

Cent. M 3.1 M 5.
Variable Stars
S. J. Bailey

[Faint handwritten text, possibly a list or notes, with some mathematical symbols like $\frac{11}{10}$ and $\frac{11}{10}$ visible.]

- Variables - chiefly P. - 30° -
 Page -

5					Signatures				
New Sculp.	0	10.4	-32	36		17			
R "	1	22.4	33	4		17			
- Hornb.	2	49.7	50	21		17			
R Retie.	4	32.5	63	14		17			
R Dor.	4	35.6	62	16		17			
- Coeli	4	37.1	38	26		17			
- Pictoris	4	43.5	49	25					
R Colum.	5	47.2	29	19		~~17~~			
- Octantis	5	56.8	86	46		~~17~~			
L ₂ Puffin	7	10.5	44	29	H.B.	37	19	37	
S "	7	43.8	47	52	H.B.	37	19	37	
E Jib.	8	34.4	47	00	H.B.	37	19	37	
R "	9	28.2	56	36	H.B.	37	19	37	51
R. Car.	9	29.7	62	21	H.B.	37	19	37	51
L "	9	42.5	62	3	H.B.	37	19	37	51
New "	9	54.8	58	23	H.B.	23	37	19	23 37 51
R. Ant.	10	5.5	37	14	H.B.	23	37	19	23 37 51
P. Car.	10	6.2	61	4	H.B.	23	37	19	23 37 51
New "	10	9	58	17	S.B.	25	39	19	25 39 51
η Argus	10	41	59	10	H.B.	25	39	19	25 39
New-Cent.	12	28	54	6	P.B.	25	39	41	3, 5, 9, 21 25 39 41
R. Musca	12	36	68	51	P.B.	25	27	41	3, 5, 9, 21 25 27 41
New	13	36	33	6	P.B.	25	27	41	25 27 41
R Cent	14	9.4	59	27	C	25	29	43	3, 5, 9, 21 25 27 43



Observations

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Variables

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2

- -	14 ^h 45.2	46° 6'	HB	43	43
R. Tri. and	15- 10.8	66 8	C ^{HB}	43	5.9, 21 43
Librae	15- 18.5	22 34	HB	45-	
Nova. Urum.	15- 22	50 -	- -	-	5.9 21
R. Lupi	15- 47.0	36 0	S.B.	33	5.9 45
- Scorp.	16 48.4	44 57	HB	45-	5.9 45
- "	16 50.3	30 26	C	45-	5.9 45
- "	16 56.8	36 46	C	45-	5.9 45
- Octant.	17 25.9	86 46	HB. S.B. Ext.	43	11 43
- Scorp.	17 35.2	43 41	HB. S.B. Ext.	43	43
- Pave.	18 3.3	63 38	HB	43	43
X "	18 46.6	67 21	C HB	43	11
S. R. T. Cor. A.	18 55	37 5-	p.B.	43	11 43
	19 46.8	59 27	C	45-	45
New Dogit.	19 49.7	29 26	C	45-	11 45
- "	19 51.8	42 7	C	45-	7.13 45
- "	20 9.4	39 29	C ^{HB}	47.	13, 15 47
- Feb.	20 7.6	47 15	* S.B.	49	
	20 33.9	29 9	C	49	
- Indi	20 47.1	54 48	C ^{S.B. extended.}	49	
- Octant.	20 53.5	82 36	C ^(S.B.)	49	
- Aquar.	22 10.7	21 40	C		
R. Per. and	22 12.3	30 6	C	13, 15	
R. Indi	22 28.9	67 48		13 15	

[Note! The scale of the enlargements sent from Cambridge a small chart is $\frac{11}{9}$ that of the plotted charts made in Arequipa -
 The scale of the plotted - is $\frac{25}{8}$ - or about 3 times that of the regular Bache plates,
 The scale of the sq. Bache plates is $\frac{40}{19}$ or a little over twice the scale of Goulds ^(U.S.) (catalogue) chart.]

Variable Stars.

Visual observations

H. C. O. Arequipa, (Peru) (1894)

Variables

Page.

III

R. Thau.	23 ^h 57. ^m 3	50° 21'	13 15
- Jue.	23 52.2	65-56.	13 15

Sat. Aug 18. 1894

P.M.

7 30 ^u Cent - 12 28 54 6.

