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October 7, 1908.

Exam. of Spectra of Comparison Stars for Variables. Design. & ident. is that given in Vol. 47. Part I.

Object (Var.	Des.	Cat. No.	Photog. Magn.	Sp.	Plate.
050027.		-22° 9.95			
24. J Leporis	a	-21 1067	6.97	K	B12370
	b	-21 1065	7.59	G5	
	c	-21 1061	8.04	G	
	d	-21 1068	8.49	K	
	e	-22 996	8.97	A?	plate not very good.
062808.					
31. L Monocer.	a	-8 1471	8.80	F	B20803
	b	-8 1473	9.08	A	
	c	-8 1474	9.40	A	
	d	-8 1476	9.70	F5	
	*				
070109.					
33. Ursae Minoris	a	+9 1510	7.99	K	I13735 I19832
	b	+8 1640	8.57	A	" "
	c	+9 1519	8.99	A	" "
	d	+9 1517	9.37	A	"
	e	+9 1520	9.72	A	"
	f	+9 1522	10.07	A5	"
	g	+9 1521	1047	A	"
	h	.. ..	1079	A5	"
065208					
32 K Monocer.	a	-8 1639	7.50	B5	B20895 B20679
	b	-9 1765	8.08	A	" "
	c	-8 1633	8.43	F	" "
	d	-8 1650	8.83	Ma	" "
	e	-8 1647	9.23	A	"
	f	.. ..	9.75	A2k	"

see next page.

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1908phae..proj..820F

October 7, 1908.

Exam. of Spectra of Comparison Stars cont.

Object.	Des.	Cat. No.	Photog. Magn.	Sp.	Plate.	
X Monocer.	g	.. ..	10.10	A	B20679	
	h	−8° 1643	10.55	K	"	
	k	.. ..	10.83	K	"	(curve is not drawn as far as this)

October 8, 1908

0703 11
35 Canis Majoris

a	−11°	1812	7.43	B8	B20801	~~B20680~~
b	−11°	1830	7.78	G5	"	
c	−12°	1790	8.43	A	"	
d	−11°	1801	8.63	A	"	
e	−12°	1813	8.85	A	"	
f	−11°	1804	9.45	A2	=	B20680
g	−11°	1811	9.75	A5		"
h	−11°	1810	9.97	A		"
k	..	..	10.32	A		"
l	−11°	1814	10.62	G		"

074305
39 Canis Minoris

a	+5°	1802	8.85	K5	B15244	Another plate
b	+5°	1794	9.30	K		
c	+5°	1798	9.62	G5		
d	+5°	1795	10.02	too faint		
e	..	..	10.30	too faint		

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1908phae.proj..820F

October 8, 1908

Exam. of Spectra of Comparison Stars for Variables cont.

Object.	Des.	Cat. No.	Photog. Magn.	Sp.	Plate.
080322 41 R. U Puppis	a	-22° 2152	8.36	a3	B15158
	b	-22° 2161	8.68	a	
	c	-22° 2150	8.98	a	
	d	-22° 2153	9.26	g5	
	e	-22° 2145	9.54	a	
	f	-22° 2156	9.76	F?	
	g	-22° 2149	10.04	K	
081908 42 - Hydrae	a	-8° 2352	7.18	g5	Ba1394
	b	-7° 2463	7.70	a2	
	c	-8° 2339	7.92	a2	
	d	-8° 2353	8.10	g5	
	e	-7° 2466	8.32	F	
	f	-7° 2460	9.12	a	
	g	-7° 2468	9.40	F	
	h	.. ..	9.72	a	
	k	-8° 2346	10.00	F?	
034601 18 - Eridani	a	-1° 539	7.24	g1	B23816
	b	-2° 747	7.94	F	
	c	-2° 739	8.16	F	
	d	-1° 551	8.41	a2	
	e	-1° 550	9.01	F	
	f	-1° 541	9.36	F?	
	g	-1° 553	9.66	K	

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October 8, 1908

Exam. of Spectra of Comparison Stars for Variables cont.

	Object	Des.	Cat. No.	Photog Magn.	Sp.	Plate.	
040725 21	W Eridani?	a	AGk 4665	7.14	F5	B12654	4 10- 27.5
		b	" 4651	7.62	K		
		c	" 4662	7.87	F2		
		d	" 4634	8.32	K		
		e	-25° 1781	8.67	A?		
035916 20	V Eridani	a	-16° 767	8.01	F2	B12752	another plate.
		b	-16° 775	8.43	F		
		c	-16° 779	8.88	two pm		
		d	-16° 774	9.30	"		
035124 19	T Eridani	a	-24° 2001	6.70	A	B10587	
		b	-23° 1642	7.65	G		
		c	-23° 1641	8.35	K		
031401 15	X Cti	a	-1° 477	8.75	G	I14259	
		b	-0° 532	9.25	G5		
		c	-1° 473	9.82	F?		
		d	-1° 474	10.19	G?		
		e	-1° 471	10.59	G		

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October 8, 1908

Exam. of Spectra of Comparison Stars for Variables cont.

023183 Object	Dis.	Cat. No.	Photog. Magn.	Sp.	Plate.
11. R Trianguli	a	+33° 454	6.97	K	I 35195
	b	+33° 458	7.19	a	"
	c	+33° 476	7.69	g	"
	d	+33° 465	8.04	a5	"
	e	+34° 472	8.69	a	"
	f	+33° 468	9.91	K	"
7. 015556 Y Persei	a	+56° 416	8.63	a	I 33407 another plate
	b	+56° 417	9.03	g	"
	c	+55° 486	9.55	g	"
	d	.. ..	9.90	F?	"
	e	+56° 403	10.10	g5	"
	f	+56° 404	10.78	too faint	"
6. 015354 U Persei	a	+53° 440	8.48	g	"
	b	+54° 439	9.30	g	"
	c	+54° 438	9.62	K	"
	d	+54° 435	9.92	too faint.	

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1908phae.proj.820F

October 29, 1908.

Note on exam. of plates for object (Gaudcornet?) near Morehouse' Comet, in answer to letter of

taken on Oct. 27, 1908, Ex. 5m

Plate I 35629 examined by E.C.P. on Oct. 28. 1908, shows an object which may be that mentioned. [Assumed to be defect by E.C.P. Oct. 30, 1908]

Plate II A.C. 9838. Oct 24, 1908. Shows a faint object which is probably a defect.

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1908phae.proj..820F

January 12, 1910.

Examination of Spectra of Comparison Stars for Variables. Design. & ident. is that given in Vol. 47, Part I

Object (Var.)	Des.	Cat. No.	Photog. Magn.	Sp. Plate. B 24023
000339 V Sculptoris	a	-39 4	7.04	
	b	-40 15	7.62	
	c	-39 27	8.02	
	d	-39 10	8.32	
	e	-40 11	8.82	
	f	-39 31	9.34	
	g	-39 17	9.69	
	h	-39 6	10.07	
	k	-39 8	10.57	
001032 S Sculptoris	a	+67 167	6.29	B 10582
	b	183	6.87	
	c	148	7.39	
	d	110	8.04	
	e	-33° 64	8.34	
	f	-32° 71	9.02	
	g	-32° 78	9.70	
	h	-32° 76	10.15	
	k	-32° 65	10.70	
001862 S Tucanae	a	0^h 430	8.14	B 23767
	b	0^h 382	8.52	
	c	0^h 537	8.92	
	d	-62° 30	9.24	
	e	0^h 368	9.40	

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Exam. of Spectra of Comp. Stars. (cont.)

Object. (Var.)	Des.	Cat. No.	Photog. Magn.	Sp. Plate. HD A 2088
002546 T Phoenicis	a	0^h 637	8.75	
	b	0^h 638	9.25	
	c	-46° 141	9.73	
	d	.. ..	10.11	
	e	-47° 134	10.36	
	f	-46° 130	10.66	
	g	-47° 141	10.94	
	h	-47° 128	11.19	
005475 - Tucanae	a	869	7.63	B 38135 B 23808
	b	833	8.03	
	c	0^h 1365	8.45	
	d	0^h 1252	8.87	
	e	0^h 1462	9.52	
	f	-75° 67	9.94	
	g	-75° 71	10.39	
	h			
01 5354 U Persei	a	+53° 440	8.48	
	b	+54° 439	9.30	
	c	+54° 438	9.62	
	d	+54° 435	9.92	

See page 8.

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1908phae.proj..820F

January 22, 1910.

Exam. of Spectra of ~~Comp.~~ variable. for Stars. (cont.)

Object (Var)	Des.	Cat. No.	Photog.	Magn.	Sp.	Plate	
R J Sculptoris	003126	179	9.6	10.5	F	B 20456	
S V Centauri	114360	3809	8.8	9.8	A	B 23016	
R Z Draconis	182158	"	9.7	10.4	Ap.	I 33150. June 29, 1905	Hydrogen lines hazy.
S X Cassiop	000554	X 7	Nov. 16, 1908		Ap	I 35673.	A spec. hydrogen lines narrow
"	"		Dec. 21, 1908.		Cont	I 35749	Cont. No lines visible
"	"		Nov. 2, 1901.		Cont?	I 27916.	Cont? No lines visible. Might be called G, owing to change in density in different parts of spectrum
"	"					"	
"	"						
"	"		Dec. 19, 1908		A5?	I 35744.	A5? Faint trace of hydrogen lines; also H and K suspected.
T T Cassiop	000454	..	9.4	<13.0	..		close unknown, look for on these plates but not visible
R Sagittae	200916	4197	8.5	10.4	G	I 34351. Nov. 13, 1906	
"	"				G	I 16463. Nov. 6, 1896.	H + K well marked.
W Z Cygni	204938	4262	9.8	10.8	A	I 31134. Nov. 12, 1903.	Hβ, Hγ, Hδ visible.
ν Pegasi	235215	4915	9.3	9.9	F?	I 32266 Nov. 5, 1904.	Hγ, Hδ faint. H + K seen
"	"				F?	I 23378 Aug. 17, 1899	Hγ + Hδ faint. H + K seen?

January 27, 1910

S.Y. Andromedae	000843	28	10.7	12.2	A?	I 7929 Jan. 21, 1893	very f. hydrogen lines narrow
"	"				A?	I 7669 Dec. 15, 1892	very f. hydrogen lines narrow
– Cassiop	023765	289	8.2	9.0	A	I 30674 Feb. 14, 1891.	
– Persei	023947	692	..	..	Ap?	I 19650 Nov. 27, 1897.	hydrogen lines narrow maybe B
R Z Cassiop	023964	179	6.4	7.8	A	I 31330 Dec. 23, 1903.	
– Cassiop	024462	480	8.8	9.4	A	I 32230 March 2, 1891	
V Lacaille	004872	7269	8.8	10.3	A	A 2883 Nov. 17, 1897.	
R X Cassiopeiae	025867	+67°244	8.6	9.1	F?	I 31330 Dec. 23, 1903.	Image very poor. near edge of plate.

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1908phae.proj--820F

Exam. of Spectra of ~~Comp.~~ variable Stars. (cont.)

Object (Var.)	Des.	Cat. No.	Photog. Magn.		Sp.	Plate.		
– Phoenicis	024738	–38°233	9.3	10.0	A	B12277	Sept. 27, 1894.	
SJ Persei	025338	+38°606	8.5	10.5	A	I26324	Dec. 26, 1900.	
RJ Persei	031646	+46°740	9.5	11.0	F?	I19656	Nov. 29, 1897.	Very faint. ✓
"	"				F	I32320	Nov. 14, 1904.	Faint. H & K visible? ✓
– Eridani	035015	–15°686	9.0	9.8	A?	B12752	Dec. 17, 1894.	Faint. Hydrogen Lines narrow ✓
RV Persei	040433	+33°805	9.5	11.0	A	I35136	Jan. 27, 1908.	Faint ✓
RW Persei	041342	+42°851	8.8	11.0	A?	I35842	Feb. 17, 1907.	Faint ✓
"	"				A	I28553	March 3, 1902.	Sp. well defined ✓
TT Aurigae	050239	+39°1192	8.0	9.4	A	I4973	Jan. 14, 1890.	Near edge of plate ✓
SX Aurigae	050442	+42°1101	7.4	8.0	A	I 2816.	Jan. 13, 1891.	
RZ Aurigae	051138	"	10.7	11.7	A	I35708	Dec. 1, 1908	
~~ZZ Tauri~~	~~054528~~	~~+28°921~~						
~~Z Orionis~~	~~055013~~	~~+13°103~~						
Z Orionis	055013	+13°1034	9.4	11.0	A	I20041	Jan. 16, 1898.	Image well defined ✓
"	"	"	9.7	10.7	A	I2324	Nov. 21, 1890	
"	"	"	"	"	A?	I31435	Feb. 5, 1904	
– Geminorum	055424	+24°1056	9.3	10.3	A	I28561	March 6, 1902.	
RW Geminorum	055523	+23°1151	9.6	11.0	A	I28561	March 6, 1902.	
U Columbae	061133	–33°2825	9.2	10.0	A	B10682	Nov. 18, 1893.	very faint ✓
"	"	"	"	"	A	B20527	Sept. 27, 1897	very faint. ✓
R S Cephei	044880	"	9.5	12	A	I3294	March 16, 1891.	
RW Monocerotis	062908	+8°1402	9.8	10.0	A	I31449	Feb. 9, 1904	~~H & K~~ H/K = 0.8 ✓
"	"		"	"	A	B12670	Nov 28, 1894.	Normal. ✓

February 1, 1910

RX Geminorum	064433	+33°1415	8.8	9.6	A	I32370	Nov. 28 1904	
RU Monocerotis	064907	–7°1623	9.8	10.5	A	B20895	Dec. 1, 1897	
RY Geminorum	072115	+15°1573	9.0	10.5	A	I2475	Dec. 12, 1890	

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February 2, 1910.

Exam of plates for Spectra of variable stars.

Object	Design.	Dm. No.	Photog. mags.		Sp.	Plate	Date	Rem.
– Geminorum	062220	"	9.6	10.5	A?	I 19793.	Dec. 18, 1897.	Sp. superposed on that of bright star (+20°1432) north foll. the var. Probably both are of Class A since two sets of hydrogen lines are seen faintly on I 19793.
R R Puppis	074341	-41°3380.	9.4	10.7	A?	B 12659	Nov. 24, 1894	Image very faint.
R R Velorum	101741	-41°5804	10.1	10.9	A	B 39922	March 20, 1909.	
– Hydrae	09007.	-7°2715	9.0	11.5	A	B 19231	May 28, 1897.	
Y Leonis	093126	+26°1981	9.3	11.2	A	I 31717	May 16, 1904.	
– Leonis Minoris	094233	"	9.5	11.5	A	I 35845	Feb. 17, 1909.	
– Carinae	101259	-59°2007	9.2	10.3	A	B 17025	July 30, 1896.	

February 4, 1910.

– Centauri	110647.	-47°4810	8.7	9.6	F2	B 38416	Feb. 5, 1908	
– Centauri	121249	-49°5046	8.8	11.4	A	B 19023	May 6, 1897.	
– Centauri	130763	-63°2632	8.8	10.2	A	B 39228	June 22, 1908.	
– Centauri	133561	-61°3912	9.8	10.8	Ap	B 37583	June 5, 1907.	✓ Hydrogen lines narrow
– Circini	133664	-64°2524	10.0	11.0	A	B 19892	July 21, 1897	
"	"	"	"		Ap	B 9456	May 16, 1893.	✓ Hydrogen lines narrow

February 7, 1910

– Lupi	142950.	-50°7071	10.3	11.1	A	B 37610	June 8, 1907	dv. F ✓ Hγ and Hδ broad and hazy;
– Circini	144355.	-55°6204	9.8	10.6	A	B 37618	June 10, 1907	F
– Librae	154315.	-15°4494.	9.6	10.6	A?	B 22822	May 11, 1899	F ✓ Hγ and Hδ faint

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Object	Design	Dm/6	Photo Magn.	Sp	Plate	Date	Obs.	Rem
155746 -Normal	155746	-46° 7780	8.6	10.0	Ap	B20157	Aug. 26, 1897.	F	Hγ & Hδ faint and narrow Hε, Hζ, & Hη, normal. ✓
SV Ophiuchi	161106	-6° 4393	9.2	10.0	AB	11377	June 6, 1894	F	
-Scorpii	164132.	-32° 4244.	10.3	<11.5	F?	B13766	June 14, 1895	F	Image faint ✓
-Scorpii	164836.	-36° 7072	8.7	10.0	G	B38109	Sept. 1, 1907.	F	
"	"				G	B9597.			
-Ophiuchi	165125	-25° 5896	10.2	<11.6	A	B13843	June 28, 1895		

February 8, 1910.

R R Vulpeculae	205027.	+27° 3914	9.0	10.2	A	I32272.	Nov. 7, 1904.		Image well defined. ✓
-Aquarii	221507.	-7° 5753	9.2	9.9	A	B12041.	Aug. 30, 1894.		✓
-Aquarii	224613.	-13° 6289	9.8	10.7	A2	B20559.	Oct. 2, 1897		H lines normal. K=0.4.

February 9, 1910.

-Draconis	153264.	+64° 1077.	"	"	A	I3735	June 15, 1898		✓
W Serpentis	180415.	-15° 4842	8.5	10.0	Rec.	B24213	Sept. 27, 1899.		Sp. of two Cl A stars superposed? hydrog. lines bright on edge of shorter λ

[Cont on p. 16]

February 18, 1910

110555-1	-Centauri	-51° 3909	9.8	10.7	F?	B38409	Jan 30, 1908	F	F
034658	RW Camelopardalis	+58° 663	9.0	10.0	K5	I33384	Sept. 24, 1905	K5	" ✓
041528	RY Tauri	+28° 645	9.6	10.6	G?	I36384	Dec. 10, 1909.	G?	" very faint.
14 1903	SW Tauri	+3° 601	8.5	9.5	F	B10593.		F	"
044242	SU Persei	+42° 1064	8.5	9.8	F8	I31003 B10593	Oct. 18, 1903	F8	"
050542	SY Aurigae	+42° 1201	9.0	9.7	G5	I31003	" "	G5	"
044515	-Eridani	-15° 872	8.8	9.6	F5	B12628	Nov. 19, 1894	F5	"
094627	Z Leonis	+27° 1818	9.8	10.4	M6	I31717	May 16, 1904	M6	"

[Continued on p. 17]

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1908phae.proj..820F

February 23, 1910.

Exam of Plates for spectra of variable stars.

Cont. from p. 15

Object	Design.	D.M. No.	Photog. Magn.	Sp.	Plate	Date.	Ls	Remarks.
S Sagittarii	180423	-23° 14026	9.5	10.2	F5	B13846	June 28, 1895	F	Image faint
"	"	"	"	"	G	A2063	Sept. 10, 1896	F	Well defined.
– Sagittarii	180576	"	9.8	11.3	A	B23025	June 10, 1899	F	Superpose on another star. H & K Hydrogen lines normal.
– Sagittarii	180529	-29° 14636	9.5	10.7	M6 5	B17092	Aug. 11, 1896	F	Image good
"	"	"	"	"	M6	A2093	Sept 24, 1896	F	Image good
W Scuti.	181813	-13° 4955	9.3	10.4	F?	A9655	Aug. 15, 1909	F	Image poor
"	"	"	"	"	F?	B11307	May 25, 1904	F	Image poor
– Coronae Aust.	183342	-42° 13498	9.8	10.4	A	A2026	Sept. 1, 1896	F	Image good.
– Sagittarii	183819	-19° 5148	8.8	9.7	A	B17038	August 1, 1896	F	Image good
– Sagittarii	184334	-34° 13135	8.9	10.5	A	B21719 17062	~~June 20, 1898~~ Aug. 5, 1896	F	Image well defined
S X Sagittarii	183930	-30° 16169	8.7	9.8	A5	B20243	Sept. 2, 1897	F.	H5 and K5 ft. K=0.5
R R Draconis	184062	"	8.5	<12	A5?	I35423	July 30, 1908	F.	
R X Draconis	190158	"	9.3	9.8	F	I34696	May 20, 1907	F.	
– Vulpeculae	190722	+22° 3617	"	"	A	I25485	June 23, 1900	F.	Image well defined.
R V Lyrae	191232	"	11.0	12.8	A	I27913	Nov. 2, 1901.	F	
– Vulpeculae	191322	+22° 3647	"	"	A	B1660	Sept 4, 1887.	F	Image well defined
Z Vulpeculae	191725	+25° 3803	"	"	A	I21597	Nov. 1, 1898	F	Image good.
S γ Cygni	194232	"	10.8	<12.	A?	I27896	Oct. 31, 1901	F	Image poor
W W Cygni	200041	+41° 3595	9.3	12.5	F	I27810	Oct. 19, 1901.	F	
V W Cygni	201134	+34° 3938	9.8	11.8	A	I19033	Sept. 27, 1897	F	Image good
– Capricorni	201217	-18° 5641	8.8	10.6	A	B20062	Aug. 16, 1897	F.	
U W Cygni	201942	"	10.5	13.0	A?	I32241	Oct. 28, 1904.	F	Image poor
Z Z Cygni	202046	"	10.4	11.4	A?	I16310	Oct. 26, 1896.	F	Image very poor
R R Delphini	203813	+13° 4502	9.5	10.5	A	I31186	Nov. 24, 1903	F	
U Z Cygni	215543	R	8.9	11.6	A	I17739	March 31, 1897	F	
R J Lacroft	215743	+43° 4112	"	"	A5?	I31292	Dec. 17, 1903.	F	A star fol. and S, the central southern star in a triangle shows a shift. Image and id. Ch. A. Not in the DM.
T J Andromedae	230845	"	10.5	11.2	A	I31364	Jan. 5, 1904	F	
– Andromedae	235832	+32° 4756	8.6	11.5	A	I31487	Nov. 24, 1903.		

