

Index or Bibliography of Star Stars,
Star Charts and Variables
General.



Notes on Bibliography of Vas. Stars. ¹

October 6, 1900.

2676 N. Mome. One fellow card
found in cat. without any reference
Joh. Asger.

5484 U. Cor. A. J. 9, 98.

List of published min. is not
copied for catalogue.

7560 R. Valper. A. J. 9, 98.

List of pub. max. & min. are not
copied for catalogue.

7488 J. Cygni A. J. 9, 166.

From use of mean light-curve the fol-
add. minima are inferred:

1889 Sept 27
" Dec 1
" " "

They are not entered
ask Mr. Reed
if they should be.

Should
be inserted.

Oct 8, 1900.

✓ List inserted
Dec. 8, 1900. Chandler's supplement to 1st Cat.

List of stars prob variables

✓ Should anything be done with such a list?

A.J. 9, 188.

X Cygni.

Does epoch apply to min. as well as max. I have so entered it in Cat. but am not sure. Ask Mr. Reed if the point is not cleared up.

A.J. 9, 188.

2 max. & 2 min. derived from mean light curve are not entered as it is stated that they are of very questionable value. This is the same point as on p. 166.

Oct 9, 1900.

Errors found.

A.J. 10, #3.

P Can. Maj. Mean of middle tr. 10.46.53
In recapitulation given 10 46.0
Which is right?

S Cancri

1890 Feb. 15 Min by single curve 12^h 14^m
In recapit 12 14.4

Which is right?

October 9, 1900.

Count of blank cards now on hand:

Blue	2600
White	1300
Red	550
Yellow	600
	<u>5050</u>

I estimate that I have already written and inserted in the catalogue about 700 cards.

Received from Mr. Gerrish Oct. 23 (about)

1000	red
"	blue
"	white
"	yellow
300	indices
"	"
4000	

1000	blue	Rec'd Nov. 13 (1900)
900	white	" " "
200	yellow	" " "
300	"	" June 5
300	indices	" Sept. 21
300	white	" " 3 1901
300	yellow	" " "
500	"	" Nov. 12 (1901)

Received Nov. 12 (1901)

1300	blue
400	white
700	blue
1600	white
500	"

October 10, 1900.

A. J. 10, 99. 7456 R. R. Cygnus.

Shouldn't have taken for Sept. 30 at 9.4.
I have not entered this as it does not seem quite clear to me whether this is an observed min. or not.

976 T Arietis

Card found in cat. w. no ref. and
no name of observer.
J. D. 2463963
May 1897 Feb. 7 } Corrected
P. 10

Find Schönfeld's publication of max
and min. of R. R. Arietis, to be sure that
final correction of Table in A. J. 10, 117
is correct.

Oct. 10, 1900.

Lists of obs. max. or min. (or both) of the following var.
have not been copied.

2100 U Or.	A. J.	10, 133.	
5454 U Cor.	A. J.	9, 98.	
7560 R Ind.	"	" "	
5732 T Cor.	A. N.	89, 88	(see opp. page)
412 R Ind.	"	83, 354	max. for 1807, 1808, 87, 64, 10 by table.
454 S Ps.	"	" " 356	4 max. 1855-1867. Where are they?
1222 R Puci.	"	" " 362	max. of Bayerzell & Schi, probably includ.
1761 R Or.	"	" " 364	" " Out. Mr. & Schönfeldt.
2742 S Gem.	"	" " "	" 1852-1873 var. obscuras.
3184 T Hyd.	"	" " 370	" 1858-1873 Part. Schi's obs.
5504 S Cor.	"	" " 11	" 1871, 1872, July 26
845 R Or.	"	" " 80, 146	" 1867-1872 part already included.
Other max.	"	" " 152	1854-1872
7242 S Cor.	"	" " 175	max + min. at top of page. "Curving in"
806 S Chi.	"	" " 79	max 1845-1871. min. 1847-71
5667 R Cor.	"	" " 79	max + min. 4 obs.
2213 η Gem.	"	" " 381	max. 1844-1872
8273 β Peg.	"	" " 45	max. & min.
Σ	"	" " 94	" " "
1090 β Puci.	"	" " 105	min

Oct. 12, 1900.

M. N. 50, 518. 2100 U Orionis
Gore's max. 1885 Dec. 13, date of
discovery of star has not been included
as it seems like doubtful.
Shall this be considered a max.?

No
Pucmid
card.

A. N. 89 88, 5732 T Cor.
Schönfeldt's max. (4) are not copied
1866 Oct. 16
1867 June 2
1868 Mar 25
1871 Oct. 13

Oct. 16, 1900.

A. N. 89, 161 in Hercules 6202. *Zeiten*
 T not copied. Shall this be used?

25095 Lem. 13. See A. N. 89, 157
 Anomaly in Feb. What does write
 these 3 cards. Have copied
 them.

Oct. 25 1900.

A. N. 94, 112.

A. N. 6733

Hypothetical max & min not included

Print.

A. N. 94, 247.

of Hercules. Contrary to custom
 maxima are placed in first column,
 minima in second. This may
 be an error. Look up for
 Corrigenda. I do not find
 any at this moment.

Oct. 26, 1900.
 A. J. 7 174-18th
 Table of obs. Min of Algol -
Not copied

Nov. 1, 1900.

A. J. 8 92-

Chandler's 3rd Cat.

Notes relating to stars not in Cat.

yes.

These are not yet copied. Shall they be?

Nov. 8, 1900 3825- R. Ues. Maj.
 See catalogue of find a number
 of white cards, with no reference
 to characteristic number, inquire
 about them.

✓ Ask Mr. Reed about the mag. & min.
 of R. Coronae (2). They seem
 very uncertain from the text. R. 11.80, 160
 There are observations and should have
 a red card.

Nov. 3, 1900.

~~A. J. 8~~

Ms. A. J. 91, 379. 5 Librae
 Shall anything be done with
 the dates April 4th etc.
 when 5 Librae was near min.
 I have copied only the three
 mickilobachian min.

A. J. 87, 3 T Perseus.

I do not understand the following
 sentence
 1866, Jan. 19, Minimum 10^{mo}, Feb. 14 aberast
 30.7 ~~angewachsen~~
 I have taken it that the min. oc-
 curred on Jan. 19.

Perhaps there is an error, and the
 epochs Jan. & Feb. are reversed.
 In that case, it would read
 1866 Feb. 19 min. 11.0, but first
 on Jan. 14 increasing to 10.7

Nov. 7, 1900.

Theoretical

A. J. 8 175. Table of Normal
 Epochs of max. & min. of ϕ Perseus
 Shall anything be done with this?

Nov. 17, 1900.

References.

Astronom. Reparto April 1875
for war in Monro. by Birmingham

Schellerup's Cat. is in A.N. 1591 or
A.N. 67, 97

Kaiser's Sternenkatal II, 450 Aufgelauedes
für R. Pegasi

Nov. 21, 1900.

Variable star charts. Checked
by Mrs. Seland

+ Androm

R

"

R Arctis

R & S Tauri

R Leon

S Cami min

R Pegasus

R Cancri

- "

Nov 22

R

Hydrae

R

Leonis.

R

Virginis

U

"

S

Serpentis

S

Herculis

R

Delphinus

R

Pegasi

S

Pegasi

R

Leonis min

R

Bootis

S

Coronae

R

"

H

Herculis

L

Vulpec

R

Vulpec

Dec. 1

Example sep. h on chart
is ft. than h for c

Dec. 10, 1900

checking of var. star charts (cont.)
 all the circumpolans checked from charts
 except T & S. Mrs. M. ^{W. H. M. S. 3} not done because
 they come on edge.

R Cygni

U Cygni

P "

SS "

R "

S Ceti

O "

U "

T Hydrae

T Virginus

B. Corvi

V. Virginus

S. Virginus

S. Librae

R. Sagittarii

T. Aquarii

S. Aquarii

R. Capricorni

R. S. Cygni

R. Aps.

R. Chamaeleontis

R. Herculis

U "

Dec. 14

Feb. 8, 1901

List of errors found.

N. 83	140				
15	52	50	W. H. M. S. 3	29' 17"	(1830)
15	53	46	+36	26.3	(1855)

Rather a large change in declination!

Insert.

ask about in definite statements
 I may, or may not, from curve etc.
 As A. N. 79, 118, R. Leporis
 date of max. from curve
 1871 June 2

Nov. 28, 1900.

List of Hayen's charts on which
brighter companion stars are
marked

- 103 *P. Andromedae*
- 107 *P. Cassiopeiae*
- 112 *P. Andromedae*
- 814 *S. Persei*
- 1855 *P. Aurigae*
- 3478 *P. Cygni*
- 3825 *P. S. Ursae Majoris*
- 4554 *S. Ursae Majoris*
- 5190 *P. Camelopardalis*
- 5237 *P. Bootis*
- 5504 *S. Coronae*
- 5664 *P. Coronae*
- 6512 *P. Herculis*
- 7045 *P. Cygni*
- 7779 *S. Cephei*

Jan. 17, 1901.

Two var. on one chart.

R. S. Tauri Chart 3.
shall new slip be printed?

D + U Cor. Boo. on Chart
20.

✓ Chart 25. R. S. Cygni
incomplete.
Completed Feb. 8.

R. Hydrae 22°
How make chart. Is there
any D. M. chart or chart of
same scale to piece with 22°

T Scorpii - 22°

Tuesday, Jan. 15, 1901

A.N. 45 164 I do not exactly
understand this sentence ^{con. line?}
I translate

A max. ~~is~~ certainly did not occur
before Dec. 6. It falls, however, in
this time, or indeed only a few
days later.

Should this date be used?
I have not noticed it.

Wednesday, Jan. 16, 1901

A.N. 50 101-102
Re Section.

Only one ^{spot} ~~the~~ is entered in Cat.
the max. Δ 0 at 6 or 7.
The sec. Δ may seem to be hypo-
thetical and have not so far
been noticed.

Jan. 17, 1904.

R Ceti

II k

U Or.

R Comae

V Virg

R Hydrae

Low low

R Her.

T Scorp

Low low

H Her.

R Scygni

Lynnie about
sequence

Wanted

Jan. 25, 1901.
Translation and copy of article
in A. N. 154, 77.
Designation
Concerning a Provisional ~~Notation~~ for New
Variable Stars.

The ever increasing discovery of variable stars makes it appear desirable to introduce an unambiguous and short provisional ~~notation~~ ^{designation} for them, like that in use for Comets and small planets. Therefore from now on the new and the variable stars will be continuously numbered, in the order in which their discovery comes to my knowledge, reckoned from the beginning of the year, and this number together with the constellation of the variable will be used in this Journal until the variability is well enough established for the star to receive a definitive designation according to the usual custom. According to this principle, to which also the Directors of the Astronomical Society have given approval, the following numbers are given to the new and variable stars discovered in 1900 up to the present time. (Nov 20, 1900)

J. Keeler.

Provisional Designation of New
Variable Stars. (cont. on p. 83)

Star No.	Design.	R. A. & Dec (1850)	Authority
1. 1900	Draconis	17° 55' 36" + 54° 51'	Anderson A. N. 3618
2. 1900	Cygni	20 28 10 + 46 6.1	Williams A. N. 3629
3. 1900	Andromedae	0 8 30 + 46 12	Anderson A. N. 3632
4. 1900	Tauri	5 44 6 + 15 45	Anderson A. N. 3634
5. 1900	Crassiokeiae	23 48 24 + 52 55	Anderson A. N. 3634
6. 1900	Tauri	5 30 30 + 26 17.1	Ceraski A. N. 3635
7. 1900	Virginis	13 0 18 - 12 23.2	Schwarzschild A. N. 3636
8. 1900	Virgineae	6 0 54 + 50 14	Anderson A. N. 3642
9. 1900	Cephei	0 28 + 79 33	Ceraski A. N. 3644
10. 1900	Perseus	18 30 55 + 25 55.8	Ceraski A. N. 3650
11. 1900	Aquilae	19 12 57 - 0 24.0	Nov. 1899, Fleming A. N. 3651
12. 1900	Lyrae	18 32 51 + 43 49.6	Williams A. N. 3670
13. 1900	Cygni	19 42 20 + 48 42.8	Hiagen A. N. 3669
14. 1900	Pegasi	22 4 36 + 13 38	Anderson A. N. 3670
15. 1900	Lyrae	18 54 22 + 34 45.5	Williams A. N. 3671
16. 1900	Cygni	20 28 34 + 46 4.2	Schöhl A. N. 3673
17. 1900	Aquilae	19 33 48 + 9 35.4	Anderson A. N. 3673
18. 1900	Pegasi	21 6 15 + 12 12.4	Anderson A. N. 3673
19. 1900	Puppis	7 26 7 - 20 20.3	Innes A. J. 488
Nov. 1900 November 20.			
20. 1900	Cygni	20 59 50 + 28 49.6	A. S. Williams. (A. N. 3678)
21. 1900	Monoc.	6 48 49.13 + 11 25 37.0	Innes Ceraski
22. 1900	Cygni	20 54 45.9 + 42 2.0	A. S. Williams
23. 1900	Androm.	1 31 7.9 + 38 36.3	Anderson.
24. 1900	Aras	17 47 59 - 49 24.6	Innes
25. 1900	Delaware	13 7 21 - 83 27.7	Innes
26. 1900	Puppis	19 17 31.5 + 25 22.9	A. S. Flint A. J. 480
27. 1900	Delaware		Innes. (A. N. 3678)

Jan. 31, 1901

A. G. C. 21805
21806

Should Class

B. A. be placed off. β Scorp.
alone, or both stars?

Feb. 2, 1901

A. N. 66, 224, let I Cauer
"What is the diff. bet Min. &
"des kleinsten Licht"?

Probably
the same.

