

O 16

Chronograph record

From 1867 Dec. 19

To 1868 Aug. 14

100 KG 11365.347

J. L. FAIRBANKS,
STATIONER,
and
ACCOUNT BOOK MANUFACTURER,
136 Washington St. Boston.

min



value of one rev of either screw
of E. transit = $2^{\text{s}}.285$ at
determined long ago.

Dec 19th Thur. 1867

continued Ill W

New start 1^h 35^m

23 WI 679

24 Jul 3226

26 12 lost & Piscium

27 WI 865

28 112 Piscium

(29 2 Piscium

2x10 full Jul 3772
43 + 20 322

2 at vietas

B Triang

30 W II 7

1/2 liti

Pr Jul 4150

C Triang

0 liti

R formosus

3² liti

out 2^h 22^m

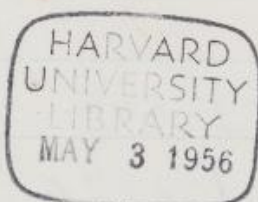
Bathing gave ant

KA 11365.347
Dec 19-26 1967 Jll W

1st min 4 50

Galatea

Last min 5 53



Dec 26

Started 1^h 44^m

γ Androm

α Arietis

Planet 93

Last min 2 45

New sheet 4^h 9^m

γ Larii

α¹ "

α² "

α³ "

ε "

δ "

α "

21st Eridani

53

Grump 12 12 49
γ Larii double

+ Boeli

Dec

26

1867

Jell m

(2 Canclupadule

bul at Z $66^{\circ} 360$

o Orionis

w Eridan

v Aurigae

3 "

v Lani

" Orion

E Lani

B Eridan

2 "

u Aurig

2 "

B Orionis

ant 5-4 10^m1st min 6 48

Parthenope

last min of 31

6 45 61.2 Feb 8.

7 30 70.0 76.8

" " C L W

8 20 68.3 83.5

138.3 | 160.3 | $\overline{m} = +.49$

Dec 27

1st min 22 2

Fr 3242 3 40 0 - 20

236 22 4 30 - 40

Arnold. 22 5 45 - 55

8421 3 42 15 - 35

Dec 28

Started 1^h 8^m

Palmis 3, 4, 5 wires

0 Bet

sy. oscium 1st m lost clouds

amt 1^h 32^m

Dec 28-30 1867 Ill W

1st min γ 16

Parthenope

Julia

Last before min 8 35

Dec 30th Monday 1867
started 1^h 6^m

Polaris mires 3, 4, 5-

δ ceti

W I 322

γ Piscium

(Pr = Lat 3023
T Androm

W I 679

Lat 3226

Pr X ceti = W I 753

B Anitris

out 1^h 50^m

Wendeburn 1^h 5-6^m

2 Anitris

B Trianguli

65 ceti

Dec 30

1867 Jll W

Pr of Huang point = Sal 4150

of Huang

BAC 708

o Ceti

K ⁴ Fornacis

r Ceti

r "

o "

r "

γ' Eridani

γ Persei

40 W II 795

γ Eridani

δ " ~~Jan~~ 2 BAC 938

δ Ceti

44 W II 1008

B Persei

δ of mites

ξ "

Pr = BAC 1010

ξ Eridani

K' Ceti

12 Persei

Dec 30 1867 JUM

0 2 Lanni

3

out 3 h 25 m

1st min 5 35

new sheet

1st min 6 30

Antiope

Pen taken up	7	19	24
--------------	---	----	----

put down		20	26
----------	--	----	----

last min	8	2	
----------	---	---	--

1868

1

started 1 h 46 m

Ill W

1868 Jan 2 Thur

started 1^h 5-8^m

3 Trianguli 1st m lost

3 Ceti

5 Trianguli

0 Ceti

3² Ceti clouds and worth less

ant 2^h 35^m

Jan 3

started 1^h 15^m

7 Piscium

BSC 466 faint also very poor

0 Piscium

3 "

3 Arctis W. 3, 4, 5

112 Piscium

2 "

or faint 7 $\frac{1}{2}$ 3' Lat 3772

0 faint 7 $\frac{1}{2}$ 0' Az +2° 322

2 Arctis

3 Trianguli

3' Ceti

Jan

3^d

1868 J4 W

o Ceti

(u Cassiopea

fula 8^m .1^s

33 W II 334

o Ceti

5 Urs Min

v Ceti

γ Ceti

B4C 852

41 Arctis

4 Perse

40 W II 795

γ Eclan 4th with 2 heaps near

θ 4 chpl & B46 938

d Ceti

B Persei

d Arctis

γ d "

(P α = B46 1010

3 Eclani

2¹ Ceti

2 Perse

47 = W III 277

Jan 3 d 1868 J M W

o Lami

3 1

4 u

7 Eridani

5-2 = W III 836

3 Persei

E u

ant 3 h 49^m

new sheet 3 h 5-2^m

2 Persei

4 Lami

10 Per 6' = W III 1288

W Lami

5-6 = W IV 14

Gr 2-3 20

02 Eridani

2 Lami

✓1

✓2

✓3

5-7 = W IV 377

5-8 W IV 400

Jan 3 1868 Yll M
 3 Lanni 6
 2 "

53 Enclan

10 Runk 12 49

2 Lanni

M Enclan

63 = W IV 875

2 Orion

11 Arcturus

out 4 h 50

1868 Jan 6 Monday

1st min 23 49

from y Lanni 0.57 late

last min 0 7

1st min 1 3

W 1^h III no rattle before or after
 & Ceti

y Procyon out 1^h 26^m

new start 1^h 37^m

o Procyon

1868 Jan 5th Jll W
started 1^h 5-1 m

d Arcturus

3' Ceti

31 = W II 106

o Ceti

1 Cassiopeae

33 W II 334

(5 Ursae Min

(x n' RS fol at $3 + 76^{\circ} 528$

r Ceti

γ Eridani

4 Arcturus

γ Persei

γ Eridani

o "

d Ceti

B Persei

d Arcturus

g "

(Pr Bet 10 10

3 Eridan

k' Ceti & Persei at 3^h 15^m

see preceding leaf

1868 Jan 6 Continued
 3 Arietis
 50 Cassiopea
 2 Perseus
 2 Arietis

Started chr. $3^h 1^m 30^s$
 for Occult at $3^h 9^m$

Started chr $4^h 17^m 40^s$
 for Occult. at $4^h 23^m$

Started 1st min 4 43

taken up & put back ~~taken up & stuffed.~~

1st min 5 47

last min 5 55

1st min 5 58

last min 6 10

new sheet 1st min 6 14

last min 6 25

1st min

last min 7 43

2 0 66.8 Td.S.

7 20 87.2 86.8

" 66.8

8 0 78.5 88.0

165.7 174.8 $\overline{m} = +.21$

1
1st min 8 42

last min 8 54

C L E

76.7 81.3

155.2 169.3 $\overline{m} = +32$

1st min 9 33

last 44

2 Scarpin

out 16^h 21^m

started 17^h 4^m

17 25

26

18^h 27^m d Lyrae

ant 18^h 33^m

1868 Jan $\frac{7}{9}$ Ill W

1868 Jan 7

Fr 3242 3 29 10 - 30

8421 3 34 40 - 60

Last min 22 37

8421 3 59 40 - 60

Last min 23 2

Jan 7

Started obs. & marked on
paper 2^h 8^m

Jan 9 Thursday
1st min 4 24

Em f Geminorum
& Aurigae

β Orionis 1st w. lost.

Em. f Geminorum

δ Orionis

α Leporis

λ Orionis

Jan 9 1868 J L W

ε Orionis
 σ Orionis
 ζ Orionis
 α Columbae
 γ Leporis
 ζ Leporis
 ν Aurigae
 ζ Aurigae
 β Columbae
 α Orionis
 β Aurigae
 γ Columbae
 μ Orionis
 χ⁴ Orionis
 BAC 1946
 ν Orionis
 22 Camelopardalis
 Last min 6 4

6 5 6 2 E Tel S.

6 35 90.5 94.0

" C 2 W ~~6~~

7 5 $\frac{86.2}{176.7}$ $\frac{98.2}{192.2}$ + 35 = m

Jan $\frac{9}{10}$ 1868 Ill W

18^h min 7 9

Webe

Julia

last min 7 51

Jan 10

8421 1 11 55-75

Last min 20 23

started 1^h 5-6^m

B. Languli

new start 2^h 3^m

65 Ceti

W II 106

o Ceti 5^m

K. formos

W II 334

o Ceti

5 Ursae minor

o Ceti

γ "

Pro 852

Jan 10 1868 Ill W

41 d nites

W II 795

41 Lal 5460

+ Endom dup & B46 938

42 Lal 5592

d Ceti

B Persei

d nites

3 " B46 10 10

+ Ceti

46 97 Ceti

47 W III 277

• Zauri

3 " W 12 lost

48 = W III 376

f Zauri

E Endom

10 Zauri

d Persei

d Endom

2? "

Jan 10 1868 Ill W

3-2 W III 836

3 Persi

6 "

7¹ Eridani

8² Lami

7 Persi 1st W lost

4 Lami " "

11 "

56 W IV 14

10 Persi

0² Eridani

7 Lami

11 "

12 "

13 "

6 L 4

60-¹¹⁴ Eridani W 12 lost

8 Lami

15 D rocam W 1 lost

out- 4 h 28^m

new sheet 4 h 33^m

B Gadi

W Eridani

Jan $\frac{10}{11}$ 1868 Ill W

63 W IV 875

W' Orionis

0' "

W' Eridani

(Pr lat ~~9258~~ 9258

Bessel

Schuriger

0 Luni

11 Orionis

alt 5-6 0 m

1st min 6 19

Parthenope

last min 8 5

Jan 11

started 2 h 7 m

(1 Cissoplat Az +66° 214

2 x 0 fall " " 215

(7^m 5' cr Pr Oct 1609

7^h 2' s. Pr Oct 1619

0 Luni

or "

Jan 11 1968 Ill W

✓ Ceti

✓ "

41 Arctis

✓ Persii

93 41 Sol 5460

✓ Ceti

B Persii

✓ Arctis

3 Prⁿ B46 1010
~~1 Arctis~~

3 Eridani

K' Ceti

97 "

2 Persii

0 Lami

3 "

98 W III 376

f Lami

e Eridani

10 Lami

✓ Persii

✓ Eridani

7 Lami last 5 breaks

Jan 11 1868 Ill W

 γ^7 Eridani

5-2 W III 836

 δ Perseu

5-3 W III 915

 ϵ Persei γ^1 Eridani red * $\delta\lambda$ Lami λ Perseu

P 2	δ	8 ^m	Runk	10	80	1-4
				1	2	3 4 m

 ψ Lami

w' "

5-6 W IV 14

 μ Persei δ^2 Eridani γ Lami δ^1 " W IV 400

5-8	[2x ⁰	297°	50'	set
		W IV	418, 428.	

 δ Lami δ "P 2 2¹ 3 W 3 4 5 Runk 1249 γ Lamiout 4^h 55^m

Jan 11 18 68

New sheet
1st min 5^h 13^m

Imm 18 Leonis

last min 5 34

6 6 8 Feb 5 6^h 10^m

6 55 87.2 93.2

" C to W

83.8 93.2

171.0 186.4 $\overline{m} = +35$

1st min 6 22

Em. 18 Leonis pen did not mark.
by sounder 6^h 41^m 57

~~May 11 Started 11^h 30^m Stopped~~
Started 11^h 36^m

Jan 13 1868 Monday

Started 2^h 28^m

r. Ceti

41 d. nity

41 = Jul 5-460

could not see the mires

42 = Jul 5-592

d. Ceti

B. Persi

48 Cephei

3 Ant

Pr Bet 6 10 10

3 Eridani

46 = 97 Ceti

o. Lami

4^h 7^m Ursae Major

f. Lami

6 Eridani

10 Lami

50 12 Lami

d. Erid

5^m 7^h Er Pr = 23 Lami

7^h Lami lost 5 bricks

Jan 13 1868 Ill IV

~7 Endani

5-2 W III 836

3 Persi

e "

5-3 W III 943

γ' Endan

2 Lami

2 Persi

4 Lami

W' 4

ant 4 h 2 m

new sheet 4 h 6 m

γ Lami

δ "

δ 2 "

δ 3 "

e. Lami

6 d W 3 4 5

4 h 23 Wav start

W Endani

1 Anig

(B) Lami = Lat 926, per failed

per failed soon

Jan 13 1868 Jell W

69 W IV 1171

6 Lame

11 Orionis

B 2nd

λ 4

μ 2nd

λ 4

B Orion

2nd

2 Orionis

0 Columbae

out 5-12 14 m

1868 Jan 15

1st min 10 23

2nd min 6th Virginis

last min 10 38

1st min 11 37

2nd min 11 37

last min 11 39

Jan 17 1868 Ill W

Jan 18

started 2^h 22^m

(5) Usue clim 1st m 2 heaps m
 fol = $\alpha_3 + 76^\circ 5.28$

2 Ceti

31 Arctis

2 Persei

41 fol 5460

42 " 5592

2 Ceti

ant 2^h 57

new sheet 2^h 59^m

38 Cephei

3 Arctis

(Pr ~~B46~~ 1040

3 Eridani

2 Ceti

2 Persei

4 Zauri

6 Eridani

10 Zauri

✓ Cephei Persei

✓ Eridani

pen failed

Jan 17 1868 Ill W

~~2 x 3' or over~~

7 Luni heat 3 weeks

7 Eridani

52 W III 836

3 Persei

53 W III 915

4 Persei 3.4.5

54 W III 943

7' Eridani

2 Luni

2 Persei

4 Luni

W 4

56 W IV 14

W Persei

0' Eridani

2 Luni

0'

02

03

5' 9 Per 1 1/2 m

6 Luni

Jan 17 1868 Feb 17

Fr 8421 8 34 55 - 75

Fr 3242 8 36 40 - 60

Arm. 424 4 26 50 - 70

2 Lauri

236 4 32 0 - 10

Pr 7^m Runk 1249

7 Lauri

ant 4^h 37^m

4 40 66.8 Tol. 5.

5 30 91.0 95.2

" 66.0

7 50 89.8 97.0

 180.8 192.2 + 25 = $\overline{m}$
1st min 9 33

June 18th 1968 III 11
 Start 2^h 48^m

d Uti

B Persi

48 Aphni

3 Amis

d Persi

W III 277

3 Lauri

W III 376

f Lauri

E Eridani

10 Lauri

40 12 Lauri

✓ 5-1 Lal 6765
 Eridani

3' 5 Pr α 3 +23° 5-17

2x2 4' cr Pr 5-19

2' 5 Pr 5-20

7 Lauri

7⁷ Eridani

3 Persi

53 = W III 915

W 3, 4, 5

E Persi

Jan 18 1868 CU W

γ' Eridani

λ Lami

μ Persci

ψ Lami

ω "

ν Persci

ϕ^2 Eridani

χ Lami

ψ' "

ϕ^2 "

ϕ^3 "

$2 \times \phi$ set. $297^\circ 52'$ W IV $\begin{matrix} 418 \\ 428 \end{matrix}$

θ Lami

δ "

ζ^3 Eridani

Mr. Runkle 1249

η Lami

μ Eridani

η' Orion

fol W IV 912

ϕ' Orion

ω Eridani

ϵ Astringae

Jan 18 1868 All W
19

3 Aringae

1 Hami

11 Orionis

3 Eridani

1 Aringae

2 "

3 Orionis

ant 3^h 8^m

Jan 19 1868

started 2^h 3-9^m

48 Cephei

pr. BAT 1010

3 Eridani

~~1 Orionis~~ ant 3^h 10^m

new sheet 3^h 13^m

2 Persei

3 Hami

4 "

4 Eridani

49 BAT 1110

50 12 Hami

51 Lat 6765-

Jan 19 1868 Ill W

δ Eridani

{ 2nd Az +23 N 517

2nd Pa

γ Lani

δ Persei

5-3 W III 915

5-3 " " 9th 3rd w 2^d Br night

γ' Eridani

5-3- Jul 7540

η Lani

ω' Lani

Gr 2 3 20

μ^2 Eridani

γ Lani

δ'

δ'

δ'

5-7 W IV 377

58 " 400

60 44 Eridani

δ Lani

δ 4

61 49 Eridani

Jan 19 1868 Ill W

⁵³ Eridani
 Runk 1249
 7 Luni ~~def~~

u Eridani

63 W IV 875

π Orion

σ "

ν Andromeda

68 π 6 Orionis

3 Andromeda

ϵ Luni

11 Orion

6 Leporis

3 Eridani

λ "

u Andromeda

2 "

β Ori

γ And

τ Ori

δ Leporis

θ Orionis

out 3rd 13th

Jan 20 Monday. GMS. Obs.