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1908phae.proj..820F

February 23, 1910.

Exam. of plates for Spectra of Variable Stars.

(Continued from p. 14)

Object	Design	Dist. to Photog. Magn	Sp.	Plate	Date	Obs.	Remark
1 Septantis	094802.		A	I 31480	Feb. 19, 1904.	F ✓	Lines well defined
S 1 Urs. Maj.	112245.		Mb	I 31176	Nov. 20, 1903.	F ✓	Breaks well defined
88 Draconis	122169		Mb	I 20078	Jan. 24, 1898	F	Spectra " "
α Centauri	121548		F	B 40423	June 13, 1909.	F ✓	Well defined
α Crucis	120658		G	B 37591	June 6, 1907.	F	Image good
α Muscae	125564		A/F	B 21746	June 22 1898	F ✓	Hγ and Hδ faint. Hε, Hζ and Hη normal
RZ Cephei	223564		A	I 5730	Feb. 18, 1892.	F	Image good
RR Lacertae	223755		F	I 9647	Oct. 11, 1893	F	Image good
Z Lacertae	223656		F?	"	"	F	Image poor
"	"		F5?	I 4698	Nov. 3, 1891.	F ✓	Image poor

(Cont. on p. 18)

Algol Stars having Spectra other than Class A.

Design.	Sp.	Discoverer.	
025867	F?	Ceraski	V
031646	F?	Ceraski	V
071416	F	Sawyer	V
110647	F2	Leavitt	V?
164132	F?	Leavitt	V?
164836	G	Leavitt	V?
175315	F	Müller and Kempf	V
~~180415~~ 180423.	G	Cannon	V?
180529	Mb	Cannon	V?
181813	F?	Cannon	V?
190158	F	Ceraski	V
200041	F	Ceraski	V
215743	G?	Ceraski	V

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February 26, 1910.

Exam. of plates for spectra of 5 variable stars.

Object.	Design. DM No.	Photo Magn.		Sp.	Plate	Date	Obs.	Remark
SU Aurigae	044930 +30°743	8.6	9.6	F?	I 31149	Nov. 15 1903	F	Image poor.
SW Draconis	121270 "	8.8	9.6	F?	I 3368	March 29, 1891	F	Image poor
– Ophiuchi	164403 +3°3281	9.8	11.1	F?	B 11376	June 6, 1894	F	Image poor
– Aquarii	211000 "	10.0	11.0	F?	I 33578	Oct. 27, 1905	F	Image poor
					The remaining stars of H.S.L.g.Cl. are too ft. to class			F
SY Cassiopeiae	000957 +57°42	9.3	9.9	G5	I 31314	Dec. 19, 1903.	F	
– Cassiopeiae	004746 "	10.5	11.2	K?	I 16113	Oct. 8, 1896.	F	Image poor.
*RV Cassiopeiae	004746A "	9.0	12.5	Md6	I 16113	" "	Cl.	Leraski. II.
RX Androm.	005840 "	10.5	11.8	?	I 19644	Nov. 27, 1897.	F.	Spectrum too poor to classify.
RW Cassiop.	013057 +57°342	8.9	11.0	F	I 35788	Dec. 29, 1908.	F	
RX Aurigae.	045439 +39°1138	7.2	8.1	G2.	I 3267	March 10, 1891.	F	
– Aurigae	050840 +40°1225	9.3	10.1	A	I 2816	Jan. 13, 1891	F	
– Aurigae	050849 +49°1331	8.6	9.3	M6	I 25944	Oct. 17, 1900	F	Image well defined
γ Aurigae	052142, +42°1295	8.6	9.6	Md:	I 2816	Jan. 13, 1891	F	
" "	" "	"	"	Md	I 26326	Dec. 26, 1900	F	Faint trace of Br. Hγ.
SV Aurigae.	055646 +46°1088.	8.9	9.6	K?	I 35161	Feb. 7, 1908	F	Image poor.
R Ononis.	061614 [R]	8.3	9.0	R	I 35122	Jan. 8, 1908	F	The position of this object agrees closely with that of BD+14°1259 magn. 8.5. An exam. of charts I 2666, Dec. 29, 1890; I 8003, Feb. 4, 1893; I 10301, Dec. 26 1893; I 24378, Jan. 3, 1900, fails to show any trace of any other object brighter than Magn. 11.0. The spectrum of +14°1259 is probably Md? although too poor to show the bands, the lines Hγ and Hδ appear to be bright on I 35122.

(Cont. on p. 19)

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1908phae.proj..820F

April 7, 1910.

Exam. of plates for spectra of Variable Stars.

Object	Design.	DM. No.	Photo. Mags.		Sp.	Plate	Date	Obs.	Remarks.
- Lacaiae	001060	..	9.4	10.2	F?	B24115	Sept. 11, 1899	F	✓ Image poor.
- Lacaiae	005463	..	9.0	10.1	F	B23815	Aug. 11, 1899	F.	
S J Tauri	053913	+13°971	8.5	9.4	G	I31435	Feb. 5, 1904	F	
R Z Geminorum	055622	+22°1146	9.5	11.0	F2	I19793	Dec. 18, 1897	F	✓ Image poor.
S S Geminorum	060222	+22°1187	9.0	10.0	K	I33721	Nov. 30, 1905	F	
R R Geminorum	071531	"	10.0	11.5	F5?	I20043	Jan. 16, 1898.	F	Near edge. Image poor.
- Velorum	083343	-43°4474	7.5	8.6	K	B13064	April 19, 1895.	F	
- Velorum	084145	-45°4490	8.5	9.3	K	B40296	May 16, 1909	F	
R S Camelop	083679	+79°289	8.4	9.2	G5?	I32387	Dec. 31, 1904	F	✓ Image poor
W Ursae Majoris	093656	+56°1400	7.9	8.6	G	I34565	March 7, 1907	F	
R V Ursae Majoris	132954	+54°1607	9.2	9.7	F5?	I31550	March 13, 1904	F	✓ Image poor
R S Bootis	142932	+32°2489	8.9	10.0	G?	I25030	April 4, 1900	F	✓ Image poor
R W Draconis	163358	..	9.6	10.8	A?	I34971	Oct. 30, 1907.	F	✓ Image poor
- Scorpii	174933	-33 12638	9.5	11.0	K?	B23015	June 6, 1899.	F	✓ Image poor.
S Arae	175149	-49°11833	8.9	9.7	A	B22862	May 19, 1899	F	✓ Image good. Hydrogen lines normal.
"	"	"	"	"	Ap	B19938	July 29, 1897.	F	✓ Image good. Hydrogen lines faint.
- Coronae Aust.	180240	(CPD-40°8479 R)	10.1	10.9	K	B37605	June 7, 1907	F	Image good.
- Sagittarii	181119	-19°4945	8.0	9.2	Kp	B39405	Aug. 2, 1908	F	✓ Image good. Spect. Composite
- Sagittarii	181916	-16°4859	8.6	10.0	F5	B8642		F	Image poor. well defined
"	"	"	"	"	G	B39492	Aug. 28, 1908	F	well defined
"	"	"	"	"	G	B13807.	June 20, 1895	F	well defined
- Scuti	181912	-12°5045	8.6	9.3	G	B39406.	Aug. 2, 1908	F	✓
X Scuti	182513	-13°5014	9.5	11.0	K?	B39406.	Aug 2, 1908	F	Image poor.
Y Scuti	183208	-8°4663	8.9	10.2	G5	B40608.	July 17, 1907	F	" Good.
Z Scuti	183705.	-5°4734	9.0	10.3	F5	B38080	Aug. 28, 1907.	F	
- Sagittarii	184420	-20°5283	7.6	8.6	Ap.	B40442	June 17, 1909	F	✓ δ round $\delta = 0.7$, ζ T ζ normal
"	"	"	"	"	Ap	B19912	July 23, 1897	F	✓ $\zeta 063 = 0.7$, $\zeta 073 = 0.7$, ζ 07 normal
"	Continued on page 31				Ap	B38105	Aug. 31, 1907	F	✓ δ round $\delta = 0.7$. ζ and ζ normal

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January 28, 1910

Exam. of Plates for Spectra of stars having Prop. Motion. For Kapteyn.

Design.	R.A. 1900	Dec. 1900	Magn.	μ	Plate	Date	Sp.	Obs. R.A. 1875	Obs. Dec 1875	
+45° 4408	0h 0m.7	+45° 15′	8.62	6.88	I 23971	Nov. 4, 1899.	K5	F		
−1° 306	2 9.5	− 1 39	9.22	91	I 32460	Dec. 28, 1904	F5	"		
+17° 4519	21 7.4	+17 20	7.32	91	I 32247	Oct. 31, 1904	G5	"		
+61° 513	2 55.9	+61 19	6.67	101	I 33485	Oct. 6, 1905	G5	"		
+34° 796	3 56.5	+35 0	8.62	219	I 35136	Jan. 27, 1908.	G	"		
+29° 1664	7 54.3	+29 31	6.94	119	I 24945	March 24, 1900.	G	"		
+50° 1725	10 5.3	+49 57	6.82		I 34621	April 3, 1907.	K	"		
+36° 2147	10 57.8	+36 38	7.60		I 35149	Feb. 2, 1908	Ma	"		
−26° 1883	11 53.0	−27 8	7.16		B 13325	May 13, 1895	K	"		+
−0° 2944	15 8.8	− 0 57	6.66		B 11334	May 31, 1894	G	"		+
−10° 4149	15 37.7	−10 36	7.31		B 13366	May 16, 1895.	F5	"		−
+4° 3195	16 25.6	+ 4 26	7.45		B 11376	June 6, 1894.	F5	"		+
−4° 4225	16 59.8	− 4 53	7.90		B 23382	July 10, 1899.	K5	"		−
+0° 3593	16 47.9	+ 0 10	6.78		B 11376	June 6, 1894	F5	"		−
−26° 12036	17 10.1	−26 24	6.66		B 17036	Aug. 1, 1896	K	"		+
+59° 1915	18 41.7	+59 28	8.76		I 35423	July 30, 1908.	K	"		+
+22° 3908	19 59.7	+23 5	7.20		I 27920	Nov. 3, 1901	G2	"		+
−44° 14214	20 51.1	−44 29	6.64		B 11683	July 25, 1894	G	"		+
−39° 14192	21 11.4	−39 15	6.65		B 17181.	Aug. 15, 1896	K5	"		+
−36° 15693	22 59.4	−36 25	7.44		B 14592.	Sept. 11, 1895.	Ma	"		−
[Assumed −23° 693]	1 48.0	−22 55	"	92	B 12366	Oct. 24, 1894.	K	"	1h 46m 50s.1	−23° 2′.7	+

January 31, 1910.

+2° 84	0h 34m.0	+2° 34′	7.41	64	B 14673	Sept. 19, 1895	G	F		−
+39° 154	0 35.3	+39 39	7.52	82	I 7654	Dec. 11, 1892	K	"		+
+32° 1695	8 5.4	+32 46	6.95	82	I 5493	Jan. 31, 1892	K5	"		+
−4° 3049	11 13.2	− 4 31	7.34		B 19228	May 27, 1897	K	"		

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Design:	R.A. 1900	Dec.	Magn.	Plate	Date	Sp.	Obs.	R.A.	Dec.
								1875.	
−1° 2832	13 26.6	−1° 48	7.31	B11366	June 4, 1894.	G	F.		
+47° 2420	16 59.8	+47 11	6.74	I 37104	June 9, 1891.	Gp	"	Hy + Hδ = 0.3.	
+12° 4797	22 12.3	+12 23	6.94	I 31312	Dec. 19 1903	G	"		
−42° 16457	23 41.2	−42 6	7.51	B 12091	Sept. 6, 1894	A	"	Identical. Checked Identical.	
				~~B 37610~~	~~June 8, 1907~~	~~A~~	~~F~~	~~Hγ + Hδ~~	

February 15, 1910.

Assumed Magn.	DM	h	m	s	°	′	″				
+31° 1781	8.3	8		11.59	+30	56	0	I 35908	March 2, 1909.	K	F.
−17° 3723	8.2	12	47	56	−17	57	4	B 13138	April 29, 1895.	F8	"
+35° 2436	9.0	13	14	54	+35	39	4	I 34650	April 17, 1907.	K	"
+25° 2874	9.2	15	3	7	+25	18	4	I 31720	May 16, 1904.	K5	"
−23° 17699	7.6	22	55	0	−23	3	8	B 17400	Sept. 9, 1896.	K5?	Maybe M?
+25° 495	7.9	3	2	32	+25	58	2	90 I 21690	Nov. 12 1898.	F5	"
								I 21709	Nov. 15 1898	F2?	" } maybe F5?
− 5° 642	7.9	3	20	4	− 5	41	7	86 B 24104	Sept. 9, 1899.	K5	"
− 3° 1116	8.5	5	23	29	− 3	33	6	B 14699	Sept. 21, 1895.	K4	" ~~Hmd 6~~
+43° 1953	8.0	9	37	7	+43	10	3	I 31718	May 16, 1904.	K?	" maybe K5
+14° 2151	8.2	9	43	28	+14	13	8	I 35185	Feb. 29, 1908	~~K7~~	" ~~maybe K5~~
+4° 4510	8.4	20	34	33	+4	37	0	I 31120.	Nov. 9, 1903	K	"
+43° 44	8.1	0	12	40	+43	27	4	I 7929	Jan. 21, 1893.	Ma	"
+41° 7503	8.2	3	40	12	+41	8	9	I 24124.	Nov. 25, 1899	G5	"
7503.	8.6										
−3° 1123	8.7	5	26	24	−3	41	7	I 17010	Jan. 7, 1897.	Ma	"
+31° 1684	8.2	7	47	9	+30	54	8	I 28613	March 31, 1902.	G?	" Image poor.
+71° 481	8.7	8	45	59	+71	10	9	I 31624	April 16 1904.	K	"
+53 1320	8.9	9	7	34	+53	7	0	I 31601	April 12, 1904.	Ma	"
								I 31443	Feb. 8, 1904.	Ma	
−11° 2741	9.3	9	46	10	−11	49	3	B 24587	Nov. 28, 1899.	K	"
+44° 2051	8.5	11	0	30	+44	2	4	I 24965	March 27 1900	Ma	"
										~~G5~~	"
+66° 717	9.0										
+15° 2620	8.5	13	40	40	+26	0	0	I 24623.	April 3, 1907	K	"

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Assumed.

Design	Magn.	R.A. 1900	Dec. 1900.	Magn.	Plate	Date	Sf.	Obs.	Rem.
−23° 11940	7.6	14h 45m 59s	−23° 52′8		B11303	May 25, 1894.	G5	F.	
+54 1716	7.7	14 52 20	+54 4.3		I22641.	April 1, 1899	G?	F	Image poor.
		" " "	" "		I36147.	Aug. 13, 1909	G5	F	
−15° 4041	9.2	15 4 44	−15 59.1		A 8664	April 25, 1908	K5	F	
−15° 4042	9.0	15 4 44	−15 54.1		"	" "	G	F	
−8° 4352	8.8	16 50 8	−8 9.1		B23751.	Aug. 1, 1899.	K?	F	Image poor
					B40102.	April 24, 1909.	K	F	
+2° 3312	8.0	17 20 47	+2 14.0		I35241.	April 2, 1908.	Ma	F	
+68° 947	7.9	17 37 0	+68 25.8	Should be 946 and p 58. Dp. 55 K pec.	I35911.	March 20, 1909.	F	F	
					~~I36~~		~~F~~	~~F~~	
+5 3993	9.3	18 53 7	+5 48.5	X	I32913	March 14 1905	M?	Ma?	Image poor ~~Is pair V.?~~
					F25511	June 30, 1900	Ma		
−21° 5703	8.2	20 17 42	−21 39.7		B21930.	Sept. 5, 1898	F8	F.	1
−14° 6437	8.2	23 11 54	−14 21.9	Dec. 1 58 Should not this be [Sum 1320 not 1319]	B17392.	Sept. 7, 1896	F5	"	
+1° 4774	8.7	23 43 58	+1 52.3		B24592.	Dec. 1 1899	Ma?	"	Near edge
		" " "	" "		F21961	Dec. 5, 1898.	Ma?		
−37° 15492	8.0	23 59 31	−37 51.0		B14593.	Sept. 11, 1895	K5	"	

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February 1, 1910.

Exam. of plates for revision of Cl. of Sp., for list of Franks. M. N. Lv, 191.

No.	R.A. h m	Dec. ° ′	Magn.	Sp.	Plate	Date	Ex	Rem:
589	1 55.6	+63 54	5.62	B8?	I9742	Oct. 21, 1893	73	Image poor. Ped. of Sp.
7763	20 14.1	+37 43	4.88	Pec.	B1539	July 28, 1887	85	Pec. by independent ident. Sp. Pec. ? opposition.
7759	20 13.4	+40 3	5.50	Kp	B657	Aug. 10, 1886	50	Slight tendency to band, indicating K5. Add. lines Lough.
8306	21 39.1	+40 42	5.54	K	B1662	Sept. 4, 1887	69	Adjacent star Cl. A = Dm +40°4615
8857	23 12.5	+44 37	6.55	G5	B1895.	Nov. 18, 1887	—	
2394	6 28.6	+61 34	6.05	K	I9698	Oct. 17, 1893	62	
3779	9 26.5	+10 9	5.28	K	B2152	Jan. 10, 1888	104	
P 5853	15 39.1	+ 2 50	5.80	~~K9~~	B22983	June 3, 1899	62	Checked by L.A.W. Ident. Cl. A. doubtful.
6849	18 13.0	+56 34	6.41	F	B2663	June 1, 1888	75	
8729	22 52.5	+20 14	5.59	F8	B8589,	~~Oct. 3~~ Sept. 18, 1892	60	Hf and H Stoney marked to place Sp. in Cl. G.
4504	11 36.9	+67 18	5.48	K	B2200	Jan. 19, 1888	98	
4964	13 5.0	+37 57	6.14	Ma	B2359	Feb. 18, 1888	60	

February 5, 1910

7391	19 22.1	+19 41	6.04	K	B1660	Sept. 4, 1887	65	
2241	6 10.8	+12 18	5.11	F2	B1744	Oct. 14, 1887	52	
7904	20 34.9	+29 59	5.86	G	807	Oct. 7, 1886	62	Image poor
996	3 14.1	+ 3 0	4.96	G	887	Nov. 28, 1886	62	Image poor
6638	17 44.1	+20 36	5.77	K	2855	Aug. 29, 1888	60	
5940	15 52.6	+14 42	5.66	Ma	1454	June 12, 1887	63	

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February 7, 1910.

Examination of plate for classification of 70 Ophiuchi for list of Spectroscopic Binaries by Prof. Campbell.

H.R.No.	R.A.	Dec.	Magn.	Sp.	Plate	Date	Exp.	Rem.
6752	18h 0.4m	+2° 31'	4.07	Gp	B 1483	June 29, 1887	64m	Composite?
"	"	"	"	G5	B 1483	in comparison with B 22952		

This classification written at Mrs. F's dictation in A.D.H.'s book III; copied from there in this book.

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March 31, 1910.

Exam. of Spectra of Comp. Stars. cont. from page 11.