I do not think I have always made
any diff. that is, sometime I have
written "des kleinsten Licht" when it was stated
that "des kleinsten Licht" ~~was~~ occurred
on a certain date. Are they the same?

March 26, 1901

To ask Mr. Reed -
Whether E. M. 60-70 have
been examined. These nos.
are not down on his card,
I examined 61 and found
that everything seemed to be entered.

Also whether A. J. 13, 14, 15-716
have been examined. They are
not on card. I commenced
to read 13 and found
everything entered.
Examined "13" as far as R Lyrae
p. 39, checked everything up to R
Lyrae, and also checked some
further along, but not in order.

for "Astronomy and Astro-Physics"
been examined? I have read
Vols. 12, 13, and find cards
on β Lyrae already entered.

Perhaps I
examined
of one of letters

Mr. Reed thinks
13, 14, 15, 16, have
been examined, but
they should be
looked up.

+19
April 18, 1902

Charts completed and checked.

R Cor
R Canum Ven.
R Comae Berenices
M Ceti
R. S Cygn
S S Cygn
R Cygni
S Coronae Borealis *g left out*
X Cygni *g left out*
Y Cygni *g left out*
R Ceti *g left out*
M Cygni
S Canis Minoris
R Canceri
S Ceti *Where is b?*
M Virginia *g left out*
S Virginia *g left out*
R Vulpeculae *g not clear - It is the brighter of the two stars (N.P.)*
o Ceti *g left out - to be corrected, also to be corrected p*
T Virginia *g covered by h.*
V Canceri
R Gemmarum
R Leonis
T Andromedae
M Virginia
X Virginia

April 19 to 20 1901

Charts completed & checked - (continued from page 29)

R Virginia

R Laimi & not very distinct. o left out. p left out.

R Scuti

S Serpentina

R Pegase

S Pegase

R Piscium

U Orionis ~~left out~~ is the following of two stars in same dec. do it - distinguish marked?

R Offhand a left out. & looks as if it were star at left but it is star above.

R Orionis Min. f left out.

S Librae

T Hercules

T Hydrae

R Hercules

S Hercules

S Hydrae

U Hercules

W Hercules

R Delphini

R Bootis

S Aquarii p, q, & r all must be changed.

R Aquarii p wrong & q left out

R Arctis

R Andromedae

R Corone Borealis

T Virginia

R Sagittarii Is ~~it~~ quite distinct?

R Draco

April 20 1901

Charts completed & checked (continued)

T Cephei

S Cygni

S Cephei

R Ursae Minors

S Cassiop.

S & T Persae

R Lynce

R Ursa Majoris

S & T Ursa Majoris

S Bootis

R Camelopard -

April 23, 1901

~~11804~~ *Rotation of variable stars*

11901 Cygni 19 28 1.5 +28 0.5

A. S. Williams A. N. 15429

Oct 26, 1901

This record should
be on p. 36. The entries
on pp. 64 & 65 were overlooked
each on p. 36.

Comp. of compiled cat. of var. stars
with card catalogue

2 9.2 +58° 3' Hartwig +

2 10.0 +57 4 or 58° 4' "

These two cards are in cold
cat. I have one - 2 10.0 +58°
but I can not at this moment
find my cards.

Look up.

In card cat. & not in bibliog.

5- 0.9 -35 57 This is among my comp.
card cat. refers to Nat. W. 1457, Vol. 56,
p. 386.

5 Orionis

- Aurigae 6 29.7 +38 31

Backhouse
See obs. Dec. 1900 Nov. 22/

- Puppis 8 7.7 -37 7 No authority
or ref. given.

5 Antares 10 24.9 -30 6 (In my recap.)
8 41.8 -50 11 Range by Gill 2.6-10.0

June 3, 1901

V.J.S. 27, 220.

I am not certain whether Hartog refers to his own determination (max. increase of V Tauri, which he says, reached max. 1892, Oct. 15.

R Aquilae same page.

Is that Hartog's own determination?

Sept 26, 1901

A.T. 13.50 R Muscae ^{R Trig. Aug.} & Per. "
Cards entered by Mr. Reed
What does $2\frac{1}{2}^{\circ}$ E.M.T. mean.
How get the weight?

Oct 26, 1901

Cont. of p. 33
Stars in each col. & work in billing.11^h 53.1 - 55 45 In my susp.

12 4.2 - 44 52 " " "

12 35.5 - 34 1 " " "

Oct. 30, 1901

5732 T. Grmac.

Sp. looked up on I 231.77 - two poor.
probably 3rd type.I 231.05. Type III? No lines distinctly
seen, but there is a slight
appearance of the G band, and
a suspicion of slight breaks at
red end as in III or type stars.

Nov 11, 1901
Received from Mr. Gurnick

500 white
" red
300 Indist
500 yellow
100 "
100 red
200 white
100 red
200 white
100 yellow
" "
" white
" blue
100 red
" yellow
100 Indist
200 yellow
" red
" white
100 blue
200 yellow
" red
100 blue
" white
200 red
" yellow
" white
200 red
200 yellow

Nov. 9, 1901

" 29, "
Apr 1902

Nov 8 "

" " "
Jan 29, 1903

" " "
Apr. 11, "

" " "
" " "
" 15 "

" " "
" " "
Oct. 29 "

" " "
" " "

Feb. 2, 1904

" " "

" " "

Mag 2 "

" " "
Sep 28 "

Conk on
p. 108

April 18, 1902.

Notes on max. & min. of photographic
variables entered in catalogue from
ledgers.

RT Hydrae. $8^h 22^m - 5^h 8^m$ (1855)

Limits $8.00 - 10.09$
One est. gives < 10.5 , but the ^{upper} var
is on extreme edge of plate. See B. 18254.
I have called the limits $8.0 - 10.1$.

γ Centauri $13^h 36^m - 33^h 6^m$ (1900)

Photog. limits $6.5 - 9.2$.
B 23612 repeated measure < 9.5 , since
the var is ^{near edge} ~~far~~ the plate
the photographs.

Tuesday, April 22, 1902

C. D. M. - $30^{\circ}10'79''$ has been looked for on 8 occasions by Jones with 7-inch telescope, but not seen. Thome plates in A. N. 144 238 that it was seen as $93/4$ mag. on Sept. 13, 1887, Oct. 12, 1892, but not seen on Nov. 10, 1887.

To determine whether the neglected star in catalogue, I have looked up the following plates.

B 8731 taken Oct. 6, 1892

" 8732 " " "
 " 4544 " Nov. 2, 1889
 " 17922 " Nov. 3, 1896
 " 24264 " Sept. 30, 1899
 " 26033 " Sept. 5, 1900.

There is no trace of the star on these plates. $30^{\circ}10'22''$ is deep on all of them. If variable it must be of the δ type or SS Cygni type since Thome says it was seen at Cydonia as $93/4$ on Oct. 12, 1892 and it was not phot. on Oct. 6. On most of these plates, stars of the mag. are seen

Wednesday, April 23, 1902

B 8731 ~~is assumed~~ for C. D. M. - $30^{\circ}10'79''$ also shown to Mrs. Fildner. She says that stars of $10\frac{1}{2}$ mag. have been seen near the edge of this plate where as this star should be. Yet there is no trace of - $30^{\circ}10'79''$.

Thursday, May 22, 1902

~~Columbus~~ 061133

C.P.D. - 3302825

Looked upon the foll. plates.

~~B 26543~~

C.P.D. - 32°1066 9.1 are near

" " 1068 9.3

and connect companion stars.

Comp. with - 32°1068 = X

B 26543 Nov. 10, 1900.
X 2 V

B 17680 Oct. 13, 1896
X 2 V

B 12493 Nov. 10, 1894
V 1 X

B 10696
X 1 V

B 14890 Oct. 17, 1895
V - X

May 22, 1902

7179 D

V 2 X

Trail.

7141 D

V 1 X

Trail.

B 20633

V 2-3 X

Oct. 14, 1897.

Plate scratched, but not in region.

B 4627

X 5 V

Nov. 13, 1889.

Var. much fainter than on
other plates so far examined.
This plate alone certainly
confirms variation.

B 22207

X 2 V

Nov. 11, 1888.

B 27273

~~V 2 X~~

V 2 X

Apr. 26, 1901.

B 26543

X 2 V

Taken Nov. 10, 1900.

Tuesday, Sept. 30, 1902

Epochs of var. stars

f Cephei. obs. at max. by Abtating

1900 June 29

J.D. 2415200

1901 June 0

2415536

J.D. 24155200 assumed as Ep

Elements 2415200 + 336

9^m 1859 Jan. 7 2400052
1901 Dec. 21 5740

f Androm.

217.9) 5688.00 (26.10
4358
13300
13074
2260
2179
810

217.9
26
13074
4358
5665.4
5740
0074.6
5740
217.9
6537
5740
50863
5086 + 217.9

max. 2400074.6
52
22.6

Sept. 30, 1902.

4898
27
4927.0

SZ Cephei
5021
4921
90

8
0 4931.6
11 5097.564
44 5595.336

497.772

15084
33
45252
45252
497.772

15084
15084
165924
5097.564
4931.640

15084
60356

4931.640 + 15084 E.
56 5022.144 + 15084 S

4931.640
15084
15084
5097.564

4931.640
60356
60356
60356
5595.336

4931.640
60356
60356
60356
5595.336

	R	S	T	U	Z
Anderson					
"	R				
"	S				
"	T				
"	U				
"	Z				

15084
90504
4931.640
5022.144

Thursday, Oct. 2, 1902

Elements.

R. Fornaris

Hartwig in *V. J. S.* 32, 189, says
period is probably 386 d, but
gives no data from which
his elements are deduced. Begins
date of max., for 1898 Apr. 6.

$$\begin{array}{r}
 1898 \text{ Apr. 6} \quad 241\,4386 \\
 \quad \quad \quad 386 \\
 \hline
 \quad \quad \quad 4772 \quad 1899 \\
 \quad \quad \quad 386 \\
 \hline
 \quad \quad \quad 5158 \quad 1900
 \end{array}$$

Assumed as Epoch, according
to Prof. Pickering's division of
Oct. 1, 1902.

Saturday Oct. 4, 1902

Elements ^{for} *Aurigae*

In max Oct, 1899 Hartwig

$$5824 \quad 1902 \text{ Feb. 15}$$

$$5236 \quad 1900 \text{ Aug. 4}$$

$$\begin{array}{r}
 4948 \\
 \hline
 2934 \quad 1899 \text{ Oct. 14?}
 \end{array}$$

$$\begin{array}{r}
 4648 \\
 \hline
 294 = \text{Period}
 \end{array}$$

$$\text{Elements} = 241\,5236 + 294 \text{ d}$$

Hartwig

$$\begin{array}{r}
 4648 \\
 294 \\
 \hline
 4942 \\
 294 \\
 \hline
 5236
 \end{array}$$

Oct. 4, 1902.

Elements R. Columbae.

$$2415\overset{188}{\cancel{18}}$$

1900 June 17

$$\begin{array}{r} 4855 \\ 333 \\ \hline \end{array}$$

1899 July 19

$$\begin{array}{r} 5854 \\ \hline \end{array}$$

1902 Apr. 14

$$\begin{array}{r} \cancel{5854} \\ \cancel{5218} \\ \hline 2) \cancel{636} \\ \hline 318 \end{array}$$

$$\begin{array}{r} 5854 \\ 5188 \\ \hline 2) 666 \\ \hline 333 \end{array}$$

$$\begin{aligned} \text{Epoch } -6 &= 1894 \text{ Dec. 27 Harting obs. may} \\ &= 2413190 \\ 333 \times 6 &= \begin{array}{r} 1998 \\ 5188 \end{array} \end{aligned}$$

$$\text{Elements} = \text{J.D. } 2415188 + 333$$

Oct. 4, 1902.

$$\begin{array}{r} 2416011 \\ 356 \\ \hline \end{array} \quad 1902$$

$$\begin{array}{r} 5655 \\ 356 \\ \hline \end{array} \quad 1901$$

$$\begin{array}{r} 299 \\ 356 \\ \hline \end{array} \quad 1900 \text{ Oct. 6}$$

$$\begin{array}{r} 943 \\ \hline \end{array} \quad 1899 \text{ Oct. 15}$$

Oct. 6, 1902

Elements of Pumi Ch. 1205

1902 July 31

(1) Max. 1901 April 15 Williams 241 5490
 (2) " Dec. 7 (Harting) 5726
 236

Min. 1901 Aug. 20 Williams 5726
 5617
 2) 236
 118

$$\begin{array}{r} 5726 \\ 236 \\ \hline 5962 \end{array} = 1902 \text{ July } 31$$

$$\text{Elements} = 2415204 + 236$$

$$\begin{array}{r} 2415204 \\ 236 \\ \hline 5490 \\ 236 \\ \hline 5726 \\ 236 \\ \hline 5962 \end{array}$$

$$\begin{array}{r} 5490 \\ 236 \\ \hline 5726 \\ 236 \\ \hline 6018 \end{array}$$

Oct. 6, 1902

Elements of Lynceis Ch. 2376

Harting gives in 1902 Eplur.

