

KG
11366
v. 718

No. 33.

EARLY LISTS OF GAS. NEB., STARS PEC. SPECTRA.

Feb. 21, 1881.

Nebulae from G.C. with gaseous
 The observers are designated as follows: B stands for
 Hers for John Herschel (Proceedings of the Royal Society,
 transactions 1864, 437; 1866, 381; Proceedings of the
 (unpublished observations 1866-1870); O, same
 Prismatic; also Astr. Nachr. XV, 262, No. 1553; V for Vogel (Boothkamp);
 W. refers to Webb's Celestial Objects, 4th edition;

G.C. No.	G.C. description (whole or part).	Observer of spectrum
385 ✓	vB; p of 2 neb	Hg } O ₁
386 ✓	vB; f of 2 neb	Hg } O ₁
705 ✓	F. m E 239.1. com. x 9, 10 att.	O ₂ susp.
706 ✓	O; pB; pL; vL; 1' diam.	O ₂ susp.
801 ✓	O; pB; pL; vL; 1' diam.	O ₂
826 ✓	⊕ (should be O); vB; L; R; v	Hr, O ₁ , O ₂ (Hg continuous) (quoted by W.)
932 ✓	cB; L; mblM*	O ₂ susp.
1155 ✓	vB; vL; 8.135" ±; yellow; v	O ₁
1179 ✓	Orion nebula	Hr, Hg, O ₁ , S
1185 ✓	! vB; vL; R, with tail; mblM* 8.9	Hr
1225 ✓	O; pB; vL; vL; v?	Hr, O ₂
1532 ✓	O; pB; pL; * 9 M; 4° d.	O ₁
1565 ✓	O; pB; pL; cL; v; 3.75 d.	Hr
1567 ✓	O; cB; not v well def	Hr, O ₂
1783 ✓	! O; pB = * 9; vL; R; am st.	Hr
1801 ✓	! O; pB; pL; R; vglk; in L, G, Ld.	Hr susp; O ₂
1843 ✓	!! O = * 8; vL; R; * 15, 59.13, 13"	Hr
2017 ✓	!! O; vB; vL; L; * 9 M; 4° d.	Hr, O ₂
2041 ✓	B; pL; vL; pgmblM; * 11, 78.2, 80"	O ₁ susp.
2076 ✓	O = * 10; R; am 150 st	Hr
2102 ✓	! O; vB; L; 135°; 32" d; blue.	Hr, Hg, O ₁ , O ₂ , S
2158 ✓	O? cB; pL; R; vglk; mblM 15"	O ₂ susp.
2197 ✓	η Argus neb	Hr
2343 ✓	!! O; vB; vL; R; 19.0 d.	Hg, O ₂
2386 ✓	B; pL; R; pblM	O ₁ susp.
2581 ✓	O; L; R; blue; = * 7; 1.5 d.	Hr

or partly gaseous spectra.

Bredichin (*Memorie della Società degli Spettroscopisti Italiani*, IV, 109)
Vol. XVI, 417, 451; XVII, 58, 303); Hg for William Huggins (*Philosophical
Royal Society*, XIV, 39); O₁ for Harvard College Observatory
(unpublished observations 1879-1880); S for Secchi (*Luigi Spettro
Observations*, I, 56; also *Astr. Nachrichten* XXXVIII, No. 1864).
Some of Secchi's stars occur in the *Monthly Notices R.A.S.* XXVIII. 197. See p. 21.

α 1880.			δ 1880.		
1 ^h	34 ^m	35 ^s	+50°	59'	
1	34	52	+51	0	
3	19	11	-21	58	Sp. W.
3	19	24	+37	3	Sp. P, W.
3	56	39	+60	36	Complete
4	8	46	-13	2	Complete
4	51	2	-5	4	Sp. W.
5	27	16	+21	56	
5	29	23	-5	28	
5	29	37	-5	21	
5	35	32	+9	2	Complete
7	22	5	+21	9	
7	36	20	-14	27	Phot. W, P, W; Sp. W, P, W.
7	36	35	-17	56	Complete
9	7	56	-41	56	
9	11	10	-36	7	Complete
9	11	2	-57	48	
10	1	59	-39	51	Complete
10	8	2	+4	4	
10	13	56	-62	5	
10	19	0	-18	2	Complete
10	31	15	+54	8	Complete
10	40	23	-59	3	
11	7	45	+55	40	Phot. Complete; Sp. P, W, W.
11	14	56	+3	54	
11	44	23	-56	31	

G.C. No.	G.C. description (whole or part)	Observer & spectrum
2841	vB; vL; vm E 0°; sb MBN	Hg susp. W. (cont.)
2917	vB; L; R; vsm MBN; v	Hg
3572	!!!; nucl ring (h); spiral (R)	Hg susp. W. (cont.)
4045	vB; pL; R; prob MBN; f of 2	O ₂ susp.
4066	O; vL; R; quite sharp	Hg
4234	O; vB; vL; R; disc & border	Hg, B, V, O ₂
4284	!!! O; pB; vL; R	Hg
4302	!! ⊙; pB; L; R	O ₂
4355	Trifid nebula	O ₂ susp.
4361	!!! vB; vL; ei F; with Lcl	Hg, L
4373	O; vB; pL; sb MBN	Hg, B, V, O ₂
4378	⊕; F; L; cE; vv;	O ₂ susp.
4386	O; F; L; cE; hazy border	O ₂
4390	O; vB; vL; R; hazy	Hg, Hg, B, V, O ₂ , L
4403	!!!; B; cL; ei F; 2-hooked	Hg, Hg, L
4407	O or ⊕; pB; eeS; R	Hg, O ₂
4415	!!; pB; pL; E 50°; 2st p. Var. (Yuttle)	O ₂ susp.
4447	Ring nebula	Hg, V, O ₁ , O ₂ , L
4479	vF; L; R; vol MBN; v	O ₂
4485	⊕; B; L; iR; gom CM; vv	Hg susp.
4499	cB; L; iR; vv	Hg
4510	O; B; vL; R	Hg, Hg, B, V, L, O ₂
4514	O; B; pL; R; *11 M	Hg, L, O ₂
4532	Dumb-bell nebula	Hg, B, V, O ₁
4565	!!; ⊙; F; L; vol E	O ₂
4572	!!; O; B; pL; R; 4 dot mv	Hg, B, V, O ₁ , O ₂ , L
4600	!!; pB; cL; ei F; klyps in v	Hg susp.
4627	cB; L; to 45° ±; v; *att	Hg
4628	!!!; O; vB; L; elliptic	Hg, Hg, B, V, O ₁ , O ₂
4827	B; L; R; p. glob; ev	Hg
4883	cB; cL; cE; gom MBN; v; 2st mv	Hg susp.

α 1880	δ 1880	
12 ^h 13 ^m 1 ^s	+47° 58'	
12 18 19	-18 7	
13 24 46	+47 49	
15 0 24	+2 4	Phot. S, U; Sp., S, S, U.
15 8 41	-45 13	
16 39 26	+24 2	Complete
17 11 15	-51 37	
17 22 3	-23 39	Complete
17 55 5	-23 2	
17 56 31	-24 21	
17 58 20	+66 38	Complete
18 1 59	-25 56	Complete
18 4 7	-33 53	Complete
18 6 16	+6 50	Complete
18 13 42	-16 13	
18 18 26	-23 16	Phot. S, W, W; Sp. Complete
18 23 1	+74 31	Phot. S, W; Sp. Complete
18 49 5	+32 52	Complete
19 8 18	-2 55	No phot.; Sp. complete
19 11 54	+30 0	
19 25 50	+9 0	
19 37 11	-14 26	Complete
19 41 40	+50 13	Complete
19 54 21	+22 23	Phot. P, W.; no Sp.
20 11 34	+30 12	Complete
20 17 1	+19 43	Complete
20 40 43	+30 17	
20 56 52	+54 5	
20 57 37	-11 50	Complete
22 35 51	+60 39	
22 55 15	+29 30	

14

G.C. No. G.C. descriptions (whole or part)
 4964 III; O; wB; pS; R; blue
 4333 pB; pS; R; gM; v; x15. n.p.

Observer of spectrum
 H₂, H₂, B, O₁, O₂
 R 102, 86 1882 Aug. 6.

Draper, Supplement
 to G.C.

5240 wF; OS; ?O
 5617 O; pB; S; E; *10.11 sf
 6006 O; (probably a star)
 5851
 5942

O₂ susp.

O₂ (found to be a star?)

Gaseous; R 102, 12, 46, 49 (place spectra.)
 1882 July 13.
 Gaseous; R 102, 122. 1882 Aug. 19

D.M. +41° 4004
 Copeland's (Birmingham)

O₂
 Ann. Eclat Obs.

New stars in Cygnus

Lindsay Ann. Eclat Obs.

N.C. O. 1 Near L. 34071; O; minute.
 2 Near Oe 17736, 17748, 17772; O; minute.
 3 # Near L. 33580; O; minute
 Near Oe. 17593-4. O; small; bright.
 D.M. +1° 3979.
 4 sf # D.M. +37° 3804; O
 13 magn.; minute
 14 " ; in cluster
 13 " ; star 11 n 1' f 1^s

O₂ (R 92, 43) 1880 July 13
 O₂ (R 92, 48) 1880 July 14
 O₂ (R 92, 139) 1880 Sept. 3
 R 102, 48, 76 1882 July 15
 R 102, 49, 75 1882 July 16
 R 99, 195, 201 to 203. 1881 Nov. 25
 R 102, 115 1882 Aug. 18
 R 102, 116 1882 Aug. 18
 R 102, 125; R 103, 16 Aug. 18
 R 102, 121 1882 Aug. 19
 R 103, 17-24 1882 Sept. 19

$\angle 1880$
 $23^h 20^m 7^s$
 $17 42 8$

$\int 1880$
 $+41^\circ 53'$
 $-19 58$

Complete

$2 21 27$
 $12 0 36$
 $21 26 3$
 $17 7 20$
 $19 12 6$

$-0 47$
 $+11 16$
 $+0 12$
 $-12 46$
 $-1 50$

No photo; sp. W.

$21^h 1^m 42^s$
 $21 2 12$

$+41^\circ 45'$
 $+47 22$

Complete

$21^h 36^m 52^s$

$+42^\circ 17'$

Complete

N_{H}
 Obs. V. 2997

M.C.

$1 18 25^m 40^s$

$-25^\circ 13'$ 6644?

Complete

$2 18 4 19$

$-28 12$ 6565

"

$3 18 (14) 23$

$-26 53$ 6620

"

715

$5 17 58 6$

$-19 51$? 6537

$6 19 16 50$

$+1 17$

$4 20 6 27$

$+37^\circ 3.4$

$7 18 7 44$

$-20 19$

$9 18 (5) 13$

$-19 (7)$ 6567

(6.41) (6)

$8 17 41 22$

$-16 26$ 6439

$10 18 56 27$

$-0 37$

$11 19 28 40$

$+5 26$

Two planetary nebulae

R 103, 76877 1882 Sept. 17

S. H. P. 37

S 59

~~H. C. P.~~ 77

G. L. 80

1 =

List of stars having spectra of Secchi's third interrupted by gaps of some extent the light in

The observers are Secchi, Vogel, d'Arest, Secchi's observations are in two memoirs "Sugli Spettri della Società Italiana dei XL" in 1867 and 1868, and "Catalogo fisico delle stelle colorate" in 1870.

There are numerous articles by Secchi in the Comptes Rendus,

Vogel's observations are in the Astronomische Nachrichten, d'Arest's " " " " " " " " " " " "

Dunér's " " " " " " " " " " " "

In the column of "Reference to observation", ϕ denotes the observations made by Secchi; S. refers to Secchi's 1st memoir; the Astronomische Nachrichten are referred to as A.N.; spectroscopic measures were made; (only Vogel's measures are thus marked at

Bm. denotes Birmingham; U.A., Uranometric Argentina; T.J.S. Tinsley's

N.P. No. Name of star D.M. No. Other references. Supposed type of spectrum.

