KG
11366
v.852

West Dome

6/4 Clarey

S.C.C.

1883 April 27 to 1883 Sept 26 incl

Friday, Apr 27 1883

Moonlight quite strong

Hazy

Sawyer's Variable

Times by watch, which is
$21^m.2$ fast of Cam m.T.

$13^h\ 5^m$ v 5 f
Cm T v 1 e
12 44. v 2 d
v 1 c

note e is decidedly brighter than last season. it is 3½ > f
1½ > d
= c

Cloudy until $13^h\ 53^m$

13 53 v 2 f
Cm.T. 13 31 e 2 v
d 2 v
c 3 v

Clouds

Cont'd

Friday · Apr 27. 1883

Less. Var. #437

✓ couldn't certainly identify
wait till clear, dark night

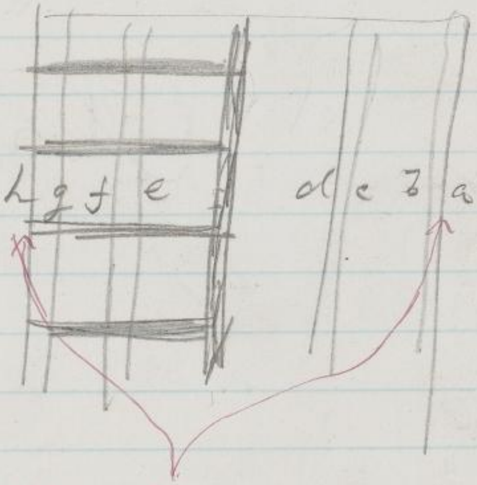
Clouds

Sunday Apr 29, 1883

Obs^ns to determine dimensions of experimental plate

B&C 1182
f Virginis $\delta = -0^\circ\ 48'$

7	21	59	a
	22	3	b
	22	20	c
	22	24½	d
	23	47	e
	23	50	f
	24	7	g
	24	10½	h



$ah = 2^m\ 11.7^s = 32'\ 55.5''$

~~27 10~~
~~13.6~~

7	27	44	a
		48	b
	28	5.2	c
		9	d
	29	31	e
		35	f
		53	g } v. uncertain
		57	h

Apr 29, 83

Compar star n of R Cygni

k 3/4 mag n ✓

g 1 n

n 3 e

7.7 + .7 8.4

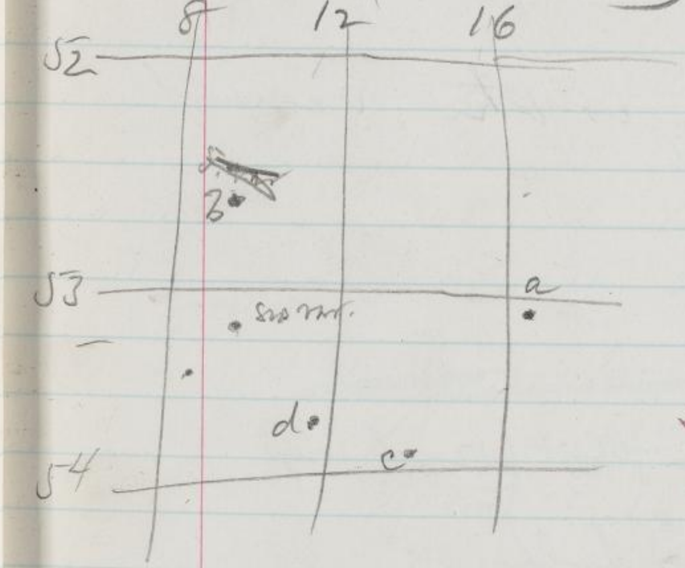
7.9 + 1 8.0

8.4 − 3 8.1

mag of n = 8.1

$7^h\ 45^m$

Sus var (not in ~~list~~ Catalogue) ✓ (1855) 20 9 50 +53 13.3



b 1 var

var 4 d

var 2 c

a 3 or 4 var

D.M. mags of compar stars

	D.M.
a	6.5
b	6.5
c	6.5
d	7.0

Hence brightness of sus. var is
6.5 + 1 = 6.6
7.0 − 4 = 6.6
6.5 − 2 = 6.3
6.5 + 3½ = 6.8½
mean 6.6

8^h p^m Apr 29, 83

4/2 I Gemini — 12½
✓

not visible ; occasionally suspected
o just visible
Star 2 is red color 2 or 3

50 I Hydrae 10½?
✓
I suspect 2 is the variable

2 4 g
b 4 2
d 3 2

There is a very ft star (12) say
1′ ~~no~~ south 3^s foll g
which may be the var

Apr 29. 83

51 R Leo Min. 11
✓

g 3 R
h 1 R
R 3 a

58 X Virginis 11½
✓

X = c
d 3 X
e 4 X
X 2 a

~~X has a faint~~
X is double the brighter observed
the comp = 12½ mag and ½' of arc
towards the other [illegible]

59 R Comae Ber < 12½
✓ not visible; the less < 12½

9h 0m Apr 29 83

69 S Virginis 11½
✓
S 1 a/s
p 1 s
l 6 s

56 S Leonis 11½ ~~12~~
✓
s 5 f
g 1 s
s 2 h

Sus. Var # 383
✓ not visible
a b and c seen with great diff

72 R Camel <13
✓ certainly not visible

Apr 29 '83

73a U Bootis 12
✓

U 4 c
U 2 e
e 2 U
a ½ mag ± U

37 R Gemin. 7½
✓

R ½ mag g
R 2 s
g 5 R

[illegible] Var. # 167 (23°. 1595)
✓
easily & steadily visible but
v. faint about 12½

$10^h 0^m$ Apr 29 '83

1 T Cassiop 8 1/8
✓ a 3 T colr 3½
T 4 c
e 2 T

7 S Cassiop 8.7
✓ c 3 S colr 3

71 S Serpentis 9.5
✓

S 5 g
d 5 S
S = f
e 4 S

n visible but not m

Apr 29 '83

$10^h 40^m$

Shs. Var. # 437 ✓

Cant identify
observe zone of
neighboring stars

Shs Var # 441 ✓

not visible

a and c ~~are~~ 10½ or 11

b and d ~~visible~~; about 12 or 12½

{ = 78a U Librae }
{ Shs. Var 443 } ✓ invisible

~~b, e, & c~~ c 10½ mag
b 11
e 12

a and f invisible

a star is visible at (either d or 443
which is 1 or 2 steps < b

Observe Zone

Apr 29, 8h

Sus Var # 451 ✓

Cant identify

Observe zone

80 ✓ R Serpentis 9.6

R 1 m

k 3 R

80 a ✓ V Cor Bor R

V = b

a 3/4 mag > V

$11^{h}\ 30^{m}$ Apr 29 83

81 R Libræ . < 12½

✓ a small star 12 or 12½
vis in place which may
be R or a, cant distinguish
which

Observe Zone

83 R Herculis < 12½

✓ not vis.

p n and q are much too bright
on chart; they are actually
only 11½ or 12 mag

corrected

83a T Scorpii < 13

✓ not visible

a (12) easily visible

Apr 29 '83

83a V Scorpii contd

✓

star x is not visible & must be < 13

" y is easily visible 12 m

star on chart $\alpha \begin{cases} 15^h\ 59\ 44 \\ -19\ 9 \end{cases}$

does not exist; erase it

86a V Ophiuchi 9.7

✓

V 4 c
a 3 V
b 1 V

Observe zone

Apr 29 83

90 'T' Ophiuchi 11

a 2 'T'
b 1 'T'

T = c

91 S Ophiuchi 12?

~~region not certain~~
if g d & b are rightly placed
on chart S is visible; about 12

~~δ~~ b 2 S

a not vis., ~~others~~

Observe zone

Configuration g e d is not
exact as it appears on chart
angle at e is more obtuse

12h 30m Apr. 29, 83

91 b Draconis 8,11

✓ L 5 R

R 2 d

R 5+ e

Apr 29. 83

22h 0m T.

Continuation of obns on last ~~fo~~ night (p. 4) to get dimensions of plate (experimental)

B236 α Lyrae δ = +38° 40'.5
Cos δ = 9.8925

~~a~~	0h 6m	15.2	5	9	49.1
b		20.6			54.0
c	6	42.1		10	16.0
d		47.3			21.1
e		—		12	6.7
f	8	38.2			11.8
g	9	0.0		12	33.4
h		5.3			38.4
	1st set			2d set	

The distance of paper strips is

met.	'
.0075	= 10.6
.0076	= 10.7
.0072	= 10.0
.0071	= 10.0

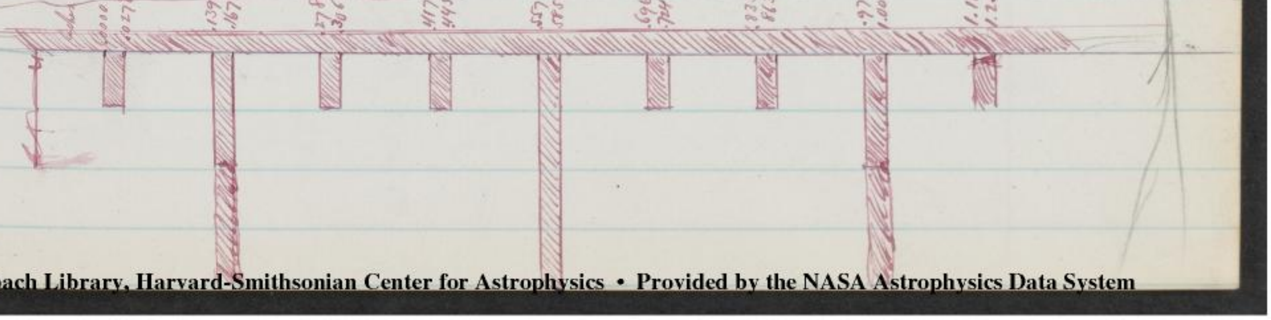
From the obns ~~o~~ pages 4 & 17 last night & this ~~morning~~'s I get for the distance (in equatorial arc) approximately enough

a h = 2m 11s.7 = 32' 55".5

mean This is (about) .0233 met. = 0.917 in.

Hence of 1' = 0.02786 in. = 0.000708 met

Consequently a plate with lines 1' broad and 5' apart will be of these dimensions



Monday Apr 30, 1883

Clear

Sus var (1855) 5 23 48 +32 10.8

✓ (See my obsn Mar 7, 1882)

1855

Call stars at 5h 23m.5 +32° 45' = a

" " " 5 24.2 +32 40 = b

Sus var 4 < a

" " = or 1 ~~?~~ < b

b is very decided red.

} Used art 6 pow

Sus var (1875) 7 10 9 +9 41.0

✓ (See my obsn

a 3 b

c 2 2

b = d

Apr 30 83

7h 30

38 R Can min. 8.5

✓ f 4 R Clear 3½

R 2 d

38a V Gemin. 11

✓

I see two stars in place of V exactly equal brightness, ~~[illegible]~~ or the ~~northerly~~ southerly perhaps .1 brighter the northerly is ½′ or ~~1½~~ ~~[illegible]~~ ~~[illegible]~~ ~~so~~ almost exactly north perhaps 1s + prec. The ~~[illegible]~~ first is a trifle south of line joining g and e, and the second is a trifle north or perhaps just on the line joining g and f. it is certainly north of line joining g and e.

called provisionally x

called provisionally y

There is still a 3d star much fainter (12½) about 1½ or 2′ South of the 1st of these (x)

The following comparisons were made

x 1 y
m ~~2~~ = x
m ~~2~~ 1 y
x 4 n
y 3 n
n 3 g

k 3 x
k 4 y

Apr 30 83

39 ✓ S Can. Min 9.0

color 3

S = n

S 3 c

m 6 S

m 6 n 3 c 4 h 3 k

40 a ✓ U Can Min. 9¼

U = f

n 3 h

n ~~¾ or 1 mag~~ 5 l

e 1 U

U 5 k

d 6 or 7 U

Sas. Var # 205 ✓

var = a

b 5 var

Apr 30, 83

43 U Gemini — 13
✓

invisible
a not seen
g easily vis.
d = b

44 R Cancri 11
✓

R ½ or ¾ a
m 3 R
R 4 p
o 2 R

45 V Cancri 8,5
✓

a 4 V
V 1 c
V 5 d

$8^h\ 30^m$ Apr 30, 1883

46 U Cancri 10½

✓ c 4 U

U 4 a

U = \ 2

a ~~8~~ 3 n 1 or 2 m

b 3/4 mag U

52 R Leonis ~~7.0~~ 7.0 ~~7½~~

✓

R 4 e

R = b

55 R Crateris 8.7

✓ l 7 R

c 5 R

R 2 a

R 3/4 or 1 m b

Apr 30, 1883

9h 0m

61 R Corvi 7.9
✓ R 1 a
R 3 b
c 4 R

62 T Urs. Maj 8.2
✓ T 1 b
a 1 T
T 5 k
T = h

64 S Urs. Maj 8.7
✓ S 2 c
d 2 S

65 U Virginis 10.0
✓ U 1 a
U 2 b
u 4 U

Apr 30, 1883

66 W Virginis 9

V

W 4 b

a slight doubt ~~entered~~ exists in my mind whether in my previous obs of W was certainly identified