Seeing good.

U. W.

S Mer mark Middle wire N Mer mark

5.15	4.06	4.82
15	05	81
16	07	80
14	06	80
15	05	80
16	06	81
15	04	81
16	05	81
16	05	82
15	06	81

mean 5.153 4.055 4.809

Middle wire E of S Mark 1.098

" " " " N " 0.754

Reversed to U. E.

S Mer Mark	Mid. wire	N Mer Mark
3.59	4.05	3.92
58	04	92
59	05	91
59	06	91
59	05	93
58	06	92
59	06	91
58	05	91
57	06	91
57	05	92

mean 3.583 4.053 3.916

Middle wire ϵ of S Mark 0.470

" " " " N Mark 0.137

Hence for μ . ϵ

Mid wire, W of axis, from S Mark 0.314

" " " " N " 0.308

Diaphragm off to one side of the field somewhat during above measures, and wires ^{but} a little out of focus to get a good one on marks.

Focus improved and diaphragm measured

0.86	2.43	4.06	5.60	7.18
87	44	04	59	19
86	44	06	60	19
86	45	06	59	19
86	44	07	60	20
87	44	08	60	19
86	43	08	59	19
87	44	07	61	19
85	44	07	59	18
86	45	07	60	20

0.862 2.440 4.066 5.597 7.190
 mean 4.031

— 3.169
 — 1.591
 + 0.35
 + 1.566
 + 3.159

 — 4.760
 + 4.760

9U. E. (Upper Culm.)
 Mean of 5 wires W of axis

$$0.346^{\pi} = 0.791$$

Coll. corr. including diam. aberr.

— 0.81 9U. E

+ 0.78 9U. W.

as the reduction of mid
 adoption 0.000 resulting from a

combination of this measure of diaphragm with those previously made
 we have) — 0.73 9U. E + 0.70 9U. W.

Ill E

Jan 22 1868

3^h 1^m started

48 Cephei

3 Arctis

2 Persei

2² Ursa Major
alt 3^h 22^mDraw sheet 3^h 26^m

49 Bet 61100

50 12 Tauri

51 Lat 6765-

2 Eridani

3 Arctis & 2 Ursa

2 Tauri

2 Eridani

3 Persei

3 Ursa Minor lost 11 2 hours mean

1 Eridani

2 Tauri

55 Lat 75-90

4 Tauri

1 Persei

2 Tauri

Jan 22 1868 Jll E

3-7 W IV 377

3-8 400

3-9 Lat 8414

60 44 Eridani

comp of clock 8 17

8 Lani

2 61 4

61 49 Eridani

3-3 Eridani

~ 2 Run 249

1 Lani dup

2 Caeli

3 4

171 Orionis

30" S of lat W IV 912

W Eridani

1 Aurigae

3 Canis m dup Lat 9258 &

3 Aurigae

3 Canis m.

1 Lani

11 Orionis

6 Ach

1 Erid

7 4

Jan 22 1868 Jll E

M Arigae

2 "

B Or

7 An

7 Or

2 Lep

Sp Or BAC 1657 : or m ar 315

1 Orion

m " dup 1st m last

B Zaur

(P Arigae f)

Or fol M₂ T 510

4 2 Orion

3 1 S Or Oct 3978

B Lepor

(Ar Or

2 Lep

Or Or

E " S fol Az - 1° 973

Or " 4 comp

3 "

Or Or

BAC 1822

Y Or

S fol

Jan 22 1868

3 Lepus

2 Am

2 Orion

3 Andromeda

last minute 5^h 5-1^m

Jan 24 1868 Grid
started 3^h 17^m

Jan 30

00 3-30 Jul 7540

4 Luni

ant 3^h 0^m

new start 4^h 4^m

02 Eridani

7 Luni

59 Jul 8414

60 44 Eridani

20 Luni

2 "

61 49 Eridani

53 Eridani

Jan 30 1868 Jll E

2 Carl

3 " 1st m last

on p. 2 ~~II~~ ~~IV~~ ~~878~~ ~~879~~ ~~880~~ ~~881~~ ~~882~~ ~~883~~ ~~884~~ ~~885~~ ~~886~~ ~~887~~ ~~888~~ ~~889~~ ~~890~~ ~~891~~ ~~892~~ ~~893~~ ~~894~~ ~~895~~ ~~896~~ ~~897~~ ~~898~~ ~~899~~ ~~900~~ ~~901~~ ~~902~~ ~~903~~ ~~904~~ ~~905~~ ~~906~~ ~~907~~ ~~908~~ ~~909~~ ~~910~~ ~~911~~ ~~912~~ ~~913~~ ~~914~~ ~~915~~ ~~916~~ ~~917~~ ~~918~~ ~~919~~ ~~920~~ ~~921~~ ~~922~~ ~~923~~ ~~924~~ ~~925~~ ~~926~~ ~~927~~ ~~928~~ ~~929~~ ~~930~~ ~~931~~ ~~932~~ ~~933~~ ~~934~~ ~~935~~ ~~936~~ ~~937~~ ~~938~~ ~~939~~ ~~940~~ ~~941~~ ~~942~~ ~~943~~ ~~944~~ ~~945~~ ~~946~~ ~~947~~ ~~948~~ ~~949~~ ~~950~~ ~~951~~ ~~952~~ ~~953~~ ~~954~~ ~~955~~ ~~956~~ ~~957~~ ~~958~~ ~~959~~ ~~960~~ ~~961~~ ~~962~~ ~~963~~ ~~964~~ ~~965~~ ~~966~~ ~~967~~ ~~968~~ ~~969~~ ~~970~~ ~~971~~ ~~972~~ ~~973~~ ~~974~~ ~~975~~ ~~976~~ ~~977~~ ~~978~~ ~~979~~ ~~980~~ ~~981~~ ~~982~~ ~~983~~ ~~984~~ ~~985~~ ~~986~~ ~~987~~ ~~988~~ ~~989~~ ~~990~~ ~~991~~ ~~992~~ ~~993~~ ~~994~~ ~~995~~ ~~996~~ ~~997~~ ~~998~~ ~~999~~ 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Jan 31 1868 Jll E

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(Pr W 1-4 W V 315

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Feb 3 1868 Jll E

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d Calumb

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" b b W

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193.0 204.7 + 26 = $\overline{m}$

New sheet 1st min 8 44

Melphomene

Pen filled

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last min 11 4

Feb $\frac{3}{4}$ 1868 Ill E

New sheet 1st min 11 51

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Last min 12 13

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11 Orion

Feb 4 1868 JH B

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τ Or

80 α Orionis

81 W V 287

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γ^1 Orion

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84 γ^2 Orion

87 Lal 10264

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2 Leporis

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92 W V 731

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95 B & B 1831

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Feb 4 1868 Ill E

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last min 9 52

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Feb 8 started 1 h 3^mPolaris M₂-5-ant 7 h 16^mnew start 21^m1 h 45^m

1 56

2 Arctis

ant 2 h 5-2^mnew start 2 h 30^m7 Beti ant 2 h 35^mnew start 2 h 46^m

3 Marsellion

2 Leti

ant 2 h 5-6^mcrowd shut 3 h 3^m

3 Arctis

7 Jumi

3 Persu

3 Marsellion

7 Enclon

ant 3 5-2

Feb 8 1868 Jll E

6^h 26^m

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Feb 8 1868 ~~Ill~~ E

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957

151

153 1095-

154 1122

155 1187

156 1241

157 Jul 15-271

161 W VII 1324

E & Procons 2^d W last
2 Wsue thin W 2, 3, 4
ant 7^h 58^m

New sheet

1st min 8 54

Julia

Last min 9 8

Feb 10 Monday

Polaris U C Last 3 wires

Last min 1 15

Take mean of beginning & end of break

Disregard interruption of break or wire 4

Feb 10 1868 Jll 2
 new start 4^h 28^m
 62 W IV 808

μ Endani

2 Cabellach

W IV 936

65 Orionis

Jul 9207

9261

1st min 8 49

Julia

last min 9 56

Feb 11 1868
 started 4^h 36^m
 W IV 936

65 Orionis

Jul 9207

69 W IV 1171

70 1207

11 Orionis

72 W IV 1296

Feb 11 1868 M E

73 Jul 9699

74 W T 64

2 Am

B Or

2 Am

80 21 Orionis

W T 259

m 287

Jul 10/33

ψ^2 Or

B Luf

X Am

✓ Or

2 Luf

λ Or 2-5-

c Or

δ "

3 "

2 Calumbae

γ Luf

5 "

σ Am

Fish 11 1868 Jll 8

B Camelopard

d Or

γ Col

ν Or

22 Camelopard

γ Gem

κ² Orion

κ Col 2-5

μ Gem

β Can Mag

BAC 2079 hr of 12

ν Gemin

BAC 2109

13 Monoc

BAC 2137

γ Geminor

5-5 Aurig

ε Gem

57 H Ceph 2-4

θ Gem

BAC 2252

θ Can Mag

File 11 1868 J M E

300 Draw
 6 am - May
 3 Gen

7 am - May
 R gen ? W 1 2 3 dark
 ant 7 h 0 m

new sheet
 1st min 7 16

Gen 48 Virginia 3 taps. When a little
 Last min 7 25 (after the 2^d)

$1\frac{81}{100}$ minute 8^h 5 m.

Emergence 48 Virginia CP
 Last min 8 24

8 30 6 6 E Tel. S.

9 20 93.7 99.2

" 6 6 W.

10 15 92.5 98.8

186.2 198.0 | + 25 = $\bar{m}$

1st min 8 29
Melpomene

1st min 9 46
Flora

last min 10 8

Feb 14 ~~Monday~~ Friday Ill E
1st min D 59

Polaris 5 w.

Last min 1 16.

new sheet.

started 3^h 27^m

62 W IV 808

n Erid

& Canclap

9 m IV 936

Jul 9207

67 B & C 15-19

Jul 9261

69 W IV 1171

71 Sep Jul 9469

Feb 14 1868 Ill 8
 16

11 Orionis

73 W IV 64

75 S Orionis

B Orionis

changed at

ant 5 h 10 m

Feb 16

to start 4 h 22 m

2 Jani

27 Eridani

62 W IV 808

in Eridani

2 Camelopard

W IV 936

Jul 9207

67 B A 615-19

Jul 9261

69 W IV 1171

71 Jul 9469

11 Orionis

B Eridani

Feb 16 1868 Ill E

74 W V 64

75 S Oriani

B Or

79 W V 183

o Calmuk

x Lep

o Or

m u chup W V 343

B Lem

o Am 3-5

4² Or

B Lep

x Am

o Or

x Lep

E Orionis

o "

o "

o Cal

9⁴ W V 955

9⁵ B+C 1831

96, 2-5 W V 1083 }

Feb 16 1868 Ill E

r Aurig
3 Aurig
2 Or

B Aurig

Or 4 3-5-

ant 5-4 5-1 m

new sheet

5-4 5-6 m

r Orion

Or Columb

3 Orionis

Or Gemina

Or Columbae

r Gemina 2-5

B Can Maj 2-5

BAC 2079

r Gemina

BAC 2109

13 Monoceros

BAC 2147

r Gemina

2 Can Maj

Feb 16 1868 Jll E

& Leminum
out 6^h 47^m

0

8 40 66 E Feb 5

9 10 83.2 92.5

" " C 6 W

10 10 83.0 93.0

166.2 185.5 + 43 = $\overline{m}$

1st min 9 1

Fr. 8421 11 ¹⁵~~10~~ 10 — 70

3242 11 19 30 — 50

last min 9 5

Feb 18 Tuesday

1st min 0 59

Polaris

wires 1 2 4 lost, pen not marking

last min 1 16

Feb 18 1868 Ill 8

4 h 23^m started

2 Larni

27 Eridania

62 W IV 808

11 Erid

2 Camelot

W IV 936

1 Amigue

71 Jul 9469

11 Orion

6 Urs Min

73 W V 64

2 ad m

B Or

80 21 Orionis

W V 23-9

287

m Orionis

W V 343

B Larni

ant 5 h 19^m

Feb 19 Wednesday 1868

1st min 0 59

Polaris. Seeing very good; star very steady
take mean of beg. & end of long breaks.
end of break on wire 4, 4^s too soon.

last min 1 16

1st min 5 53

Arcturus

Pen failed to mark

Put down again 1st min 6 46

Failed again

Failed again

Failed partly again

last min 7 ~~40~~ 42

Feb 20 Thursday

1st min 0 57

Polaris. Seeing very fine.

last min 1 16

Feb 20 1868 Ill E

1st min 8 3

β Cancri

γ Cancri

BAC 2825

δ Cancri

η Cancri

ϵ Hydrae

σ^2 Urs Maj. (mean of two taps on last wire)

Fr 8421 11 8 20 - 40

3242 11 10 20 - 40 (35 bad)

1 Draconis (last tap on wire 1)

α Hydrae

δ Urs Maj

last min 9 27

9 25 6 6 E Feb S.