1	6	Lob. 47332		U.A. Octus, 13	III?
				Potter 8	III b?
2	1	29 Lf. 158		U.A. Octus, 22	III
3	2	30 Lf. 169		U.A. Octus, 25	III
1 II			+43° 53	Bm. 4	IV? (III l.)
4		Lb. 349	+2° 36	U.A. Pico, 80	IV?
3	51	T Cassio.	+54° 48	Bm. 5	III
2 II		W ₂ O 501	+34° 56		IV
5	60	47 Pscium	+17° 55	B.A.G. 101	III!
		92 δ Andromedae		Bm. 8	III ft. resol. bds.
6	116	57 Pscium	+14° 11	B.A.G. 211	III!

and fourth types; that is, having spectra more or less which is comparatively feeble; stars with bright lines have since been included. Duner, H. C. Observatory, Pope (Science, Vol. II).

"Spettri Prismatici dei Corpi Celesti" presented to the published at Rome in 1868; see also his "Prodromo di un' *Memoria della Società dei Spettroscopisti Italiani*" Vol. V, p. 159. which give no stars not named in these works.

No. 2000, (Vol. 84, p. 113); see also Bothkamp Observations.

" 2009, 2016, 2032, 2044, (Vol. 84, pp. 263, 369; Vol. 85, p. 249; Vol. 86, p. 53).

" 2200, 2209, 2228, (Vol. 92, p. 250; Vol. 93, pp. 6, 306). No. 2437 (Vol. 102, p. 195).

made here; R. refers to the "Prodromo" (details to be looked for in Secchi's 2^d memoir); to by their numbers as given above; a line under a reference denotes that at present). In other columns the observers are referred to by their initials or in full. *Signe of Secchi's stars occur in the Monthly Notices R.A.S., XXVIII, 197*

Königl. Jahresschrift der Astr. Gesellschaft. p. 1

Reference to Observation.	Magn.	Color	α 1880.	δ 1880.	
0	6.2 U.A.		$0^h 2^m 25^s$	$-18^\circ 14'.6$	✓
0	5.4 U.A.		0 8 19	- 8 26.8	✓
0	4.3 U.A.		0 8 32	- 19 35.8	✓
N 2228	8.2 Bm.	no (9.5 D.)	0 13 34	+ 44 2.6	✓
0	7.0 U.A. 2. ~~4.9 var.~~		0 14 0	+ 2 22.1	
N 2228	var.	yr (8.0 D.)	0 16 45	+ 55 7.5	✓
N 2437	8.1 Dk.	yr 8.9 D.	0 21 11	+ 34 53.4	✓
N 2016	5.1	0	0 21 47	+ 17 13.8	
S, P.	3.3 Bm.	y	0 32 54	+ 30 12.3	✓
N 2016	5.0 (6d'A)	y	0 40 16	+ 14 40.4	

No. P. No.	Name of star.	D.M. No.	Other references.	Supposed type of spectrum.
7 142	125 δ Piscium 143 γ Cassiopeiae 150 γ Androm.		B. A. C. 222 B. A. C. 253 B. A. C. 264	III ft. bright lines at F III susp.
	~~143~~ Star near γ Ceti			III (γ Ceti II)
3 II	Π_2 I 445		Bm. 18	IV {dark bands, fading towards violet}
	R Sculptoris		Bm. 24; U. A. Sculpt., 113	III? I IV? O
5 9	R Piscium		u 9	?
6 11		+30° 310		
7 12	~~313~~	+54° 431		
8 13	313 δ L. 3710		U. A. Cetus, 196	III?
14	315 ν Ceti		U. A. Cetus, 197	III!
15	316 δ L. 3717		W I 947	III!
	Π I 1097 (or near)			III
17	341 15 Arietis	+18° 277	B. A. C. 665	III
18	340 o Ceti		Bm. 410; U. A. Cetus, 233	III S; III O; III V.
20	R Ceti		Bm. 441	III
22	403 15 Trianguli	+54° 469	Bm. 9 (addendum); B. A. C. 788	III like α Ceti
	Π_2 II 855		Follows Bm. 47	III ft.
	438 ϵ^1 Eridani		B. A. C. 856	III distinct
9 4 II		+56° 724		bands susp.
26	482 α Ceti		Bm. 52; U. A. Cetus, 310	III (S, O)
29	489 ρ Persei		Bm. 53	III

Reference to Observation.	Magn.	Color.	L 1880	S 1880
N 2000 S. P.	5 3		0 ^h - 42 ^m 27 ^s 0 49 28 0 50 48	+6° 56.0 +60 4.0 +22 46.1
S.	7 ³ / ₂ ; the other ft.	y	1 2 33	-10 49.0. <i>This is the place of 7.0 Bm; this star is near.</i>
N 2228	7.0 Bm.	v	1 9 32	+25 8.0
P, O	var; 6.0 Bm	o	1 21 27	-33 10.4
O	7 ¹ / ₈ var.		1 24 27	+2 15.6
O			1 51 9	+30 33.0
O (R95, 171-3) (A177); N 2437			1 51 37	+54 14.4
O	5.7 U.A.		1 54 8	-21 24.4
N 2437 H	3.9 U.A.	yz 6.5 D	1 54 21	-21 39.5
N 2016	6 var?		1 54 28	-9 6.3
P	7 ¹ / ₈ 8?		2 2 29	-10 49.2
N 2016	6	none	2 3 58	+18 56.1
S. O; N 2000 H	var.	v	2 13 17	-3 31.3
N 2437	var.	yz 6.0 D.	2 19 55	+0 57.1
N 2016	(6.5 D.) var.	o	2 28 30	+34 9.8
P	7.5	v	2 36 47	+31 51.7
P	4.5	y	2 39 29	-19 9.9
O	9.4	yz	2 41 18	+56 28.9
S, O H	2.5 Bm.	v?	2 56 0	+3 37.1
S; Bothkamp H Obs.	var.	v	2 57 29	+38 22.5

M. P. No.	Name of star	D.M. No.	Other references.	Supposed type of spectrum.
10	6 II		+57° 702	IV
11	30 536 7 II	R. Persei	U. A. Jomay, 83 Bm. 65	III bands? (4 bright zones) IV?
32	583	Oeltgen 3979	+62° 597	III!
	604	S. Eridani	B. A. G. 1148	III? bands.
33	612	B. A. G. 1144	+65° 369 Bm. 69; Oeltz. 4090	III
12	34	619 π Eridani	B. A. G. 1168; U. A. Erid., 127	III bands.
13	35	~~618~~ Star sp. γ Eridani		III or IV
36	653	γ Eridani	Bm. 12 (addenda); U. A. Erid., 158	II or III S; III O; III? d'A, bands marked.
	744	Loh. 8154	Bm. 73	III?
37		R. Tauri	Bm. 77	v21 III faint.
		~~W₂ IV 557~~	+29° 721	III (bands wide, diffuse)
		Loh. 8623-25	Bm. 79	III
38	794	47 Eridani	Bm. 14 (addenda); B. A. G. 1419	III!
	799	ν Eridani	B. A. G. 1429	Possibly III S. if γ stands for ν .
39	821	54 Eridani	B. A. G. 1451; Loh. 8860-61	III
		Loacaille 1567	First Melbourne Catalogue, 232	IV

Reference designation.	Magn.	Coln.	α 1880	δ 1880
$\odot$			$3^h 2^m 12^s$	$+ 57^\circ 26.7'$
$\odot$	5.9		3 14 21	- 24 33.5
$N_{2209, 2228}$	6.6 β_{m}	v	3 22 25	+ 35 15.3
			3 31 30	+ 62 15.4
N_{2200}	5.0	y	3 31 43	+ 62 49.6
f	$3\frac{1}{2}$		3 37 30	- 10 10.6
N_{2016}	6.0 β_{m}	red. z. 0	3 38 32	+ 22.7 + 65 9.3
$\odot$			3 40 22	- 12 28.0
$\odot$ {see also R 100, 161}		red. z.	3 41	+ 23.7
			3 50 53	- 13 57
$f, N_{2016}, \odot$	3.0 β_{m}	0	3 52 26	- 13 51.0
P	7.7 β_{m}	y	4 14 45	- 6 31.9
P (V.S. XVI 243)	var. 5.8	v	4 21 44	+ 9 53.6
~~N_{2209}, N_{2437}~~	~~8.9 D.M.~~	~~6.5 D.~~	~~4 27 39~~	~~+ 29 36.8~~
P	6.7 β_{m}	0	4 27 42	- 11 2.5
N_{2032}	6.5 β_{m}	v	4 28 25	- 8 29.0
f	4		4 30 19	- 3 35.3
P, N_{2032}	5	y	4 35 12	- 19 54.1
P (Science, Vol. II, p. 152)	6.6	v	4 35 22	- 62 18.8

M. P. No.	Name of star	L.M. No.	Other references.	Supposed type of spectrum.
			Bm. 82.	
14			U. A. Caelum, 12	III?
8 II	Lol. 8823		Bm. 83	IV
40	831 Lp. 878	+63° 543	B. A. C. 1470	III!
9 II	W ₂ IV 946		Bm. 85	IV { 2 other red stars near, not peculiar; this one has the bright zones fading towards the red.
41	850 o' Orionis		Bm. 87	III
42	855 d Orionis		Bm. 88; U. A. Orion, 11	III?
	860 W IV 1025		Bm. 89	III?
	879 ζ Aurigae		Bm. 93; B. A. 6, 1541	III 41.
10 II	880 R Leporis		Bm. 94; U. A. Lepus, 4 v26	IV
15 43		+6° 810		IV
11 II	899 Lol 9581-2		Bm. 96; W IV 1296	IV!
13 II	W V 29		Bm. 99	IV 41.
44	925 Lol. 9785		W V 78	III!
	R. Aurigae.			III
	935 Lol. 9820		U. A. Orion, 51	III?
45	Lol. 9821	-0° 890	Bm. 102; W V 1248	III

Reference to observation.	Magn.	Color.	2 1880			5 1880	
	8.7		4	37	28	+32	41.9
①			4	38 ^m	32 ^s	-30	59.3
P	7.0 Bm.	0	4	38	48	+67	57.2
N 2016	5 $\frac{1}{2}$		4	40	51	+63	18.0
P	8.1 Bm.	2(var.)	4	44	0	+28	19.1
P	5.0 Bm.	0	4	45	46	+14	3.1
P, ①	5.0 Bm.	0	4	47	7	+2	17.8
P	5.7 Bm.	0	4	48	19	+7	35.0
P	3.6 Bm.	0	4	54	7	+40	54.4
N 2000, 2032	var.	2	4	54	9	-14	59.2
①			4	55	20	+6	28.4
P, ①	6.0 Bm.	2	4	59	12	+1	0.7
N 2228	8.0 Bm.	2(8.5 B.)	5	3	55	-5	40.2
N 2032	6 to 7 6.0 = 4.0	y	5	5	47	-12	0.0
①	6.1 H.A.		5	7	36	+53	25.0
			5	8	21	+5	1.0
N 2032	7.0 Bm.	2	5	8	30	-0	41.9

No. P. No.	Name of star	M. No.	Other references	Supposed type of spectrum	
46	941	Gr. 953	+42° 1239 W ₂ V 197; Radcliffe 1441	III	
	In or near cluster G. C. 1067		Bm. 103	{ IV S. } II D. (not IV in Bm. II)	
13 II		+32° 1044	Bm. 108	IV	
	995	L. 10325	U. A. Orion, 79	III?	
	997	31 Orionis	Bm. 110; U. A. Orion, 81	III? D. II or III D. { IV S. } (not IV in Bm. II)	
48	1003	119 Tauri	+18° 875 Bm. 111; B. A. G. 1726	III!	
		L. 10561	Bm. 114; W V 718	IV? S. II D.	
14 II		+24° 943	Bm. 120	IV ft.	
15 II		+20° 1083	Bm. 121	IV (dark bands fade to violet)	
49	1042	v Aurigae	+37° 1336 B. A. G. 1844	III	
50	1091	α Orionis	Bm. 127	II to III	
51	1102	π Aurigae	Bm. 130	III! { 9 magn. near } (not by III ft.)	
16					
17 52			U. A. Lepus, 91	III	
18	53	1140	L. 11700	U. A. Lepus, 92	III?
16 II		L. 11684	+26° 1117 Bm. 135; W ₂ VI 1	IV	

