

May 31, 1911

Spectra of stars in Abt's List

See letter of Feb. 1911.

J 26326

✓ +41° 1023

Ly

Also from J 10411 (long disp)

✓ +41° 1033

K

✓ +39° 1236

K2

✓ +39° 1262

Q

✓ +40° 1142

B9

✓ +37° 1182

Torpor Q?

✓

✓ B9 on J 28554

✓ +39° 1175

K

✓ +38° 1041

For dense K?

K on J 2314

✓ +39° 1205

For dense probably same direction of B

May 31, 1911

Abt's List

J 2816

+39° 1205

B5-8

✓ +39° 1262

✓ 1st type Torpor

+41°

J 2853-4

✓ +39° 1236

K2 (work)

✓ +37° 1182

Q? Torpor

✓ J 2314

+37° 1182

Q?

J 493

+37° 1182 Q

May 31, 1911

Cont. of Abbot's List

J 32878

✓ +52° 971

Formerly K²Km J19795 & J3174³¹⁴⁷⁴

✓ +53° 934

K

conf. m J32983

✓ +54° 942

K5

conf. m J32983

✓ +55° 1022

A

✓ +56° 1058

Ferdinand AouB

conf. m J32983

✓ +55° 1032

B3

conf. m J32983

✓ +55° 1044

K2

K5 on I 31474, I 35876, I 35780

✓ +55° 1058

K

✓ +53° 962

ma₃

+53° 964 Class A

✓ +53° 981

Ac-H

Hm J32983

May 31, 1911

Cont. of preceding.

I 14254

+53° 934

✓ Too Poor

✓ +54° 942

Too Poor

✓ +56° 1058

A0 ✓

✓ +55° 1022

A

✓ +55° 1032

A

+53

May 31, 1911

Conts of preceding.

I 33890

✓ +58° 912
A

✓ +59° 864

A? Tor denser

✓ +58° 923
A3.✓ +57° 978
Two superimposed.✓ +58° 943
H5?

May 31

I 14254 Abetti's best.
(Long disp.)✓ +58° 912
A2✓ +59° 964
A0 or 2.✓ +58° 923
A5-✓ +58° 943
H5

✓ I 32984

+58° 943
H5✓ I 19814
+57° 978 long disp.
Hollomy = H2
Pre. = H5?

June 1, 1911

Abetti's stars
B12678

✓ + 9° 13' 76

✓
F0

✓ + 9° 13' 82

K2 or 5

✓ + 9° 13' 50
B8✓ + 9° 13' 22
B5?✓ + 10° 11' 93
B3

June 1, 1911.

J 14153 Abetti's list.

+ 9° 13' 82

✓
Torph R - 145

✓ + 9° 13' 76

✓
F0

✓ + 9° 13' 50

Harr.

✓ + 9° 13' 22

B5 Additional lines seen which may be
due to diff. stars.~~+ 9° 11' 53~~
9

June 1, 1911.

J 36498

Shettis list

✓ +53° 1268

g. too dense

✓ +53° 1259

g

✓ +53° 1272

g

✓ +51° 1443 conf. in J 36498

g

✓ +53° 1285 conf. in J 36498

g

rather ft

✓ +52° 1343

fig.

very dense

June 1, 1911

Shettis list
J 6501 very diff.

✓ +53° 1259

g

✓ +53° 1268

g

✓ +53° 1272

g

J 34284

✓ +20° 1661

K5?

too narrow

✓ +21° 1472

a

✓ +20° 1647

burned out.

✓ +21° 1503

a

✓ +21° 1516

too poor probably better type

June 1, 1911

Abetti's list

I 9932

I 17228 Long deep.

✓ +52° 1343
45-

✓ I 33839

✓ +20° 1661
K⁰✓ +21° 14725
Q⁰✓ +20 1687
no dense surround✓ +21° 1503
B₉✓ +21° 1516
45

June 2, 1911

Abetti's list

I 26089

I 10641

✓ +36° 2064

✓ +36° 2064

K? Torpor

45 ✓

✓ +36° 2068

✓ +36° 2068

K? Torph

K

✓ +37° 2084

✓ I 10641

45? Torpor

45 ✓

✓ +37° 2102

45? Torpor

✓ I 10646
I 10408
45

✓ +38° 2167

45? Torpor

45

✓ +38° 2172

45? Torpor

45

✓ +39° 2366

45? Torpor

45

June 2, 1911.

I 36616

✓ 5^h Abetti's list

✓ +33° 2039

Aug 7^h.

For G

Wings stars marked
also ~~from~~ I 22792

✓ +34° 2108

K

Km I 22792

✓ +34° 2108

G5

✓ +35° 2196

K₁

✓ +32° 2124

K

(on edge)

✓ +31° 2242

K

(on edge)

June 2, 1911

✓ 5^h Abetti's list

I 22832

11^h + 32

✓ +31° 2242

K₀

✓ +32° 2124

K₀

✓ +32° 2142

As-

✓ +33° 2099

K₀

June 2, 1911.

I 31647

Abetti's list.

9256 + 72.4

✓ +72° 473
A (only hyd. rem.)✓ +73° 481
F5?✓ +73° 484
F5?

+73° 489

Too dense. A-F.

✓ Given from H.R. Find out where this
is taken from.

I 32951

✓ +72° 473

A main edge.

✓ +73° 481
F1✓ +73° 484
F5✓ +73° 489
Too dense

✓ I 17206

+73° 489
F1

June 2, 1911

I 7293

Abetti's list.

18251^m + 40.3✓ +43° 3107
F5✓ +43° 3112
F5?✓ +43° 3132
A (only hyd.)✓ +44° 3042
A (only hyd.)

✓ I 32263

✓ 43° 3107
F5 (good)✓ 43° 3112
F5✓ +43° 3132
A0✓ +44° 3042
A

June 2, 1911.

25984 Abbott's lark
21 25 +47

✓ +44°3889
As?

✓ +44°3877
me

✓ +45°3577
A only by d

✓ +45°3615
A, only by d.

✓ +45°3559
A. Louis narrow.
R faintly seen.

✓ +46°3305
As - F.

✓ +45°3546
R

June 2, 1911

29675 Abbott's lark
(longish sp.) 21 40 +47

✓ +44°3889
A3 (good)

✓ +44°3877
me

✓ +45°3618
A0

✓ +45°3577
B9

✓ +45°3559
A3

✗
✓ +46°3305
F1

June 2, 1911

Abetti's list
Plate 135

I 36235 234789
2018 +61.8
+59°2257
a

✓ +60°2142
K

✓ +61°2070
a5

✓ I 36235
+61°2057
a

June 2, 1911

Abetti's list.
I 33542 19 12 +49.

✓ +52°2497
a. Too near edge.

✓ +49°3082
S?

✓ +48°2922
S? Poor def.

✓ +52°2409
a only hyd.

✓ +52°2400 Burned out
a, only hyd.

+49°2959

June 2, 1911

Abetti's test.

J 36669

✓ + 52° 2497

A3. Very poor & measured

✓ 2922

85-

2409

✓ A only hyd.

+ 52° 2400

A5

I 36773

~~+ 52° 2258~~

✓ + 53° 2188

A

✓ + 52° 2371

A₂

✓ + 53° 2220

A3: too poor

June 2, 1911

Abetti's test

I 31017

I 13489

✓ + 38° 4306

A5: too dense

✓ + 38° 4306 A5

✓ + 37° 4189

A

✓ + 37° 4189

A₁, A₂, A₅

✓ + 37° 4229

K

✓ + 37° 4229

K

✓ + 37° 4271

too dense & 2 types

✓ + 37° 4271

A₅

✓ + 36° 4533

A₅

✓ + 36° 4533

A₁

✓ J 31134

+ 36° 4533

A₅

June 8, 1911

Observations reflection of class in
Francis's test.

✓ B 7031 Too ft. 2nd spec.

✓ H. R. 315

B 10420

H?

✓ B 39792

H

~~B 10123~~

B 10133 (long)

H5 (very poor)

✓ H. R. 1362

✓ B 17408

H5

✓ H. R. 1747

B 16469

Too ft. Focus poor.