Object (Var.)	Des.	Cat. No.	Photog Mgn.	Sp. Plate A 2899
~~000274~~ 021071 Hydri	a	−72° 166	~~9.50~~ 8.82	
	b	−72° 153	9.50	
	c	−72° 160	9.68	
	d	−71° 120	9.86	
	e	−72° 161	9.94	
	f	−72° 157	10.09	
	g	−72° 148	10.37	
	h	−72° 147	10.47	
	K	−71° 111	10.65	
	l	−72° 158	10.73	
	m	" "	10.88	
	n	" "	11.06	
	o	" "	11.26	
	p	" "	11.48	
	q	" "	11.71	
~~022260~~ ~~000260~~ δ Horologii	a	A86 2666	8.16	B15153 Be 3779
	b	ZC h 2 856	8.64	
	c	−59° 211	9.09	
	d	ZC h 2 611	9.39	
	e	" "	9.74	
	f	" "	10.12	
	g	" "	10.47	

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Exam. of Spectra of Comp. Stars (cont.)

Object	Des.	Cat. No.	Photog. Magn.	Sp. Plate B 20429
022669 -	a	AG 2587	7.44	
- Hydri.	b	ZC 2h 452	7.94	
	c	" 2h 361	8.22	
	d	" 2h 818	8.47	
	e	" 2h 839	8.72	
	f	" 2h 443	9.02	
	g	" 2h 565	9.24	
	h	" 2h 676	9.49	
	K	-70° 152	9.79	
	k	-70° 159	10.01	
	m	-70° 156	10.29	
023723	a	-22° 907	7.63	A 8159
- Ceti.	b	-22° 908	8.11	
	c	-23° 1020	8.49	
	d	-23° 1017	8.81	
	e	-23° 1009	9.16	
	f	-23° 1032	9.46	
	g	-23° 1028	9.71	
	h	-23° 1033	10.03	
	K	-22° 916	10.38	
024154	a	2h 1300	8.25	B 15153
- Hodogii.	b	2h 972	8.65	
	e	2h 1096	9.00	
	d	-55° 455	9.22	

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Exam. of Spectra of Comp. Stars. (cont).

B15153

Object.	Des.	Cat. No.	Photog. Magn.	Sp. Plate
024154 (cont.)	e	-55° 459	9.67	
	f	-55° 463	9.95	
	g	-54° 474	10.25	
025050				
R Horologii	a	2h 1055	5.33	B23791
	b	2h 1060	6.51	
	c	2h 1307	7.31	
	d	2h 1285	8.29	
	e	2h 1310	8.57	
	f	-50° 857	9.45	
	g	-50° 856	9.70	
	h	-50° 858	9.98	
	K	-50° 846	10.76	
	l	-50° 854	11.16	
033 62 / 03+401	a	+62° 595	9.88	
U Camelop.	b	" "	10.10	
	c	+62° 602	10.38	
	d	+62° 589	10.63	
	H			

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1908phae.proj..820F

Exam. of Spectra of Comp. Stars. (cont.)

Object.	Des.	Cat. No.	Photog. Magn.	Sp. Plate. RA 6932
033555	a	3h 1103	7.60	
– Reticuli.	b	-55° 561	8.00	
	c	-55° 557	8.25	
	d	3h 1126	8.37	
	e	3h 1152	8.52	
	f	-55° 550	8.84	
	g	-55° 548	9.02	
	h	-55° 546	9.32	
	K	-55° 547	9.64	
143738	a	4h 1265	6.86	a 6956
R Caeli	b	4h 1077	7.46	
	c	4h 1271	8.16	
	d	4h 1157	8.88	
	e	4h 1186	9.46	
	f	4h 1210	10.21	
	g	-38° 1687	11.13	
	h	-38° 1695	11.95	
044349	a	Agb 5478	7.57	B 38400
R Pictoris	b	Agb 5490	7.77	
	c	-49° 1563	7.97	
	d	4h 1539	8.25	
	e	-49° 1422	8.55	
	f	-50° 1505	8.83	
	g	-49° 1428	9.15	

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Exam. of Spectra of Comp. Stars. (cont.)

B 18482 (poor)

Object.	Des.	Cat. No.	Photog. Magn.	Sp. Plate.
S Pictoris	a	5^h 320	8.48	
050848	b	5^h 327	8.73	
	c	5^h 363	9.28	
	d	−48° 1675	9.70	
	e	−48° 1670	10.30	
	f	−48° 1660	10.85	
− Pictoris	a	5^h 536	8.57	
051247	b	5^h 409	8.82	
	c	5^h 477	9.12	
	d	−46° 555	9.44	
	e	−47° 556	9.66	
	f	−46° 557	9.98	
	g	−47° 557	10.23	
T Columbae	a	−33° 2217	7.23	
051533	b	−33° 2238	7.81	
	c	−34° 2177	8.23	
	d	−33° 2256	8.71	
	e	−33° 2269	8.93	
	f	−33° 2285	9.28	
	g	−33° 2276	9.63	
	h	−33° 2230	10.01	

B 18482 (poor)

B 24442

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1908phae.proj..820F

Exam. of Spectra of Comp. Stars. (cont.)

Object	Des.	Cat. No.	Photog Magn.	Sp.	Plate A7577
S Doradus	a	AGC 6218	7.94		
05 18 69	b	-69° 355	8.52		
	c	AGC 6259	9.07		
	d	-69° 354	9.52		
	e	-69° 352	9.94		
	f	-69° 357	10.36		
	g	" "	10.78		
	h	" "	11.13		
R Columbae	a	-29° 2540	7.64		B 9054
05 46 29	b	-29° 2541	8.32		
	c	-29° 2519	8.87		
	d	-29° 2542	9.39		
	e	-29° 2535	10.07		
	f	-29° 2534	10.52		
R Octantis	a	AGC 9770	6.92		B {22238 15146
05 56 86	b	AGC 7601	7.22		
	c	AGC 5292	7.57		
	d	-86° 49	7.85		
	e	-86° 53	8.25		
	f	-86° 80	8.60		
	g	-86° 81	8.90		
	h	-86° 75	9.25		
	K	-86° 83	9.57		

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April 12, 1910.

Exam. of plates for Spectra of Variable stars.

Object	Design	Dm. No.	Photo Mag.		Sp.	Plate	Date	Obs.	Remark.
-Scuti	184310.	-10°4814.	8.0	9.8	~~A7~~	B38080	Aug. 28, 1907	F	Image well defined
-Sagittarii	185323.	-23°14922	8.8	9.9	G	B40745.	Aug. 21, 1909	F.	
SZ Aquilae	185901	+1°3877	8.8	10.5	G5	I30866	Sept. 12, 1903	F. ✓	
"	"	"	"	"	Gp.	B14665	Sept. 18, 1895	F. ✓	Spectra Composite?
XZ Cygni	193056.	+56°2257	8.6	9.3	A	I34696	May 20, 1907.	F ✓	Image well defined
"	"	"	"	"	A	I34818	Aug. 14, 1907	F ✓	" well defined
-Aquilae	194613.	"	10.6	12.7	K?	I23117	July 2, 1899	F ✓	Image poor.
X Vulpeculae	195326	+26°3741	9.5	10.5	K?	I11244	July 5, 1894	F ✓	Image poor
-Aquilae	200103.	"	9.0	10.8	F5?	I31001.	October 18, 1893	F	
XX Cygni	200158	"	10.7	11.6	A	I1144	May 11, 1890.	F	
-Vulpeculae	203422	+22°4137	10.3	10.8	Md5	I19053	Sept. 28, 1897	F ✓	Hγ=1.0, Hδ=0.4 ←
UY Cygni	205230	"	9.6	10.4	F?	I32272	Nov. 7, 1904	F ✓	Image poor.

An exam. of chart plates taken on August 15, 1890, Sept. 9, 1892, Sept. 23 1899, Sept. 30, 1901 shows a variation of about a magnitude

RZ Lyrae	183932	"	9.9	11.2	A?	I30710	Aug. 14, 1903	F ✓	Image poor.
"	"	"	"	"	A?	I35428	Aug. 2 1908	F ✓	Image poor.
VX Cygni	205339	+39°4379	9.1	10.3	K?	I31017	Oct. 20, 1903	F	Image poor
"	"	"	"	"	K	I31134	Nov. 12, 1903	~~F~~	
RV Capricorni	205515	"	9.2	10.1	A	B14376	Aug. 15, 1896	F	Plates B6020 May 21, 1891 and B6722, July 7, 1896, show a variation of about a magnitude
"	"	"	"	"	A	B40621	July 20 1909	F	
JX Cygni	205642	+42°3935	8.5	9.7	No good on either of these plates				Sp. I19312 30, 225, 12110, 11484, 11499, 23133, 33604, 34314 and 34927.
VY Cygni	210039	+39°4423	8.8	9.5	K	I ~~8989~~ 34289	Sept. 13, 1895.	F	
"	"	"	"	"	K	I31017	Oct. 20, 1903.	F	
- Indi	212770	-70°2860	9.0	10.0	F	B13553	June 3, 1895.	F	
"	"	"	"	"	F	B19966	Aug. 3, 1897.	F	
Y Lacertae	220550	+50°3581	8.8	9.2	F	I34261	Sept. 18, 1906.	F	
V Lacertae	224455	+55°2815	8.5	9.5	G2	I33750	Dec. 18, 1905.	F	
X Lacertae	224555	+55°2817	.	.	G2	I33750	"	"	F

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April 15, 1910.

Exam. of plates to det. Spectra of var. stars.

Object	Design	Dm. No.	Phot. Magn.		Sp.	Plate	Date	Obs.	Remark.
S W Cassiop	8230258	"	9.2	10.2	G2	I 33708	Nov. 27, 1905.	F	
"	"	"	"	"	G2	I 34820	Aug. 14, 1907.	F	
R S Cassiop.	233261	+61°2487	9.1	10.0	G5	I 31322	Dec. 22, 1903.	F	
R Y Cassiop	234758.	+58° "	9.3	11.8	G5	I 33584	Oct. 28, 1905.	F	
					Ma				

Variable stars of Long Period. Table VIII.

T U Androm.	002725	"	9.5	12	Mc	I 28017	Nov. 30, 1901.	F	
T Sculptoris	002438a	-38°138	7.8	11.4	Ma2	B 40948	Oct. 19, 1909.	F	Image poor
Y Cephei	003179	+79°14a	9	12	Md6	I 35016	Nov. 11, 1907	F	Hγ=1.0, Hδ=5.0
R W Androm.	004132	"	8.3	<12	Md6	I 33818	Jan. 24, 1906	F	Hγ=1.0, Hδ=5.0
R V Cassiop.	004746a*	"	9.0	12.5	Md6	I 16113	Oct. 8, 1896.	F	Hγ=1.0, Hδ=6.0
T Horologii	025751	"	8.0	11.5	Md5.	A 4167	Dec. 1, 1899.	F	Hγ=1.0, Hδ=1.2

Apr. 18, 1910.

Plates exam. for spectra of long period variables through 032339, and every class entered that could be obtained except for X Sculptoris.

T Ursae Maj.	123160	+60 1406	6.4	13.1	Md6	I 36636	March 9, 1910.	F	Hγ=1.0, Hδ=1.0
"	"	"	"		Md6	I 36642	March 11, 1910	F	Hγ=1.0, Hδ=1.9
V Bootis.	142539	+39 2773	6.9	11.0	Mb5	I 36644	March 11, 1910	F	
Y Monocerotis.	06 51 11	"	8.0	13.5	Md5	I 36625	March 8, 1910	F	470 Hδ=0.6?, Hγ=1.0 Hδ=1.2
Y Hydrae	094622	-22 2739	8.0	10.0	Na	I 36228	March 8, 1910	F	
"	"	"	"		Na	I 36633	March 9, 1910	F	
R Tauri	04 22 09	+9 585	8.0	14.0	Md5	I 36641	March 11, 1910.	F	Hγ=1.0, Hδ=1.0, λ507=1.0
S Tauri	042309	+9 586	9.5	14.6	"	I 36641	" "	F	
S S Virginis	122001	+1 2694	8.3	12.5	Na	I 36634	March 9, 1910.	F	
R W Virginis	120206	-5 3424	7.1	8.3	Mb5	I 36635	March 9, 1910.	F	
U Librae	153620	-20 4305	9	<14	Md5	I 36638.	March 9, 1910.	F	

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April 21, 1910.

Object	Design	DM. No.	Photo	Magn.	Sp.	Plate.	Date.	Obs.	Remark.
R Hydrae	082405	..	8.9	12.8	Mc	I36626	March 8, 1910.	F	
Z Ceti	010102	..	9.0	13.0	Md7	B23768	Aug. 3, 1899.	F	Hγ=1.0, Hδ=5.0.
"	"	"	"	"	Md7	B23789	Aug. 8, 1899	F	Hγ=1.0, Hδ=5.0.
δ Androm.	012946	..	9.2	<12.5	Md?	I19648	Nov. 27, 1897	F.	Image very faint.
δ Persei	014950	+50°499	..	..	Md?	I35801	Jan. 15, 1909.	F	Image very faint
-Columbae	050534	-34°595	8.8	9.7	Md7	B24442	Oct. 25, 1899.	F,	Image faint.
δ Aurigae	053538	..	9.5	<12	Md	I3030	Feb. 10, 1891.	F.	Image feeint.
δ Tauri	054319	..	10.0	<15	Ma?	I31403	Jan. 18, 1904	F.	Image poor.
δ Aurigae	060547	..	9.0	<14.5	Md?	I32859	March 6, 1905.	F	Image very faint
"	"	..	..	..	Md?	I32967	April 2, 1905.	F	Image very faint
δ Gemin.	060727	..	<10	<12.5	Md4?	I20474	March 11, 1898.	F	Image faint
R Monocer.	063308	+8°1427	9.5	13.	R	I19627	Nov. 23, 1897.	F	No well defined spectrum can be separated from that of the net, which is cont.? and hazy.
R V Puppis.	063942.	-42°2682	9.1	<11.5	Md4	A8552.	Nov. 13, 1907.	F	Sp. on edge of plate
R V Volantis	070772.	..	8.7	11.5	Md?	B15168	Nov. 16, 1899.	F	Faint trace of bright Hγ and Hδ.
R X Monocerotis	072404.	..	9.5	<12.5	Md3	B20681	Oct. 28, 1897.	F	Very faint. Hγ=1.0, Hδ=5.0
Z Puppis.	072820	..	7.5	13	Md3	B18983	April 28, 1897.	F	Hγ=1.0, Hδ=6.0
					April 28, 1910.				
γ Velorum	092551	-51°3858.	8.6	12.5	Md?	B39868.	Jan. 25, 1909.	F	Spectrum very faint.
R δ Hydrae.	104628	-27°7724	8.6	12.0	Md?	B15601.	April 13, 1896.	F	Spectrum very faint
R U Ursae Maj.	113639.	..	9.0	<11.	Md5	I24965	March 27, 1900.	F	Hγ=1.0 Hδ=5.0

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May 4, 1910.

Exam. of Plates to det. Spectra of Variables.

Object	Design.	DM No.	Phot Magn.	Sp.	Plate	Date	Obs.	Remarks
R T Librae	150818	-18 3975	8.5	13.5	Md5	B13051	April 17, 1895	F	Hγ = 1.0, Hδ = 0.6

May 12, 1910.

- Carinae	101060	"	10.0	<15.5	Md8	A 2223	March 12, 1897	F	Well defined
- Herculis	164012	+12°3081	9.4	<11.0	Md8	I 25570	July 18, 1900.	F	
S S Ophiuchi	165202	"	8.1	12.0	Md5	B13819	June 22, 1895	F	Hγ = 1.0 Hδ = 1.0.
~~R Scorpii~~ R Herculis	17h 4m 32s 165631	-32° 12' 42" +31° 29' 40"	~~9.6~~ 9.6	~~11.3~~ 11.3	Md6	A 6438	July 1, 1903.	F	Hγ = 1.0, Hδ = 1.2
S U Herculis	174422.	"	10	<12	Mc	I 31722	May 16, 1904.	F	
S S Lyrae	191046	"	9	13	Md8	I 33542	Oct. 17, 1905	F	Image poor.
"	"	"	.	.	Md10	I 35424	July 30, 1908	F	Image poor.
S Sagittarii	191319	-19°5394	9.1	14.5	Md6	B 38106	Aug. 31, 1907	F	
U Lyrae	191637.	+37°3418	8.3	<12	~~Md6~~ WS	I 32242	Oct. 29, 1904	F	Image Poor.
S Sagittae	192900	"	8.9	10.5	Md?	B 13378	May 18, 1895.	F	Image poor
S Y Scorpii	174734a	R	8.7	<12.0	~~Md6~~	B 39203	June 19, 1898.	F	
- Aquilae	192201	+1°4003.	9.8	<13.5	Md?	B 24086.	Sept. 7, 1899.	F	Image very ft.
T Y Cygni	192928	+28°3387	8.7	<14.	Mc	I 30680.	July 27, 1903	F	Image ft.
- Telescopii	193245	"	9.2	<13.5	Md5	A 3613	June 9, 1899	F	Well defined Hγ=1.0 Hδ=1.0
- Sagittarii	193742	"	9.0	13.2	Md10	A 4377	May 7, 1900.	F	faint Hγ 1.0, Hδ 1.00
R S Lyrae	190933a	+33°3371a	10	<13.5	Md?	I 35428	August 2, 1908.	F	Image faint
R T Lyrae	185737.	+37°3309a	10.5	<14.5	Md5?	I 34172	Aug. 15, 1906.	F	Hγ = 1.0, Hδ = 1.0
~~S~~ Z Delphini	202817.	+16°4290	9.3	<12	Md4	I 31167	Nov 20, 1903	F	Hγ = 1.0, Hδ = 1.0,
"	"	"	.	.	Md4	I 31193	Nov. 25, 1903	F	Hγ = 1.0, Hδ = 1.0?
"	"	"	.	.	Md4	I 13156	July 31, 1895	F	Hγ = 1.0 Hδ = 4
S T Cygni	202954	+54°2473a	9	14	Md8	I 32311.	Nov. 12, 1904.	F	Hγ = 1.0 Hδ = 6.0

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May 17, 1910.

Object	Design	DM No.	Photo Magn.		Plate	Date	Obs.	Remarks
V Cygni	203847	+47°3167a	8.3	13.5	Md1	I 7732	Dec. 24, 1892 F	Image faint & poor
γ Aquarii	203905	-5°5359	8.8	<13	Mc	I 23155	July 12, 1899 F	Image poor.
RR Capricorni	202622	"	9.4	<12	Md5	B 40617	July 19, 1909 F	Very faint. Hγ = 10, Hδ = 10.
RZ Cygni	204846	+46°3080a	9.1	<13	Pec.	I 14839	April 8, 1896. F	Image poor. Maybe Na

August 2, 1910

R R Capric	205627	-27°5202	8.0	<12	Md7	B 24453	Oct. 28, 1899. F	Hγ = 10 Hδ = 14.

Short Period

TT Crucis	121561		6.8	7.6	G	B 38751	April 24, 1908 F	Change in Printer's Table.
R Crucis	121861		6.8	7.9	75	"	April 24, 1908 F	
S Muscae	120769		6.4	7.3	K5	B 13773	June 15, 1895 F	

RT Pegasi	215934		9.5	<13	Md?	I 33548	Oct. 21, 1905 F	Image very ft. & poor.
S S Pegasi	222924		9.5	<11.0	Md8	I 32312	Nov. 12, 1904 F	Hγ = 10 Hδ = 100
γ Pegasi	220613	+13°4864a			Md6	I 33641	Nov. 14, 1905 F	Hγ = 10 Hδ = 60.
R Indi	222867	"	9.5	<11.0	Md6	B 14375	Aug. 15, 1896 F	Hγ = 10, Hδ = 70
S V Hydrae	235939	"	7.9	<13	Md7	I 30956	Sept. 28, 1903 F.	Hγ = 10 Hδ = 7a
R W Pegasi	225914	+14°4925?	8.8	<12.6	Md5	I 31924	Aug. 11, 1904 F	Hγ = 10 Hδ = 10
V Leporis	235209	-9°6294	8.5	14.5	Md4	B 12065	Sept. 3, 1894 F	Very ft. Hγ = 10 Hδ = 5
W Serpentis	160210	+10°2956			Md3	B 36709	May 16, 1910 F	Faint. Hγ = 10, Hδ = 5

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Exam. of Spectra of Comp. Stars. for variables.

Object	Des.	Cat. No.	Photog. Magn.	Sh. Plate B 20670
070135	a	6^h 2906	7.68	
– Puppis.	b	7^h 244	8.18	
	c	7^h 214	8.53	
	d	7^h 19	8.75	
	e	7^h 59	8.95	
	f	$-36°$ 3359	9.43	
	g	6^h 3164	9.71	
	h	$-35°$ 3315	9.96	
	K	$-35°$ 3337	10.36	
072146	a	$+46°$ 1273	7.67	I 33840
– Lyncis	b	$+46°$ 1272	7.92	
	c	$+46°$ 1266	8.22	
	d	$+46°$ 1269	8.50	
	e	$+45°$ 1438	8.70	
	f	$+45°$ 1433	8.88	
	g	$+46°$ 1264	9.18	
	h	$+46°$ 1267	9.70	
072211	a	$-11°$ 1948	9.02	B 24606
– Puppis	b	$-11°$ 1949	9.40	
	c	$-11°$ 1944	9.68	
	d	$-11°$ 1938	9.90	
	e	$-11°$ 1943	10.12	

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Exam. of Spectra of Comp. Stars. cont.