#19 if chart is correct. 8₃ var -

✓ Some of the plan of chart do not seem exactly right -

R. Muscal. 12 36 68 51

✓ #20 ~~#~~ ¹⁶⁵⁴⁷X₃ var ¹⁷³⁴⁴A.

R Cent. 14 9.4 - 59 27.

✓ #21 193444 var - + A¹⁹¹⁵⁵ (ident. by copy of Gould's chart) U.A.

8 12 5-

sky cloudy except W South -

✓ R. Iri. Aust. 15- 10-8 66.8

#22

comp. 9 chart + spec. chart - region ?

8 35-

whole sky growing colder

C

C

Wed. Aug 22 - 1894

P.M.

7 30(19)✓ 8.7, var - - Cent - 12 28 - 54 6.

✓ 20 R. Muscae. 12 36 68 51
¹⁶⁸⁴⁷ X₃ var, ¹⁷³⁴⁴ A✓ 21 R Cent - 14 9 - 59 27.
19344, var 2 A ¹⁹¹⁵⁵8:00 22 R. Si-aust. 15 10.8 - 66 8.
✓ 20703 + var, 20634 ²⁰⁷⁴³ B.✓ 23 Nova. Normal 15 22 - 50
8₈ Nova. Nova is grown very ft. no close
str. clai vis. in 5". for comp. Indeed, 5" would
not show much str. clai.✓ 24 R Lupi 15 47 - 36.
region identified but var. not seen: if chart is correct
var. is too faint for 5". char. - all other clai
of chart identify clearly -✓ 26 New var. - Scorp. 16 50.3 - 30 26.
22852, var. 3 A 3421

✓ 25 - Scorp. 16 48.4 - 44 57. - identify char.!

✓ 27 - Scorp. 16 56.8 - 36 46.
var. invis. in 5". all adj. stars of phot. ch. seen
including 1, 2, + 3 - identify. plain.

C

Wed - Aug. 22 - 1894 -

10 30 - Lag. 19 51.2 - 42.7
✓ (34) 27411.0 var. 27312.

C

Friday August 24-1894

P.M.-

7 30/19 - Cent. New. 12 28.0 - 54.6.
 ✓ 19 8.7, var. also X_2 var. 2 y

✓ (20) R. Muscae - 12 36. 68 51.
 17344 A, var 4 B 17342

✓ (21) R Cent. 14 9.4 59 27.
 19344 5. Var 3 A 19155

✓ (22) R Tri. Aust. 15 10.8 - 66 8.
 206³⁴ var 3 B 20743

✓ (23) Nova Normal 15 12 - 50
 8, Nova. also X_3 Nova.



✓ (24) R Lupi. 15 47 - 36 0.
 Region identified clearly but var. N.P. in 5".

✓ 8:45 (25) - Scorp. 16 48.4 - 44 57.
 22983 5. Var., 22819. - star marked 22855 on chart very ft.
 22838 22835 A₃ B₇ 22844.

✓ (26) - Scorp. New. 16 50.3 30 26
 22852, var 3 A. 3421

✓ (27) - Scorp. 16 56.8 36 46.
 var. unstable in 5", all other chart (10") plus plain
 9:30 including 1, 2, 3, of chart

C

(185)

?

(186)

v

(187)

v

(188)

y

(189)

Work 1891

Friday Aug. 24. 1894

9 45 - Octantis 17 25.9 - 86 46.
 ✓ (28) A₃ Var, B -

✓ (29) K Pavonis 18 46.6 67 21 -
 25383, Var 2 20-15.3 -

✓ (30) S Cor. Aust. 18 54.4 - 37.5 -
 Not visible in 5" - if chart is correct -

✓ (31+32) R + T Cor Aust 18 55 - 37 5 -
 the two barely visible as one in 5" -

✓ (33) - Sagit. New - 19 49.7 - 29 26.
 11 20 27284 # Var 7 A₃ B.
^{-7261 27271}

C

P.M.

Sat. August 25 - 1894

7:30 - Sag. $19^h 51^m.8$ $-42^\circ 7'$ -
 ✓ (34) 27378_5 var. - 27411_3 27312 .

