

R6
11366
v. 404

Circ. Fundamental Stars
A, Circle Readings
From Dec. 8, 1880 to Feb. 7, 1881

$$\begin{array}{r} 180 \quad 00 \\ 59 \quad 36 \\ \hline 120 \quad 24 \end{array}$$

$$\begin{array}{r} 24 \quad 0 \\ 17 \quad 30 \\ 6 \quad 30 \end{array}$$

$$\begin{array}{r} 180 \quad 00 \\ 58 \quad 29 \\ \hline 121 \quad 31 \end{array}$$

$$\begin{array}{r} 180 \quad 00 \\ 40 \quad 04 \\ \hline 119 \quad 56 \end{array}$$

129

2
 Dec 8 18N @ -40 64.2

Comi

1.2 23 07

-11-50

R R

10 1 30.2 30.2
 36.8 57.4
 47.3 47.3
 51.1 51.3
 165.4 166.2
 413.5 415.5

Wiggin

12 35-32

-0 47

R R

5-3 50.4 50.9
 56.0 56.2
 6.7 6.7
 12.0 12.7
 5.1 6.5
 1.28 1.62

Mean $\int = R, A.$

Dec. 8, 1880

C = 44 64.1

Σ time mag

12 4842

+ 5637

R

R

45	1	170	170
		142	147
		237	248
		33.1	329
		880	894
		2200	2235

Dec. 8, 1880

C = 44 61.9

C = 44 61.9

① 17.8 10

-22 55

β Ursa Maj L.C.

22 54 32

+122 58

	B		B
55 2	22.1	30 0	46.0
	28.3		53.1
	39.5		4.7
	41.9		6.7
	1318		2305
	3295		57.62

	B		B
25. 4	19.2	3	9.4
	19.0		9.9
	22.7		11.8
	33.3		23.4
	942		545
	2358		13.62

Both limbs in S + R, A
Seeing very bad.

ε Ursa Maj L.C.

22 48 42

+123 23

	B		B		B
0 4	50.9	3	42.3		3.3
	50.4		41.9		2.5
	51.6		44.0		4.2
	4.1		54.8		16.0
	2170		1830		260
	5425		45.75		6.50

β
B Arietis

1 47 58

+20 13

	B		B		R	R	B
5 1	47.2	2	49.1	49.1	49.0	50.0	
	50.6		53.7	53.8	53.5	53.1	
	59.9		1.8	1.3	1.5	1.3	
	6.9		8.6	9.0	9.2	8.9	
	2246		2338	2332	2332	2333	
	5615		5845	5830	5830	5832	

Dec. 9, 1880

C=44 61.9

 α Ursa Maj L.C. \times Pegasi

22 56 15

0 7 0

+117 36

+14 31

	B	B
45	3 47.6'	21"
	48.1	22
	50.9	53
	59.0	14.6
	2052	242
	51.30	605

	B	B	R	R	B
45	3 38.84	57.2	56.4	56.2	57.0
	42.5	1.3	1.8	1.4	1.3
	54.3	12.0	12.3	12.4	12.0
	59.3	18.0	17.8	17.8	17.8
	1949	285	283	278	281
	48.72	7.12	7.07	6.95	7.02
		7.07	7.01		

 \times Androm.1 56 29
+41 45

	B	B	R
35	0 1.2	1 20.4	19.9
	1.7	21.4	20.9
	12.0	31.1	31.1
	19.8	39.3	38.8
	347	1122	1107
	8.68	28.05	27.68

 α Arietis

2 0 21

+22 53

	B	B	R	R	B
25	1 14.5	2 30.8	30.8	30.2	30.5
	17.6	34.0	34.8	34.8	34.5
	24.8	41.0	41.3	41.0	41.2
	33.7	49.3	49.1	49.4	50.0
	906	1551	1561	1554	1562
	22.65	38.78	39.02	38.85	39.05

Dec. 9, 1880

C = 44 61.9

Hall's star No. 5 Hall's star No. 12

2 10 3

2 11 33

+56 25

+56 46

50

B

B

B

35 0

45.3

35 0

45.3 / 253

49.0

44.0

253

53.3

53.3

33.5

1.0

1.0

42.2

2036

1263

5090

3158

A. R. only

8

Dec. 12, 1880

X Ursae Maj

11 47 28

+54 22

B B

55 4 49.9 135.8

49.5 34.7

0.1 44.8

8.3 64.3

2278 1696

5695 4240

C = 44 61.9

E Corvi

12 3 54

-21 57

B R R B

15 2 5.0 4.5 4.3 4.5

116 12.5 124 114

244 23.7 23.7 23.9

280 27.7 27.6 28.1

690 684 680 679

A_y 17.10 17.00 16.98
Nancy

Dec. 12, 1880

E Ursa Maj.