✓ B 15556

Too or too

June 8, 1911

Francis's test.

✓ H. R. 1940

B 20484

H2-5 very poor focus

✓ B 14699

A3. Deneb,

✓ H. R. 2923

B 18301

H5

June 9, 1911

Abettis list (cont.)

J 31392

✓ +42° 1802

✓ I 31379

+52° 1362

K? Too near edge

✓ +52° 1371

K? Too near edge

✓ +53° 1320-1

K? Both appear alike

✓ +53° 1330

A Too dense

✓ +51° 425 1536
K5

✓ I 31448

+52° 1362

K

✓ +52° 1371

A5

✓ +53° 1320,1

K5 Partly defocused
Both - alike

✓ +53° 1330

A Only hydrogen lines seen

June 9, 1911.

I 31601

✓ +53° 1320-1

K2 Both of this sp.
Both - alike

✓ +51° 1536

K2

✓ I 36528

+48° 1705

K5

✓ +49° 1785

K5

I 31392

✓ +42° 1802

K5 very poor

✓ +42° 1808

A5 very poor

✓ +42° 1819

K

✓ +43° 1779

J5

✓ +43° 1796

A5

✓ I 14431

+53° 1330

A0

Adopt this

I 31290

+44° 1740

Too poor

✓ I 31392

+44° 1740

J

June 9, 1911

I 28613

+34° 1629
A+35° 1656
A.5? too near edge+34° 1669
A+34° 1657
A. too dense+33° 1584
K? somewhat peculiar+33° 1601
A too dense

I 12219

+33° 1584
K

Abetti's list

I 10639

+34° 1629
A.0

A.0

A.3

K? too faint

June 9, 1911

I 26232

I 36579

✓ +40° 1864
K? too poor✓ +40° 1850
K?✓ +41° 1628
A.5-?✓ +41° 1622
A✓ +41° 1618
A.+41° 1628
too poor✓ +41° 1622
A✓ +41° 1618
A.5-~~I 36579~~

I 5449

✓ +41° 1628
A.5✓ +40° 1850
A✓ +40° 1864
A

June 9, 1911
Abetti's List

I 13436

I 19401

✓ +53° 2303
a✓ +53° 2303
Probably B5-✓ +52° 2547
K✓ +51° 2703
a✓ +51° 2703
Probably B8✓ +51° 2734
ma✓ +53° 2344
K? Too faint✓ +52° 2657
B?✓ +53° 2374
B5-✓ +52° 2657
B5-+53° 2374
aJune 9, 1911
Abetti's List

I 20862

✓ +51° 2703
B8✓ +53° 2323
B8? Too faint✓ +52° 2657
B5-✓ +53° 2374
a Somewhat fainter
Too faint to estimate

I 36119

✓ +53° 2344
K

I 22792

✓ +34° 2158
K✓ +33° 2039
B5✓ I 22792
+35° 2196
K very poor✓ +34° 2188
K? Too near edge✓ I 22832
+34° 2188
K✓ I 36016
+34° 2158
K✓ +33° 2039
K✓ +34° 2188
B5✓ +33° 2196
K

June 12, 1911

Francis's list cont. fimp. 25-

H.R. 7643

✓ B37030
Too poor. Image blurred.✓ B14644
LS?✓ B40624
LS✓ H.R. 7748
B12030
Very poor. FS?✓ H.R. 8285
B13805
K0

June 12, 1911

Francis's List (cont.)

✓ H.R. 4995
B39604
LS? very poor✓ H.R. 6947
B39346
2nd type for denser✓ H.R. 4957
B9430
Too near edge.
LS-K✓ H.R. 6724
B36049
FS?✓ H.R. 5503
B11334
K

✓ H.R. 4510

B19178

LS

✓ H.R. 6724
B13846Very close marked
Probably some division of class B
FS2✓ H.R. 4416
B21155
FS✓ H.R. 6947
B14619
FS?✓ H.R. 6947
~~In Poor~~
B8293
Too Poor✓ H.R. 5503
B13140
K0✓ H.R. 4995
B35803
LS? From very poor

June 12, 1911
 Franks list.

✓ H.R. 4957 ✓ H.R. 4416
 B 19142 B 22784
 55% very dense 75%

✓ H.R. 5503 ✓ H.R. 4416
 B 19033 B 21406
 too poor to K 75%

✓ H.R. 4510
 B 11331
 95%

✓ H.R. 4746
 B 19158
 too dense

✓ H.R. 4995
 B 9444
 85%

✓ H.R. 4510
 B 7736
 85%

✓ H.R. 6947
 B 8293
 too poor

June 13, 1911

Estimate of spectra of stars in
 polar region for Mrs. Searett.

✓ J 13992

$a' = +88^{\circ} 4$

A only hydrogen lines seen.

$+88^{\circ} 5$

too faint. F. 9?

✓ C 4
 K

✓ A 5
 Ma

✓ $b^3 = +88^{\circ} 76$
~~H. m. o.~~ K.

$g = +87^{\circ} 07$

F. 1? too near edge. Blurred.

B 3 a 75?

B 3

a.

June 13, 1911

Polar seg. (comb.)

$$H = +88^{\circ} 71'$$

H ? rather blurred, so that exact division is uncertain.

$$\alpha^4 = +88^{\circ} 64'$$

α , only hydrogen seen

$$\alpha^3 = +89^{\circ} 13'$$

α , only hydrogen seen

$$\alpha^2 = +89^{\circ} 51'$$

K ? strong contrast but no breaks are seen

$$b^2 = +88^{\circ} 13'$$

H ? α , only hydrogen seen

$$b^1 = +88^{\circ} 9'$$

H ? α

June 13, 1911

Polar sequence

$$c^1 = +89^{\circ} 03'$$

α , only hydrogen lines seen.

$$c^3 = +89^{\circ} 25'$$

α , only hydrogen seen rather faint.

I 36343 Iso. plate

$$\alpha^1 = +88^{\circ} 04'$$

α , only hydrogen

$$b^1 = +88^{\circ} 09'$$

H

~~α~~

$$b^2 = +88^{\circ} 13'$$

α^5

$$c^4 = +88^{\circ} 114'$$

$B-K$

$$\alpha^5 = +88^{\circ} 112'$$

K

June 13, 1911.

Polar reference.
 +89°6 (no letter)

Sp. seen - β uniform brightness
 but no line.

✓ $C^1 = +89°3$
 A, only hydrogen

e
 Sp. seen, but no lines

✓ $A^3 = +89°13$
 A

✓ $C^2 = +89°25$ on J36857
 this appears blue A.

d
 Sp. seen quite clearly,
 F?

C5
 K

C7, g?

A
 26 g?

on J36857
 C7 is K?
 C6 g?

June 13, 1911

Polar sep. (comb.)
 J17207 long dispersion

Star F
 A5 rather poor.

J36335

✓ Star F
 F?

Star D
 A3

✓ Star A5
 Ma (good)

✓ C4
 K

✓ C3
 A

d
 Loof

June 13, 1911.

I 36857 Polar cap (cont.)

C₂

A, very poor.

I 36341

C₂

A, very poor.

June 15, 1911

Spectra looked up for Prof. Russell.

+35° 34 Bar 104

✓ +13° 728

✓ I 10404 700 ft

I 36962

✓ I 31203 ~~I 19255~~ ~~I 19255~~

70

72 Too Poor

✓ +9° 2382

+3° 93 +3° 93

B 13394

72

✓ B 14673 ✓ B 14206

✓ I 19804

75 (good) 70

Rustier faint 70 75

✓ +39° 918

✓ +27° 2296

✓ I 35136

I 17731

800 ft

K₅ (good)

✓ +16° 579

✓ I 20275

I 33567

Tordence

72 Tordence

✓ +14° 690

✓ +10° 21739

I 23569

I 22308

72

Tordence 2nd type

B 19011

75

✓ +13° 7828

+10° 417

I 28468

2nd type Tordence72 is a good
approx. of this
class.

June 15, 1911.