10 5 75.8 86.0

" 6 6 W

10 45 75.1 84.1

150.9 170.1 $\overline{m} = +43$

Feb 21²² Friday 1868 Ill E
1st min 1 1

Polaris seeing very fine

last min 1 16

Feb 22 Sat
started 4 h 43^m

Lat 9261

70 W IV 1207

1102

↳ Mrs Min

76 Lat 9802

78 9820

79 2-5 W V 183

80 21 Orionis

W V 259

81 W V 287

W V 303 3-5

m Orionis 2-5

l 10133

83 W V 414

85 458

87 Lat 10264

88 10328

89 n' Orionis

Feb 22 1868 Ill 8

90 Jul 10 465-

E Orion

92 W V 731

W Orionis

W V 854

93 51 Orionis

94 W V 955-

r Lup

95 B 46 1831

W V 1008

43 1041

W 4 1043

96 1083

97 56 Orionis

98 W V 1187

99 2-5 1197

100 1282

102 60 Orionis

W V 1403

103 66 Orionis

104 W 2 0.3 has soon W V 1482

r Orion

Feb 22 1868 Ill E

4 Columbae

7 Geminorum

2 Orionis

2 Columbae

11 Geminorum

3 Can Major

BATC 2079

1 Geminorum

BATC 2109

13 Monas

BATC 2147 2-5-

5-5 Aurigae

1 Geminorum

E 4

2 Can Major

Cont 7 h 14 m Arcturus

New street 7 h 19 m

6 Can Minor

2 Geminorum

11 Rukia's deep

Feb 22 1868 Ill 8

0 Gemini

2 Can Min

1 Mocrat

B Gemini

4 Pup

0 "

3 Argus

6 Draconis

2 Ursae Min 2, 3, 4.

out 8^h 0^m

new start 8^h 19^m

mean time clock 10^h 10^m

" " out 11^h 3^m

Melpomene

last min 9 25

First min 10 7

Flora

last min 10 31

Feb 23 Sun Ill E
started 4h 47m

71 Sol 9469

11 Orionis

6 Ursae Min

76 Sol 9802

78 9820

79 ^{WV 183} Mean of 2 checks 2d m

o Columbae

WV 291

m Orionis

l 10133

83 WV 414

85 358

87 Sol 10264

88 10328

89 n' Orionis

90 Sol 10465

6 Orionis

92 7½ mag WV 731

WV 854

93 5.1 Orionis

Feb 23 1868 Ill 8

W V 1008 } 8 m
+ 3 10 31 } m

W V 10 43 7 1/2

96 1083

97 56 Orionis

98 W V 1187

99 1197

100 1282

102 60 Orionis

W V 1403

103 66 Orionis

104 W V 1482

+ Columba

3 Orionis

γ Geminae

K² Orionis

K Columbae

M Geminae

B Can Maj

NGC 2079

γ Geminae

NGC 2109

Feb 23 1868 Ill E

13 Monocerotis

BAC 21 47

V Gemini

Arcturus

o Can Maj

v v

t v

3 Gemini

r Can Maj

45 Gemini

r Can Maj

22 Monocerotis

64 Aurigae

2 Gemini

v v

Pi VII 67

v Proc W 4 5

ant 7^h 19^m

new sheet 1st min 8 58

Melpomene

last min 9 22

Pen put down
 East clock 1st min 11 12
 last min 11 17

July 25- Tues Ill E
 started 5-4 11^m
 W V 303

Lul 10133

83 W V 414

85- 458

87 Lul 10264

W V 543

✓ Or

± "

W " clouds faint

4 Deneb both x 0 B466048

d Orionis

d Antares

μ Orionis

X" "

ant 5-4 5-8^m

Feb 25 1868 Ill E
 New start 6^h 37^m
 a Can Maj
 58 Arcturus
 4 Geminor
 B 225-2
 0 Can Maj
 50 Draconis
 6 Can Maj
 3 Gemin
 1 Can Maj
 45 Geminor
 1 Can Maj
 22 Monoc
 6 Arcturus
 1 Gemin
 ✓
 6 Arcturus dup
 1 Draconis
 3 Canis Min
 6
 4
 1 Geminor
 11 Pupps dup

Feb 25 1868 Jll ~~E~~

0 Gemini

2 Canclm

ant 7 h 32^m

new sheet

7 h 35^m

B Gemini

4 Puppys

0 "

3 Argus

p Gemini

Bet 6 2629

1 Cancri

14 Canclm

6 Cancri

m' Cancri

m² " poor

15 Argus

ant 8 h 2^m

Feb 28 Ill E 1868

started 5-h 17 m

br 966

Or -

2 Sep

91 3-5- m² Orionis

to Orion

W ~~9~~ 9

2 Calumet

no Draconis

2 Orionis -

ant 5-h 49 m

1st min 7 16

East Clock 1st min 8 45

~~Last min~~ Last min 8 50

last min 7 22

Feb 29 1868 Ill 8
started 5-4 35-^m

W V 1008

+30 1041

W V 1043

3 Arctis

B Columba

99 W V 1197

4 Arctis

101 59 Orionis

W V 1403

103 66 Orionis

104 W 3-5 W V 1482

105-

1586
1589

W V 119

W 181

106 W VI 218

108 Jul 11961

K Columbae

109 W VI 400

V 439

BAC 2047 2-5

Feb 29 1868 Jll E

- 112 Lal 12316
- 117 " 12385
- 113- 12426
- 116 3-5 12 Monocerotis
- 117 Lal 12596
- 118 12637
- 119 AZ +4° 1335
- 121 Lal 12723
- 122 12754
- 124 BAB 2189
- 125- W VI 1041
- 126 1074

L Cam Maj

- 128 18 Monocerotis
- 129 W VI 1268
- 130 1345

ant 6h 45

new sheet 6^h 49^m

- 132 W VI 1575

L Cam Maj

- 133 W VI 1734
- 134 Lal 13695

Feb 29, 1868 Ill E

45 Geminorum

✓ Can May

22 Monoceros

64 Aur

7 Gem

✓ "

66 Can May

7 Can May

13 Can Min

6 "

143 W VII 700

143 Lat 14666

2 Geminorum

147 ✓³ Can Min

no Puppis

0 Geminorum

2 Can Min

7 1 hour Monoceros

3 Geminorum

11 Aur

0 "

3 Argus

0 Geminorum

Feb 29 1868 Gll E

+ Draconis mean time
14 Can Min clock out
w/ Cancer in 9^h 1^m

6 4

3 Ursae Maj (H)

15 Aug

16 Pup

5 Cancer

20 Pups

3 Cancer

K. L. P. H. G.

Mid W. L. S. T.

out 8^h 15^m

1st min 11 28

Asia.

Circ

last min 12 20

March 3 1868 Ill 8

Started 5-4 5-6 m

q Geminar

k⁺ Orionis

k Calumbae

u Geminar

W VI 439

B Can Maj

BAG 2079 2-5

113 77 Orionis

BAG 2109

13 Manoc

BAG 2147

119 AB +4° 1335

r Geminar

5-5 cl m

t Geminar ?

51 Cephe 1-3

2 Can Maj

58 Ariz

t Geminar

BAG 2152

March 3 1868 M E

0' Can Maj

1 " "

132 W VI 1575

E Can Maj

5 Gemin

W Can Maj

45 Geminor

✓ Can Maj

133- W VII 77

72 Monoc

136 B & B 2373

✓ Geminor

✓ "

T Dra c 1 mine before 20th

B Can Min

6 "

2 Geminor

Jul 14 810

0 Geminor

✓ Can Min

✓ Monoc

B Geminor

4 Puppis

March 3 1868 Ill E

φ Geminor
 & Draconis
 out 7^h 50^m

1868 Mar 4 Wednesday
 1st min 5 12

Imm f Gemin.	252°.1	} Setting.
Em. " "	259°.9	

Last min 5 35
 new sheet 5-4 47^m

2 Calumbac

NR 1403

103 66 Orionis

104 NR 1482

1586

105 1589

3 Calium

3 Orion

NR VI 181

106 NR II 218

108 Sal 11 961

12 Calumb

μ Gemin

March 4 1868 Jll E

W VI 439

B Can May

BCE 2079 3-5

113 2-5 77 Orionis

114 Jul 12385

115 12426

13 Monoc

BCE 2147

118 Jul 12637

r Gemina

5-5 Aurigae

t Gem

3 4

d Can May

5-8 Aurig

BCE 2252

o' Can May

c " "

132 W VI 1575-

t Can May

g Gemina

r Can May

March 4 1868 Ill 8

45 Geminus 3-5

1 Can Maj

22 Monoceros

64 Aurig

75 Gem 2-5

1 Draconis

66 Aurigae

1 Gem

4 Can Maj

3 Can Min

6 6 6

2 Geminus

Lat 14810

0 Geminus

2 Can Min

Moan 1 2 6 2

bright spots

0 Pupps

3 Argus

0 Geminus

1376 2629

1 Cancri faint near

March 4 1868 Cl E

14 Can Min
 w' Bowen
 x Ursa Min 3.4
 μ^2 Cancri
 13 Argus
 16 Rho
 3 Cancri dup 3
 RSC 2758 faint
 20 Rho
 B Cancri
 K keplian ~~etc~~
 w Puppis (did not record)
 RSC 2825-
 2846

J Cancri

γ 4
 ant & h 25^m

9 45 CLE Tel S.

10 50 88.0 93.0

" " 22 W

11 40 87.8 93.0

175.8 186.0 +23 = $\overline{m}$

New sheet 1st min 11 25

Asice

Circe

last min 12 11

Mar 5 Thursday 1868 Jlt 8
1st min 1 0

Polaris star very unsteady sometimes
almost disappearing

last min 1 16

new start " 5-h 44^m

& Orionis

& Aurigae

& balunhae

n Orionis

X" 4

B&C 1946

& balunhae

& Orionis

W VI 101

106 W VI 218

108 Jul 11961

109 W VI 400

March 5 1868

W VI 439

Lal 12226

111 Lal 12300

112 12316

113 12385

115 12426

116 12 Monocerotis

117 Lal 12596

118 12637

119 Az +4° 1335

121 Lal 12723

123 W VI 942

124 BAB 2189

6 Geminon

3 4

2 Canis Maj

5-8 10 11

130 2-5 W VI 1345

BAB 2252

Out 7h 0m

March 5-1868 Ill 8
 crew sheet 7^h 5-m

14 Amigoe
 ✓ 200 tons mid of hr
 66 Amigoe
 1 Gemini
 7 Can Maj
 3 Can Min
 6 " "

143 W VII 900

144 Jul 14666

2 Gemini

147 ✓³ Can Min

Jul 14810

0 Gemini

2 Can Min

7 Monocerot

3 Gemini

4 Puppis

0 " "

5 hr 1-4 B46 2599

3 Argus extra break

between W 1 & 2

March 5 1868 Jll E

4 Geminor

BSC 2629

1 Canceri

13 Can Min

X Ursa Min W 3 4

M² Canceri

2 Ursa Min W 5

16 Puppis

3 Canceri dup

BSC 275-8

20 Puppis

3 Canceri

X "

9 Puppis

W 4

BSC 2825

" 2846

4 Canceri

7 "

BSC 2887

Gr 3241

5 Hydrae

6 "

March 5 1868 Jll E

r Bonneri

✓ " "

d Malin

c Hydrus

g

35 Lynx

r Bonneri

g Hydrus

c Unsee Maj (did not record)

But 6 3059 3-5

k Unsee Maj

d " "

k Bonneri

But 6 3121

e Malin

ant 9h 4m

Mar 6 Friday Ill E.

4^h 0^m P.M.

S Mer mark. Seeing good.

	S Mark	mid. wire
3. 57	3.89	4.07
57	89	09
57	87	08
56	89	06
55	88	08
56	89	08
56	88	07
55	89	06
56	90	07
56	90	07
means 3.561	3.888	4.073

Mid. wire E. of S Mark 0.512
 " " IV " 0.185

Reversed to Ill. W.

March 6 1868 Jll W

N Mark

S Mark

Mid. wire

4.82

5.15

4.08

83

15

09

82

16

08

81

16

07

82

15

07

83

15

07

83

15

07

83

17

08

83

17

08

82

16

07

means.

4.824

5.157

4.076

Mid wire E of S Mark 1.081

"

"

N

"

.748

Hence, coll. corr. mid. wire Jll W.

From S mark

+0.284 = +0.649

N

"

+0.282 = +0.644

For mean of 5 wires

+0.644 Jll. W

with diam. above.

-0.676 Jll. E

Ill W

March 8 Sunday 1868
started 6^h 22^m

117 Lal 12596

119 Az +4° 1335

r Gem

124 B46 2189

125 W VI 1041

126 1074

5-1 Cephre W 3-5

128 18 Monocratis

129 W VI 1268

131 Lal 13222

B46 2232 3-5

ant 6^h 49^mnew sheet 6^h 49^m

✓ Can clay

6 " " 2-5

133 W VI 1734

134 Lal 13695 Az +1° 1663

lost 5 breakfast of

2 x° equally bright

✓ Can clay 2-5

135 W VII 77

B46 2373

136 . 137 . 24 Monocratis

March 8 1868 Ill W

138 W VII 350

139 389

141 B & C 2433

142 2-5 W VII 448

♂ 1 Gemini

γ Can May

β Can Min

143 W VII 700 { Note Nov. 23, 1872.
Not the star. It seems
to be D.M. 1681 (+2°) }

♂ 2 Gemini

147 2-5 ✓. 3 Can Min

L 14810

150 W VII 927

151 957

♂ Can Min

γ Manocent

153 W VII 1095

154 1122

155 1187

156 1241

158 1289

161 1324

* 5' or full 1339

March 8 1868 Ill W

BAC 2629 3-5-

1 baren

14 Ban Min 3-5-

W' Ban cry

b "

m' "

m² "

15 Aug

16 Pups

3 baren

BAC 2758 2-5-

20 Pups

6 baren

K Cephei

W Puppis

BAC 2825

2846

ant 8^h 22^m

9 Pch Min 36

Mer 67

Air 40.5-

10 Ach min 30.8 Dry 41.6 Wet 36.4

B 30.364 att 39 W 3 Cl 4 Ori

March 8 1868
 started 22ⁿ 2^m
 M T Cal 22 5.2
 out 22 2.1
 all 2 23 1.1

Mar 11 Wednesday Ill W
 1st min 1 0

Polaris, star unsteady
 end of middle break about 4^s too soon.
 last min 1 19

new start 6 2.4
 118 Sol 12637
 121 12723
 122 12754
 124 B A C 2189
 125 W VI 1041
 126 1074
 127 Sol 12940

2 Gun Mary

128 18 Monocerotis

W VI 1266 129 out 6ⁿ 4.2^m

Sol 13222 131 new place

March 11 1868 Ill W
 ran sheet 6 h 43 m.
 502 rac

6 Canclaj

133 W VII 1734

134 Sal 13695

lost 5 break Gail of 2

135 W VII 77

136 BAC 2373

137 24 clannet

138 W VII 350

139 389

141 BAC 2433

142 W VII 448

u Gemm

W Canclaj

143 W VII 700

144 Sal 14666

2² Gemm

147 3³ Canclaj

14810

150 W VII 927

151 957

152 1045

1095

153 154 1122

March 11 1868 Ill Wⁿ

13-5 W VII 1187

136 1241

138 1289

161 1324

+ Procanis

163 W VII 1173

~~14~~ 14 Bonis Clin

W¹ Cancri

b "

m¹ "

m² "

15 Argus

16 Pups

3 Ecan

B 2738

20 Pups

B Cancri

X "

g Puppis

w B "

r Cancri

✓ "

2 Chali

March 11 1868 Jll W

6 Hydrae

8 ~~de~~ u

35. Lynceis

5² bancari

8. Hydra

1. Ursae May

BAG 3059

Aug 1879 10^{1st} W before rattle

BAG 3077

4. Comen

BAG 3121

1. Mali

8 Hydrae

38 Lynceis

2 u

207

WIX 273

2. Mali

12. comen

2 Hydrae

24. Ursae May

unt 9^h 2^h 3rd

Mar 12 Thursday new sheet

Fr 3242 1 25 50-70 (65 bad)
 E Clock 1st min 1 27
 last min 0 50

March 13 Sat

21 34 S Re

22 4 E u

6 Pegasi

ant 21^h 38^m

March 14th Sat
 start 7^h 22^m

2 Geminorum

4 Can Min

3 Geminor

4 8 4

7 Ursa Min 1-4

ant 8^h 5^m

Mar 18 Wednesday

1st min 1 0

Polaris seeing wretched

Star so poorly defined & tremulous
as to be hardly visible
improved toward the last.