1902 Oct 4 as dato max. 6027

1900 May 4

$$\begin{array}{r} 5144 \\ 3) 783 \\ \hline 261 \end{array}$$

1901 Feb 23

5439

" Dec. 15

5434

1900 May 4

295

5144

$$\begin{array}{r} 2) 618 \\ 309 \end{array}$$

5439

$$\begin{array}{r} 140 \\ 295d \end{array}$$

6027

$$\begin{array}{r} 5734 \\ 293 \end{array}$$

Max. 14564 J.A.P.

$$\begin{array}{r} 4854 \\ 290 \end{array}$$

$$\text{Elements} = 5147 + 293$$

$$\begin{array}{r} 4854 \\ 293 \\ \hline 5147 + 293 \end{array}$$

$$\begin{array}{r} 5147 \\ 293 \\ \hline 5440 \\ 293 \\ \hline 5733 \\ 293 \\ \hline 6026 \end{array}$$

Oct 6, 1902.

Elements X Gem.

Obs. 2414750 Hactirij
 " 4754 J.A.P.

Ephemis Aug. 26 1900 5258 254
 May 7, 1901 5572 254
 Jan. 16 1902 5766 254
 Sept 27 " 6020 254

$$\begin{array}{r} 5293 \\ 27 \\ \hline 6020 \end{array}$$

Elements 2415258 + 254

$$\begin{array}{r} 254 \\ \hline 5004 \\ 254 \\ \hline 4750 \end{array}$$

Oct 6, 1902.

Elements of Z Puppis. cl. 2690.

Ephemis 1902 May. Sept 20. 6013
 1901 May 4 5509

$$\begin{array}{r} 509 \\ \hline 504 \end{array}$$

1900 Feb 26 (star bright) Hactirij

$$\begin{array}{r} 5077 \\ 509 \\ \hline 4568 \end{array}$$

Elements 2415509 + 503

Ep.-1
$$\begin{array}{r} 5006 \\ 503 \\ \hline 4503 \end{array}$$

 -2
$$\begin{array}{r} 4503 \\ 503 \\ \hline 4000 \end{array}$$

 -3

Oct. 6, 1902

Elements RR Hydrae Ch. 8482.

May. 1878 June 30 Hartwig

$$\begin{array}{r}
 1897 \text{ June } 16. \quad 2414822 \\
 \quad \quad \quad 4491 \\
 \hline
 \begin{array}{r}
 806 \\
 16 \\
 \hline
 4822
 \end{array}
 \quad \quad \quad
 \begin{array}{r}
 2414822 \\
 4491 \\
 \hline
 351
 \end{array}
 \end{array}$$

$$\begin{array}{rcl}
 1901 \text{ May } 17 & 5522 & \\
 1900 \text{ June } 1 & 5172 & 350 \\
 1902 \text{ May } 2 & 5872 & 351
 \end{array}$$

$$\begin{array}{r}
 \text{Elements f. D. } 2415172 + 350 \\
 \quad \quad \quad 350 \\
 \hline
 = -1 \quad 4822 \quad \text{obs. by Hartwig}
 \end{array}$$

$$\begin{array}{r}
 \text{C.D.M. } -42^{\circ}845 \\
 2 \quad 27.4 \quad -41.54 \\
 \quad \quad \quad (1900) \\
 \hline
 B24090 \quad 22165 \text{ m. } \text{seen} \\
 \quad \quad \quad 23801 \quad 12608 \text{ " " } \\
 \quad \quad \quad 22165 \\
 \hline
 \text{C.D.M. } -28^{\circ}1162 \\
 3 \quad 25.4 \quad -28.45 \\
 \quad \quad \quad (1900) \\
 \hline
 B22353 \quad \text{not seen} \\
 \quad \quad \quad 21223 \\
 \quad \quad \quad 24457 \quad \text{Sp. seen from} \\
 \quad \quad \quad 20248 \quad \text{not seen} \\
 \quad \quad \quad 12397 \quad \text{" " }
 \end{array}$$

Tuesday, Oct. 15, 1902

3.3 max.
3.3 min
4.2 min

2 Lami

2x - 3.2

3 Pussio

2.1 - 3.2

Harvard measure
I max. & min
Magn's given
me by Prof.
Pickering.

C.D.M. 42.3541 44.0 - 42.12

7 45.0 - 42.16 (1900)
(2 good plates)
Please mark on sp. plate.

B 12659 ✓

~~12659~~
18559 ✓

B & A

A.J.-C's ches.

Roberts'
suspected
variable.

Thursday, Oct 23, 1902

P Epoch of R.U. Hydraz Ch. 5075.

Inner pairs β - 345, and says it sets
Cape obs. 4 Argemone but gives
residual of -82 for Cordoba
max.

Cordoba max. = 2597530

$$\frac{4512}{5202} = 1900$$

$$\begin{array}{r} 345 \\ 82 \\ \hline 07612 \\ 6900 \\ \hline 6900 \\ 4512 \\ \hline 1383 \\ 5892 = 1982 \text{ Nov } 22 \end{array}$$

Elements = 2415202 + 345 (Janes)

$$\begin{array}{r} 2415202 \quad (0) \\ 6900 \\ \hline 08382 \quad (-20) \\ 1035 \\ \hline 7267 \quad (-22) \\ 345 \\ \hline 7312 \quad (-22) \end{array}$$

obs. = 7530 $0 - C = -82$

Friday, Oct. 24, 1902

RT Lihue.
Elements taken from Hacton's ephemeris
in V.T.S. years, 1899-1902.

These elements agree with H.M.P.'s
observations except in case of
epoch - 2, where the residual is
+133.

R. Normae Elements.

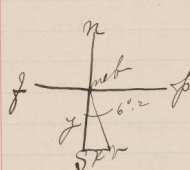
1897 Sept. 7 chief max. 4175
4680
1899 Jan. 25 " " 505

4680
510
5190 June 19, 1900
5180
5700 Nov. 11, 1901
5100
6210 Apr. 5, 1903.

5400
255
5655

Thursday, Oct. 30, 1902

Low new rays in neb. N. G. C. 7023
see A.S.P. Vol. 14, 167.



$$\begin{array}{rcl} A & 6.2 & 107.1 \\ B & 138.6 & 87.4 \\ \sin 6.2 = \frac{f}{107.1} \end{array}$$

$$\cos 6.2 = \frac{f}{107.1}$$

$$f = 107.1 \cos 6.2$$

$$f = 1' 56'' 48$$

$$f = 107.1 \sin 6.2$$

$$f = 11.5668$$

$$D'' = 15 D \cos \theta$$

$$D'' = 15 \cos \theta$$

$$15 \cos 67.25' 42.7''$$

$$D'' = D'' = 11.5668$$

$$15 \cos 67.25' 42.7''$$

$$\frac{11.6}{13.8} = 0.804$$

$$\begin{array}{rcl} \text{N. G. C.} & = & 20^{\circ} 59' 51.2'' \\ & & 30.8 \\ \text{neb (1900)} & & 21.0 \quad 21.8 \\ & & 0.8 \\ \text{var } '' & & 21.0 \quad 21.0 \end{array}$$

$$\begin{array}{rcl} & +67 & 26 \quad 42 \\ & & 5-7.2 \\ 67 & 27 & 39.2 \\ & 1 & 56.5 \\ 67 & 25 & 42.7 \end{array}$$

Friday, Nov. 7, 1902

Readings from curves plotted from Angelauder's obs. Vol. 33.
o Ceti

339	40	2724	2860	272	5.5	3755	"	"	3.5	6350	"	"
4.5	2735	2863	286	6.0	3764	"	"	4.0	6361	"	"	
5.0	2747	"	"	6.5	3773	"	"	4.5	6371	6510	278	
5.5	2757	3039	3039	3.5	4065	"	"	5.0	6380	6508	257	
4.0	2996	3035	407	4.0	4080	"	"	5.5	6388	6508	240	
3.5	3001	3034	65	4.5	4084	"	"	6.0	6400	6512	223	
3.0	3005	3029	47	3.5	5314	5327	30	6.5	6412	"	"	
2.5	3012	3026	26	3.5	5344	5482	277	6.0	6623	6613	19	
2.5	3038	"	"	5.0	5612	"	"	5.5	6628	6613	19	
3.0	3052	"	"	4.5	5614	"	"	5.0	6637	6619	12	
3.5	3066	"	"	4.0	5617	5667	100	4.5	6649	6667	37	
4.0	3075	3214	278	3.5	5622	5662	83	4.5	6686	"	"	
4.5	3087	3216	257	3.0	5628	5659	62	4.0	8949	"	"	
5.0	3096	3217	242	3.0	5680	"	"	4.0	8958	"	"	
5.5	3106	3219	226	3.5	5704	"	"	3.5	8964	8992	55	
6.0	3326	"	"	4.0	5717	"	"	3.0	8978	8992	26	
5.5	3332	"	"	5.0	5768	5789	42	3.5	9019	9169	279	
5.0	3347	3380	84	4.5	5777	5786	18	4.5	9140	9340	91	
4.5	3344	3378	68	4.5	5788	6142	292	4.0	9307	9341	67	
4.0	3353	3373	41	4.0	6004	"	"	3.5	9318	9342	45	
3.5	3394	"	"	5.5	6034	"	"	3.5	9363	"	"	
4.5	3412	"	"	6.0	6049	"	"	4.0	9374	"	"	
5.0	3422	"	"	6.5	6060	"	"	4.5	9385	"	"	
4.0	3718	3698	41	4.5	6288	6330	83	4.5	9628	9679	82	
4.5	3733	3699	68	4.0	6293	6329	68	3.5	9638	9678	863	
5.0	3744	3702	54	3.5	6304	6327	46	3.0	9658	9676	37	

Nov. 21, 1902

o Ceti (Cont.) Angelauder's obs.

5.5	2403932		
5.0	3940		
4.5	3949	3974	50
4.0	3962	3970	16
4.0	3978		
4.5	3999		
4.5	4259	4305	92
4.0	4275	4308	67
3.5	4310	4318	15
3.5	4325		
4.0	4342		
4.5	4351		
5.0	9962	0002	81
4.5	9965	9989	68
4.0	9968	9996	57
3.5	9978	9995	34
3.5	0012	0158	292
4.0	0025	0162	274
4.5	0033	0164	262
5.0	0043	0167	248
5.5	0056	"	"
5.0	0291	"	"
4.5	0295	0335	81
4.0	0299	0335	72
3.5	0304	0333	58
3.0	0320	0328	18
3.0	0334		
3.5	0362		
4.0	0371		
4.5	0376		

Dec. 13, 1902

X Cygni

8			
7.5			
8.0			
7.5			
7.0			
6.5			
6.0			
5.5			
5.0			
4.5	9667	9686	38
4.0	9675	9680	10
4.0	9685		
4.5	9705		

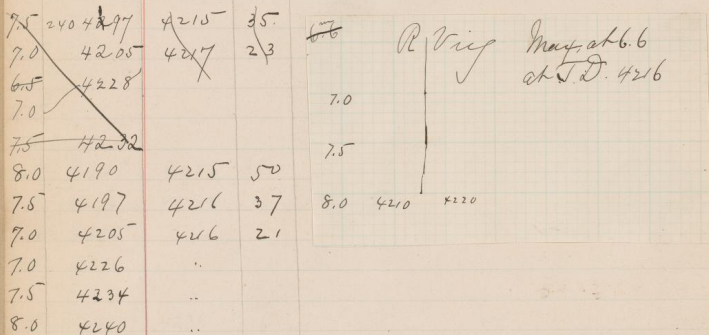
Max. at 4.0^m
J.D. 9680

7.5	4404179	4231	105
7.0	4180	4227	95
6.5	4182	4222	85
6.0	4188	4222	69
5.5	4196	4222	53
5.0	4212	4222	21
5.0	4233		
5.5	4249		
6.0	4257		
6.5	4267		
7.0	4285		
7.5	4284		

Max. at 4.9^m
J.D. 4222

Dec 17, 1902

P. Virginia.

Reduction of the obs. for which dates
I may once not given by Agelander.

mag. 6.3

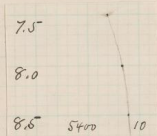
with May. assumed at J.D. 240 4500, assuming
side only of curve observed.
See plotted obs. p. 2.