Russell's list.

✓ B 19235

+ 70° 31' 25"

✓ Rather thin

K5?

✓ J 25587

+ 43° 26' 39"

K? suff. poor.

✓ J 32242

+ 38° 34' 66"

G₀

✓ J 34179

G

✓ J 31064

+ 40° 49' 41"

G 500 K

June 15, 1911.

Russell's list.

J 21597

✓ + 24° 33' 91"

✓ Fog dense.

✓ J 34919

G

Ext. Butler pl.

✓ + 40° 49' 44"

B 10357

G 500 K

Probably K₀

✓ J 30956

+ 38° 57' 12"

Fog heavy.

Probably G 500 K.

✓ J 21617

G 5?, poor.

✓ J 35798

+ 35° 34'

F 5-

✓ J 33227

F 5-

✓ J 4167

+ 27° 33' 91"

G

June 16, 1911
Russell's list

- ✓ J 24133
+39° 9' 18"
2nd type,
Blurred.
- ✓ J 2688
+80° 48' 7"
H₀
- ✓ J 33758
+35° 9' 18"
Lermange
- ✓ J 25190
+80° 48' 7"
H₀
- ✓ J 31430
Top para.
G₁
- ✓ J 31621
+7° 31' 25"
K₀
- ✓ J 36709, this sp.
appears the peculiar.
- ✓ J 34013
+7° 31' 25"
Porr, K₀
- ✓ J 24130
H₀.
- ✓ +16° 57' 9"
- ✓ J 32888
H₀ on J 33857
- ✓ +14° 6' 90"
- ✓ H₀ on J 32888
- ✓ H₀ " J 33857
- ✓ H₀ " J 33491
- ✓ J 34463
+43° 26' 39"
K₀
- ✓ +56° 27' 83"
- marked on chart p. J 4660
- J 36244 sp. H₀
- J 36723 H₀
- J 13495, very faint K₀

June 16, 1911

Frank's list

Additional plates of some objects.

- ✓ H. R. 1747
B 1750
H₀ (ord.)
- ✓ H. R. 3202
B 8827
H₀
- ✓ H. R. 2166
B 8904
H₀ (Gland reg. ft.)
not H₀, really nearer
H₀ on this plate
- ✓ H. R. 4510
B 21368
K₀ (ord.)
Best plate of this
class.
- ✓ H. R. 2699
B 8909
B 305
lines narrow.
- ✓ H. R. 4746
B 24750
H₀
- ✓ H. R. 3004
B 8911
B 3 (ord.)
- ✓ H. R. 4937
B 2464
H₀
- ✓ H. R. 4957
M. 1051
H₀
- ✓ H. R. 4995
B 10823
H₀

June 16, 1911
 Franck's list.

- ✓ H. R. 5-120
 135201
 H3
- ✓ H. R. 5250
 135201
 1387
 hydrogen
- ✓ H. R. 5257
 135201
 H2
- ✓ H. R. 5273
 136224
 H
- ✓ H. R. 7431
 1310433
 A0
- ✓ H. R. 7643
 1310843
 H5
- ✓ H. R. 8245
 1310108
 H2
- ✓ H. R. 8285
 1311102
 K0
- ✓ H. R. 7748
 138385
 H5.

July 21, 1911

- Specia look-up for Hertzsprung See letter of
 July 8, 1911
- ✓ B 3660 18.2, 6-3641
 B2 Lines indistinct not very narrow
 H β not well seen.
- ✓ B 4930 12 7.1-62 23 Lines narrow
 Helium lines too indistinct to classify for a
 certainty - H α and K quite narrow.
- ✓ B 5879 108.3-57 34 For B00
- ✓ B 3637 16 47.0-4150
 B
- ✓ B 8625 8.7.3-36 57
 B0
- ✓ I 9658 18 46.4 + 33 15 This is B type
- ✓ I 16470 6 10.8 + 33 46 Some division of B
 Hydrogen lines and K026 are narrow.
 Can not tell division exactly.
 May be B8.
 Have photographed with 11 inch.

August 8, 1911

Species looked up for Schenck's list.

J23250

✓ H.R. 7391

(a in H.R.)

K₂

corrected in M.N. 70,

✓ J8587

H.R. 7260

g₀

✓ J36918

H.R. 7260

g₂

long diff. long.

✓ J36918

H.R. 7172

✓ J5 (good)

✓ B J1320
H.R. 6121
work

Aug. 8 1911

Schenck's list

B11373

H.R. 5156

Ident. checked

✓ To in J17478

H.R. 5273

Ident. ch.

✓ B13397

H.R. 4986

K₂

✓ J17478 (long)

H.R. 4986

K₂

✓ B20709

H.R. 3097

g₅ ~~work~~

Aug. 8, 1911

Schwanzschild.

✓ J 26241

H. R. 2378

Loripit.

G or R

Myxolatus marked in B2553

✓ H. R. 2357

A - too dense
Exact dir. uncertain
Get long dir.

✓ B12687

H. R. 2144

Ident. checked

✓ G5

✓ J 31068

H. R. 1534

Low dense. 2nd Cyte.

✓ J 1740

H. R. 1534

Loripit. 2nd

Aug. 8, 1911

Schwanzschild.

✓ B10418

H. R. 243

G5

Ident. checked

✓ B15135 H. R. 1534
No (work)

✓ B14153 long

H. R. 2357

A3

Ident. checked

✓ H. R. 2378

K0

Ident. checked

✓ B21219

H. R. 6121

K0

Aug. 8, 1911

Schwarzgucken

✓ B3071

H.R. 8852

Very dense R?

This is in Vol. 28, XI a = K0

✓ J23250

H.R. 7391

Already mentioned in M. H. 70

B-21639

H.R. 8341

B2 (weak)

Aug. 9, 1911

Schwarzgucken

✓ I23711

H.R. 8792

2nd type too dense

✓ I13716

H.R. 8792

F2

✓ I9684 Long Triab.

H.R. 8792 Poor focus

F5?

✓ B2816

HR 7574

Almost continuous. Too poor.

✓ I36230 Burned out

✓ I4619

Almost continuous. No lines seen of greater wave length than H α .
Probably some kind of class B.

✓ I26020

Too dense

H.R. 8608

K2?

✓ I31312

H.R. 8608

K0

Aug. 9, 1911

Examination of a few of 15 plates
to confirm class. of certain stars
from 86, 4. See Schwanzeck's

✓ { 22 34 7 + 63 17.9
I 13697
K0 Classification Confirmed

✓ I 21905

✓ H.R. 2950

A

Classification Confirmed

✓ A on 6 15490

I 21217

I 36520

✓ { I 9856 Classification Confirmed
A K0
4 22.4 + 18.58

✓ { I 36105 I 20817 second type twisted out
I 23137
16 18 + 31

Aug. 9, 1911

✓ I 27918 ⁶⁹
H.R. 7544
B Lo dense

✓ H.R. 7544
A Lo dense

✓ I 21660 ⁶⁹
H.R. 7544
B0

✓ I 23117

H.R. 7544

Lo dense. Probably 9.5

✓ I 22875

H.R. 7148

8.5

✓ I 19372

H.R. 7148 Superficial on H.R. 7147

H.R. 7147 = class A H.R. 7148 = class B

I 13716

H.R. 8631

✓ very poor 8.7

I 21312 4.7

I 9704

H.R. 4 (long)

8.5

I 23547

8.7

August 10, 1911

Schwarzschild

- ✓ I 3716 Ident checked
H.R. 8714
mb
- ✓ I 27502
H.R. 8714 Burned out
m
- ✓ I 9644
H.R. 996
So
- ✓ I 10369
H.R. 996
So

August 12, 1911

✓ For Hertzsprung

- H. R. 11573
- I 3267 Too dense. Bo to B3 probably.
Lines apparently rather narrow
- I 2314 1st type Burned out

- ✓ H.R. 2005
B 18557
A. Focus very poor.
- B 12398
H.R. 2005
Probably B8 Lines fairly sharp

- ✓ I 33720
I 32563
I 33721
I 21977 } Too dense

- ✓ H.R. 26217
B 20895 Burned out. Some division of class B3
- B 9043 Spots almost continuous H 3 + H₂ truly seen
- ✓ B 10767 Maybe Oe 5. Lines very indistinct
Lines not narrow.