Reference to observation	Magn.	Color.	α 1880	δ 1880
N 2032	7	y	5 ^h 9 ^m 41 ^s	+42° 39'.8
P, N 2228	7.6 Bm.	o(8.0 D.)	5 11 49	+39 12.9
N 2228	9.4 Bm.	rr(9.5 D.)	5 19 12	+34 3.6
⊙	6.5 U.A.		5 23 25	-3 32.5
P, N 2228, ⊙	5.5 Bm.	o(6.5 D.)	5 23 38	-1 11.4
P, N 2016	4.4 Bm.	o	5 25 12	+18 30.2
P, N 2228	6.5 Bm.	o(7.0 D.)	5 30 25	+10 57.5
N 2228	8.5 Bm.	rr(9.2 D.)	5 37 53	+24 22.0
N 2228	7.7 Bm.	rr(8.5 D.)	5 38 30	+20 38.1
N 2016	5 $\frac{1}{2}$		5 42 51	+37 16.2 β
S; Bothkamp Obs. H	var.		5 48 41	+7 23.0
S H	4.8 Bm.	o	5 51 1	+45 55.5
⊙	6.3 U.A.		6 1 53	-21 48.9
⊙	5.9 U.A.		6 2 29	-19 19.2
N 2032	7.4 Bm.	o	6 3 26	+26 2.3

M. P. No.	Name of star	DM. No.	Other references.	Spectrum.
1148	Sol. 11784		U. A. Lepus, 97	III?
17 II	W ₂ VI 94-5		Bm. 138	IV D.
54	1159 1 Lynx	+61° 869	Sp. 1111; B.A.C. 1992	III (wide band)
55	1160 7 Geminorum		Bm. 139	III
	12 Geminorum		B.A.C. 2029	IV
19 56	Sol. 12169		U. A. Cam. Maj., 16½	III?
57	1194 16 Geminorum		Bm. 143	III
18 II	Sol. 12245-6	+14° 1283	Bm. 144; W VI 492	IV (irregular)
20 58	Sol. 12524		U. A. Cam. Maj., 38.	IV? III?
19 II	Sol. 12561 (Auriga)		Bm. 148	IV
21 20 II				IV?
59	1292 51 Cephei H.		Bm. 154; B.A.C. 2157.	III
	1309 8 Canis Maj.		U. A. Cam. Maj., 89	
22	1341 Sol. 13412			IV
62	1330 Sol. 13627		U. A. Cam. Maj., 114	III
	1333 R 5 Canis Maj. Geminorum		Bm. 164	27 bright lines
21 II	Sol. 13864		Bm. 166, W VI 1943	IV zone fades both ways.

Reference to Literature	Magn.	Color.	α 1880	δ 1880
①	5.9 U.A.		$6^h 4^m 46^s$	$-22^\circ 45'.4$
P; N2437	9.0 Bm.	v; ny 8.4 D.	6 6 1	+27 11.8
N 2016	6	none	6 6 51	+61 33.1 β
N 2000	3.2 Bm.	v	6 7 37	+22 32.5.
P	7	v	6 12 5	+23 19.3
①	7.3 U.A.		6 15 30	-11 45.8
N 2000	3.0 Bm.	v	6 15 42	+22 34.5.
N 2016	6.5 Bm.	o	6 18 37	+14 47.1
①			6 23	+4.3
①			6 24 58	-19 8.1
S, P	6.3 Bm.	v	6 28 18	+38 32.4 β
①			6 38 17	+3 26.8
N 2016	5.0	v?	6 43 50	+87 14.1.
①	4.4		6 48 37	-11 53.3.
① { 1881 Nov 28 } { R 96, 1885 }			6 49 13	-23 46.5.
N 2032	6 to 7		6 56 3	-5 32.9
N 2000	3.6		6 56 56	-27 45.8
P	var.	v	7 0	+22 53.1
P	7.5 Bm.	v	7 2 27	-11 44.4

M. P. No.	Name of star	D.M. No.	Other references.	Spectrum.
64 1352	γ 1272	+51° 1295	Radcliffe 1898	III
66 65 1361 23 24 1375	γ 1259 51 ϵ Geminae 202 Ruppis	+82° 201 +16° 1417	Bm. 168; Radcliffe 1887 B. A. C. 2362 U. A. Puppis, 73 U. A. Can. Maj., 147 U. A. Can. Maj., 159 U. A. Can. Maj., 162 B. A. C. 2465	III! III!! Bands ? ?
1399	η Canis Maj.		B. A. C. 2465	III
68	δ Canis Min.		Bm. 180	839 III!
69 1429	L. 14776		Bm. 2 nd addenda, 6.	III
70	B. A. C. 2537	+13° 1737	Bm. 33 (addenda)	III
71 1451	L. 14961	+14° 1729	W VII 1041	III
73		+5° 1759	Bm. 187; W VII 1093	III?
25				III?
26 22 II				IV
75 1508	μ Cancri	+23° 1887	B. A. C. 2700 U. A. Puppis, 2151 B. A. C. 2755; Neillhouse 402	III Bands
76	γ Argus B Cancri	+12° 1803	Bm. 198	44' III
77 1557	δ Cancri	+13° 1912	B. A. C. 2826; W VIII 483 U. A. Hydra, 58 U. A. Puppis, 130 U. A. Puppis, 134	III! Bands
29 1618	L. 17576	+17° 1973	Bm. 211; B. A. C. 2029 U. A. Hydra, 76	IV Bands

Reference to Observations. Mean. Color. α 1880 δ 1880

N 2016 6 y $7^h 4^m 1^s + 51^\circ 37.5' .\beta$

N 2016 5.5 Bm. 2 (little, d.h.) 7 5 46 +82 38.3 .
 N 2032 5.6 7 6 29 +16 21.8 .
 var. 3.6 to 6.3 7 9 58 -44 26.7 .
 5.4 7 11 46 -27 40.2 .
 6.7 7 16 8 -25 40.0 .
 6.1 7 18 39 -27 36.2 .
 10 2 y 7 19 21 -29 4.2 .

N 2000 var. n 7 26 12 +8 34.4
 N 2437 6.0 Bm; 5 D. yr 6.5 D. 7 28 17 -14 15.7 .
 N 2044 6.5 Bm. 0 7 35 9 +13 45.6

N 2032 7 y 7 35 17 +14 29.4 .

N 2032 7.1 Bm. n 7 37 1 +5 13.7

① n 7 55 14 -12 31

① 7 56 34 -12 42

N 2032 6.6 7 59 12 +22 58.7 .
 Pop. (Scima, Vol. II, p. 153) 2.3 7 8 5 50 = 33 13.6
 N 2228 var. 0 (7.0 D.) 8 9 57 +12 5.6

N 2032 6.6 7 8 20 6 +13 3.0 .
 6.7 8 40 21 -10 34.3
 7.6 8 42 34 -34 9.6
 6.5 8 45 18 -29 1.0
 N 2044, 2228 6.5 Bm. 0 8 48 37 +17 41.2
 6.8 8 48 52 -10 55.3

M. P. No.	Name of star	D.M. No.	Other references.	Spectrum.
82 1638	Oeltgen 9457	+68° 551		III!
83	Lb. 17803-5	+39° 2193	Radcliffe 2260	III
84	Lb. 17988	+2° 2145	W. VIII 1508; U.A. 96 Hydra	III!
85 1663	Oeltgen 9373-5		Bm. 217; U.A. 50 Pyxis K.	IV? {more likely II or III by Norm. II.
86 1664	Lb. 18044-5	+31° 1946	Bm. 218; W. IX 3	III!
87 1683	B. A. b. 3172	+57° 1214		III
	1685 40 Lynx	+35° 1979	B. A. b. 3178	III
88	W. IX 268	+0° 2499	Bm. 221; ? U.A. 123 Hydra	III!
			Bm. 222	III
	1698 α Hydrae		Bm. 223; U.A. 140 Hydrae	III?
90 1744	ψ Leonis	+14° 2136	B. A. b. 3321	5 III
91	R Leonis Min.		Bm. 227	0.51 III (like α Leonis)
92 1752	ρ Leonis	+12° 2096	Bm. 228; B. A. b. 3345	0.52 III! III? S.
24 II	Oeltgen 10163		Bm. 229	IV faint throughout except green
	1760 μ Leonis		B. A. b. 3371	III?
94 1782	π Leonis		Bm. 231	III

Reference to observation.	Magn.	Color.	α 1880	δ 1880
N 2200	6	o	8 ^h 51 ^m 42 ^s	+68° 5.8 . β
N 2044	^{7.0 = 2m} 7.5	none	8 56 8	+39 12.9
N 2032	7	none	9 0 48	+1 56.7
P	4.5 Bm.	o	9 2 47	-25 22.0 . β
P, N 2032	6.5 Bm.	v	9 3 26	+31 27.3 . β . β
N 2200	6	y	9 12 54	+57 12.4 . β
N 2200	3.5	o	9 13 45	+34 53.9 . β . β
N 2044	7.5 Bm.	o	9 14 27	+0 40.7
P	8	y	9 17 34	-21 45.0
S	var.	yr	9 21 42	-8 8.5 . β
N 2032	6	y	9 37 12	+14 34.2 .
Bothkamp Obs. p. 28	o		9 38 23	+35 3.9
N 2044	var.	v	9 41 7	+11 59.2 .
P	6.5 Bm.	v	9 45 31	-22 27.4 β
f	3	y	9 45 57	+26 39.4 β
N 2044	5.0 Bm.	v (y dA.)	9 53 53	+8 37.2 β . β

No. P. No.	Name of star	L.M. No.	Other references.	Spectrum.
1793	η Leonis		B.A.C. 3453	III?
1801	18 Septentis		Bm. 234; 1032 Septentis	III?
			Bm. 235	IV?
96 1814	37 Leonis	+14° 2228	B.A.C. 3510	III
97 1827	μ Ursa Maj.	+42° 2115	Bm. 238	III
99 1835	44 Leonis	+9° 2351	B.A.C. 3561	III
39			U. A., Antlia, 71	IV
25 II 1869	Lb. 20556		Bm. 242; ^{U. A. 240 Hydrus} IX 544	IV {with cylindrical III with spherical cylinder}
100 1880	R Ursa Maj.	+69° 587	Bm. 244	III!
26 II	Celtzen 11069	+68° 617		IV
27 II	Lb. 20918		Bm. 248; Celtz. 10927	IV? (2 bright zones).
103	56 Leonis	+6° 2369	B.A.C. 3750	III!
105 1917	Celtzen 11031		Bm. 249	III ft.
106	R Crateris		Bm. 250	055 III? ^{Ans!} IV 2
107 1924	61 Leonis	-1° 2471	B.A.C. 3775	III
108 1940	B.A.C. 3811	+37° 2162	W ₂ X 1236-40	III
109 1952	72 Leonis	+23° 2322	Bm. 256; B.A.C. 3842	III!