(Shutters open 40 min. before)

Last min 1 14

new st 2 47

β Ursae Min

α Ceti

ant 2 5-4^m

3 11

α Persei

ant β 1 5-

3 29

δ Persei

γ Tauri

δ Persei

ant 3 48

March 19 1868 Jll W

Started 47

133 W VII 1734

Or 134 $23 + 10$ 1663
2 - 5

✓ Can Maj

135 W VII 77

136 B46 2373

137 24 Monocerotis

138 W VII 350

140 390

141 B46 2433 390

142 2-5 W VII 448

✓ Deneb

144 Jul 14666

146 ✓ 2 Can Min

148 W VII 829

150 927

151 997

152 1045

155 1187

156 1241

157 Jul 15271

160 } Can Min

March 19 1868 Jll W

B&G 2629

1 Cancri

w 14 Cancri

w' Cancri 2-5-

6 "

m' "

m² "

15 Arg

16 Pup

3 Cancri

B&G 275-8

B&G 2825-

2846

4 Cancri

3 "

B&G 2887

1 Phyllae

5 "

6 "

Fr 3242 8 42 25-45

r Cancri } not visible
5 "

Ill W

1868

Mar 22
 started 6^h 5-5^m

1 Can Maj

137 24 dda neccentis

138 W VII 350

140 390

141 ~~B46~~ 24 33

142 2-5 W VII 448

pi 9 VII 67

145 ♂ 1 Can dlin

146 ♂² "

148 W VII 829

0 Geminarum

2 Can dlin

132 W VII 1045

153 1095

154 1122

4 Pappis

0 "

158 W VII 1289

♀ Geminar

1 Canen

14 Can dlin

W1 Canen

6 "

March 22 1868 Ill 8

ant 7 5-5

new sheet 7 57

m² Baren

15 Argus

16 Puppis

3 Baren

BAG 2758

20 Puppis

3 Baren

X 4

9 Puppis

W 4

BAG 2825

4 2846

6 Baren

7 "

BAG 2887

1 Hydrae

2 4

6 "

7 Baren

1 4 2-5

March 22 1868 Jll E

2 Mali

6 Hydrae

8 "

35 Lynx

2 ~~all~~ Cancri

8 Hydrae

6 Ursae Maj

Bd 6 3059

8 Ursae Maj

2 " "

8 Cancri

Bd 6 3121

22 Mali

8 Hydrae

38 Lynx

2 "

6 mali

12 rocoris

2 Hydrae

24 Ursae Maj

8 " "

10 Leonis

33 Hydrae

ant 9 h 29^m

13^h 6 L E 7^h 5

15^h 10 81.2 89.0

" 6 L W

15^h 50 82.2 87.5

163.4 176.5 + 30 = $\overline{m}$

March 23^d 1868 Ill W
start 0^h 5-8

polaris could scarcely
see it

ant 1^h 15^m
new start 7^h 2^m

✓ Draco

140 W VII 390

1st Gem

γ Can Maj

145^h 1st Can Min

2nd Gemina

149 W VII 834

η Puppis 2 x's

0 Gemina

2 Can Min

152 W VII 1045

March 23 1868 Jll W

B Geminus
out 7 h 36 m
new sheet 7 h 39 m
o Puppis

13.7 Lal 15271

o Gem

26 29 RAB

162 Lal 15475

163. W VII 1473

165 1506

m' Canis

3 Urs Maj

15. Argus

166 W VII 46

RAB 27 58

167 x W VIII 181
185-1' W

168 W VII 228

169 3-5 241

X Canis

y Puppis

W 9

172 Lal 16463

RAB 28 25

March 23 1868 Ill W

BAG 2846 .

177 W VIII 580

o Cancri

γ u

BAG 2887

✓ Hydrae

o u

b u

2 Cancri

✓ u

2 Mali

ε Hydrae

g u

35 Lynx

20² Cancri

3 Hydrae

i Urs May

BAG 3059

κ Urs May

BAG 3097

κ Cancri

BAG 3121

ε Mali

March 23 1868 Ill W

200 B+6 3133

4 Hydrae

202 W TX 143

38 Lynx

2 "

206 * 8' CN Pr W TX 264
268

n Chali

12 rocomis

2 Hydrae

24 Uro Chay

0 " 1

10 Leon Min

33 Hyll

42 Lynx

0 Hydrae

0 Leonis

4 "

16 "

E block turned in

ant 9^h 44^m East block

F 3242 9^h 45^m 30-50

last min 9^h 5-2^m

March 24th 1868 Ill W
 started 0^h 58^m 0^m
 Palanis W 2 3 4
 ant 1^h 12^m
 News sheet 7^h 4^m
 J Gemina dup
 139 W VII 389
 66 Amegae
 e Gemina
 145- J¹ Canclini
 146 J² " "
 149 W VII 834
 n Puppis dup
 2 Canclini
 γ Monocerot
 B Gemina
 4 Puppis
 159 Jul 15286
 160 3 Canclini
 BSC 2629
 162 Jul 15475
 163 W VII 1473
 165 1506

March 24 1868 Jll W

w' Bancro

b n

3 Ursae Maj

13 - Argus

166 W VIII 46

W VIII 185

W VIII 228

W VIII 241

20 Ruppis

167

168

169

last 4 w.

K Cephei dup

8 X Bancro

w Ruppis

55 Lyncis

52 Bancro

3 Hydral

1 Ursae Maj

B46 3059

7 6 1879

2th W^{1s} late

Ursae Maj

K Bancro

B46 3121

e Mali

38 Lyncis

a y

h Mali

B46 3207

A Hydral

March 24 1868 Ill W

2 Hydrae
24 Ursa Maj

0 " "

10 Leon Min

³³ Hydrae
42 Lynceis

0 Hydrae

0 Leonis

4 " "

6

⁴11 Cephei

ant 9^h 40^m

New star 10^h 43^m

54 Leonis

2 Ursa Maj

ant 10.57

Mon 25 1868 Jll W

started 3^h 12^m

d Persei

8² this mlin.

ant 3^h 22

new start 3^h 30^m

1 Persei

7 Larii

15 Persei

ant 3^h 49^m

8^h 5^m

Tel N

C L E

9 20

82.0

89.0

"

"

C L W

9 50

80.0

94.0

162.0

183.0

+ ~~100~~ 47 = m

Mon 26

0^h 59^m

start

1^h

4^m

Polaris

last mlin

1^h 15^m

March 26 1868 Ill W

skirt γ ¹⁶ 25^m

148 W VII 829

2 Canclin

r Monoceros

6 Gemini

159 Lal 15286

160 3 Canclin

e Draconis

163 W VII 1473

165 1506

2 Ursae Min W 2.3

m' Cancri

166 W VIII 46

(m 181

167 185

168 228

X Cancri

170 BAC 2791

171 Lal 16397

172 16463 Can 172 775 176

174 W VIII 475 1^m bright

175 547

176 577

178 711

March 26 1868 Ill W

✓ Hyd

180 2 - 5 - Sal 17007

182 W VIII 855

- 184 W VIII 947

ant 8^h 38^m

new sheet 8^h 5-4^m

X Canon

BAC 3121

e Mali

✓ Hydre

38 Lynx

2 "

h Mali

BAC 3207

✓ Hydrae

2 "

24 Visore May

0 "

10 Leon Min

3 Cep 3-5

33 Hydrae

42 Lynx

March 26 1868 Ill W

✓ Hydne

ψ Leonis

✓ "

11 Cephei

✓ Uranus Major

φ "

11 Leonis

ant 9^h 46^m

March 27

Palanis

ant 1^h 16^m

March 28

10^h 16^m Started for results

new start 10^h 59^m

♂ Leonis

♂ Crateris

7 Leonis

2 ♂ Leonis

236 11^h 22 40 - 60

3242 10 56 40 - 60

ant 11^h 25^m

March 31 1868 J. L. W.

Started 8^h 11^m

Bet 6 2887

1 Hydrae

2 "

6 "

7 Boreas

5 "

2 Alkaid

6 Hydrae

8

190 W VIII 1100

8 Hydrae

11 Ursae Major

K "

Bet 6 3097

K Boreas

199 Jul 18134

0 Hydrae

202 W IX 143

203 175

205 199

March 31 1868 Ill W
 Pr (206 1-3 WIX 264_m 0 2 fainter
 208 WIX 268
 207 3-5- 273

BAG 3207

A Hydne
 2 4

24 Ursae May

10 " "

10 Leon Min

33 Hydne

42 Juncis

v Hydne

0 Leonis

4 "

6 "

11 Cephei

n Leonis

BAG 3385

" 3398

79 Draconis 2-5-

TT Leonis

BAG 3428

March 31 1868 Ill W
 v² Hydræ
 3 Leonis
 2 "
 ant 10^h 2^m

March 31st Astron
 22 20 level put on
 cross level East
 22ⁿ 25^m 73.5^E 87.0^W 160.5⁻
 40 73.2 9.3 82.5 155.7
 50 72.8 8.7 81.5 153.3
 57 72.0 9.0 81.0 153.0

level reversed

23 1 73.5 6.0 79.5 153.0
 6 72.8 5.7 78.5 151.3
 10 72.0 6.3 78.3 150.3
 20 71.0 7.0 78.0 149.0
 25 70.5 7.5 78.0 148.5

mean of all rejecting 1st reading
 W end high 3.88

April 1 1868 Jll W
started 7 h 40^m

159 Lal 15286

q Geminae
+ Draconis Lal

14 Can Min

3 Mrae May

15 Aug

166 W VIII 46

167 2-5 W VIII 185

168 228

170 BAB 2791

171 Lal 16397

172 16463

174 W VIII 475

175 547

177 580

BAB 2887 2

~~Hydrae~~ 2 hatched ant on rac

184 W VIII 947

+ Hydrae

187 W VIII 1054

188 1061

April 1 1868 Jll W

190 3-5 W ~~VIII~~ 1100

191 1263

192 Az + 1° 2210.

193 W ~~VIII~~ 1309

K Ursae Major

B&G 3097

199 Lat 18134

200 B&G 3133

♂ Hydrae

202 W IX 143

203 175

205 199

W IX 264

206 3-5 W IX 268

♂ Hydrae

L "

24 Ursae Major

210 W IX 513

10 Leonis Minor

33 Hydrae

42 Lynx

6 Hydrae

0 Leonis

April 1 1868 Jul W

ψ Leonis
 " Cephei

W Ursae

φ "

μ Leonis

BAG 3385

" 3398

ν Leonis

π "

ν² Hydrae

γ Leonis

λ "

Amald 4 24 10^h 9^m 0^s - 20^s

Hz 3424 9^h 28^m 5^s - 25^s

3 2 42 9 30 10 - 30

two of the breaks too soon
 reject

East Clock in 9^h 31^m

Stopped 10^h 18^m

ε

ν

G L ε 05-

86

G L ν 78

75

143

161

181

April 3rd 1868 J.W.

~~65- 70~~
~~55- 79~~
~~120 139~~

April 3^d April 1868
 started 23^h 57^m clock
 started 7^h 59^m

15th Argus

166 W VIII 46

Pr 167 2-5- 181

167 185

169 241

170 B 46 27 91

171 Sal 16397

172 16463

173 W VIII 475

175 547

176 577

6 Ganeri 2-5-

7 "

178 W VIII 711

5 Hydrae

180 Sal 17007

182 W VIII 855

April 3 1868 Ill W

183 γ Hydrae

184 W VIII 947

185 982

ϵ Hydrae

187 2-5 W VIII 1054

188

189 W VIII 1086
191 1100 A + f 1061
192 2210 W VIII 1309
193

May 1879 L6

195 2-5 W VIII 1406

Bet 3097

* Gamma

δ Hydrae

204 W IX 1848

W IX 264

206 3-5 W IX 268

Bet 3207

δ Hydrae

2 "

24 Ursae

ant gh 23 m

New start 10 h 3 m

γ Hydrae

April 3 1868 Ill W

B 3489

2 Ursae Major

22 Sextantis

γ Leonis

μ Ursae Major

2 Antares

μ Hydrae

2 Antares

δ "

γ Leonis

38 "

226 Cephei - 26

2 clock in 5 h 42 m

ant 9 h 48 m

Az 424 $10^h 30^m$ $25^s - 45^s$

#2 3242 9 52 30 - 50

" 3424 9 54 40 - 60

ant $10^h 52^m$

$21^h 18^m$ M J E W

C l E 75 90.5

83.5 81.

158.5 171.5

3 25

13. m' = + 29

			E	W	
21	40 ²	G L W	79.5	80.5	7 N
	35		79.5	80.5	
	47	G L E	71	88.5	
	50		72	87.	
	56	G L E	70	87.5	7 S
22	0		71	86.5	
	5	G L W	76.5	79.5	
			76	79.5	

West end high $4.69 = 0.313$
 $m' = +.42$

1868 April 5.

Started 8 h r m

Compared Watch T^h T^m T^s
 8 h 8 m

171 Jul 16397

173 W VII 466

175 547

176 577

179 713

180 Jul 17007

April 5 1868 Jll W

182 W VIII 855-

183 γ Hydrae

184 W VIII 947

185- 982

186 1005-

187 1054

188 1061

189 1086

1 μ Urae May'

193 W VIII 1309

194 1401

2 μ Urae May'

K Cancri

199 δ 18134

200 2-5 B46 3133

202 W IX 143

204 188

206 264 decidedly fainter than

206 3-5-268 [206 $\frac{1}{2}$ m?]

208 334

B46 3207

A Hydra

d u

April 5^e 1868 Ill M

24 Wsue May

209 W TX 501

211 B46 3258

212 W TX 666

o Leonis

213 W TX 764

214 788

e Leonis

11 Cephei 2d w last

q Wsue May

n Leonis

B46 3385

3398

x Leonis

11 4

B46 3428

v² Hydrae

γ Leonis

2 4

E Cl in 9^h 6^m

ant 9 13

stopped 10^h 10^m

Apr 6.

7^h 5^m Started for Occult.
Occult not seen

New sheet

Started 7^h 51^m

Watch 6^h 49^m 15^s } Comp.
Clock 7^h 52

Rattled after only.