- ✓ H.R. 2897 Burned out
B 41136
B 18983 Some division of class B3

August 12, 1911 (cont.)

- ✓ H.R. 4009
B 5879 Focus too poor for new edge type
- B 41147 Hyd. lines very narrow. Helium
lines suspected but not clearly seen
Maybe B2
- B 38749 Too dense
- ✓ H.R. 4644 X
B 13762 Hyd. lines narrow, other lines not
seen
- B 4980 Out of focus at Red end. Lines
marked at violet end.
K line very sharp.
Probably resembles B Orionis
- ✓ H.R. 67721
B 3660 Probably B3. Lines indistinct and hazy
and show very little contrast to
continuous spectrum.

October 1, 1911
Kapteyn's list of Proper Motion stars.

- ✓ $-51^{\circ} 95'$
B 14881
4.8
- ✓ $-35^{\circ} 170'$
B 15112
4.8
- ✓ $+1^{\circ} 131'$
B 14673
K₀
B 14206
K₀
- ✓ $-23^{\circ} 315'$
B 12407 definition too poor.
- ~~B 12238~~ definition too poor
- B 41995
4.0
- ✓ $-31^{\circ} 025'$
B 23840
4.0

October 1, 1911

- ✓ $+22^{\circ} 176$
I 26637 very poor image.
K2
- ✓ $+860^{\circ} 170$
I 32397
F5 stars confirmed on I 16891
- ✓ $-1^{\circ} 167$
B 23789
K0
- ✓ $-9^{\circ} 256$
B 10390
K1 Image faint. Maybe F5.
Small white plate looked up but no so good
- ✓ $+17^{\circ} 197$
I 19800 ±
Too dense
- ✓ I 19384
F6
Also on I 25842
- ✓ $+20^{\circ} 226$
I 21972
K Image poor
I 21707 Too poor

October 1, 1911

- ✓ $+27^{\circ} 262$
I 26270 too poor
I 36502
K0
- ✓ I 5305- $+66^{\circ} 145$ —
K0 (same)
- ✓ B 14432 $-18^{\circ} 287$
K0
- ✓ $-1^{\circ} 293$
B 10383
K0
- ✓ $+67^{\circ} 191$
I 31330
K1 Poor image and no other plate covering
- ✓ $+23^{\circ} 303$
I 19822
Too poor.
- ✓ I 16948 Long strip
K0 (good)

October 1, 1911

✓ +30° 421
I 36453
B

✓ -30° 990
B 12402
Jr

✓ -30° 999
B 12402
K

✓ +5° 435
I 36394
B

✓ +8° 482
B I 12005
too faint

✓ I 01282
B

✓ -20° 643
B 24326
K2

Also on B 14877 mark faint on both plates.

October 1, 1911

✓ -3° 592
B 24332
Jr Rummel out

✓ +60° 762
I 33671
B

✓ +75° 154
I 36384
K

✓ -7° 731

B 12750 marked on Ident. checked

✓ B 10595
a

✓ I 19063
a

I 06832 chart Ident. checked.

October 2, 1911

- ✓ +41° 931
B 12453
I 26325-
marked on
- ✓ I 10411
250
- +45° 992
- I 35814
marked on
- ✓ I 10411
45
- ✓ -3° 1061
- I 19387
K°
- ✓ +51° 1094
- I 28555 marked on
- ✓ I 31474
250

October 2, 1911

- ✓ +21° 1731
I 37091
38
- ✓ -25° 5342
B 15579
75 marked on. Image dense
- ✓ -29° 5355-
B 39937
250
- ✓ +57° 1128
I 31623
250
- ✓ +12° 1888
I 20523 marked on
25
- ✓ +42° 19220
I 24963
25: very poor
- ✓ -14° 2757
I 31575 marked on
B 18650
48

October 2, 1911

✓

+29° 1883

I 37148 marked on.

K 45

✓

+40° 2197

I 36499

K 45

October 3, 1911

✓

-11° 2741

Wrong star marked on B 24587
This sp not seen on hall's plate nor on B 18996

B 22431

Image very poor probably K

October 4, 1911

✓ +37° 1312
I 37119
B₀

✓ -75° 5' 1844
B 20895
B₀

✓ +40° 1758
I 26032 Porv plate
B₅

✓ +1° 1600
I 31499
B₀

✓ +48° 1469
I 33840
B₅ Porv focus

✓ -12° 1871
B 12684
B₀

✓ ~~+5° 1739~~ -46° 3046
B 39939
B₀

October 4, 1911

✓ +2° 2585
I 22652
B₀

✓ -9° 3595
I 24979 marked on

B 41548
too faint

B 19032
B₀ (good)

✓ -7° 3525
I 24979 marked

✓ B 13814
B₀

✓ -26° 9470
B 41353
B₀

✓ +6° 2697
I 31530

✓ +10° 2519
I 31530
B₀

October 5, 1911

✓ +21° 2247
 I 22657 marked
 I 36615
 35

✓ +28° 1952
 I 24946
 80

✓ +31° 22382
 I 22832 marked. Not seen.

✓ +43° 2152
 I 24966
 20

✓ +4° 2568
 B 19342
 38

✓ +48° 1964
 I 37042 marked on

I 36530 Several other plates looked up.

October 5, 1911

✓ -0° 2532
 B 13418
 2

✓ +10° 2519
 I 31580 marked
 I 22638
 2

✓ +6° 2697
 I 31530 marked.
 I 22638
 20

✓ +4°
 I 31530 marked.
 I 22638
 20

✓ -4° 3665
 I 31649
 45

✓ +7° 2850
 I 36619
 K

October 5, 1911

✓ +23° 2751

I 37159

K

✓ -21° 4009

B 40457

J5

✓ -10° 4611

B 19021

K

✓ -7° 3963

I 31752

J

✓ +39° 2947

I 34059 marked

I 25612

J

✓ +39° 2950

I 34059 marked

I 25612

K

October 5, 1911

✓ +40° 2905-

I 34059

J

✓ +11° 2910

I 34060

J5

✓ +3° 3203

B 11376 marked

I 33255

J5

✓ +4° 3195

I 33255

J

October 6, 1911

✓ $-27^{\circ} 108$ B 41070
y✓ $+66^{\circ} 717$

I 31804

K1 in other plate coming.

✓ $-2^{\circ} 3481$ B 19158
y✓ $+11^{\circ} 2439$ B 37402
y✓ $+32^{\circ} 2244$ I 33019
y5/ $-2^{\circ} 3528$ B 19233
y

October 6, 1911

✓ $+9^{\circ} 3001$ B 11333
y✓ $+26^{\circ} 2677$

I 31720 marked

✓ I 17783
y✓ $+1^{\circ} 3071$
B 11370 marked
K5~~I 20718~~
I 10966
K5 very faint.✓ $+6^{\circ} 3455$
I 31780
y✓ $+37^{\circ} 2926$ I 22882 marked
I 34687
y