12 48 42

C = 44 61.9

+57 37

B

B

B

40 4 58.2 16.3 368

58.1 5.1 36.0

7.9 16.2 46.1

16.0 24.8 55.4

202 524 1746

505 1310 4365

10

Dec 13 1880

V Ursa Maj

11 47 28

+54 22

B

B

B

55-4 57.2 0 43.9 1 359
 57.4 435 360
 7.0 549 470
 16.7 570 570
 183 1973 1759
 458 4932 43.98

e = 44 61.9

E Corvi

12 3 54

-21 57

B

B

R

R

B

157 10.9 2 17.9 17.5 17.3 17.9
 183 261 25.9 26.4 254
 332 397 39.1 39.0 393
 369 436 43.0 42.6 435
 993 1273 1255 1253 1261
 2482 31.82 31.37 31.32 31.52
 31.67 31.35

V Virginis

12 35 32

-0 47

B

B

R

R

B

5 3 55.1 4 10.9 10.9 10.3 10.1
 23 17.6 17.9 18.1 17.1
 153 30.0 29.7 30.0 29.8
 200 35.8 35.7 35.7 35.9
 327 941 942 941 929
 8.18 23.52 23.55 23.52 23.23
 23.38 23.53

V Cassiope L.C

12 49 25

+119 56

B

30 0 25.8
 26.0
 31.8
 41.2
 1248
 31.20

following star
 lost 1st 3 wires

chf.

Dec. 13, 1880

 α Corvi

12 23 37

-15 50

B R R

10	0	10.9	1	30.0	30.0	29.6
		18.4		38.3	38.6	38.3
		31.8		49.8	49.8	49.8
		36.0		55.0	55.3	55.2
		971		1731	1737	1729
		24.25		43.25	43.42	43.22

C = 44 61.9

 β Corvi

12 28 2

-22 44

B B R R B

0	2	50.5	4	22.9	22.7	22.3	22.7
		58.4		31.5	32.0	31.9	31.3
		11.8		44.3	44.3	44.2	43.8
		17.0		48.4	48.0	48.0	48.2
		177		1471	1470	1464	1460
		4.42		36.77	36.75	36.60	36.50
				36.63	36.67		

 β Ursae Min.

14 51 7

+74 39

B B B

40	3	55.1	4	7.6	22.5
		54.8		7.8	22.2
		4.3		16.5	32.1
		16.1		28.9	43.3
		103		608	1201
		2.58		15.20	30.02

Dec. $\frac{13}{14}$ 1880

C = 44 61.9

①

17 30 13

-23 17

B

15 3 529 50 2 37.0

0.8 44.3

16.1 58.5

200 3.3

298 2031

7.45 50.78

Drely

B lbs.

B Urse Maj Lic

22 54 32

+122 58

B

25 3 35.3

37.5

42.3

54.3

1694

4235

Both limbs in S & R.A.
Seeing very fine.

Dec 14, 1880
 β Ursæ Min
 14 51 7
 +74 39

C = 44 61.9
 β Bootis
 14 57 23
 +40 52

		B	B	B
40	4	7.8	20.6	34.0
		8.9	21.3	35.7
		19.5	32.7	45.5
		30.3	44.1	57.2
		66.5	118.7	171.8
		166.2	296.8	429.5

		B	B	R
25	4	17.4	0	40.8 41.6
		21.6	44.6	44.2
		34.3	56.8	56.6
		44.5	7.0	6.9
		117.8	209.2	209.3
		294.5	523.0	523.2

Agg & C

14

Dec. $\frac{14}{15}$, 1880

C = 44 41.9

①

17 34 39

-23 20

B

B

20

2

7.8 53.0 17.0

17.3 26.7

32.3 42.4

37.1 47.3

945 1334

2362 3335

B Leonis

11 42 50

711-11

R R

5-1

31 31

10.2 10.3

24.0 24.1

298 292

671 667

1678 1668

Both limbs in S + R.A
Seeing very fine

B Corvi

12 28 2

-22 44

X Virginis

12 35 32

-0 47

B

B

R

R

B

0 2 47.9 4 4.6 4.1 3.8 4.1
58.3 14.7 15.0 15.0 14.8
12.4 28.9 28.8 28.9 28.0
17.3 33.3 32.9 33.2 33.1
15.9 8.15 8.08 8.09 8.00
39.8 20.37 20.20 20.22 20.00

B

B

R

R

R

5 2 25.8 3 46.5 46.6 46.8 46.6
32.7 55.0 55.2 55.3 55.0
47.8 9.6 9.1 9.1 8.5
53.6 14.9 14.8 14.6 14.8
15.9 6.0 5.7 5.8 4.9
39.98 1.50 1.42 1.45 1.22

preceeding star

Dec. 15, 1880
 r Musae Maj

11 44 28
 +124 22

0 2 R R R
 16 306 306
 24 329 331
 142 433 435
 282 546 543

ch f.

c = 44 41.9

δ Corvi

12 23 37
 -15 50

B B R R
 10 0 7.1 1 322 32.2 31.8
 16.9 421 41.6 42.6
 30.3 552 55.1 55.1
 35.9 0.9 0.3 0.6
 9 02 1904 1892 1901
 2255 47.60 47.30 47.52
 47.60 47.41

ε Ursae Maj

12 48 42
 -56 37

B
 40 4.576
 598
 10.0
 20.4
 1478
 3695

Lost A+1

(A-1)

δ Virginis

12 49 30
 +4 3

B R R B
 15 3 8.4 59.1 58.7 59.1
 18.1 8.6 9.1 8.5
 29.7 18.8 18.8 18.8
 31.1 27.1 27.6 26.3
 873 536 542 527
 2182 1340 1355 1318

Lost 1st 3 wires

16

Dec. 15, 1880

C = 44 61.9

E Virginis

12 56 9

+11 37

B B

40	4	21.3	44.6
		29.0	0 55.8
		41.9	41.9
		47.6	56.2
		139.8	29
		349.5	1968
			4920

Dec. ¹⁵/₁₆, 1880

②

C = 44.61.9

17 39.5

-23.22

B

B

20 4 17.6 55 157.3

27.1

7.9

40.2

21.1

45.3

25.1

1302

514

32.55

12.85

C = 44.61.9

B₀

B Cassio. p.