Dec. 18, 1902
Min. of R. Virg. not deduced by
Agelander.

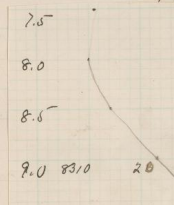
7.5	239 5352	5404	105
8.0	5369	5407	77
8.5	5388	5408	40
8.5	5428		
8.0	5446		
7.5	5457		

Minimum at P. 6.5
J.D. 5408

Ag. gives no date.

Min. at 9.3
J.D. 8326.

7.5	8206	8311	110
8.0	8265	8310	90
8.5	8278	8314	72
9.0	8300	8323	46
9.0	8346		
8.5	8350		
8.0	8355		
7.5	8366		

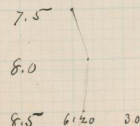


- gives 8324

7.5	6070	6120	101
8.0	6078	6123	89
8.5	6087	6122	71
9.0	"		
8.0	"		
8.5	6158		
8.0	6167		
7.5	6171		

Min. at 9.3
J.D. 6118

Ag. gives no date.



Dec. 19, 1902

Angelander's obs. of R Virginis on Dec. 23, 1870 seems to be in error, see plotted obs. of R Virg. sheet 25. The star evidently was much fainter. The deduced magn. is 5.7, brighter than any obs. mag., whereas the date J.D. 2404420 is only 80 days before an obs. mag. 4.500 from Angelander's observations and 44.95 from Schörfeld's. From the curve, it appears that the var. must have been 8^m or less on Dec. 23, 1870.

The original observation as given in Prof. Pickering's copy of Angelander's obs. later than Ann. Reed 7, is

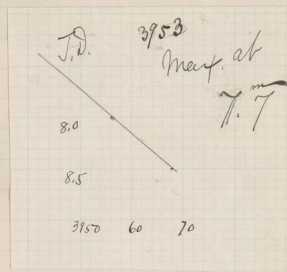
m d'1 R R 2f full time d'1 d', d'2f

Is this an error of identification by Angelander?

Feb. 2, 1903

R Pegasus. Reduction of two of Angelander's mags. for which he gives no plates, from curve plottings Vol. 33.

8		
8.5	3925	3968
8.6	3940	3956
8.0	3972	
8.5	4011	



Feb. 2, 1903.

R. Bootes, Max. from obs. in
Vol. 33, but not given by Ayclander.

7.5	3846	3860	27
7.0			
7.5	3873		
8.0	3892		
7.2	3852	3856	
7.2	3861		

8.0	4252	4296	88
8.5	4260	4296	72
8.0	4268	4295	54
7.5	4283	4297	37
7.5	4310		
8.0	4322		
8.5	4332		
9.0	4340		

7.5		
8.0		
8.5		
9.0	4298	4300

Max. at 7.1
J.D. 3855

7.0

7.5 3850 60

Max. at 7.4
J.D. 4298

May 8, 1903

*S. Sculptoris. To derive dates of mag.
from photographic observations.*

10.0	24/3031	3138	214	8.5	3481	3528	93	205	3918	4061	291
9.5	3047	3135	183	8.0	3491	3524	66	8.0	3928	4062	273
9.0	3066	3135	178	7.5	3499	3519	40	8.5	3927	4064	251
8.5	3083	3141	116	7.5	3538	3611	304	9.0	3957	4067	230
8.0	3104	3143	78	8.0	3557	3644	274	9.5	3968	4070	205
7.5	3125	3145	41	8.5	3578	3696	243	10.0	3983	4072	179
7.0	3166	3332	373	9.0	3588	3695	218	10.5	4003	4076	153
8.0	3182	3336	375	9.5	3602	3696	188	11.0	4022	4078	127
8.5	3199	3340	282	10.0	3618	3696	157	11.5	4039	4085	97
9.0	3220	3340	258	10.5	3640	3702	123	12.0	4058	4094	72
9.5	3230	3345	230	11.0	3660	3706	92	12.5	4076	4103	49
10.0	3245	3348	201	11.5	3683	3713	57	13.0	4094	4103	19
10.5	3262	3345	166	12.0	3709	3715	13	12.0	4130		
11.0	3277	3343	132	12.0	3722	"	"	11.5	4138		
11.5	3294	3341	94	11.5	3742	3890	297	11.0	4146		
12.0	3308	3340	64	11.0	3752	3887	270	10.5	4153		
12.5	3326	3342	33	10.5	3763	3886	240	10.0	4162		
12.5	3359	"	"	10.0	3775	3879	208	9.5	4173		
12.0	3372	3540	337	9.5	3790	3880	179	9.0	4182		
11.5	3388	3536	295	9.0	3804	3878	147	8.5	4190	4251	122
11.0	3409	3534.5	251	8.5	3817	3878	124	8.0	4199	4246	95
10.5	3428	3534	217	8.0	3831	3880	98	7.5	4207	4245	75
10.0	3440	3532	177	7.5	3843	3880	75	7.0	4220	4245	51
9.5	3460	3531	142	7.0	3854	3874	51				75
9.0	3472	3528	114	7.0	3901	4047	216				

May 8, 1903

S. Sculptoris
Dates derived from preceding

May	J. D.	3148	at 7.2	Fleming
"	"	3516	at 7.2	Breslin + Hall
"	"	3878	at 6.6	" " "
"	"	4245	at 6.5	Breslin
Min	J. D.	3343	at 12.7	Fleming
"	"	3715	" 12.6	Breslin + Hall
"	"	4103	" 12.5	" " "
Max	J. D.	1314	mag. 7.4	Fleming
May	J. D.	4608	mag. 6.6	Breslin
"	"	4995	" 7.1	"

Wednesday, May 13, 1913

S. Lucaniae. Measures of brightness.

B 17466
 ✓ h r $\frac{10.53}{10.48}$
 r 3 h $\frac{10.50}{10.50}$

B 17571
 ✓ h 3 r $\frac{10.73}{10.68}$
 r 1 h $\frac{10.70}{10.70}$

B 17229
 ✓ r 3 c $\frac{9.44}{9.29}$
 r 4 f $\frac{9.36}{9.36}$

B 16212
 ✓ r 3 g $\frac{10.11}{10.13}$
 r 3 h $\frac{10.12}{10.12}$

B 17376
 f 3, 2 g $\frac{9.99}{9.91}$
 $\frac{9.95}{9.95}$

B 16620
 c 2, 2 d $\frac{9.12}{9.04}$
 $\frac{9.18}{9.18}$

✓ B 17074
 d 1, 2 e $\frac{9.34}{9.24}$
 $\frac{9.29}{9.29}$

May 13, 1913

B 16425
 c 3, 1 f $\frac{9.74}{9.79}$
 $\frac{9.76}{9.76}$

B 15993
 c 1 r $\frac{11.18}{10.93}$
 r 3 m $\frac{11.06}{11.06}$
 (defect near m)

B 21635 Region of plate

B 21656
 h 5, 1 c

B 21730
 c 2, 2 d

B 21813
 c 3, 1 d

B 21854
 c 2, 2 d

B 24487
 c 3, 1 d

May 13, 1903

B 24488
c2, 2dA 3294
gr, 1h

B 21585

c3r

r1d (Same as B 21585, also made by
Miss Leland as a check)

B 20862

c1r

r2f

B 20578

g2-3r

r=h

B 20687

c3, 1d

May 13, 1903

B 20798

d1, 3e

B 20706

c4r

r=d

B 24123

h3r

v2k

Monday, May 18, 1903
Exam. of plates of SS Cygni

F 2068 ^{Sp}
Corr plate.
var. not seen
I seen

c not seen
I think the var. could be seen
if it had been 1 grade fainter
than d.

F 2257
Repr. on extreme edge of plate.
var. not seen
 $\delta = 0.1$
h not seen.

F 85 var. on extreme edge of plate.
d not on plate. var. is fainter than
c and brighter than e.

F 86 var. on extreme edge of plate. It
is much brighter than d. Brightest comp.
stars (C, b, a) are not on the plate.
F 85 + F 86 were taken on same night. I may therefore
be assumed that SS was bet. c & d and nearest c.

Thursday, June 4, 1903

U. Pucci. Readings to get maxima
minima from photographic curves.

Repeat
Read to
see free
from

Reading	Mean	Diff.	R	Reading	Mean	Diff.	Reading	Mean	Diff.
9.5	1717			10.0	2673	2763 179	10.0	3637	3731 188
10.0	1746	1823 154		10.5	2712	2774 123	10.5	3665	3729 128
10.5	1764	1817 106		11.0	2750	2780 60	11.0	3678	3724 92
11.0	1780	1814 69		11.0	2810		11.2	3685	3721 73
11.0	1849	1973 249		10.8	2835		11.2	3758	" "
10.5	1870	1970 200		10.0	2852		11.0	3770	3872 243
10.0	1900	1986 133		9.5	2890		10.5	3793	3891 196
10.0	2033	2137 207					10.0	3825	3893 187
10.5	2070	2140 140					9.8	3844	3894 101
11.0	2098	2146 94					9.8	3945	3944 198
11.0	2192	2306 228		11.0	3125	3240 230	10.0	3962	4045 166
10.5	2210	2305 190		10.5	3142	3238 193	10.5	3989	4049 121
10.0	2240	2308 136		10.0	3160	3238 188	11.0	4013	4055 83
9.8	2248	2308 108		9.8	3171	3237 133	11.0	4096	4214 237
9.8	2263	2344 171		9.8	3304	3401 194	10.5	4110	4213 206
10.0	2276	2453 184		10.0	3315	3396 162	10.0	4128	4209 162
10.5	2400	2459 118		10.5	3335	3381 43	9.8	4143	4207 128
11.0	2420	2464 88		11.0	3355	3393 75	9.8	4271	
11.2	2430	2465 70		11.2	3367	3396 58	10.0	4290	
11.2	2550	" "		11.2	3425	3555 260	10.5	4316	
11.0	2508	2629 242		11.0	3438	3554 248	11.0	4333	
10.5	2618	2615 194		10.5	3448	3556 117			
10.0	2630	2602 143		10.0	3477	3557 160			
12.5	2534	2596 124		9.8	3498	3558 120			
9.8	2658			9.8	3618	3731 226			

June 6, 1903

U. Pucini

Readings from curves plotted on larger
scaled paper. $1 \text{ div.} = 10^2$ instead of 20 as
on preceding pages

Cont. from ruled paper.

11.2	2111				
11.2	2155				
11.0	2192	2304	225		
10.5	2206	2294	181		
10.0	2224	2294	181		
9.8	2237	2294	182		
9.6	2242	2292	181		
9.6	2348				
9.8	2354				
10.0	64	2446	164		
10.5	87	54	134		
11.0	2417	61	88		
11.2	2428	62	67		
11.2	95				
10.0	2505		239		
10.5	2521				
10.0	2528	2614	172		
9.8	2532	2617	160		
9.6	2540	2610	140		
9.6	2680	2782	205		
9.8	2692	2780	177		
10.0	2750	2778	185		
10.5	2712	2774	125		
11.0	2735	2776	82		
11.0	2817	2931	228		
10.5	2837	2927	180		
10.0	2855	2927	144		
9.8	2869	2924	110		
9.6	2885				
9.6					
9.8	2979				
10.0	2999				
10.5	3017				
11.0	3045				
...	...				
11.0	3136	3235	210		
10.5	3152	3238	172		
10.0	3171	3237	131		
9.8	3180	3234	109		
9.8	3289	3395	211		
10.0	3302	3394	183		
10.5	3324	3394	129		
11.0	3340	3390	100		

U. Pucini (cont.)

11.2	3348	3388	81		
11.2	3429	3559	256		
11.0	3440	3559	238		
10.5	3483	3563	199		
10.0	3485	3560	150		
9.8	3500	3560	126		
9.8	3620	3738	205		
10.0	3635	3736	202		
10.5	3662	3734	144		
11.0	3678	3730	105		
11.2	3685	3730	89		
11.2	3774	3898	249		
11.0	3783	3898	230		
10.5	3806	3901	187		
10.0	3837	3901	155		
9.8	3855	3907	103		
9.8	3958	4047	178		
10.0	3972	4047	150		
10.5	3995	4051	113		
11.0	4013	55	83		
11.2	4023	58	69		
11.2	4092				
11.0	4096	4209	226		
10.5	4108	4206	186		
10.0	4122	4210	175		
9.8	4136	4210	129		
9.8	4265				
10.0	4283				
10.5	4307				
11.0	4328				

Proximal Designations Var. Stars
cont. from p. 25.

28. 1900

29. 1900

T Apollis

Lunes.