✓ (35) - Sag. 20 9.4 $-39^\circ 29'$.
 $1_2 3_2$ Var. 2. per Camb-chart - sub -

✓ (36) R Ps-Aut. 22 12.3 $-30^\circ 6'$.
 Not vis. in 5" of chart is correct. other stars all that show
 in 10" chart of Boche. clearly seen. region clear.

✓ (37) R Indi 22 28.9 67 48 .
 $2_8 1_2$ Var. Region plain, but var. doubtful. I may be ^{bas} _{er}
 but think not. Exam. exact position again -

✓ (38) R Phoenix 23 51.3 $-50^\circ 21'$
 A_3 Var, B -

✓ (39) - Tucanae 23 52.2 $-65^\circ 56'$.
 9 20 32336_7 Var, D. Var. is dbl. at least has haze
 effect + is dbl. dbl.

Ledgered

Thurs - Nov - 29 - 1894

Hay -

P. III - - Hay - 20 9 39 29 -
 8:45 - (35) 3₁₀ 4₅ 5₅ - X 5 6 -

✓ (36) 22 12 30 6 R Pis. ant.
 of chart Not vis. in 5" - verify chart.

✓ (37) R. Iudi 22^h 29^m 67^s 48^s.
 agree with prev. page - but var. prob. more ft -
 The region is doubtful however owing to num. ft stars in
 region close -

✓ (38) R Phoen. 23 57 50 21.
 A₃ Var, B. Var₃ X -

✓ (39) - Tue - 23^h 52^m 65^s 56^s.
 D₅ - X₀ var₅ C. Doubtful whether star marked
 X or that marked Var, is really var -
 can not sure wh. star was obs.
 Aug. 25: (or both?)

Leah

Phot. ch. wanted *

Sat. Dec. 15 - 1894

P.M.

7:45 - (1) 1827 178, var₃ 148 ident - sure.(2) 1334. var₅ 1405 - ident sure(3) var₂ 3086. var₇ 3088 - ident sure.R Rel - (4) B. C. var. (?) Hai near plotted position very ft. *
No others at all light in region - examine ^{gent} region sure.R Sw. (5) 4962. var₃ 5081.(6) 4₂ var, B - very faint but region sure - R Cash

(7) *

(8) 9194₃ var⁹¹⁹⁷ + 9339.

9:40 (9) stopped by clouds —

Ledgered

2

A.M.
9:00

Mon. Dec. 17, 1894

Sky 0.3
First glims cldy.

- (9) 10181 3 Var. 0 10166-7. Put in S-Z stars if not already
Region pretty sure.
- (10) Exam. over chart. if correct * ch. needed -
- (11) 12672 5- Var 4 12535- sure.
- (12) 13115¹⁵ Var. X, var, y- same sure.
- (13) 13389 8 Var 2 13112- sure.
- (14) 13581 3 Var 3 13555- same sure but stars very thick.
- (15) 13816 8 Var 8 45-9- sure.
- (16) ¹³⁸⁵²X ³⁶⁶5- ⁴¹⁶Y, Var 2 ⁴¹⁶Z. Think same but ch. desired. stars thick
- (17) sev. st. stars near position about 10.00 m. w. till which *
- (18) not pos. to dist. from chart. Plot another on larger scale *

Ed.

June - Dec - 18 1894

and
3:15

- ✓ (19) star drift sw. st star near ch. murray -
- ✓ (20) ^{see large plot} ~~16847~~ ₂ Jan, 17344. Sun.
- ✓ (21) 6758 var. 2 618 - Pretty sun but ch. observable -
- ✓ (22) - 20703. Var. 3 20634. sun.

and ✓ (23) Nova Normal. Could not see perit in 5".
H. 10 once - twice fainter & glimpsed but doubtful - more faint
bright and star far east -

Lead.

Observations for 1894
eclipse

Sat. May 11 - 1895 -

✓ Car. 1st
P.M. mal
10:20

10^h 6^m - 61^s 4

B₄ C₆ D₄ E₄ F₃ G.

D + S, E

region about D seems many on plotted chart. see photo.
D is lgt star 2 line close ones. like photo.

✓ - Car. 9th 5^h 48^m 58^s 23rd

a₄ B₂ C₀ D₄ E₂ F.

D₀ Var₄ E.

11:40 ✓ R ant. 10^h 5^m 37^s 14

a₃ B₁ C₃ D₄ E₄ F₄

E₀ Var₄ F.

and the other side of the ...

