 23 1 28	» 13	21 13	+ 34	2.0	BD. +23°1329
78	9.5	6 16 45.5	+ 23 1 40	» 14	5 44	+ 18	2.1	BD. +23°1337
79	9.5	6 20 18.6	+ 23 1 57	» 21	17 58	— 72	2.6	BD. +23°1353
80	9.5	6 21 34.7	+ 22 59 59	» 24	19 42	+ 16	2.9	BD. +23°1363
81	9.3	6 22 28.4	+ 23 0 1	» 27	4 10	— 7	3.1	BD. +23°1370
82	9.5	6 24 53.6	+ 22 58 41	Oct. 4	19 3	+ 13	4.2	BD. +22°1359
83	9.4	6 22 50.5	+ 23 3 35	Nov. 18	14 44	— 21	3.6	BD. +23°1373
84	9.1	6 20 26.46	+ 23 5 22.7	» 24	17 12	— 17	3.1	W ₂
85	9.5	6 19 34.4	+ 23 4 35	» 26	16 37	+ 68	3.0	BD. +23°1348
86	8.5	6 18 59.61	+ 23 6 54.6	» 27	23 9	— 48	2.9	W ₂ , Rü ₁ , Rü ₂
87	9.5	6 18 17.7	+ 23 6 20	» 29	10 52	— 1	2.8	BD. +23°1349
88	8.5	6 17 10.99	+ 23 8 18.9	Dec. 1	17 36	— 59	2.7	W ₂ , Paris
89	9.3	6 17 8.0	+ 23 7 13	» 1	19 58	+ 9	2.7	BD. +23°1332
90	9.5	6 15 55.0	+ 23 9 33	» 4	5 25	— 86	2.5	BD. +23°1323
91	9.5	6 12 22.6	+ 23 11 47	» 10	18 35	— 99	2.1	BD. +23°1290
*92	7.3	6 5 35.01	+ 23 13 52.9	» 22	11 18	— 42	2.3	W ₂ , Paris
93	9.3	6 2 41.6	+ 23 13 3	» 27	8 56	+ 68	2.4	BD. +23°1221

3) Saturn.

94	9.5	13 34 9.8	— 7 10 29	Jan. 4	11 23	— 74	2.3	BD. —6°3859
95	9.4	13 32 52.7	— 6 47 43	März 11	20 35	+ 79	2.1	BD. —6°3854
96	8.1	13 29 33.90	— 6 25 42.5	» 25	13 46	+ 50	1.8	Kam
*97	6.6	13 24 55.53	— 5 55 37.8	April 11	4 46	— 40	1.6	Quet.
98	9.5	13 14 9.5	— 4 57 36	Mai 25	8 25	+ 57	2.9	BD. —4°3459
99	9.3	13 12 24.07	— 4 58 7.8	Juli 4	17 57	+ 84	5.0	Sj.
100	9.5	14 7 47.9	— 10 29 9	Dec. 6	17 0	+ 13	1.0	BD. —10°3850

Stern	Gr.	AR. app.	Decl. app.	M. Berl. Zeit der Conj. in AR.	Pl. — St. $\Delta\delta$	Max.- Dauer	Sterncataloge
4) Uranus.							
101	10	14 ^h 51 ^m 56 ^s .3	— 16° 2' 54"	Febr. 11	22 ^h —	— 32"	BD. — 15° 3995
102	10	14 51 56.7	— 16 2 56	» 23	14 —	— 23	BD. — 15° 3995
103	9.8	14 37 3.6	— 14 57 12	Juni 21	18 —	+ 51	BD. — 14° 4010
104	9.8	14 37 3.1	— 14 57 10	Aug. 15	23 —	— 48	BD. — 14° 4010
105	9.8	14 43 1.0	— 15 25 56	Sept. 24	17 —	— 43	BD. — 13° 3960
*106	3	14 45 1.99	— 15 36 17.1	Oct. 4	7 —	+ 17	Berl. Jahrb., α Libr.