Proximal Designations for (Kendall)
~~subgroup 25~~

1. 1901	T ⁴ Cypri	Williams
2. 1901	T ¹² Cypri	
3. 1901	W ¹ Cypri	Auderson
4. 1901	R Chamael.	Fleming
5. 1901	R W Carmie	
6. 1901	X Vel.	Bells.
7. 1901	N Antares	Bells
8. 1901	R X Carmie	Pickering
9. 1901	R W Cent.	Bells
10. 1901	R Y Virg.	
11. 1901	R W Cent. Lupi	Fleming
12. 1901	N Lupi	Pickering
13. 1901	R Carina	Fleming
14. 1901	V Norma	"
15. 1901	N Norma	"
16. 1901	X Norma	"
17. 1901	V Laniaud.	"
18. 1901	S W Serpis	"
19. 1901	SX "	"
20. 1901	RS Ophiuchi	"
21.	V Arae	"
22.	N "	"
23.	N Cor. Austr.	
24.	S Arae	(Cat)
25.	X Cor. Austr.	Fleming
26.	T Scherf.	
27.	SS Sagittarii	
28.	S Shuti	R

29. 1901	T Scuti	Fleming
30.	ST Sag.	"
31.	SH "	"
32.	U Telaeus	"
33.	V "	"
34.	R R Lyrae	"
35.	V Telaeus	"
36.	X "	"
37.	Y "	"
38. (all)	R W Cypri	" Calen Fleming
39.	RT Cygni	Fleming
40.	T Puc. Cent.	"
41.	Z Androm.	"
42.	Z Pegasi	"
43.		
44.		
45.		
46.		
47.		
48.		
49.		
50.	- Lynx or 2046	Fleming
51.		
52.	R V Lyrae	Fleming.
53.		
54.		
55.		
56.		
57.		

Provisional Designations of Variables
(cont.)

58.1901					
59.					
60.					
61					
62					
63					
64					
65					
66	R. H. Apertii				Shenig
67.	J. Bucci				Milliano
68.	R. R. Anderson				Anderson
70.	T. W. M. J.				
71.	J. A. J. J.				Milliano
72.	R. S. L. J.				Cerachi
73.	H. Scute				Cerachi
74	J. Bucci				Leitch, A. N. 157, 377
75.	36 "				Dickmiller " " 377
76.					
77.	SS Hercules				Anderson
78.	H. W. Cygni				Milliano
79.1901	- Anderson 23 4 2				Dickmiller A. N. 157, 31
80.	- Orinis 5 22.4				Dickmiller A. N. 157, 83
81.	- Orinis 5 26.6				" " "
82.	- Orinis 5 28.3				" " "
83.	- Orinis 5 28.4				" " "
84.	- Orinis 5 28.8				" " "
85.	- Orinis 5 29.1				" " "
86.	- Orinis 5 32.5				" " "

		R. A. (1855)	Dec. (1855)		
87.1901	- Orinis	5 33.2	- 5 29	href	A. N. 157, 83
88.	- Orinis	5 40.3	- 6 15	"	" " "
89.	- Orinis	5 41.1	- 5 44	"	" " "
90.	- Laure	3 25.1	+ 23 1	href	A. N. 157, 84
91.					
92					
93.	H. Sagittae			Schub	

Provisional Designations for Stars. (cont.)

R.A. 1855 Dec. 1855

1. 1902	U 4 Cygni				Williams	
2.						
3.	- Monoceros	6 50 37.4	+6 21.4	Ceacchi	A.N. 158, 111	
4	- Gem.	7 32.6	+20 45.3	"	" " 221	
5.	R ⁿ T Lyrae			Williams		
6.						
7.						
8.						
9.						
10.	U 2 Cygni			Flaming		
11.	R U Lyrae					
12.	R S Pegasi			Gaff		
13.	R V Lyrae			Williams		
14	- Rucii	2 30 50	+41 34.3	Williams	A.N. 155 ¹⁶⁰ , 63	
15.	- Delphinus	20 34 43	+11 21.2	Anderson	" 160, 77	
16.	- Delphinus	20 25 57.5	+16 57.2	Ceacchi	A.N. 160, 255	
17.	- Lyrae	18 40 45	+43 27.2	Williams	A.N. 160, 301	
18.	U Coronae	16 ^{10.3} _{11.7}	+38 ⁴⁸ ₄₈	Anderson	A.N. 160, 271	
19.	- Pegasi	21 ^{57.8} ₅₇ 49	+34 ²⁵ ₃₈	Anderson	" " "	
20.	- Cygni	21 02 45		Ceacchi	A.N. 160, 303	
21	- Sagittae	20 13 47	+21 39.0	Ceacchi	A.N. 160, 345	

Oct. 29, 1903

X Iron.

This variable appears to combine
a well-marked ^{and} spectrum
with irregular variation and
deserves careful study.

Spectrum plates

I 692 No bright lines seen. Sp.
not very clear.

I 2207 No bright lines. Type of
Sp. not clearly defined.
Beylinian bet. 2 & 7.

I 2390 No bright lines. Image on
edge of plate. Bet. 2 & 7.

I 2392 No bright lines. A mere blotch.
Not much br. than f.

I 7533 Too poor.

I 2441 No bright lines distinctly seen.
There may be ft. traces of H β .
H δ
Sp. Beylinian bet. 2 & 7.

Oct. 29, 1903

X Iron
I 3241 Sp
L 42
V 1 e

Sp. No bright lines seen. On edge
of frame plate.

B 8997
Too faint.

B 12672
Var. of film.

B 15245 St. 2198.

Sp. seems to show 3rd type
weak in red, but no
bright lines.
Beylinian bet. 2 & 7.

B 20679 Hyd. lines bright
B 20680 " " "

B 20801 " " "

B 20895 Beautiful spectrum H γ zone
H δ bright.

Oct. 29, 1903.

X mmre. (cont.)
 I 22322 In bright lines
 Brightness bit d & e?

B24340 Not in box

B18415 Hf + H δ bright. Bands clear
 seen in red.

B24746.

Sp. banded.

Not to line at Hf and H δ .
 Comparing star & photos the
 bands but not the brightness
 at Hf and H δ .

At present time, I can not make anything
 out of this variation but irregularity. More
 material might show it to have a rather
 short period. I have gone over the photoprof.
 observations quite carefully and have
 checked all apparently doubtful points.
 There may be some doubt as to the reality
 of the slight variations, such as shown
 from J.D. 2414200 to 4400, for the images

Oct. 29, 1903.

Cont. of preceding page

are bright and therefore have estimates
 but the declines in brightness at J.D.
 2413580 and 3890 are real for
 also at 2410930, 1405, 2939 and
 5309.

Approx. dates of min.

	Decl.	Diff.	
(1) 2410930	0 150	470	3 + 20
(3) 1400	+20	1540	10 + 40
2940	-40	640	4 + 40
3580	+100	310	2 + 10
3890	-40	1410	9 + 60
5300	+20		

A period of 150 days is assumed
 2410930 + 150 days for epoch of min.
 gives residuals above the min.

The observation on J.D. 3490 seems to
 make the above assumption untenable, since
 by this formula, the variable should
 have been at minimum where the obs.
 shows it was really above bright-
 ness 9.0 mag. and at about mag.
 brightness.

Monday, Nov. 9, 1903

In looking at variables 174305, -
 Can. min. of this morning, noticed
 that a star near by, whose apparent
 magnitude is 23916 than in
 B 379.

The following plates were examined.

B 27235	star bright
J 14799	" " -
J 14647	" " -
J 28285	" " -
J 21351	" " -
J 23850	" " -
J 5683	" " -
J 22544	" " -
J 5765	" " -
J 384	" " -
J 30026	" " -
J 848	" " -
J 24719	" " -
J 22431	" " appears fainter than normal?
J 21630	" " appears fainter
J 24175	" " -
J 24317	" " -
J 24487	" " -
J 20404	" " -

Nov. 9, 1903
 Cont. of preceding
 J 20207 star bright

The variation does not appear to be
 confirmed. It may be an effect.

Feb. 4, 1905. Plate 23916 was looked up
 again and the apparent faintness of
 the suspected star is due to a
 brighter companion which was taken
 for the star above the suspected
 making the latter appear faint by comparison.

Dec. 15, 1904
 L.B. cards received from Mr. Lerrick for Billing
 200 white
 200 yellow
 200 yellow
 200 white
 100 Index cards

Dec. 14, 1904

" " "
 Feb. 27, 1905

Feb 27 " "

" " "

Saturday, Jan. 27, 1905, 22^h

S. Lewis Min. Sp. Mid

I 5666 Feb. 15, 1892.

Min.

DM + 35° 2074 is fully a
mag. higher than var.

est = 10.8

Conf. class. DM + 35° 2072 mag. 9.2
2074 " 9.5

I 15136 May 19, 1896

much brighter than DM +

Max.

var. δ . DM + 35° 2072 mag. 9.2
est. var = 8.5

I 17502 Nov. 10, 1897.

DM + 35° 2074 is 3 grades brighter
than var.

est = 9.6

I 20635 Apr. 7, 1898.

DM + 35° 2074 is 5 grades brighter than
est = 9.8

I 24056 Nov. 15, 1899.

var. very faint

est = 11

var
clearer
after impact?

Max?
min?

near
min.

Jan. 27, 1905

I 32392 Dec. 4, 1904

var. 2 DM + 35° 2074

est = 8.5

Max.

Max. May 19, 1896 3699
Dec 4, 1904 6819

880
284) 3120 (11
280

J.D. 2413678 + 284 E.

3699
284
3983 1897 Feb. 27

284
4267 1897 Dec. 8

4284
4551 1898 Sept.

284
4835 1898 June 29

284
5119 1900 Apr. 9

1420
6538 1904 Feb. 28.

3699
1420
1892 June 29 2279 (-5)

It seems probable
that the star does
not have a very
faint min. and
would therefore be a
good object for actual
obs.

All obs. seem to be in accord except
that on I 20635, on which the var. appears
to be bright unless it happened that
the minimum was a brighter one than
the one in Nov. 1899.

Feb. 2, 1905

X *Audemulac*

J2637 var. iris. form. Dec. 29, 1890
 J4477 " " " Oct. 8, 191
 J9938 " " " Nov. 18, 193
 J16625 " " " Dec. 1, 1896.
 J13745 " " " Oct. 28, 195
 J19253 " " " Oct. 13, 197
 J21729 " " " Nov. 21, 198.
 J21971 " " 14640 Dec. 16, 198.
 J29684 var. [446 (42)] 95 Dec. 17, 1902.
 est = 9.1

1902 Dec 1 = 2416085 + 346 Hartogs class

6085
 346
 5739
 1038
 4701
 346
 4355
 1038
 3317
 1899 Feb 15.
 1898 mel. 6.
 1895 May 3

6085
 346
 6431
 246
 6744 = 1904 Oct. 23.
 23

May 19, 1905

QX *Scorpio*

Apr. 24, 1900 J25217 Marched. var. light 122
8.5th

July 26, 1901 J23653 var. ft 105th
Similar thin plate a little higher

Sept. 5, 1901 J28456 Sept. 5, 1901 mod. light, 9th

July 9, 1901 J14034 var. iris. 9 quite large
Comp. also marked on thin plates

B29849 May 27, 1902

112
214 h 10th or less

B18160 n.s.
May 31, 1897

Jan. 27, 1901 J24005 var. iris. 9 6th

June 3, 1901 J3525 not seen Plate form

May 21, 1901 B19145 var. iris 9 7th

May 10, 1901 B19057 " 9 8th

Feb. 10, 1901 B20753 9 10th 9.5

May 19, 1905

RZ Scorpion

July 27, 1902 B ²⁹⁸⁴⁹~~4034~~ much fainter than on
B 14034 est = 10th.

July 9, 1895 J ^{B 14034}~~24846~~ var. light est ~~8~~ 7.5

J 25217 est = 8th Apr. 24, 1900

July 26, 1899 J 23653 est = 10.5

Sept. 5, 1901 B 28456 est = 7th

Jan. 29, 1900 J 24505 est = 9.8

3525 June 13, 1889 est = 9th

May 24, 1897 J 19145 very faint est = 11

Apr. 23, 1896 B 15645 est = 9.8

B 19057 est = 10.5 May 10, 1897 B 18760 est = 11
May 31, 1897

March 10, 1900 B 24753 9 10th

May June 3, 1905

Obs. of R Librae on photo.

B 17337 Sept. 3, 1896.

Var. min. star S, p. clearly seen.

B 25505 May 31, 1900
var. min. This plate shows very
faint star. Var. probably < 12

B 20317 Sept. 14, 1897

var. min. < 11

B 25073 Apr. 10, 1900.

var. min. < 10.5

B 16262 June 11, 1896
var. min. < 11

B 27475 May 28, 1901

Var. seen fully one mag. fainter
than -16° 4' 10" mag. 9.3
var. est. about 10 1/2 mag.