Object.	Des.			
074241	a			
W Puppis	b			
	c			
	d			
	e	-		
	f			
	g	-		
	h	-		
080138	a			
RT Puppis.	b			
	c			
	d			
	e	-		
	f	-		
	g	-		
082476	a			
R Chamaeleontis	b	-		
	c			
	d			
	e			
	f	-75°	500	9.75

are rar called IV
in Vol. 55 entered
in Cat. Iva is a Dec
IV type Cat? yes —
enter "a"

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Exam. of Spectra of Comp. Stars. cont.

Object.	Des.	Cat. No.	Photog. Magn.	Sp. Plate. A 7586
074241	a	7^h 3227	7.66	
W Puppis	b	7^h 2778	8.14	
	c	7^h 2876	8.64	
	d	7^h 3114	9.14	
	e	$-42°$ 3480	9.52	
	f	7^h 3060	9.90	
	g	$-42°$ 3491	10.38	
	h	$-41°$ 3360	10.88	
080138	a	8^h 143	7.70	B39920
RT Puppis.	b	8^h 65	8.08	
	c	8^h 119	8.38	
	d	8^h 217	8.73	
	e	$-38°$ 4063	9.08	
	f	$-38°$ 4031	9.40	
	g	$-38°$ 4024	9.72	
082476	a	8^h 1647	8.22	
R Chamaeleontis	b	$-75°$ 488	8.70	
	c	$-75°$ 495	9.00	
	d	8^h 1587	9.28	
	e	$-75°$ 490	9.53	
	f	$-75°$ 500	9.75	

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August 6, 1910

		Adopted Cl.			
var. +18° 661		I 9856 Good 13°p	B 183 Poor 13°p	I 36520 5°p	
	a	B8	a	a	F
	b	B5	a	a	F
	c	G	G	G	F
	d	B8	a	a	F
	e	F5	F5	G?	F
	f	a	a	a	F
	g	B5	a	a	F
	var.	F8G	F8G	F8G	F

Sequence reflected by P. D. S.

The above was copied from the cover of plate I 9856 H.

I 9856 July 21, 1893

B 183 Dec. 7, 1885

I 36520 Jan. 15, 1910

~~8 inch Draper. X 183~~

	x	y	x	y	x	y.	
Comet	8.30	8.75	8.35	8.75	8.32	8.75	
"	8.60	8.55	8.60	8.60	8.60	8.58	(8.575) R.a. 16h 11m 22.82 Dec. +14° 52' 51.2
"	8.85	8.45	8.85	8.45	8.85	8.45	(1910) 16 12 59.34 +14 47 30.9
a	6.75	13.45	6.75	13.40	6.75	13.42	
~~Hady~~ Bannister.	9.25	8.30	9.25	8.35	9.25	8.32	
~~Hady~~	9.20	8.35	9.25	8.35	9.22	8.35	
d	3.20	4.20	3.20	4.20	3.20	4.20	
e	5.55	2.65	5.55	2.70	5.55	2.68	
Comet	8.30	8.75	8.35	8.75			
"	8.60	8.60	8.60	8.60			
"	8.85	8.45	8.85	8.45			

See Orville Walker's Book 3 p. 20-22 for reduction of position

& 7 L's scale used (0.5 mm).

Zero ft. Obj follows "a" 2 div. = 1 mm. South of "a" 5 div. = 2.5 mm.

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1908phae.proj..820F

August 10, 1910

Search for Metcalf's Comet, by W.P.F.

Found on Plate I 36780 taken August 9, 1910.
Exposure 63 m Beg. G.T. 19h 2m End. 20h 5m.
Middle of Ex. 19h 34m.5.

Plate	R.A.	Dec.	Ex.	Appn R.A. 1855	Appn Dec. 1855	Obj.
36870	16h 8m	+14°.5	63m	16h 11.0	+14° 56	Motion SW (hazy).

Metcalf's Obs. reported by telephone on Aug. 9 at 10.15 P.M. Received by D.C. Catterall.
Monday Aug. 8d 15h 16m G.M.T. R.A. 16h 27m Dec. +16° 0'.
Tuesday Aug. 9 14 00 G.M.T. R.A. 16 10 Dec. +15 20.
8th magnitude NW (Should be SW).

Metcalfs Comet W.P.F.
(Appear 1855). 16h 10m.6 Dec. +15° 58'

a	+15°	2972	16h 10m 8°.0	+15° 8'.4	8.3	
b	+15°	2973	16 11 15.6	+15 1.7	9.2	13m 0s +14° 47 31
c	+14°	3026	16 9 24.9	+14 48.0	9.5	10 29 +14 56 41
d	+14°	3027	16 9 26.2	+14 44.2	9.0	
e	+14°	3029	16 9 53.6	+14 40.3	8.9	

10 29.3 +14° 56' 41"

0 } −17m S 40'
20 } +.5m S 24'
47 31 } −2.5m N 9' 10"

10 ✱ 16 10 29 +14 56 41

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1908phae.proj..820F

August 10, 1910

Search for Metcalf's Comet, by W.H.P.

Found on Plate I 36780 taken August 9, 1910.
Exposure 63 m Beg. S.T. $19^h 2^m$ End. $20^h 5^m$.
Middle of Exp. $19^h 34^m.5$.

Plate	R.A.	Dec.	Exp.	Appn R.A. (1855)	Appn Dec. (1855)	Obj.
36870	$16^h 8^m$	+14°.5	63 m	$16^h 11^m.0$	+14° 56	Motion SW (hazy).

Metcalf's obs. reported by telephone on Aug. 9 at 10.15 P.M. Recvd by D.C. Cattrall.
Monday Aug. 8^d $15^h 16^m$ G.M.T. R.A. $16^h 27^m$ Dec. +16° 0'.
Tuesday Aug. 9 14 00 G.M.T. R.A. 16 10 Dec. +15 20.
8th magnitude NW (Should be SW).

Washington.
Aug 10.7174 G.M.T. 16 10 29.3 +14° 56' 41"

Harvard plate.
Aug. 9.630 G.M.T. $16^h\ 13^m\ 0^s$ +14° 47 31
16 10 29 +14 56 41

Aug. 8	M	16	27	+16 0		
	Corr. pos.	16	14	+15	-17^m	S 40'
9	M	16	10	+15 20		
					$+.5^m$	S 24'
9	T	16	13 0	+14 47 31		
					-2.5^m	N 9' 10"
10	W	16	10 29	+14 56 41		

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1908phae.proj..820F

Metcalfs Comet.

Plate	Date	Exp.	R.A.	Dec.	
Mc 522	Aug. 12, 1910	60m	16h 3m 58.5s	+15° 20′	(1855)
I 36783	Aug 12, 1910	60.			Shows faint image of spectrum

M.C. 522

	X	y	x	y
Comet	~~12.30~~ ~~6.85~~	~~12.35~~ ~~6.85~~	12.35	6.85
"	12.60	6.80	12.60	6.75
"	12.90	6.75	12.85	6.70
a	18.0	15.70	18.0	15.70
b	10.85	4.10	10.85	4.10
c	15.70	15.60	15.70	15.60
d	21.25	13.60	21.25	13.55
Comet	12.35	6.90	12.35	6.85
"	12.60	6.85	12.60	6.80
"	12.85	6.75	12.85	6.75

			1875		1875	
a	+15° 2958	9.7	16h 3m 39.72s	+15° 30′ 18.0″		5773
b	+15° 2961	8.9	16 4 37.76	+15 12 12.3		5780
c	+15 2963	8.5	16 5 9.15	+15 30 5.9		5783
d	+15 2964	8.5	16 5 45.15	+15 26 56.1		5787

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1908phae.proj..820F

October 4, 1910.

Nova Sagittarii No. 2. Found by W. P. Fleming, October 1, 1910, on B 41397 taken at Arequipa with the 8-in Bache Telescope, on May 31, 1910. Approx R.A. 17 52, Dec. -27° 30', magn. 8.5?

Plate	Date	Exp	Est.			J D	
B 39055-1	08, 5, 29,	11m	~~N.S~~ 12		V		1
B 40259	09 " 11	18	N.S < 12		V		2
B 9279	?		N.S 12		V		3
B 9857 x 4	?		N.S < 12		V		4
B 3886	July 23, 1889		N.S < 12.5		V		5
B 37314	May 2, 1907, 10		N.S < 12		V		6
B 41365	" 28, 1910, 15		8.5		V	8820	
B 4059	Aug. 21, 1889	80	N.S < 12.5		V		7
am 6946	May 28, 1910	60	8.5		V	8820.	
am 6445	Aug. 10, 1909	75	N.S < 9.5		V		8
am 6636	Oct. 7, 1909	120	N.S < 9.5		V		9
am 6976	June 2, 1910	60	8.6		V	8825.	
am 6945	May 28, 1910	60	8.1		V	8820.	—
B 40363	May 29, 1909, 10		N.S < 12		V		10
am 6613	Sept. 21, 1909	120	N.S < 11.5		V		11
ac 11574	April 2, 1910,	70	8.4		V	8774.	
~~ac 11520~~	~~Mar. 21, 1910,~~	~~60~~	~~8.3~~				
am 6880	Apr. 15, 1910	60	7.9		V	8777.	
ac 11520	Mar. 21, 1910	60	8.5		V	8752.	—
ac 11702	June 19, 1910	64	8.5		V	8825.	
am 1589	Sept. 30, 1902	60	N.S < 11				12
am 6952	May 29, 1910,	60	8.2			8821.	
am 6475	Aug. 16, 1909,	68	N.S < 10.5				13
ac 11664	May 16, 1910,	60	7.8			8808.	—

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1908phae.proj..820F

Oct. 4, 1910.

Stra Sag. Sta. 2 cont.

Plate	Date	Exp.	Est.			J.D.
√am 6972	June 1, 1910	5-6m	8.5			8824.
√am 6953	May 29, 1910	60	8.5			8821.
√ac 11711	June 4, 1910	60	8.5			8827.
√B 8712	?		<12	St.S	14	
√am 6861	Apr. 4, 1910	60	8.5			8766.
√ac 11595	Apr. 16, 1910	44	8.0			8778.
√am 6623	Sept. 24, 1909	67	<9.	St.S	15	
ac 1655	Aug. 14, 1901	70	Too poor		17	
√ac 1462	May 13, 1901	5-5	<9	St.S	16	
√ac 963	Aug. 16, 1900	74	Too poor			
√ac 858	May 11, 1900	60	<9.5	St.S		
√ac 868	May 29, 1900	72	<9.0	St.S		
ac 869	Too poor					
ac 471	Oct. 10, 1899	69	Too poor			
ac 377	" 6 1899		Too poor			
√am 1278	May 27, 1902	60	<12.	St.S		
√am 1252	" 15, 1902	60	<11	St.S		
√am 1043	Sept. 6, 1901	60	<11.5	St.S		
√am 137	Sept. 6, 1899	75	<11.5	St.S		
√am 15	July 26, 1899	71	<11	St.S		
√am 817	May 28, 1901	60	<12	St.S		
√am 808	May 27, 1901	57	<11.5	St.S		
√am 802	May 22, 1901	60	<11	St.S		
√am 614	Sept. 1, 1900	70	<10	St.S		
√am 577	Aug. 2, 1900	62	<11	St.S		
√ac 9512	June 4, 1908	48	<9	St.S		
√ac 9589	" 29, "	60	Too poor			

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1908phae..proj..820F

Oct. 4, 1910.

Nova Sag. No. 2, cont.

Plate	Date	Exp.	Est.		J.D.
AC 9608	July 6, 1908	60m	Too poor.		
AC 9667	Aug. 20, 1908	60	< 9	St. S	
AC 9684	Aug 27 1908	63	< 9	St. S	
AC 9697	" 29 "	60	Too poor		
AC 9754	Sept. 29, "	67	Too poor		
AC 9792	Oct. 6, "	64	Too poor		
AC 10519	May 24, 1909	35	" "		
AC 10620	July 7, 1909	61	" "		
AC 10693	Aug. 7, 1909	62	" "		
AM 6462	" 14, "	63	< 9	St. S	
AM 6471	Aug 15 "	120	< 10	St. S	
AM 6493	" 20, "	130	< 10	St. S	
AM 6503	" 22, "	60	< 9.5	St. S	
AM 6575	Sept. 11, "	60	< 9.5	St. S	
AM 6606	Sept. 19, "	63	< 10	St. S	
AM 7014	June 9, 1910	59	8.5		8832.
AM 7028	June 11, 1910	120	8.8		8834.
AM 7035	" 25, 1910	124	8.9		8848.
AM 7040	" 26, 1910	60	8.9		8849.
AM 7116	July 11, 1910	120	9.0.		8864.
AM 6592	Sept. 15, 1909	120	< 12	St. S	
AC 10825	Sept. 18, 1909	71	< 9	St. S	
AC 11617	June 7, 1910	62	8.9		8830,
AC 11741	June 29, 1910	68	9.2 Image defective?		8852.
AC 11757	July 6, 1910	59	8.8?		8859.
AC 11807	July 29, 1910	60	8.8		8882. Partridge.
AC 10641	July 19 1909	60	< 9	St. S	" "
AC 10464	Apr. 26, 1909	60	< 9	St. S E	—

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1908phae.proj..820F

Oct. 4, 1910.

Meas of Nova Sag. No. 2 contd

Plate	Date	Eff.	Est.		J.D.
ac 10497	May 11, 1909	60m	< 9.5	E	
ac 10568	June 16, "	63	< 9	E	
ac 10457	Apr. 24, "	60	< 9.5	E	
ac 10551	June 8, "	60	< 9	E	
am 6393	July 22, "	61	< 11.5	E	
am 6921	May 14 1910	60	8.5	E	8806, 8811.
ac 11676	" 19 1910	87	7.5	E	Rejected
am 6015	Mar. 30, 1909	73	~~Too faint~~. < 9.0		
~~am 6312~~	~~July 5, 1909~~	~~61~~			

Oct. 5, 1910

ac 11710	Too faint				
am 7008	June 8, 1910	60m	9.5		8831
~~am 7019~~	~~" 10, "~~	~~120~~			
am 7033	June 25, "	61	9.1		8848.
am ~~July~~ 7063	July 2, "	78	9.0		8855.
am 7084	" 6, "	60	9.4		8859.
am 6989	June 4, "	65	8.2	E	8827.
am 6997	June 5, "	120	8.3	E	8828.
am 7015	June 9, "	120	8.5	E	8832.
am 7039	" 26, "	122	9.2	E	8849.
am 7083	July 6, "	78	8.9	E	8859.
am 7102	July 9, "	64	9.2	E	8862.
am 7128	July 13, "	61	9.3	E	8866.
ac 11747	" 4, "	60	9.0	E	8857.
ac 11760	" 6, "	60	8.8	E	8859.
am 6278	June 23, 1909	60	< 10	E	
am 6124	May 13, "	72	< 10.5	E	
am 6206	June 9, "	60.	< 10.	E	

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1908phae.proj..820F

Oct. 5, 1910.

Meas. of Nova Sag. No. 2 cont.

Plate	Date	Eff.	Est.	
✓am 6416	July 26, 1909	61mm	<10.5-	E
✓am 6223	June 13, "	123	<10.5-	E
✓am 6264	" 21, "	120	<10.0	E
✓am 6320	July 7, "	71	<10.0	
✓am 3802	Aug. 18, 1905	66	<12.0	
✓am 3883	Sept. 16, 1905	60	<10.5-	
✓am 4269	May 29, 1906	63	<12.0	
✓am 4339	June 22, "	67	<11.5-	
✓am 4365	July 2, 1906	60	<10.	
✓am 4388	July 11, "	60	<12	
✓am 4527	Aug. 2, 1906	69	<12.5-	
✓am 4539	" 27, "	61	<12.0	
✓am 4562	Sept. 11, "	60	<11.5-	
✓am 4620	Oct. 11, "	85-	<12.	
✓am 4804	May 7, 1907	60	<12	
✓am 4858	" 23, "	66	<11.5-	
✓am 4920	June 11, "	60	<10.5-	E
✓am 4931	" 20, "	60	<12	
✓am 5013	July 17, "	126	<12.2	
✓am 5024	" 30 "	120	<12.2	
✓am 5090	Aug. 25, "	67	<12.	
✓am 5114	Sept. 1, "	70	<12	
✓am 5340	Mar. 26, 1908	60	<11.5-	
✓am 5390	Apr. 10, 1908	58	<10.5-	
✓am 5444	May 7, "	60	<10.5-	
✓am 5576	June 18 "	60	<10.5-	
✓am 5640	July 4, "	?	<12.	
✓am 5683	July 25, "	125	<12.5-	

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1908phae.proj..820F

Oct. 5, 1910.

Meas. of Nova Sag. No 2 cont.

Plate	Date	Aft.	Est.
am 5712	Aug. 2, 1908	66m	<12.5
am 5752	" 17, "	60	<10.5
am 5778	" 29, "	60	<11.0
am 5807	Sept. 12 "	61	Too faint
am 5820	Sept. 14, "	120	<12
am 5854	" 24, "	61	<12
am 6011	Mar. 29, 1909	120	<10.5
am 6114	May 11, "	67	<11.5
am 6136	" 15, "	120	<10.5
am 6170	" 26, "	60	<10.5
am 6228	June 14, "	60	<10.5
am 6338	July 11, 1909	144	<11.5
am 6343	July 12, "	123	<12.
am 6347	" 13, "	63	<10.5
am 6374	" 18, "	140	<11.5
am 6422	" 28 "	151	<9
am 6454	Aug. 12, "	66	<11.5
~~B 8628 Sf. Too faint~~			
B 8713			<11.
B 9209			<12
B 9210			<11.5
B 9280	May 1, 1893		<10.5
~~B 9588 Sf.~~			
B 9592			<12.5
B 9593			<13.0
B 6615			<10
B 4124	Sept. 2, 1889	60	<12
~~B 4136 " 4 " 10~~			

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1908phae..proj..820F

Oct. 5, 1910.

Means of Stora Sag. No. 2, cont.

Plate	Date	Eff.	Est.		J.D.
B 5006	May 1, 1890	12	<10		
B 5338	" 29, "	12	<12		
B 7922			<12		
B 8233 Sh.			St.S		
B 3438 Sh.			St.S		
B 3754			<11.5		
B 3993			<10.5		
B 12117	Sept. 11, 1894	10	<12.5		
B 13163	May 1, 1895	61	St.S	E	
B 13345	May 13, "	10	<12		
B 13346	" 13 "	14	<12	E	
B 13406 Sh.	" 23 "	60	St.S	E	
~~B 13433 Sh.~~	~~Streak~~				
B 13434 Sh.	May 27, 1895		St.S	E	
~~B 13462 Sh.~~					
B 9656			St.S	E	
B 9826 Sh.			St.S		
B 9827 Sh.			St.S		
B 9828 Sh.			St.S		
~~B 9855~~				E	
B 16086	May 30, 1896	10	<12.5		
B 41608	July 13, 1910	10	9.0		8866.
B 16156	June 5, 1896	17	<10		
~~B 16443~~	~~June 17 " 23~~		~~Streak~~		
B 16496	June 27 "	10	<10	E	
B 16576	July 1, "	12	<10		
B 14176	" 21, 1895	117	<10		
~~B 15834~~	~~May 12, 1896~~	~~12~~			

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1908phae.proj..820F

Oct. 5, 1910.

Meas. of Stora Sag. Nr. 2 cont.