Reference to observation	Magn.	Color.	$\angle$ 1880	δ 1880	
P.	3.5	y	10 ^h 0 ^m 47 ^s	+17° 20.9	. β
P.	6.0 Bm.	o	10 4 59	-7 49.5	. β
P.	7.0 Bm.	r	10 6 39	-34 43.8	
N 2032	6		10 10 14	+14 19.7	. β
N 2209	3.1 Bm.	r(6.32)	10 15 11	+42 6.2	. β
N 2044	6.57	y	10 18 56	+9 23.6	. β
$\odot$	var.?	r	10 29 53	-38 56.5	
P, $\odot$	5.5 Bm.	o	10 31 38	-12 45.7	. β β
N 2437	var.	yr 5.02	10 36 8	+69 24.3	
N 2200	6	r	10 36 43	+68 2.4	β
P	6.0 Bm.	r	10 45 47	-20 36.9	β
N 2044	7	none	10 49 48	+6 49.6	β
P	6.0 Bm.	o	10 53 35	-15 42.6	. β
P, N 2437	var.	rr; yr 9.02	10 54 39	-17 40.8	
N 2032	5 $\frac{1}{2}$	little	10 55 43	-1 50.3	. β
N 2032	6.57	y	11 2 43	+36 57.7	. β
N 2044	5.0 Bm.	o	11 8 49	+23 45.0	β

M.P.N.	Name of star	D.M. No.	Other references	Spectrum
110	1958 75 Leonis	+2° 2409	Bm. 258; B.A.C. 3850	III
111	1988 λ Draconis	+70° 665	Bm. 262; B.A.C. 3914	III
112	2008 ω Virginis	+8° 2532	B.A.C. 3954	III!
113	2019 ν Virginis	+7° 2479	B.A.C. 3982	III!
114	Lol. 22450	+37° 2230	W XI 925	III
115	Lol. 22573	+20° 2664		III
116	Lyr. 1845	+81° 389	Bm. 270; Radcliffe 2782	III!
2067	1952 Lyr. 1858		Radcliffe 2808	III ft.
2087	1971 3 Canum Ven.	+49° 2130	B.A.C. 4148	III
28 II	W XII 277	+1° 2694	Bm. 277	IV!
2114	121 1997a Oeltzen 12663	+56° 1598		III
2120	2001 S Corvi (small star near)		Bm. 280	prob. bds. Both stars I, but gaps very wide.
123	W XII 378	+5° 2634	Bm. 281	III
	γ Crucis		B.A.C. 4215; Melbourne 616	II to III
2124	124 2005 Oeltzen 12700-1	+70° 700		III
125	T Ursae Maj.	+60° 1406	Bm. 283	v6~ III ft.
2146	126 2021 B.A.C. 4254	+2° 2560	W XII 513	III

Reference to observation.	Magn.	Color.	α 1880	δ 1880.
N 2032	6.0 Bm	o (none, d'd.)	11 ^h 11 ^m 6 ^s	+2° 40.3 . β
N 2209	3.0 Bm	r (7.5 D.)	11 24 16	+69 59.6 .
N 2044	6	y	11 32 16	+8 47.9 . β
N 2032	5	y	11 39 42	+7 12.3 .
N 2032	7	y	11 49 2	+37 25.6 β
N 2200	7	r	11 53 57	+20 5.4 β
N 2016	6.2 Bm	o	11 54 2	+81 31.4
N 2016	6.1 Carr.; 8 Radcl.	y	12 5 35	+82 22.7 .
N 2032	6	y	12 13 54	+49 39.0 .
N 2044	8.1 Bm.	o	12 19 7	+1 26.9
N 2200	6	y	12 21 53	+56 22.6 .
J	9.0		12 23 10	+28 57.5
	3		12 23 40	-15 50.7 .
N 2044	8.5 Bm.	r	12 24 14	+5 4.6
Pape (Science, Vol. II, p. 153)	2.0	o	12 24 31	-56 26.4
N 2200	5	y	12 24 51	+69 52.0 .
N 2209	var.	o (5.5 D.)	12 30 56	+60 9.0
N 2044	7	none	12 32 15	+2 30.9 .

No. P. No.	Name of star	Dist. No.	Other references.	Spectrum.
2144 ¹²⁷ 2027	R Virginis	+7° 2561	Bm. 284	063 $\sqrt{\frac{III^{h.}}{III}}$ ft.
2164 ^{29 II} 2043	B.A.C. 4287		Bm. 290	IV !! typical
2187 2062	Sol. 24034		W XII 793	III
2186 ¹³⁰ 2061	ψ Virginis		B.A.C. 4330	III !
2193 ¹³¹ 2068	S Virginis		Bm. 297	III
^{30 II}	Celtzen 13158	+66° 780	Bm. 298	IV
2201 ¹³² 2075	36 Comae Ber.	+18° 2682	Bm. 300; B.A.C. 4359	III
2216 ¹³³ 2087	40 Comae Ber.	+23° 2538	B.A.C. 4388	III !
2246 ¹³⁶ 2116	σ Virginis		Bm. 302	III
¹³⁷	Celtzen 43583	+47° 2053		III
2262 ¹³⁸ 2132	B.A.C. 4479	+37° 2404	Bm. 304; Radcliffe 3007	III
2268 ¹³⁹ 2137	i Virginis		Bm. 306; B.A.C. 4492	IV? III D.
2275 ¹⁴¹ 2143	R Hydrae		Bm. 308; A.A. 347 Hydrae	²⁶⁸ III !
2279 2148a	Celtzen 43681	+60° 1461		III
2283 ¹⁴² 2151	b ² Virginis		Bm. 309; B.A.C. 4516	III

Reference to Identification.	Magn.	Color.	2 1880	5 1880
N 2209	var.	o (5.52)	12 ^h 32 ^m 25 ^s	+7 39'.0 .
			12 32 49	+14 27.6
P	5.5 B _m	o	12 39 29	+46 5.7 .
N 2044	var.?		12 48 5	-10 59.8 .
N 2044	6.6	y	12 48 7	-8 53.1 .
S	3.0 B _m	v	12 49 33	+4 3.1 .
N 2009	7.3 B _m	v	12 51 41	+66 38.6
N 2032	4.8 B _m	o	12 53 0	+18 3.4 .
N 2032	6	nom	13 0 32	+23 15.7 .
N 2000	5.2 B _m	v	13 11 33	+6 6.2 .
N 2032	7	nom	13 17 57	+47 37.7
N 2032	6.0 B _m	y	13 18 27	+37 39.5 .
P, N 2209	6.0 B _m	o (6.32)	13 20 23	-12 4.9 .
P	var.	v	13 23 9	-22 39.6 .
N 2009	6		13 24 4	+60 33.9 .
N 2000, 2044	5.0 B _m	v	13 25 44	-5 38.0 .

No. P. No.	Name of star	D.M. No.	Other references.	Spectrum
2302 ¹⁴⁴ 2169	η_2 ~~XIII~~ 596	+25° 2652	Bm. 311	III
2312 ¹⁴⁵ 2179	m Virginis		B.A.C. 4565	III!
2315 ¹⁴⁶ 2182	83 Ursae Major. Lacaille 5686	+55° 1625	Bm. 312 U.A., Hydra, 358	III III? O; IV D.
2343 ¹⁴⁷ 2208	v Bootis	+16° 2564	Bm. 314	III? curious; like S Oph.
2356 ¹⁴⁹ 2219	i Draconis	+65° 963	Bm. 315	III
¹⁵⁰ ¹⁵¹ 2382 ¹⁵² 2244	~~Lol. 25544~~ <del>η_2 ~~XIII~~ 1191</del> Gr. 2078	+38° 2501 +44° 2325	Bm. 316 Radcliffe 3140	IV? III! III!
2383 ¹⁵³ 2245	13 Bootis	+50° 2047	Bm. 320	III! bands sharp, one side.
2384 ¹⁵⁴ 2246	R.A.C. 4700		Bm. 321; Lol. 25965-7	III!
2399 ¹⁵⁵ 2260	Gr. 2091	+70° 778	Bm. 325; Radcliffe 3170	III
¹⁵⁶ Lol. 26342		+26° 2563	Bm. 328	III (not IV)
2433 2294	p Bootis		Bm. 330	III? (bands)
¹⁵⁷ Lol. 26634	R Camelopard.		V. p. v. XVI. 243 Bm. 334; B.A.C. 4825	III III ft.
2445 ¹⁵⁹	R Bootis	+27° 2400	Bm. 336	III
2459 ¹⁶⁰ 2316	34 Bootis	+27° 2413	Bm. 337; B.A.C. 4864	III S.; III! d.A.
2470 ¹⁶¹ 2327	Lol. 26918	+15° 2758	R. 4813	III!
2510 ¹⁶² 2365	Gr. 2177	+66° 878	Bm. 342; Radcliffe 3305	III d.A.; III! D.

Reference to observation.	Magn.	Color.	α 1880	δ 1880.
N 2044	6.0 Bm.	o	$13^h 31^m 20^s$	$+25^\circ 13'.3$
N 2044	6 to 7	y	13 35 19	- 8 5.8. ✓
N 2009	var.	o (none, d. A.)	13 36 11	+55 17.4.
(R 97, 90); N 2437	7.0 U.A.	ry 9.0 D.	13 42 16	-27 46.0 ✓
N 2044	4.2 Bm.	y	13 43 42	+16 23.6.
N 2200	4.8 Bm.	y	13 47 55	+65 19.0.
P	6.7 Bm.	y	13 48 4	+40 55.8
N 2437	8.9 U.A.	ry 7.5 D.	13 56 6	+38 27.3
N 2032	5 to 6	y	14 3 8	+44 25.6.
N 2209	5.5 Bm.	o (6.8 D.)	14 3 48	+50 1.5.
N 2044-	5.6 Bm.	~	14 4 17	-15 44.1.
N 2009	5.3 Bm.	o	14 9 51	+69 59.8.
N 2032	8.0 Bm.	~	14 18 47	+26 15.0
P	4.0 Bm.	yo	14 26 40	+30 53.9.
			14 26 41	+34 22.4
P	6.2 Bm.	y	14 29 44	+37 9.2
N 2437	var.	yo 6.0 D.	14 31 54	+27 15.6.
S, N 2032	5.8 Bm. (var.?)	o	14 38 9	+27 2.4.
N 2032	6	y	14 40 27	+15 38.1.
N 2009, 2200	4.5 Bm.	~	14 55 41	+66 24.5.

P. No.	Name of star.	M. No.	Other references.	Spectrum
2532 ¹⁶⁴ 2387	W ₂ ~~ST~~ , 106-7-8.	+19° 2935		III !!
2540 2394	2 Serpi S Serpentis Coronae	+31° 2725	Bin. 346; B.A.C. 5032 Nelson 2249 Bin. 350	II (1 band) III b? v78 III bands diffuse
2563 ¹⁶⁷ 2412	W ₂ ~~ST~~ 405-6	+15° 2858		III
25843 ¹⁶⁸ 2433	plan of v ² v' Bootis		B.A.C. 5122	III (bands) { See h. reverses the numbering of v' and v ² but says the number is banded.
2590,1 2438	S Serpentis		B.A.C. 5135	III? (bands).
2599 ¹⁶⁸ 2446	W ₂ ~~ST~~ 675	+15° 2890	Bin. 356	III
2627 2472	2 Serpentis		B.A.C. 5196	II to III
2636 ¹⁶⁹ 2480	K Serpentis	+18° 3074	Bin. 358	III
2647 ¹⁷⁰ 2471	R Serpentis		Bin. 360	v80 III
31 II -	V Coronae Bor.	+40° 2929	Bin. 361	IV
2665 ¹⁷¹ 2508	2 Hercules	+43° 2542	B.A.C. 5217	III
2673 2516	E Coronae		B.A.C. 5302	III ft.
172 -		+47° 2291	Bin. 367	III bands fade both ways
173 -		+59° 1697	Radcliffe 3498	III

Reference to observation	Magn.	Color.	α 1880	δ 1880
N 2044	6 th 7	none	15 ^h 6 ^m 37 ^s	+19° 25.6.
P	4.7 Bm.	0	15 10 32	-29 42.4.
			15 16 2	+14 43.7
N 2209	var.	0 (6.2 D.)	15 16 30	+31 48.0.
N 2209		6.0 D.	15 20 14	+15 51.0.
S	5 ¹ / ₂		15 ~~27~~ 26 ~~29~~ 40	+41 ~~18~~ 14.6
S	3	γ	15 29 5	+10 56.5.
P, N 2200	6.7 Bm.	0	15 30 54	+15 30.0.
S	2 ¹ / ₂		15 38 21	+6 48.2.
N 2044	4.0 Bm.	0	15 43 20	+18 30.8.
N 2000	var.	0	15 45 10	+15 29.9.
N 2228	8.5-Bm. (position doubtful)	8.8 D.	15 45 15	+39 56.3
N 2009	6		15 50 38	+43 29.3.
S	4 ¹ / ₂		15 52 37	+27 13.6.
N 2209	6.6 Bm.	0 (8.0 D.)	15 59 7	+47 34.0
N 2044	7		16 0 59	+59 44.6

No. P. No.	Name of star.	DM. No.	Other references.	Spectrum
174 2705	47 Serpentis	+8° 3141	Bm. 370; B.A.C. 5366	III
175	B.A.C. 5369	+9° 3153	Bm. 371	III
176 2726	S Ophiuchi		Bm. 373	III
177 2741	B.A.C. 5459	+60° 1665	Radcliffe 3534	III!
179 2751	V ¹ Coronae	+34° 2773	Bm. 376; B.A.C. 5479	III
180 2752	V ² Coronae	+34° 2774	Bm. 377; B.A.C. 5480	III
32 II			Bm. 379	IV
181	W Herculis		Bm. 380	088 III!
182 2761	Lb. 29935		B.A.C. 5494	III
183 2764	α Scorpis		Bm. 381	II & III
184 2772	30 (g) Herculis	+42° 2714	Bm. 382; B.A.C. 5523	089 III!
187	R ² Draconis.		V. L. V. XVII. 245.	Vol. III!
188	Rümker 5507	+49° 2530	Radcliffe 3588	III
189 2802	42 Herculis	+49° 2531	B.A.C. 5596	III
	Lb. 30500	+36° 2772	Bm. 388	III
191	W ₂ XVI 1347	+42° 2749	Bm. 389	III! { others near less marked.
192 2828	S Herculis		Bm. 392	092 III!