June 3, 1900-

B 25444 May 24, 1900

var. imm. <11

I 20277 Feb. 16, 1898

var much less than -16° 41' 70" ^{var. est}
about 10.5

June 3, 1905-

W. opl.

B 29700 May 15, 1902,

- 104274 (9.2) 6 v

v 3 - 14259 (9.6)

est. mag. 9.5-

B 16776 var. imm. <11

B 16977 var. " <11

B 6368 June 1, 1892

~~B 18385 May 21, 1897~~var. present, Δ about same
brightness as on 2/7/01 9.5

B 23359 July 8, 1899

var. present, about 9.5^{var}

June 3, 1915
 B18385 - Aug. 2, 1897
 far min. L11

June 28, 1905

R.R. Hercules
 Pl. no. during this run.

J1538
 J10930 var. marked.
 J15343
 J16064
 J15248
 J25430
 J27110
 J28964

Estimates have not been made on these
 plates but they can be made at
 any time if desired.

R.R. Hercules

J3692
 J25711
 J26765
 J31661
 J28964
 J31691

Estimates not made

Tuesday, Feb. 20, 1906.

On February 15 I was reading about
James' star RY Carinae (sic) through
Cape Obs. & Sp. and thought I
might look the star up. I found
the companion star plate for RS
B 2794 - Centauri which is very near RY Car.
But there was nothing in the position
of James' star. I then found B 27574,
taken June 6, 1901, 6 days before the
star was first seen by James. This
plate shows a star which I at once
suspected to be James' star.

Confirmed by M. D. F. Feb. 19, 1906
See Mrs. H's book 11, 160, for her
search for RY Carinae. Plate B 27574
was not included in her list unfortunately.
She thinks it is a red star from
shape of the image and not a
nova.

A 2242 April 22, 1887 shows a star
A 5824 April 28, 1902
apparently at same position as on
B 27574 but at about same mag. on
both plates.

Thursday, Feb. 22, 1916

Further search for RY Car

B 11317 Aug. 28, 1894 exp. 242
shows the star but very faint
Comp. with B 27574 proves that
the object is a variable and not
a nova.

B 17032 Torpor.

B 25185 April 30, 1900 exp. 62^m
RY distinctly seen but much
fainter than on B 27574.
The shape is that of a red star

Saturday, Feb. 24, 1906

Examination of plates for Lindermann's
variables in the Persei

Plates given me by Mrs. H.
I 21860 Not covering region

I 26029 Cluster on extreme edge, stars
in position of plate

I think these plates were gotten out
for the Persei but not this cluster.
Other plates must be looked up.

I looked up these plates
I 4267
I 6857
I 6226
I 6552
I 4031
I 4302
I 4495
but see no variation in
Lindermann's stars on careful
examining. Stars rather
bright on plates and
perhaps all plates would
be better

Monday, Feb. 26, 1906

D 5749

D 5749 Prof. Bailey's star machine

C 5895 " " " "

Decided to insert all three
stars in catalogue with positions
using I for Lindermann's.

Wednesday, April 4, 1906

Examination of the following chart plates
to find proof of variability of *Proxima*
Oct 1906. $+5^{\circ}43'$

B 10564 1893 to 1904

11621

11917

14103

25882

28376

32375

34228

See page 199

J 13677

18934

22201

25671

32170

var. marked.

No evidence of variability.
Miss Wells also says she thinks
these plates show no evidence of
variability.

Nov. 17, 1906. The following plates were examined today,
and show no variability in this object.

AM 2255, 1466, 3021, 2376, 3825, 3894,

AC 5524 and 2157.

Thursday, April 5, 1906.

Some time ago (a few weeks) I got out
several plates covering the region of *Proxima*.
I made notes of the results on a piece
of paper, but can not find them in
time, so before putting away the
plates, I will re-examine them.

This star was seen by Abetti, Holmström
and Hattag on March 6, 1899, as a
very bright object about 5.5 mag.
These plates were found.

I 22535 March 6, 1899

Proxima is fainter than
and brighter than 2401863 mag. 8.9

CDM 2201877 5.5 is a very bright object
on this plate, several magnitudes brighter
than *Proxima*.

I 22541 March 8, 1899, spectrum plate. Spectrum
is distinctly seen, but too poor to classify.
Nothing at all peculiar about it.

B(?) 10587 Spectrum H.

I 22546 March 8, 1899, chart plate. It is of
approximately the same brightness as on March 6.
I 24303 taken Sept. 2, 1899 Same as in March
I 24267 " Sept 31, " (as far as can be
seen from these plates)

April 5, 1906.

Σ Homaris (cont.)

It looks as if there must have been an error in identifying this star on March 6, 1899 (made independently by the three observers in different places, and that possibly - $24^{\circ}18'7''$ was taken for $24^{\circ}16'1''$ (Σ Homaris). At any rate, I can find no confirmation of the variability of this star.

Thursday, May 10, 1906

AC 5639 var star apparatus
Examined for variables.
Nothing found.

Saturday, May 12, 1906⁶

ac 691 examined

Several suspicious objects marked,
but they proved the stars running
into each other. Nothing found.

Sunday, May 13, 1906

ac 1024 examined.

2 suspicious objects marked. One may
be 2 stars. The other shows only 2
images when there should be 9.

Both objects looked up. The first
is a double star. The second overlaps
a brighter star.

ac 1037

Nothing found.

Saturday, May 19, 1906
 AC 1038
 Nothing found

Monday May 21, 1906.
 Spectrum of α Centauri 133155
 Classed Pec. from B 15613
 On com. of plate Mrs. Fleming wrote
 "Pec. very faint image, may be Type IV."
 B 13449.
 Looks like Type IV.
 B 18808
 Type IV.

B Cassiopeiae Nova 1572. ^{or 1963.}
 Faint star in position is suspected
 of variability.
 In 13572 region marked. See
 Pogson's chart in Hagen's Notes to
 Atlas Variable Stars.
 Was marked as the s. pc. comp. of
 a double. Only one star seen in plates,
 with perhaps a suspicion of the
 s. pc. component.
 J, 9596
 Same star seen as on 13572

May 21, 1906

J 4542 Region of B Cass.
Loopover.J 3261 " " " "
Loopover.

Look up additional plates.

a' Arctis' chart also gives by
Pogson. No star seen in plate
in position given by a' Arctis,
now followed. This star in
the position given by Pogson
who followed Argelander.

May 22, 1906

A C 1041 examined
17 images

Suspicious object marked. Identified
as $+42^{\circ} 8' 12''$ mag. 7.5. This
near $+42^{\circ} 8' 15''$ & Packer. The first
three images of 812 are quite
distinct, the fourth is fainter.
Then four or five images are not
seen. They may run into the
images of Packer but I think
this object should be looked up
as there is no other case on
plate where such a loss of
images occurs. Very often stars
appear running into these images.

May 24. Object above referred to
is probably merged into brighter star.
as some other objects were found
on plate having similar effect.

Monday, June 4, 1906

U Lyrae 181637
Plates

I 4150 Sept. 4, 1891
I 8823 July 19, 1893
I 8903 " 23 "
I 11424 Sept. 11, 1894
I 19016 Sept. 25, 1897
I 20992 July 7, 1898 var. marked by Mrs. F.
I 22615 Nov. 24, 1899
I 22984 June 3, 1899
I 25325 May 10, 1900
I 25897 June 4, 1900
I 27819 Oct. 20, 1901
I 29145 Aug. 23, 1902
I 29556 Nov. 21, 1902
I 30669 July 24, 1903
I 30950 Sept. 26, 1903

2415214 + 4572 Hartwig's elements
1890 July 13

$$\begin{array}{r} 5214 \\ 457 \\ \hline 4757 \end{array} \quad 1889 \text{ Apr. 12}$$

$$\begin{array}{r} 4757 \\ 457 \\ \hline 4300 \end{array} \quad 1898 \text{ Jan. 10}$$

$$\begin{array}{r} 4300 \\ 4473 \\ \hline 3827 \end{array} \quad 1896 \text{ Oct. 16}$$

$$\begin{array}{r} 3827 \\ 457 \\ \hline 3370 \end{array} \quad 1895 \text{ July 11}$$

$$\begin{array}{r} 3370 \\ 457 \\ \hline 2913 \end{array} \quad 1894 \text{ Apr. 10}$$

$$\begin{array}{r} 5214 \\ 457 \\ \hline 5671 \\ 457 \\ \hline 6128 \end{array} \quad 1903 \text{ Jan. 13}$$

June 4, 1906.

U Lyrae (cont.)
The plates on preceding ~~plate~~ ^{page}
show no variation in star assumed
to be U Lyrae.

The following plates were also examined
by Mrs. F. with stars on the cover of
I 22615 that no evidence of variation
was found. I 22615 20992, 181637,
18908, 985, 25892 and 22964.

Juddell confirmed variability of this object,
finding it 9.2 on June 20, 1894,
9.7 on July 2 and 10.1 on
Sept. 23, 1894.

Plate I 29145 examined and I found
that I marked a different object from
the one marked on I 20992 (see
referred to in the above remarks).
The object I identified as U Lyrae
is very faint, and follows the brighter
object marked on 20992, in about the
same declination or perhaps slightly north.

June 5, 1906

U Lyrae (cont.)
 Examination of plates to determine
 variability of object marked on J29145,
 which I think is undoubtedly variable
 and is assumed to be U Lyrae

J450 Davis Plate before
 J8823 Not seen. Plate marked 2 spurs sup.
 var. Probably refers to bright plate
 preceding.

J8913 Not seen. before.
 J11424. Faint trace of the object. This plate shows
 faint stars

J15239 Not seen. Bright star marked U Lyrae

J18938 Not seen.

J19016. Faintly seen. Plate does not
 show faint stars in general.
 var. must be brighter than on 11424

J20992 $\times 10$ β perfect

J22615 much brighter than \times on this plate.
 $r = \beta$

J22964 Plate before. ft. stars on beam

J22984 $r1x$. $\times 2\beta$. var. elongated image

J25325 $r2\beta$ not very well seen

J25892 $r2x$. \times image wider than β

J27819 $r = \beta$ all 3 images faint.

J29556 before. var. perhaps faintly seen

June 5, 1906.

J29556 before. var. faintly seen
 \times β not seen?

J30669. $r = \beta$. \times faintly double

J30950. sp. No trace of the var. The
 sp. of the brighter star is seen
 but I can not classify it. May be
 1st type.

J29145 var. much brighter than
 \times or β . This plate shows the
 variable brighter than on any so far
 examined.

J25397 var. 4β . \times double?

29145 - J25397
 These two plates seem to prove
 the variability of this object.
 Look up \times on several of plates.

June 7, 1906

AC 1289 Feb. 25-1901
Nothing found
Mora Ricci appears on this plate

AC 1285 Feb. 24, 1901
Nothing found
Mora Ricci

Monday, June 24, 1906. 23^h

Examination of plates for B Case.
Sep. 131 for previous examination

A 116. Examined by Mrs. Fleming.
No object found in position given
by d'Arrest (see Chart in Hagen's
Notes to Atlas of var. Stars). Pagen's
position differs from d'Arrest's.
No object distinctly seen by Mrs.
Fleming in Pagen's position, but
she thinks there is perhaps a
trace of a faint object visible

B 124 { Too poor to show faint
A 170 { stars.

B 2698 Too poor.
B 75 Too poor.
B 65 Film peeling, too poor.

B 2707, Object ~~at~~ appears near position
given by d'Arrest, very faint image.

Monday, July 2, 1906

List of references in Astronomischen Jahrbuch
Vol. III

List made of ones of which I am doubtful about ~~former~~
references to.

J. Plessmann Obs. van Star. 7^{te} Part. (7^{te} Ag. 3^{te} Ag. R. 2^{te})
Kunth von Stimpell. Photom. Obs. van III Part. Hannover. 1904.
5^{te} 7^{te} Ag. & and 0^{te} Part. 3^{te} 5^{te} Ag. 3^{te} 10^{te} Part.

- ✓ Backhuus. Pub. Nachkunders van Obs. No. 3.
- ✓ Götz. Heidelberg Ast. Phys. Part. 2. 65-76.
- ✓ K. Schiller. Obs. van Heidelberg Pub. Astr. Phys. 2. 97-104

- ✓ Köhl. A. S. Pacific 17, 16.
- Gron. E. M. 81
- ✓ Gron. J. B. A. A. 17, 234-238 ^{P. B. A. A. 17, 234-238}
- ✓ Meubrich. J. B. A. A. 15, 370-76
- ✓ " " 16, 56-60

Zöllner van. B. S. A. F. 17, 64, 115, 312, 526

Lau. B. A. 22, 39.

J. Balanowsky. Obs. 7^{te} Ag. R. A. 9^{te} 10, 287 (Russia)

Johnson. & Curtis. J. B. A. A. 15, 202.

- ✓ Perrine. Los Mes van. A. S. P. 17, 110
- Roy 5 Cephei 17 Ag. B. S. A. F. 17, 44
- Plessmann. 11 Cephei Mitt. V. A. P. 15, 54
- Ryves. A. Con. E. M. 82, 40
- Fauth. 11^{te} Mes. Maj. Mitt. V. A. P. 15, 87
- Mitt. der Vereinigung von Frauen für Astr. & Cos. Physik.