8 Wed. May 22-95-
 6 45- ✓ - Car. $10^h 10^m 4$ $68^\circ 21'$
 $a_1 B_2 C_0 D_4 E_3 F_5 H_3 K_4 L$. $H_2 Var. K$.

7 30 ✓ η Argus $10^h 41^m$
 $E_3 E_1 F_5 S_5 H$ or $E_3 E_1 F_5 S_2 K_3 H$. $F, Var. G$.
 G is on phot. very ft.

8 00 ✓ - Cent. $12^h 28^m$ 54° $6'$ ✓
 $a_5 B_5 C_4 D_7 E_2 F_2 G$. $E, Var. F$.

8 25- ✓ R Musca $12^h 36^m$ $68^\circ 51'$
 $A_3 A_4 D_1 C_2 E$. $A_2 Var. C$. Ref.

9 45- ✓ - Cent. $13^h 36^m$ 33° $6'$ ✓
 $C_2 D_3 E_7 F_3 G$. $C_2, Var. D$.

10 50- ✓ R Cent $14^h 9^m$ $59^\circ 27'$ ✓
 $a_3 B_6 C_0 D_5 E_5 F_1 G_4 H$ Incomplete -
 " 19406-7. observed with star with field glass.

L

Thurs May 23. 95-

ΔM-

R. Muscae.

12^h 36^m 68^s 51¹

field glass

6:50

✓ A₃ A₅ D, C, E

A₃ var. A. Pos. A, var.

7:25

✓ - Cent. 13^h 36^m 33^s 6¹

tested glass with
field glass.

C₂ D₄ E₂ F₂ G.

C₁ var. D.

stopped by clouds.

L

Sat May 26 - 1895 -

Δ.M.

8:50

✓ R. Cent. $14^h 9^m 59^s 27'$

A₃ B₆ C₁ D₅ E₃ F₁ G₄ H₁ K₃ ~~M~~₃ ~~L~~₃ ~~P~~₄ N.

No star in vic. of L but as N.

~~M~~₂ var. N

L

Wed. - June. 5-1895-

7:10 PM.

7:100

w

α Centauri - 13" tel. (light stars with 8") moon nearly full.
a₃ b₃ c₃ d₂ e₁ f₄ h₄ g₃ k o l.
K and L nearly limit of visibility.

8:30

h, l₃ g. other stars are too faint when observed. Perhaps without moon it will be possible. None of fainter stars of photo-gravure are visible & seeing is also very true to eyes - there is no trouble in identification of those stars bright enough to be seen.

Later night cloudy -

Thurs. June 6. 1895-

Full moon.

7:00

W Cent. $13'' + 8''$.

7:00 -

$a_3 b_3 c_2 d_4 e_3 f_3 h_3 g_3 l, K_2 r.$

7:30

g I cannot surely see. (13)

1. h.

Other variables too faint to compare with permit comparisons.

8:00

Set on Nova Normal. Not visible tho' in ft star near the region ($13''$ to $14''$) readily seen. certainly neither of them the Nova however.

R Lupi
9:00 AM

$a_5 b_6 c_2 d_5 e_3 f_5 g_5 h_2 K_3 m_2 l.$

g 2 var + h.

Observations more diff. from brightness of moon.

R.A. & T. Cor. ant. region plain but var. themselves.

diff. S not vis. R. possibly + T doubtful.

photographic chart shld be better.

9:45

showing more stars. red. + well marked.

47 Inc.
4:00 AM

(has. v. 486)
 $390_5 487_0 328_{10} 486_0 b_{10} c_3 d_0 e_5 f_4 g_2 h$

l not visible

$b_3 v_7 c. b_3 s_7 c. T_0 l.$

Seeing poor + not very confusing after few minutes.

Friday (Lat am) - June 7-90-

Full moon.

8"

✓ 47 Tucanae.

5:am 390 7 487_{or 1} 328 8 486, b₁₀ c₃ e, d₃ f.

b₃ v, c. s₀ b (but with higher power b₂ s.)
e. T, d.

Sat - June 8. 1895 -

P.M. ✓
6:20L₂ Pub. 7^h 10^m 5^s - 44° 29' .
9176 3 Var, 9194 .

✓

A Pub. 7 43.8 - 47 52 .
B₄ Var₂ C .