Reference to observation	Magn.	Color.	α 1880	δ 1880
N 2044	6.4 Bm.	y	16 ^h 2 ^m 41 ^s	+ 8° 51.8.
N 2044	7.5 Bm.	y	16 2 50	+ 8 56.8
S H	3.0 Bm.	v	16 8 3	- 3 22.9.
N 2044	6.3	y	16 15 15	+ 60 3.7.
N 2009	5.2 Bm.	o	16 17 50	+ 34 6.0.
N 2009	5.3 Bm.	o	16 17 58	+ 33 58.9.
N 2437, 2525 (var. D.)	8.0 Bm.	ry 88 D.	16 20 4	- 12 8.7
N 2000	var.	v	16 20 29	+ 19 10.1
N 2044	6	y	16 21 15	- 7 19.1.
S H	1 to 2	v	16 22 3	- 26 9.9.
N 2044	var.	o	16 24 42	+ 42 8.9.
N 2044	var. ?		16 32 0	+ 72 36
N 2044	7 to 8	y	16 35 16	+ 49 6.4
N 2009, 2044	5	y	16 35 29	+ 49 9.7.
N 2009	7.7 Bm.	v	16 38 50	+ 36 44.4
N 2009	7.0	v	16 43 29	+ 42 27.2
N 2000	var.	v	16 46 26	+ 15 8.6.

No. P. No.	Name of star	D.M. No.	Other references	Spectrum
193 2849	B. A. B. 5749	+14° 3179		III!
194	61 Herculis	+35° 2911	Bm. 400; B. A. B. 5763	III? bands marked
196 2879	2 Herculis		Bm. 402	III typical ✓
197	W XVII 209	+2° 3296	Bm. 407	III!!
	2903 Oeltgen 16691-2		Bm. 408	III? (band seen)
198 2906	74 Herculis	+46° 2293	B. A. B. 5871	III
33 II			Bm. 410	IV
201	Oeltgen 17201	+71° 841		
203	32300	+31° 3075	Bm. 416; W ₂ XVII 1117	III? ft.
	W XVII 1040		Bm. 422 (near 67 Oph.)	III?
206	W ₂ XVII 1819	+19° 3509		III
207	3042 98 Herculis	+22° 3273	B. A. B. 6134	III
31	Oeltgen 17681			IV ✓
209	W ₂ XVIII 58-9	+43° 2890		III!
	J Herculis.		Bm. 428.	
211 3065	A Herculis	+31° 3199	Bm. 430; B. A. B. 6178	III
	30896		Bm. 437; W ₂ XVIII 435	III
213 3106	Oeltgen 18168	+49° 2782		III

Stars in Durrer Cat. III b not found in Book 76.

No.	h.	m.	s.	
5	2	43	35	+57° 26.2'
34	17	39	4	-18° 36.8'

Stars in Durrer Cat III a not found in Book 76.

No. 4, 8, 10, 16, 19, 21, 23, 24, 25, 26, 27, 31, 47, 60, 61, 63, 67,
 72, 74, 78, 80, 81, 89, 93, 95, 98, 101, 102, 104, 117, 118, 119, 122, 128, 129, 134,
 135, 140, 143, 148, 150 = 13^{h.} 48^{m.} 4^{s.} +40° 55.8? cent., 158, 163, 165,
 178, 185, 186, 190, 195, 199, 200, 202, 204, 205, 208, 210, 212, 215, 218,
 224, 225, 226, 228, 232, 233, 235, 236, 244, 246, 247, 249, 257, 259, 262,
 264, 268, 271, 272, 275, 279, 284, 288, 294.

Reference to observation.	Magn.	Color.	α 1880	δ 1880
N 2044	5-5.6	none	$16^h 57^m 38^s$	$+14^\circ 16.0'$
N 2016	6.5 Bm. 7.7 d's.	y	16 59 15	$+35 35.1$
ϕ ; Bothkamp Ob. H	var.	v	17 9 11	$+14 31.8$
N 2044	7.0 Bm.	v	17 13 44	$+2 16.9$
P	6.0 Bm.	v	17 15 48	$-28 1.6$
N 2009	6		17 16 58	$+46 21.5$
N 2437	8.5 Bm.	ay 8.9 d.	17 22 39	$-19 22.5$
N 2437	6.8 d's.	ay 7.5 d.	17 25 12	$+11 58.4$
N 2016	6.5 Bm.	0	17 35 25	$+31 16.1$
P	7.3 Bm.	0	17 52 2	$+2 44.1$
N 2200	6.5	0	17 58 8	$+19 33.0$
N 2016	$5\frac{1}{2}$	y	18 0 59	$+22 12.6$
ϕ	8 Ob.		18 1 17	$-21 16.0$
N 2228	8	7.0 d.	18 3 11	$+43 26.2$
	var.		18 4 34	$+31 0.1$
N 2009	5.0 Bm.	0	18 7 24	$+31 22.6$
P	7.5 Bm.	v	18 16 33	$+25 0.0$
N 2200	5	y	18 18 28	$+49 3.7$

No. P. No.	Name of star.	D.M. No.	Other references.	Spectrum
3128	Lb. 34257		Bm. 446	II to III
	Lb. 34307		Bm. 447; W ^{XVIII} 599	II with ft. bands.
35 II		+36° 3168	Bm. 448	IV 9. (ft. bands L.) ✓
214		+39° 3476	W ₂ XVIII 1018-9	III!
36 II		+36° 3243	Bm. 458	IV {dark bands fade towards violet ✓
37 II			Bm. 464 B. A. C. 6429	IV? Bright line at $\lambda_{\text{H}\beta}$ perhaps another. ✓
216	3193 β Lyrae 3210 δ^2 Lyrae		Bm. 470	III
217	3224 R Lyrae		Bm. 474	v107 III!
38 II		+14° 3720	Bm. 475	IV 4. ~~III 4.~~ Bands. ✓
219	D.M. +86. 282 Lb. 35507	+22° 3549	Bm. 477; W ₂ XVIII 1660	III
	3241 λ Lyrae		Bm. 479	III? stars of γ Lyrae
39 II	Lb. 35611		Bm. 483; W ^{XVIII} 1442	IV ✓
	D.M. +68° 1038			prob. bands.
	3258 ϵ Sagittarii		Bm. 485	some bands.
220		+30° 3409	W ₂ XVIII 1861	III
221	B Aquilae	+8° 3980	Bm. 486	v110 III {bands fade both ways ✓

Reference to Observation.	Magn.	Color.	α 1880	δ 1880
P	6.5 Bm.	v	18 ^h 25 ^m 53 ^s	-14° 56'.8.
P	7.5 Bm.	v (var.)	18 26 44	-5 14.9
P, N 2228	8.5 Bm.	rr (9.2 D.)	18 28 9	+36 54.1
N 2009	7		18 34 9	+39 33.7
N 2209	7.5 Bm.	v (8.8 D.)	18 38 40	+36 50.7
N 2209	9.0 Bm.	rr (8.5 D.)	18 43 18	-8 2.5
S	3		18 45 39	+33 13.5.
S H	4.5 Bm.	v	18 50 18	+36 44.8.
N 2000 H	var.	0	18 51 41	+43 47.5.
N 2228	9.0	v (8.8 D.)	18 52 4	+14 11.8
			18 53 4	+14 12.9
			18 53 57	+26 33.3
N 2016	6.5 Bm.	0	18 54 54	+22 38.9
S	5.8 Bm.	0	18 55 28	+31 58.6.
N 2000	7.5 Bm.	v	18 58 0	-5 51.7
			18 59 18	+68 49.7
P	4.3 Bm.	y	18 59 27	-27 50.4.
N 2009	7		19 0 20	+30 33.1
N 2209	var.	v (8.8 D.)	19 0 35	+8 3.0

No. P. No.	Name of star.	M. No.	Other references.	Spectrum.
	Lb. 35928-9		Bm. 487; W ₂ XIX 49	traces of bands.
222	R Sagittarii	+22° 3660	Bm. 489	III
223		+24° 3759	Bm. 493; B.A.C. 3133	III
227	3357 2 Vulpeculae		B.A.C. 6674.	III
	Bk. 492.			Bdo. susp.
3360	8 Aquilae		Bm. 500; W ₂ XIX 567	II to III
40 II	Lb. 37241		Bm. 502; Oltz. 19336	IV
41 II	Oltz. 19721		Bm. 505	IV?
229	Lb. 37019	+5° 4190	Bm. 506; W ₂ XIX 668	III!!
	3368 μ Aquilae			III? bands, not resolved.
	3369 k Aquilae			III? like i Aquilae (k or k)
230	3379 B.A.C. 6717	+48° 2914	Gr. 2876	III!
	3380 K Aquilae			III? like i Aquilae (k or k)
	3381 i Aquilae			Band in green; III?
231	3395 R Cygni.	+32° 3522	Bm. 509	IV
42 II				
234		+55° 2245	Bonn Obs. VI, p. 272	III
	3418 γ Aquilae		Bm. 512	III? wide band in green.
237	3421 δ Sagittae	+18° 4240	B.A.C. 6783	III δ ; III! d's.

Reference to observation.	Magn.	Color.	α 1880.	δ 1880.
P	7.0 Bm	v	19 ^h 3 ^m 37 ^s	+23° 59.4
N 2437	var.	24 7.0 D.	19 9 40	-19 31.0
N 2437	7.5 Bm.	24 6.5 D.	19 14 26	+22 20.8
N 2009	5	y	19 23 43	+24 25.5
P	5.5	0	19 14 25	+27 2.1
P	6.5 Bm.	v	19 24 23	-3 2.2
P	6.5 Bm.	v	19 25 50	+76 19.9
P	6.5 Bm.	v	19 27 26	-16 38.0
N 2044	6.9 Bm.	0	19 27 54	+5 12.3
S	4 $\frac{1}{2}$	y	19 28 13	+7 7.6
S	5		19 28 31	-10 49.3
N 2044	7	none	19 30 23	+49 0.2
S	4		19 30 26	-7 17.7
S	5		19 30 31	-1 33.1
N 2209	8.0 Bm.	v (8.3 D.)	19 30 33	+47 47.0
N 2209			19 36 22	+32 20.5
N 2044	7.4	none	19 39 25	+55 10.8
S	3.0 Bm.	v	19 40 33	+10 19.3
N 2000, 2016 H	4		19 42 2	+18 14.3

No. P. to.	Name of star.	Dist. No.	Other references.	Spectrum.
238	δ Vulpec.			<u>III</u> Bands.
3425	DM. +47° 2916.			
3426	γ Ursae Min.	+88° 112	B.A.C. 6999	III ft.
239 3434	χ Cygni	+32° 3593	Bm. 518; Bl. 37835 v 117	III ft. S; III! D.
240 3435	19 Cygni	+38° 3780	Bm. 519; Bl. 37858-9	III
241	Bl. 37866	+37° 3636		III
	DM. +62° 1759			Bds. susp.
43 II		+43° 3425	Bm. 521	IV ft.
3466	γ Sagittae		B.A.C. 6858.	III ft.
242 347413	Sagittae	+17° 4183	B.A.C. 6868	III
35	3477 c Sagittarii		Bm. 522	III 1/2
	Altyn 20234		Bm. 526	III? 1/2
243 3498	64 Draconis	+64° 1405	B.A.C. 6905	III
245		+16° 4153	Bm. 530; W XX 3	III III III III IV
36	DM. +36° 3883.			
37	" +36° 3892.			
	" +35° 3925.			
		+35° 4001	Bm. 534	IV peculiar
	DM. +35° 4003			IV
44 II		+47° 3031	Bm. 535	IV?
38 45 II	Plan. neb. s.p. DM. +37° 3804			IV