Zones for W & V Virginis

~~67 V Virginis~~

Zone 13^h 15 — 13^h 25 for −2° 27′ — 2° 59′

	9	59	51	− 32′	10
	10	0	31	38	9.7
		0	32	27	9.7
		1	31	20½	10.3
		1	58	28	10.3
W		2	57	17	9.5
		3	3	35½	8.8
a		4? (3)	51	21	10.5
b		5	7	34½	10
		6	38	16	10¼
		6	44	27	10½
		7	19	9	9½
		7	44	16	8¾
		7	54	26	8¾
		8	21	25	9
		8	23	26	9
		9	6	3	8 ~~7~~
		9	16	4	8
(1855) 13 34 53 − 3° 46′)		9	10	29	8

Apr 30, 1883

Zone 13h 15m – 13h 26m ~~δ~~ -2° 0′ to 2° 30′ ±

	10 19	38	-13	9.5
	20	5	38	10.0
	20	43	28½	10
		59	13	10
	21	12	11	10
	22	4	7	9.8
	~~23~~	44	39	8.6
	23	14	14×	10.5
		22	14	11
	24	12	18½	10.5
	24	24	14	10
	25	27	16	10.6
	26	0	15.5	9
	26	14	21	9.5
	27	5	31	10
h m 13 23, 24 } -2° 18′	27	32	21	8
	27	42	7	8.6
	28	51	23	8.3
	28	51.5	26½	8.3
	30	3	22	9.5
	30	12	14	8.5 [illegible]
	30	42	11	8

10h 35 Apr 30. 83

71 S Bootis 8,9
✓ S 4 d Color 2
S 2 e
g 3/4m S
f 2 S

73 R Bootis 10,0
✓ R 5 l
R = k

78 S Coronae 7.8
✓ S 3 g
h 5 S
S 4 f
S 1 u

88 U Herculis 7,5
✓ o 1 u Color 2½
u = ~~m~~ n
n 5 m
k 4 u

Apr 30. 83

11^h 0

gla R Urs. Min.

10.0
~~10.0~~

✓

g 2 R
b 4 R
g 1 R
R 3 r

Wednesday May 2, 1883

Clear

Watch set slow of 1327 ③^h 0^m 37^s at
10^h 12^m Sid. time

Circle Readings for Instrl Errors
Pointings made with paper scale 20' stroke

		Watch	H.a		D		
μ Hydrae	~~(F)~~	10 20 25 10 29 14	12 9.65	13 20 46	16 13		D = 16° 12'.25
	(P)	10 33 51 32 40	0 13.2	13 20 39	16 11.5		δ = 16 13.2
			0 11.26	2) − 13 − 6.5		2) ∓ 1.5 − 0.7	ξ = − 1'.0
τ Tauri	(P)	10 40 14 10 39 3	6 4.7		22 48.		D = 22 47.5
	F.	40 3 46 52	18 12.05		22 47.	2) + 1.0 + 0.5	δ = 22 46.8 η + 0'.7

α = 10 20 28.1
δ = −16 14 46
r + 1 35

10 32 8
10 11 26
10 20 42
10 20 28
α ΔH + 14^s

α = 4 35 14.1
δ = + 22 43 47
r = + 3 0

Hence

Δd	ΔH	c	ξ	η
± 0'.0	+ 0^m.2	− 0^m.11	− 1'.0	+ 0'.7

Sus Var # 311 8.5

V a 3/4 + > 311
b 1 311
311 5 c

c inserted approximately; get DM Place

May 2, 83

Sus Var 337 & 339
✓ ✓

b 1 337
337 2 c

339 2 a

Sus Var # 269 ✓

b 5 269
d 4 269
c 3 269
269 1 e
269 3 f

52 b U Leonis <13

✓ cirrus
a easily vis 11½
b seen steadily 12
c occasionally 12 or 12½

$8^h\ 30^m$ May 2, 83

53 R Urs Maj 10.7
✓
c_2 2 R
R 3 m

91 c W Herculis 9 3
✓
a 3/4 > W
b 3 W color 1
W 2 c ~~Color scarcely~~
W 5 d ~~[illegible]~~ .

92 S Herculis 12½
✓
a 3/4 or 1 S
S = m

93 a V Herculis 10½
✓
V = 1 a
b 3 V

May 2, 83

$9^h\ 8^m$

114 R Cygni — < 13
✓ not vis.
the small 12½ or 13 mag star q is distinctly visible

Compare Star n (see note)

✓ k 3/4 mag n
g 3 or 4 m/ ~~5~~ ~~mag~~ n
~~e 3 n~~
n 1 e

117 X Cygni — < 13
✓ not vis. (3^s or 4^s)
the 2 ft stars (just foll) not vis.

119 S Cygni 9:~~8~~
✓ b 3 S
S 3 c
a not seen; unless the star stated as S is a

Thursday May 3, 1883

Clear

8h 0m

13 S Persei 9.7

✓ f 2 S
S 1 g
S 4 or 5 h

35 R Lyncis 11½ .

✓ ~~R~~ g 3 R
R 4 h

50 T Hydræ 9.5

✓ t appears unquestionably to be the var. T

(T=t) 6 g
(T=t) = d
b 3 (T=t)

Observe Zone

38a V Gemini 11½

✓ x = y

May 3, 83

B 236 — 11h 26 — 11h 27
every 5s tapped on chronograph
double taps at 11' 26 0 & 11 27 0

Zone for 58 Z Hydrae

1st star of identification = 8h 44 12 − 8° 52
foll by dash
next were R and two foll stars on chart about 8¼ and 8½ mag.
chronograph record of mag of these stars somewhat uncertain
a double long dash indicates these.
in one or two cases two declinations were tapped in succession followed by respective mags

11 52 20 to 11 53 20, every 5s tapped
double taps at ~~0~~ 5 11 53 0

Clear Friday May 4. 1883

62 T Urs Maj 7.6
✓
T 4 a
T 2 b
T = g

78 S Coronae 7.5
✓
h 3 S
S 7 f
S 1 k

Sus Var # 143 ✓ & 143 a ✓
From hasty glance thro clds
estimated
143 3 a
143 a 4 143

Sunday May 6, 1883

(1855)
Sus var 15h 28m +54° 59 8.7

		D.m	var	
✓	var 2 c	c = 8.8	8.6	Color 2
	var 4 d	d = 9.1	8.7	
	a 2 var	a = 8.5	8.7	
	~~b~~ var 1 b.	b = 9.0	8.9 8.7	

37 R Gemin. 7.4
✓ g 4 R Color 3½
R 4 s

#167
Sus var ✓ 23.1599 just vis. 12 or 12½

Sus var #201
✓ not visible certainly < 13
The two faint 12½ mag stars just preceding b were easily visible and var. could have been seen, if even ½ or 1 mag fainter than those
a is 11 mag.

May 6 83

Sus Var # 209
~~209~~

209 a ✓ is vis
209 b ✓ is missing ; < 13

43 U Gemin ; < 13
✓ U & a invis
d = or 1 b

58 T Hydræ 9.8
✓ b 3 (2=T)
(2=T) = d
(2=T) 4 g

Sus Var 251 9.0
✓ a 5 251
251 5 b
a 1 or = 251

May 6 - 83.

56 δ Leonis 10.5
✓ h 2 S
f = S

61a T Virginis 11
✓ b 3 y
y = e

91b R Draco 8.4
✓
R 2 d

88 U Herculis 7.8
✓ U = q
n 4 U
o 2 U

obsn uncertain
from flitting
clouds

71 S Bootis 8.7
✓ S 5 e
g 3 S

10^{h} 0^{m} May 6 83

73 R Bootis 9.4

✓

R 7 l

R 3 k

h 2 or 3 R

63 R Virginis 9.3

✓

R 2 n

R 5 m

R = g

h 7 or 8 ~~9 or 10~~ R

Sus Var # 381 8.6

✓

381 3 c

381 1 b

a 2 381

D.M.	var
c = 9.0	8.7
b = 8.5	8.4
a = 8.3	8.5
	8.5

74a T Libræ

✓

See ~~other~~ next page

May 6

74 a T Libræ 11¼

✓ T 3 or 4 a

b = or 1 T

c 2 T

Obscure Zone

76 δ Libræ 8 7

✓ δ 3 k

δ 3 l

d 5 δ

δ 4 e

m 3 δ

Insert large ft. nebulous cluster

66 W Virginis 10.3

✓ W = ~~k~~ b

W 3 ~~3~~ a

star c not visible look it up & see where I got it

May 6, 83

67 T Virginis 11½
✓
a 4 T
V 4 ~~b~~ f

83aT Scorpii
✓ examined place of star
x & y with East Eq.
x certainly not vis; < 15

Sus for 445 (Double) ✓
x 3 y
y = c

Sus for 447 ✓
447 = a
447 4 b

May 6. 83

Sus Var # 453 ✓ = f
e 4 f
f = x

Sus Var # 459 a ✓ 11½

~~Var #~~
459a 5 a
" 4 i
= c
f 2 459a
h vis but not k

86 S Scorpii 11½
✓ a 4 S
S 1 b
c 3 S

85 R Scorpii <13
✓ not vis <13

12h 5m May 6 c #3

84 T Scorpii,

✓ nebula has a central nucleus almost star like about 10 or 11; not easily distinguishable as a seperate point from surrounding very bright nebulosity.

86 a V Ophiuchi 9.5

✓ a 1 V
V 3 c
b 1 V

Sco Var # 471 11½ ±

✓
471 5 m
m 2 471

May 6. 1883

Sus Var #483 ✓ ? (10½ or 11)

483 = a

483' 5 b

obscure zone

94 R Ophiuchi ✓ 10.0

K 2 R

R 5 C

Cluster or nebula foll 30^s ± 4' or 5' south ; look for it again with higher power

100 T Herculis ✓ 12½

T 5 m

n 5 T

red star ~~prec~~ foll (6^s) c is tonight

2 < d

5 < e

2 > p

$13^h 0^m$ May 6. 1883

Sus Var 513

not visible

10.1 T Serpentis <13

invisible; certainly <13

a not visible

Note star b is not brighter than 10½ or 11 m; and could scarcely have been observed by D. M. Comet seeker if as faint as now.

See chart, of Ser N 13

$\alpha = 18^h\ 22^m\ 30^s$

$\delta = +6°\ 30'$

Star marked × on chart is not in heavens, unless out of place and about 3′ too far north.

May 6 1883

Star tour # 549 ✓

e 3 549

c 1 549

549 1 d

See note at end of night's obsns p. 47

110 R Aquilae 11½
✓

R = [q]

Note 2/29/84 - I think ~~this~~ was the star y, not q; see my reconstruction of this region obsn of 2/28/84

[q is out of place; belongs 1 or 1½' further south.]

111 T Sagitt. 10½
✓

T = a

Observe zone

Chart very defective

$14^h\ 0^m$ May 6 83

121 S Aquilae 11

V

a 3/4 way S

S 2 d

c 2 S

b not visible

Group at +15° 0' $20^h\ 5\frac{1}{2}^m$ is not well represented by chart: compare carefully with D. M.

129 U Capric <12½

V

not vis.

a & b & b foll easily visible

May 6 - 83

1

Missing D.M. Star DM 30.4951
V 23^h 21^m +30 55

Searched for;
not visible; < ~~[illegible]~~ 12
(See obs Mar 1 83)

Ended 14^h 30^m

Note on Sus. Var # 549 : It has heretofore been assumed that the star at 19 26 14 +17 24.2 is the object to be observed, and that d'Agelet 5057-9, Vienna zone 60, No 70, and D.M. — were identical.

A careful reduction (made May 10, 83) shows however that probably the Vienna and D.M. stars are identical, ~~but~~ and the one that I have heretofore observed (9/13/82, 10/1/82 11/17/82 5/6/83) ~~an~~ but that the d'Agelet star foll. $0^s.7$, $2'.2$ north.

Chart was accordingly changed to indicate both stars, and future observations will be made on this latter (n f.) star, if it exists.