Conjunctionen des Uranus mit α (und 8) Librae finden, ausser der vom Oct. 1894, noch im Dec. 1893 und April 1894 statt; α Librae kommt am 15. Dec. 1893 auf 2'.9, und am 27. April 1894 auf 4'.1 nahe; für 8 Librae ist der Abstand am 14. Dec. 1893 1'.1, am 28. April 1894 2'.3 und am 3. Oct. 1894 etwa 1'.5. Ausserdem finde ich für den 19. Dec. 1893 eine Annäherung des Uranus an den Stern BD. — 15° 3969 (10. Gr.) bis auf 16"; hier könnte ev. eine Bedeckung stattfinden.

Berlin, Kgl. Recheninstitut, 1893 Oct. 30.

A. Berberich.

A new Star in Norma.

By E. C. Pickering.

A new star appeared in the constellation Norma during last summer. It was discovered by Mrs. M. Fleming on Oct. 26, when examining a photograph of the spectra of the stars in its vicinity. The photograph was taken on July 10, 1893 at the Arequipa Station of this Observatory by Professor Solon J. Bailey. The spectrum appears to be identical with that of the new star which appeared in Auriga in December 1891. Comparing the spectra of the two stars taken with nearly the same dispersion, about a dozen lines are visible in each and are identical in wavelength. The hydrogen line *F* which is bright in both stars is more intense in the star in Norma than in that in Auriga. It is in fact more intense in the former star than any other line in the spectrum, while the *G* line is generally the strongest in Nova Aurigae.

A photograph taken June 21, 1893, showed the spectra of stars of the tenth magnitude, but no trace of the new star was visible upon this plate although it covered the same region and was in other respects like that taken on July 10. Photographic charts of the same region taken on June 6, June 10, July 21, 1889; May 16, May 16, June 10, June 23, June 23, 1891; May 7 and May 27, 1893 show no image of this object although stars of the fourteenth magnitude are visible upon some of them. We may therefore conclude that the star

appeared within ten days of the first of July and that previously it was either invisible, or extremely faint.

The position was found by comparing the ends of the hydrogen lines *G* and *h* which are bright in this star, with the corresponding dark lines in the adjacent stars Cord. GC. 20940 and 21006. They give the approximate mean position for 1900 in RA. 15^h 22^m 12^s, Decl. — 50° 13'.8. A more accurate position can be found if photographic charts can be taken showing this star. Professor Bailey has been notified of this discovery and if the star is still bright enough he will doubtless obtain photographs showing its position and spectrum.

The similarity of the spectra of these two new stars is interesting, first, since it has proved a means of discovering one of these objects, and secondly, because if confirmed by other new stars it will indicate that they belong to a distinct class resembling each other in composition or physical condition.

The star was approximately of the seventh magnitude photographically on July 10, since it was about equal to Cord. GC. 20910, magnitude 6.9, whose spectrum is of the second type. The nearest catalogue stars are Cord. GC. 20940, magnitude 8, which has a spectrum of the first type, and Cord. GC. 20926, magn. 8 ³/₄, which has a spectrum of the second type. The new star lies nearly midway between these two.

Cambridge, Mass., U. S. A., 1893 November 9.

E. C. Pickering,

Director of Harvard College Observatory.

Zusatz. Nach dem Vorstehenden ist die Identität des von Prof. J. C. Kapteyn in A. N. 3196 erwähnten Sterns mit der Nova ausgeschlossen. Zwei von Herrn Prof. E. C. Pickering gütigst übersandte Spectrogramme von Nova Aurigae, 1892 Febr. 6, und von Nova Normae, 1893 Juli 10, sind nahezu identisch; ich bin gern bereit, diese interessanten Copien (in 20 facher Vergrösserung) einzelnen Lesern der A. N. auf Verlangen zur Ansicht zu übersenden. Kr.