Stopped 7^h 54^m

Started 8^h 7^m

Compare watch 7^h 5^m 15^s }
8^h 8^m }
8^h 44^m

April 8 Wed 1868
started 0^h 5-9 m

Polaris star very faint
alt 0^h 17

Started 10^h 35^m

E clock in

10^h 26^m

out 10 29

Wind in

Apr 9th

started 1^h 1 m

Polaris

E Cl in 0^h 4 m

stopped 1^h 19 m

not an 0^h 10 E W Del cr

12 77 91.0 E

0 28 76 88

0 31 75.5 88

33 82 81.5 75.25

78.25 43 80 81. 85.0

49.5 32 79 30.0

+ 3.38 = 0.225 m' = + 30

April 9 1868 Ill W

new start 8^h 30^m

6 Hydræ

183 γ Hydræ

185 W VIII 982

186

1005

new sheet 9^h 51^m

Bd 63428

02² Hydræ

γ Leonis

2 "

2 Hydræ

Bd 63489

32 Ursæ Maj

22 Sextantis

γ Leonis

μ Ursæ Maj

μ Hydræ

2 Antares

9 Procyonis

23 Leonis

48 "

02² Hydræ

03 "

April 9 1868 Jll W

BAG 3665-

E Cl in 9^h 36^m ?

ant 9^h 43^m !

stopped 10^h 57^m

April 13

started 8^h 57^m

198 W VIII 1511

207 W IX 273

2 Hydrae

209 W IX 501

210 2-5 W IX 513

211 BAG 3258

42 Argencis 3-5

1 Hydrae

0 Leonis

6^h 11 Cephei

n the other

q n n

n Leonis

BAG 3385-

3398

April 13 1868 Ill W

r Leonis

π 4

B4C 3428

v² Hydrae

γ Leonis

2 "

λ Hydrae

B4C 3489

λ Ursae Majoris

22 Sextantis

α¹ Leonis

ant 10 h 13 m

new sheet 10 h 17 m

π Hydrae

λ Antares

α "

β Leonis

48 "

γ² Hydrae

γ³ "

B4C 3665-

42 Leon den

April 13 1868 Yll W

h' Hydne

h' Leonis

31 Systent

1 Cephke

u Ursa Maj 2-5-

5th Leonis dup 1 st

NGC 375-5-

2 Crateris

2 Ursae Maj'

X Leonis

h³ u

4 Ursae Maj'

10 Crateris

1 Leonis

u u

3 Ursae Maj'

1 Crateris

1 Leonis

2 Crateris

2 Leonis

2 Proconis

East Cl in 9 h 56 m

ant 10 5-

April 13 1868 JAW

3242 10^h 6^m 0^s - 20^s

Started 11^h 36^m

April 14th

E W

1^h 7^m 72 82

22 71.0 82.0

33 74 79 reversed

74 78.5

291.0 321.5

30.5-
3.81

+ 0.34 m'

April 17

Started 9^h 6^m

207 3-5 W IX 273

208 334

1 Draconis 3-5

2 Hydrae

209 W IX 501

210 513

211 B 46 3258

B Cephei

212 W IX 666

213 764

214 788

April

17 1868
Jll W

215 W IX 809

216 BAC 3339

v Uro Maj

q " "

u Leonis

BAC 3385

3398

r Leonis

Ti "

BAC 3428

v Hydræ

y Leonis

z "

λ Hydræ

BAC 3489

32 Uro Maj

22 Sextantis

r' Leonis

stopped 10h 13m

New sheet 10h 48m

z Crateris

2 Uro Maj

April

17

1868

III W

X Leonis

p³ n

4 Ursae Maj

B Crateris

C Leo Leonis

n

4

3 Ursae Maj

C Crateris

σ Leonis

λ Crateris

BAB 3885-

τ Leonis

√ λ Draconis

BAB 3928

u 3934

91 Leonis

C Crateris // XI 559

x Cephei 2-5-

X Ursae Maj

α' Virginis

B Leonis

B Virginis 2-5-

April

 $\frac{17}{18}$

1868

Jll W

2 Ursae Maj

o Leonis

B 464037

b Virginis

67 Urs Maj

o Virginis

O Arnold 424 12^h 1^m 40^s - 60^sHrod 3424 10^h 17 40 - 60

3242 10 20 0 - 20

East Clock in 10^h 22^m

ant 10 28

stopped 12^h 13^mApril 18thStarted 9^h 30^m

213 W IX 764

213 788

215 809

216 B 463339

v Urs Maj

o Leonis

Ti

B 463428

April 18 1868

U W

v^c Hydrae

γ Leonis

2

2 Hydrae

BAC 3489

32 Ursae Maj' 2-5-

22 Sextantis

γ' Leonis

μ Ursae Maj'

γ Antliae

μ Hydrae

2 Antliae

✓

3 Leonis

28

9² Hydrae

9³

BAC 3265-

Stopped

10

36^m

new sheet

10

39

h' Hydrae

l Leonis

31 Sextantis

April 18 1868 JH W

1 Cephei

u Urs May

54 Leonis

Bat 6 3755

d Crateris

2 Urs May

X Leonis

μ^3 "

ψ Urs May

B Crater

✓ Leonis

" "

§ Urs May

✓ Crateris

o Leonis

λ Crateris

Bat 6 3885

γ Leonis

λ Draconis

Bat 6 3928

3934

91 Leonis

u Crateris

W XI 589

April $\frac{18}{22}$ 1868 Jll W
 r Cephei 3-5-
 ant 10^h 36^m

April 22^d
 started 9^h 08^m

1 Draconis
 2 Hecrae

24 Urs Maj

0 " "

3 Cephei

212 0 Leonis

ψ 4

ϵ 4

216 3-5 B46 3339

0 Urs May

0 " 1st hr 1st m

218 W IX 970

219 1015

220 1057

also of comet

231 W X 313

233 346

9 Leonis

ant 10^h 26^m

Airil 23
 started 10^h 1^m

1868 Jll W

32 Ursae Maj

22 Sextantis

γ Leonis 2-5-

can't abso

new start 11^h 21^m

B&G 3938

3934

✓ 91 Leonis

~~γ Crateris?~~

W XI 559

✓ γ Cephei &c

X Ursae Maj

✓ B Leonis

B Virginis

2 Urs Maj

o Leonis

B&G 4037

h Virginis

67 Urs Maj

o Virginis

out 12^h 0^m

April 23 1868 JMW

Started for Peters Asteroid (98)

13^h 15^m

~~13 26 stopped~~ }

Three stars over 2 wires. First two together.
ditto. " " "

Two stars over 3 wires

Stopped 13^h 26^m

Started again 14^h 17^m

4 stars 2 wires
3 " 2 "

Stopped 14^h 22^m

Started 15^h 1^m

Stopped 15 24

April 23^d

23 ^h	45 ^m	at 7	level	E	W
56		C L E		72	82.
54				71.5	79.5
0	1			70.	78.5
	3	C L W		74	75
	11			71.5	74.
	27			69.5	73
				8.5	462.0
				142.83	15.4.0

11.17

2.78 m' = + 0.25

April 26 1868 Jll W
 started 9^h 48^m

221 12 Sextantis

222 W IX 1208

223 3-5 13 Sextantis

224 W IX ¹²⁸⁹ 1st break on 3d wire

226 W IX 1314

X Hydra 3-5

227 W X 78

μ^3 Leonis

ψ Urs May

β Crateris

δ Leonis

η η

ξ Urs May

δ Crateris

σ Leonis

λ Crateris

B46 3885

τ Leonis

λ Draconis

April 26 1868
 B46 3928
 3934

91 Leonis

γ Cephei

B46 3973

χ Urs Maj

α Virginis

β Leonis

β Virginis

γ Urs Maj

B46 4037

B46 4037

δ Virginis

(67 Urs Maj

χ B46 4059

ν Virginis

α Corvi

ϵ γ

δ Draconis (28)

1 Cor Men

B46 4128

γ Virginis ant 12^h 14^m

April 27

1868

started 1^h 2^m

Palanis very unstable

ant 1^h 15^m

Apr. 28

Started 10^h 22^m

Obs. Comet Boorden

54 Leonis in 2-5-

B&C 37 55-

2 Crateris

2 Ursae Maj

X Leonis

in 3

4 Urs Maj

3 Crateris

1 Leonis

in in

3 Urs Maj

0 Ceph 2-5-

0 Leonis

2 Crateris

B&C 3885-

$\Delta x 50.3$ 50
 April 28 18 68

7 Leonis

2 4

BAB 3928

3933

9 Leonis

62 Ursa Maj

BAB 3973 faint

X Ursa Maj

A' Virginis

B Leonis

B Virginis

70 Ursa Maj

Gr 4163, at W 13 late

BAB 4037

b Virgin

67 Ursa Maj

o Virginis

2 Corv

e Corv 2-5

4 Draconis (H)

1 Can Ven

BAB 4128

April 28 1868 J.W.

γ Virginis

12 Comae

13 "

γ "

$\checkmark$ Carvi $8\frac{1}{2}$ m S Pr

γ "

B "

δ Virginis

X "

γ "

21 Cassiopeiæ

B46 4287? 3-5- red star

5^m set $266^{\circ}13'$

ant $12^h 41^m$

new sheet $12^h 48^m$

36 Comae

ϵ Virg

48 "

14 Can Ven

ρ Hydrae

θ γ Virginis

Polaris

δ Virginis ant $13^h 20^m$

April 29th 1868

0^h 10^m

68 82

68.5 81.5

78 73.5

77.5 73.0 73.0

0^h 12^m

73.5 72.5

73 72 $\bar{m} = 2.0$

26

66.5 78

29

67 76.5

36

0 0

70.00 19 0

74 75 2.28

2.3

$\bar{m} = 2.1$

April 30

started 4^h 40^m
 Frodsham 3424 2^h 8^m
 Frodsham 3242 2^h 9^m

out 4^h 44^m

started 9^h 5-3^m

222 W IX 1208

223 3-5-13 Sextantis

224 W IX 1289

226 1314

λ Hydrae

227 W IX 78

Bet 3489

λ the day w. lands

April 30 1868 Jll W

New start 11^h 7^m

o Leonis

x Crater

B & G 3885-

o Leonis

e "

B & G 3934

91 Leonis

i Crateris

r Gaphri

B & G 3973 faint clouds

x Urs May

A Virginis

B "

r Urs May

May 1

Started 3^h 6^m

F 3424 0^h 30^m

F 3242 0 32

out 3^h 9^m

May 1st Frid. Ill W
 started 10^h 1^m

227 W X 78

λ Ursae Maj

γ' Leonis

μ Ursae Maj

γ Antliae

μ Hydrae

δ Antliae

δ "

β Leonis

48 4

β^2 Hydrae

β^3 "

B 3665

42 Leonis Min

δ' Hydrae

δ Leonis

41 Sextant

ϵ Cephei

ω Urs Maj

5-4 Leonis

May 1st

1868

Jul W

B & C 3755

2 Crateris

2 Urs Maj

X Leonis

n³ 4

4 Ursae Maj

3 Crateris

1 Leonis

n n

3 Urs Maj

1 Cephri

2 Crateris

B & C 3885

X Leonis

1 4

B & C 3928

1 3934

91 Leonis

62 Ursae Maj

B & C 3973

7 1/2 mag

X Urs Maj

A' Virgin

3 Leonis

May 10th 1868. Ill W.

δ Virginis

γ Urs Maj

α Leonis

BAB 4037

δ Virginis

(67 Urs Maj

* BAB 4039

γ Draconis (H)

1 Can Ven

BAB 4128

γ Virginis

12 Comae

13 "

γ "

δ Boori

γ "

β "

ant 12^h 30^m

May 2^h

started 3^h 32

F 3 424 51

F 3 2 4 2 52 30

Jll W

May 3d 1868 Sunday
 started 10^h 3^m

2 Ursae Maj'
 2 Leonis

11 Ursae Maj'

1 Antliae

11 Lyrae

2 Antliae

1 11

8 Leonis

48 11

8² Hydrae

8³ 11

(BdG 3665-

x 3670

42 Leonis minor

11 Hydrae

1 Leonis

41 Sextantis

1 Cephei

11 Ursae Maj'

54 Leonis

BdG 375-5

May 3

1868 JLV

2 Crateris

2 Urs Maj

X Leonis

m³ & 4

♀ Urs Maj

β Crateris

δ Leonis

u u

3 Urs Maj

δ Crateris

σ Leonis 2-5

X Crateris

BAG 3885, 2-5

τ Leonis

ε Leonis

BAG 3928

3934.

91 Leonis

(X 1 Crateris 2-5

1 Crateris W VI 559

γ Cephei

BAG 3973

May 3^d 1868 Ill W

x U^s May

A' Virginis

B Leonis

B Virginis

x U^s May lost w, other $\frac{1}{2}$ dif

o Leonis

BAB 4037

b Virginis

[67 U^s May

x BAB 4059

o Virginis

2 Corvi

E "

4 Draconis H

1 Cassiopeia Ven

BAB 4128

y Virginis

12 Comae

13 "

x "

c Corvi

y "

BB "

May 3 1868 Ill W

K Draconis W 43;
 1 Virginis

X 4

Y 4

21 Cass

1246 4287 ? look at setting

35 Virginis

stopped 12^h 42^m

E W

21 48^m C & E 69 84 7 S

50

68.5-

83.5-

55-

68

81.

57 62 W

75-

74

22

1

73.5

73.5

5-

72.5

73.5-

426.5

469.5-

43.

3.5-8

$\frac{3.5-8}{3.6}$

Polaris

2

-5-

$\mu = +0.32$

were 2 dont ring

certain x faint clouds
 better toward the last
 ant 1^h 15^m

22^h 30^m *all* *all*
 055- 0572
 065- .633
 68 623
 52 599
 65 626
 56 645
 66 630
 427 128
 61 618
 557
 reversed to *all* *all*
 1955- 900
 922 908
 3910 887
 391 882
 176 892
 4477 4469
 call of *all* *all*
 - 0.45- *all* 894
 1,055- 55-
 70
 65
 57
 302
 1,060
 894
 166
 552
 391
 1955-

May 4
 started 3^h 30
 F 3424 0^h 40 30
 3242 0 41 38
 out 3 32

May 4 th				1868	Jll E	
by alt	h	alt	h	E	W	
21	3	3 ^m	6 L E	60	121.5	61.5
	50			65	142	77
22	00			64	140	76
	7	6 L W		68	138	70
	10			67	137	70
				264	6	293
13	6 L E			58	137	79
				60.5	134.5	74
24	6 L W			64	134	70
27				63	133	70
33				243.5		293
					47.5	
					5.94	
					5.4	
						m + 0.54

May 5th
 Started 3^h 29^m
 F 3424 0 36
 F 3242 0 37
 out 3 31

May 6th
 3^h 36
 F 3242 0^h 38 30
 3424 0^h 38 50
 out 3 34

May 7th
 started 3 43
 F 3242 0 42
 new start 2 46
 H 3424 0 21.5

May 8 1868 Ill E

start 3^h 4^m
 F 3242 43 810
 F 3424 44 30
 out 3 50

3242 3424
 45 18 1/2 46

Ill Coast
 New Sheet 11^h 12^m

256 2-5 B46 3873

258 82 Leonis

260 2x 330 331 83 Leonis

✓ 7 Leonis

✓ 7 Draconis

262 W XI 448

263 2-5 89 Leonis

✓ 91 Leonis

L Brutus

✓ 7 Cephei

B46 3973

✓ B Leonis

✓ 2 4163 2-5

271 W XI 868

comet obs

May 8 1868 Jll E

x Virginis

x " "

✓ 21 Cassiopeae

- 30 Comae

✓ 32 Camelopardalis ^{B+C 4339} with x s

36 Comae

6 Virginis

38 " "

14 Cor Ven

✓ 4 Lyrae 2 x s

✓ 0 Virginis W 4-5-

✓ Palanis W 1-3

61 Virginis

✓ Palanis 4-5-

63 Virginis

✓ d

✓ n u

✓ 4 Cassiopeae

B+C 45-13 last 5 marks

h Virginis

B+C 45-41 3-5 dupl

25 Cor Ven

May 8 1868 Jll 8

m Virginis

83 4

87 4

v y Musae allay
h Centauri

v y Roberts

ant 13 h 45 m

May 9

Started

41

5

0 58 F 32 h 2

0

55 45

0 59 7 F 3 h 24

0

57

out

H 6

New start

10 h 42 m

Cephei

54 Leonis

B46 37 55

d the allay

250 B46 37 85

251 p³ Leonis

d Leonis

254 75 Leonis

May 9

1868 Jll 8

255 76 Leonis

o Cephei

256 B & C 3873

257 79 Leonis

258 82 "