0 2 44

+58 29

B B

50 2 20.3 20.7

21.8 21.3

32.1 32.8

42.8 43.0

1170 1178

29.25 29.45

Both limbs in S + R, A.
Seeing very fine indeed.

γ Androm.

156 29

+41 45

B

B

R

R

30 4 55.5 1 150 14.4 15.2

57.6

180

17.4

17.5

8.9

29.1

29.1

29.3

18.4

38.4

38.2

38.2

20.4

1005

991

1002

5.10

25.12

24.78

25.05

25.12

24.91

α Arietis

2 0 21

+22 53

B

B

R

R

25 1 58.4 2 330 33.0 33.1

40

38.5

38.8

38.2

12.9

46.5

46.8

46.8

22.4

56.8

56.6

56.7

377

1748

1752

1748

9.42

43.70

43.80

43.70

43.70

43.85

Dec. 16, 1880

C = 44 61.9

Boa,

Y Cassiope.

0 49 25

+60 04

B B

15 2 41.0 41.5

40.5 40.9

52.1 52.2

1.3 1.2

1949 1958

48.72 48.95

B Arietis

1 47 58

+20 13

B B R R B

5 1 25.4 2 53.4 53.2 53.0 53.6

31.0 58.8 59.1 59.0 58.5

41.6 9.5 9.0 9.0 8.8

50.1 16.2 17.3 17.0 17.0

1481 179 186 180 179

37.02 64.47 64.65 64.50 64.50

64.48 64.57

Hall's No. 5

2 10 3

+56 27

B

50 3 52.9

54.3

4.1

13.1

24.4

5 4 0.110

Run +88

1.98

Hall's No. 12

2 11 33

+56 46

B B R R B

35 0 6.3 53.1 53.4 53.2 53.6

6.0 53.2 53.4 53.8 53.0

16.5 3.5 3.7 3.9 3.6

27.3 14.0 13.1 12.8 13.5

56.1 38 36 37 37

14.02 60.95 60.90 60.92 60.92

60.93 60.91

35 14.02

+04

14.06

35 60.93 60.94

60.78 60.78

Lost 1 wire 3 wires?

36 0.87

Dec. 16, 1880
 β Ursae Min L.C.
~~5~~ 51 4

+105.22

	B	B	B	R
0 2	10.5	149.3	5.7	6.3
	10.6	49.8	6.4	7.7
	16.4	55.8	12.1	12.6
	28.1	51.0	23.4	25.3
	656	2199	472	519
	1640	5498	1180	1298

C=44 61.9
 γ Persei

2 56 03

+53 2

	B	R	R	B
15 3	16.9	17.1	17.1	17.2
	17.2	17.7	18.2	17.8
	27.9	28.3	28.3	27.5
	37.1	37.0	37.3	36.2
	991	1001	1009	987
	2478	2502	2522	2468

β Cassiope L.C.
~~0~~ 2 44

+121 31

	B	B	B
55 2	18.0	1 27.1	0 41.2
	18.4	28.4	40.7
	22.2	32.3	44.9
	32.3	40.3	51.5
	909	1281	1823
	2272	3202	4558

δ Corvi

12 23 37.

-15 50

	B	B	R	R
10 0	1.9	1 33.3	32.8	33.1
	9.2	40.2	40.8	40.3
	21.1	51.2	51.1	50.9
	25.6	56.2	55.6	55.7
	578	1809	1803	1800
	1445	4522	4508	4500