July 2, 1906.

Cont. of preceding

Pereira on 48 Aurigae E. M. 81, 96.
Craack. Catalogue of 46 stars disc. by Mmes. Craack. R. A. 9^{te} 10, 230

References in Vol. VI. Jahrbuch

Stetson. Pub. Taschenre. No. 5, 8
7^{te} Ag. & Cass. 5^{te} 7^{te} Ag. 0^{te} 1^{te} Ag. & 0^{te} 1^{te} Ag.
3^{te} 10^{te} Ag. 11^{te} Ag. 12^{te} Ag. 2^{te} 10^{te} Ag. & 2^{te} 10^{te} Ag.

Ernst. Obs. numerous vari. Pra. 15, 29. (Polished)
Lehnert. Mitt. V. A. P. 14, 35. (Kauf.)
Lau. B. A. (= Bull. Astronomique) 21, 319
Kovalevsky. & Cass. B. S. A. F. 18, 281
Plessmann. 11 Cephei Mitt. V. A. P. 14, 40
Tasso. 5 Sagittae & 5 Trillicen. Konst. Obs. No. 3.
Archibald. 59, 1903. Mitt. V. A. P. 15, 155. (Kauf.)
Lau. Atlas probably van. J. Alpl. 17^{te} Nat. 71, 55
Bay

References in Vol. V. Jahrbuch

Koff. Obs. var. stars. Heidelberg Ast. Phys. Part. I, 15
von Stimpell. Photom. van. Star. Obs. Hannover
P. A. P. Jan. van. Star. Science N. S. 17, 334
von Stimpell. 2 Aurigae. L. 36, 91
Berberich. A remarkable appearance of U. Gem. Mitt. V. A. P. 3, 238.

July 5, 1905
B Cass. (Cont.)

No star is distinctly seen in position given in Pogson's or d'Arrest's Charts in Hayn's notes Atlas Stell. Bor.
A faint object is visible on A116 slightly ~~and~~ position given on d'Arrest's chart. This is not seen on A124 but ~~this~~ may be owing to the quality of the plate. All the plates probably do not show faint enough stars.

Monday, July 9, 1906

Z Gemorum = +22° 57' 9"

Dm position

6 58 52.7 +22 46.5 (1855)
Berlin 7 0 5.51 +22 43 10 (1875)

Prec. ~~+5.6129~~ 3.6129
~~+5.2.25.82~~ 722.560
20
- 5.198
10" 3.960

7 0 5.51
6.82
6.89
6 59 58.69

+22 43 10
1 43.96
~~+22 41 26.04~~
44.7
+22 44 53.96
+22 55.4

7 0 5.51
1 8.26
Berlin ~~1855~~ 6 58 57.25
P. Gem. 6 58 37
+20"

with 10.9

7 0 5.51
1 12.26
DM 2788a (1855) 6 58 53.25 +22 44 53.96
DM 6 58 52.7 +22 46.5

Dm position probably in error as it is questioned in Revised Dm. See also chart for 11.6 a.m. 1906.

Tred. July 18, 1906

Exam. of a few plates to confirm size of Audubon's variable 1. 1906 - Lynceus. No confirmation of this has yet been published.

var. marked. J 12209 taken Jan. 14, ¹⁸⁹⁵ ~~1895~~, star var. 9-10 mag.
J 20506 " " Feb. 15, 1896, no trace of star
probably L 12
J 7416 Feb. 24, 1897, no trace of star L 11
J 1835 taken Apr. 17, 1890, no trace L 10.5

Conclusion. Certainly variable with range of 2 or 3 magnitudes. Probably a long period variable.
A. C. July 19, '06.

July 26, 1906

Examination of plates for RZ var.
13 14 28 + 2 36.5 (1.55)

B 36362 July 10, 1905
L 18020 Apr. 28, 1897
F 31773 June 15, 1898
J 33105 June 8, 1905
J 3649 May 28, 1891
J 32650 Feb. 11, 1905
J 32838 Feb. 4, 1905
J 26546 Jan. 29, 1901 star
var. marked
B 15436 Feb. 16, 1896.
not for 21080
25-416 May 23, 1905
— B 27250
29110
— 30415
32107 July 6, 1903
35513 Jan. 14, 1905
not for 36362 May 22, 1905

No certain var. found.

B 36075 taken May 22, 1905

Miss Wells, Urgent!

Please Tell

one of the stars shown
marked in J 26546

right for position
RZ Vary
14 m. 28" + 2" 36.5
(1855)

John D. M.
will you have time
to look over these plates
that morning and see if
it is any way in it
A.P.C.

August 15, 1906

Spectrum plates of R Corona

F 1086 taken Apr. 28, 1890

J 20105

J 24950

J 27048

J 27055

J 27077

J 27087

J 32945

Sept. 14, 1906

221733. *Lacertae*. Probably not var.
 Announced because it was
 missed at Leyden on August
 13, 1893.

Plates looked up
 +9069 Aug. 3, 1893 Star bright.
 29371 Sept. 3, 1893

J 15429 Star bright
 J 18580

Several other plates were examined
 a short time ago, to confirm a
 visual observation.

Variability
 confirmed by
 Mrs. Fleming
 with range
 of about
 1.0.

October 14, 1906

AC 461. multiple images.

While sweeping with magnifying
 glass over about the center
 of this plate, I noticed a star
 whose images appeared like
 rather irregular in brightness.
 I superposed AC 7035 Class L.
 The star suspected is $DM + 28^{\circ} 54'$
 magn. 8.9, close to a double star. Improperly
 probably due to instrumental causes.
 Upon superposing the two plates,
 however, I noticed at once that
 another star near by, which is fairly
 bright on the AC 7035 is not
 visible at all on the AC 461. This
 star is $DM + 28^{\circ} 54'$ magn. 9.0
 or $16^{\circ} 51' + 28^{\circ} 35.8' (1893)$

Examined on
 AC 631, fairly bright

AC 1010 fainter

AC 1757 very faint

AC 6992 bright

A hasty glance at AC 2152 6617
 4464, 15353, 5586, 6526, 5126

7770 7725 7776 7826, show the
 star always present but certainly
 variable in respect of magnitude or more
 probably long period, and from the shape of the
 images it is probably a real star.

Oct 16, 1906
Cont. of preceding page

ac	Est.	Est. mag.	Est. mag.	Date
6617	57	9.1	9.6	Aug 21, 1905
6526	66	10.0	9.7	July 19, 1905
5586	66	9.5	9.8	Nov 24, 1904
5126	57	9.5	9.9	Aug 8, 1904
7776	72	For good		Sept 3, 1906
1010	60	10.1	9.8	Sept 22, 1900
2152	57	9.7	9.4	Jan 3, 1902
6992	67	8.8	10.0	Nov 14, 1902

The star marked var. No. 2 shows slight fluctuations on these plates, but this may be due to the fact that the image comes near edge of all the plates. Some plates should be examined where this star is nearer centre.

October 18, 1906

Examination of additional plates to determine variability, if any, of +39° 49' 35"

ac 1090

ac 5167

5225-

5446

6547

6788

6743

6894

7852

These plates are nearly all good, and no variation is seen in the suspected object. Apparent fluctuations probably due to poor plates and star being near edge.

October 18, 1906

+28°54' (vac. M.) marked on
spectrum marked on I₂ 1187, class
A or B.

A further examination of AC plate
shows that this star is a variable
of short period, not over 12 days.

October 30, 1906.

contact plate superposed on
AC 2152
Bujak objection ^{found} AC 2152 not on contact is
R. Uridumedeae.

Nov 3
Saturday, Oct, 1906

While duplicating AC 1546
 on Oct 30th, I noticed that
 a star appeared brighter on AC 1546
 than on the multiple image plate
 362.

Inspected on AC 1546.
 Also a little fainter on AC 1730
 than on AC ~~15~~ 1546.
 Look up.

February 6, 1909

162319 ♀ *Scorpio*

Position See A.N. 99, 120. Peters' annuimant.
 $16^{\circ} 21' 42'' - 19^{\circ} 11' (1860)$
 A.N. 121, 1881 $16^{\circ} 21' 29'' - 19^{\circ} 7.8' (1860)$

H.C.O. Circa 90 H.S. Learitt.
 $16^{\circ} 23' 39'' - 19^{\circ} 7.1' (1900)$

Hartwig in 1908 Ephm.
 $16^{\circ} 21' 12'' - 19^{\circ} 7.1' (1855)$
 $16^{\circ} 23' 47'' - 19^{\circ} 13.4' (1900)$

Kopff & Schiefele
 $16^{\circ} 23' 36.41'' - 19^{\circ} 7' 35.5' (1900)$

Feb. 6, 1909
162319 ♀ *Scorpio*

89-7-13 B 3800 very poor. s.f. star seen of normal magn. n.p. visible
 96-5-4 B 15701 " " " " " " " "
 96-5-13 B 15862 too poor.
 96-6-12 B 16280 very poor. " " " " "
 96-6-13 B 16327 too poor. n.p. bright = 11.8 but star s.f.
 96-7-21 B 16980 s.f. normal. n.p. bright & nearly = s.f.
 97-7-16 B 19342 " " " "
 99-5-1 B 22658 " " " n.p. poor plate
 99-6-26 B 23163 " " " bright
 99-7-26 B 23653 too poor. neither star seen
 00-4-26 B 24982 s.f. normal " n.p. = 11.0
 01-5-26 B 2517 s.f. star normal. n.p. star seen of medium ^{mag.}
 02-7-9 B 30319 s.f. star normal. n.p. star seen of medium ^{mag.}
 08-3-25 Am 5330 too poor, neither star seen.
 08-4-2 B 9381 " " " "
 08-4-9 B 38643 s.f. star normal. n.p. star barely glimpsed.
 08-5-3 B 38819 poor plate. A trace of s.f. star may be seen, but very faintly.
 08-6-4 B 39074 s.f. normal. No trace of n.p. star

Feb. 6, 1909

162319

F. Scoppin (cont.)

Aug. 9, 1898 A 3223 s.f. normal n.p. barely seen poor plate
 A 3304 s.f. normal (this plate is always fainter
 than plate 2, n.p. is: dark & lighter
 than plate 8, magn. 11.8.)
 n.p. stars about 2 magn. fainter
 than plate 7: about 18.8

Aug. A 3226 s.f. normal n.p. 12.5 certainly
 lighter than on A 3304

Aug. 17, 1898 A 3231 s.f. normal, n.p. = 12.5 4519
 " 9 " A 3223 " " plate broken

Sept. 16, 1898 A 3308 " " n.p. = 13.5 4579

Aug. 16 " A 3227 " " " " 12.0 4578

" " " A 3228 " " " " 12.5 4578

" 17 " A 3230 " " " " 12.5 4579

July 3 1898 A 1887 " " (baughey) " stars poor plates

Sept. 16 1898 A 3309 " " " " 13.8 4549

July 2 1898 A 1883 " " " " = 8 - 11.8

July 20 1898 A 3182 " " " " = 11.2 4491

May 25 1901 A 5217 " " " " = 11.0

Comparative Stars for Photographic Variables.

+48°29'42"

Variable RT Cygni $19^h 40^m.8$ +48°32' (910)

Photo	Variable	R.A. (1855)	Dec (1855)	D.M. No.	D.M. mag.
a	a	19 42 33.9	+49 39.0	+49°31'01	6.5
b	b			+48°29'18	6.8
c	c			+48°29'41	6.8
d	d			+49°30'92	7.5
e	e			+49°30'82	7.7
f	f			+48°29'43	
g	g			+48°29'41	
h	h			+48°29'26	8.8
i	i			" "	" "
j	j			" "	" "
k	k			" "	" "
l	l			" "	" "
m	m			" "	" "

R. Traugott

Phot.	Vis	Perm. dis.	R.A. (1900)	Dec. (1900)	D.M. No.	D.M. mag.	Wagon	Photom. mag.
	a	a			+34° 469	5.6		5.62
a	b	d			+33 454	6.4	e	5.90
..	c	u			+32 473	6.5		6.29
..	d	s			+33 461	6.6		6.92
b	e				+33° 458	7.5	7	7.55
c	f	o			+33 476	8.0	8	
e.	g	o'			+33 478	8.2		7.05
d	h				+33 465		10	
e	k				+33 472		15	
f	l				+33 468		17	
g	l'				..		29	
h	m				..		33	
	n				+33 472		34	
	o	ψ					38	
	p	ψ					43	
	q						44	
k	r	ρ					46	

U Persej

Photo	Old	Final	R. A. (1900)	Dec. (1900)	D. M. No.	D. M. Magn.	Magn.	Photo. Magn.
a	a	a			+53° 440	7.7	3	
..	b	b			+54° 452	8.5	..	
..	c	c			+54° 448	8.7	?	
e	..	d			+54° 438	9.0	7	
b	..	e			+54 439	9.1	12	
d	h	g			+54 435	9.5	24	
z	k	g			..	..
f		h			..	..	37	
e		k			..	..	39	
g		l			..	..	42	
h		m			..	..	58	
h		n			..	..	61	
l		o			..	..	..