260 83 " = { W XI 330
" " 331

γ Leonis

λ Draconis

262 W XI 448

263 89 Leonis

264 W XI 498

91 Leonis

ι Crateris

γ Cephei

B & C 3973

β Leonis

β Virginis

γ Urs May

for 4163 2-5-

271 W XI 868

May 9

1868 Ill 8

 η Carvi β " γ Virginis χ " γ "

21 Cassiopea

35 Virginis

30 Comae

32 Camelopard hutch x o

36 Comae

 ϵ Virginis

48 "

14 Can Ven

ant 13 h 1 m

new sheet 13 4

Polaris W 1-3

61 Virginis

Pol W 4

~~B 46 44 46~~ 2 Virginis δ δ

"

70

"

~~B 46 45 13~~

h Virginis

 γ "

ant 13 h 30 m

Ill E
1868

May 11th
Started 11^h 3^m
✓ Leonis
✓ Crateris

259 80 Leonis

260 2 X 0 83 Leonis $\text{W XI } 330$
1 1 331

✓ Leonis

2 Draconis

262 $\text{W XI } 448$

264 498

91 Leonis

✓ Crateris

62 Urs Maj

B46 3973

B Leonis

B Virginis

✓ Ursae Maj
comet also

B Corvi

f Virginis

X "

Y "

21 Cassiope

May 11 1868 J. L. E

B & C 4287

35 Virgin

30 Canoe

31 "

4 Virgin

(Pr B & C 4345

12 Canoe Van

36 Canoe

6 Virgin

48 "

ant 12 h 5-8

new sheet 13 h 1 m

(Pr

4 Hydrac

6 Virgin

Polaris

63 Virginis

2 "

1 "

A Cassiopeia

B & C 45-13 2 * 0

W. XII 465-

B & C 45-13

h Virginis

3 " ant 13 h 30 m

May 11 1868 Ill E

New start 1^h 1^m

Palanis

ant 1^h 16^m

E

W

22	5 ^m	62 E	68	81.5	7 CV
			68.5	77.5	
	15	tapped sev	68.5	77	
23	3	tapped A	63	72	
			63	71	
	8	62 W	64	71	
			62	70	
23			63	69	

$\bar{m} = +35$

May 12

started # 11

52 41 $\frac{1}{2}$ F. 3242 0 49 25

53 30 F. 3424 51 20

out 4 12

New start 11^h 39^m

B Leonis

B Virginis

γ Urs Maj

o Leonis

271 W XI 868

o Virginis

May

12 1868

2 Corvi

6 "

5 Comae

1 Can Ven

RAC 4128

7 Virginis

12 Comae

13 "

two observations (P & T) η Corvi

R Draconis

f Virginis

X "

2 "

21 Cassiopeae

RAC 4287

35 Virginis

30 Comae 45

31 "

32 Can R both x

36 Comae

E Virginis

ant 12^h 56^m

May 12 1868

New Sheet 12^h 58^m

14 Can Ven

4 Lydr

4 Virgin

Polaris 1-3

61 Virginis

Polaris 4-5-

2 beads on lost wire
of Camp just before last //

63 Virginis

d 4

c 4

70 4

M 46 45-13 2x0 W₂ XII 465-

B 46 45-13

h Virginis

E 4

B 46 45-41 Sup

25-60m Ven

m Virginis

83
- some star - (87 Virginis ?)
y Isaac May

h Centauri

May

 $\frac{12}{14}$

18 68 M E

7 Barts

9

4

50 Cassiopea

ant 13^h 55^m

May 13

started

4

4

(0 40 24 $\frac{3}{4}$) F 3242

38

45

(0 41) F 3424

39

30

out

4

4

May 14

started

4

3

(35 26 $\frac{1}{2}$) F 3242

3 3

~~26~~

30

(35 45) F 3424

3 41

15

out

4

4

New start 10^h 52^m25¹ h³ Leonis

J Leonis

25⁴ 75⁵ Leonis25⁵ 76 4

J Bratensis

25⁶ B48 387325⁷ 79 Leonis

May

14 1868

258 3-5 82 Leonis All E

260 83 4 W XI 330
331

γ Leonis

λ Draconis

262 W XI 448

263 89 Leonis

264 W XI 498

91 Leonis

μ Crateris

* fol W XI 559

265- B A C 3962

62 Ws May

267 W XI 609

β Leonis

β Virginis

γ Ws May

Gr 4163

271 W XI 868

67 Ws May

α Virginis

δ Corvi

ϵ 4

ζ Draconis

May

14

1868

Ill E

1 Can Ven

B&G 4128

γ Virginis

ant

12

13^m

New sheet

12

15

12 Canoe

13

"

γ

e Canoe

γ

β

f Virginis

x

γ

B&G 4277

4287

35 Virginis

30 Canoe

31

"

ψ Virginis

(Pr B&G 4339

12 Can Ven

May 14th 1868

Ill E

6 Virginis

48 "

14 Can Ven

4²² Hydrae

8 Virginis

Palanis 1 - 3

61 Virgins

Palanis 4 5- the breaks proceed
ing the long breaks refer to the
companion not taken on

Wire 4

63 Virginis

2 "

L "

70 "

BAG 4513 2 * 1

h Virginis 2 - 5-

g "

BAG 45-41 Dupl
ant 13 h 36^m

May 15-

started

4

9

(0 37) F. 3242

0

35 10

(0 37) F 34124

0

35 20

out

4

9

May 16

started 4 22

(0 47) F. 3242 0 44 30

(0 46 38 $\frac{1}{2}$) F. 3424 0 44 35-

out 4 23

May 18

started 4 21

(0 37 30) F. 3242 0 35- 30

(0 36 36) F. 3424 0 35-

out 4 21

May 19

started 4 24

(0 37) F. 3242 0 35

(0 36 17 $\frac{1}{2}$) F. 3424 0 34 30

out 4 24

May 20

started 4 29

(0 37) F. 3242 0 35 20

(0 36 19 $\frac{3}{4}$) F. 3424 0 35 00

May 21

started 4 33

(0 38) F. 3242 0 36

(0 37 32) F. 3424 0 36

Therm.
60-64.

May 21st 20^h 40^m
on North star Mark

round spot square M W

770	1.998	2.081
73-5	1.963	0.62
743	988	0.55
757	2.012	0.75
760	1.994	0.53
802	998	0.56
<u>770</u>	<u>2.015</u>	<u>0.54</u>

mean 765 1.995 2.062

on South star Mark

S M M W

405	1.072
413	0.56
395	0.40
382	0.50
390	0.56
<u>360</u>	<u>0.71</u>
mean 391	1.058

mean

reversed to Ill West

on South mark

M W S M

0.70	1.253
0.58	1.282
0.60	2.25
0.63	3.13
0.82	2.47
0.52	2.72
0.68	2.68
<u>0.77</u>	<u>2.68</u>
0.66	1.266

May 21 1868 Jll W
on or blank

on square round spot

.070	637	1.850
072	635	1.853
055	623	880
060	642	885
080	670	902
066	633	872
mean 0.67	640	1.874
2.53		
3.20		

Jll East

Mid W E of Sq on cl	0.067	2
" " Spot "	1.297	
" " South cl	0.667	
Jll west		2 Call

Mid W E of Sq on cl	0.573	2.13
" " Spot "	1.807	0506
" " South cl	1.200	570
		533

giving the spot the weight 2

the square " $\frac{1}{2}$

I blank " 1

we get 2 Call of Mid W

= 0.516

on May 3^d it was 2 Call = 0.391

Diaphragm moved so as
to correct the collimation

.258 .58
 .215
 13

May 21 1868 Ill W
 All W Spent 22 square S all
 0.818 5.60 1.850 ~~1.275~~
 313 5.77 85.3 cont see
 324 6.06 85.2
 320 6.06 88.8
 318 6.25 85.7
 338 5.70 82.3
 322 5.91 185.4

May 22

started 4 46

(0 47 6) F. 3242 0 45 10

(0 47) F. 3424 0 45 15
 (Therm. out 4 46
 (62-59))

Started 13^h 22^m

25 Can Ven

m Virginis

83 v

89 u

k Centauri

y Boatis

9 v

7 Virgin

BAC 4679

2 Draconis

BAC 4699

May 22 1868

K Virginis

14 Boötis

2 "

λ Virginis

BAG 4757

2 Librae

~~BAG 4776~~~~δ Boötis~~X Let 268° 25' = W₂ XIV 550{ 2 stars —
θ Boötis?
BAG 4797?

π Boötis 1st star

μ Virginis

34 Boötis

ε "

ν Librae

α¹ " 1-3α² "

ξ Boötis 2-5 dup 2d &

ξ¹ Librae

β Wrs ellin

ant 14 h 5-3^m

May 23

started

4^h51^m(0^h 48^m 6^s 1/2) F. 32420^h46^m(0^h 48^m) F. 34240^h46^m15^s

(Thermometers (60° - 60°))

J H W

May 25-

started

4 5-1

E. Clock

0

37

out 0 39

F. 3424

0

38^m3 0^s(43^s) 39^m 30^s

Thermometers

63

— 60

May 26

started

4

5-4

(0

38

E. Clock

0

36

out

(0

39

41^{1/2})

F. 3424

0

~~37~~

45

Thermometers

started

9

10

E. Clock

~~4~~

5-0

May 27th 1868

2 Aurigae

Chronometer

F. 3424

0^h50^m

Watch

0^h49^m15^s

ant

5^h20^m

new sheet

1^h55^m

May 27 1868

E

W

C L E 22^h 22^m 59.5 77. 75

23 5 56.5 71.5

56

71.

23 11 56 56.2 71 71.2

C L W 23 12 59.5 68

23 18 57.5 68

57.5-58.2 68 68.0

$$\bar{m} = +0.5-6$$

May 28 1868

started 1^h 54^m

α Andromedae } Instrument out of circuit
 β Orionis } no record on chronograph

F 3424 0 48 30

F 3424 0 50^m 0^s-5^s-10^s-15^s-20^s-25^s-30^sF 3424 0 52^m 30^s-35^s-40^s-45^s-50^s-55^s-60^s

out 5 18

started again 7 24 } no stars
 out 7 41 } visible

New start 11^h 59^m

ε Carri

4220c (2)

May

28 1868 LLW

1 Can Ven

BAC 4128

y Virginis

12 Comae

13

y

record illegible on
chromograph

x

y

Shenardiel not mark

new start 12^h 23^m

y Cavi

B y

f Virginis

21 Cassiopea 2-5-

35 Virginis

30 Comae

31

y

y Virginis

ant 12^h 5-1^m

New start 13 25-

f Virginis

25 Can Ven

m Virginis

83

y

87

y

May 28 1868

γ Ursae Major

κ Centauri

γ Bootis

9 ~~8~~ 4

48 Lyrae

τ Virginis

$\odot$ Bet 4679

δ Draconis 3 - 5

ant 14 h 1 m

new sheet 14 5

δ Bootis

Bet 4797

4805

5 Urs Minor

π Bootis dup

π Bootis
No. XIV 710

μ Virginis

34 Bootis

ϵ 4

ant 14 h 45 m

May 29

started 5 22

(0 56 15 $\frac{1}{2}$) F 3424 0 53 45

(0 55) Watch 0 52 45

Thermometers 67 - 64 $\frac{1}{2}$

May 30

started 5 12
(0^h 40^m 40^s) F. 3424 0 39
(0^h - 40^m) Watch 0 39
Thermometers 65½ — 64

May 31 1868 Ill W
started 12^h 24^m

of Virginis

X "

Y "

21 Cassiopeae

33 Virgin

30 Comae

31 "

(ψ Virginis

(* Pr B & C 4345

12 Can Ven

36 Comae

6 Virginis

48 "

14 Can Ven

* on day 31 1868
 ♀ Ilydore
 & ~~Virginis~~ 2 breaks in camp
 Salom's W.I.
 The breaks preceding
 the large breaks ~~referred~~ are
 the companion which
 is very bright
 & Virginis
 L " "
 Bet 6 45 13 2 faint & 5
 & Virginis
 3 " "
 Bet 6 45 41
 25 Can Ven
 m @ Virginis
 83 " "
 87 " "
 γ Ursa Major
 & Centauri
 γ Bootes
 50 Cassiopea
 τ Virgin

May

31

1868

JLW

BAC 4679

+ Bertani

2 Drac

BAC 4699

K Virginis

14 Boötes

2 4

ant 14 h 11 m

June 1

started

5- 19

(0 39 30) watch 0 37 50

(0 40 2 1/2) F. 3424 0 38 45

Thermometers 71 - 66

June 2

started

5- 35

(0 50 30) watch 0 49

(0 50 40) F. 3424 0 49 30

Thermometers 70 - 64

June 3

started

5- 30

(0 43 30) watch 0 40 50

(0 43 26+) F. 3424 0 41

Thermometers 68 - 62

June 3
 new start 9^h 58^m
 α Leonis (1-2)
 γ Leonis
 out 10^h 13^m

June 4
 started 5^h 43^m
 (0 51) watch 0 49 30
 (0 50 57) F 34 24 49 45
 Thermometers 66 — 61
 new start 9^h 55^m
 α Leonis
 γ Leonis
 ρ Leonis
 out 10^h 30^m

June 4th

Started
 occult, 29 Oppenhi 9^m
 stopped 18^h 10^m
 started 18^h 55^m
 Emission lost

Ill W

June 5
started 5^h ~~3~~ 41

(0 41) watch 0 43 30

(0 40 39) F. 3424 0 44

Thermometers 65 · 59½

June 6
started 5^h 40^m

(0 40 30) watch 0 38^m 30

(0 40 36½) F. 3424 0 39^m

Thermometers 69 - 61½

new start 7^h 24^m

α Can. Minoris (5th wire)

β Geminorum

out 7^h 39^m

June 8

started 5^h 57^m

(0 49 30) watch 0 48

(0 48 43) F. 3424 0 47 30

Thermometers 74 — 64

new start 9^h 48^m

α Leonis

γ Leonis

out 10^h 21^m

June 9 6^h 1^m
 started

(0 50) watch 0 48

(0 49 17 $\frac{1}{2}$) F. 3424 0 48

Thermometers 68 - 64

June 10

started 5^h 55^m

(0 39 $\frac{1}{2}$) watch 0^h 37 $\frac{1}{2}$ ^m

(0 38 34 $\frac{1}{2}$) F. 3424 0^h 37^m

Thermometers 71 - 64

new start 7^h 26^m

& Canis Minoris

β Geminorum
 out 7^h 38^m

June 11

started 6^h 15^m

(0 53) watch 0^h ~~54~~ 54 $\frac{1}{2}$ ^m

(0 55 50) F. 3424 0^h 54^m

Thermometers 67 - 63

June 12

started 6 16 (out 6 19^m)

(0 55) E. Clock 0 52 25 - 27

(0 54 3 $\frac{1}{2}$) F. 3424 0 52

Thermometers 63 $\frac{1}{2}$ - 61

June 13

Started 6 26

(0 58) E. Clock 0 56 40

(0 57 ^{28 1/2} 29) F. 3424 0 56 30Thermometers $64\frac{1}{2} - 59\frac{1}{2}$ new start 1st 05^m α Leonis 3 - 5 β Leonis γ Urs. Maj 4 - 5out 11^h 48^o

June 14

Thermometers 69 - 64

June 14

Started 15^h 59^m

Stopped 16 38

Ob Coneh
Brorsten

Sheet ended.