Monday May 7, 1883

49 T Cancri 8.9

✓ T 3 d
T 4 c
T 4 b
T 1 e
f 6 T

43 U Gemin. < 12½

✓ ~~the~~ ~~through gaps~~ region examined
carefully thro' gaps in clds.
certainly T < 12½

8^h 45 Tuesday May 8, 83

43 U Gemini. — 13

✓ not vis

a vis. by glimpses

b distinctly & easily seen

38a V Gemin. 12

✓ k 2 x

x 3 y

y 1 q

y = 2

7 S Cancri &p 9.0

✓ d 6 S Color 3½

e 3 S

S 3 f

S 5or6 g

Sas Var #269 12

✓ 269 = e

" 1 f

c 3 or 4 269

d 3 or 4 269

Tuesday May 8 83

Sw. var (1855) 15^{h} 28 +54 59 8.7

✓ var 2 c
" 4 d
" 1 b
a 3 var

69 S Virginis. 10.5

✓ p 2 S
S 5 t
q 1 S

Inserted tonight a star $12\frac{1}{2}^{m}$ ± called x, which may be the variable

Observe Zone

~~78 S Coronae~~
55 R Crateris 8.5

✓ f 1 R Color 4
e 4 R
R 3 a
R 6 b
R 1 d
c 3 R

May 8 83

46 U Cancri 9.5

✓ d = or 1 U
b 2 U
U 4 l
c 2 U

40a U Can Min 9.5

✓ e 4 e } hasty glance
U > d } star just going behind
steeple of church

61 R Corvi 8.0

✓ R = a
R 2 b
c 5 R

94 R Ophiuchi 9.5

✓ k 3 R
R 3 c
R = 2
e 5 R

nebula obsd May 6, again seen, very small, round, very faint.
Estimated Place (1855.) 17h 0m 5s ± −15° 55′.5
Prec 1 36 − 2.5
(1883) 17h 1m 41s −15° 58′.0

May 8

62 T Urs Maj 8.2

✓
a 1 T
T 3 b
T 4 e
h 2 T

64 S Urs Maj 8.5

✓
S 4 c
S = d

65 U Virginis 10.7

✓
a 2 U
U = n
U 3 p

Somewhat hazy } star U. very ft - scarcely vis ; < 11½

102 V Sagittarii 7.8

✓
a 6 V
b 6 V
c 1 V
V 3 d

103 U Sagitt. 7.5

✓
U 2 ~~α~~ f

Schmidt's notation ~~afterward~~ adopted after pencil record was made.
the above comp^n star was Schmidt's f

11h 30m May 8, 83

Note to
102 & 103 Sagittarii

star d ~~on chart~~ has another 8½ ~~on cha~~ star a few seconds follg on chart which is not in Reimers?
Get transits of this group and look this up

The above stars are Arg. 18346 & 18347 – R.a. of 18346 is doubtful ±5s (see Oeltzen's note)
I assume 18347 to be the correct place, and have fixed chart accordingly

Sag. Var. #517 8.5

×a 3 517
b 4 517
517 3 c
517 4 d

~~Color 5~~
Color 4½

517 is intense red ; a ~~on~~

104 T Aquilae 9.0

✓ c 1 T
T 4 b
a 3 T

May 8

Sawyer's Var.

Watch ~~corr~~ $5^{m}.0$ fast of C.M.T.

10^h 5 ③ a 3 v
v = b
v 1 c
v 3 d
v 3 e

11 48 ~~1 or 2 e~~ v 1 or 2 e
v 1 d
~~v 1 e~~
v = c
b 2 v

11 16 v = 1 e
v 3 f
d 2 v
c 2 v

11 37 v 2 or (e) ~~d~~ f r.
e 0 or 1 v
d 2 v
c 3 v

11 48 v 1½ f
e ~~3~~ 1½ v
d 2½ v

Cloudy

~~May 8~~

Thursday May 10. 1883

Haze – moon 4 days old ✓

38 R Can Min.

✓ ~~R~~ e 1 R 8.8

R 5 c Color 3½

R 5 b

39 S Can Min 9.1

✓ S = c

S 2 b

$8^h 15^m$ n 3 S

43 U Gemin. — 11

✓ f d g plainly vis

e barely vis.

b & U invis

Haze & moonlight

45 V Cancri 8.8

✓ V 4 d

~~d 2 V~~

e 2 V

c 3 V

a 4 V

May 10 83

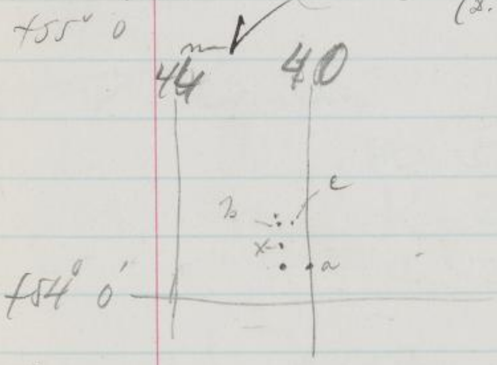
52 R Leonis
✓ b 5 R 7.9
e 3 R
R 3 d
R 6 c

66 W Virginis 9:1
✓ W 5± a
K 2 W
. W 4 or 5 d

Friday May 11, 1883
Partly cloudy

Star at (1855) 19 24 59 +15 17.3
✓ (See A.N. CIV, 345 Schönfeld & Pechüle.
Star not seen, but no haze
would have obscured it if brighter 11m

DM Star (1855) 22 40 38.2 +54 9.5 (8.9m)
(D.M. has 8.9! Small. Since Prof R. has 9.8, 9.8)
✓



(x is star in question

a 5 x
x = b
x 2 c

Sus Var #549 ✓
Sky hazy

x = c
x 2 a
e 2 x

y is invisible; < 11½ at least

Sunday May 13, 1883

Moon setting cloudy in parts of sky

Wednesday May 16, 88

Clear ; Moon

$8^h\ 30^m$

~~49~~ 46 U Cancri 9.5

✓

U = d
b 2 U
U 5 l
U 1 c

45 V Cancri 8.5

a 5 V
V 3 d
c 2 V

color 3

48 S Hydrae 10.5

✓

S = n
S 4 o
S = p

50 ✓ T Hydrae 9.3

a 3 (r = T)
(b = T) 4 d

9h 45m May 16 83

43 U Gemin <11

✓ invisible ; < 11

f e d g visible

b seen by glimpses

27 R Aurigae 10.0

✓ g 2 R

R 3 L 1

f 6 or 7 R

37 R Gemin 7.9

✓ R 6 ~~e~~ v

g 3 R

Sus. Var #167 ✓ <11

not visible ; < 11

40 T Can Min, 9.0

✓ T = d

T 1 c

T 5 a

T 6 2

e 3 T

May 16 83

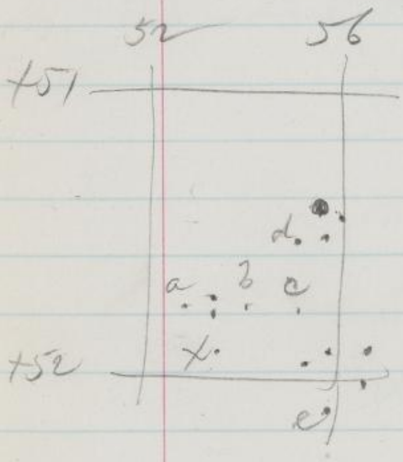
40 a U Can Min. 9.1

✓ d 5 U
e 2 U
U 6 K
U 4 f

44 R Cancri 10.5

✓ R 5 or 6 a
R 3 p
m 4 R
o 4 R

Prof Rogers missing Δ ra (1855) 4 51 24.1 +51 50.2



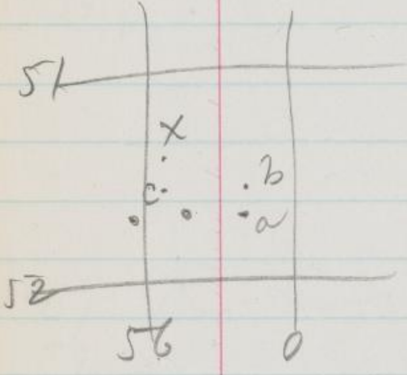
x is 8 star

x 3 a 8.8
x 5 b
x 6 c
d $\overset{2}{4}$ x
e 2 x

x has a faint star (10) prec
about 20s on parallel

May 16, 83

Prof. Rogers missing DM × (1855) 6 56 28.2 +51 25.5



x is 8 star

x = 9.1

x 3 c
x 4 b
x = 1 a

c is double:

49 T Cancri

✓

9.0

color 3½

T 2 b
e 5 T
c 2 T
T 3/4 poor | may a

14 stars to here)

Sch Taur # 381 ✓

a 3 381
381 2 b
381 5 c

9^h 45 May 16 83

69 a Z Virginis < 11½
✓

limits
a & b easily visible
must be at least 1 mag < b

71 S Bootis 8.0
✓

S = g
S 3 h
k .5 S

76 S Libræ 8.3
✓

S 3/4 or 1 > l or k also 3
m 3 S
S 7 e
d 5 S

May 16 '83

78 S Coronae 7.9

✓ S 1 g
h 5 S
δ 6 u

80 a T Cor Bor 11

✓ a 4 T
T = b } clouds
c 1 T

88 U Herculis 7.8

✓ U 2 q
o 4 U
U 3 m
m 3 U

21 stars

91 a R Urs Min 9.5

✓ a 5 R
b 3 R
R 4 R
q 2
R 6 q

There is a 10 or 10½ star 2' S.f. of b which I have not before noticed and insert tonight

May 16, 83

913 R Draco 8.4

✓ R 1 d

Small star near "c" of 100 Σ Herculis

v d 2 c foll

c foll 2 p

Sas Var # 549 < 11½

✓ x = e

y not visible

25 stars

Thursday May ~~25~~ 24 83

Clear

Watch fast 8 min.

#

43 U Gemin. 10.5

✓ 9:~~5~~ u 1½ f

9:15 u 2 f
" S 4 u

9:20 n 2 or 3 f
n 3 or 4 t
s 3 or 4 u

9:30 u 1 x
u 3 f
s 3½ u

May ~~25~~ 24 83

56 S Leonis

✓ from hasty glimpse thro' clouds appeared much fainter than b

Sus Var 311

✓ 311 4 b
311 3 c
a 4 or 5 311

63 R Virginis 8.5

✓ R 6 b
a 3 R
b 5 R

66 W Virginis 9.7

✓ w 2 b
~~w 2 a~~
d 2 or 1 w

2 : 24
May ~~25~~, 83

67 ✓ V Virginis 9.0
v 2 k
h = or 1 $\overline{V}$

86 S Scutii 10.7 ~~11.0~~
✓ S 4 b
δ 1 a
c 3 S

85 R Scutii < 11½
✓ not vis ; < 11½ or 12

86 a $\overline{V}$ Ophiuchi 9.8
✓ c 2 $\overline{V}$
a 6 $\overline{V}$
b 5 $\overline{V}$
V = d

May ~~25~~ 24, 1883

100; T Herculis 9–5

✓

T 1 q
i 3 T

Chart of T Herculis compared with heavens, and stars to 10th mag. inserted and discrepancies noted on chart. The notable differences are the following

D.M		1855		
31°.3175	9.5	18 2 31.1	+31 42.6	~~[illegible]~~ Does not exist; or below 11½ mag. : marked "B" in D.m., but I can't find it in BB VI or Nachtrag. There is a 10 m. about 4′ n, same R.a.
30.3132	9.5	18 2 38.5	+30 14.0	Does not exist, or is below 12 m. ; there is a 10 m. about 5′ n, same R.a.
—	9.1	18 3 14 ±	31 26. ±	a decidedly red star not in D. m. ; ~~foll.~~ prec. Dm 31° 3180, about 6s on parallel
30. 3143	9.3	18 5 19.9	30 47.5	: not in sky in place indicated ; a 10 m. prec. about 15s same parallel.
31. 3195	9.5	18 5 28.8	31 22.5	: not brighter than 10.5 or 11.0 m.
31.3206	9.5	18 7 28.3	31 15.2	: not brighter than 10.5

Friday May ~~26~~ 25, 83

Hazy

43 U Geminor. 11.
✓
9^h 30^m
s 3/4 U
f 3 U
U 2 g

Sus Var 201
✓ not vis :
a distinctly visible
Star low Sky hazy

56 S Leonis 11
✓
h 6 S
S = k

73 R Bootis 8.5
✓
e ~~6~~ 5 R
R 3 f
R 6 g

May ~~26~~ 25, 83

73 a U Boötis 10.5±

✓ a 4 U ::

U 3 c ::

U = d

91 c W Herculis 9.0

✓ W 3 c

W 5 d

a 5 W

b 2 W

93 a V Herculis 10.5

✓ V 2 a

b 5 V

105 R Scuti 6.0

✓ R 2 f (finder

May ~~26~~ 25 83

Sus Var 557

✓ a 1 557
c 4 557
557 4 b

116 S Vulpeculae 9.4
✓
S = b
d 4 S
S 3 a

119 S Cygni 9.2
✓
S = b
S 3½ c

a not seen; Star seen is assumed to be S not a.

121 S Aquilae 10.0
✓
a 2 S
S 5 c

Saturday May 26 83

Cloudy

43 U Gemin,
✓ ~~but [illegible]~~ only a glimpse
obtained thro clds.
certainly < d
= or < e   uncertain

Sunday May 27 83

43 U Gemin:

v not visible

b visible

star low sky hazy

Monday May 28 '83

43 η Gemini —<12

v

e & b vis

η invis

g 4 d

note; the star heretofore compared with d and called b is actually g; change record accordingly; in the comparisons with η the correct notation has always been used.

7 S Cassiop 9.5

v

c 7 S

S 4 g

S = f

35 R Cygni 12

v

g 7 R

R 1 k

May 28 83

Sou Var 205 ✓ 12½
205 just vis ; star low
a ½ mag 205
b 1 mag 205

51 R Leo min 9.0
v
R 2 a Color 3
e 4 R
c 7 R

5✓
~~52~~ R Leo. 8.2
v
d 2 R
R 3 f.