Dec. 16, 1880

B Leonis

11 42 53

+15 15

B B R

5 1 5.4 2 27.1 27.4

10.9 33.1 32.9

23.4 45.5 44.1

28.1 49.3 49.0

678 1550 1534

16.95 38.75 38.35

C = 44 61.9

Y Ursæ Maj

11 47 28

+54 22

B B R R B

0 0 1.0 1 47 5.2 5.1 5.2

0.2 5.2 5.0 4.7 4.9

9.5 14.9 14.1 14.1 14.4

20.9 24.0 24.0 24.4 24.4

316 488 483 483 489

0 7.90 12.08 12.08 12.22

0 7.90 12.10

84.25

B Corvi

12 28 2

-22 44

B B R R B

0 3 24.1 4 10.4 10.7 10.3 10.5

31.3 18.4 18.9 18.9 18.8

44.0 30.3 30.5 29.9 30.1

47.3 33.9 33.6 34.2 33.5

146.7 93.0 93.7 93.3 92.9

36.68 23.25 23.42 23.32 23.22

3 36.68 4 23.30

96.62

Y Virginis

12 35 32

-0 47

B R R R B

5 2 33.5 59.5 59.9 59.8

38.5 6.1 6.2 6.2

52.0 18.1 18.1 17.6

55.7 22.2 22.0 21.9

18.14 46.2 46.2 45.5

45.35 11.55 11.55 11.38

Lost 1st 3 wires

following star

Dec. 16, 1880

E Ursa Maj

12 48 42

+56 37

B

43 U

7.7

6.6

17.4

26.0

577

1442

A₊₁

B Bootis

14 57 23

+40 52

B B

25 4

20.0 0 35.1

21.8 34.1

31.4 46.0

40.4 54.1

1136 1693

2840 4232

C = 44 61.9

Y Cassiopeia

~~12~~ 49 25

0 +119 56

B

B B

30 1 8.1 0 21.0 45.23

8.1 22.2 53.3

12.9 27.0 56.6

21.1 35.6 56

502 1058 2278

1255 2645 5695

δ Bootis

15 10 37

+33 46

B

B

R

35 0 9.0 1 28.0 29.1

9.5 29.4 29.3

20.7 40.3 40.0

29.0 48.8 49.1

682 1460 1475

1705 3650 3688

Dec. 16, 1880
 C Virginis
 12 56 9
 +11 37

C = 44 61.9
 B Ursae Min
 14 51 7
 +74 39

	B	B
40 4	189 0	340
	248	399
	357	496
	391	558
	1185	1793
	2962	4482

	B	B	B	B
40 3	49.0	47.7	854	
	45.5	54	340	
	54.8	12.8	415	
	7.3	25.2	528	
	2166	511	1637	
	5415	1278	4092	

24

Dec ⁴⁶₁₇, 1880

C = 44 61.9

①

17 43 31

- 23 24

25

250

55 4 57.2

36.7

6.2

47.1

16.2

50.6

18.7

16.34

38.3

40.85

9.58

Both limbs in S + R.A.
Seeing pretty bad.

Dec. 18, 1880

C = 44 61.9

 β Ursa Maj L.C.

22 54 32

122 +58

 β β

25 3 50.8 20.3

52.1 21.0

54.0 23.2

51.0 33.8

2219 983

5548 24.58

 α Ursa Maj L.C.

22 54 15

+117 36

 β β β

45 3 46.7 0.4 46.5

47.2 1.4 47.0

50.0 4.1 49.5

58.6 13.2 59.2

2025 191 2022

5062 4.78 50.55

 ϵ Ursa Maj L.C.~~22~~ 0 48 42 β β +123 23

0 4 34.1 6.1

33.1 6.0

35.8 8.4

47.0 19.2

1500 397

3750 9.92

 γ Cassio.

0 49 25

 β +60 04

15 2 27.4 51.6

26.4 50.0

35.4 59.5

44.1 7.4

1333 2287

3332 57.18

Dec. 18, 1880

C = 44 #61.9

2 Mm May' L.C.

B Cassiop

11472 8 + 5422

0 2 44

+58 29

R R

R R

50 1 1.7 2.3
 1.8 2.7
 3.4 3.9
 14.8 14.9
 21.7 23.8
 54.2 59.5

50 1 12.1 44.8
 12.0 10.0 44.0
 10.0 22.2 52.4
 27.9 2.8
 722 2040
 51 1805 5100

~~B Arictis~~
~~X Androm.~~

14758

+20 13

B B R R B

5 2 28.2 3 25 2.3 2.8 30
 323 7.6 7.5 6.8 6.6
 414 15.4 15.8 16.0 16.4
 47.8 22.5 22.0 22.1 21.7
 1497 483 476 477 477
 3742 1208 1190 1192 1192

X Androm.

156 29

+41 45

B R R

35 0 12.3 17.5 17.3
 15.0 20.1 20.7
 24.5 29.6 30.1
 33.3 37.8 37.0
 8.51 10.50 10.51
 21.28 26.25 26.28

Lost 1st 2 wires

28

Dec. 18. 1880
2 Arietis

2 0 21

+22 53

B B R R B

25	1	16.3	2	34.6	34.6	34.8	34.3
	20	2		39.4	38.8	38.2	38.3
	27	5		45.8	45.9	45.2	45.3
	35	9		53.8	54.0	53.7	53.4
	99	9		1736	1733	1719	1713
	24	48		4340	4332	4298	4282
				43.11	43.15		

C=414 61.9
12 Leonis
11 4 2 5 3

+15 15

5 2 16.3

20.1

31.8

36.7

1849

26.22

B Corni

~~12 28 57~~ 12 28 2
~~21 44~~ - 22 44
~~15 50~~

R R

0	4	06	07
		8'0	9'0
		18.1	18.3
		22.0	21.7
		487	497
		1218	1242

 by 15 J

A 82 C

Ref A J 2 Aug

B Corni 12 35 32

12 35 32 - 0 47

28 2
- 22 44

R R

5	3	58.6	59.1
		4.9	4.2
		14.9	15.0
		19.0	19.7
		374	380
		9.35	9.50

 Ref 15 1 2 m
 f bud
 2nd #

J Kueae May'