Plate	Date	Eff.	Est.
B 13936	July 3, 1895	10m	<12.5
B 13828 Sh.	June 26, "	95	Str S <10.5
B 13536	" 3, "	10	<10.5
B 13535	" 3, "	10	<11
B 41706 Sh.	July 25, 1910	64	Hβ, Hδ, He bright Str. trace of lines characteristic of gaseous nebulae.
~~B 13728~~	~~June 11, 1895~~		
B 13728	June 11, 1895	10	<12
B 13748	June 12, 1895	10	<12.5
B 13767 Sh.	" 14, "	60	Str S
~~B 13791 Sh.~~	~~" 18, "~~	~~60~~	~~Too near edge.~~
B 21077	Mar. 26, 1898	10	<12
B 20502	Sept. 23, 1897	10	
~~B 1995~~			
B 20212	Aug. 31, 1897	65	Str S
B 20451	Sept. 18, 1897	10	<12
B 20466	" 20 "		<10
B 19114	May 13, "	14	<12.5
B 17092 Sh.	Aug. 11, 1896	78	Str S
B 17440	Sept. 22 "	10	Too near edge of film.
B 17651	Oct. 13, "	10	<12.5 E.
A 2798	Oct. 5, 1897	10	<13.5
A 4821	" 23, 1900	20	Very ft. trace of plate of
A 2735	Sept. 15, 1897	60	" " " " " "
A 8386	July 16, 1907	60	" " " " " "
A 8443	Aug. 17 1907	10	<12
AM 7008	June 8, 1910		9.2 "L" 9.3 "F"
Ab 11676	May 19, 1910	87	7.5 "L" 7.4 "F"
AM 6921	May 14, 1910	60	7.5 "L" 7.5 "F"
Ab 11817	July 29 1910	60	— "L" 8.8 F

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1900phae.proj..820F

Jd

position of Nova

" " " ?

" " " ?

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October 8, 1910

New Variable Star in Cygnus (?).

Rd. $19^h\,49^m\,55^s.01$ Dec $+36°\,46'\,57''.4$ (1900) Found by Hind?
Confirmed by W. P. Fleming October 8, 1910.
For information see letter of Arthur R. Hinks Sept 29, 1910.
Var. ident. by photo. chart sent with Hinds letter. W.P.F.

Plate	Date	Exp. m	Est.	JD
~~I~~ R 25328	May 10, 1900	13	<12	241.5150
I 13205	Aug. 8, 1895	22	<12	3414
I 18989	Sept. 24 1897	12	<11.5	4192
I 6808	Sept. 1, 1892	15	11.5	2343
I 23131	July 4, 1899	23	<12.5 ~~10.8~~	4840
I 35565	Oct 6, 1908	12	10.8	8221
A 5366	June 14, 1901	60	10.0	.5550
I 8849	July 20, 1893	11	<11	2665
I 35388	June 21, 1908	18	<12	8114
I 30401	April 29, 1903	30	<10.5	6284

October 15, 1910

AC 11718	June 4, 1910	50	Too poor.	8830
AC 11940	Sept. 20, "	69	<10.0 ~~<9.5~~	8935
AC 11869	Aug. 20 "	61	<10.0 ~~<9.5~~	8904
AC 11096	Nov. 30, 1909	60	<11.0	8641
AC 11074	" 26, "	60	<10.0	8637
AC 11686	May 29, 1910	60	Too poor.	
AC 11773	July 9, 1910	60	" "	
AC 11815	July 30, 1910	62	<9.8	8883
AM 3023	Sept. 8, 9, 1904	245 235	10.8	6732 6733
AM 5056	Aug. 12, 1907 1907	236	Too poor	
AM 2115	July 13 1903	60	<11.0	6309
AC 11946	Sept. 22, 1910	60	<11.0	8907
AC 11954	" 23 "	60	<9.5	8938

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1900phae.proj..820F

Oct. 15, 1910.

New Var. star in Cygnus? found Lick Exp.

Plate	Date	Eff	Est.	J.D.
AC 1870	Oct. 16, 1901	.59m	<10.8	5674
AC 1954	Nov. 4, 1901	97	<10.5	5693
AC 1957	" 5, "	58	<10	5694
AC 2000	" 22, 1901	77	<10	5711
AC 2678	July 10, 1902	72	<11.2	5941
AC 6977	Nov. 11, 1905		Too poor (E)	
AC 6892	Oct. 26, "	70	11.5?	7145
AC 6640	Aug. 29, 1905	75	<10.5	7087
AC 2866	Oct. 7, 1902	82	<10.5	6030
AC 2838	Sept. 14, 1902	62	<10.5	6007
AC 2772	Aug. 23, "	64	Too poor.	
AC 2865	Oct. 7, 1902	59	<10.5	6030
L 9113	Aug. 8, 1893	11	<11.0	2684
L 30313	Apr. 17, 1903	10	11.5	6222
L 1660	Aug. 20, 1890	13	<10.8	1600
L 4196	Sept. 10, 1891	17	<10	1986
L 9032	Aug. 2, 1893	10	<10	2678
L 11379	" 21, 1894	14	<10	3062
L 25160	Apr. 14, 1900	10	<10.5	5124
L 30287	" 5, 1903	14	11.4	6210
L 30285	" 5, "	15	11.4	"
L 30316	" 17, "	11	<11.5	6222
L 30506	May 17 "	22	<10.5	6252
L 22769	Apr. 23, 1899	19	<11.8	4768
L 23074	June 25, 1899	10	<11.4	4831
L 1430	July 11, 1890	11	11.6	1560
L 29336	Oct. 9, 1902	19	Too near edge.	
L 6880	Sept. 2, 1892	16	Too poor	

Cont. on pg. 5-6.

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1908phae.proj..820F

October 13, 1910

Nova Arae Nov. Found by W. P. Fleming October 13, 1910 on B41704 taken at Arequipa July 25, 1910. Spectrum shows 5007 ?, Hβ, 4680?, Hγ, Hδ, Hε and Hζ as bright lines.

Plate	Date	Exp.	Est.	
B36620	Aug. 11, 1905	10m	<12	✓
aM5751	" 10, 1908	126	<12	✓
B40374	May 30, 1909	10	<12	✓
B40425 Sp.	June 13, 1909	60	<10	✓
B40020	Apr. 7, 1909	10	<11	✓
B40246	May 9, 1909	20	<12	✓
B22508	Apr. 6, 1899	10	<12.5	✓
B29470	" 28, 1902	10	<12.5	✓
B15871	May 13, 1896	10	<12.5	✓
B38030	Aug. 25, 1907	60	<13.	✓
B38705 Sp.	Apr. 24, 1908	57	<10.5	✓
B38694	" 10, 1908	10	<11	✓
B38646	" 9 1908	60	<10	✓
B11597	July 16, 1894	?	<12	✓
B11848	Aug. 13, 1894	10	<12	✓
B16281	June 12, 1896	12	<12.5	✓
B33622	May 4, 1904	10	<12.5	✓
B30220	June 27, 1902	60	<13	✓
B35709	Mar. 30, 1905	10	<12.5	✓
B37533	May 31, 1907	10	<12.5	✓
B20442	Sept. 18, 1897	10	<12.5	✓
B22929	May 30, 1899	10	<12.5	✓
B25964	Sept. 4, 1900	11	<12.5	✓
B27558	June 5, 1901	10	<12.5	✓

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1908phae.proj..820F

Oct. 13, 1910.

Nova Aurae cont.

Plate	Date	Eff.	Est.		
B11595	July 16, 1894	?	<10	✓	
B27478	May 28, 1901	10	<12.5⁻	✓	
B11629	July 20, 1894	?	<12.5⁻	✓	
B27749	June 25, 1901	10	<12.5⁻	✓	
B4047	Aug. 29, 1889	60	<12.5⁻	✓	
B30189	June 26, 1902	62	<13.	✓	
B31877	May 28, 1903	61	<14	✓	
B11801	Aug. 11, 1894	10	<12	✓	
B15865	May 13, 1896	10	<10	✓	
B16107	June 4, 1896	60	<12	✓	
B22473	Apr. 5, 1899	10	<12	✓	
B22469	July 14 1899	11	<12	✓	
B29275⁻	Apl. 3, 1902	10	<10 Poorly	✓	
B32095	July 2, 1903	10	<12.5⁻	✓	
B15559	Apr. 8, 1896	75⁻	<13.	✓	
B36952	Sept. 9, 1905	10	<12	✓	
B41342	May 27, 1910	15⁻	8.5⁻	✓	8819 ✓
B41738	Sp. 5007, H3, 4670, Hγ,		Hδ, Hε, H8	✓	8883 ✓
B41625⁻	July 14, 1910	10	9.7	✓	8867 ✓
B41338	May 27, 1910	15⁻	8.0	✓	8819 ✓
AM6910	May 5, 1910	69	8.5⁻	✓	~~8807~~ ✓ 8797
AM6899	Apl. 29, 1910	60	7.5⁻	✓	8791 ✓
AM6927	May 26, 1910	64	8.7	✓	8818 ✓
AM6971	June 1, 1910	120	8.8	✓	8824 ✓
AM6975⁻	June 2, 1910	60	9.0	✓	8825⁻ ✓
AM7069	July 3, 1910	72	9.3	✓	8856 ✓
AM7013	June 9, 1910	60	8.6	✓	8832 ✓
AM7090	July 7, 1910	120	9.5⁻	✓	8860 ✓

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Oct. 13, 1910.

Stars Arae cont.

Plate	Date	Eff	Est.	J D
~~am 7047~~	~~June 29, 1910~~	~~60~~ mm		
am 7070	July 3, 1910	66 mm	10.0 ✓	8856 ✓
am 6861	Apr. 4, 1910	60	6.0 ✓	8766 ✓
am 6853	Mar. 19, "	60	~~9.5~~ <10 ✓	
am 6857	Mar. 19, "	60	<10 ✓	
B 41755	~~Aug. 3, 1907~~ Aug. 3, 1910	H/3, 4670, Hγ, Hδ, Hε, Hζ, Hη		
am 6887	Apr. 17, 1910	67	6.0 ✓	8779 ✓
am 6916	May 12, 1910	60	8.0 ✓	8804 ✓
am 6961	May 31, "	120	8.7 ✓	8823 ✓
am 6969	June 1, "	60	9.0 ✓	8824 ✓
am 7082	July 6, "	121	9.7 ✓	8859
am 7094	July 8, "	61	9.8 ✓	8861 ✓
A 8440	Aug. 17, 1907	10	<15	
A 8400	July 27, "	11	<15	

Remeas. Oct. 14, 1910

am 7070.	9.9
" 7090	10.0
" 7019	8.6
am 6969	9.0
am 6971	9.3
B 41 ~~7382~~ 388	8.4

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Oct. 10, 1910

New Var. star in Cygnus? found by Hinds' ext.

Plate	Date	Eff	Est.	J.D.
ℓ 21321	Oct. 3, 1898	12m	<11.5	4566
ℓ 30174	Mar. 12, 1903	10	10.3	6186
ℓ 30472	May 11, 1903	28	<11.0	6246
ℓ 6849	Sept. 3, 1892	20	<11.3	2345
~~ℓ 9605 [illegible]~~	" 12, 1893	28	<11.6	2719
ℓ 9980	Nov. 22, 1893	?	<11.3	2790
ℓ 11374	Aug. 18, 1894	10	11.3	3059
ℓ 27991	Nov. 21, 1901	15	<11.5	5710
ℓ 30508	May 17, 1903	40	<10.5	6252
ℓ 35388	June 21, 1908	10	<12.	8114
ℓ 1539	Aug. 1, 1890	13	<11.4	1581
ℓ 8961	July 27, 1893	11	<11.5	2672

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1908phae.proj..220F

November 3, 1910.

Exam of plates for Russell's stars probably in error in list sent to Kapteyn.
See letter of Russell.

Plate	Object	Sp.	Note.
No 6. I 35911 F	Cincinn 1001 = 02 174156		
Best plate of region. Image poor.	= BD +68 946	G5 Pec.	Early and late charts compared. Confirms PM.
2nd	BD +68 947.	F.	This ident. was assumed and sent to Kapteyn.

No 5. Plate	Object	Sp.	Note.
I 36306.	Cinn. 1319 +1° 4774 87 +57 2787	Ma?	Was not this the spectrum obtained at Mt. Wilson. Kapteyn does not ask for 1319, but asks for 1320. Is not there some misunderstanding regarding this star? λ Piscium is +0° 5037 and not +1° 4974 as given in the Cinn. Cat. Adjacent star +57° 2780, is fainter and difficult, but is either A or A 5.
B 24592	" ~~λ Piscium~~	Ma	
I 21901	" 2781	Ma?	
I 32413	Cinn. 1320 = +57 2787	G	
I 33701	P. 23h 164	G	

No 1.			
I 34623	+18° 2776.		Plates too poor for classification. No better plate yet obtained.
I 35929	RA. 13h 40m + 18° 20'		
I 31454			
I 31466			
I 31778			
I 35761			

No 4.				
I 34819	+56° 2783	9.0	K?	Image very faint and poor. Classification doubtful
I 36273	"	"	K?	" " " " " " "
I 34819	+56° 2784	8.4	A.	Image well defined. This was probably the star sent to Russell.
I 36273	"	"	A	

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1908phae.proj..820F

No. 2. +59° 1915 8.9 K and K
Plate I 36266 Double on plate
not double in
DM. Prec. comp. P M.
I 20855 Ma

A difficult object, as two spectra are superposed and cannot be separated. This object was classified on I 20855 on which it is much nearer the edge of the plate. No chart plate was used and I had no means of knowing that the spectra of two close stars, differing slightly in declination, were superposed. This might give the effect of the band which distinguishes spectra of Cl. A. Ma

No. 3. 31532 +5° 2996 (Should be 3993) G?
31553 RA, Dec +5 G?

} Plates very poor and Classification uncertain.

I ~~25514~~ 24592 +5° 3993 Ma
B 12038 RA 18 53.1 Dec +5° 48' Ma
I 25511 ± Ma
~~I~~ 32913

} The spectrum of this star seems certainly to be of Class Ma, as shown on these plates. The record of the letter N, pertaining to the Class of Spectrum may have been omitted from the record, by mistake.

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1908phae.proj..820F

November 4, 1910.

Standard Regions. Spectra. ~~Comparison Stars~~. A, B, C.

Region D. ~~Star Design~~. -15° ~~Spectrum~~. Region +15° C

R.A.		
1.	B22104, B10628 23814, B10420	I10101, 28447, 19384, ~~19800~~, 36482, 36908, 36912, 36925, 36929, 36930
3	B17414, 17698, 20580, 39703	11814, 11953, 12157, 26122, 28449, 36867, 36932, 36961, 36989
5	B20232, ~~I4678~~, ~~B12379~~, ~~B12628~~	B983, ~~I14663~~, ~~12433~~, 26262, 36883, 36894, 28468, 36937, 36933
7	B8909, 15402, 36936, 37011	~~B1083~~, B229, 11817, 11956, 11994, ~~16433~~, 35944, 36914, 36917
9	B18650, B21367, ~~I36525~~, I36965	I35948, 36943, 36964, 36979, 36985, 36998, 36985
11	B9540, B3130, I25187, B41220	I16941, 22657
13	B19210, 21189, 21375, 35803, 13138, 19019, 19032	B24191, ~~I35444~~
15	B8374, 35804, 9480, 10121, 40622	~~I14457~~, ~~14491~~, 14624, ~~24995~~, ~~24058~~
17	B8891, 39484, 40585	~~I1381~~, ~~28446~~, 36019
19	B2872, 6545, 14208, I36844, I11172, B14380, B20207, B30435, B31106, B30448, B31223	I19320, 21922, 36835, 36853, 36902, 36918, 36927
21	B19215, B17410, B14580, B40621, B14376	I19399, 36287, 36864
23	I36957, B17412, B17330, B36950, B17040, B20559, B10358	I9684, 30955, 36928, 36980

R.A.	45° B	R.A.	+75° A
h m			
20	~~B1755~~, I19648, 31237, 36283, 36956	4	I36966, B1899, I32385, ~~I32446~~, ~~I33865~~, I36884, I36966, I36996
4 00	B1774, B1827, I19657, 28553, 35160, 35842e, 36934, 37010	12	I36622, I36987, I37043, I37053
6 40	I3396, 3274, 28470, 31459, B1823, ~~I32967~~, I36917, ~~34010~~, ~~34126~~	20	I4051, I1645, I36864
9 20	I14634, B1918, I3373, I36986		
12 00	I14627	R.A.	+90°
14 40	I19807, I19846, ~~I25264~~, ~~25356~~, ~~25253~~		
17 20	I26861, I36668, 36286		
20 00	B1661, B1719, I15820, 33602, ~~33589~~, 36206, 7326, 36759		
22 40	B1895, B1909, I23970, I9926		

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l3 l3i
36959, 36988

l4
37003

l4 l4
36962, 37005

l4s l4 l3 l4 l4 l3i
36937, 36942, 36935, 36963, ~~36999~~, 36977, 36984

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November 7, 1910.

Classification of stars for Schwarzschild.

I 36927
I 30902 16535
B.D. +12°3320
A 8335 [July 31.5? 1910.]

Design	R.A.	Dec.		Remark
2575			A A?A?A3- A3 e,	H lines normal. K=0.3. ~~K=0.3~~
2581			A A0 A0A3- - e,	H lines normal. K=0.3
2582			A? A?A?A5- A0 e,	e, H lines normal. K=0.5?
2583			A0 A?AA?- A0 e,	e
2586			A? ? AA0- A0 e,	
2589			A0 A?A0A0- A0 e,	e
2591			A - A?A3- A0	H lines normal K=0.3
2595-			A0 A0 A0A0A A0	
2596			K K KpKpK?G5?nK	
1 +12°3701 (1855)	18 46 53.9	+12 51 6 80	K K	K
			5° 5° 5° 13°	Bund Sch.

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1900phae.proj..820F

2+12°3707 (1855)	18	47	21.1	+12	49.1	7.8	A	A2	K=0.2
2597							F5 F8 F5 F5 F?	F	
2599							A0 A0 A0 A1 A	A0	H lines normal, K=0.1
2607							A0 A0 A0 A0 A	A0	
2609							F0 F? F0? F0 F	F	
2613							A? A A? A0 A	A	
2615							K K K K G5?	K?	e/hor,
2618							A5 A0 A5 A6 A5?	A5	K=0.6 K=0.5 K=0.5?
2619							K K K K K?	G5	
2622							G5? G? K? G5/h - G sink		Composite?
3+14°3733 (1855)	18	52	37.2	+14	56.1	7.7	A0	A0	

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1908phae.proj..820F

	2623										
	2625										
	2628										
	2629										
	2630										
	dd 2631										
4	+15° 3656	(1855)	18	54	36.3	+15	28.8	8.3			
5	+15 3658	(1855)	18	54	49.3	+15	28.1	8.9			
	2638										
6	+14° 3750	(1855)	18	55	28.4	+14	13.3	7.7			
7	+14° 3755	(1855)	18	56	0.0	+14	21.7	7.4			
	2648										
8	+16° 3712	(1855)	18	56	59.2	+16	51.8	7.2			
9	+14 3770 3771	(1855)	18 18	57 57	30.1 33.3	+14	53.9 53.3	7.7 7.6			
	2652										
	2653										
10	+12° 3819	(1855)	19	1	42.0	+12	52.6	6.8			
	+15° 3693	(1855)	19	1	[illegible]	+15	51.2	8.0			
11	+15 3696	(1855)	19	1	7.8	+15	16.8	8.3			

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1909phae.proj..820F

12+15°3696 (1855)	19 1 4.8 + 15 16 8.3	G5	G?	
2659	19 2 22.1 + 14 32 8.2	A0 ~~A0~~ A0 A0 A	–	
13+14°3802		K	K?	
2664		A? ~~A?~~ F0? A5? ~~A5?~~ F5? A8		K = 0.8. H/ines round?; K = 0.5 Long? additional faint lines
2673		G5 K? G5 G5?	G5?	
2675		K K K ~~G5?~~ F?	G?	Pow ~~ft~~ e.
2676		A0 A0 B5? A0 A A0		
2677		A0 A0 ~~A0~~ A1? A A0		H trace of K
2679.		F5 G5? ~~F5~~ F5	F5?	

I 19320 October 19, 1897.
I 36853 October 1, 1910
I 36902 " 26, "
I 36927 Nov. 7, "
A 8335 June 3, 1907.

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1908phae.proj..820F

Pleiades

November 15, 1910.

Estimates of Class of Spectra for ** stars in Pleiades

for H. S. Leavitt

Letter Design	R.D. 1900	Dec. 1900	I 33718 I 52822 I 52849 I 2233 I 30336 Class.	Concl'd.
e			$A_0^? A_0 A_0 A_1^: A_0$	A_0
e'			$A_2 A_1 A_0 A_2 A$	A_2
γ			$A_1 A_1 A_1 A_1 A$	A_1
ζ			$A_2 A_1^: A A_0 A$	A_2
ζ			$A_2 A_0^: A_2 A_2 A$	A_2
g			$A_2 A_0 A_2 A_1 A$	A_2
h			$A_3 A_3 A_3 A_3 A$	A_3
h'			$A_5 A A_3 A_5 A$	A_5
i'			~~F_5~~ $A_0 A_0 A$	A_0
ε			$A_5 A_5 A_5 A_5$	A_5
δ*			$A_0^? A A_0^5 A_5$	A_5
i'			~~F_2~~ $F^? F^? F F_0$	F_0
f.			$A^? A_0 A_3 A$	A
f.2			$K_2^? G F_5^: F_5$	F_5
f.3			$K G_5 G^: G^?$	$G^?$
f.4			$G^? K K K$	K
f.1			$A^? - G^? -$	$-$
f.5			$- - - -$	$-$
k			$- - - -$	$-$
k'			$- - - -$	$-$
l			$- - - -$	$-$
l'			$- - - -$	$-$
m			$- - - -$	$-$
m'			$- - - -$	$-$
n			$- - - -$	$-$
o			$- - - -$	$-$
p			~~A_5~~ $- - -$	$-$
q			$- - - -$	$-$
r			$- - - -$	$-$

Too poor & gave much weight to Duchesnian & Ad. Gr. plates.

definition.