Sou Var # 269✓ 12½
~~260~~ ~~[illegible]~~
δ = ~~or~~ 1 e
f 2 S
b 3 S
a 4 S

a appears close double with ~~low power~~
low power (50)

9h m May 28
9h 45

53 R Urs Maj 11
✓ m 4 R
R 3 x
b₂ 7 R

55 R Crateris 8.5
✓ R 2 a
f 3 R
R = d

61a Y Virginis 12½
✓ e 6 Y
c 1 Y ✓

Sus Var 375 8.5
✓
375 3 b
375 2 a

May 28 83

Sm Var 549 <13

√ invisible

certainly ~~th~~ < 12½

Tuesday May 29 1883

Clear

Watch; min. hand set to Sid Time

Watch fast of m. T. $28^m.3$

Watch^m Sawyer's Variable U Ophiuchi

10 20 b 2 U
U 1 c
U 2 d
U 2½ e

11 42 U 2 e
U 2 d
U 1 c

12 5 c 1 U
b 3 U
U 1 d
U 2 e

12 21 b 0 U
c (b) 1 U
U = d
U 2½ e
U 4 f

12 39 U 2½ e
U 2 d
U 1 c

May 29 83

12^{h} 84 n 3 e
n 2 d
n 1 c
b 1 n

May 29 1883

May 29, 1883

Sus Var #459 — 11

✓ f 1 459

459 2 c

459 5 or 6 i

Ins V. #471

✓ 471 2 n

471 5+ m

90 T Ophiuchi — 12½

✓ m = T

c ~~1 mag~~ 3/4 or 1 mag T

91 S Ophiuchi — < 13

✓ invisible < 13

111 T Sagittarii — 9.5

✓ Color 3½

T 2 b

T 3½ a

c 3½ T

Note: star marked x on chart is missing in heavens.

May 29 83

112 ✓ R Sagittarii
113 S Sagittarii

✓ Region cannot
be recognized

Observe Zone

Sus Var #555 ✓ 7

555 3/4 mag ~~a~~ d
555 = ~~b~~ f

(Put in ~~b~~t from D.M. tomorrow ✓

120 R Capricorni
✓ region not recognizable
Observe Zone

May 29 83

122 R Sagittae 9.4
✓
a 4 R Color 2
R 2 b

123 R Delphini — 3
✓
a star seen in ~~its~~ its place
but whether it was
R or a could not be
distinguished — Hazy

125 U Cygni 11
✓
d 3 U Color 5
U 2 c
U = b

127 S Delphini 9..3
✓
c 5 S
S 2 a
b 1 S

May 29 83

127 a V Cygni ~~10.5~~ 11

✓

V 3 b

a 2 V

c is not in D. M. altho

consistently ½ or ⅓ mag brighter than other

D. M. stars. of 9½ mg

128 T Delphini —<13

✓

invis

137 a R Lacertae <12½

✓

invisible

131 T Aquarii 12

✓

T 4 a

b 4 T

May 29, 83

132 R Vulpec 11½
✓

R 4 ~~a~~ l
~~b~~ k 4 R

133 T Capric. — 12
✓

invisible
a and f just visible but
certainly
moon & haze & star low

136 T Pegasi — 12
✓

not vis. — moonlight
D.M. star prec 6^s is evidently
T itself ~~and~~

May 29. 83

140 R Pegasi 8.5

✓ d 4 R

R 1 b

Ends $14^h 30^m$

~~141 S Pegasi~~

~~B 103~~

Friday June 1 '83

Clear

1 R Cassiop 8.3

✓

Z 3 c
a 2 or 3 Z
Z = 1 e

~~63 R Virginis 7.8~~

~~i 4 R~~

~~Rd 3 B~~

~~R 5 ca~~

~~color 2~~

Recorded
Wrong place

Clear Saturday June 2 83

61 R Corvi 8.7

b 6 R Color 4
e 2 R
R 2 f

a 10 mag, prec. R 8± sec; 1′ n.

62 T Urs. Maj. 8.5

T 1 b Color 2
a 4 T
T 5 e

63 R Virginis 7.8

i 4 R
R 3 b
R 5 a

June 2 83

64 S Urs Maj. 8.3

✓ m 2 S Color 2

n 5 S

s 4 d

h 4 S

65 R Virginis 8.5

✓ u 4 c Color 2½

d 1 u

e 4 u

~~Monday~~ Tuesday June ~~4~~ 5th, 1883

69 S Virginis 11½

✓ q ~~3 4 mag~~ 1 mag S
S 4 x
S 3 t

79 R Coronae 9.1

✓ R 4 e
d 2 R
h 2 R

Sus Var. 453 10½

✓
$ 453 = x
(on chart of R Coronae

June 5 13

77 S Serpentis 12

✓ p 1 S
S 1 q

m not seen star used for S may have been m

ask Searle or Wendell to look up with 15 inch

74a T Libræ 12½

✓ p 2 T
T 2 a

9h 0 Friday June 8, 1883

52 R Leonis 8.0

✓

b .1 mag R
R = d

51 R Leo min 7.9

✓ R 4 e Color 3
c 3 R

56 S Leonis ~~#~~ 11

✓ Twilight ~~[illegible]~~
S suspected
K very easily seen

7 S Cassiop 9.0

✓ S 2 g
f 5 S

June 8 '83

13 S Persei

8,5

V c 4 S
S 6 d

Sus var ~~#~~ 15^h 28^m $1^s,7$ +54° 59',4

Sus. var 6 > c 8.2
" 1 mag > d 8.1
2 or 3 > a 8.2
5 > b 8.5
8.2

June 12; belongs other page

Note: for obsns of Sawyer's Variable tonight see Almacantar record.

Tuesday June 12, 1883
Clear moon 1st quarter

Sus '

Belongs here

(1855) h m
Sus var 20. 9 50 + 53 13
✓ see obs 4/29/83

a 2 var
b 1 mag var
" var 3 d

49 ϖ Cancri 9.0
✓
ϖ 1 b
e 4 ϖ
. d 2 ϖ

June 12 '83

Sus Var # 381

✓ a 3/4 mag 381

381 2 b

" 3 c

69 a Z Virginis 11~~4~~

✓

Z = a

71 δ Bootis 8.4

✓

δ 2 g

h 5 δ

73 R Bootis 8.0

✓

R 2 d Color 2½

a 3/4 mag R.

June 12 83

76 S Librae 9 ~~8½~~
✓

s 1 l
k 2 S
e 1 S

78 δ Coronae 8.0
✓

s 4 g
n 3 S
s 7 = f
δ 2 e

79 R Coronae 9.5
✓

e 2 R
R 5 f
R 3 y

Sms [illegible] 453=f ~~3~~ x 3 (f = 453)
✓

June 20, 1883

Sus Var 15^h 28 +54 59

✓

Var 1 mag d
" 5 c
" 3 a

June 21, 1883

Dra Var 15 28 +54 59

✓ l 2 var

var 4 or 5 c

" 3 a

79 R Coronae 9.5

✓ q 1 R

e 3 R

100 S Herculis

✓ e 1 c

Star 6s foll c 1 < d

" " " " 6+ < l

e 6 d

June 22 1883

Sm Nm 15^{h} 28 + 54 59

V nm 4 c V

June 23, 1883

New Var 18^h 28^m +54 57

V normal brightness

copied " B 103 4 or 5 > 104
from " 2 or 3 < 1
Almucantar " = 3
Record Book " 3 > 12
" I noted the star, I think on June 20, at about this brightness; a week or so previous to that it was somewhat fainter.

9h 0m Monday June 25, 1883

Sus Her 15 28 +54 59

✓ normal brightness

79 R Coronae 10.

✓

q 3 R
r 1 R
e 4 R

Sus var 21 5 +55 7

✓ m = 1 a
c 1 var
var 4 b

1 T Cassiop 8.5

✓

T 1 a color 3½
T 3 b
T = e

June 25 83

Sts Var 251 ✓ 9.

251 4 b

a 1 251

c 5 251

Sts Var # 269 ✓ < 11

not vis.

a barely visible

twilight strong

Sm Var 292 ✓ < 12

not vis

c vis b and a invis

57 X Virginis

✓

X 2 a

b 3 X

X 4 ~~greater~~ > than close companion just north a few seconds of arc

June 25 '83

63 R Virginis 7.8

✓

e 3 R

R 3 k

R 2 i

Sus Grd 337 ✓ & 339 ✓

b 1 337

339 3 a

64 S Urs Maji 8.2

✓ h 2 S color 2'

S = m

g 5 h

S 4 d

June 25 83.

65 U Virginis 8.2
✓ f 3 U Color 2
U 5 d

73 R Bootis ~~8.8~~
✓
R 4 d Color 3
a 6–8 R

73 a U Bootis 10.0 (?)
✓ U 4 a Color 2½
b 2 U

83 a T Serpentis < 12½
✓ Invis.,
place of x scrutinized;
a star of about 11 may occupy
a place about midway between
x and y on chart

9h 0 — June 28, 1883

67 V Virginis 9.0

✓ v 1 k .. Color 0

m 3 v

66 W Virginis 9.5

✓

n 3 or 4 W Color 1

h 5 W

W 5 b

80 R Serpentis 12½

✓ x 4 R

83 R Herculis < 11½

✓ –

not vis

hazy

June 30, 1883

Clear

$9^h 30^m$

✓ [illegible] 15^h 28 +154 59
normal or 0.2 fainter

85 R Scorpii 10½
✓
R 2 c ~~[illegible]~~
f 3 R
g 2 R

86 S Scorpii —— 12½
✓
not vis. : < 12½ ——

84 T Scorpii ——
✓ (in nebula) not visible

June 30 83

86 a V Ophiuchi — < 12½
✓

not vis; must be at
least 2 mags > a, ~~which~~
a is brightest and northernmost
of a row of small stars
preceding 86 a V

88 U Herculis 8.5

✓ p 2 U Color 4

U 4 a

q 4 U

91 a R Urs Min. 9.0
✓

a 1 R Color 2½

R 1 b

June 30, 83

91 b R Draco 9.5

✓

f 3/4 mg R Color 2

b 4 R

R 2 c

80 a T Cor Bor ~~9~~ 10.0

✓

V 4 b

V ~~4~~ 2 a

c 5 V

Lm Vir # 483 9.5

✓ 483 – a

" 5 b

July 6, 1883

Sus var 15 28 +54 59

✓ var ~~[illegible]~~ 5 or 6 c

var 2 e

Sus var #549 (19h 26 +17 24)
✓
not visible ; < 13

79 ✓ R Coronae 11 ~~10½~~

y 3 R
R 2 x
e 6 R
q 3/4 mg R

Sus var 453 ✓ 11

x 3 f

65 U Virginis 8-7
✓
f 3 U
U 5 d
U 2 e
U = t

July 6 [illegible]

73 R Bootis 7.6

✓ R 5 b

a 4 R

x 2 R

color 2½

73a U Bootis 9.3

✓ f 2 U

U 1 b

U 5 or 6 x

85 R Scorpii 10½

✓ f 1 R

g = R

too faint to ~~color 2~~ est. color certainly

86

88 S Scorpii < 13

✓ invisible

July 6 83

Sus var 383✓ 12½

383 1 2
383 3 a
383 ½ or ¾ mag c

Sus var 437✓
region not certainly
identified. ; ~~star [illegible]~~

Sus var 441✓
one star in place of
441 but whether e
or 441 can't be
determined; it is
3 > d

Monday July 9, 1883

94 R Ophiuchi 12½

✓

1 mag < a or b

100 T Herculis 80

✓ Color 2½

T = b
g 3 T
T 3 a

Sawyer estimates ½ mag < g
and color not noticeable

note on star 5 in ~~field~~ chart of T Herculis
18^h 5^m 30 + 31° 22' = 10½ mag
18 7 30 + 31 15 = 10½ "
18 2 30 + 30 15 not vis; a 12 mag. a little lower. its place and a 10 m not in chart 5' north

July 9, 1883

101 T Serpentis — <13
✓
not visible

notation changed, Nov 23 83

2 ~~x~~ 2 b
b 2 ~~y~~ w

102 T Sagittarii 8.5
✓
T 5 m
b 4 T

no colors
perceptible
color 0

103. U Sagittarii 7.5
✓
Color 2½

~~f 2~~
U 2 f

Dun. Var #1 517 ✓
Color 5
brilliant
intense red

517 ~~2~~ 3 a
b 2 517
f = 517
517 5 c
517 5 d

Phil 9

91 a R Urs. Minoris 9.1
✓
a 2 R Color 1/2
R = b
δ 2 R

88 R Herculis < 12½
✓

invis ; < 12½

92 S Herculis 9.3
✓

Clouds interfered with Color 3
obs. ; hasty glance
gave foll. comparisons
S ½ or ¾ mag a
e ½ or ¾ mag S

Sawyer ~~[illegible]~~

S 1/4 mag > a

e 4 S

Sawyer's Variable ; for obs. tonight, see almucantar record

July 10, 1883
For obsⁿ of Hargis's Var. see almucantar record

Bright moonlight July 18, 83

Tu Dr 15 28 +55 0
normal brightness

79 R Coronae 11½
✓
f 3 R
fx 3 R
z = R

f = x

104 T Aquilae 9.0
✓ Color 2
c 1 T
a 4 T
T 4 b

110 R Aquilae 8.5
✓ color 3
d 2 R
R 2 c
R 4 a
R 3 b

July 1883

114 R Cygni <12

✓ not vis <12

n is 1/2 or 3/4 mag < k

g 3 n

n 3 l

122 R Sagittae 10

✓ b 1 R Clear 1

R 2 c

123 R Delphini 9.7

✓ R 1 b

R = 1 c

a not vis.; unless star observed for as R be a.