11 4728

+54 22

R

R

0 0

03

1

496

592

478

9'3

561

18'3

6'3

271

2198

6.78

54.95

J Corni'

12 28 8-7

-11-1-2

R

R

10 0

152

160

212

212

328

326

362

358

1054

1056

2635

2640

E Kueae May'

R

+56 57

40

4

579

564

51

130

124

310

J Corni'

04925

11956

R

R

30

0

378

373

362

362

396

385

480

483

1617

1603

4042

4008

Sont-A

+1

30 Dec 18 1880 @ = 44 6.9

Σ Bignins
12569

$\frac{7}{11} \frac{37}{R}$

45	0	40.3	408	173
		45.6	45.2	
		53.2	53.7	
		0.2	59.8	
		199.3	199.5	
		49.82	49.88	

32

Dec 18/19

C = 44 649

① 175-23
-23 24

R

254

133

214

322

1038

369

2595

Both limbs in R. A

Upper limb in S

Seeing moderately good

B Leonis

11 42 53

+15° 15'

B

B R

5

1

12.8

2

28.1

27.8

17.3

32.0

32.0

28.5

43.0

42.2

31.8

47.3

47.7

90.4

150.4

149.7

22.60

376.0

374.2

E Corvi

12 3 34

+21° 57'

B

B

R

R

B

15

1

4.2

23.7

23.2

23.2

23.2

11.0

31.4

30.8

31.2

30.6

23.6

42.3

42.7

41.7

42.5

26.6

45.9

45.7

45.6

45.0

65.4

1433

1424

1417

1413

1635

3582

3560

3542

3532

35.57

35.51

S Corvi

12 23 37

-15° 50'

B

B

R

R

10

0

18.2

1

32.0

31.6

32.1

24.1

38.9

39.1

39.1

37.1

49.6

49.9

50.0

40.2

54.1

54.0

54.0

1196

1746

1746

1752

29.90

4365

4365

4380

Dec. 19, 1880

C = 44 64.9

Y Ursæ Maj.

11 47 28

+54 22

B B R R B

0	0	22.9	133	13.6	13.0	13.4
		22.8	118	11.3	12.0	12.1
		32.1	21.7	20.6	20.1	21.1
		41.4	310	30.4	30.2	30.7
		1192	778	759	753	773
		2980	19.45	18.98	18.82	19.32
			19.38	18.90		

B Cassio L.C.

0 2 44

+121 31

B B

55	2	14.0	26.6
		13.9	23.7
		16.7	31.2
		26.6	
		712	
		17.80	

B Corvi

12 28 2

-22 44

B B R R B

0	2	48.5	23	2.9	2.7	2.8
		55.2	10.4	10.4	10.7	10.4
		7.5	22.0	22.2	21.8	22.1
		11.0	25.0	24.9	25.8	24.9
		22	597	604	610	602
		5.50	14.92	15.10	15.25	15.05

Y Virginis

12 35 32

-0 47

B B R R B

5	2	54.3	4	12.1	12.8	12.8	12.3
		59.0		17.8	17.7	18.2	17.6
		108		29.2	29.0	30.0	30.0
		151		33.7	33.6	33.6	33.7
		192		928	931	946	936
		4.80		23.20	23.28	23.65	23.40

following star

34

Dec. 19. 1880

E Ursæ Maj.

12 48 42

+56 37

B

45 U 41.2

1.5

12.5

21.3

395

9.88

C=44 64.9

Y Cassiop. L.C.

0 49 25

+119 56

B

B

R

R

B

30 0 41.3 0 110 10.1 10.9 10.5

41.0 9.9 9.9 10.2 10.2

44.0 12.2 12.2 13.1 12.2

53.8 22.4 22.0 22.2 20.4

1801 555 542 564 553

4502 1388 13.55 14.10 13.82

 $A_{+1} A_{1_0}$ to 50

Dec. 19, 1880

E Virginis

12 36 9

+11 37

B B R

40 4 13.0 0 43.7 44.1

194 47.7 48.1

301 59.5 59.0

350 4.6 4.0

995 2155 2152

2488 5388 5350

C = 44 64.9

B Urso Min.

14 51 7

+74 39

R R R

40 4 13.1 42.2 42.1

112 41.1 41.1

186 48.1 48.0

308 59.1 59.8

737 1905 1910

1842 4762 4775

36

Dec ¹⁹/₂₀, 1880

①

C = 44 64.9

17 56 49

-23 27

B

B

25-4 37.0 0 2 53.2

42.8

0.3

54.1

11.6

58.1

15.1

1920

202

48.00

5.05

Both limbs in S + R.A.
 Seeing pretty fair.

38

Dec. 21, 1880
 X Ursæ Maj.