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1908phae..proj..820F

	I 3871/8	I 5282	I 5289 I 2233	Conclusions
s	–	–	– –	–
t	–	–	~ –	–

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1908phae.proj..820F

November 22, 1910

Classification of Spectra in Harvard Standard Region C 1.

Kd. Dec. Magn. 50° 54 Dm Ha. Hd. D26929 D10101 D19384 D26902 D26912 Rem.

No.	Design	h	m						Sp.	
	+17° 130	0	50	15.2	+17	22.5	9.0	.. ..		
1	~~+17 135~~	~~0~~	~~52~~	~~35.5~~	~~+17~~	~~25.5~~	~~9.5~~		F – – F,	F
2	+17 135	0	52	35.5	+17	25.5	7.5	.. 7.37	K, G5, K, K,	K
3	.. ..	0	52.8	+	17	17	..	.. ..	G, K – G,	G5
4	+17 139	0	53	23.1	+17	3.5	8.2	.. ..	F0, F0, F, F	F0
5	+17 145	0	55	24.1	+17	19.0	9.3	.. ..	G, – – K,	G5
6	+17 146	0	55	26.1	+17	8.2	9.5	.. ..	A – – A?	A
7	+17 152	0	~~17~~ 58.05	~~58~~	+17	7.9	8.8	.. ..	K – – K,	K
8	+17 156	0	59.9.7	+	17	12.2	9.0	.. ..	G? – – F?	F5?
8a									F?	
9	+17 158	1	0	0.6	+17	23.8	8.6	.. ..	G5 – – K,	G5
10	+17 159	1	0	13.8	+17	10.0	9.3	.. ..	K – – –	K
11	+17 161	1	1	51.3	+17	1.0	9.5	.. ..	F? – – F	F
12	+17 163	1	2	39.5	+17	23.8	9.0	.. ..	F, F5, – F	F
13	+17 173	1	7	14.1	+17	21.0	9.5	.. ..	K – – –	K
14	+17 177	1	8	52.8	+17	7.0	8.8	.. ..	F – – F	F
15	+17 178	1	9	5.7	+17	2.6	9.3	.. ..	K? – – K	K
16	+17 179	1	9	24.9	+17	1.0	9.2	.. ..	K – – K	K
17	+16 91	0	49	30.1	+16	29.9	9.4	.. ..	A – – A	A
18	+16 92	0	49	40.0	+16	33.4	9.5	.. ..	F? – – K –	F?
19	+16 93	0	50	3.5	+16	5.4	9.5	.. ..	K – – K –	K
20	+16 96	0	51	21.4	+16	7.6	8.9	.. ..	A5 – – A	A5
21	+16 97	0	52	42.4	+16	26.7	8.0	.. ..	G5, K, K, K,	K
22	+16 98	0	52	50.6	+16	8.7	9.1	.. ..	~~G5~~ F – – –	F
23 4	+16 100	0	53	3.0	+16	10.8	9.3	.. ..	F? – – –	F?
24 3	+16 99	0	52	59.2	+16	41.6	9.0	.. ..	G5, .. K, K	K
25	+16 101	0	54	29.0	+16	50.7	9.3	.. ..	K – – K	K
26	+16 102	0	54	31.0	+16	54.0	9.3	.. ..	G – – G	G

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1908phae.proj..820F

November 22, 1910.

Classification of Spectra in Harvard Standard Region C 1.

No	Design.	RA h m	Dec. ° ′	Mag.	DM 50	Hα 54	Hα λ369.29 λ1101.01	λ1193.84 λ1369.05	Rem.	Obsv.	Adopt.
27.	+16° 1033	0 54	08.2 +16	19.1	9.1	"	"			G — — G	G
28.	+16 1040	0 55	28.7 +16	45.1	9.2	"	"			F — — —	F
29.	+16 1056	0 55	45.0 +16	28.1	8.8	"	"			K — — K	K
30.	+16 1060	0 56	21.2 +16	42.0	9.2	"	"			K — — K	K
31.	+16 1090	0 57	42.9 +16	54.9	9.0	"	"			K — — K	K
32.	+16 1110	0 58	26.6 +16	57.3	8.8	"	"			F0 — — F5	F2
33.	+16 1120	0 58	43.2 +16	00.9	9.3	"	"			A — — F?	A
34.	+16 1130	0 59	10.9 +16	56	2 8.8	"	"			F — — F	F
35.	+16 1080	0 57	31.3 +16	7	09.5	"	"			K — — K	K
36.	+16 1100	0 58	2.0 +16	17.8	9.0	"	"			G — — G5	G2
37.	+16 1140	0 59	20.2 +16	21.5	9.5	"	"			F? — — —	F?
38.	+16 1161	1	0 12.4 +16	37.5	8.0	"	7.64			F1, F2, F, F	F
39.	+16 1171	1	0 16.0 +16	59.5	8.9	"	"			K — — K	K
40.	+16 1181	1	0 23.0 +16	24.6	9.0	"	"			F5, F1, — K	F
41	+16 1191	1	0 46.2 +16	02.4	8.6	"	8.26			F0, F8, F, F	F
42	+16 1211	1	3 4.5 + 16	10.8	9.0	"	"			G — — F	F5
43	+16 1231	1	3 21.7 +16	1	0 8.5	"	8.26			K5, K, — K	K
44	+16 1241	1	4 3.1 +16	58.1	9.1	"	"			F — — —	F
45	+16 1251	1	5 9.4 +16	8.2	9.2	"	"			K — — F K	K
46	+16 1281	1	8 10.4 +16	57.5	9.0	"	"			G — — F?	G
47	+16 1291	1	8 25.8 +16	51.5	8.3	"	8.42			K — — K	K
48	+16 1311	1	9 2.5 +16	57.5	9.5	"	"			K — — K?	K
49.	+16 1301	1	8 29.7 +16	4.2	8.1	"	"			K5 — — K	K5
50.	+15 1391	0	49 38.5 +15	34.0	8.5	"	"			F1, — F, F1	F
51.	+15 1401	0	49 46.0 +15	23.8	8.7	"	"			K — — K	K
52.	+15 1411	0	49 58.5 +15	47.1	9.3	"	"			F? — — F?	F?
53.	+15 1421	0	50 5.7 +15	15.7	9.2	"	"			G — — G?	G

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1908phae.proj..820F

November 22, 1910.

No.	Design.	RA h m	Dec. ° ′					Sp.		
				m'	HA	HA	δ 1369.29	δ 10101	δ 19384	δ 1369.05	δ 1369.12. Rem.	
				Magn.	50	54						
54.	+15°	144	0 50	54.3	+15	32.3	8.0	..	"	g5, K, g5, g5		g5
55.	+15	146	0 51	45.5	+15	46.9	9.5	..	"	a? — — —		a?
56.	+15	145	0 51	16.2	+15	18.5	9.5	..	"	F? — —		F?
57.	+15	147	0 51	46.6	+15	8.2	9.4	..	"	F? — —		F?
58.	+15	148	0 51	56.1	+15	20.9	8.5	..	"	g, g, g, g		g
59.	+15	149	0 53	14.3	+15	53.5	8.9	..	"	a5? — F		F
60.	+15	150	0 53	23.0	+15	35.5	9.5	..	"	F? — —		F?
61.	+15	151	0 53	56.7	+15	15.9	9.3	..	"	a? — a?		a?
62.	+15	152	0 54	0.1	+15	5.0	9.5	..	"	g? — K?		g5?
63.	+15	154	0 55	22.4	+15	22.5	8.5	..	8.58	g — K5, K		g5
64.	+15	155	0 56	56.8	+15	52.4	9.5	..	"	F? — —		F?
65.	+15	156	0 57	16.0	+15	28.1	8.0	..	"	K5, K, K, Kp,		K
66.	+15	157	0 57	53.5	+15	27.0	9.5	..	"	K? — — K		K
67.	+15	159	0 58	41.9	+15	32.3	8.5	..	8.30	a5, F, — a5		A5
68.	+15	160	0 58	47.8	+15	51.3	9.0	..	"	Fa — — a		a
69.	+15	161	0 58	53.1	+15	35.1	9.0	..	"	F, — g — g		F5
70.	+15	162	0 59	22.5	+15	6.5	9.5	..	"	g? — — g?		g?
71.	+15	163	0 59	41.0	+15	11.2	9.5	..	"	K? = = =		K?
71a		..	0 59.9		+15	22				g, g, g, g,		g
72.	+15	164	1 0	11.8	+15	4.7	8.0	..	8.10			
73.	+15	165	1 0	31.1	+15	28.5	9.5	..	"	K — — —		K
74.	+15	166	1 0	49.5	+15	31.9	9.5	..	"	F — — —		F
75.	+15	167	1. 0	53.5	+15	1.2	8.4	..	8.64	g — K, g5,		g5
76.	+15	170	1 2	37.1	+15	49.2	9.0	..	"	K — — K		K
77.	+15	171	1 2	53.8	+15	37.8	9.4	..	"	F — — F		F
78.	..	..	1 3	0.0	+15	52	.	..	"	F — — —		F
79.	+15	172	1 3	28.0	+15	47.9	9.0	..	"	F — — g		F5
80.	+15	173	1 3	29.0	+15	55.3	9.1	..	"	K — — K		K

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No	Design	RA h m	Dec. ° ′	DM Magn.	Ha 50	Ha 54	Remark	Ha 50
81.	+15° 175	1 5 8.4	+15 59.5	8.5	"	8.46	Sh, K, K, K	K
82.	+15 176	1 6 17.5	+15 44.4	9.2	"	"	K – – K	K
83.	+15 177	1 6 25.9	+15 22.5	6.5	5.85	"	a, a, a, a,	[a]
84.	+15 181	1 8 13.6	+15 25.8	7.8	"	7.64	a, a, a, a,	a
85.	+15 182	1 8 33.5	+15 24.7	8.0	"	"	g, F, F, g –	F5
86.	+15 183	1 8 35.6	+15 59.0	9.3	"	"	F? – – –	F?
87.	+14 144	0 49 32.9	+14 28.4	9.5	"	"	K – – K	K
88.	+14 145	0 49 42.0	+14 24.4	9.2	"	"	g5 – – K	g5
89.	+14 148	0 50 38.5	+14 24.5	9.5	"	"	g – – K	g5
90.	+14 149	0 51 17.7	+14 56.2	9.5	"	"	a – – a	a
91.	+14 150	2 0 53 1.7	+14 3.6	9.0	"	"	g – – K	g5
92.	+14 153	0 53 10.3	+14 33.6	9.5	"	"	F? – – g	g
93.	+14 155	0 53 39.6	+14 49.9	9.5	"	"	F? – – g?	F5?
94.	+14 161	0 56 28.1	+14 26.9	8.5	"	"	g5 – – K	g5
95.	+14 163	0 57 26.8	+14 9.8	8.5	5.65	"	F? F5, F8, F5,	[F] F5
96.	+14 164	0 57 31.0	+14 33.9	9.0	"	"	F, – – F	F
97.	+14 167	0 57 50.2	+14 37.6	8.8	"	"	K5, – K K,	K
98.	+14 168	0 58. 7.8	+14 12.4	9.0	"	9.25	K – – K	K
99.	+14 169	0 58 17.7	+14 35.7	7.7	"	7.30	F, F5, F, F	F
100.	+14 171	0 59 10.0	+14 56.6	9.3	"	"	a – – a	a
101.	+14 172	1 0 32.5	+14 21.4	8.5	"	"	K – – K	K
102.	+14 173	1 2 5.4	+14 49.1	9.5	"	"	a – – –	a
103.	+14 176	1 2 31.4	+14 53	6.4	6.36	"	K, Kp, K, K	[Kp]
104.	+14 176	1 2 48.2	+14 54.0	9.1	"	9.29	K – – K	K
105.	+14 178	1 3 8.8	+14 38.4	9.0	"	"	F – – F	F
106.	+14 182	1 3 21.8	+14 34.5	9.2	"	"	K – – K	K
107.	+14 185	1 4 36.7	+14 29.0	9.1	"	"	F – – F	F
108.	+14 187	1 5 0.5	+14 46.4	9.2	"	"	g? – – g?	g?
109.	+14 189	1 5 45.9	+14 36.8	9.2	"	"	g? – – g?	g?

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November 22, 1910.

No.	Design	RA h m	Dec. ° ′	DM Magn.	HA 50	HA 54	1369.29 Sp.	1101.01	1938.4	1369.06	Rem.	
110.	+13° 129	0 49 0.9	+13 7	9.5	"	"	F	–	–	F		F
111.	+13 130	0 49 6.0	+13 59.0	8.7	"	8.58	K	–	–	K		K
112.	+13 134	0 50 25.3	+13 47.8	9.5	"	"	F	–	–	–		F
113.	+13 186	50 31.6	+13 29.1	9.3	"	"	F?	–	–	–		F?
114.	+14° 137	50 37.5	+13 2.1	9.5	"	"	G?	–	–	–		G?
115.	+14° 139	50 59.3	+13 16.2	9.5	"	"	F	–	–	–		F
116.	+14° 140	51 9.2	+13 17.3	9.5	"	"	G	–	–	–		G
117.	+13 141	51 27.3	+13 56.8	8.9	"	"	G	–	–	K		G5
118.	+13 142	51 49.3	+13 20.2	9.3	"	"	F?	–	–	F		F
119.	+13 143	52 7.7	+13 50.1	8.5	"	9.00	F	–	–	F		F
120.	+13 144	52 48.3	+13 27.2	9.5	"	"	F	–	–	–		F
121.	+13 145	53 39.1	+13 13.1	9.3	"	"	G?	–	–	F		G?
122.	+13 146	54 9.3	+13 31.4	9.5	"	"	K?	–	–	K		K
123.	+13 147	54 23.0	+13 7.5	9.5	"	"	K?	–	–	K		K
124.	+13 148	54 27.3	+13 47.0	9.5	"	"	K?	–	–	K		K
125.	+13 149	54 45.3	+13 24.1	9.2	"	"	K	–	–	K		K
126.	+13 150	54 56.9	+13 28.0	8.5	"	8.93	G5	–	–	G5		G5
127.	+13 152	55 8.9	+13 6.7	9.0	"	"	G	–	–	G5		G2
128.	+13 153	55 17.6	+13 52.3	9.1	"	"	F	–	–	F		F
129.	+13 155	56 14.0	+13 9.5	8.7	"	8.83	G	–	–	G5		G
130.	+13 156	56 23.5	+13 12.7	9.0	"	"	K	–	–	K		K
131.	" "	56.1	+13 28	"	"	"	F?	–	–	F		F
132.	+13 158	56 54.0	+13 58.9	9.5	"	"	F?	–	–	–		F?
133.	+13 160	57 5.0	+13 54.8	9.2	"	"	G	–	–	F?		F5
134.	+13 157	56 48.7	+13 37.7	9.5	"	"	F	–	–	G?		F5
135.	+13 162	57 47.1	+13 20.0	8.6	"	"	K	–	–	K		K
136.	+13 165	58 57.8	+13 6.6	7.3	"	7.32	F1, F5, F2, F5, ...					F2

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November 23, 1910.

No.	Design.	RA h m	Dec.	DM. Magn.	Obs. 50	Obs. 54	1369 29	10101 10	11938	1369 05 Dom.	
137.	+13°	166	0 59 59.9	+13 43.2	9.3	"	"	$\overline{F}$	—	—	F
138.	+13.	168	1 0 17.6	+13 1.7	9.2	"	"	$\overline{F}$	—	—	F
139.	+13.	170	0 47.3	+13 12.0	9.5	"	"	$\overline{F}$	—	—	F
140.	+13	171	0 59.5	+13 55.5	9.2	"	"	$\overline{F}$	—	$\overline{F}$	F
141.	+13	172	1 10.0	+13 33.5	9.5	"	"	G?	—	$\overline{F}$?	F5?
142.	+13	175	3 36.9	+13 55.3	8.2	"	8.05	G2, K,	—	K	G5
143.	+13	177	4 8.3	+13 44.9	9.4	"	"	$\overline{F}$	—	—	F
144.	+13	176	4 6.1	+13 5.8	8.5	"	"	$\overline{F}$	—	$\overline{F5}$, $\overline{F}$	F2
145.	+13	178	4 22.4	+13 5.7	9.5	"	"	K	—	K	K
146.	+13	179	4 41.3	+13 28.6	9.5	"	"	K?	—	—	K?
147.	+13	180	5 34.7	+13 45.6	9.2	"	"	G5	—	—	G5
148.	+13	183	5 50.6	+13 4.6	8.5	"	"	$\overline{F}$,	a?	$\overline{F}$,	F
149.	+13	185	5 58.7	+13 10.3	9.1	"	"	G	—	G5	G5
150.	+13	187	6 18.5	+13 1.9	9.5	"	"	$\overline{F}$	—	$\overline{F}$	F
151.	+13	188	7 11.4	+13 53.0	9.0	"	"	$\overline{F5}$	—	$\overline{F5}$	F5
152.	+13	189	7 26.7	+13 54.1	8.1	"	"	$\overline{F5}$	—	G	F5
153.	+13	190	8 7.9	+13 17.2	9.1	"	"	K	—	—	K
154.	+12	114	0 49 13.6	+13.2 15.4	9.5	"	"	G?	—	—	G?
155.	+12	116	49 38.6	+12 15.0	9.5	"	"	G?	—	—	G?
156.	+12	118	50 18.3	+12 17.8	9.5	"	9.13	F?	—	—	F?
157.	+12	119	50 18.7	+12 56.1	6.0	6.44	"	G5,	G5,	G5, G5,	[G5]
158.	+12	120	51 54.6	+12 35.8	9.5	"	"	K	—	—	K
159.	+12	121	51 53.8	+12 17.9	9.2	"	"	K	—	—	K
160.	+12	123	52.475	+12 39.2	9.1	"	"	$\overline{F}$	—	G?	F5
161.	+12	122	52 46.0	+12 22.3	9.2	"	"	G	—	K	G5
162.	+12	124	52 49.6	+12 15.4	9.5	"	"	a?	—	a?	a?
163.	+12	126	54 38.1	+12 29.2	9.5	"	"	$\overline{F}$	—	—	F
164.	+12	126	55 30.0	+12 16.1	7.8	"	8.09	K	—	K	K

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No.	Design	RA h m	Dec. ° ′	Magn.	Dm	Ha 50	Ha 54	Sp.	Rem.	
165.	+12°	127	0 56 21.5	+12 20.9	9.5	"	"	K? – – – –		K?
166.	+12	128	56 39.3	+12 34.2	9.5	"	"	K – – – –		K
167.	+12	129	57 2.1	+12 39.7	9.5	"	"	F? – – – –		F?
168.	+12	133	58 11.8	+12 32.7	9.1	"	"	G – – G –		G
169.	+12	134	58 34.0	+12 29.2	8.0	"	"	G, – G, G. –		G
170.	+12	185	~~0 58 35 0~~ 0 58 57.3	+12 9.9	6.2	6.22	"	G5 K, G5, G5 –		[G5]
171.	+12	136	0 59 55.7	+12 49.2	9.2	"	"	G5 – – G? –		G5
172.	+12	137	59 20.3	+12 32.7	9.4	"	"	a? – – – –		a?
173.	+12	138	59 43.0	+12 24.1	9.5	"	"	K – – K? –		K
174.	+12	139	1 0 8.2	+12 54.0	9.5	"	"	G5 – – – –		G5
175.	+12	140	1 0 33.1	+12 54.9	9.0	"	"	K – – K –		K
176.	+12	141	1 1 34.0	+12 34.4	8.5	"	"	K – – K –		K
177.	+12	142	1 3 5.5	+12 52.7	9.5	"	"	F? – – – –		F?
178.	+12	145	1 4 46.5	+12 40.9	9.0	"	"	G – – F –		F5
179.	+12	146	1 4 48.6	+12 16.0	9.0	"	"	K – – K –		K
180.	+12	149	1 5 59.6	+12 36.1	9.5	"	"	G? – – – –		G?
181.	+12	150	1 7 11.5	+12 20.9	9.4	"	"	K – – – –		K
182.	+12	152	1 7 24.8	+12 17.5	9.2	"	"	K – – K –		K
183.	+12	153	1 8 10.6	+12 16.8	9.5	"	"	F? – – – –		F?
184.	+12	154	1 8 24.5	+12 12.6	9.5	"	"	K? – – – –		K?
185.	+12	155	1 8 31.4	+12 58.1	8.7	"	"	K – – K –		K

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186.	+17°	119	0 47 32.4	+17 27.5	8.9			F – – F5 –		F2
187.	+17	122	48 0.3	+17 5.3	9.5			K – – K –		K
188.	+17	120	47. 40.5	+17 1.3	9.3			F – – G –		F5
189.	+17	121	48 0.3	+17 5.3	9.5			F? – – – –		F?
190.	+17	123	48 59.9	+17 9.9	8.2			G – – G –		G
191.	+17	124	49 8.0	+17 9.9	9.0			K – – G5 –		K

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November 25, 1910.