Reference to observation.	Magn.	Color.	α 1880.	δ 1880.
N 2209	6.5 D.M.	6.5 D.	19 43 29 19 43 58 19 44 11	+26 52.5 +47 37.9 +88 56.6
P, N 2200	var.	o (var.)	19 45 57	+32 36.6
N 2009	5.5 Bm.	v	19 46 18	+38 24.6
N 2009	8		19 46 28	+37 31.1
N 2209	8.2 Bm.	v (8.2 D.)	19 47 57 19 53 18	+62 53.9 +43 56.0
N 2000 H	4 1/2		19 53 25	+19 10.0
N 2016	6		19 54 38	+17 11.4
①	5.0 Bm.	y	19 55 16	-28 2.7
P, ①	7.0 Bm.	v	19 59 35	-27 34.1
N 2209	5.0 D.M.	6.5 D.	20 0 12	+64 29.1
N 2016	6.5 Bm	ny	20 2 38 20 3 5 20 3 44 20 4 17 20 4 32	+16 18.9 +36 15.2 +36 21.3 +35 48.9 +35 28
①				
P	8.5 Bm.	o	20 5 45	+35 49.3
N 2228	9.3 Bm	v (8.0 D.)	20 5 49 20 6 27 20 6 34	+35 32.6 +47 29.7 +37 3.4 +35 44
①				

No. P. No.	Name of star.	Dist. No.	Other references.	Spectrum.
3521	66 Aquilae		Bm. 538	III ft. bds. susp.
46 II		+35° 4013	Bm. 539	IV peculiar.
		+38° 3957	Bm. 541	IV
		+36° 3956	Bm. 544	IV peculiar.
49 II	26.38839		Bm. 545	IV {another red star near with cont. spectrum.
3541	32 Cygni (0 ²)		Bm. 549	III ft.
48 II	Interrupted Spec. f. 2 m. +36° 3987		Bm. 553	125 brilliant bands suspected. IV ft.
248	3572 B. A. C. 7037	+68° 1121	Radcliffe 4773	III!
3579	w ¹ Cygni	+48° 3128	Bm. 560	III (bands)
	2 m. +37° 3946			Bands.
250	3595 w ³ Cygni	+48° 3154	Bm. 562; Cetz. 20681-2	III
251		+17° 4370	Bm. 566	III
49 II	V Cygni	near +47° 3167	(Stercul.)	III
252		+17° 4401	Bm. 569	IV
				III
253	3644 Cetz. 21043-4	+55° 2462		III
254	3649 3 Aquarii		B. A. C. 7201	III
255	26.40182	-1° 4057	W _{XX} 1069	III
256		+22° 4203		III!

Reference to observation.	Magn.	Color.	21880	81880
S	6.0 Bm.	v	20 ^h 7 ^m 2 ^s	-1° 22.1.
P	8.0 Bm.	o	20 7 23	+35 50.6
N 2437	8.2 Bm.	2 8.3 D.	20 9 2	+38 21.9
P	8.0 Bm.	o	20 10 3	+36 17.8
P	7.0 Bm.	v	20 10 5	-21 41.1
N 2000	5.0 Bm.	v	20 11 46	+47 20.8.
P; N 2434	var.	rr (8.6 D.)	20 12 32 20 12 32 20 15 54	+37 3.1 +37 3.1 +47 31.0
N 2044	6 to 7	none	20 19 33	+68 29.7.
S	6.0 Bm.	o	20 23 22	+48 59.1.
N 2044	5.9 Bm.	y	20 23 59 20 27 37	+37 23.7 +48 48.9.
N 2009	7.0 Bm.	o	20 32 27	+17 50.6
N 2380 n			20 36 3/2 20 37 27	+47 37.6 +47 42.8
N 2016	6.8 Bm. (var?)	v	20 39 58	+17 39.4
N 2209	6	7.5 D.	20 41 16	+56 3.1.
N 2000	4		20 41 24	-5 28.0.
N 2016	7		20 43 7	-1 0.5
P, N 2000	8		20 43 32	+22 33.0

No. P.M.	Name of star.	D.M. No.	Other references.	Spectrum.
258	Lb. 40347	+49° 3386	Altgen 21176	III
260 2700	Lb. 40682	+18° 4675		III
261	R Vulpeculae	+23° 4320	v 132	III ft.
3716	ξ Cygni	Bm. 576		III (bands)
	D.M. +47° 3321			III
50 II		Bm. 582		IV ft.
263 3790	Lb. 41799-80	+21° 4555	W ~~XXI~~ 536	III
265 3792	2 Pegasi	+23° 4325	Bm. 583; B.A.C. 7474	III? peculiar
	Schj. 249 or 249a?		Bm. 584	IV ft. (not found by D.)
			Relectan 3676	IIIa? III b
266	Lb. 42153	+44° 3877	Bm. 587; Altg. 22524	III!
267 3823	D.M. +42° 4177			Bands
51 II	δ Cephei	+77° 827	Bm. 588	v 134 IV
52 II	Lb. 42342	+34° 4500	Bm. 589; W ~~XXI~~ 889	IV
53 II	W ~~XXI~~ 923		Bm. 592	IV {see note to next star}
			Bm. 593	IV ft. {Bm. thinks this identical with Bm. 592}
269 3845	μ Cephei	+58° 2316	Bm. 594; B.A.C. 7582	v 135 III!
270	Lb. 42434		Bm. 596; W ~~XXI~~ 942	III
54 II		+49° 3673		IV

Reference to observation.	Magn.	Color.	α 1880.	δ 1880.
N 2044	7.3	none	20 ^h 45 ^m 51 ^s	+49° 40'.8
N 2009	6 to 7		20 55 2	+18 51.8.
{ N 2228 } { v.g.s. XVI 243 }	var.	6.5 D.	20 59 2	+23 20.7
f	4.0 Bm.	v	21 0 34	+43 27.0
N 2228	9.5 Bm.	(8.5 D. (o f, o'5s).	21 6 19	+47 10.0
			21 17 30	+41 53.2
N 2016	7 (hy. 5.5); var?	little	21 23 31	+21 39.3.
N 2016	4.5 Bm.	o	21 24 31	+23 6.8.
N 2228	9 S	v	21 26 24	+51 3.3
N 2044	6.7 Bm.	v	21 29 32	+17 47.4
			21 31 30	+44 50.4
N 2228	var.	r. col. v. (9.3 D.)	21 35 23	+42 43.9
			21 36 42	+78 5.0
N 2009	6.2 Bm.	v	21 36 58	+34 57.7
N 2228	7.8 Bm.	v	21 38 18	+37 28.0
P	9 S	v	21 39 23	+37 18.8
N 2044	var.	o	21 39 50	+58 13.8.
P	6.5 Bm.	o (var.)	21 40 19	-2 46.1
N 2228	9.1 D.	8.5 D.	21 50 44	+49 56.5

No. P. No.	Name of star.	D.M. No.	Other references.	Spectrum.
	α U. +60° 2318			ft. bds.
273 3879	α U. +65° 1691	+62° 2007	Bm. 599	III bds. susp.
274 3883	α U. +65° 1693	+79° 721	B.A.C. 7678	III (bands wide; diffus.) numerous ft. bds.
276		+14° 4730	W XXI 1341	III
277 3904		+62° 2028	Bm. 601	III!
	α U. 40501-2		Bm. 609; W XXII 198	faint bands.
			W XXII 3848	
278 4004		+56° 2821	Bm. 615	III !!
	β Cygni		B.A.C. 7904; Melbourne 1149	III
	40371 Cephei			III (bands, ft.)
280 4040	λ Aquarii		Bm. 621	III
	4064 α U. 44947		Bm. 625; Oeltz 22540	III IV
281 4048	β Pegasi		Bm. 627	III IV
282 408455	Pegasi	+8° 4997	Bm. 629	III ft.
283 409557	Pegasi	+7° 4981	Bm. 630	III
285 4106	ϕ Aquarii		Bm. 632; B.A.C. 8085	III
	α U. +57° 2317			Bds. susp.
286 4113	χ Aquarii		Bm. 634; B.A.C. 8102	III
287 4120	Oeltz 25382		Bm. 635	III
	α U. +56° 2986			Bds. susp.
289 4144	Oeltz 25549	+67° 2444		III

Reference to observation.	Magn.	Color.	α 1880	δ 1880.
N 2209	5.7 Bm.	$\approx (7.5D)$	21 ^h 51 ^m 46 ^s	+60° 57'
N 2209; N 2437	6.4 D.M.	6.5 D	21 53 16	+63 21.9.
N 2016	7.58	y	21 56 10	+65 34.2
			21 54 22	+65 34.2
			21 59 15	+14 14.0
N 2209	5.9 Bm.	0 (7.0 D)	22 0 21	+62 30.9.
P	7.8 Bm.	$\approx$	22 11 26	+4 32.8
			22 18 43	+15 31.7
N 2209	6.0 Bm.	0 (7.0 D)	22 33 55	+56 10.5.
Pope (Singing Vol. II, p. 155)	2.2	0	22 35 30	-47 30.6
			22 45 25	+65 34.3.
N 2000	4.0 Bm.	$\approx$	22 46 21	-8 13.1
			22 51	+43.0
P	7.0 Bm.	$\approx$?	22 53 35	-25 48.2.
			22 54	+51.0
S H	var.	$\approx$	22 57 58	+27 25.8.
			22 59	+42.0
N 2000	5.2 Bm.	0	23 0 57	+8 45.6.
N 2000	5.3 Bm.	0	23 3 29	+8 1.6.
N 2000 H	5	0	23 8 6	-6 41.6.
			23 8 52	+57 12.0
N 2000	5 $\frac{1}{2}$	$\approx$	23 10 38	-8 22.7.
P	4.9 Bm.	y	23 12 11	+48 21.6.
			23 14 26	+56 31.2
N 2209	6	(7.5 D)	23 19 29	+61 37.5.

No. P. No.	Name of star.	D.M. No.	Other references.	Spectrum.
290	Sol. 46112-3		Bm. 642; W ₂ ~~XXIII~~ 535	faint bands.
291 4158	Sol. 46146	+21° 4952	Bm. 643; W ₂ ~~XXIII~~ 538	III!
292 4192	17 Pegasi	+9° 5268	Bm. 645; B.A.C. 8250	III
293 4193	R Aquarii		Bm. 646	v142 ^{Dec. 1880} ~~III~~ III D.
55 II 4198	19 Piscium	+2° 4709	Bm. 648; U.A. Proc., 42	III to IV S IV? O
	Gr. 4154		Bm. 651; Radcliffe 6203	III 1/4.
295 4225	Sol. 46859-60	-0° 4585	Wash. 10544	III!
39		+62° 2343		?
296	Oeltgen 26287		Bm. 658 (a blue star f 7.5)	Green unusually strong.
297 4247	30 Piscium		U.A. Proc., 59; B.A.C. 8349	^{Jan. 1881 R 95127} ~~III~~ III! D.

See A.V. 2437.

Reference to Observation.	Magn.	Color.	α 1880	δ 1880	
P	6.8 Bm.	y	23 ^h 26 ^m 30 ^s	+23° 11.0'	
N 2009	6.0 Bm.	v?	23 27 29	+21 51.6	,
N 2016	5.0 Bm.	v	23 37 16	+9 39.9	.
N 2228	si var.	v(6.5D.)	23 37 37	-15 57.1	✓
P, Q	6.2 Bm.	v	23 40 15	+2 49.3	.
P	6.3 Bm.	y	23 46 32	+74 51.7	
N 2016	6 to 7	none	23 48 38	-0 33.4	✓
Q	and, about with here 295.156		23 52 57	+62 13	
P	7.8 var.	v	23 55 9	+59 41.2	
N 2228, Q	4.4 U.A.	6.5D.	23 55 48	-6 40.8	✓

Name of star.	M. N.	Other references.	Spectrum.
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Reference to Observation. Magn. Color. α 1880, δ 1880.