T Eridani

Vis.	Photog. C.C.	Dec.	C.D.C. No.	Dist. mag.
a	a		-24°201	
b	b		-23°1642	
c	c		-23°1641	
d	..		-23°1646	8.8
e	..		-23°1621	9.3
f	f		-24°1969	
g	g		-24°1961	
h	h		-24°1965	
k	k		-24°1974	

Note. Photog. A was omitted as unnecessary to the sequence

X Ceti

Sequence						
Vis.	Photog.	R.A.	Dec.	Obj. No.	Obj. mag.	Photo. mag.
a	b ¹			-0°522	8.6	
b	a			-1°477	8.6	
c	c			-1°473	9.3	
d	d			-1°474	9.6*	
e	..			-1°470	9.5	
f	e*			..	..

* Phot. 'e' was at one time identified as -1°471, but the star marked on the chart (photographic enlargement) and also on the orig. plate does not seem to be the DM star. This star 'e' although apparently in the right position for the DM, is very much fainter than a star s.p. made on photog. chart and called 'e' could not have been seen, and I guessed by the DM. observes, unless there has been some variation in light.

V Eridani

Sequence	Photo	R.A.	Dec	Dist. pc.	Dist. mag.
a	..			-16° 720	8.5
b	a			-16° 769	8.4
c	b			-16° 775	8.7
d	c			-16° 779	9.1
e	d			-16° 774	9.2
f	e			-16° 772	9.3
g	f			-16° 777	9.4

H. Eridani

Sequence	Vis. Photog.	R.A.	Dec.	2 nd GL Dist. No.	2 nd GL Dist. No.
a	b			4661	7 1/2
b	a			4665	7 1/2
c	c			4662	8
d	d			4634	8
e	..				
f	f			4655*	9
g	e				

marked on edge
of sketch must be
identified

T. Leprieux

X Monocerotis.

Sequence	Photo.	R.A.	Dec.	DM. No.	DM. mag
a	d			-8° 1650	7.0
b	..			-7° 1640	
c	a			-8° 1639	8.3
d	e			-8° 1638	8.6
e	f			-7° 1765	8.7
f	..			-7° 1765	8.9
g	..			-8° 1635	
h	i			-8° 1647	9.3
i	j			..	..
j	k			-8° 1643	9.8
k	l			..	..
l	m			..	..
m	n			..	..

V Can. main.

Sequence	Photo.	Q. A.	Dec.	DM. No.	DM. mag.
a	b			+8°1640	8.8
b	c			+9°1519	9.0
c	d			+9°1517	9.2
d	e			+9°1520	9.4
e	f			+9°1522	9.3
f	g			+9°1521	9.5

Photo. a is very likely probably much brighter than the variable even felt. At first, I connected photographs a and b by suggesting and estimating four intermediate stars. But that seems to be an unnecessary lengthening of the sequence so I have simply omitted that photog. comp. star a, ~~the~~ after which the sequence can be used mainly without change down to h. The fainter stars need further comparison.

Sept. 29, 1913.

074305 - Can. min.

Seymour					
Pos.	Phot.	P.L.	Dec.	DM. No.	DM. mag.
a	a			+5° 1802	8.07
b	b			+5° 1794 1794	9.0
c	c			+5° 1778	9.3

Note. Sept 29, 1903. This star has been obs. 11 times ~~and~~
 from 1902 Feb. 12 to 1903 May 13, and always found
 between a and b. The obs. show some variation
 but it is not yet certain whether this is real
 or due to extinction

~~Ch. H. Puffin~~

References to B.D. zone observations or
Catalogue magnitudes of variable stars.

Design.	Name	Reference
001726	T Androm.	A.N. 134, 165.
001706	V Perseus	" 166, 369
001755	T Cassiopeiae	" 77, 85
001838	R Androm.	" 54, 242
004047	U Cassiopeiae	" 116, 271
011272	S Cassiopeiae	" 87, 5
011208	S Perseus	" 83, 356
011712	U Perseus	" 121, 191
014950	S Persei	" 175, 7
021403	O Iota	" 106, 104
021556	R S Persei	" 165, 125
021558	S Persei	" 83, 157
022000	R Iota	" 69, 265, 245
022150	R R Persei	" 166, 369
022813	U Iota	" 111, 314
023133	R Triang.	" 131, 259
024356	R Persei	" 134, 199
025867	R X Cassiopeiae	" 164, 217
032335	R Persei	" 64, 200
032362	U Camelopard.	" 127, 5
035916	V Eridani	" 146, 117
042209	R Tauri	" 83, 366
045221	U Lynx	" 125, 169
045823	R Tauri	" 164, 396
053068	S Camelopard.	" 127, 89

Design.	Name	Reference.
053531	U Aurigae	V. J. S. 28, 297, A.N. 126, 327
053920	Y Tauri	V. J. S. 33, 347
054920	U Orionis	A.N. 115, 311, A.J. 10, 133
061647	V Aurigae	" 116, 63
061702	V Monocerotis	" 107, 209
063308	R Monocerotis	" " 387
063730	Nova Geminorum	" 161, 323
064030	X Geminorum	" 148, 331
064707	W Monocerotis	" 149, 3
065208	X Monocerotis	" 146, 117
065306	R V Monocerotis	" 158, 111
065326	- Geminorum	" 171, 287
065355	R Lynx	" 87, 13
070122b	Z Geminorum	" 161, 134
071069	R U Camelopard.	" 176, 181
072708	S Iouis Minors	" 46, 291
072811	T Can. Min.	" 76, 262
072820a	X Puppis	" 123, 170
080322	R U Puppis	" 146, 117
081112	R Cancri	Bonn Best. 7, 396
081633	T Lynx	A.N. 170, 219
081617	V Cancri	" 80, 150
082405	Hydrae R T	" 146, 117
083819	S Cancri	Bonn Best. 7, 397
093656	W Urae Maj.	A.N. 161, 141
095421	V Leonis	" 102, 143
103769	R Urae Majoris	Badcliffe Obs. 1854, p. 286
104620	V Hydrae	A.J. 8, 24
105517	R Idracis	A.N. 76, 250
159005	R X Virginis	" 146, 117

RT Hydrae

Design.	Name	Reference
123160	T Urae Majoris	A.N. 69, 252
123961	S Urae majoris	Radeloff Obs. 1854, p. 287
134440	A Camm. var.	A.N. 119, 109
135908	R B Virginis	" 121, 191
140113	J Bootis	" 146, 117
141954	S Bootis	" 69, 255
142205	R S Virginis	" 145, 42
142539	V Bootis	" 109, 47
143017	R V Librae	" 146, 118
150018	R T Librae	" 15, 135
150619	V Librae	H. L. O. Cir. #7
151432	U Coronae	A.N. 77, 172
151520	S Librae	" 99, 115
153020	X Librae	" 121, 192
153215	W Librae	" " 193
153620	U Librae	" " "
154020	J Librae	" 102, 153
154639	V Coronae	Obs. 2, 420
155018	R R Librae	A.N. 121, 193
160021	J Scorpii	" " "
160221	X Scorpii	" " "
161138	W Coronae	" 161, 92
162319	J Scorpii	" 121, 194
163266	R Draconis	" 89, 212
165202	S S Ophiuchi	" 175, 143
171101	U Ophiuchi	Obs. 5, 26
171401	J Ophiuchi	P.A. 1, 324
171723	R S Herculis	A.N. 139, 119
175315	J Herculis	" 136, 329

Design.	Name	Reference
180122	R W Herculis	A.N. 137, 291
180531	T Herculis	" 48, 289
181136	W Hydrae	" 139, 270
181103	R J Ophiuchi	" 170, 74
182619	U Sagittarii	" 69, 266
183308	X Ophiuchi	" 116, 64
183936	- Hydrae	V. J. S. 23, 211
184243	R W Hydrae	A.N. 161, 92
184408	S Scuti	V. J. S. 23, 210
185312	S Sagittarii	A.N. 156, 373
190108	R Aquilae	Bonn Beob. 7, 399
190925	S Hydrae	A.N. 145, 42
190967	U Draconis	" 149, 7
191007	W Aquilae	" 133, 215
191017	T Sagittarii	" 76, 274
191322	- Vulturulae	" 178, 367
191321	J Sagittarii	" 121, 194
191637	U Hydrae	" 145, 42
191717	T Sagittae	" 116, 63
193449	R Lepgni	Radeloff Obs. 1854, 291
193732	T T Lepgni	A.N. 146, 118
194604	X Aquilae	" 135, 162
195849	J Lepgni	" 116, 319
200526	W Vulturulae	" 164, 217
200647	S V Lepgni	" 116, 64
200747	R X Lepgni	" 133, 382
200812	R U Aquilae	" 147, 287
200822	W Capricorni	" 121, 194
200906	J Aquilae	" 137, 73
201121	R S Capricorni	m.N. 36, 70 A.N. 146, 118

S. Pygidio

Desig.	Name	Reference.
201427a	P leyni	Rad. Obs. 1854, 291
201437b	W X leyni	A.N. 164, 25
202817	R Delphini	" 161, 91
202946	S leyni	" 152, 125
203813	R R Delphini	" 172, 31
203847	V leyni	" 100, 14
203816	S Delphini	" 73, 30
203905	U Aquarii	" 139, 41
204016	T Delphini	" 64, 170
204017	U Delphini	" 145, 42
204102	V Aquarii	" 130, 367
204846	R leyni	" 145, 43
205339	W X leyni	" 164, 47
205515	R V laeprioni	" 149, 367
210221	X laeprioni	" 121, 194
210714	- Aquarii	" 146, 119
210812	R Equulei	" 156, 372
210903	R R Aquarii	" 149, 267
211616	Cap.	" 46, 282
211741	U leyni	" 157, 131
211800	T Delphini	" 174, 154
212814	U laeprioni	" 121, 194
213244	W leyni	" 112, 319
213678	S laephei	" 51, 76
213843	S S leyni	" 142, 90
214742	V leyni	" 144, 351
215717	U Aquarii	" 102, 150
215704	R T Pegasi	" 160, 343
220412	T Pegasi	" 68, 326
220714	R S Pegasi	" 159, 131
223841	R Lacertae	" 121, 27

Desig.	Name	Reference
224364	U Lacertae	A.N. 158, 254
224455	V Lacertae	" 165, 271 A.N. 166, 371
225720	S Aquarii	" 48, 15
230620	- Androm.	" 157, 31
230759	V laeprioni	" 134, 211
231425	W Pegasi	" 139, 117
233451	S V laeprioni	" 174, 239
235048	R S Androm.	" 146, 119
235209	V laeti	" 121, 194
235350	R laeprioni	Radcliff. Obs. 1854, p. 294

W. Cancri.

Sequence Vis.	Photog.	P.L.	Dec	D.M. No.	Dk. mag.
g	b			+25° 2056	8.5
h	a			+26° 1902	8.5
c	.			+25° 2057	9.0
d	c			+26° 1908	9.1
e	d			+25° 2057	9.3
f	e			+25° 2053	9.4
g	f				
h	g				
i	h				
j	i				

February 25, 1909

R. Piccini cont. Jan p. 124
 Am 3021 variable marked and quite faint
 No change on
 Am 3336 Am 289 stars peculiar little
 Am 3855 brighter
 Ac 6765 05-13-3
 Am 5649
 Am 4593
 Am 4682
 Am 4680
 Am 4944
 Am 4996 07-7-11
 Am 5080 07-8-17
 Am 3894
 Am 3720
 Am 3294
 Am 3086
 Am 3825

R. Leporis.

Sequence		A.L.	Dec	Obj. No.	Obj. mag.
Via	Photog.				
a	a			-7° 2867	
b ^(a)	..			-7° 2853	8.8
c ^(a)	..			-7° 2852	8.8
d	d			-7° 2869	
e	e			-7° 2871	
f	c			-7° 2868	
g	f			"	
h	h			-7° 2872	
k	g			"	

R.T. Craig

2 Bortis

R. S. V. uig.

RV Lhae

~~R. S. Lohr~~
Good Show Plates

Orion Nebula

D 3324 from x 5255. Direct.
very good. Nebulae black

B 2354

Direct
Shows belt and nebulae. Good.
Rather dense plate.

D 11387 Near Moon old Moon
from x 10885 (broken)

Moon

C 12877 excellent of evening moon, nearly full.
small image

Pleides

I 34388 " Good

Planets

D 3443 3445 (marked Beck)

Planets first seen by Lohr, Sept. 16.0. Consulted
by following diagram
Have imitations, some faint fruitia legumina, of
these things, not ripe, and hidden still to
others, are read by me, or planis the
repetition of Latin in another order, they read.
Cynthia figurae gemulatur mater amorum
The mother of Love imitates the planis of Diana.

R. H. Lohman

8

S. Mrs. Mini.

U. Serpentes.

Zophuichi.

7.78
7.88
8.17
8.26