July 18, 83

127 S Delphini 8.5

✓ α 3 S Color 3

δ = c

128 T Delphini 10

✓ (obsd on chart of S Delph

~~p~~ T = m

T is 10^{sec} foll. the place where it appears on chart, of the star I observed is T.

α should be about 20 38 48
not 20 38 38

July 20

Sawyer's Variable (See note on opp. page)

10 42 e 1 v
v 2 f
d 3 v

10 54 e = v
d 1½ v
v 3 f

11 3 d 2½ v
e = 1 v
v 2 f

11 17 d 2½ v
v 1 e
v 2 f
e 2 v

11 28 d 2 v
v 1½ e
e 1½ v
v 3 f

July 27. 1883

59 R Comae Ber — 10½
V star very low
not visible ; < 10½ or 11

64 S Urs Maj 9
V Color 2
h 3/4 m S
d 1 S
S 2 c

71 S Bootis 9.5
V Color 2
g 1 mag S ~~1 mag~~
S ~~3~~ 4 a
S 4 d
c 1 S
S 5 b

73 R Bootis 7.7
V Color 1½
a 7 R
R 5 d

July 21, 1883

73 a U Bootis 9.5

v U 4 b

u ~~2~~ = f

g 3 U

h 3 U

h is not in D.M. altho brighter than many neighboring D M stars g = h

Keep watch of it

80 a T Cor Bor 9.0

v d 5 T Color 4

T 3 c

85 R Scorpii 10.0

v f 1 R

July 28. 1883

51 R Leo min 8.7

✓ [illegible]

c 5 R

R 3½ a

59 R Comae Ber 12

✓ a 5 R

63 R Virginis 9.2

✓

a 6 R

R 5 l

R 3 n

79 R Coronae 10½

✓

y 3 R

f 2 R

x 1 R

R 1 z

f 1 x

July 23 83

66 W Virginis 9.0
✓
W = k
h 5 W

67 V Virginis 9.5
✓
k 6 V
V 1 d

69a Z Virginis — 12+
✓
b steadily vis.
Z invis.
Star rather low

74a T Libræ 12
✓
Star low
[illegible] x 2 T
c 3 T
b 1 T

July 23

87 U Herculis 9.0
✓ U 3 a Clear 3½
* r 2 U

July 24, 1883

116 S Vulpec 9.7
✓ colr 1/2

d 3 S
S 3 b
S 4 a

131 T Aquarii 8.5
✓ T ~~2~~ 4 a
T 2 e colr 1
T 1 f
g ~~6~~ 5 T

137a R Lacertae — < 13
✓

not vis,
sky clear & dark

July 24

1 ζ Cassiop 8.0

✓ Color ~~3½~~ 4

b 4 ζ

ζ 1 a

2 R Androm 12½

✓

This "x" is I think what I have since changed to "z". It is close to R about 3' south same α

x 4 R

R ~~fl~~ seen only by glimpses

Moon rising.

7 S Cassiop 10

✓ Color 3½

g 1 S

S 3½ x

Color very marked ~~altho' star is ft.~~ notwithstanding faintness of star

July 24

13 δ Persei 10 ~~½~~
✓ color 2½

γ 2 δ
δ 1 κ

star too ft. to distinguish degree of color
certainly

July 25, 1883

58 X Virginis ~~10½~~ 11½

✓

~~X~~ z 2 X

X 1 e

z 3 e

z is the little star close to and n.f. X, ~~unless I have mixed~~ the stars, I am not however yet certain which is the variable

61 a T Virginis — 11

✓

Star very low down a & b easily visible.
T not visible

July 25

109 R Cor Austr. — 12 ~~12~~

~~R [illegible]~~

R not vis.

108 S Cor. Austr. 11

S = b

113 S Sagittarii — 13

not vis.

The nearest vis. star to its place on chart was

x

~~x~~ = about ~~12~~ 11½ mag.

112 R Sagittarii 8.5

f 3 R

R 1 d Color 2

R 1 g

d is also red, a little redder than the variable, about 2' foll

d 1 g

July 25, 83

62 T Vir. May' 9.7
✓
m 3 T
T 2 n

65 U Virginis 9.0
✓
U 3 e
U 5 b
U 4 c
f 6 U

69 S Virginis — 11
✓
star low down
S not vis
x " "
z & p easily vis.

July 25

78 S Coronae 9.0

✓ S 2 m

~~a 3 S~~

b 4 S

Color ~~[illegible]~~ 2 1/2

80 R Serpentis 13

✓

certainly seen but
just on limit of vision
13 m.

83a T Scorpii ~~10½~~ 11

✓ c = T
V 3 a
T 5 b

one star at xy, about midway in position
between them; ~~nearly~~ ~~about~~ in
brightness = b and < a.
I think it is fainter than
my recollection of it at
previous obsns.

July 25, 1883

Sawyer's Variable

Watch fast of mean time 8h 14m

Sid Time

18h 8 v 3 e
v 2 d
b 1 v
v 1 c

18 24 c = v
~~d~~v 1 d
v 3 e

18 34 v 2 e
v = d
c 1 v

18 46 c 2 v
d = v
v 2 e

19 0 v 2 f
v 1 e
d 1½ v

Sid Time. July 25, 83

19 7 e 1 v
v ½ f
d 3 v

19 15 e 2 v
f 1 or = v
d 3½ v

19 24 e 1½ v
~~[illegible] ½~~
v = f
d 3½ v

19 35 e 1½ v
v 1 f
d 3 v

19 49 v 1½ f
v 1 e
d 2 v

20 2 v 2 f
v 2 e
d 1½ v

July 25, 83

h m
20 18 v 1 e
v 1½ f
d 2 v
c 2 v

20 28 v 2 f
v 2 e
d 1 v

20 39 v 2½ e
v 3 f
v ½ d
v = c

20 56 v 2½ e
v 3 f
d ½ v
v = c

21 9 v 3 e
v 1½ d
b = v

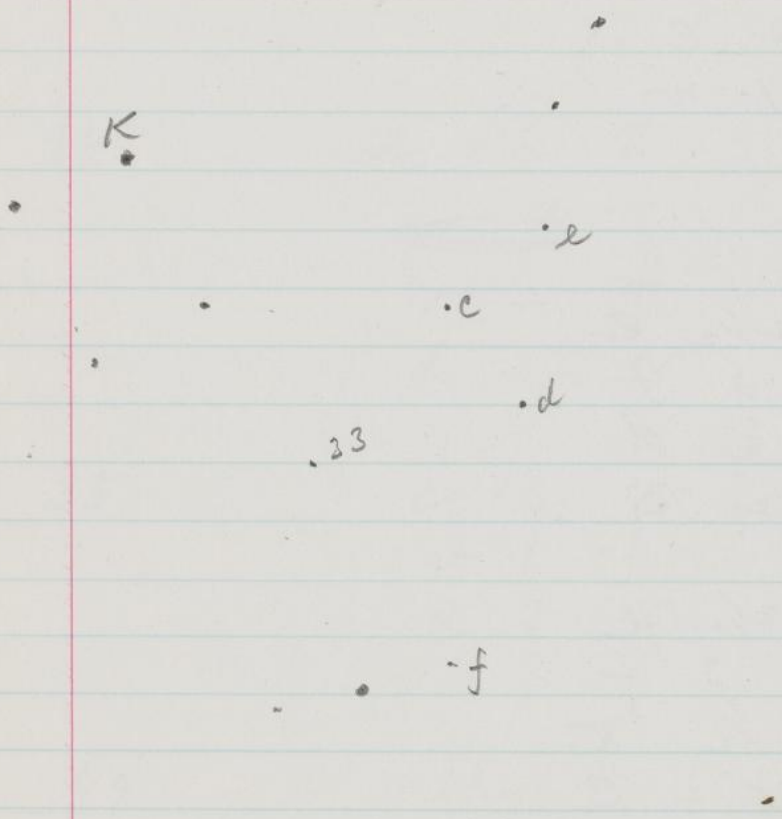
July 25, 1883

33 Herculis

(2 or 3 ?) a little < c

~~✓~~ ½ way at least < d or e

✓ (this is a hasty glance; to be verified



July 26 1883

60 T Virginis
√
Star low; twilight
strong; T ~~certainly~~
~~below~~ invisible;
certainly < 10

69 S Virginis — 11½
√
not visible
q plainly seen
must be at least 1 mag
less than q

61a R Virginis — 12
√
invis; Star low down
c & e visible by glimpses
Note; x not visible; must
certainly be < c or e
kept watch of it.

July 26 - 83

~~76 δ Librae~~

76 δ Librae 11½

✓ f 2 δ

δ 2 c

85 R Scorpii 10½

✓ f $\overset{3}{2}$ R

R 2 c

R 1 a

86. S Scorpii — < 13

✓ invisible

91a R Ursae Minoris 9.0

✓ a 1 R color 1

R 1 b

July 26 83

91 b R Draconis 12^h

✓ x 1 R

R 1 y

July 29, 1883

33 Herculis

d 1 33

✓ 33 1 c

1

July 30, 1883

11h 0m

33 Herculis

✓ 33 3 c

" d = 1 ~~4~~ 33 ~~d~~

e ~~d~~ 2 33

f 2 ~~b~~ 33

33 6 a

33 4 b

Searle estimates as follows

e 2 d 4 c 2½ 33

33 ½ mag > b

33 ¾ mag > a

Wendell estimates

c 1 33

d 5 33

(1855)

Sw Var 2 13 50 +54 42

✓ (See obs Aug 14 '82 for comp stars)

6.7	a	4	v
6.7	b	2	v
6.6	v	4	c
6.8	v	3	d
6.7			

July 30, 1883

Sawyer's Variable

h m
10 54 v 2½ e
v 1 d
v 1 c

11 19 v 1½ e
v = d
c 1 v
v 3 f

11 25 v 1 e
d 1 v
c 2 v
v 2 f

11 37 v 1 e
v 2½ f
d 1 v

11 54 v 1 e
~~v~~d 1 v
v 2 f

July 30, 1883

12 19 e 1 v
v 1½ f
d 2½ v

12 28 e 1 v
v 1½ f
d 2 v

12 42 v 3 f
v 1 e
d = v
c 1 v

12 47 v 1½ e
v ½ d
c 1 v

13 0 v 3 e
v 1 d
c 1 v

Saturday Aug 4/5 1883

S7 a W Ophiuchi 8.0

✓

c 4 W

W 1 a

~~W 7 b~~

d 1 W

Color ~~4~~ 3½

Color very marked; star attracted my attention by its color before I ~~ha~~ recognized it as the new variable

This star has been first announced as var by Duner

It is in my Cat of Sus. Var # 469

Aug 4, 1883

86 a V Ophiuchi — 12½
✓ not visible
the small stars on chart
just s.p. see it were
visible; "a" very plainly

91 c W Herculis 12½
✓

g 3 W
W 5 h

h is 13 mag.

92 S Herculis 8.3
✓
S 3 d'
S 4 e Color 2½
f 4 S

Aug 4, 1883

93 a V Herculis 11

✓

V 3 a

b 1 mag V

c 2 V

111 T Sagittarii 8.5

✓ ~~Color 24~~

Color 3

g 3 T

f = T

117 X Cygni 9.4

✓

Z 3½ X

X 3 g

X 4 m

Aug 4 83

119 S Cygni 10
v
~~a star mis in place~~

S 2 d
S 4 c
b 3 S

a not visible; unless
the star obsd as S
is a.

120. R Capricor.
v
region found; but
identification difficulty
no star as bright as
10' fr given place
a star about 11^m about
where R is on chart

Aug 24 83

121 S aquilae 11
✓

a 3 S

S 3 d

c 1 S

D.M. star b not visible

must be < ~~13~~ 12½

113 S Sagitt 13?
✓

S ~~118~~ just visible

x a 4 S

112 R Sagitt 9.0
✓

g 2 R Color 2

R 1 d

Aug 4, 1883

125 U Cygni 11

v Color 4

d 1 U

U 1 c

Note; a is fully 8.5 mag.
much brighter than indicated
on chart it is equal to g
Error of chart; corrected

Monday Aug. 6 1883

127a V Cygni ✓ 9.5

Color 4

V 5 c
V 4 d
V 1 f
e 1 V

129 U Capric. ✓ — 13

nothing ~~cert~~ certainly seen
in its place.
a b and small star n.f. b
easily seen

132 R Vulpec. ✓ 11

h ~~a~~ 3 R
k ~~b~~ 1 R
R 7 ~~e~~ l ~~k~~

Aug 6, 1883

133 R Capric ——— 12

✓ invisible

f and a seen, but with difficulty

136 T Pegasi ——— 13

✓ not vis. < 13

the D.M.-star 6^s prec., place of T in chart, does not exist. It is ~~probably~~ undoubtedly T itself. Strike it out.