Memorandum of stars with peculiarities.

not confirmed	U. A. ¹¹¹⁴ Can. Maj. ♂	3.6	✓ 6 ^h 56 ^m 56 ^s - 27° 45.8 ✓	c
	U. A. ¹² Puppis 73	var. 3.6-6.3	✓ 7 9 53 - 44 26.7 ✓	a
	U. A. 34, Pyxis	6.5	✓ 8 45 1 - 29 1.0 ✓	a
	U. A. R. Piscium	7.8 ⁿ	✓ 1 24 27 + 2 15.6 ✓	a
	U. A. ¹ Fornax, 83	5.9	✓ 3 14 21 - 24 33.5 ✓	a

susp.	U. A. Can. Maj. 89, 0, 44	R 97, 25	6 48 37 - 11 53.3 ✓	c
bds.	U. A. " 147 54	97, 43	✓ 7 11 46 - 27 40.2 ✓	a
susp.	" 159 6.7	97, 43 ?	7 16 8 - 25 40.0 ✓	b
susp.	" 162 6.1	97, 40 ?	7 18 39 - 27 36.2 ✓	b
susp.	Pyxis 30 7.0	97, 53 ?	8 42 34 - 34 9.6 ✓	c
susp.	Hydra 76 6.8	97, 52	8 48 52 - 10 55.3 ✓	b
III	" 58 6.7	97, 52 ✓	8 40 21 - 10 34.3 ✓	a
bds.	Puppis 254 6.6	97, 60 ✓	8 1 7 - 33 13.6 ✓	a

DM. + 7° 1099, W. V 1395; R. 97, 66	{contrasted spectra; last red compared with first}	5 56 4 + 7 42.0	a
DM. + 7° 1103, W. V 1415; R. 97, 66		5 56 40 + 7 37.5	a

x bds. susp.	DM. + 56° 724, 9.4 magn.; R. 97, 67	{red, bds.} {susp.}	2 41 18 + 56 28.9 ✓	a
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x	U. A. Puppis 82, π , 2.7 magn.;	R97, 69	ft. bds.	7	12	55	-36	52.0	b	
	175, 3.6	R97, 69	bds. susp.	7	40	59	-37	40.6	b	
A	1418, var. $6\frac{1}{2}$ - $7\frac{1}{2}$;	R97, 76, 77	red, not per.	7	36	14	-31	23.0		
x	{ Star sf, 10° , $1'$ star sf, 26° , $5'$	10	R97, 76 red, ft. bds.	7	36	24	-31	24.0	b	
x		9	R97, 76 red, " "	7	36	40	-31	18.0		
	U. A. Hydra 195,	6.0	R97, 80	slightly susp.	10	1	23	-16	33.2	c
	Pyxis 8,	7.0	R97, 84	{slightly susp.; also another star near}	8	25	57	-36	19.1	c
	Hydra 95, 10,	5.4	R97, 84	{bds. susp.}	8	59	40	+5	34.2	c
x	286,	6.6	R97, 88	(ft. bds.)	11	25	26	-26	5.2	b

b	U. A. Hydra 358	7.0	R97,90	^{red;} { strong bands; } prob. III	h m s °	13 42 16 -27 46.0
c	{ Faint stars }			sp. perhaps interrupted	" "	" "
c	Corvus 30	6.2	R97,96	bds. slightly susp.	12 24 1	-23 1.9
N 2044	ω Virginis 2	5.9	R97,96	III	11 32 16	+8 48.0
c {	Centaurus 271½	7.1	R97,97	bds. slightly susp.	13 42 9	-39 55.1
c {	" "	7.1		esp. in f stars	13 42 14	-39 55.0
N 2000, 2044	δ Virginis 157	5.1	R97,100	III	13 25 44	-5 38.0
c	δ " 160	var.	R97,100	prob. bds.	13 26 44	-6 34.5
b	σ Librae 45	3.5	R97,108	heavy bds.	14 57 3	-24 48.5
c	ν " 48	5.5	R97,108	bds. susp.	14 59 56	-15 47.4
c	κ " 106	5.5	R97,109	- " -	15 35 2	-19 17.3
b	Bm. 174	9.0	R97,112	bds.	7 16 23	-20 40.1
c	Bm. 175	7.0	R97,112	bds. susp.	7 18 3	-25 31.9
b			R97,113	bds. susp.	8 45	-28
b	γ Centauri 274	4.6	R97,115	peculiar	13 42 30	-33 51.0
b	ε " 371	4.3	R97,116	red; bds.	14 36 19	-34 39.3
N 2044	Serpens 39	6.2	R97,125	bds. prob. III	16 2 41	+8 51.8
N 2044	" 40	7.0	R97,125	bds. prob. III	16 2 50	+8 56.8
??	H.C.?		R97,131	bds. slightly susp.		
b	Bm. 280	9.0	R97,148	prob. bds.	12 23 10	+28 57.5
b	Bm. 410	8.5	R97,153	prob. IV	17 22 39	-19 22.5
b	U. A. Hydra 358	7.0	R97,165	(see top of this page)	13 42 16	-27 46.0
b	Lupus 110	6.6	R97,183	bds. susp.	15 26 6	-39 39.6
c	Lupus 115	6.2	R97,189	bds. sl. susp.	15 27 58	-43 57.6
N 2380	"Observatory" IV, 185	9	R97,191	Bds.	20 37 21	+47 42.2
c	U. A. Scorpions 21(ω)	4.6	R97,192	Prob. ft. bds.	16 0 22	-20 32.6
b	Scorpions 25	6.0	R97,192	ft. bds.	16 0 48	-26 0.2
c	Scorpions 35	5.8	R97,195	ft. bds. susp.	16 3 33	-29 5.8
c	Scorpions 44(X)	5.6	R97,195	ft. bds. susp.	16 7 12	-11 31.8
c	Scorpions 76(H)	4.4	R. 97,197	Bds. susp.	16 28 28	-35 0.3
c	Scorpions 108	7.0	R98,163	" "	16 47 23	-39 18.2
c	Stars in U. A. Scorpions 167		R98,165	" "	17 35 15	-32 59.2

c	U. A. Hydra, 287	5.8 magn.	R 97, 88; 44 bds.	11 26 59	-30 25.5	
see top p. 101		3.58	R 97, 90; {strong bds.; 44. stage of has perhaps var.}	13 42 16	-27 46.0	
b	Bm. 82	8.7	R 95, 169	Purb. III	4 36 50	+32 41.9 ✓
c	U. A. Oph. 40	6.0	R 98, 167	bds. susp.	16 34 50	19 41.5
b	" Oph. 66	6.3	R 98, 167	III	16 52 37	-24 54.5
g	" Oph. 67	6.6	R 98, 167	susp	16 52 48	-24 48.2
b	" Oph. 206	6.6	R 98, 169	III	18 10 4	+2 20.3
b	" Sag. 56	var.	R 98, 170	bds.	18 14 8	-24 58.0
c	" Sag. 161	7.0	R 98, 179	bds. susp.	19 10 11	-19 4.6
b		var?	R 98, 190	bds.	16 32 0	+72 36 ✓
c	U. A. Sag. 93	7.0	R 98, 195	bds. susp.	18 37 15	-35 58.4
b	" Sag. 198?	6.8	R 98, 195	bds. prob. III	19 24 50	-31 7.2
Ha	" Sag. 265	4.7	R 98, 197	bds. III	19 55 16	-28 2.5
sup. turn b	" Sag. 268	5.0	R 98, 197	bds. susp.	19 53 33	-38 16.2
III 2. time b	" Sag. 283	6.5	R 98, 198	bds. susp.	20 8 35	-36 49.2
b	" Capr. 56 (w)	4.1	R 98, 202	III	20 44 40	-27 22.0
b	" Capr. 81	5.7	R 98, 203	III	21 9 7	-15 40.2
c	" Capr. 89	6.8	R 98, 203	bds. susp.	21 17 15	-23 15.6
c	" Sag. 2 (X)	var.	R 98, 204	bds. susp.	17 40 0	-27 46.9
b	"		R 98, 205	IV	19 12 0	-16 8
Ha	U. A. Sag 265 (see above)		R 98, 208			
c	" Scut. 17	6.4	R 98, 209	bds. susp.	18 33 30	-7 53.7
b	" Scut. 25 (R)	var.	R 98, 209	bds. prob. III	18 41 5	-5 49.9
b	" Reg. 9	5.6	R 98, 215	bds. prob. III	21 36 16	+5 8.0
N 2000	" Reg. 42	4.5	R 98, 216	III		
N 2000	" Reg. 43	5.4	R 98, 216	III		
N 2000	" Aquar. 9	4.8	R 98, 217	III	20 41 24	-5 27.9
b	" Sag. 46 (y)	3.3	R 99, 8	III	18 9 30	-36 47.7
Prodr.	" Aquar. 87 (piston)	7.0	R 99, 14	bds.		
b	" Aquar. 183 (r)	4.2	R 99, 20	bds. ft.	22 43 14	-14 13.5
N 2000	" Aquar. 185 (X)	3.6	R 99, 21	III		
N 2000	" Aquar. 215 (y)	4.1	R 99, 21	III		
b	" Aquar. 216	6.5	R 99, 21	bds. susp.	23 8 26	-11 20.4

h	U.A. Aquar. 256 (A)	5.8	R99, 22	bds. surp.	23 35 22 - 18	41.3
h	" Microsc. 17	6.1	R99, 23	bds. surp.	20 33 56 - 32	1.3
h	" Microsc. 35	6.7	R99, 23	bds. surp.	20 46 55 - 28	22.6
h	" Sag. 268 (see p. 102)		R99, 26	bds. surp.		
h	" Sag. 283 (see p. 102)		R99, 27	III		
h	" Psc. Aust. 53	6.5	R99, 29	III	22 35 42 - 29	59.3
h	Bm. 428 (J Her.)	var.	R99, 36	bds. III	18 4 34 + 81	0.1

Unless otherwise
was observed

Preceding list arranged in order of

1. R. Psc.	1 24 27	100	Hydr. 287	11 26 59	102	Bm. 410	17 22 39	101	RA. 53	22 35 42	103
2. D.M. 724	2 41 18	100	Bm. 280	12 23 10	101	nf. 167	17 35 15	101	Hy. 183	22 43 14	102
3. Form. 83	3 14 21	100	Cor. 30	12 24 1	101	Sag. 2	17 40 0	102	" 216	23 8 26	102
4. Bm. 82	4 37 28	102				J. Virg.	13 26 44	101	J. Her.	18 4 34	103
5. D.M. 1099	5 56 40	100				Cent. 271	13 42 9	101	Sag. 46	18 9 30	102
6. " 1103	5 56 40	100				"	13 42 14	101	Oph. 206	18 10 4	102
7. Can. Maj. 89	6 48 37	100	Hydr. 358	13 42 16	101	Sag. 56	18 14 8	102			
" 114	6 56 56	100	Cent. 274	13 42 30	101	Sent. 17	18 33 30	102			
Puffin 73	7 9 53	100	Cent. 271	14 36 19	101	Sag. 93	18 37 15	102			
Can. Maj. 1147	7 11 46	100	Lib. 45	14 57 3	101	Sent. 25	18 41 5	102			
Puffin 82	7 12 55	100	" 48	14 59 56	101	Sag. 161	19 41 11	102			
Puffin 159	7 16 8	100	Cap. 110	15 26 6	101		19 12 0	102			
Bm. 174	7 16 23	101	" 115	15 27 58	101	Sag. 198?	19 24 50	102			
Bm. 175	7 18 3	101	Lib. 106	15 35 2	101	" 265	19 55 16	102			
Can. Maj. 162	7 18 39	100	Scorp. 21	16 0 22	101	" 268	19 55 33	102			
Puffin 148	7 36 14	100	" 25	16 0 48	101	" 283	20 8 35	102			
	7 36 24	100	" 35	16 3 33	101	Hy. 256	20 33 58	102			
	7 36 40	100	" 44	16 7 12	101	Hy. 256	20 37 21	101			
Puffin 25	7 36 40	100	" 76	16 28 28	101	Hy. 256	20 41 24	102			
Puffin 8	8 25 57	100				Cap. 56	20 44 40	102			
Hydra 58	8 40 21	100				Mis. 35	20 46 55	103			
Puffin 30	8 42 34	100				Cap. 87	21 9 7	102			
Puffin 34	8 45 1	100				Cap. 89	21 17 15	102			
Hydra 76	8 48 52	100				Cap. 9	21 36 16	102			
" 95	8 59 40	100									
" 195	10 1 23	100									
" 286	11 26 26	100									

Stars from the preceding list, pp. 100 - 103, which are not in either of the communications to the Astr. Nachr. (in April and October, 1881), but were merely suspected to have banded spectra by one observer.