October 6, 1911

✓
 $+21^{\circ} 3198$
 $I 31722$
 21

October 11, 1911

✓ $+7^{\circ} 3967$ 19 2.2 + 7. 28

B 37581 marked

I 30887
 K

✓ $-21^{\circ} 5273$ 19 3.7 - 2.1 37
 B 41748
 21

✓ $-28^{\circ} 15936$ 19 26.4 - 28 12
 B 40459
 20

✓ $+58^{\circ} 1929$ 19 29.6 + 58 22
 I 34696 marked

✓ I 19318 Long disp.
 25

✓ $+15^{\circ} 4026$ 19 54.0 + 15 19
 I 36230
 21

October 11, 1911

✓ $+15^{\circ} 40' 74$
 I 35571 20 6.6 +15 52
 25

✓ $+5^{\circ} 45' 70$ 20 33.7 +5 17
 B 12063 Marked
 3

✓ $+75^{\circ} 752$ 20 38.7 +75 13
 I 36922 Marked

I 35007
 Motion on $+75^{\circ} 752$
 3

✓ 20 52.2 +74°33 +74°889
 25

✓ $+2^{\circ} 42' 95$ 20 57.1 + 2 36
 I 23273 Marked
 B 12331
 38

✓ $+6^{\circ} 47' 41$ 21 0.4 +6 41
 B 14667
 K₆
 B 12331
 K₀

October 11, 1911

✓ $-61^{\circ} 65' 37$ 21 10.8 -61 45-
 B 42086
 20

✓ $-20^{\circ} 61' 85$ 21 14.6 -20 15-
 B 39892
 K

Confirmed on B 14873

✓ $-13^{\circ} 59' 45$ 21 24.5 -12 56
 B 10380 Marked

B 39407
 K₅

✓ $+29^{\circ} 45' 50$ 21 54 2 +29 20

I 35085 marked

I 21680
 35

✓ $+52^{\circ} 31' 12$ 22 3.1 +52 39

I 31429 Marked

✓ I B 14555
 25

October 11, 1911

- ✓ $+1^{\circ} 46' 37''$ 22 33.9 + 20
 B 14184 marked
 Is for
 B 24041 the best plate of *Separnus*
 3
- ✓ $-4^{\circ} 58' 04''$ 22 56.6 - 4 22
 B 14660
 K₀
- ✓ $+67^{\circ} 14' 9''$ 23 1.2 + 67 52
 I 31329
 29
- ✓ $-9^{\circ} 6' 15''$ 23 8.9 - 9 28
 B 17391 Two spectra superposed
 Apparently alike
 Both appear to be F5
- ✓ $+43^{\circ} 44' 45''$ 23 16.8 + 43 32
 I 33791
 F8
- ✓ $-73^{\circ} 22' 99''$ 23 33.7 - 73 15
 B 38 385
 K₀

October 12, 1911

- ✓ $+45^{\circ} 43' 78''$ 23 53.5 + 46 10
 I 35763 marked
- I 31261
 K
- ✓ $-20^{\circ} 66' 84''$ 23 54.3 - 20 35
 B 24596
 K₀
- ✓ $+57^{\circ} 27' 87''$ 23 38.5 + 57 30
 I 33563
 9

October 13, 1911

Additional observations for Proper Motion Stars.

✓ $+31^{\circ} 1684$ 7 47.2 + 30 54

I 37121

K₁

✓ $+43^{\circ} 1953$ 9 37.1 + 43 10

I 36678

K₀

✓ $+47^{\circ} 2420$ 16 59.8 + 47 11

I 20861

K₀

✓ $+12^{\circ} 4797$ 22 12.3 + 12 23

I 33700

K₁

✓ $-42 - 23^{\circ} 17699$

B 213122

ma

✓ $-3^{\circ} 5577$ 23 40 - 2 48

B 14660

K₀

October 13, 1911

✓ $-42^{\circ} 16457$ 23 41.2 - 42 6

B 12006

Q₂₀

✓ $-37^{\circ} 15492$ 23 59.5 - 37 51

B 14593

K

B 41074

K

Oct. 26, 1911

Looked up for Schwarzschild.
See list of+37° 1146 5^h 10^m

J 37064

Burned out.

J 10595 W near edge

+37° 1160

on J 37064

Burned out.

+29° 3657

J 27933

Near edge.

Probably Comp.

J 15289

Near edge.

Probably Comp.

B 748.

Too poor. Comp.?

October 26, 1911

+43° 3290

marked on I 22767

B 1719

No nothing else seen.

November 1, 1911

H.R. class in Kapteyn's Paper Meteoroid

H.R.	Dmv		
4098	+49° 1961	I 19866 30	H.R. F8
4158	-11° 2918	B 10768 F5	B 11060 F5 H.R. F
4458	-32° 8179	B 11014 F5	H.R. G
4486	+45° 1947	I B 14637 F8	H.R. F
4550	+38° 2285	I 19677 K0	Rev. line near H _γ . H.R. G f
4587	-9° 3413	Shr. ultra violet end, appears like G. other part more like K. B 11018 F5	H.R. G
4657	-9° 3468	B 11018 F5	H.R. F5-
✓ 4710	-66° 1752	B 4980 F5	B 13024 F5- Keri 565
5072	+14° 2621	I 17478 F5	H.R. F

✓ Check

Nov 1, 1911.

H.R.	Dmv.		
5183	+7° 2690	B 1337	
5209	-23° 11329	B 5201	H.R. F5
5374	+1° 2920	I 10964	
5209	-23° 11329	B 5201 F5	H.R. F8
5384	+1° 2920	I 10964 B0	H.R. G
5455	-11° 3770	B 10083 F5	H.R. G
5659	+19° 2939	I 3708	I 3578 I 22329 G G
5864	-37° 10500	B 5161 B0	H.R. G
5911	+13° 3024	B 2681	I 23148 F5- H.R. G
5954	-16° 4196	B 3405, B 4741, B 36146 F5, F6, F6	H.R. F
5965	+33° 2663	B 1478 F6	I 20998 F6 H.R. F

November 1, 1911

H.R.	Dm.		
6014	+6° 3169	B 561 poor. g	H.R. F
6060	-7° 4242 ;	B 10057 g ₀	H.R. F
6458	+32° 2896*	I 22993 g ₀	H.R. G
6518	+67° 1014	I 19901 K ₀	H.R. K
6573	+61° 1678	B 2901 F	H.R. F
7293.4	+49° 2959	I 36701 g ₀	H.R. K
7373	+11° 3833	I 21638 g ₀	H.R. G
7386	+24° 3737	I 15643 F	H.R. K
7607	-10° 5238	B 5761 B very poor	H.R. F

Check

November 1, 1911

H.R.	Dm.		
7644	-67° 3703	B 4118 g ₀	g ₀ in 56.4
7670	+29° 3872	I 9657 g ₅	H.R. K
7672	+16° 4121	I 37235 F	H.R. G
7783	+66° 1281		g
7898	-24° 1693	B 37115	g
9107	+33° 4828	I 9653	F? very poor.
9088	+26° 4734	I 19316	g ₀
8832	+56° 2766	I 37232 K ₀	H.R. K
8829	-63° 4862	B 36838 g ₀	H.R. G
8697	+9° 5122	I 6332 F	H.R. F
8148	-26° 15541	B 5217 B 37003 g ₀	H.R. G
7875	-60° 7419	B 36306	F

November 2, 1911

L.R.
660

810343

Sp. Fr. 1000.

8018

138806

Fr

January 24, 1912
 R. Y. Monocroite. See letter of Harting, Dec. 1911.
 Looked up for Harting.

Am 339	December 2, 1899	10.2 ^m	
B 31294	Jan. 17, 1903	10	
I 17657	March 25		
I 17657	March 25, 1897	12 ^m	{ about 0.7 higher than its companion { 1st by 3 hrs. before 3 mag. higher than
Am 339 ^{2nd}	December 2, 1899	10.2	
B 31294	January 17, 1903	10	1 mag. fainter than companion.
Al 12763	November 29, 1911	6.0	
Al 12810	December 24, 1911	6.0	
Al 12849 ^{2nd}	January 13, 1912	6.0	

January 30, 1912

+43553 Bm 4 Andromedae,
looked up for Backhouse, who thinks
it is surely variable. See letter of
Jan. 3, 1912.

Reached on J 31197.
Sp. on J 32283. M? Certainly
not class N. See my book 32, p. 7.

I find no variation in this star
on the following plates.

J 31197, J 31198, 4596, 5153, 525,
5132, 5787, 5913, 5655, 5624,
5487, 5436, 5215, 12645, 11090.

Miss Leland has examined these plates
and made the following statement.

Feb 7, 1912

Star in the Hyades high & appears
on J37571, classified for Percival Spear.
Looked up for Professor Russell.

J23821 marked by Miss Walker.