100 T Herculis 10.5

✓ h 2 T

T $\underset{8}{2}$ q

Aug 6 83

140 ✓ R Pegasi 11.

5 1 R
g 2 R
R 3 f

141 ✓ S Pegasi — 13

not visible

143 ✓ R Cassiopeiae 11.4

R 2 m Color 4

Color striking; altho' star is so faint.

Aug 6, 83

11 R Arietis 8.5
✓
R 2 h Color 0 or 1
g 2 R

18 R Persei 9.5
✓
R 2 k
h 3 R

3 S. Ceti 8.5
✓ Color 1
S 2 l
a 1 S
c 5 S

Sus var #5. Sus var s. p. S 9' is 1 < e
✓

Saturday Aug 11, 1883

134 S Cephei 9.5

✓

S 3 c Color 4

a 3 S

b 1 S

79 R Coronae ~~[illegible]~~ 12

✓

just vis. by glimpses

must be at least

1 mag < y

80 a T Cor Bor 8.2

✓

k 5 T Color 3

h 3 T

T 2 g

T 4 d

Saturday Aug 11. 83

91 a R Urs Min 9.2
✓

a 3 R Color 2½

R = b

R = g

R 3 S

73 a U Bootis 9.5
✓

U 1 f

g 1 U

x not vis.

g $\overset{2}{3}$ h (h is not in D. m)

Sat. Aug 11 83

71 v δ Bootis 10.

c 3 δ

a 1 δ

δ = b

Tuesday Aug 21. 1883

Clear

67 V Virginis — <10½

✓ Star very low

a certainly > V

a 3 ±± V

f & g not visible.

66 W Virginis 9

✓

k 3 W

W 6 d

69 a Z Virginis — <11

✓ Star low

not vis,

a & b visible by glimpses

Aug 21, 1883

74 ✓ α Libræ 11

Star low

I = b

c not visible

76 ✓ δ Libræ — 11½

a f c h all visible

δ not vis.

81 ✓ R Libræ

one ~~a~~ star ~~vis~~ only visible

in ~~place~~ near place of

R, but whether it is

a or R could not be decided,

~~the std star = b~~ This star

was 1 step < b

Aug 21, 1883

85 R Scorpii —— 11
86 ✓ S Scorpii —— 11

star low; sky hazy.

R not vis.

S not vis

a & b easily visible

87 a W Ophiuchi 7.8
✓

W 1 a Color 3½

c 6 W

91 S Ophiuchi —— 11½
✓

sky hazy

S not vis

g e d b all visible

a not vis.

Aug 21, 1883

90 Z Ophiuchi

✓ Sky hazy — 11

Z not vis

c, a, b, visible

m not vis.

73 R Bootis 8.5

✓ c 2 R

R 4 f

Color 2/10 to ft. to ast, color certainly

77 S Serpentis — ~~11~~

✓. Sky hazy

p & q easily visible

n ~~not visible~~

a star vis. near place of

~~R~~ S, but whether n, S or m

I could not decide; it was

.3 b < p or q

Aug 21 '83

78 S Coronae 10.0
✓

S 2 l
S = n
m 3 S

q (a D.M. star) is certainly not brighter than 10½ or 11
It is ~~cete~~ certainly 2 mags < .. m or m and
3/4 or 1 mag < p which is not in D.M.

83 R Herculis ——— 12
✓

R not vis

Aug 21, 1883

88 U Herculis 9.2
✓ u = a

Color 3
(to flt, for est, colord curtains)

53 R Ursa Maj. — 11½ ~~12~~
✓

not vis.; < 11½
moonlight

64 S Urs Maj. 10.5
✓ c ¾ mag S
S 2 a
g 4 S

62 T Urs Maj. — 11
✓ not vis.; moonlight
& haze

n. Aug 21/83

91
~~97~~ 2 R Draconis —12
✓

not vis. < 12
moonlight

72 R Camelop 8.2
✓

f 1 R ~~Color 3~~ 2
Color 2½

R 4 g

94 R Ophiuchi —11½
✓

not vis. < 11½
bright moonlight

102 V Sagittarii 8.2
✓

b 5 V Color D
~~nearly~~ white

k 2 V

V 2 h

Aug 21 83

103 U Sagittarii 8.0

✓ Color ~~3 2~~ 2

k 2 U

U 3 h

104 Z Aquilae 9.3

✓ too ft to est. color

c 2 Z

Z 4 b

110 R Aquilae 7.7

✓ Color 2

m 4 R

R = g

f 2 R

Aug 21, 1883

114 R Cygni —— 12½

✓ not vis. < 12½

131 R Aquarii 8.3

✓ e 3 R Color 0

R 3 c (white)

⊙ = 10h 2m +12°.5

Aug 21st 1883

Began,

2 1/2 † mean Time †

Experiments to ascertain visibility of Stars in day time with aperture contracted to 4 inches

Power 45 (Comet eye piece)

atmosphere clear, with floating cirrus clouds

Object	mag ~~Lat~~	Sid. T.	H. a.	R. a. ~~Lat.~~	Decl	Elongation from Sun	
		h	h m	h			
Venus		7h 50	−1 59	*9 35.8	+15 33	7	seen
α Tauri	1.0	7 54	+3 25	4 29	+16 16	77	Seen
Rigel	1.0	8 0	+2 51.1	5 8.9	−8 20	72	Seen
β Tauri	2.0	8 3.0	+2 44.1	5 18.9	+28 30½	67	Seen
ε Orionis	2.0	8 8.5	+2 38.7	5 30.3	−1 16.7	66	Seen
θ Aurigae	3.0	8 16.0	+2 24.3	5 51.7	+37 12.2	60	Not seen
α Orionis	1.2	8 20.0	+2 31.2	5 48.8	+7 23.27	61 36	Seen
Sirius	0.6	8 33.5	1 53.5	6 40.0	−16 33.5	59	Seen
Procyon	1.0	8 38.0	1 4.8	7 33.2	+5 31.4	37	Seen
Pollux	1.3	8 45.0 ~~7 38.1~~	1 6.9	7 38.1	+28 18.4	36	Seen

	Sid'l									
~~α Urs Maj~~	~~9 3.0~~ 2.0	~~9~~	~~3.0~~		~~6.5~~	~~10~~	~~56.5~~	~~+62~~	~~23.0~~	Elongation
α Cor Bor	2.0	9	~~8.8~~ 11	15	~~39.9~~ 41.3	15	29.7	+27	6.5 +70°	not seen
β Aurigae	2.0	9	15.0	3	29.1	5	50.9	+44	56 61	not seen
~~η Urs Maj~~	~~2.0~~	~~9~~	~~19.5~~		~~36.6~~	~~13~~	~~42.9~~	~~+49~~	~~53.8~~	
~~α Lyrae~~	~~1.0~~	~~9~~	~~21.5~~	~~2~~	~~48.5~~	~~18~~	~~33.0~~	~~+38~~	~~40.5~~	
Arctur	1.0	9	~~29.0~~ 43.5	7	~~18.7~~ ~~29.7~~ 33.2	14	10.3	+14	47.5	not seen

Sept. 4, 1883

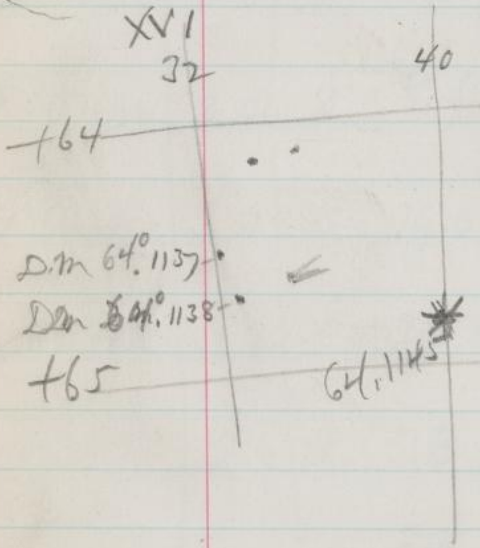
Found Comet Brooks (?) 1883

Circle setting

	Watch	H. a	d	~~☄~~
5 mag	20 50 42 − 5	4 10.2	64 53	1~~6 40~~
D.m 64.1145	~~40~~	16 40.4		
☄	20 55 18 − 5	4 20.9	64 44	
		16 34.3		

Hence ☄ α ☄ δ
at 20 55.2 Sid T. ☄ α = 16h 34m 0s +64 38.5

x (1855) 16 39 56 64 50.7
+10 − 3.2
x (1883) 16 40 6 64 47.5
☄ − x − 6 6 −9
16h 34m 0s 64 38.5



1855

Oe. 16374 = D m 64.1137 9.0 | 16 32 15 +64 30.9
Oe 16376 = " .1138 8.5 | 32 35 64 41.6

Compn Stars 1883 Sept 4

Oe 16374

1842 { 16 32 10.22 +0.38
{ +64 32 34.7 −6.8

1862.5		
	16 32 18	16 32 19.9
	248° 4.5	248 4 58
	64° 30.3	64 30 1
	0.32160	32151
n	9.96739	967 427
	1.30223	30223
n	9.57217	57202
n	1.59122	59116
	−39.014	39.009
	−2.6009	2.6006
	+ 0.4711	+ 0.4714 × 41 = +19.33 s
	−7.489	−7.486 × 41 = 5′ 6″.9

3.0720

149.7
37
188560
~~4714~~
4714
197.27
29944
448
30692
448
179 2
746
2984 9

1883.0 { h 16 m 32 s 29.55
{ +64° 27′ 27″.8

α = 248 7
g + α 269 50
H + α 357 20

Appt Place
Sept 4
h 16 m 32 s 29.47
+64° 27′ 48″.1

G 21 43
H 109 13
0.3207
n 0.0000

g 1.2820
n 7.4637
n 1.6027
n 8.7457
0.3654
n 8.6677

h 1.2769
9.9995
9.9553
n 0.3100
1.2317

i 0.8895
9.6346

+40.90
−40.06
−2.04
−1.20 = −0.s08

− .05
+17.05
+ 3.34
+ 20″34

Oe 16376

16 32 29.66
64 43 46.5

16 32 37.5	38.8
248 9.4	248 9 42
64° 41.5	64 41 13
0.32525	32516
n 9.96764	.96766
1.30223	30223
n 9.57062	.57053
1.59512	59505
−39.266	39.260
− 2.6244	2.6240
+ 0.4476	+ 0.4480 × 41 = + 18.37 s
− 7.462	− 7.460 × 41 = 5′ 5″.9

1883.0 { h 16 m 32 s 48.03
{ +64° 38′ 40″.6

248 12

269 55
357 25

Appt Place
Sept 4
h 16 m 32 s 47.93
+64° 39′ 1″.0

0.3243

n 0.0000

1.2820
n 7.1627
n 1.6063
n 8.4447
0.3583

n 8.6539

1.2759
9.9996

9.9560
n 0.2991
1.2325
0.8895
9.6317

+ 40.90
− 40.39
− 1.99
− 1.48 = −0.s10

− 0.03
+17.08
+3.32
+20.37

Sept. 4, 1883

☄ Brooks (b) 1883

Compn Star Oe 16376

22^h	7^m	$35.^s7$	S1
	8	3.8	S_2
	9	10.0	S_3
		15.3	C_1
		37.3	S_4
	10	15.2	C[2&3] (V. unc.)
		44.5	C_4

Comet excessively faint – to be seen only by oblique vision – observation poor. Comet & a star both south –

22	~~12~~ 13	32.0	S_1
		59.0	S_2
	~~13~~ 14	6.0	~~S_3~~ S_3
		9.3	C_1
		32.8	S_4
		51.3	C_2 (v unc)
	15	13.8	C_3 (v ")
		45.0	C_4

Reject inner ring –

Comet and star both south –

Compn of Chron. with B 394 by Mr Cutter

B 394			B 236				
11	37	0	22	30	9.3	10 53	9.3
	38	0		31	9.3		
	39	0		32	9.3		

Sept. 4, 1883.