1147 28

+54 22

B B R

0 0 4.4 1 170 170
 2.8 156 164
 12.5 260 263
 236 359 358
 433 945 955
 1082 2362 2388

C = 44 64.9

E Corvi

12 3 54

-21 57

B B B

15 148.0 215.8 15.7
 14.9 22.2 22.5
 27.7 35.2 35.0
 30.4 38.1 37.8
 810 1113 1110
 2025 2782 2775

X Virginis

12 35 32

-0 47

B B

5-3 56.8 56.4
 2.1 2.5
 13.6 13.5
 18.9 18.4
 314 308
 785 770

E Ursæ Maj

12 48 42

+56 37

B

45-0 22.7
 21.4
 31.9
 41.6
 1176
 29.40

preceeding star

lost - 1

Dec. 21, 1880

♂ Corvi

12 23 37

-15 50

B

10 1 35.6

42.8

54.3

58.2

1909

47.72

C = 44 64.9

B Corvi

12 28 2

-22 44

B

0 4 7.2

14.8

26.3

29.9

782

19.55

♂ Virginis

12 49 30

+4 3

B

B

R R

B

15 3 15.9 4 0.3 0.8 0.4 0.6

20.1

7.5

8.2

8.6

7.5

31.1

15.4

16.0

15.7

16.0

38.0

22.7

22.1

22.0

22.3

1081

459

471

467

464

27.02

11.48

11.78

11.68

11.60

E Virginis

12 56 9

+11 37

B

B

45 0 7.4 54.0

11.9

58.3

22.6

9.8

28.1

14.4

702

16.5

17.55

4.12

Low 1st u

40

Dec. 21 1880

C=44 64.9

B Herne Min

1451 7

+74 39

R R

40 3 389 4 432
 388 438
 453 495
 574 18
 1804 1983
 4510 4958

δ Bootis

15 10 37

+33 46

B B R R

35 0 20.9 1 31.0 31.9 31.1
 21.3 32.9 32.5 32.9
 32.8 42.8 43.0 42.5
 404 57.0 51.4 51.8
 1154 1569 1588 1583
 2885 39.22 39.70 39.58

Dec. 22

Blue mi

$$\begin{array}{r} 14517 \\ +7409 \\ \hline \end{array}$$

R R D

40	3	377	4324	510
		370	313	537
		436	375	16
		357	521	12.0
		1734	1513	2383
		4335	3782	59.38

~~5 Bootis~~
~~$$\begin{array}{r} 151037 \\ +3346 \\ \hline \end{array}$$~~
~~B B R R~~

35	0	16.3	1	360	35.9	35.6
		17.8		370	38.1	37.4
		27.6		473	46.3	46.3
		35.8		552	54.1	55.0

42

Dec. $\frac{21}{22}$, 1880

C = 44 62.2

C = 44 62.2

18 05 42

-23 27

B B

25 4 350 0 248.0

41.9 56.7

53.2 8.1

57.5 11.8

1876 46

46.90 1.15

Blue No. 1

10 54 32

122 58

R R

25 4 42

64

72

197

375

9.38

Both limbs in S + R.A.
Seeing rather bad.

lost A_1 and A_{+1}

B Cassio. p.

0 2 44

+58 29

R

50 2 189

189

270

378

1026

25.65

4 4 5

e Ursa Maj. L.C.

12 48 42

+123 23

B

0 4 23.5

24.2

26.3

38.6

1126

28.15

Lost A_{+1}

Dec. 22, 1880

C=44 62.2

α Perseus

10 56 15

~~10 56 15~~
R 36

45-2	503	497
518	520	
540	541	
5.2	4.6	
2213	2204	
55.32	55.10	

α Androm.

0 2 8

+28 25
R

50	13.3
	16.2
	24.5
	35.3
	89.3
	22.32

lost A-1 & A+12

Ref 15 ✓

γ Cassiope

0 49 25

+60 04
B B

15-2	20.0	38.2
	19.3	38.0
	29.6	48.1
	37.5	56.1
	1064	1804
	2660	4510

δ Cassiope

1 17 55

+59 36

B B B

403	46.4	33.2	06.9
	47.0	33.3	5.2
	53.3	42.7	15.9
	3.7	50.4	24.1
	2124	1599	521
	5310	39.98	1302

A₆ + c

$C = 44 \quad 62.2$

γ Androm

147 58

156 29

+20 13

+41 45

B ~~B~~ R R B

B B R

5 1 37.4 2 576 58.0 576 580

35 0 16.0 1 166 16.1

42.2 2.0 2.8 2.8 2.8

18.4 18.0 18.0

57.7 12.4 12.6 12.0 11.9

27.3 29.1 28.9

59.0 19.0 19.9 19.6 19.8

37.3 38.2 38.0

1903 310 333 320 325

990 1022 1010

4758 775 832 800 812

24,75 2555 2525

Hall's No. 12

Bursa Mini L.C.