No.	Design.	RA	Dec.	Dm Magn.	Ha 50	Ha 54	d36929 Sp.	d10101	d17384	d36905	Rem.	
		h m	° ′									
192.	+16	86	0 46 51.9	+16 48.3	9.5		K?	–	–	K?		K?
193.	+16	88	47 30.2	+16 45.5	9.5		K?	–	–	K?		K?
194.	+16	90	49 4.9	+16 05.8	8.4		a	–	–	a		a
195	+16	87	47 28.5	+16 7.3	8.4		a2,a5,	–		a		a2
196.	+16	89	48 0.2	+16 18.4	9.5		G?	–	–	a?		
197.	+15	134	0 47 22.1	+15 47.9	9.1		G	–	–	K?		G5
198.	+15	135	47 38.0	+15 25.7	9.3		K?		–	K		K
199.	+15	138	48 07.9	+15 10.6	9.3		F	–	–	F?		F
200.	+14	136	0 47 34.8	+14 58.8	9.5		F	–	–	F?		F
201.	+14	139	48 35.0	+14 07.8	9.5	" 8.64	G, F?	–		G		G
202.	+14	134	47 18.0	+14 15.8	9.5		F?	–	–	F		F
203.	* +14	142	48 50.8	+14 23.5	8.6		G, F?	–		G5		G
204.	+14	140	a 48 43.2	+14 9.6	9.1		F?	–	–	F		F
205.	+14	141	48 49.4	+14 11.8	9.7		a	–	–	a		a
206.	+13	125	47 45.3	+13 46.3	9.5		F?	–	–	K?		
207.	+13	127	48 32.7	+13 10.6	6.5	" 6.83	G, G5,	–		G5		G5
208	+12	109	47 32.0	+12 45.4	8.9		F,	–	–	G		F5
209	+12	112	48 27.5	+12 49.4	8.9		F?	–	–	F		F
210	+12	113	48 34.5	+12 22.0	9.3		F?	–	–	F?		F?

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1908phae.proj..820F

January 4, 1911

Classification of stars for J. A. Parkhurst.

O.P. 374 RA 13h +83° Sept. 28, 1910.

For identification of stars of J.A.P.
O.P. 374. see I 11811 and I 34011.
I 34011 I 36621 B 2670 I 11181

Design	R.A. + Dec.	
574e	G .. .. G, ..	✓
	? . . .	
574	F0 .. .. a8 ..	✓
577	G5- G5- G5-	✓
582a	a0 .. a2 (a2)	✓
582	Ma5, B2 K? Ma, ..	✓
582f	K, G5, G5- .. K	✓
582c	a, a, a .. a	✓
582d	K, G5, K .. K	✓
582e	a .. F	✓

OP 374, on edge. h line observed.

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1908phae.proj..820F

Classification of stars for J. A. Parkhurst.

OP374 RA 13+83 Sept. 28, 1910
Design. RA Dec. OP374 OP36621

584	K, K, K B2670 K D1181 ..
579	F .. .. F .. :.
579a	F .. .. .. F
579b	F .. .. .. F
579c	K .. .. .. K
579d	K .. ..
586	G0 :, G2 G5, G G
589	K, G5, G5, K, K
589a	G, G, G .. G
589b	F5, F, F5 .. F5
590	F, F, F .. F

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1908phae.proj..820F

Design. 0P374 l34011 036621 2670 B2510 l1181

581?a 583 F5 .. .. F18 .. ✓

581a a .. .. a, a ✓

581b a .. .. a, a ✓

587 F15 .. .. F .. ✓

587a a1 ✓

592 a2 .. .. a5, a5 ✓

593 a, a, a, a, a ✓

594 a2, a5, a5, a5, a ✓

594a K .. .. .. K ✓

594b K .. .. .. K ✓

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1908phae.proj..820F

Design. ⊙P3774 L34011 L36621 B32670 L1181

599, 597 .. .. a₀, a₀, a₀, a, a, a, a .. ✓

599 K, K, K, K, K ✓

599ᵃ a₂, a, a, .. a ✓

600 ℊ₂, ℊ, ℊ, .. ℊ₂ ✓

601 F̄₅ .. .. .. F̄, ✓

603 K₅ K, K̄₂, K .. ✓

603ᵃ ℊ?, F̄, F̄ .. F̄ ✓

603ᵗ K̄, ℊ̄₅, ... ℊ̄₅ ✓

605 F̄₅ .. .. F̄₅, F̄, ✓

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1908phae.proj..820F

Design	O1874	l34011	l36621	B2670	l1181	
605a	F4	..	F	..	F	✓
607	G,	G2,	G5	..,	G2	✓
607a	a,	a,	a	..	..	✓
608	F	..	..	F,	F85	✓
611	Ma?,	..	~~K~~	..	..	✓
611a	K,	K,	~~G~~K	..,	..,	✓
612	K,	G,	K,	K	..	✓
613	K	..	K,	..	..	✓
615	K?	..	..	K,	K	✓
616	~~Ma~~ K5	..,	K,	..	..	✓
616a	a,	a,	a	..	a	✓
617	G?	..	..	F5,	F5	Imagination.

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Design	P 374	I 34011	I 36621	B 2670	D 1181
617a	Mc?	..	..	..	F
623	G5-	..	..	~~A~~ G5,	G5-
623a	G5-	..	..	..	G
623b	K	..	..	..	K
627	K	..	..	K,	K
633	K	..	..	G5-,	K
639	a?	..	..	a?	a

Image poor.

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January 12, 1911

Classification of plates for J. A. Parkhurst.

OP 410 R.A. 4^h $+79°$ Oct. 15, 1910 OP 410

Design.	R. A.	Dec.		
4			a0	✓
6			a0	✓
8			g5	✓
8a			a	✓
10			K	✓
10a			K	✓
10b			a	✓
13			g2	✓
15			a8	✓
15a			a8	✓
15b			a	✓
21			K5	✓
25			K	✓

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Classification of plates for J. A Parkhurst.

OP 410 Ra $1^{h}+79$ Oct. 15, 1910 δ^{+10}

Design	
26	a5
2 83	Cf
28^{a}	a
28^{b}	a8
28^{c}	$\overline{F5}$-
31	a0
32	a?
35	K
36	a5?
40	K5?
43	a

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1908phae.proj..820F

Design.		
	1908	
430	K	✓
431	a_2	✓
436a	a_5	✓
437	a	✓
438	$\overline{f18}$	✓
438a	a	✓
438b	a_5	✓
440	$\overline{f1}$	✓
445	g_2	✓
446	a_2	✓
447	$\overline{f}$	✓
447a	a_0	✓
449	a_1	✓

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		©P410
Design		
453		a_0
454		a_0
455		a
456		K_5–?
457		K
458		a
459		a
460		a_8
461		a_8
462		a
463		a^2

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@P410

Design.

465 — a

748 a?

749 Ao —

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1900phae.proj..820F

January 12, 1911.

Classification of slides for J. A. Parkhurst.

OP377 R9.15h + 83° Sept. 30, 1910 OP377

Design.		
596+7	aa,	
611	Ma?	
607	G2	
605	G2	Image poor. Incomm[illegible]
608	F?	
612	K	
613	K5?	
615	K	
616	K	

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Design.		Spec.	
617		Gδ?	Image poor.
620		G	✓
621		K	✓
622		Ft.	✓
623		K	✓
627		Kδ?	✓
626		G	✓
624		A1	✓
630		Gδ	✓

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1999phae.proj..820F

Op 377

Design.		
631	K	✓
632	F_2	✓
633	F? *	✓ * Image poor
639	a_5-	✓
634	K_5-	✓
635	F_2	✓
637	K_5-?	✓
638	a_3	✓ Fliplāi Cl. a Stolthjaphaag.
641	a_3	✓

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January 26, 1911.

Spectra of Sp. Plates for σ^1 and σ^2 Eridani.

Plate	Date	Exp.		
B12750	Dec. 15, 1894	60m	σ^1	Too bright
"	" " " " "		σ^2	Too bright. Prismatic comp. seems to show Sp. Class G5 with another Sp. slightly red. suspected on it. This may be class A. It seems to show broad hydrogen lines.
B17408	Sept. 10, 1896	70	σ^1	Sp. turned out: Adjacent star following in same dec is Class F.
			σ^2	Sp. turned out. In the ultra-violet the sp. extends beyond the usual limit of second type plate and seems to indicate two of the lines superposed.
B10637	Nov. 16, 1893	60	σ^1	F0 line K slightly more intense than line Hε. Then Hζ then Hη to Hδ are normal intensity and there is a F. line about 2/3 of the way from Hζ to Hη appears double.
"	" " " "		σ^2	G. Several lines are hazy, a few double, while others are clearly defined single lines. The sp. is apparently composite and extends far into the ultra-violet.
B10595	Nov. 2, 1893	62	σ^1	F. Lines of greater than Hε are of normal intensity.
"	" " " "		σ^2	G with the K lines as in σ^1 H. Fit star to G is a class very wide. May be two spectra superposed.

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January 26, 1911.

Plate	Date	Eff.		
I 22319	Feb. 14, 1899.	62	0'	Too bright
"	" " "	"	0 2	G2 and fl. plate ch. H, hydrogen lines very wide; must be due to bro fl. impurpose de

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1908phae.proj..820F

February 3, 1911.

Examn. of plates to determine
Class of Spectrum of Miss Leavitt's variable
12 06 59.

Plate	Date	Exp.	Sp.	Remark.
B 37591	June 6, 1907	6.0	Gpec.	Composite, showing many bright lines. May be similar to β Lyrae? Near may.? Lines fine and clear
B 38957.	May 20, 1908	60	Gpec.	Composite. A few bright lines visible. Near min.?

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1908phae.proj..820F

Feb. 4, 1911

Examin of Sp. for Class of R Z Oph.

Plate	Date	Exp.	Sp.	
L 11174	June 7 1894	60m	~~F1~~?	Very ft. ind. distinct
L 33286	Aug. 29, 1905	61	F1?	Image fairly sh. Fair definition on proof.
P. 34061	May 20, 1906	54	?	Ridge of ft. Image br. but no lines clearly shown.
L 11065	May 9, 1894	63	F1?	Image ft. & sp. rather poor. shows better definition than any of those preceding Plate.
L 36099	June 26, 1906	60	?	Image ft + defective. Impossible to classify
B 14170	July 20, 1895	60	Too ft.	
B. 9475			" "	
L 11300	July 30, 1894		" "	
L 11226	June 30, "	61m	" "	

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1908phae.proj..820F

February 7, 1911.

Exam. of plates for J. H. Astbury's suspected new variable +60° 1743 R.A. 17h 15m.3 Dec. +60° 46' (1900). 6.3.6.5

See letter of H. H. Turner, Jan. 20, 1911.

6.42
1.17
7.59

Plate	Date	Ef.	Est.		
AC 329	May 24, 1899	78m	7.2	7.8	+A.6348 6.24
" 5200	Aug. 29, 1904	69	7.4	8.0	1.17
" 3686	May 15, 1903	60	7.1	7.7	7.41
" 3797	Aug. 1, 1903	84	7.4	8.0	+6° 1640 6.69
" 3930	Sept. 13, "	57	7.5-	8.1	+.5 1.10
" 3951	" 19, "	72	7.2	7.8	7.09
" 4001	" 28, "	91	6.8	7.4	7.41+7.09 / 2
" 4022	Oct. 2, 1903	66	7.3	7.9	= 7.25
" 5289	Sept. 27, 1904	69	7.6	8.2	
" 5241	" 10, "	86	7.5-	8.1	
" 5246	" 10, "	59	7.1	7.7	
" 4134	Oct. 30, 1903	90	7.0	7.6	
" 2538	May 10, 1902	39	6.6	7.2	
" 2690	July 16, 1902	63	6.9	7.5-	
B 2901	Sept. 13, 1888	63	Sh. Comp. Class G+K. (Comp. with		

An examination of the above plates shows a variation of half a magnitude or more. Rough estimates give limits 7.1 to 7.8. The spectrum has been compared with a star of Class F and Cl. G, and contains lines characteristic of both.

W. P. Fleming.

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1908phae.proj..820F

Feb. 18, 1911

Classification of H. Stars on List of Geo. Abetti. Reamp. Lett. of Spectra

No.	Design	RA 1875	Dec. 1875	Photom. Magn.	Spect.	Remarks.
1	+41° 1023	4h 50.9m	+41° 41′	7.1		
2	+41° 1033	52.6	+41 49	8.0		
	+40° 1142	53.7	+40 53	3.86	Kp.	
3	+40° 1154	55.2	+40 30	8.0		
	+41° 1058	57.8	+41 4	3.84	B 3	
4	+39° 1175	59.2	+39 46	7.8		
5	+38° 1041	5h 1.1	+38 31	7.1		
6	+39° 1205	3.6	+39 57	7.1		
	+38° 1063	4.9	+38 20	5.2	A 3	
7	+39° 1236	8.6	+39 19	7.0		
8	+39° 1248	10.4	+39 59	4.9	G	
9	+39° 1262	12.4	+39 29	8.0		
10	+40° 1268	14.1	+40 54	6.0	A 2	
11	+37° 1182	17.1	+37 56	7.8		
12	+52° 971	24.8	+52 53	8.1		
13	+54° 914	26.3	+54 21	6.0	K	
14	+53° 934	31.2	+53 26	6.3	G 2	
15	+56° 1058	35.9	+56 4	6.1	A	
16	+54° 942	37.3	+54 27	6.5		
17	+55° 1022	41.1	+55 13	8.0		
18	+55° 1027	44.4	+55 40	5.0	A 2	
19	+53° 962	45.5	+53 26	8.0		
20	+55° 1032	47.2	+55 38	7.1		
	+54° 970	49.2	+54 16	4.0	K	
21	+55° 1044	51.7	+55 18	8.0		
22	+53° 981	53.0	+53 32	7.0		
23	+55° 1058	58.9	+55 59	7.4		

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1908phae.proj..820F

Classification of Spectra of 7t. Stars on List of G. Abetti. (cont)

No.	Design.	R.A. 1875	Dec. 1875	BBD. Magn.	Spect.	Remarks.
24	+60° 938	h 6 4.5	+60 2	5.8	K	
25	+58° 912	6.5	+58 52	7.6		
	+59° 959	8.6	+59 3	5.0	A	
26	+59° 964	11.0	+59 25	7.0	A2	
27	+58° 923	15.0	+58 40	8.0		
28	+58° 927	15.9	+58 29	6.0	G5	
29	+58° 932	20.0	+58 15	6.3	G	
30	+57° 978	22.0	+57 56	8.3		
31	+58° 943	25.4	+58 12	6.8		
32	+10° 1193	29.3	+10 23	8.1		
33	+9° 1322	32.3	+9 45	8.1		
	+10° 1220	34.1	+10 1	var.(1)	Oe5	
34	+9° 1350	34.6	+9 58	8.3		
35	+9° 1376	38.6	+9 54	7.5		
36	+9° 1382	39.7	+9 20	7.7		
37	+20° 1661	52.0	+20 37	8.2		
38	+21° 1472	54.8	+21 0	7.9		
	+20° 1687	56.7	+20 45	var.(1)	G	
39	+21° 1503	58.2	+21 11	8.2		
40	+21° 1516	7 0.9	+21 4	8.2		
41	+41° 1618	5.6	+41 24	8.0		
42	+41° 1622	6.9	+41 35	8.1		
43	+41° 1628	9.0	+41 10	7.5		
	+41° 1630	9.3	+41 6	6.0	A	
44	+40° 1850	14.5	+40 56	8.1		
45	+40° 1852	15.5	+40 55	5.8	K	
46	+40° 1864	19.5	+40 54	7.4		

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1908phae.proj..820F

Classification of Spectra of 7h. Stars on List of G. Abetti, (cont.)

No.	Design.	R.A. 1875 h m	Dec. 1875	Magn.	Spect.	Remarks.
47	+34° 1629	7 25.0	+34° 13′	7.5		
48	+35° 1656	28.3	+35 42	8.3		
49	+34° 1649	31.0	+34 52	5.0	F	
50	+34° 1657	34.6	+34 17	6.5	F	
51	+34° 1669	37.5	+34 51	7.9		
52	+33° 1584	39.3	+33 52	8.0		
	+33° 1585	39.5	+33 43	5.3	K	
53	+30° 1601	43.0	+33 33	6.5	A	
54	+42° 1802	55.9	+42 25	8.0		
55	+42° 1808	57.8	+42 20	7.9		
56	+42° 1819	8 0.8	+42 48	6.7		
57	+43° 1779	4.5	+43 22	8.0		
58	+43° 1796	9.3	+43 48	7.3		
	+43° 1815	14.3	+43 35	5.0	K	
59	+44° 1740	16.4	+43 57	8.2		
60	+53° 1259	23.2	+53 32	6.4	G	
61	+53° 1268	29.0	+53 50	6.8		
	+53° 1272	30.0	+53 9	6.4	F5	
62	+51° 1443	31.6	+51 52	7.0		
63	+53° 1285	39.5	+53 23	8.3		
64	+52° 1243	44.0	+52 51	6.8		
65	+49° 1785	48.6	+48 57	8.0		
66	+48° 1705	49.8	+48 32	8.0		
	+48° 1707	50.6	+48 32	3.1n.	A5	
	+47° 1633	55.1	+47 39	3.5	A	
67	+49° 1801	56.8	+49 2	6.5	F	

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Classification of Spectra of 7t. Stars on List of G. Abetti. (cont)

No.	Design.	R.A. 1875 h	m	Dec. 1875 °	′	BD Magn.	Spect.	Remarks.
68	+52° 1362	8	58.3	+52	8	7.3		
69	+52° 1365	9	0.0	+52	6	5.0	A3p	
70	+52° 1371		1.4	+52	53	8.0		
71	+53° 1320		5.8	+53	13	8.0		
72	+53° 1321		5.9	+53	13	8.0		
73	+53° 1330		11.7	+52	58	7.0		
74	+52° 1389		16.2	+52	7	6.7	F8	
—	+52° 1401		24.5	+52	15	3.0	F8	
75	+52° 1402		26.3	+52	36	5.0	A	
76	+51° 1536		34.3	+51	50	7.5		
77	+72° 473		43.0	+72	16	7.1		
	+73° 478		47.2	+73	28	6.3	K	
78	+73° 481		50.8	+73	1	8.2		
79	+73° 484		56.6	+73	13	7.8		
80	+73° 489	10	7.4	+73	42	6.5	F	
81	+36° 2064		18.2	+36	50	6.8		
82	+36° 2068		19.2	+36	52	8.1		
	+37° 2080		20.6	+37	21	4.0	K	
83	+37° 2087		23.4	+37	40	8.0		
84	+39° 2366		28.6	+39	11	7.6		
85	+37° 2102		29.9	+37	53	8.2		
86	+38° 2156		32.0	+38	34	5.7	K	
87	+38° 2167		32.6	+38	29	7.8		
88	+38° 2172		35.1	+38	42	8.0		

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Classification of Spectra of 7th. Stars on List of G. Abetti. (cont)

No.	Design.	R.A. 1875 h m	Dec. 1875 ° ′	BD Magn.	Spect.	Remarks.
89	+34° 2158	10 39.8	+34 13	8.2		
90	+33° 2039	41.9	+33 4	8.0		
	+34° 2172	46.3	+34 53	4.0	K	
91	+34° 2181	48.8	+34 10	5.5	K	
92	+35° 2196	50.1	+35 52	8.2		
93	+34° 2188	52.0	+33 59	8.2		
94	+31° 2242	11 5.5	+30 54	8.2		
95	+32° 2124	8.5	+32 17	7.9		
	+32° 2132	11.5	+32 14	3.7	g	
96	+33° 2099	12.8	+33 30	7.8		
97	+32° 2142	16.1	+32 31	7.7		
98	+43° 3107	18 48.5	+43 33	7.0		
99	+43° 3112	49.7	+43 58	7.5		
	+43° 3117	51.5	+43 47	4.5	mb	
100	+43° 3132	55.3	+43 33	7.0		
101	+44° 3042	57.6	+44 12	7.2		
102	+53° 2188	19 5.6	+53 26	7.5		
103	+52° 2371	10.8	+53 0	8.0		
	+53° 2216	14.2	+53 8	4.5	K	
104	+53° 2220	15.5	+53 10	7.9		
105	+52° 2409	19.6	+52 48	7.5		
106	+52° 2434	24.4	+52 4	6.1	A	
	+51° 2605	26.5	+51 28	4.0	A2	
107	+49° 3034	28.0	+50 2	6.0	K	
108	+50° 2815	31.1	+50 58	6.0	F	
	+49° 3062	33.1	+49 56	4.9	F5	

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Classification of Spectra of 7t. Stars on List of G. Abetti (cont)

No.	Design.	R.A. 1875 h m	Dec. 1875 ° ′	Magn. BD	Spect.	Remarks.
109	+48°2922	19 34.5	+49 0	6.6	G	
110	+49°3082	38.1	+49 24	7.7		
111	+52°2497	40.1	+52 16	7.1		
112	+53°2303	46.0	+53 27	7.1		
113	+52°2547	47.5	+52 40	5.3	K	
114	+51°2703	48.9	+51 57	7.0		
	+52°2572	52.4	+52 6	5.5	A3	
115	+51°2734	56.6	+51 48	7.3		
116	+53°2344	20 0.6	+53 5	8.0		
117	+52°2623	2.9	+52 47	5.9	A	
118	+52°2657	10.3	+52 44	6.5		
119	+53°2374	12.0	+53 46	7.0		
120	+59°2257	29.5	+60 0	6.8		
121	+60°2142	35.2	+60 19	7.0		
122	+59°2272	37.6	+60 3	6.2	F	
123	+60°2154	40.0	+60 9	6.2	A	
	+61°2050	42.8	+61 21	3.7	K	
124	+61°2057	46.8	+62 4	8.0		
125	+61°2070	51.0	+61 18	7.2		
126	+38°4306	54.9	+38 20	6.5		
127	+38°4325	58.2	+38 10	6.0	K	
	+38°4343	21 1.3	+38 8	5.0	K5	
128	+38°4344	1.3	+38 8	5.3		
129	+37°4189	3.2	+38 1	7.9		
130	+37°4229	8.5	+37 53	7.8		
	+37°4240	9.8	+37 31	4.0	F	
131	+37°4271	14.4	+37 43	6.2		
132	+36°4533	17.3	+36 38	7.0		

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Classification of Spectra of 7t. Stars on List of G. Abetti. (cont.)