22 18 ~~28.2~~ S_1
~~53.8~~ S_2
19 ~~44.5~~ C_1
20 ~~4.0~~
9.3

This set spoiled. Suspected haze
Hazy in glasses
☄ too ft. to observe
further!

r 2.6812
r 2.5459

Redn

a δ 9.63159
0.87506
0.50665

☄		×		☄ − ×	☄		×		☄ − ×
22 9 15.3	(175.2)	22 7 35.7	63.8	$+1^m\ 23.2^s$	89.2	(0/2)	121.6	66.2	
10 44.5	(15.2)	9 37.3	10.0		1.9504 2.4570 9.7758		2.0849 2.5915 9.9103	1.8209 2.3275 9.7816	
9 59.90		8 36.5	36.9		9.9044 2.5856 − 385.1		9.7647 2.4459 279.2	9.9011 2.4470 279.9	
							− 279.6		− 105.5
22 14 9.3	(51.3!!)	22 ~~13~~ 12 32.0	12 59.0	+ 1 24.7	95.7	225!!	120.8	67.0	
15 45.0	(13.8!!)	14 32.8	6.0		1.9809 2.4875 9.8063		~~1.7839~~ 2.0820 2.5886 9.9074	1.8261 2.3327 9.7868	
14 57.15		~~14 2.4~~ 13 32.4	~~2.5~~ 32.5		9.8855 2.5667 − 368.8		9.7703 2.4515 282.8	9.8981 2.4440 278.0	
							− 280.4		− 88.4

22 12 28.5
− 10 53 9
11 19 19 C.m.T.

☄ − × $+1^m\ 23.95^s$

☄ − × $-1'\ 37.0''$

× 16 32 47.93 $+64°\ 39'\ 1.0$

☄ app. $16^h\ 34^m\ 11.88^s$ $+64°\ 37'\ 24.0''$

Sept 5, 1883

Sky smoky

79 ✓ R Coronae 10,0

R = q

e 3 R

R 5 f

f = x

73 a ✓ U Bootis 10.5

f 4 U

U 3 a

x visible

g 3 h

80 a ✓ T Cor Bor 7.7

k 1 T

h T

Abr 2½

Sept 5

91a R Urs Min. 10.
✓ Color 2½

b 1 R
R 1 ff s

91c W Herculis — 12
✓
~~Color 1~~

~~W 3 c~~ Not vis.
~~b 3 W~~

92 δ Herculis 6.0
✓ Color 2

δ 2 g
h 4 δ

101 Z Serpentis — 12½
✓

neither a nor Z visible

b 11½ mag.

Sept. 6, 1883.

B 236			B 394			
17	51	41.0	6	51	30	} by coincidence
	54	47.5		54	36	}
B 236			F. 1327			
17	59	30.5	18	2	0	(approximate)
F 1327			B 394			
18	4	20	7	1	38	by coincidence

48.5 0
30.5 42
0 ~~18~~ 8
20 38

Power 300.

Immersion of α^2 Librae

18 34 25.0 by B 236 S. obs.

Emersion

19 10 2.4 S. obs. C. Rec.

Limb boiling; {α^1 Librae remaining visible, the part of the limb to be watched, was well known; star close to apparent limb when first seen.

B 236			B 394			
19	14	1.5	8	13	36.0	Reject this
	~~20~~	~~20.0~~			~~40~~	
19	17	29.0	8	17	4.0	
	20	55.5		20	30.0	
	24	4.0		23	38.0	

3. 8.5

3 8.0
.51
3 8.51

The last comparison is the best as the sounder of F. 1327 was silenced while making it.

Comparison of F. 1327 and B 394 by S. C. C.

19 17 54 8 15 0

1 13 34 1 13 22
12.05
---
1 29 16.5 1 29 2
14.65
1 29 16.65

B. 236 lost 0.15 in 90m by this comparison

39 37.5
6.42
39 31.08
6 54 36
7 34 7.08

75 14.9
12.21
75 2.69
6 54 36.
8 9 38.69

Immersion $39^m\ 37^s.5$ after comparison; correction $+0^s.07$; red. to mean time $-6^s.49$
Emersion 75 14.9 " " ; " $+0^s.12$; " " -12.33
Time of immersion, by B. 394, $7^h\ 34^m\ 7^s.08$; of emersion, $8^h\ 9^m\ 38^s.7$
Reduction of B. 394 to Cambridge mean time
Cambridge [illegible] time of immersion [illegible] ; [illegible] emersion [illegible]

~~Frodsham~~ 3451

20h	~~23~~	~~51.3~~	C 1	
	~~24~~	~~19.1~~	C 2	
	25	~~10.3~~	C 1	
	26	4.3	C 1	
	"	34.0	C 2	
	27	29.3	S 1	
	"	49.0	S 2	
	28	13.3	C 3	Poor
	"	34.5	C 4	
	29	36.8	S 3	
	"	56.3	S 4	

Comet and star north, Star a

~~38~~	~~10.3~~	~~C.1.~~	Star b = Oe 16374
	~~55.3~~	~~S 1~~	
39	37.3	C 1	
40	4.3	S 1	
"	50.0	S 4	
"	58.5	C 4	
42	50.3	C 1	
"	54.5	S 1	
43	50.8	C 4	
44	7.8	S 4	

	44	51.3	C 1	Star b
20	45	20.3	S.1	
	46	10.3	S.4	
	"	17.0	C.4	
	47	27.3	C 1	
	"	41.5	S.1	
	48	38.0	C 4	
	"	42.3	S.4	
	~~49~~			
	49	31.3	C.1	Star b
	"	36.8	S 1	
	50	30.8	C 4	
	"	43.3	S 4	
	~~53~~	7.3	C 1	Star a
	53	33.8	C.2	
	54	24.3	C.3	
	"	54.0	C 4	
	"	55.0	S.1	
	55	41.3	S 4	
	57	40.3	C 1	
	58.	10.8	C 2	
	59.	7.3	C 3	
	"	33.0	S 1	
48.5		~~48.8~~	C 4	! 3 sec ± earlier
	60	21.3	S.4	

All sets with star b observed star N, Comet S
" " " " a " " S " S
Comet excessively faint

Jr 3451

21 28 14
10 24 44.5
-11 3 29.5

B. 394

10 25 0
-15.5
10 24 44.5

Jr 3451

21 28 59

Jr 1327

21 29 0

Sept 8.9^{d} 1883

		H.a	d '	
Capella	10 33 50	5 25 36	45 34	Easily seen
		α	δ	
		5 8 3	45 52.6	

Tuesday Sept. 18, 1883

Index Error

	θ	H-α		☉	
☉ (P)	9 33.~~6~~ 7	21 51.1	11 42.5	+ 2° 0′	} +1 47.5
θ (F)	9 36.3	9 53.9	11 42.4	+ 1 35	
		21 52.5	~~11 42.4~~	2) + 25.	δ?r = +1 54.5
			3) +0.1	1 +12.5	ξ −7.0
			+0.05		

α = 11 42 46
δ + 41° 53′

h m s
9 34.~~40~~ 57
+ 6
9 36 3
21 52 30
11 42 33
11 42 46
α
ΔH −13ˢ

Δd ΔH C ξ η
+12.5′ −0ᵐ2

Setting on various stars with aperture contracted to 4 inches to ascertain conditions of vis. in day time.

Polaris easily seen; ~~so~~ more easily seen with ~~low~~ power 175 than with 100 & ~~most~~ easily with 4 in. than with 6; but not much

Sept 18

☉ = 11h 43 +1° 49'

	α				Mag	14.9		elongation from Sun	altitude	
	h	m	°	'	m					
Capella	5	8.0	+45	52	1	5	59	80+		seen
β Tauri	5	18.9	+28	30	2.0	5	0	90	5	not seen
β Aurigae	5	50.9	+44	56	2.0	5	35	80		not seen ~~certainly~~ with either 4 in or 6 in,
Castor	7 7	27.1 30.4	32 32	8.5 18.	1.7	11	3.7	65		easily seen 4 or 6 in
Procyon ~~Pollux~~	7	33.2	+5	31.	1.0	4	9	62		very easy

(11h about moon

Pollux	7	38.1	+28	18	1.3	4	11	65		easy
α Hydrae	9	21.8	−8	9	2.0	2	30	37		only suspected
Regulus	10	2.1	+12	32	1.3	2	5	27		easily seen
γ Leonis	10	12.5	+20	26	2.0	2	0	29		seen with difficulty ~~not~~ but certainly
(at 12h 20m M. T.)										
α Urs. Maj	10	56.5	+62	22	2.0	1	24	59		easily

Sept 18 83

				mag	H.a		
β Leonis	11	43.1	+15 13	2.0	0 42	14	not seen; very near sun
γ Urs Maj	11	47.7	+54 20	2.3	0 40		not seen very inconvenient position
α Bootis α	14	10.3	δ=+19 47.5	1.0	10 33	39	easily seen
θ	12	42.7.	θ 19 22 ~~(19 22~~ H.a 10 33.2				
ε Bootis	14	39.9	+27 34	2.3	10 12	47	not seen
α Cor Bor	15	29.7	+27 6	2.0	9 40	58	easily seen ~~not seen~~
α Serpentis	15	38.5	+6 47	2.3	9 40	59	seen easily
δ Ophi	16	8.2	−3 23	3.0	9 17	65	not seen
Antares	16	22.2	−26 10	1.0	9 6	70	seen with diff

Sept 18

								Elongation	
β Herc.	16	25.2	+21	44	2.3	9	10	64	not seen
α Oph	17	29.5	+12	38	2.0	8	10	82	seen ~~not seen~~ ~~faint~~
Vega	18	33.0	+38	40	1.0	7	8	93	easily seen

Friday Sept 21

~~☄~~ Brooks b 1883

Hazy

Comp^n Stars a = DM ~~60.1682~~ 61.1595 = Rümker 5444
b = DM 60.1682 = Radcliff 3571

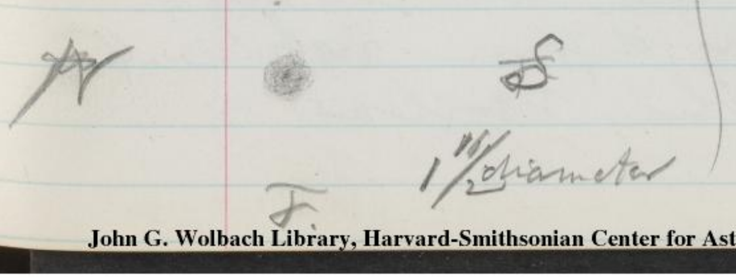
4 Sets ☄ & xx South
☄ long taps
b double taps on outer ring only
or single taps

~~Sky low~~

3 Sets with a
☄ & x north
reject outer ring of ☄

Sky hazy; Comet very faint and diffuse, ~~an nucleus~~ central condensation or nucleus v. ft.; not brighter than 10 or 11 mag; about equal to 11 mag star ~~South prec.~~ ~~of about~~ which ~~is~~ prec. about 6′ a little South (say at about $16^h\,24^m.0$ +61° 0′ (1855)

Sketch of ☄ | nebulosity circular



Saturday Sept 22, 1883

Clear

Comet Brooks (2) 1883

~~S.C~~ S. CC. obs

Compn ~~star a = DM 60.1682 = Rad 3571~~

Compn Star a = DM. 60.1675 = BB VI

" " b = " 61.1595 = Rumker 5444

" " c = " 60.1682 = Rad 3571

5 Sets with a ~~c~~ north ~~South~~ × South ~~north~~

5 Sets with b &c ~~c~~ South ×× north

b single taps & on outer ring only

c double taps

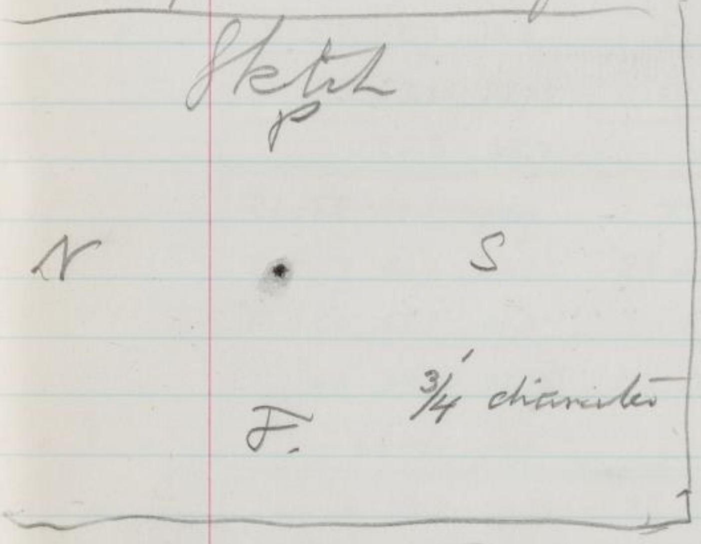
comet long taps (generally)

~~The very~~ There is a most surprising ~~diffe~~ change since last night in the appearance of the ~~c~~, ~~for~~ which cannot be except partly, attributable to difference in atmospheric conditions.

Instead of the diffuse nebulosity with scarcely visible nucleus,

Sept 22

The appearance tonight is of a bright star like looking object, surrounded by a ~~small~~ faint nebulosity much smaller



in diameter than last night. The nucleus is at sharp and at least 2 magnitudes brighter than last night; about 8½ magnitude. The following estimates of brightness were made of the nucleus

9h 00m ☄ 5 a
c 3 ☄
d 5 ☄

			mag	1875	
a =	DM 60	1675	9.5	16 21 43.7	60 40.7
c =	" 61	1595	8.1		
d =	DM 60.	1676	8.0	16 22 47.9	60 38.2

So ~~different~~ bright and star like was the comet that I ~~ha~~ could scarcely perceive any difference from neighboring 8 or 9 mag. stars (in appearance) except with the low comet eye piece

Sept 22, 1883

at start $23^h\ 30^m$ Sid. T.