June 15

started 6^h 29^m(53^m 30^s) E. Clock 51^m 40^s(52^m 19^s) F. 3424 50 45^s

Thermometers 70 - 66

June 15
 new start $9^h 55^m$

start $14^h 38^m$

ε Bootis

W^{est} 14 40

β Bootis only 4-5: wires faint

June 16

started $6^h 24^m$

(0 44 30) E. Clock $0^h 43^m$

(0 42 26½) F. 3424 $0^h 41^m 20^s$

Thermometers $75-69\frac{1}{2}$

new start $8^h 42^m$

Clouds

start $9^h 53^m$

Clouds prevented seeing.

new sheet $10^h 50^m$

δ Ursae Majoris

δ Leonis

out $11^h 8^m$

June 17

started 6 36

Jll 11

(0 52 30) E. Clock 0 50
 (0 49 34) F. 3424 0 48 20
 Thermometers $74\frac{1}{2}$ — 70
 new start 10^h 31^m
 E. Clock 4 46^m
 Ev Clock 4 47 20
 E. Clock 4 47 50
 & Ursae Majoris
 out 11^h 9^m
 June 18

started 6 29
 (0 41 30) E. Clock 0 39 30
 E. Clock 0 40 2
 (0 37 48 $\frac{1}{2}$) F. 3424 0 36 45
 Thermometers $73\frac{1}{2}$ — 69
 June 19

started 6 40
 (0 49 50) E. Clock 0 47 2
 E. Clock 0 47 20
 (0 45 19 $\frac{1}{2}$) F. 3424 0 43 10
 Thermometers 74 — 70
 new start 19 12
 & Leonis

anemometer

 α Leonis

out 10 27

June 20

started 6^h 50^m

(0 54 30) E. Clock 0 52 40

E. Clock 0 53 2

(0 48 48 $\frac{1}{2}$) F. 3424 0 47 45

Thermometers 78 - 72

new start 9^h 16^m α Hydrae ϵ Leonis α Leonis γ Leonisout 10 27^mstarted 10^h 50^m α Ursa Majoris δ Leonisout 11 11^m

June 22

started 7 1

(0 57 40) E. Clock 0 55 50

E. Clock 0 56 20

(0 49 18 $\frac{1}{2}$) F. 3424 0 48 10

Thermometers 83 - 68

June 23

started 7 1
 0 56 20 E. Clock 10 53 2
 0 47 48 $\frac{1}{2}$ F. 3424 0 45 10
 Thermometers 68-62-
 new start 9 28
 E Leonis 4-5 clouds
 stopped 9 40
 started 9 55-
 7 Leonis
 out 10 13

June 24

started 7 8
 (0 57 53) E. Clock 0 55 20
 E. Clock 0 55 50
 (0 49 8) F. 3424 0 47 15
 Thermometers 68-64 $\frac{1}{2}$

June 25

started 7 13 (out 15)
 (0 59 15) E. Clock 0 56 30
 E. Clock 0 56 30
 (0 50 11 $\frac{1}{2}$) F. 3424 0 48 10
 Thermometers 68-64

reversed instrument

new start		12	37
Ill. W.	midline	Ill. W.	E. midline
52	26	1	29
50	29	6	26
50	28	8	27
53	28	7	28
49	28		28
254	9	28	138
50.8	27.8	7	27.6
difference 23.0		20.6	

correction +.03 Ill. W.

Ill. W.
new start 13 26
 η Ursa Majoris
 1 η Bootis
 50 Cassiopeae 5th wire
 2 Draconis
 2 Bootis
 1 Cassiopeae
 1 Bootis
 5 Ursa Minoris

Jll 77

ϵ^2 Bootes
 α^2 Librae
 out 14 45

June 26

Started 7 1 $\frac{1}{2}$

(0 57 50) E. Clock 0 53 48

E. Clock 0 54 10

(0 45 9 $\frac{1}{2}$) F. 3424 0 44 40

Thermometers 73 - 66

June 27

Started 7 12ⁿ

0 49 45 E. Clock 10 47 50

E. Clock 0 48 10

0 39 8 F. 3424 0 37 45

Thermometers 75 $\frac{1}{2}$ - 70

June 28

Started 14^h 10^m

June 29

Started 7 28

0 51 ~~E. Clock~~ watch 0 49 45

0 43 59 F. 3424 0 43

Thermometers 79 - 66

new start 10^h 52^m
 haze prevented seeing.

June 30^h
 started 7^h 24^m

(0 43 30) watch 10^h 41^m 30^s
 (U 36 19½) F 3424 0^h 35^m 00^s

Thermometers 71-66

new start 9^h 18^m
 Chron. Hornby 1107 2^h 37^m 30^s
 H. 1107 2^h 38^m
 new sheet 9^h 56^m

2 Leonis

γ Leonis

out 10^h 15^m

July 1

started 7 37
 0^h 57^m 56½ H. 1107 0 55 30

0^h 45^m 00 F. 3424 0 43 00

Thermometers 73-68½

July 1 1868 Ill W
 new sheet 14^h 20^m

π Bootis dupl

μ Virginis

34 Bootis

ε Bootis dupl

• η Librae

λ¹ 4 1-3

λ² 4

ξ Bootis dupl 2d x

ξ¹ Librae

ξ² 4

β Mus Min

δ Librae

β Bootis

γ 4

γ 4 2-5

48 Cephei 2C

1 Lupi

B46 5023

β Librae

δ Lupi

φ² 4 2-5

July 1st 1868 Ill W

ε Lihue

m' & m² Bontes

γ² Urs Min

BA 6 5-109

37 Lihue

d bar Bar

ψ¹ Lupi

ψ² "

γ Herculis

δ Ophiuchi

2 Scorpii h 5-5^m
ant 16 h

July 2

started

7^h 41^m

1 0 21 H. 1107

0 56

0 46 30 F. 3424

0 42 30

Thermometers

new start 16^h 7^m

δ Ophiuchi

July 3

started

7^h 47^m

out 49^m

(1 10) H 1107

0^h 58^m 15^s

15^s

(0 45 49) F 3424

43^m 20^s

Thermometer 80-75(?)

July 3 d 1868
 all W

started 14^h 50^m

1 Librae

4 Boatis

c "

24 Librae

1 Lupi

BAC 5023

B Librae

u' Boatis

r² No. 411 n & last 5! clouds

BAC 5109 (5109?)

clouded up ant 15^h 28^m

July 4
 started 14^h 15^m

c Boatis

d² Librae

July 6

started 9 20

(2 21) H. 1107 12 19

(1 59 40¹/₂) F. 3424 1 58

Thermometers 82-77

July 7

started

(2^h 2^m 30^s) H. 1107
 (1 40 16½) F. 3424

9^h 6^m
 2^h 0^m 30^s
 1^h 39^m 00^s
 Thermometers 77-68½

July 8

started

(0 36 15) H. 1107
 (0 13 3¼) F. 3424

Thermometers 75-72

E Clock

7^h 39^m
 0^h 30^m 15^s
 0^h 7^m 30^s
 0 31^m 40^s

July 9

started

(0 55 00) H. 1107
 (0 30 58¼) F. 3424

Thermometers 73½-68½

July 10

started

(0^h 46^m) H. 1107
 (0^h 21^m 29½) F. 3424

Thermometers 70-66

8^h 1^m
 0^h 44^m
 0^h 20^m

J. W.

July 10

Level readings

Circle reading $324^{\circ}23'$	^{mean time} $2^h 29^m$ to $2^h 49^m$	E 41 W 57
Cross Level East	$2^h 49^m$ to $3^h 11^m$	E 40 W 56
" " West	$3^h 11^m$ to $3^h 30^m$	E $38\frac{1}{2}$ W 56
	$3^h 30^m$ to $3^h 57^m$	E 38 W $55\frac{1}{2}$
Circle reading $360^{\circ}52'$	$3^h 57^m$ to $4^h 13^m$	E 88 W $55\frac{1}{2}$
Cross Level East	$4^h 13^m$ to $4^h 30^m$	E $38\frac{1}{2}$ W 55
" " West	$4^h 30^m$ to $4^h 51^m$	E 37 W 56
	$4^h 51^m$ to $5^h 10^m$	E 38 W 56
Circle reading $215^{\circ}50'$	$5^h 10^m$ to $5^h 32^m$	E 39 W $54\frac{1}{2}$
Cross Level East	$5^h 32^m$ to $5^h 51^m$	E 40 W 54
" " West	$5^h 51^m$ to $6^h 10^m$	E 38 W 56
	$6^h 10^m$ to $6^h 38^m$	E 38 W 56
Circle reading $180^{\circ}19'$	$6^h 38^m$ to $6^h 45^m$	E 39 W $54\frac{1}{2}$
Cross Level East	$6^h 45^m$ to $7^h 00^m$	E 39 W 55
" " West	$7^h 00^m$ to $7^h 15^m$	E 38 W 56
	$7^h 15^m$ to $7^h 30^m$	E $38\frac{1}{2}$ W 56

Object glass South, sums, E 309 W 447
means, E 38.6 W 55.9

$$b = \frac{17.3}{30} = +.54$$

Object glass North, sums, E 309.5 W 442
means, E 38.7 W 55.2

$$b = \frac{16.5}{30} = +.55$$

$$m = .545 \times 1.353 = .74$$

July 10th 1868

started 15^h 25^m

8 Serpentis

Groomer 2320 new sheet 16^h 16^m

7 Herculis

2 Scorpii

stopped 16 23^m

new start 16^h 42^m

5-1 Herculis 3-5-

1 Ophiuchi

5-4 Herculis

1 Ophiuchi

July 11

started 8 11

H. 1107 1 49 50

(52 45) F. 3424 0 25

(27 26¹/₂) Thermometers 75¹/₂ - 69

2. Clock 0 51^m 26^s - 28^s

July 12 1868

started 6^h 33^m

2 Can Maj

ant 6^h 44^m

July 13 1868 All W

~~new~~ started 8 8
H. 1107 0 39 40
0 13 30 F. 3424 0 11 5

0 42 20 $\frac{1}{2}$ E. Clock

Thermometers 85 - 75 $\frac{1}{2}$

~~started 12^h 24^m~~

started 13^h 0^m

2 Virgins

Stopped 13 20.

July 14

started

(0^h 52^m 38^s $\frac{1}{2}$) H. 1107

(0^h 22^m) F. 3424

8^h 23^m

0^h 50^m 30^s

0^h 20^m 20^s

Thermometers 83 - 77

July 15

started

(0^h 46^m 00^s) H. 1107

(0^h 13^m 22^s) F. 3424

8^h 20^m

0^h 44^m 30^s

0^h 12^m 30^s

Thermometers. 85 - 80

started 14^h 5-4^m
 July 16

(0^h 40^m) started 8^h 18^m
 (0^h 5^m 8^s) H. 1107 0^h 38^m
 F. 3424 0^h 4^m

Thermometers 87 $\frac{1}{2}$ - 87

July 16

started 13^h 8^m

Polaris 3-5

2 Virginis

5 Virginis

7 Urs. Maj.

7 Bootis

2 Draconis

2 Bootis

5 Urs. Min.

2 Bootis

2² Librae

3 Urs. Min.

out 14^h 53^m

new stand 15-4 13^m

& Librae

July 16 1868 Ell W

 μ Boantis γ^2 Urs clajr ϵ Draconis 2-5-

Bet 6 5#09

37 Librae

 δ Car Bar ψ^1 Lupi ψ^2 " δ Serpentis δ " μ " ϵ " λ Librae δ Urs γ Serp ϵ Car Bar

art 15-5-5

new sheet 15-5-6

 β Scorpis lat $\times$ 0 θ Draconis κ Herculis mean 2 $\times$ 0 γ^1 & γ^2 Scorpis

Gr 2320

 δ Ophiuchi σ Coronae dreh

6 Ophiuchi

a Scorpii

t Herculis

g Ophi chup

b Herculis

2 Scorpii

γ Draconis

φ Ophiuchi

η Herculis

τ Scorpii

ε Ophiuchi

BAG 5-5-68

δ Herculis

γ " "

λ Camelopardalis

κ Herculis

3-1 " pr 20.5 late

ι Ophi

5-3 Her

κ Ophiuchi

BAG 5-7-8

ε Herculis

δ "

July

16

1868

ε Ursellina

γ Ophiuchi

B465795-

π 5-804

2' Herculis

π "

η "

θ Ophiuchi

ω Herculis

h Ophiuchi

δ "

ν Scorpion

λ "

β Draconis

δ Ophiuchi

μ "

κ Scorpion

18 Ophiuchi

β "

ω Draconis 3-5-

3 Sagittarii

μ Herculis

87 "

30 Draconis

B46 60.62

89 Herculis

γ Ophiuchi

γ Draconis

68 Ophiuchi

γ^2 Sagittar

B46 6127

0 Herculis

22 Camelopard

μ^1 Sagitt

γ

B46 6194

γ Sagitt

α Usc Clin 2-5

γ Sagitt

b Draconis

B46 6300

" 6318

1 Agnit

d Dracon

d Lyrae ant $18^h 34^m$

July 17

started

h m
8^h 3^m 0 out 8^h 32^m(0^h 53^m 53^s) N. 11070^h 45^m(0^h 12^m 30^s) F. 34240^h 10^mThermometers 80-74

Level readings

Circle reading 215° 58'

Cross Level East { 1^h 58^m to 2^h 20^m } E 36½ W 55{ 2^h 20^m to 2^h 46^m } E 36 W 54½" " West { 2^h 46^m to 3^h 7^m } E 35 W 53½{ 3^h 7^m to 3^h 28^m } E 36 W 53

Circle reading 324° 40'

Cross Level East { 3^h 30^m to 3^h 50^m } E 36 W 53{ 3^h 50^m to 4^h 13^m } E 36 W 53" " West { 4^h 15^m to 4^h 31^m } E 35 W 54{ 4^h 35^m to 4^h 55^m } E 34½ W 56

Object glass North, sums, E 14 3½ W 216

means, E 35.875 W 54.0

Object glass South, sums, E 14 1½ W 216

means, E 35.375 W 54.0

$$b(\text{Obj. glass N.}) = \frac{18.125}{30} = 0.604$$

$$b(\text{Obj. glass S.}) = \frac{18.625}{30} = 0.621$$

$$\bar{m} = 0.61 \times 1.353 = 0.83$$

$$\begin{array}{r} 1353 \\ 8118 \\ \hline 82533 \end{array}$$

July 18

started

8^h 34^m

(0^h 45^m 00^s) H. 1107
 (0^h 7^m 34^s $\frac{1}{2}$) F. 3424

0^h 42^m 30^s0^h 5^m 30^s

Thermometers 76 - 71

new start 15^h 14^m μ Bootis γ^2 Urs. Min. -3 - 5

37 Spicac

2 Coronae Bor.

 ψ^2 Lupi

2 Serpenti

 β Serpenti μ Serpenti

2 Serpenti

 ϵ Urs. Min.