✓ + 16° 640 on J32858
K5

✓ + 15° 609 on J32858
K0

+ 15° 654 on J32858
K5

+ 15° 713 on J37005 (long disp.)
K5

+ 18° 743 on J37005
at 2 or 3 near edges.

+ 19° 582 on J982
from focus.

April 16, 1912

Spectra in Praesepe (for Miss Learitt)

I 36627

✓ K' = +20° 2170 K5 G ~~45~~

✓ K'' = +20° 2156 K5 G ~~45~~ 45?

✓ L = K5 W' = +20° 2157 G

✓ W = +20° 2160 G

✓ P = K5

✓ R = +20° 2162 K5

✓ W'' = +20° 2157 G

✓ R' = +20° 2176 K5

✓ W = K5

May 3, 1912

Spectra looked up for Prof. Russell,
See letter of April 30, 1912.

List 1, Stars with well determined Parallax

May 3, 1912.

Lick 2

Russell

+15° 605

K₀

I 32552 & I 32858

+14° 678

K₀

X

+16° 630

+15° 616

K₀

Image very poor. Exact class uncertain.

+17° 715

K₀

+16° 640

K₀

+17° 721

K₀

+21° 641

+14° 699

K₀

+15° 604

K₀

+14° 722

K₀

+15° 650

K₀

May 6, 1912

R.T. Largeteau's Spectrum looked
up for Prof. Russell.

Mykelid my 13146

Sp. on 123969. ^{Class 85}
Itk. however, the position ^{as to position} but the
preceding one of an equilateral triangle

Bo. on Ac 10595, June 16, 1909

Itk. on Ac 10647, July 20, 1909

" " Ac 7779, Sept. 4, 1906.

June 29, 1914

She above checked in answer to letter
of Dr. Chapley to Prof. Pickering.

Saturday, June 1, 1912

Spectra of variable stars for Prof. Russell.

054231 RZ Aurigae ^{max}
9.5

Marked on I 24790 by Miss Mascher
from Chabot's A. 7. 174 363.
Ident. comp. by A. J. C.

I 29863 Jan 19, 1913
J.D. 6134.663

I 29863 shows this star very faint
evidently at min.

Max light on I 24790. To determine
its photog. brightness, I compared it
with the photometric comp. of +31° 1111
photom. magn. 6.72, therefore magn. of
comp. = 11.72. The variable is marked
on I 24790

I 24790 var. p.c. 2 var.
on I 32337 p.c. 5 var, different
because p.c. is so close to periastron.

Therefore, photog. magn. of RZ Aurigae
is 12.07.

Sp. on
I 26507 Loop.

I 24024 narrow major but sp. can not be classified
might be G, or A.

I 13847, Loop.

June 1, 1912

105461

Probably too faint.
12.2 at max.

113552 RZ Ues. May.
Marked on I 18581

Sp. I 36031, too poor.
May be secondary for

I 31380

Cont. no lines seen

I 30337

Apr. 19, 1913

J.D. 6224657

I 20239 G? on I 30337, the sp. is seen
and star is evidently much
fainter than on the other plates.

113972 2 Drac.

Sp. I 36598 too poor.

June 1, 1912
Sp. for Russell

164917 T S Hacc.

I 36046

A, only hyd. seen

I 25386
A.

210930 A E Cyfne
marked on I 27648 from chalk in A. N. 184, 97
Probably h₂ faint for sp.
For ft. on I 32272

090151 V Ues. May:

I 31443, covered marked Ma? V² M.R.L.

Unappt. For points classif.

I 31601 For pom.

I 31521 May be K.
Apparently not A.
I 31521 K?

June 12, 1912

Spectra looked up for Gale.

Ident. by A. M. R.
Checked by C. D. W.

+ 3° 2338 (1900) 10 8.9 + 3 39

I 36660

✓ Set long disp

Many object looked at.

+ 3° 2338 = 45- (ord)

+ 67° 935

I 36214

K2

+ 31° 2843

90

on I 36118

+ 10° 3665

45 or K₀ on I 36082

+ 10°

to on I 37278

+ 2° 4295

45 on I 36744

June 14, 1912

Cont. of preceding.

+17° 4519

F8 on J 19399

+12° 4797

ls on J 35425 very poor.
 Slight long dispersion
 F6 on J 19400

+56° 2605

F6 on J 34820
 Slight long disp.
 K0 on J 37278

+62° 2244

F6 on J 33410

+10° 4783

R on J 36306
 too near edge. very clear.

F8, unfocused J 37350

Monday, June 17, 1912

Spectra for sale.

+45° 4408

K2

I 32251

+69° 45

K0

I 32399

+4° 158

K0

I 35075

+30° 421

K0

I 36453

+56° 1322

K5

I 31623

+56° 1421

I 34565

+24° 2193

F5

J 21687

+3° 2338

K5

I 36660

+70° 634

K2

I 33894

merged out
 K5 on J 37583

June 17, 1912 (cont)

+25° 2335
40.2 I 36683

+31° 2240
I 22832

K5

+50° 1807
I 35914
K0

+43° 2321
K0 I 24967

+39° 2947
I 33057

45 Burned out
Get long disp. 95 on 37.307 long

+39° 2950
I 33057
45

+6° 3169
I 34013

45 Burned out
561 long on edge. 45.

June 17, 1912 (cont)

+19° 3182
45 I 36746

+4° 3195
40 I 36204

+68° 883
I 25621
45

+0° 3593
I 22706
45

+47° 2420
I 34848
45

+32° 2896
I 29058

Burned out 17 16.9 +32 36:
39699 mt

June 17, 1912 (cont)

+2° 3312

I 35904

K5

~~+57° 1414~~

+6° 3455

+61° 1678

I 34996

B Burned out

+11° 3823

I 23117

B Burned out

45 m J 21638

+24° 3737

I 36748

B Burned out

J 5 m B ¹⁶⁰⁰~~1405~~ very poor, near edge.

+33° 3587

I 35360

B Burned out

June 17, 1912 (cont)

+52° 2623

J5

I 20862

+41° 3799

J5

I 9668

+59° 2272

J5

B 3138

+29° 4753

J5

I 33746

+4° 4994

J5

E. I 25861

+67° 1014

J5

I 15220

June 19, 1916

+56° 1421

85

on J34565

+6° 3455 on J35241

75

(near a bright star)

+61° 1678

78

July 13, 1912

Comparison stars for Var 041318

looked up

for this chart.

Marked on I 36383

$\alpha =$ B9 B42139

$\beta =$ A0 "

$\gamma =$ K0 "

$\delta =$ A3 "

$\epsilon =$ K0 "

$\zeta =$ K0 I 36383

$\eta =$ B5 "

$\theta =$ K21 "

$\iota =$ K5 "

$\kappa =$ K5 "

$\lambda =$ B5 "

$\mu =$ B0 "

$\nu =$ K5 "

$\xi =$ B5 "

$\pi =$ B "

$\rho =$ B5 "

$\sigma =$ K "

definitions very poor

October 22, 1912

Sequence looked up for Miss Hammond

I 34971

b

K₂

d

fx

New edge. Focus very poor

e

K₅

f

K₁₀

g

B₁

h

B₂

barl

B₅

Jan. 10, 1913

+12° 208 looked up for E. J. Mauermann
See letter of Dec. 18, 1912.

Marked on I 15-919

Mauermann's star "2" also seen.
Order of photog. brightness.

+ 12° 207

+ 12° 209

L

+ 12° 208.

Plates taken on Oct. 31, 1899 and Dec. 1°, 1904
show no evidence of proper motion
on +12° 208 or any of these stars.

I 15-919

+ 15° 208 = B?

N 50 2t

I 32374 Sp.

N 50 1t #1.

The 4 stars mentioned above all of class K, or

+ 12° 207, 208, 209
star "2"

near K

✓ I 2377

N 50 1t

I 24013

N 50 1t

I 37292 Sp.

N 50 1t #1.

I 32412

N 50 1t

✓ I 2138

N 50 2t

✓ I 9567

N 60 1t

I 22151

N 50 1t

I 4998

N 50 1t

✓ I 4887

N 60 1t

I 13520

N 50 2t

I 3025

N 60 1t

I 19086

N 60 2t

I 2904

N 50 1t

Jan. 31, 1913

Spectra for Russell
02 0843 Sy and.