Reference	Designation.	R. A., 1880	D., 1880.	Obs. Colon	Remarks.
R 97, 25	U. A., Can. Maj., 89 (A)	6 ^h 48 ^m 37 ^s	-11° 53.3 4.4	W. 3	short bds. susp.
	" " 114 (σ)	6 56 56	-27 45.8 3.6		susp. not conf.
R 97, 112	Bm. 175	7 18 3	-25 31.9 7.0	W. 2	prob. bds.
R 97, 84	U. A., Pyxis, 8	8 25 57	-36 19.1 7.0	W.	prob. bds.
R 97, 53	" " 30	8 42 34	-34 9.6 7.0	W. 1	susp.
R 97, 84	" Hydra, 95 (ω)	8 59 40	+5 34.2 5.4	W. 1	susp.
R 97, 80	" " 195	10 1 23	-16 33.2 6.0	S. 2	slight-susp.
R 97, 96	" Corvus, 30	12 24 1	-23 1.9 6.2	S. 1	slight-susp.
R 97, 100	" Virgo, 160 (J)	13 26 44	-6 34.5 var.	P. 2	susp.
R 97, 97	" Centaurus, 271 ¹ / ₂	13 42 { 9 ¹ / ₂ } 14	-39 55.1 ¹ / ₂ 7.1, 7.1	S. 0 8 1	both stars susp.
R 97, 90	sf U. A., Hydra, 358	13 42	-27 46	S.	susp.
R 97, 108	U. A., Libra, 48 (ν)	14 59 56	-15 47.4 5.5	W. 2	susp.
R 97, 188	" Lupus, 115	15 27 58	-43 59.6 6.2	W. 2	susp.
R 97, 109	" Libra, 106 (κ)	15 35 2	-19 17.3 5.5	W. 2	susp.
R 97, 192	" Scorpius, 21 (ω ²)	16 0 22	-20 32.6 4.6	W. 3	ft. bds. susp.
R 97, 195	" " 35	16 3 33	-29 5.8 5.8	W. 2	" " "
R 97, 195	" " 44 (γ)	16 7 12	-11 31.8 5.6	W. 2	" " "
R 97, 197	" " 76 (H)	16 28 28	-35 0.3 4.4	W. 3	bds. susp.
R 98, 167	" Oph., 40	16 34 50	-19 41.5 6.0	W. 1	poss. bds.
R 98, 163	" Scorpius, 108	16 47 23	-39 18.4 7.0	W.	bds. susp.
R 98, 167	" Oph., 67	16 52 48	-24 48.2 6.1	W. 1	" "
R 98, 165	nf U. A. Scorpius, 167,	17 35	-32 59	W. 2	prob. pecul.
R 98, 204	U. A., Sag., 2 (X)	17 40 0	-27 46.9 var.	P. 1	poss. bds.
R 98, 209	" Scutum, 17	18 33 30	-7 53.7 6.4	P. 1	bds. susp.
R 98, 195	" Sag., 93	18 37 15	-35 58.4 7.0	P.	" "
R 98, 179	" " 161	19 14 11	-19 4.6 7.0	W.	" "
R 98, 203	" Capricorn, 89	21 17 15	-23 15.6 6.8	P. 0	" "

Stars noticed as peculiar. after Oct. 5, 1887.

Reference	Date	Obs.	
R 99, 67	1887 Oct. 14	S.	DM. +1° 3527 (decl. in error) suspected.
, 82	Oct. 20	P.	R. Capricornii, suspected.
, 98	Oct. 21	P., W.	γ Sagittarii suspected.
, 99	Oct. 21	P., W.	β m. 492 suspected.
, 110	Oct. 26	S.	DM. +47° 33 21. Type III.
, 131	Oct. 28	W., P.	DM. +68° 10 38 prob. bands.
, 153	Nov. 14	P.	Red star near U. A. Sagittarius 142; not spec.
154	" "	P.	V Coronae; bands.
168	Nov. 15	W.	Red star; bands; color 2; near DM. -0° 367
172	" "	W.	" " ; " ; " 2; near Pleiades.
172	" "	W.	" " ; " ; " 2; " "
185	Nov. 20	P.	R. Persii; bands.
185	" "	S.	β Ceti; susp.
185	" "	P.	Star near β Ceti susp.
187	Nov. 22	P.	U. A. Cetus, 236; prob. III.
193	Nov. 24	P.	DM. +37° 3946; bands.
193	" "	P.	DM. +36° 3987 has by lying in same line, 3 stars with bright bands in Cygnus.
195647	Nov. 25	P.	DM. +35° 4003 is type IV.
	" "	P.	Planetary nebula sp. DM. +37° 3804.
	" "	W.	Interrupted spectrum of DM. +36° 3987.
201	Nov. 26	P., W.	DM. +35° 3985 type III.
	" "	"	DM. +36° 3883 " III.
	" "	"	DM. +36° 3892 " III.
R 100, 13	Nov. 30	W.	U. A. Erid. 167 & star sf. banded (not comp. by S.)
14	" "	S., W.	DM. +65° 1693; banded; bands numerous, faint.
14	" "	W.	DM. +65° 1691; suspected.
40	Dec. 8	P.	DM. +2° 3904; faint bands.
46	" "	W.	U. A. Can. Mayj. 92; bands susp.
V. J. S. XVI. 243		Vogel	R. Aurigae III
"		"	β Hydrae III
"		"	R. Camelopard. III

R Beti (N2437)

R.A. 1840.	Dec. 1840.
✓ 17 ^h 46 ^m 30 ^s	+10 46.0
✓ 20 4 34	-14 37.4
✓ 19 12 25	-19 14.6
✓ 19 14 25	+27 2.1
✓ 21 6 19	+47 10.0
✓ 18 59 18	+68 47.7
✓ 19 1 41	-18 42.3
✓ 15 45 15	+39 56.1
✓ 2 19 55	+0 57.1
✓ 3 41	+23.7
✓ 3 38	+22.7
✓ 3 22 25	+35 15.3
✓ 0 17 57	-9 59.7
✓ 0 8 47	-9 59.7
✓ 2 16 48	-0 3.7
✓ 20 23 59	+37 23.7
✓ 20 12 32	+37 7.5
✓ 20 5 54	+35 32.6
✓ 20 6 24	+37 3.4
✓ 20 12 32	+37 3.1
✓ 20 4 17	+35 49.9
✓ 20 3 5	+36 15.2
✓ 20 3 44	+36 21.3
✓ 3 59 12	-20 25.9
✓ 21 54 22	+65 38.2
✓ 21 54 9	+65 34.9
✓ 19 24 9	+2 38.8
✓ 6 49 9	-24 2.2
✓ 5 7 36	+53 25.0
✓ 8 47 18	+3 31.3
✓ 14 26 41	+84 22.4

V.J.S. XVI. 243		Vogel	δ Aquarii	III
"		"	R Draconis	III!
"		"	δ Vulpeculae	III
"		"	R Ophiuchi	III
"		"	δ Hydrae	III
"		"	Var. in Can. Min. Baxendell.	3's of D.M. + 8° 1848.
R 100, 60		W.S.	D.M. + 60° 2318	faint bands.
Mon. XL. 294		Vogel	D.M. + 8° 1846.	
R 100, 149		W.	D.M. + 58° 2986.	bands susp.
	1882 Feb. 23	P.	Red star of Lbl. 13412 2 ^m 36', s of Lbl. 13412 3'. Bands	
		S.	Star of Lbl. 13412 3 ^m 59', 5' (approx.) Bands susp.	
R 100, 209; 101, 6	Feb. 17/25	W.	D.M. + 86° 282.	Bands.
R 101, ~~22~~ 22	March 11	W.	D.M. + 12° 2162.	Banded ~~for~~ probably
R 101, 158 20	March 8	W.	D.M. + 6° 2071.	" "
R 101, 56	March 24	W.	D.M. + 57° 2713	Bands susp.
R 100, 1. 194		P.	Star of type III found in sweeping. Place?	
R 101, 138	April 25	W.	D.M. + 62° 1759	susp.
101, 166	May 7	P.	D.M. + 66° 780	Banded.
101, 174	May 16	P.	Star of type III found in sweeping. Place?	
101, 177	May 23	P.	R Crateris.	Banded.
102, 32	July 8	P.	Star of type IV near γ Scuti.	
102, 46	July 15	S.	Stars prob. banded near Dreyer 5851.	
102, 56	July 20	W.	D.M. + 9° 4264	susp.
102, 59	July 21	W.	D.M. + 10° 4073	banded.
102, 59	July 21	W.	Σ 2590	susp.
102, 67	July 26	W.	ν Sagittarii; narrow bands.	
102, 82	Aug. 5	W.	D.M. + 42° 4177 color 3; banded.	
103, 83	Sept. 18	P.	Star of type IV (D.M. + 9° 4369?)	
103, 112	Oct. 7	P.	" " " III about 23 ^h 44 ^m (D.M. + 8° 5127?)	
104, 6	Nov. 4	P.	Bands susp.	
104, 14	Nov. 8	P.	" "	
104, 95	Dec. 8	P.W.	R Cygni; R Androm	

✓	R.A. 1880.	Dec. 1880.
✓ 22	50 41	-20 59.0
✓ 16	32 21	+67 0.5
✓ 19	43 29	+26 59.5
✓ 17	0 53	-15 55.9

See previous page for this star. ~~8 47 18 +3 31.3~~

✓ 7	34 50	+8 39.5
✓ 21	51 46	+60 57.8
✓ 7	34 17	+8 40.4
✓ 23	14 26	+58 35.2
✓ 6	51 49	-23 46.6
✓ 6	53 12	-23 52.2
✓ 18	53 57	+86 33.3
✓ 10	5 9	+12 37.8
✓ 8	51 15	+6 21.9
✓ 23	8 52	+57 12.0
✓ 6	45	-16.0
✓ 19	47 57	+62 53.9
✓ 12	52 13	+66 38.7
✓ 11	4 21	+11 57.0
✓ 10	54 40	-17 40.8
✓ 18	20.6	-15 55
✓ 17	8 36	-12 41.8
✓ 19	42 13	+9 44.5
✓ 19	53 42	+11 8.8
✓ 19	46 33	+10 2.5
✓ 19	14 52	-16 10.8
✓ 21	35 23	+42 43.9
✓ 19	55 18	+9 11.2
✓ 23	45 14	+8 38.6
✓ 22	55	-17.5

✓ 1	5	-14.8
✓ R. Cygni	19 33 36	+49 55.7
✓ R. Cygni	17 43	+37 54.6

R 104, 126	1882 Dec. 18	P.	Probable bands.
R 105, 12	1883 Jan. 22.	W.	Spectra of R And. & DM. +38° 54
105, 24	Jan. 26	P.	Spectra of types III & IV.
105, 53	Feb. 8	P.	Hind's crimson star.
105, 129	March 4	P.	Spectrum of type III.
105, 212	April 9	P.	Spectra of types III & IV.
106, 59-61	May 8	P., W.	2 planetary nebulae. DM. +47° 29' 16 banded.
107, 24	Aug. 31	W.	Oeltgen 19382 red and banded. This is Rehule, Expédition Danoise pour l'observation

DM. +38° 54

III Type.

III "

IV "

Hind's Crimson Star. IV.

III Type.

IV "

III "

Oct. 19322.

R.A. 1850. Dec. 1850.
 $\sqrt{0^h 17^m 43^s - 9^\circ 56.7'}$
 See below.

" "

" "

" "

$\sqrt{19$ " "

43 52 +47 37.6

a star previously found here, and published in *A.N.*
du Passage de Vénus 1882, Copenhagen, 1883, contains numerous notes on stellar spectra.

$\sqrt{0^h 22^m 15^s + 38^\circ 26.2}$

$\sqrt{22 51 + 43.0}$

$\sqrt{22 54 + 51.0}$

$\sqrt{22 59 + 42.0}$

$\sqrt{4 54 8 - 14 59.2}$

$\sqrt{6 41 + 5.2}$

$\sqrt{6 23 + 43}$

$\sqrt{7 29 + 45}$

$\sqrt{19 30 33 + 47 47.9}$

See R 105. p. 212.

" " " " "

What is the value of $130 + 0^{\circ}47'41''$? See See See.

July 17, 1880

1876

Almon	6629	12
Deaford	6533	12
Almon	6445	14
Deaford	6188	12
Almon	4378	12
Deaford	4333	14
Almon	4207	12
Deaford	4186	12