✓

E Vel. 8 34.4 - 47. 0

C₃ Var₅ E .D is not suitable for comp. star, being
a close dbl.

✓

H Vel. 9 28.2 - 56 36.

B₀ Var₅ C .

✓

R Car. 9 29.7 62 21
7, Var₅ G .

✓

L Car. 9 42.5 62 3
C₂ Var₂ D .

✓

- Car 9 54.9 58 23
C₀ D₀ Var₅ E .

8:20

✓

R Ant. 10 5 37 14
C₅ Var₀ D .

8:40

✓

S Car. 10 6 61 4
C₀ Var₄ D .



Pat - June 8 1895 -

P.M.
8:55 -

✓ - Car. 10^L 10^M - 58° $21'$

I, Var₂ K.

✓ η Argus 10 41 59 10
~~F, S, G.~~ F, Var₃₋₄.

✓ - Cent 12 28 54 6

Stopped by clds - forming beams for some
time from N.W.

9:30 -

R

Mon - June 17-95 -

Δ: M.

10:10

V-Cent 12^h 28^m 54° 6'

sequence extended G₄ H + K H₂ var 2 K.

✓ R Winstan 13² 36 - 68 51

Seq. ext. A₁ 4 A - A₃ var, A.

11:10

✓ A.G.C. 18609 B 36 32 6

cont. of seq.

A₅ - B₆ C₂ C. B₂ var + C₁.

see Gould charts.

L

Wed. June 19 - 1895 -

P. M.

7:30 ✓ R Cent: 14 9 59 27
h, var₂ l.

✓ - Lupi 14 47 46 12
D, var₄ E.

✓ R Tri. ant.
15^h 10^m 66 8
a₃ var₂ b

✓ - Pav. 18 3 63 38
var₀ F.

✓ X Pav. 18 46.6 -67 21
b₃ var₁ C.

10 20 ✓ SRT. Cor. ant. 18 55- 37 5-
Seq. a₅-b, c₃ d₄ e₃ g₅-k.
g₂ s₃ k . l, R₂ g. T invis.

✓ - Jasp. 17 35- 43 41
not of sequence h₃ K + l. l₃ var -
var near limit of visibility.

✓ - Oct 17 26 46
sol. seq. E₃ F₃ H. E₁ var₂ ~~F₁~~ L

Carried on
with other (photog)
work

Th. June 20 1895-

Bill.

7:30. ✓ - Libra. 15^h 18^m 34^s
B₀ var₃ C.

with
other
mark. (photo.)

8:00 ✓ R Lupi 15 47 36 0
f₃ var₂ g.

8:35 ~ - Scorp. 16 48 44 57
B₃ var₂ C.

9:00 ✓ - Scorp. 16 50 30 26.
f₁ var₃ g.

9:30 ✓ - Scorp. 16 57 26 46.
K₅ m₅ n₅ o₅ p. var. seen with dif. 8". p₅ var.

~ - Pav. all 27193 19 47 59 27.
b₃ var₁ C.

✓ - Sag. all 27271 19 50 29 26.
Set. of seq. K₄ l₅ m₆ n₅ o₃ p₃ q₅
K₂ var₂ l

10. 45 ✓ - Sag. 19 52 - 42 7
d₃ var₂ E d₀ Cordoba var. (v)

Thurs - June 20 1895 -

11 ov. $\sqrt{\text{Sag. } 20^h 9^m 39^s 29' -}$
 Got w. eq. $N_4 O_3 p_5 - q_5$.
 $N_2 \text{ var } 20$.

L



Friday June 21 1895-

△:M. R
9:30 x - Tel. 20^h 7^m 47° 15'
c₆ d₀ e + f + g₃ h₅ - k₅ - l₃ m
l₁ var₂ m.

✓ - Mic. 20 34 29 9
B₃ var, C.

✓ - Indi 20 48 54 48
+₆ β₃ γ + δ₃ α +
Var₀ γ.

✓ - Oct. 20 54 82 36.
10 45 - Gel y seq - f₃ g₃ k₃ l.
k₂ var, l.

L

Next

Wed. July 10 - 1895 -

P.M.

7:00 ✓ H Vrl. 9 28 56 36.
~~E~~ b. var. 4 C.

✓ R Car. 9 50 62 21
 h₂ var. i.