J32283

A ft. rather indistinct

Sx Cass.
J27916

B5.

J31314

B7 poor.

02 3947 Ry Puc.

J29102

B2

J25946

A

Jan. 31, 1913

025867

RX Cas

J36497

K0

J31370

J33286

RZ Oph.

Not A. Probably K

Jan 29, 1913. looked up again for Dr. Shapley. Serial B plates again prepared.
 B2 3941 in the list. Sp. 140 in 9. Not below chart 5!
 H&K bands seen distinctly.

J35423

A

RR Dra.

J38076

SZ Hec.

Serpens

then plate taken

Jan. 31, 1913

I 35360

See Cygnus
A blue seen, but no lines.

B 32375

It appears to be sp. G,
but it may be slow el. north

I 2455

See Cygnus
for p. 10

I 25999

H₂ and H₂ very weak
H₂ not clearly seen
K " " "

Feb. 5, 1913

B 39443

RR Puppis. A.

B 18289 RR Puppis.

A poor def.

Feb. 7, 1913

+ 3704404 suspected by Dr. Gray
 211796 sp. A. near R. Vign.

131891 star marked.
 2 ac 5225

no variation found on
 ac 4002

4041
 6629
 8624
 8659
 8674
 13371
 13548

March 1, 1913

Sp. I R. K. Camelof.
 For Prof. Russell.

137085 R. K. Camelof
 N. p. May resemble I Camelof.
 and to Louis.
 Star fainter than normal.

Have this enlarged.

X 36694
 Def. poor. Star bright.
 More like Class R.
 H & K lines seen

136561
 Def. poor. Star bright.
 Sp. per

138323
 Sp. R. p. Star faint.

131624, 136695
 not cor.

March 1, 1913

J 36562 R U Capricorn.
 Star bright.
 Band near H β seems fainter
 when star is bright, than
 when faint.

March 17, 1913

Additional sp looked up for Boss.
 B 23746

✓ C γ 217 K $_{20}$ Int. 2

✓ C γ 358
 45 Int. 2

✓ C γ 476
 K $_{20}$ Int 1

✓ C γ 592
 45 Int. 2

B 23840

✓ C γ 1106
 K $_{0}$ Int. 3

B 20456

B 23746

C γ 265

45 very poor

B 39688.

C γ 265

45

March 18, 1913

Starbore

C2 860

Brown

R

~~March~~ April 4, 1913

Spitzer looked up for Shapley
see letter of March 21, 1913.

W. P. P. P.

J21226

Port on edge, but apparently 85-

J32266

Loop

J25841

Loop

J23378

Loop 85?

22 Cygni marked 1889

J36285

Loop

J23603

Loop

J36206

Loop

22 Cygni only a
blue on these plates
and is
incorrectly ident.
as sp. of Class A
seen

April 9, 1913

Specimen for Shapley

U. W. Cygnus. 201942

Marked Chart I 29486

Sp. I 32241 only seen.
Does not appear to be h.

May 12, 1913

Objects looked up for Miss Woods.

$h = m$
14 47 - 38.0

B 41377

Images from

$a = a$

$\beta = K_0$

$a = a_0$

$b = K_0$

$c = y$ Parv

$\gamma = a_2$

$\frac{f}{f} = a_3$

$d = K_0$

$e = \gamma_1$

$uv = 45^\circ$

$h =$

$g = K_0$

$h = K_5$ faint

May 12, 1913

Objets looked up for Miss Woods

 $13.7-25^{\circ}$ B5201 Images poor.
 $\lambda = a_0$
 $13.27-28.0^{\circ}$ B40434 Images poor.
 $\lambda = K$ $m = 95;$

Sept. 3, 1913

Spectra for Nautical Almanacs
See list of Prof. Eichelberger.

7 41.3-14 19 ✓

B2399

Sul 7 Class F2

9 46.2-3 46

B2345

Sul 5 a3 ✓

10 36.3-1 13

B24614

Sul 5 K₀ ✓

10 55.4+4 9

I17248 ✓

Sul 6 K₀

11 1.8+2 30

Sul I38373 ✓

Sul 5 K₀

11472+38 26

I17453

Sul 5 K₀ ✓

12 11.1+41 13

I17453 ✓

Sul 5 K₀

Sept. 3, 1913

12 24.7 + 21 27

I 38225

Int 7

22

✓

13 7.3 + 24 48

I 10435

Int 5

K0

1³
1P 23.6 + 72 55

I 7458

Int 5

K5

13 36.4 - 8 12

B9430

Int 4

Ma

✓

13 44.4 - 17 38

B19952

Int. 7

K0

✓

14 18.0 - 11 15

B18653

Int 4

K0

✓

14 48.9 + 59 42

B2490

Int 5

I 37774

K2

✓

Sept. 3, 1913

16 10.9 + 34 7

I 20998

Int 7

40

✓

16 35.8 - 17 23

B3570

Int. 5

K0

✓

16 47.5 + 15 9

I 37199

Int. 8

20

✓

17 16.9 + 32 26

I 22993

Int 7

I 38499

40

✓

17 57.4 + 26 4

B1321

Int 7

42

✓

18 24.5 - 2 3

B11306

Int. 7

45

✓

September 4, 1913.

Nautical Almanac

19 59.3 + 7 0 ✓
 J 38113

Sub 7. K₀

20 12.5 + 24 22 ✓

J 38016
 Sub 8. K₀

20 58.2 + 27 41 ✓

Sub 7 J 37940
 K₂

21 56.2 + 12 38

Sub 8 J 38114

K₂

22 47.7 - 70 36 ✓

Sub 6 J 5621
 K₂ edge.

September 4, 1913

Nautical Almanac

B 12010

22 47.7 - 70 36

Sub 5 edge. ✓

23 29.0 + 30 48

J 16935

Sub 5. K₂ ✓

October 9, 1913

Examination of 28 Jan. 6 3 F. 1 + 294
Susp. of variable Lacchini.

AI 9166	magn. of adj. stars marked		
7.5			
AI 3594	AI 3785	AI 3193	
7.5	7.6	7.6	
AI 10604	AI 3611	AI 3035	AI 3274
7.6	7.6	7.6	7.6
AI 10822	AI 3642	AI 3053	AI 3315
7.5	7.5	7.5	7.6
AI 3458	AI 3688	AI 3059	AI 3357
7.5	7.6	7.6	7.7
AI 3469	AI 3705	AI 3116	AI 3387
7.5	7.6	7.5	7.7
AI 3527	AI 3719	AI 3128	AI 3389
7.6	7.7	7.5	7.6
AI 3532	AI 3727	AI 3147	AI 3398
7.6	7.6	7.5	7.5
AI 3542	AI 3778	AI 3179	AI 3438
7.6	7.6	7.5	7.5
AI 3570			
7.6			

October 9, 1913

AI 9641	AI 7410	AI 10660
7.7	7.6	7.7
AI 7274	AI 7417	AI 10701
7.6	7.6	7.7
AI 7292	AI 10519	AI 10716
7.7	7.7	7.7
AI 7333	AI 10549	AI 10726
7.7	7.6	7.7
AI 7381	AI 10558	
7.6	7.6	
AI 7387	AI 10583	
7.6	7.6	
AI 7390	AI 10626	
7.6	7.6	
AI 7401	AI 10637	
7.6	7.7	
AI 7404	AI 10647	
7.7	7.7	

These plates show a very small variation perhaps 0.3 mag. but ^{very small} light curve should be obtained before assumed the certainly variable

A. J. C.

Thursday March 19, 1914

Spectra looked up for Marchand.
See letter of Feb. 7, 1914.

TTT Quinair 050239
A in 56, 188.

2 Quinair
A in 56, 188.
also in I 21597

SV Dunc?
for from I 20078

March 19, 1914

SV Audin

Spectra appear to change
Class A when star is bright. See

I 17222, I 33717, I 28175

I 13732, faint, but not A.