Took two more comparisons with Star a

a north

a south

Sept. 22 J. R. E. obsr. West-Equat.^{l}

	⇙ North	D.M.+60° 1675 South	
# 1	21 52 $50^{s}.4$ $69^{s}.9$	21 49 $52^{s}.1$ $78^{s}.8$	
	54 55.7 35.6	51 36.1 07.7	
	53 53.05 52.75	50 44.10 43.25	
	125.3 85.7	104.0 48.9	
	~~21 55 56.1 78.9~~	5→	
# 2	21 59 01.9 23.0	21 55 56.1 78.9	
	60 62.1 41.4	57 50.1 26.7	
	60 02.00 02.20	56 53.10 52.80	
	120.2 78.4	114.0 67.8	
# 3	22 36 28.5 49.3	22 33 21.6 44.0	
	38 29.0 08.3	34 81.0 55.4	
$120^{s}.5$ $79^{s}.0$	37 28.75 28.80	$119^{s}.4$ 34 21.30 19.70 $71^{s}.4$	
	⇙ South	Rad. 3571 North	Rum. 5444 North
# 4	22 09 58.4 94.9	22 11 53.1 75.0	22 11 16.0
	22 10 92.6 54.2	13 49.9 28.3	12 35.9
	10 45.50 44.55	12 51.50 51.65	11 55.95
	94.2 19.3	116.8 73.3	79.9
# 5	22 14 49.4 77.9	22 15 49.4 72.1	22 15 15.1
	15 89.1 59.0	17 41.5 18.0	16 24.0
	15 39.25 38.45	16 45.45 45.05	15 49.55
	99.7 41.1	112.1 65.9	68.9
# 6	22 19 43.0 71.0	22 21 46.3 70.0	22 21 15.7
	20 94.0 57.0	[illegible] 23 37.2 12.0	22 16.7
	20 ~~38.50~~ 34.0	22 41.75 41.0	21 46.2
	46.0	110.9 62.0	61.0
# 7	22 49 58.9 90.0	22 53 00.8 25.0	22 51 29.1
	51 39.9 07.7	53 50.6 26.1	52 30.7
	50 49.40 48.85	52 55.70 55.55	51 59.90
	101.0 37.7	109.8 61.1	61.6

Sept 23, 1883

☄ Brooks

Light estimates

Power 45

$7^h 30^m$ d = ☄

☄ 1 mag a

☄ 2 c

See p. 193 for notation of stars

Obs^d with power 45; out of focus estimates confirmed, in focus, as near as to any judgment can be formed from obsns so made.

The comet is bright = 8 mag. Est say ½ mag brighter than last night.

The physical appearance has again greatly changed. Instead of the stellar appearance, ~~or~~ so sharply defined as to make it difficult to distinguish it from surrounding stars, with higher power (175) ~~It is now~~ the nucleus now appears to have spread out into a confused bright disc with ill-defined edges, about ½′ ~~in~~ diameter; outside of this is ~~an envelope~~ of is a nebulous envelope ~~its~~ much

Sept 23

brighter than last night, 1½ diam. and the extension of a faint brush ~~north~~ ~~near following about~~ at a position angle of about 80° is more evident than on the 22d.

Tuesday Sept 25 1883

☄ Brooks 2 1883

☄ compared with star a & b

a north ☄ & b south

4th set last taps ☄ & star. take
mean for both.

a = Dm 60. 1680 = Œ. Arg. 16258
b = " " 1681 = " " 16269/70
c = " " 1679 = " " 16256

3 sets star c
☄ & c north
c on outer
2d set ☄₄ 1.2s too early

3 sets star c
☄ & 5 south

3 sets with b
☄ & b south   b outer only
3d sets last taps on ☄ 2s early

Part of above lost by Chronograph failing

Sept 28

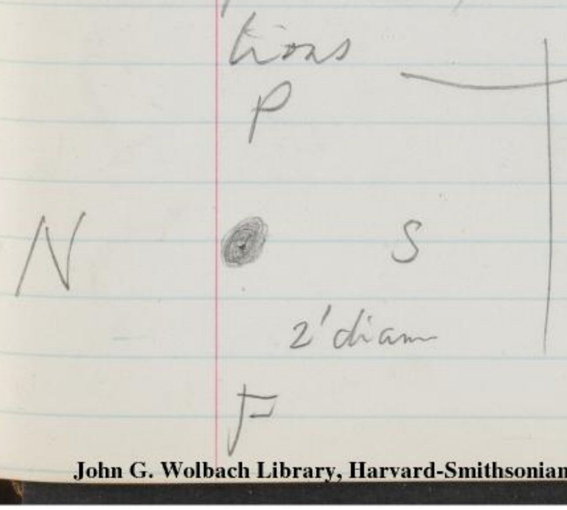
2 sets ☄ & b south (b outer)

21h 58m sid time

2 sets ☄ & b north (☄ outer

Estimates made with eyepiece
Compn the brightness — placed out of focus.
collimated light just below
Rad 3571 & Rumker 5444.

☄ is tonight spread out into ~~an~~ ~~els~~ a ~~nearly circular~~ confused disc ~~nearly circular~~, a somewhat elongated in ~~n.~~ s.p. & n.f. direction. 2' diameter. There is a faint point or condensation of light not brighter than 11 mag. placed a little nearer the following end. This point was observed as nearly as possible, in the above position determinations



The faint trace of tail seen on 22d is not visible.

Wednesday Sept 26 83

Brooks b 1883

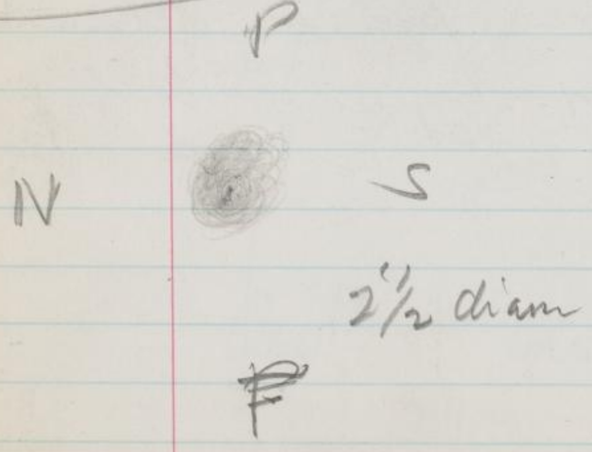
5 sets with Dm 60.1681 =

═ south × north

× on outer only

4th set last tap on × 1 sec late
2d set " " " ═ 1 sec late

Comet tonight 2'/2 diam. — more nearly uniformly and faintly illuminated, edges very ill-defined ~~and fainter~~ ~~intrinsically~~ than last night, nearly circular, a little elongated s.p & n.f a very faint concentration or nucleus = 12 mag eccentrically situated slightly nearer following end. — Collective light of coma certainly not brighter than last night



Sept 26, 1883

J.R.E. obsd some sets for position

S.C.C. obsd
5 sets with DM 59.1727
α & δ north
α on outer only
3d set (α 1st taps) - short & long taps together take long tap

~~3d~~ 4th set α 1st taps (2 taps take mean)

Sept. 26 J. R. E. obsr.

North				South			
22^h	11^m	28.0^s	60.0^s	22^h	11^m	15.5^s	37.0^s
	13	34.8	04.2		12	66.0	44.0
	12	31.40	32.10		12	10.75	10.50
22	16	40.9	64.2	22	16	23.6	45.2
~~22~~	18	41.0	17.0		17	76.0	54.0
	17	40.95	40.60		17	19.80	19.60
22	20	16.9	38.8	22	20	00.5	22.6
	21	75.6	52.0		21	53.0	31.5
	21	16.25	15.40		20	56.75	57.05
22	22	58.9	80.6	22	22	43.1	64.7
	24	58.1	35.5		24	35.0	13.5
	23	58.50	58.05		23	39.05	39.10
22	26	02.1	19.4	22	25	41.0	61.7
	27	56.7	32.4		27	34.0	13.3
	26	59.40	55.90		26	37.50	37.50
22	29	06.7	30.0	22	28	49.3	70.0
	30	62.0	42.7		30	42.1	21.4
	30	04.35	06.35		29	45.70	45.70
22	36	31.6	60.7	22	36	35.2	71.8
	38	48.4	21.6		37	64.0	27.6
	37	40.00	41.15		37	19.60	19.70

☄ North				South			
22	39	$33^{s}.0$	$59^{s}.9$	22	39	$34^{s}.4$	$67^{s}.8$
	41	42.7	21.0		40	64.3	28.6
	40	37.85	40.45		40	19.85	18.20

22	43	57.0	87.0	22	43	36.5	56.0
	45	56.9	25.1		45	34.4	15.1
	44	56.95	56.05		44	35.45	35.55

22	46	54.3	85.9	22	46	32.9	52.0
	48	52.9	21.7		48	×	11.0
	47	53.60	53.80		47	×	31.50

The following with ☄ South and North (* on outside ring only).

~~1^h 10^m~~		☄		*
1^h	10^m	$50^{s}.4$	$94^{s}.5$	$108^{s}.6$
	11	107.8	59.2	97.5
	11	79.10	46.85	73.05

1	13	25.6	69.9	87.2
	14	78.2	40.0	69.1
	14	21.90	24.95	48.15

1	15	58.0	106.1	120.0
	17	47.4	08.9	40.0
	16	52.70	57.50	80.00

1	24	27.4	68.3	90.8
	25	78.0	40.1	71.8
	25	22.70	24.20	51.30

Please leave this (single) page for J.R.E.'s work!

Oct 1, 1883

☄ Brooks (2) 1883

4 or 5 compars with star a & b
☄ & a north b south
☄ on outer only
b on outer only ; double taps

Changed chron sheet

3 compars with a
☄ & a south
a on outer only

4 compars with c
☄ north c south
both on outer only

(9.3) a = DM 58.1638 = Oe a.
(7.5) b = " 58.1640 = Oe a
(7.8) c = " 58.1641 = Oe a

Sheet No. 1

1st set.

☄	*	*
22^{h} 37^{m} 19.4^{s}	22^{h} 32^{m} 41.1^{s}	22^{h} 34^{m} 47.3
38 16.7	33 3.5	47.7
	34 3.0	35 15.2
	34 24.8	15.5

2nd set.

☄	*	*
43 38.3	39 0.0	40 59.0
44 27.0	39 22.9	59.4
	40 19.3	41 38.6
	40 41.7	39.0

3rd set.

☄	*	*
50 1.5	45 21.9	47 16.9
50 44.5	45 45.1	17.1
	46 38.4	48 1.8
		2.1

4th set.

☄	*
55 54.5	51 15.0
56 40.5	51 38.6
	52 28.7
	52 53.0

Sheet. No. 2.

1st set / 2nd set.

☄	*	☄	*
0^{h} 7 10.0	0^{h} 3^{m} 12.1^{s}	13 47.7	9 48.0
7 37.9	4 26.4	14 14.2	11 9.8
8 34.5		15 14.2	
9 3.0		15 42.4	

3rd set.

☄	*
20 19.5	16 17.1
20 41.8	17 42.5
21 48.3	
22 12.1	

4th set.

☄	*
24 36.1	23 38.0
25 41.8	24 12.9

5th set.

☄	*
27 32.0	26 32.5
28 38.4	27 10.4

6th set.

☄	*
30 14.4	29 5.0
31 18.3	29 54.7

7th set.

☄	*
33 7.5	31 54.9
34 8.7	32 47.5

Oct 3, 1883

Clear

79 R Coronae 7.9

✓ R = c Color 0

B 4 R

80 a V Cor Bor 7.7

✓ l 1 V Color 3

V 2 k

83 R Herculis ~~10~~ 9.6

✓ R = c

R 1 a

Oct 3 1883

91 a R Urs. Min. 10.0
✓ b 2 R
R 2 s

93 a V Herculis 10.5
✓ c 2 V
V 2 a

104 T Aquilæ 9.5
✓ T 4 b
a 5 T

Color 2
estimate of
color uncertain
star ft.

Oct 3, 1883

110 R Aquilae 8.4
✓ Abr $2\frac{1}{2}$
f 3 R
R 1 d

111 T Sagittarii 10.5
✓
T = a

z is brighter than u or ~~x~~ v
u " " " v

113 S Sagittarii 11.0
✓
S = a

112 R Sagittarii < 10.5
✓
Couldn't identify
< 10.5

Oct 3

117 X Cygni 5.3
✓
Color 3½

Finder { χ = h
η 5 χ

Eye { χ 2 h
η 6 χ

123 R Delphini 9½
✓
c 1 R
R 1 b
Color 2 [illegible]

~~an~~
at x is a minute nebula
a not visible

Oct 3, 1883

Sus. Var #549 ✓ < 13

not vis; certainly
< 13