✓ L 9 42 62 3
 C₀ var. 3 d.

7 130

✓ New Car. 9 58- 58 23
 C₃ var. 0 d.

✓ R Ant 10 6 3⁷ 14
 C₆ var. 0 d.

✓ ~~S~~ Car 10 6⁸ 61 4
 Cont. of seq. A'₅ A₅ - B₃ C.

A'₀ var. A. see Jones chart.

8120 ✓ New Car 10 9 58 17.
 var. 0 K.

Led.

Mon. July 17. 1895 -

No moon - clear -

W Cent -

16^h 30^m Set on with 13". but from confusion of images of so vast a number of close stars - do not believe that without considerable experience, the results would be of value - esp - diff. would it be to compare stars unless close together - Fainter stars of cluster invisible -

16^h 45^m M 5 - Small in comp. to W Cent. but beautiful object. Central condensed mass of light dotted over (as whole cl) with relatively bright stars, which seem to be distinct individual stars. Central haze of light not resolved 13" power / 50 diam much less confusing than W Cent -

Set also on M 3. much fainter than M 5 - similar in form - but not dotted with bright stars like M 5 -

18:00 Reset on M 5 - attempt to estimate sequence as follows:
a + b + c + d + e + f + g + h
for ones impossible. the group of stars about h ... dimly seen at intervals, but immediately blurring again. Hence very little could be done in obs the variables since nearly all go for than h. By taking however a sequence non-resolved stars and farther from the central mass, some of the outlying

Mon July 12. 1894 - Cont -

Variables might be observed - especially in a telescope of large power, provided with a stop of some kind to shut out the central mass of stars, which seem to confuse the eye most. Since however the confusion arises in a less degree, from the closer lying stars even in the borders - the study visually of these variables will be a very different matter, unless in the very largest telescopes and in a very steady atmosphere.

Thurs - June 24 - 1897

134 - int. - power 150 -
seeing 3-4. (1-5) - adjustment good -

- γ Centauri - observations difficult,
but γ appears bright relatively - apparently
brighter than δ which appears faint.

ϵ seems as faint or fainter than δ .

#28 about equals #1, and both seem a
trifle brighter than ζ .

m is distinctly seen, - but n and o are
only dimly seen and fainter stars of the
series are not seen as separate stars -

Only a few of the brightest ones - could be observed
visually and these under difficulties owing
confusion of images -

9:45
P.M.

13^u T. usual -
Wednesday - July 1 - 1896

J. P. -

W. 3. Variables

J. T.

82 - 13^h 40^m

= const.

not very
diff.

center out of field or
behind black paper.

but light a little diff. sep. large

300.

H "

15^h 00

= "

15^h 40

same.

16^h 00

"

x x

82, 91, 112

14^h 15^m

1, 2, 112, 3, 91 - 82 invisible. 4 not seen

15^h 20

1, 2, 112, 2, 3, 91, 3, 4, 2, 82.

15^h 40

1, 2, 112, 2, 3, 91, 4. 82 glimmered.

15^h 55

94

14^h 50

vis. 1 = 2.

9 is near limit of vis.

15^h 30

15^h 40

16^h 0

same

62⁺

15^h

62 = y. 61 barely vis. x - seen.

15^h 30

15^h 40

16^h 00

same.

62 = y or for small light. 16 perhaps little light about = x.

17 40 - Seemingly both light clouds - region
only change seen in spec. of above stars
was 61. which is dark is although the stars
not seen - about = y.

rather different but with
practice will be observed -

W5

16:45 $X_6 Y_{32} V$. $32^{150} Y$. later with from 3^{100} $32_0 Y$
190 v. 18 about = cl. comb. 2 ft about = cl. comb.
 $w_6 31$. $w_8 8$
at 17:15 no spec. change -

17:00 $X_2 Y_{10} Z_{10}$.

17:15 $X_6 Y$. #1 very ft aff. a mag. or more st than Y .
#1. and 2. barely glimpsed (Z faintest). -

18:00 all about same as above except $Y_2 32$.

18:25 10 as above 13. - 19 about = v. both very st from cl.
 $Y_6 32$. 8, 28, 18, + 31 doubtful from "
Light cl. -

134 visual

Thurs. July 2

HourM 5-

14 00

L, M₁₂ 10₂ N.D₆ 19₂ A₂ B.D₆ 32, A.E₈ 31₂ 8.18 + 28 N₇ ft.O₆ P₈ 1. X n.s.