I 20037, hazy.

I 3331, G5? H+K apparently visible
sp. brighter bet. H γ & H β than bet.
H γ & R.

I 28017 ft. G5?

I 13738 ft. for from

This sp. should be taken with 16-inch.

Monday March 30, 1914

Search for

Object found by Bohlin on plate

taken May 3, 1908

$11^h 22^m 21^s + 42^s 30.3 (1913)$

AC9489 May 19, 1908 *fulcrum object*
Bohlin's lettering *defect in*
refr.

c
 a ob C 4 n

AC9573 June 13.
top part
 no object object near
 a, n

AC9574 June 25, 1908
 a 2 n

AC9459 June May 1, 1908
 a 3 n

AC9537 June 12, 1908

a 3 n

AD6760

a, b, c, not seen

Monday April 6, 1914

Spectra for Baillauds list.

J 21638

$19\ 20.2 + 11\ 44$

LS

B 19179

$13\ 39.1 - 15\ 41$

LS

B 22822

$15\ 54.7 - 16\ 12$

LS

Spectra looked up for Kapteyn Dec 19, 14

The following companions to brighter stars.

[copied from
a paper]

Sp.	magn.	Companion	α 1900	δ 1900	Dist.	pos. angle	Remarks
—	9.0	26 beta	0 58 7	+ 0 50'	16"	252	
—	9.0	Polaris	1 22.6	+ 88 46	18	210	
g	7.7	α Arietis	52 3	+ 23 7	37	48	
n.s.	8.7	66 beta	2 7 7	- 2 52	16	232	
n.s.	8.7	33 Arietis	34 8	+ 26 38	28	359	
Go	8	88 Tauri	4 30 2	+ 9 57	70	299	
As	6.5	α Cancri	8 40 6	+ 29 8	30	307	In Harv. 50
K2	8	64 "	55 8	+ 28 18	103	323	Sp. in group for Cent.
—	9.0	23 Urs. Maj.	9 23 7	+ 63 30	23	272	
—	8.5	8 Hydra	24 1	- 2 20	67	3	
K0	9	9 Sext.	48 9	+ 5 25	51	293	
g	8.4	α Leonis	10 3 1	+ 12 27	177	307	
Go	7.7		37 7	+ 46 44	288	88	
—	8.4	88 Leonis	11 26 6	+ 14 55	15	320	
—	8.4	93 "	42 8	+ 20 46	74	355	
—	9.0	17 Virg	12 17 5	+ 5 52	19	337	
n.s.	5.7	α Can vel	51 3	+ 38 51	20	227	In Harv. 50
As?	7.2	K Bootis	14 9 9	+ 52 15	13	238	Comb. Sp. group.
n.s.	7.5	2 "	12 6	+ 51 50	38	33	
Go	7.4	3 "	15 11 5	+ 33 41	105	79	
n.s.	9.0	41 Herc	16 40.1	+ 6 17	164	191	
F	7.1	39 Draconis	18 22 5	+ 58 45	89	22	
Jefford class	8.1	X Luygini	19 42 6	+ 33 23	26	73	
K0	7.8	1 Pegasi	21 17 5	+ 19 23	36	311	
As	8.5	4' Argem.	23 10 7	- 9 38	50	312	
n.6	7.2	94 "	13 8	- 14 0	13	345	
F0	5.0	Proion 4127 (6.9)	23 37 3	+ 44 12			

Nov. 10, 1914

Spectra mentioned in Espino's letter
of October 6, 1914 (to Prof. Pickering)

new stars of Type II

- (1) $20^h 45^m + 44^{\circ} 5' 2'' \pm (1855) 9.3 IV, I$
"well seen"
- (2) $21 57 38 \pm + 44 5' 2'' \pm 9.2 IV, I$
"well marked"
- (3) $23 16 21 + 44 3' 6'' \pm (1855) \text{ Sept. 17 } 8.8$
Sept. 29 $9.1 IV, I$ well marked

These objects were looked up by Miss
Machin on all available sp. plates.
Nothing was found in position of (1) and

(3). A very faint spectrum on
 23969 confirms (2), hence a new
class N star is

$21 57 38 + 44 5' 2'' (1855)$

February 9, 1915

N and R stars looked up for W. C. Ruffe,
see letter of February 4.

H. C. 9, gives 7 N stars

- (1) $-37^{\circ} 9' 05'' 12 24.0 -37 42$ Called normal.
Found in B13842, I can barely see it on this pl.
and could not classify. B41165 - n.s.
and B plate is normal but sp. n.s.
- 2 $-39^{\circ} 12' 19'' 17 58.2 -39 20$
B38099, B38004 ft. probably 0, 6, 10
- 3 $-38^{\circ} 12' 8'' 18 23.4 -38 29$
2, 6, 10, in B39339 416174
B39272 16115
- 4 $-18^{\circ} 54' 50'' 19 40.6 -18 24$
0, 8, 10.
- 5 $+85^{\circ} 33' 2'' 19 43.8 +85 9$
Probably class R. 514592
- 6 $-12^{\circ} 57' 55'' 20 26.2 -12 13$
2, 6, 10 in B40803
- 7 $+6^{\circ} 52' 23'' 23 44.0 +5 50$

Class R.
In agreement with H. C. 9, for statement that the first record
of these stars are normal, rest, first record are fourth record.

March 17, 1915

Specimen of Algal stars for Russell.
See letter of March 15, 1915

T. V. Cass B9 near D.C.
J. W. Cass B9 near D.C.
J. X. Cass
T. Lewis Min.

J. X. Cass.

Var. marked on J 24324, chart by H. S. L.
Sp. on J 3230, found marked T. Lockwood
the wrong star

J 3230. Torpor

J 34269 Probably some derision of B.
Almost cent

J 35789, best. ~~class~~ B, perhaps B5.

T. Lewis Min.

J 35805 A ~~perhaps~~ Go - A5

marked on A 5892 by H. S. L.

Identif checked? A of C. from list
A. palatios (one Var. + one ft.)

Monday, March 12, 1917

Search for n. S. C. 6303

See letter of O. H. Trumpler, March 5, 1917

J 1103	Apr. 29, 1890	
J 1251	June 1, 1890	
J 29363	Oct. 10, 1902	
Mc 388	Apr. 30, 1910	Exp. 30 ^m
464	July 6	" 56
487	July 27	" 60
3302	Apr. 26, 1913	" 20

No trace of this nebula is seen at or near position as marked on print sent by Trumpler.

The Mc plates all show the brighter stars enclosed in circle on that print but with the fainter.

Monday, Oct. 7, 1919

-8° 43.2 8.8 16 50.1 -8 9

Looked up for spectrum and variability.
See letter of Joy, Sept 26, 1919.

List		
B11019	Wgt	Barely seen
B11390	"	just a blotch
B12019	ma?	Trace of breaks seen
B14191	K5	
B14398	Wgt	n.s.
B16545	K5	No breaks, no tr. lines
B19593	K5	Bar. near "band"? may be defect.
B21378	K5	No tr. lines.
B22786	K5	" " "
B22979	"	" " "
B23031	"	Traces of tr. lines, not by dup. H ₂ tr?
23724	"	" " " " " July 29, 1899
23751		
23804		Strong mag. Breaks well seen
23817	Ma	
B24021	K5	
35924	K5	Def. prom.
39394	K5	
40577	K2	
40550	K2	very narrow
29677	K5	No tr. lines.

Oct. 7, 1919

B41247

K2

B42334

long K2

B39409

H₂ spectrum?

May 24, 1891.

Considered. For pt. in our plates. On B23031, there is a narrow tr. line which may be H₂, but it is uncertain. On B39409, H₂ may be bright. These lines, if really emitting, have very slight contrast to bright portion of the spectrum class K5.

Examined for variability

28 AC plates taken between 1899 and 1919 show no appreciable variation.
The following were also examined by Miss Seastad who found no variation.

Ac 4948
Am 5544
Am 5716
Am 5764
Ac 6221
Am 6453
Am 6475
Ac 11757
Ac 13119
Ac 13140