2 Coronae Bor.

 β Scorpii both starsstopped 16^h 0^m

July 20

started

10^h 38^m

2^h 45^m 22^s $\frac{1}{2}$ (+) H. 1107
 2^h 5^m F. 3424

2^h 41^m 30^s2^h 2^m

Thermometers 80 - 74

July 21. 1868 Ell W

started 10 44
 2 49 30 H. 1107 2 45
 2 8 12 $\frac{1}{4}$ F. 3424 2 4
 E. Clock out 2 46 30
 Thermometers 75 - 70

July 22

started 9 7
 (1 5 13) H. 1107 1 2 45
 (0 23 00) F. 3424 0 21
 E. Clock. out 1 3 50
 Thermometers 75 - 72
 new start 10 6

July 23

started 8 44
 (0 39 36) H. 1107 0 37
 (23 56) F. 3424 23 57 $\frac{1}{2}$
 E. Clock out 0 38 20
 Thermometers 79 $\frac{1}{2}$ - 74

July 24

started 8 58^m (sheet taken to Boston by Bonds)
 (0 48 33 $\frac{1}{2}$) H. 1107 0^h 46^m 30
 (0 44 00) F. 3424 0^h 2^m 30
 Thermometers 74 - 70

July 24

Level readings

Circle reading $215^{\circ} 53'$ Cross Level East $\left\{ \begin{array}{l} 2^h 35^m \text{ to } 2^h 50^m \\ 2^h 50^m \text{ to } 3^h 12^m \end{array} \right\} \begin{array}{l} E \ 43 \quad W \ 61\frac{1}{2} \\ E \ 42\frac{1}{2} \quad W \ 61 \end{array}$ " " West $\left\{ \begin{array}{l} 3^h 12^m \text{ to } 3^h 30^m \\ 3^h 30^m \text{ to } 3^h 50^m \end{array} \right\} \begin{array}{l} E \ 41 \quad W \ 61 \\ E \ 41\frac{1}{2} \quad W \ 60\frac{1}{2} \end{array}$ Circle reading $324^{\circ} 35'$ Cross Level East $\left\{ \begin{array}{l} 3^h 50^m \text{ to } 4^h 10^m \\ 4^h 10^m \text{ to } 4^h 33^m \end{array} \right\} \begin{array}{l} E \ 41 \quad W \ 60 \\ E \ 42 \quad W \ 59\frac{1}{2} \end{array}$ " " West $\left\{ \begin{array}{l} 4^h 33^m \text{ to } 4^h 50^m \\ 4^h 50^m \text{ to } 5^h 10^m \end{array} \right\} \begin{array}{l} E \ 41 \quad W \ 60 \\ E \ 41\frac{1}{2} \quad W \ 60 \end{array}$ Object glass North, sums, $E \ 168 \quad W \ 244$ means, $E \ 42 \quad W \ 61$

$$b = \frac{19}{30} = 0.630$$

Object glass South, sums, $E \ 165\frac{1}{2} \quad W \ 239\frac{1}{2}$ means $E \ 41.375 \quad W \ 59.875$

$$b = \frac{18.5}{30} = 0.617$$

$$\bar{m} = 0.623 \times 1.353 = 0.84$$

July 25

started 9 5

(0 52) $\sqrt{1107}$ 0 49 30
 (0 6 42) $\sqrt{3424}$ 0 50 00

Thermometers 72-70

Chronograph sheet taken to Boston by Bonds.

July 26
H. 1107 - 0^h 47^m - F. 3424 - 0^h 0^m 49^s₂

July 26th
Started at 21^h 49^m
To observe (100)

July 27
Started 9 22
D 59 45 H. 1107 10 57 45
0 12 34¹/₂ F. 3424 0 10 50
Thermometers 75 - 69

July 28
H. 1107 0^h 42^m 00^s F. 3424 - 23^h 53^m 46^s

July 29
Started 9^h 30
(0 56 30) H. 1107 0^h 57 45
(0 7 18) F. 3424 0^h 8 45

July 30
Started 9^h 20^m
0 46 H. 1107 10^h 44 10
23 35 52³/₄ F. 3424 23 54 20

July 30 1868

started 15^h 37^m

no stars visible

July 31

started 9^h 28^m

0 54 H. 1107 C^h 49^m

0 2 49½ F. 34 24 23 58^m 30^s

Level readings

Circle reading 216° 4'

Cross Level East	{ 2 ^h 45 ^m to 3 ^h 5 ^m 3 ^h 5 ^m to 3 ^h 25 ^m	{ E 31½ E 30½	W 54 W 51½
" " West	{ 3 ^h 25 ^m to 3 ^h 45 ^m 3 ^h 45 ^m to 4 ^h 00 ^m	{ E 30 E 30	W 50 W 50

Circle reading 324° 29'

Cross Level East	{ 4 ^h 00 ^m to 4 ^h 20 ^m 4 ^h 20 ^m to 4 ^h 40 ^m	{ E 31 E 31	W 48½ W 49
" " West	{ 4 ^h 40 ^m to 5 ^h 00 ^m 5 ^h 00 ^m to 5 ^h 25 ^m	{ E 29 E 29	W 51 W 51½

Object glass North { sums E 122 W 205½
 $b = \frac{20.875}{30} = 0.696$ { means E 30.5 W 51.375

Object glass South, sums E 120 W 200
 $b = \frac{20}{30} = 0.667$ means E 30 W 50

$$\bar{m} = 0.682 \times 1.353 = 0.92$$

2046
3410
2046
682

August 1.

started 9^h 27^m
 $(0^h 45^m 30^s)$ H. 1107 9^h 42^m 50^s
 $(23^h 52^m 48^{\frac{3}{4}})$ F. 3424 23^h 50^m 25^s

August 2

H. 1107 $(0^h 4^m 30^s)$ F. 3424 $(23^h 10^m 13^s)$

August 3

started 9^h 41^m
 $0^h 51^m 6^s$ - H. 1107 0^h 48^m 35^s
 $23^h 55^m 0^s$ F. 3424 23^h 52^m 50^s

new start

Polaris

End of 4th run
 lost

new sheet

started again

13^h 42^m
 13^h 56^m

2 Bootis

5 Ursa Minoris

3 Bootis

B Bootis

B Ursa Minoris

stopped 15^h 7^m new start 16^h 10^m

w Hercules

y Draco

August 4

started 9 57
(0 57 00) H. 1107 0 55 30
(23 58 58½) F. 3424 23 58 00

August 5

started 9^h 48^m
(0 51 30) H. 1107 0^h 49^m
(23 52 16½) F. 3424 23^h 50^m 30^s
E. Clock 0 50 20 — 30

August 6

started 9^h 37^m
(0^h 37^m) H. 1107 0^h 33^m 30^s
(23 36 55½) F. 3424 23^h 34^m 00
E. Clock 0^h 35^m 10^s — 20

August 7

started 9^h 53^m
(0 52 45½) H. 1107 0^h 45^m 30^s
(23 52 00) F. 3424 23^h 45^m
E. Clock 0^h 47^m 30^s
N. Clock 9^h 57^m

Level readings, August 7

Circle reading $216^{\circ} 9'$			
Cross Level East	$3^h 30^m$ to $3^h 45^m$	E $43\frac{1}{2}$	W $64\frac{1}{2}$
	$3^h 45^m$ to $4^h 00^m$	E $43\frac{1}{2}$	W $63\frac{1}{2}$
" " West	$4^h 00^m$ to $4^h 15^m$	E 42	W $63\frac{1}{2}$
	$4^h 15^m$ to $4^h 30^m$	E 43	W 63
Circle reading $324^{\circ} 33'$			
Cross Level East	$4^h 30^m$ to $4^h 45^m$	E 43	W 62
	$4^h 45^m$ to $5^h 00^m$	E $43\frac{1}{2}$	W $61\frac{1}{2}$
" " West	$5^h 00^m$ to $5^h 15^m$	E 42	W 63
	$5^h 15^m$ to $5^h 30^m$	E 42	W $63\frac{1}{2}$

Object glass North, sums, E 172 W $254\frac{1}{2}$
 means, E 43 W $63\frac{5}{8}$

$$k = \frac{20.625}{30} = 0.6875$$

Object glass South, sums, E $170\frac{1}{2}$ W 250
 means, E $42\frac{5}{8}$ W $62\frac{1}{2}$

$$b = \frac{19.875}{30} = 0.6625$$

$$\bar{m} = 0.675 \times 1.353 = 0.91$$

August 8

Started $9^h 57^m$

H. 1107 0^h

F. 3424 $23^h 47^m$

E. Clock 0 46 20

N. Clock $9^h 59^m$

Aug 9th 1868

started 10^h 33^m

K Hercules

57 "

V Ophiuchi

54 Hercules

K Ophiuch

BA 65718

6 Hercules

d "

60 "

E. No. Min. last wire

γ Ophiuchi

BA 65795

h 5804

2 Hercules

T. " 3-5

W. " 3-5

δ Ophiuchi

α Hercules

h Ophiuch

δ "

Gr 966

λ Scorpio

Aug 9 1868 M W

B Draconis

2 Ophiuchi

11 "

+ Scapri

58 Ophiuch

13 "

10 Drac 3-5-

3 Sagittar

11 Herculis

87 "

4 Drac horth x 0 m 4-5-

30 "

BAC 60 62

89 Herculis

1 Ophiuchi

1 Draconis

68 Ophiuchi

72 Sagittar

BAC 6127

0 Herculis

22 Camelap

11 Sagittar

7 "

Aug 9 1868 Ill W

B46 6193

5 hrs min 20 4 15-
h drac chip

B46 6300

ant 18^h 30^m

New sheet 18^h 30^m

1 Aquilae 3-5

2 Lyrae

3 Cephei 20

B46 6319

3 Lyrae

or Scizitoni

4 Lyrae

50 Draconis 2-5

6 Aquilae

7 " 1.2. not lost in
clouds

ant 18^h 5-9^m

August 10

started 9^h 58^m

0^h 45^m 4^h 1/2

H. 1107

0^h 42^m

23 42^m

F. 3424

23 39^m

E. Clark

0^h 42^m 44^s

Aug 10

Ill W

started 16 h 2 m

c Ophiuchi

o Scap'ia

K 4

n Hercules

x Scap'ia

S Ophiuchi

B46 5-5-68

" 5-5-79

S Hercules

y "

L Camelopard

t Scap'ia 3.4

K Hercules

5-1 "

c Ophiuchi

53 Hercules

K Ophiuchi

B46 5-7-18

t Hercules

d "

t No. 1000

y Ophiuchi

Aug 10 1868 Ill W

B46 5795

" 5804

L' Herculis

X "

w "

A Ophiuchi

w Hercules

b Ophiuchi

σ "

278 Scorpii

λ S "

B Draco

h Ophi

u "

New Sheet 17 36

58 Ophi

03 Dracon

3 Sagitt

u Hercules

67

30 D. wicomic

B46 6062

89 Hercules

Aug 10 1868 Pl W

2 Ophiuchi

2 Draconis

68 Ophiuchi

2² Sagittarii

0 Hercules

11' Sagittarii

7 4

BA6 6193

0 Urs Minor

BA6 6253 3-5-

1 Sagitt

6 Dracon

BA6 6318

1 Aquilae

2 Draconis

2 Lyrae

57 Cephei m 1 2 doubtful clouds

110 Hercules faint

5' Lyrae

50 Draconis 2-5 4 m

6 Aquilae

9 4

16 Lyrae

Aug 10 1868 Ill W

♂ Aquilae

♂ Sagittarii

B₂

(E. Cel 9^h 46^m)

art 19^h 18^m

August 11

started 10^h

14^m

(0^h 52^m) H. 1107 0^h 50^m — (30^s)
 (23^h 47^m 52^s) F. 3424 23^h 46^m 15^s

August 12

started 10^h 3^m

(0 40 00) H. 1107 0^h 37^m 30^s
 (23 34 53½) F. 3424 23^h 33^m

E. Clock 0^h 38^m 18^s

August 13

started 10^h 15^m

(0 40 39½) H. 1107 0^h 44^m 30^s
 (23 34 45) F. 3424 23^h 39^m 00^s

new start 12^h 59^m

Polaris, wires 1, 3, 4, 5.

new sheet 13^h 36^m

♂ Bootis

J. H. W.

new start 18^h 0^m

0 Hercules

22 Camel

μ Sagittarii 4.5 - rest last clouds

0 Upsilon Min W 1.2 rest last clouds

ant 18^h 20^m

August 14

started 10^h 18^m(0^h 50^m) H. 1107 0^h 43^m 30^s(23^h 43^m 28^s $\frac{1}{4}$) F. 3424 23^h 37^m 30^sE. Clock 44^m 52^s

Level readings

Circle reading	215° 55'			
Cross Level East	{ 2 ^h 30 ^m to 2 ^h 45 ^m }	E 37	W 58 $\frac{1}{2}$	
	{ 2 ^h 45 ^m to 3 ^h 00 ^m }	E 36	W 56	
" " West	{ 3 ^h 00 ^m to 3 ^h 15 ^m }	E 34	W 56	
	{ 3 ^h 15 ^m to 3 ^h 30 ^m }	E 33 $\frac{1}{2}$	W 56	
Circle reading	324° 29'			
Cross Level East	{ 3 ^h 30 ^m to 3 ^h 50 ^m }	E 35	W 53 $\frac{1}{2}$	
	{ 3 ^h 50 ^m to 4 ^h 10 ^m }	E 35	W 53	
" " West	{ 4 ^h 10 ^m to 4 ^h 30 ^m }	E 35 $\frac{1}{2}$	W 53	
	{ 4 ^h 30 ^m to 4 ^h 50 ^m }	E 36	W 53	

Object glass North, sums, E 140 $\frac{1}{2}$ W 226 $\frac{1}{2}$
 means, E 35 $\frac{1}{8}$ W 56 $\frac{5}{8}$

Object glass South, sums, E 141 $\frac{1}{2}$ W 212 $\frac{1}{2}$
 means, E 35 $\frac{3}{8}$ W 53 $\frac{3}{8}$

$$\frac{54.52}{57.8} = 0.943$$

$$m = 0.654 \times 1.353 = 0.88$$

$$b = \frac{21.5}{30} = 0.717$$

$$b = \frac{17.75}{30} = 0.592$$

Aug 14

1868

Jll W

Started 16^h 32

5' Hercules

3 " "

5-1 " "

4 Ophiuchi

53 Hercules 2-5-

K Ophiuchi

L Hercules

d " "

L Ursa Min

7 Ophiuchi

B 46 57 9 5-

L Hercules

H " "

W " "

8 Ophiuchi

W Hercules

8 Ophiuchi

Gr 366

7 Scorpii 2-5-

B Draconis

L Ophiuchi

H " "

Aug 14 1868 Jll W

K Scapin

58 Oph

B 4

W Dece 3-5

3 Sagitt 2-5

u Mercuris

ant 17^h 4^m

new sheet 17 46

30 Draconis

~~B 46~~ 89 Hercules

r Ophiuchi

r Draconis

68 Ophiuchi 2-5

r² Sagittarii

B 46 6127

o Mercuris

22 Camelopard

m' Sagitta

7

B 46 6194

α Sagitt

✓ u^o chin 2-5

B 46 6255

Aug. 14 1868

2 Sagittarii

h Draconis

B46 6300

6318

1 Aquilae

d Draconis

2 Lyrae

2 Aquilae

51 H Cephei 2-5-

B46 6404

6419 3-5-

B Lyrae 2-5-

fal 3-5-

o Sagittarii

d Lyrae

13 Lyrae

t Aquilae

g "

16 Lyrae

3 Aquilae

11 Sagittarii

B46 6561

JLW

χ Sagittae
d

θ Hydrae 3-5

δ Draconis 3-5

δ Aquilae

BAB 66 26 2-5

χ' Sagittarii

δ Aquilae

γ Cygni

α Vulpeculae

β' Cygni

β'' Cygni

μ Aquilae

κ

ϵ Sagittae

BAB 67 37

β Sagittae

BAB 67 55

γ Aquilae

δ Sagittae

θ

δ Aquilae

ant $19^h 49^m$

1730
2768
692
692
79061