15 10

L, M₁₀ N₀ 10.D₈ 19, A.D₁ 32.E₈ 31₂ 8.18 b₂ h. comb.

28 ft.

1 ft about = X. both bands seen.

S₁ 9, S₁ 62.

16 10

L, M₁₀ N₃ 10D₈ A, 19, B.D₃ 32E₃ 8₅ 3118 much b₂ h. comb

28 ft. dif.

S₃ 9, S₃ 62 (seeing more stars with N.)

17 00

N₃ 10.

19, B.

D₅ 32, A.E₅ 8₃ 31.18 v. b₂ h. comb

28 ft.

S₅ 9.S₄ 62.

1 + X n.s.

17 30

N₃ 10.

19, B.

32, A.

E₅ 8₃ 31.

18 about = comb.

28 ft.

S₅ 9 + S₄ 62 ±.1 pulch b₂ h. comb as per it faint.

18 00.

N₄ 10.1 ft. b₂ h. comb.

9 + 62 ft.

D₅ 19, 32, A. (±)

18 dif - 28 ft. dif.

E₅ 8, 31.

13 VisualHour M 3 -

14.35- A, B₃ 112₃ C₃ 91₀ D₀ 82₋
 9₀ f. 16 ft. n.s. 9 seen -
 f₀ 94 83₀ v. 61₀ P(±) other groups ft -

15.30 A, B₃ 112₃ C₃ 91₃ 82₂ D₋
 9₀ f. 16 ft band seen 1 more seen like 9.
 94 ft about = F. 61₀ P(±) 83₀ v
 change seen in 64 + 1 - but cannot tell which -

16.25- No changes since last, but since ftr +
 16 94. n.s. also 82 + D.
 Each time thought as always last night
 95 = Comb. or pos. shade brighter.

16.40 95 same - = Comb +.

134Tues

1896

Friday July 3

Ham-

M 5-

14 00

$N_6 10$. $P_8 10x$. $S_6 9$. $S_6 62$.
 $19_0 B$. $D_1 32$. 18 bgr than Comb.
 28 ft . $E_6 31_{28}$.

15:00-

$N_3 10$. $P_8 10x$. $S_3 9$. $S_6 62$.
 $19_0 B$. $D_3 32$. 18 about = n tr. bgr the Comb
 28 str than Comb (dif). $E_6 31_{28}$.

1600

$N_0 10$. ~~1~~ 1 very ft also x for as above -
 $S_2 9$. $S_6 62$. $A_1 19$. B . $D_6 32$.
 $18 + 28$ about = Comb's. $E_6 31_{28}$.

17 5-

$10, N \neq$ 1' hr ft.
 $S_0 9$. $S_6 62$. A_0 ~~19~~ 19 . $D_6 32$.
 $18 + 28 \text{ ft}$. $E_6 31_{28}$.

18 5-

$N_3 10$. 1' hr ft
 $S_3 9$. $S_7 62$. $19_4 A$. $D_4 19$.
 $D_7 32$ (= 32 very dif) $18 + 28 \text{ ft}$. $E_5 31_{28}$. } $\pm$

seeing poor

13 Visual

four. m 3.

14 20 B₄112₃C₃82, 91₃D.
f₈9 - 16 st. - 94 st (2 f₇94) -
95° comb. +. v, 83. 62₃P₅ 61.

15 20 B₄112₂C₃82, 91₃D.
f₈9 - 16 about mag for the g.
94 st (a mag for the f₁) 95° comb. + - f
v = 83 = 62₃P₅ 61. (def).

16 20 B₄112₃C₃91, 82, D.
f₈9 - 16 as above.
94 st = 83 = v ±. 62₃P₅ 61.
but 95 is plain.

95° Comb. +

Seeing
poor
±

17 25- Seeing poor - far west - 95° comb.
Other stars about as last obs.

18 00 95° comb. - stars for st.

134 Usual
Sat. July 4 !!!

Hour

M 5

14 10

$\alpha_0 19$. $D_7 32$. $E_8 3128$
18 + 28 ft as comb. $S_7 9062$.
 $N_3 10$.