2 11 33

14 51 4

+ 56 46

+105 22

B B B R

B B B B

30 4 40.4 0 53.6 16.3 16.8

0 2 2.4 143.7 21.1 520

40.2 54.1 15.7 16.1

2.1 43.1 21.2 522

50.1 3.3 24.6 24.9

7.5 48.3 26.6 573

$$58.9 \quad \overline{13.3} \quad 35.0 \quad 34.2$$

19.1 0.8 38.1 95

1896 2443 2290 2300

311 1959 1070 23^N11

47.40

34 47.40

36. 0108 2290 2300

$$\begin{array}{r} + 1.06 \\ \hline 4.846 \end{array}$$
$$\begin{array}{r} 22.87 \\ + 2 \\ \hline 22.88 \\ + 31 \\ \hline 23.19 \end{array}$$

Reject 1st 8
A A₊ 21

Dec. 22, 1880

B C = 44 62.2

 α Arietis

2 0 21

+22 53

B ~~B~~ B R R B

25- 1 17.1 2 340 33.8 34.0 340
 21.7 388 38.9 38.9 389
 29.0 47.1 46.8 46.4 462
 39.0 560 55.8 56.0 557
 1068 1759 1753 1753 1748
 2670 4398 4382 4382 4370

Hall's No. 5-

2 10 3

+56 27

B

20 3 20.8

21.0

30.1

39.6

111.0

27.75

33 27.60

+79

28.39

 α Ceti

2 55 57

+3 37

B

40 2 36.0

52.8

0.8

7.8

B Cassio. L.C.

0 2 44

+121 31

B B

55 2 27.0 54.8

27.1 54.3

30.0 57.2

40.8 8.3

1249 2346

31.22 58.65

Chf.

Long-A₊

Dec. 22, 1880

E Corvi

12 3 54

-21 57

B B R R B

15 1 35.2 2 45.1 44.8 44.1 44.3
 42.4 57.8 52.0 52.0 53.0
 55.1 4.1 3.8 3.4 4.0
 57.8 7.1 7.1 6.6 7.0
 1905 2281 2277 2261 2283
 47.62 57.02 56.92 56.52 57.08

C=44 62.2

S Corvi

12 23 37

-15 57

B B R R B

10 0 18.0 1 35.1 35.2 35.1 35.2
 24.8 41.9 42.4 42.1 42.0
 35.8 53.0 53.1 52.3 53.0
 40.3 58.0 57.0 57.0 57.3
 1189 1880 1877 1865 1875
 29.72 47.00 46.92 46.62 46.88

Foot-15-2W

E Ursae Maj.

12 48 42

B +56 37

45 0 4.2

1.4

10.6

21.2

37.4

9.35

Y Cassiope L.C.

0 49 25 +119 57

B B R R B

30 0 46.0 0 13.8 13.8 13.6 13.6

45.8 13.1 12.9 12.8 12.9

48.2 15.3 14.9 15.1 15.1

58.0 25.3 25.3 24.9 25.8

1980 675 669 664 674

49.50 16.88 16.72 16.60 16.85

Foot-1

A₂ C

B Corvi

γ Virginis

12 28 2

12 35 32

-22 44

-0 47

B B R R' B

B B R R B

0	3	56.2	4	26.4	26.3	26.4	26.9
		39		33.8	33.9	33.8	33.7
		15.3		44.7	45.1	44.9	44.5
		18.3		48.2	49.0	48.8	49.0
		33.7		153.1	154.3	154.1	154.3
		84.2		3828	3858	3852	3858

5 2 45.2 402.0 1.2 1.5 1.8
513 6.6 7.5 7.3 7.6
19 18.5 17.1 17.5 18.0
69 23.2 22.3 22.8 22.3
2253 503 481 491 497
5632 1258 1202 1225 1242

~~Test~~ it give

preceding star

E Virginia

120569

+ 11 37

B B R

40	4	24.1	0	42.2	42.1
		285		459	46.8
		383		56.3	56.1
		431		25	20
		1340		2069	2070
		33.50		5172	51.75

δ Cassiope L.C.

117 155-

+120 24

B B R

0	3	44.3	3	38	3.8
		44.0		36	3.9
		45.7		50	5.7
		57.0		154	15.6
		1910		278	290
		47.75		695	7.25

48

Dec. 22, 1880
 C-44 62.2
 5 Bootis

15° 10 37

+33 46

B B R R

35° 0 16.3 136.0 35.9 35.6

17.8 37.0 38.1 37.4

27.6 47.3 46.3 46.3

35.8 55.2 54.1 53.0

975 1755 1744 1743

2438 4388 4360 4358

Dec. $\frac{22}{23}$, 1880

C = 44 62.2

C = 44 62.2

18 10 9

-23 26

B Ursa Maj'

10 54 32

57 2

	B	B
25 3	411 0 2 3.2	
	480	11.6
	592	22.3
	35	27.1
	2118	642
	52.95	16.05

	R
25 42	342
	370
	397
	507
	1616
	4040

Both limbs in S + R.A.

Lost A₁ on 1st limb

" A₁ + A₁ + 2 ~~for~~ on 2nd limb

Seeing pretty bad

J Regas

670

+14 31

	R	R
45 3	433 428	
	490 488	
	597 598	
	71 61	
	2191 2175	
	5478 5438	

E Ursa Maj' S.C.
B obs. 12 48 42
+123 23

	B	B
0 2	48.2 48.3	
	48.7 49.5	
	52.2 52.0	
	4.5 4.3	
	2136 2141	
	5340 5352	

Reg. 1st S

Dec. 23, 1880

C=44 62.2

2 Herne May

10 16 15

62 24

R R

45 3 3 80 2 347

41.8 371

45.1 403

54.7 503

1796 1624

4490 4060

B Cassio

0 2044

+58 29

R R

50 1 356 2420

35.1 409

45.1 516

55.3 1.3

1711 1958

4278 4895

Lost A+1

S Cassio.