No.	Design.	R.A. 1875	Dec. 1875	Magn.	Spectra.	Remarks.
		h m	° ′			
133	+46° 3305	21 20.7	+46 10	6.0	a	
134	+45° 3546	22.9	+45 52	7.6		
	+45° 3558	24.8	+45 59	5.4	K	
135	+45° 3559	25.0	+45 53	6.7		
136	+46° 3577	27.6	+45 42	8.2		
137	+44° 3865	29.3	+45 2	4.1	K	
138	+44° 3877	31.3	+44 49	var.		
139	+44° 3889	32.7	+44 8	6.4		
140	+45° 3618	34.5	+45 37	7.3		

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1908phae.proj.820F

Exam. of Plates for Var. of Nova 134, 1910 Piscium.
See Astron Nach Vol. 187, 9. (E. Ernst). o 27, 3 + q 30 (1855)

Plate	Date	Exp.
I 2861	Jan. 20, 1891	11m
I 28070	Dec. 12, 1901	45
I 32101	Oct. 2, 1904	19
I 34745	July 8, 1907	31
I 34746	July 8, 1907	30
B 38170	Sept. 17, 1907	10
Ac 8769	Sept. 14, 1907	57
Ac 8779	Sept. 16, 1907	60
Am 5173	Sept. 27, 1907	60
Ac 8823	Oct. 2, 1907	61
Am 6409	July 24, 1909	138
Ac 12180	Dec. 8, 1910	60
Ac 12226	Dec. 22, 1910	60

An examination of the above plates fails to show any object in the position of the object marked on the Astron. Nach. Chart. A faint star is seen on all the plates, following b (however) in the same relative position as that given for the Nova as preceding b. This star shows no evidence of change in magnitude, but the images of star b seem to indicate a slight variation. W.P.F. March 13, 1911.

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Classification of Spectra in Harvard Standard Region C4

No.	Design.	RA h m s	Dec. ′	Mag Dm. Ha. 50	Ha. 54	Plates 13417 / Sp.	Rem. Cond. &c.
1	+17° 1429	6 44 54.3	+17 20.2	9.4		K?	
2	+17 1430	6 44 56.2	+17 21.5	9.5		A	
3	+17 1435	6 45 36.7	+17 48.0	9.2		K	
4	+17 1436	6 45 40.5	+17 57.5	9.5		A?	
5	+17 1439	6 45 51.7	+17 42.3	9.5		F?	
6	+17 1441	6 46 13.7	+17 51.7	8.4		K	
7	+17 1431	6 45 13.5	+17 2.2	9.5		F?	
8	+17 1432	6 45 30.0	+17 2.0	9.4		A	
9	+17 1432	6 45 25.4	+17 9.9	9.5		A	
10	+17 1434	6 45 35.8	+17 8.0	9.4		K?	
11	+17 1437	6 45 44.0	+17 12.2	9.5		A	
12	+17 1438	6 45 45.5	+17 11.7	9.5		A?	
13	+17 1442	6 46 28.6	+17 8.9	8.6		G5	
14	.. ..	.. ..	..	..		A	
15	+17 1451	6 48 52.6	+17 29.1	9.5		K	
16	.. ..	.. ..	..	..		A	
17	.. ..	.. ..	..	..		A	
18	+17 1445	6 47 49.9	+17 1.9	9.4		K	
19	+17 1445	6 47 21.7	+17 21.2	9.5		F?	
20	+17 1446	6 47 32.2	+17 36.1	9.5		A	
21	+17 1447	6 47 51.0	+17 55.5	7.0		K	
22	+17 1448	6 48 2.7	+17 15.4	9.5		A	
23	+17 1449	6 48 27.2	+17 27.5	9.1		F?	
24	+17 1450	6 48 34.8	+17 48.6	9.5		K?	
25	+17 1452	6 48 53.1	+17 22.6	9.5		A	
26	+17 1451	6 48 52.6	+17 29.1	9.5		K	

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No.	Design.	R.A.	Dec.	Dm.	H.B.50	H.B.-54	Plates Ist sp.	Rem. Cond. 2sp.
		h m s	° ′					
27	+17°	1454	6 48 56.7	+17	35.1	9.4	A	
28	+17	1455	6 48 27.5	+17	38.2	9.5	K?	
29	+17	1457	6 49 42.4	+17	56.9	9.4	A?	
30	+17	1458	6 49 51.4	+17	48.1	9.5	..	
31	+17	1460	6 50 8.6	+17	58.4	9.2	A	
32	+17	1461	6 50 13.4	+17	39.6	8.8	Ma	
33	+17	..	..	..	..	..	A	
34	+17	1453	6 48 54.9	+17	1.9	9.4	G?	
35	+17	1456	6 49 36.2	+17	18.8	9.5	A?	
36	+17	..	..	..	..	..	A	
37	+17	1459	6 50 7.8	+17	5.3	9.3	K	
38	..	..	..	..	..	..	A	
39	+17	1462	6 50 44.2	+17	27.4	9.5	F?	
40	+17	1465	6 50 58.7	+17	21.6	9.0	A	
41	+17	1464	6 50 58.0	+17	42.8	8.5	G5	
42	+17	1466	6 50 59.0	+17	50.8	9.5	F?	
43	+17	1463	6 50 55.8	+17	58.6	9.5	K?	
44	+17	1467	6 51 40.1	+17	46.4	9.3	A	
45	+17	1468	6 52 5.8	+17	57.2	9.5	A?	
46	+17	1469	6 52 16.8	+17	9.5	7.8	A	
47	..	..	..	..	..	..	F?	
48	..	..	..	..	..	..	A	
49	+17	1470	6 52 21.2	+17	39.3	9.5	G?	
50	+17	1471	6 52 31.7	+17	48.6	9.5	F	
51	+17	1472	6 52 40.6	+17	35.5	9.3	K	
52	+17	1473	6 52 56.1	+17	59.5	9.0	K	

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No.	Design.	R.A.	Dec.	mag. Dm. H.R.50	mag. H.R.54	Plates 136917	Rem.	Cond. Sp.
53	+17°	1474	6h 53m 12.0s	+17° 13.3'	9.3	K		
54	+17	1475	6 53 29.2	+17 23.2	9.5	A		
55	+17	1476	6 53 40.7	+17 13.9	9.5	K		
56	..	..	..	..	..	A		
57	..	..	..	..	..	A		
58	+17	1477	6 53 52.0	+17 9.1	9.1	G		
59	+17	1478	6 53 53.0	+17 49.6	9.0	A		
60	+17	1479	6 53 59.1	+17 57.1	6.0	Mb		
61	+17	1480	6 54 7.3	+17 57.9	9.5	..		
62	..	..	..	..	..	A		
63	..	..	..	..	..	F		
64	..	..	..	..	..	A		
65	+17	1482	6 54 53.6	+17 59.3	9.5	..		
66	+17	1483	6 55 2.5	+17 4.1	9.4	A		
67	+17	1484	6 55 30.9	+17 4.7	9.5	F:		
68	+17	1486	6 55 48.0	+17 2.3	9.4	A		
69	..	..	..	..	..	G5		
70	..	..	..	..	..	A		
71	+17	1485	6 55 38.0	+17 54.7	9.5	A		
72	+17	1487	6 55 49.0	+17 55.5	8.8	A		
73	+17	1488	6 56 11.9	+17 15.6	9.0	G5		
74	+17	1489	6 56 27.4	+17 54.3	9.5	A:		
75	+18	1474	6 56 26.2	+18 0.3	9.5	A:		
76	+17	1490	6 56 56.2	+17 38.3	9.5	A		
77	+17	1491	6 57 28.5s	+17 39.4	9.0	A		
78	+17	1492	6 57 52.2	+17 57.5	7.1	A		

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№	Design	R.A.	Dec.	DM.	magn. H.A.50	magn. H.A.54	I 36917
79	+17 1493	6 58 18.2	+17 38.4	9.3			F
80	+17 1494	6 58 19.0	+17 34.5	9.3			A
81							A
82	+17 1495	6 58 48.4	+17 4.2	8.5			F
83	+17 1496	6 58 54.0	+17 12.5	9.5			..
84	+17 1498	6 59 15.7	+17 14.6	9.0			G G
85	+17 1499	6 59 20.0	+17 15.1	9.0			Ra
86	+17 1501	6 59 30.3	+17 6.6	9.4			A
87	+17 1502	6 59 43.1	+17 4.7	9.0			A
88	+17 1497	6 59 7.0	+17 48.2	9.0			G5
89	+17 1500	6 59 26.7	+17 53.9	9.5			..
90	+17 1503	6 59 48.7	+17 33.4	8.5			K
91	+17 1504	7 0 13.8	+17 34.8	8.2			A
92	+17 1505	7 0 18.$\frac{7}{8}$	+17 53.8	7.3			F5
93	+17 1507	7 0 29.8	+17 23.7	9.5			..
94	+17 1506	7 0 23.8	+17 8.4	7.9			K
95	+17 1508	7 0 31.7	+17 10.8	9.0			F
96	+17 1509	7 1 3.1	+17 53.8	8.9			A0
97	..						F?
98	+17 1510	7 1 39.8	+17 1.7	9.3			G?
99	+17 1511	7 1 51.3	+17 16.7	9.5			F?
100	+17 1512	7 2 15.6	+17 35.7	9.3			K?
101	+17 1513	7 2 17.7	+17 42.7	9.0			K
102	+17 1514	7 2 36.4	+17 4.2	9.5			F?
103	+17 1515	7 2 56.5	+17 41.1	9.4			F?
104	+17 1516	7 3 8.0	+17 38.5	9.0			A

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№	Design.	RA.	Dec.	magn. DM. H.B.50 H.B.54		№
105	+17°	1517	7h 3m 19.6s	+17° 18.8'	9.1	K 131
106	+17	1518	7 3 24.0	+17 13.0	7.0	K K 132
107	+17	1520	7 4 5.7	+17 1.0	9.4	F 133
108	+17	1519	7 4 1.7	+17 22.2	9.5	K? 134
109	+17	1521	7 4 22.7	+17 2.4	9.4	F? 135
110	+17	1522	7 4 25.0	+17 25.2	9.2	F 136
111	+17	1523	7 4 28.0	+17 23.0	9.5	A? 137
112	+17	1524	7 4 47.1	+17 41.3	9.3	A 138
113						A 139
114						K 140
115						A 141
116	+17	1526	7 5 16.6	+17 49.3	9.5	.. 142
117	+18	1529	7 5 24.0	+18 0.4	9.0	A0 143
118	+17	1525	7 4 49.5	+17 10.1	9.0	A 144
119	+17	1527	7 5 29.1	+17 5.6	9.3	A 145
120	+17	1528	7 6 33.6	+17 44	9.5	F5 146
121	+17	1530	7 6 55.3	+17 11.1	9.1	K 147
122	+17	1529	7 6 41.1	+17 42.7	9.0	G 148
123						A 149
124						G 150
125						F 151
126	+16	1321	6 45 5.6	+16 16.3	9.3	G 152
127	+16	1322	6 45 18.2	+16 10.9	9.5	A 153
128	+16	1323	6 45 47.5	+16 27.3	9.4	K 154
129	+16	1324	6 45 49.7	+16 19.5	9.5	A 155
130	+16	1325	6 46 8.8	+16 42.6	8.8	K 156

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№	Design.	R.R. 1900 h m	Dec. 1900 ° ′	mag. DM.	HR.50	HR.54	
131	+16	1326	6 46 20.7	+16 0.8	7.1		G
132	+16	1328	6 46 35.4	+16 15.2	9.5		..
133	+16	1329	6 46 38.3	+16 21.9	9.5		G?
134	+16	1327	6 46 26.9	+16 59.1	9.4		A
135							A
136	+16	1332	6 47 18.6	+16 22	8	9.5	F?
137	+16	1331	6 47 18.5	+16 29.7	9.5		..
138	+16	1330	6 47 10.1	+16 54.3	9.5		G?
139	+16	1333	6 47 25.9	+16 59.3	9.5		G?
140	+16	1334	6 47 39.4	+16 57.7	9.3		A
141	+16	1335	6 47 48.2	+16 39.9	9.5		A
142	+16	1336	6 47 52.6	+16 15.6	9.5		K
143	+16	1337	6 48 14.5	+16 59.9	9.3		K
144	+16	1338	6 49 4.4	+16 12.7	9.2		G?
145	+16	1339	6 49 9.5	+16 21.9	9.4		AK
146	+16	1340	6 49 26.7	+16 14.7	9.5		A
147							A
148							A
149							A
150							A
151							A
152	+16	1341	6 49 28.3	+16 46.3	8.6		G
153	+16	1342	6 49 33.6	+16 50.2	8.8		A
154	+16	1343	6 49 42.4	+16 54.9	8	8	G5
155	+16	1344	6 49 5.2	+16 3.9	9.0		A0
156	+16	1345	6 50 34.1	+16 49.0	9.3		K?

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No.	Design.	R.A.	Dec.	DM.	H.A.50	H.A.54	
157	+16°	13 46	6h 50m 46.3	+16° 13.3'	7.9		K
158	+16	1347	6 50 47.0	+16 19.1	8.0		G
159	+16	1349	6 51 2.4	+16 15.6	9.2		F?
160	+16	1348	6 51 1.5	+16 06.0	9.3		K?
161	+16	1350	6 51 24.5	+16 21.4	9.0		K?
162	+16	1351	6 51 28.9	+16 2.7	9.5		A K F?
163							
164	+16	1352	6 51 30.8	+16 8.5	7.4		G2 G5
165							A
166	+16	1354	6 51 56.3	+16 16.2	6.0		K K5
167	+16	1353	6 51 50.2	+16 35.2	9.5		F?
168							
169							
170							

Five class comparison H.A. 71 No 2.

	1.10	1.10	71.2
84	G		G
85	A		A
106	K		K
164	G2		G5
166	K		K5

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See also B 18, p 23. May 6, 1911.

6

074922. U Geminorum R.A. 7h 49m.2 Dec. +22° 16' (1900).

	Date	Ref.	Remark.
Plate I 20237.		See B 18, 23	
" 568		Sp. poor. Too faint to	Classify.
" 584			Not seen
" B 1134			Not seen
" I 2476			Not seen
" I 2741			~~Spectrum hazy~~ Faint trace of Hγ and Hδ visible The calcium lines H and K are ~~well marked and of the same~~ strong as in ~~those~~ of Class F.
I 2743			Spectrum hazy. Hγ and Hδ not much seen. H and K visible with normal intensity
I 2813			Spectrum hazy, and poor. ~~There seem to be~~ This It has the appearance of two spectra superposed but this may be due to defect. H & K normal
I 2945	Jan. 30, 1891	59.	Not seen.
I 4748	Nov. 6, 1891	65.	Not seen.
I 2749	Jan, 8, 1891.		Spectrum hazy. Faint trace of Hγ and Hδ. H and K normal.
I 27734			Spectrum hazy. It has the appearance of two spectra superposed. Faint trace of two sets of lines Hγ and Hδ. H and K not clearly seen.
May 9, 1911.			
I 7890	Jan. 16. 1893	8	Not seen.
I 8035	Feb. 8 1893	57	Faint
I 10754	March 6, 1894	75	Not seen
I 19827	Dec. 24, 1897	65	Resembles Cl. F. Hγ and Hδ faint. H & K normal well marked

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May 9, 1911

U Geminorum (Cont).

Plate	Date	Ref.	Rem.
I 20237	Feb. 16, 1898	6z. (B18/p23).	"Lines Hδ and Hφ visible but weak. Identified by superposition on Chart I 2812." H and K, Normal. Spectrum hazy.
I 30791	Feb. 28, 1911.	6o.	Spectrum hazy. Resembles Class F.

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Friday, June 23, 1911.

Examination of stars of Class N for H.A. 56.

Stars now marked N, Nb, or Nd. or Blanks A.J.C. — E.C.

	R.A.				
	0 14.6	—		I 32251	
	1 10.6	N	Na	I 10156	0, 8, 10
	1 26.8	N	..	I 35788	
N 5 R —	1 38.7	Nd		I 38801	3, 6, 10
	2 19.9	— not N		"	
	~~3 10.0~~	~~Na~~			
Pec. uCond	3 33.2	N		I 33486	~~0 6~~ 0, 1, 2, 6, 10
	4 30.4	N	Np	I 12244	~~0, 6, 10~~
	5 30.2	N ..		?	
	5 39.7	N	Na	I 26124	0, 6, 10
	5 40.4	N		B 15220	
	5 41.7	N	Na	I 71132	0, 8, 10
	6 4.7	N			
	6 19.8	N			
	6 39.4	N		I 23975	
	7 31.3	N	Na	B 12755	0, 6, 10
	8 14.9	N	Na	I 31569	0, 6, 10
N 5 R —	8 15.2	Nd		B 20857 B 18984	3, 6, 10
	9 48.5	Np	Np.	I 35878	
Nb 5 c —	12 19.2	Nb		B 13041	0, 3, 6, 10
	12 52.4	Np	Np	I 33942 var	
	17 23.8	N		I 40623	
	18 4.0	N		I ~~84~~ 25389	
	18 39.4	Nat		I 34172	0, 6, 10 D
	19 13.4	Nat		I 34914	0, 6, 10
	~~19 40.6~~	~~Nd~~		~~B 39347~~	~~0, 8, 10~~
	19 54.0	N	Na	I 34282	0, 8, 10

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June 23 1911

Last of Class N continued

20	27.4	N	I 31018
21	32.5	N	I 31321
23	22.2	N	I 25940

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$8^{h}\ 5^{9}\ 9^{m}\ 30^{s}.8 \quad -31^{\circ}\ 53'.1$ (1875

Position of Nova(?) Pyxidis

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