15 20

$D_5 19_3 \alpha$ $D_7 32$. $E_5 3138$.
18 about = + 28 ft as comb.
 $N_4 10$. $S_7 9062$.

17 40

Same as before.

1894 Usul

96

107

Sat July 4.

M 3.

four
14 20B₄ 112₃ C₂ 82₃ 91₃ D.

9 about a way for than f. 16 ft.

94 u u u u u f.

95- comb +. V₀ 83. ±. 61. 62 St -

15- 40

B₄ 112₃ C₅ 82, 91, D.

9 as above +. 16 ft.

94 u u .

83 - - . 95- as above -

17 45- 95- comb +. very bad -

13th m.

June - July 5 - 296

Home m.

14 35- a₀ 19. D₈₋₁₀ 32 (32 band vis.) E₈ 3/28 -
 18 28 ft. S₇ 622.9 - N₃ 10 -

15- 45- no change of substance in any since 14 35-

13th vis.

Sun - July 5-96

Hour
14 40

m 3 -

95% comb + - other same as usual - no sky change.

13- 45-

95% comb + -

8th round

July 6

M 3 90- examined - as fast as by the th count. - 7:00 PM & 10:00^{PM}

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

u 9 u u u u u u u u u u u u u u u

11

Variables South of -30°
to be observed visually.

Name	R. A. 1900	Dec. 1900	Max. M_v	Min. M_v	Period	Class
R. Sculptoris	1 ^h 22.4 ^m	$-33^\circ 4'$	5.8	7.8	207	II
- Horolog.	2 49.7	$50^\circ 21'$	(6.2)	(9.7)		
R. Retenuli	4 32.5	63 14	7	>13		
R. Aquadus	4 35.6	62 16	5.5	6.8		
- Casti	4 37.1	38 26				
- Odantis	5 56.8	86 26	(7.4)	(11.3)		
L ₂ Crippis	7 10.5	44 29	3.5	6.3	136.0	II
S Crippis	7 43.8	47 52	7.2	9		
R. Carinae	9 29.7	62 21	4.3	10.0	312.1	II
L Carinae	9 42.5	62 3	3.7	5.2	31.0	II?
R. Antliae	10 05.5	37 14	6.5	<8		
S Carinae	10 06.2	61 4	6.2	9		...
α Argus	10 41.2	59 10	>1	7.4	Err	II?
R. Muscae	12 36.0	68 51	6.6	7.4	0.89	IV
N. Columbae	9 28.2	$-56^\circ 36'$	3.4	4.4		
R. Centauri	14 09.4	59 27	6.0	9.8		
R. Lir. Austr.	15 10.8	66 8	6.6	8.0	3.40	IV
R. Lupis	15 47.0	36 0	9.0	<11		
- Scoopii	16 48.4	44 57				
- Retantis	16 56.8	36 46	(8)	(11)		
- Retantis	17 25.9	86 46	(8.2)	(11.7)		

Variables South of -30°

Kronal

Name	R. A. 1900	Dec. 1900	Max.	Min.	Period	Class
χ Coronis	18. ^h 46.6 ^m	$-67^\circ 25'$	4.0	5.5	9.10	IV
S. Cor. Austr.	18.54.4	$-37^\circ 5'$	49.5	13.0	6?	IV?
R. Cor. Austr.	18.55.2	$-37^\circ 5'$	9.8	13.2	30.5?	II?
T. Cor. Austr.	18.55.3	$-37^\circ 5'$	49.8	13	...	II
- Sagittarii	19.51.8	$-42^\circ 7'$				
- Sagittarii	20.9.4	$-39^\circ 29'$				
R. Pis. Austr.	22.12.3	$-30^\circ 6'$	5.7?	11?		II
R. Linc.	22.28.9	$-67^\circ 48'$	9?	11?		II?
R. Phoenicis	23.51.3	$-50^\circ 21'$	8.5?	11?		II
- Tucanae	23.52.2	$-65^\circ 56'$	10.2	(12.6)		

Additional Stars.

A.G.C. 157 Sculptor	0.10.4 ^h	$-32^\circ 36'$				
O. A. 16121 Scorp.	16.50.3	$-30^\circ 26'$				
A.G.C. 217271 Sagitt.	19.49.7	$-29^\circ 26'$				
	10.09	$-58^\circ 17'$				