1 17 537

+59 36

B B B

40 3 48.0 4 20.1 598

48.1 20.0 60

58.2 30.3 9.4

7.3 38.3 18.8

2216 1087 280

5540 27.18 7.00

B Arietis

1 47 58

+20 13

B B

5 1 36.3 2 54.5

41.0 59.4

51.1 90

59.7 17.1

1881 204

4702 510

Dec. 23, 1880

C=44 62.2

☿ Androm.

1 56 29

+41 45

B B R

35	0	11.4	1	19.0	19.7
		14.0		20.6	20.9
		24.2		31.7	31.1
		33.7		40.6	40.7
		833		1119	1224
		2082		2798	3060

♈ Aries

2 0 21

+22 53

B B

25	1	17.0	2	31.2
		22.1		36.8
		18.9		44.1
		39.1		53.8
		971		1659
		2428		4148

Dec. 23, 1880

C = 44 62.2

Hall's No. 5

2 10 3

+56 27

B

50
20

3

25.0

59.7

26.1

0.7

36.8

10.7

45.2

19.3

13 31
33.2830.4
7.60

53

33.28

54 7.60

+77

7.60

34.05

7.63

85.0

Hall's No. 12

2 11 33

+56 46

B

B

R

R

35 0 17.0

56.2 56.3 57.2

17.0

56.8 56.3 56.3

27.0

6.0 6.4 6.8

35.3

15.0 15.3 15.0

35 24.08

36 3.50

3.58

3.82

+9

3.50

3.70

3.57

13

3.53

57

+24

24.17

3.77

54

Dec $\frac{24}{27}$, 1880

①

 $C = 44 \ 62.2$

18 27 54

-23 18

 $C = 44 \ 62.2$ δ Cassio. p.

1 17 55

+59 36

Lost A, $\frac{24}{27}$ Mo δ
 Observation ^{rather} very doubtful.

Dec. 27, 1880

 β Ursa Min.

14 51 7

+74 39

C = 44 62.2

 β Bootis

14 57 23

+40 52

RR

40 B 360 4350

352 3521

422 431

556 562

16'90 1697

4225 4242

A.R. only, Rej. δ

56

Dec 27 1880

C = 44 62.2

E Ursae Maj. S.C.

12 48 42

+123 23

C

C =

18 32 20

-23 15

0 4 26.9 0.4

26.8 59.8

27.8 1.9

41.8 14.1

12 33 162

30.82 4.05

Lost A₁

x Androm.

1 56 29

+41 45

B B R

35 0 6.7 1 18.8 18.7

9.3 20.6 20.3

19.9 30.9 30.9

27.8 38.8 38.1

637 291 280

15.92 27.27 27.00

α Arietis

2 0 21

B B +22 53 R R B

25 1 13.4 2 21.8 25.8 25.9 25.7

17.2 30.5 30.9 30.3 30.1

24.7 37.2 36.7 37.2 36.4

32.0 44.9 45.8 45.8 45.0

873 184 192 192 172

21.82 34.60 34.80 34.80 34.30

34.45 34.80

Dec. 28, 1880

γ Cassio.

0 49 25-

+60 04

B B R R B

15-2	18.6	55.1	54.3	54.6	54.6
164	53.2	52.8	53.1	53.2	
257	2.0	1.5	1.2	1.8	
35.13	108	11.3	11.2	11.2	
960	11	2399	01	08	
2400	60.27	59.97	60.02	60.20	
	60.23	60.00			

A 3 + following.

C=44 62.2

δ Cassio.

1 17 55-

+59 36

B B B B

40	3	44.7	432.1	0	16.7	50.1
		43.5	31.0		14.9	
		53.1	40.4		25.1	
		0.2	48.8		33.1	
		2015	1523		898	
		5038	38.08		22.45	

Hall's No. 5

2 10 3

+56 27

50	B	32.9	35.6
		32.9	
		42.0	
		49.2	

53	39.25
	+ 75
	40.00

53

lost from 526

Froude with Clouds

Hall's No. 12

2 11 33

+56 46

B B R R

35-	0	9.7	59.0	59.0	59.0
		7.4	58.0	58.0	58.0
		16.2	6.1	7.0	7.0
		24.3	14.7	13.2	15.4
		57.2	178	192	197
		14.30	4.45	4.80	4.92
35	1430		4.45	4.86	
	+ 6		4.23	-13	73
			118		
			4.57		
			7.29		
			4.81		

35	1430
	+ 6
	lost from 526
	71

25 14.36

58

Dec. 28, 1880
B Ursae min. L.C.

14 57 4

+105° 22

B B B B

0	2	5.7	52.1	14.8	55.0
		4.3	50.8	13.9	54.3
		9.0	55.0	18.7	58.8
		19.0	6.1	29.0	8.9
		380	2240	764	2370
		9.50	56.00	19.10	59.25

C = 44 62.2

α Ceti

2 53° 57

+3 37

B B R

40	2	25.2	3	46.6	46.3
		31.8		53.2	53.3
		39.8		0.2	0.6
		46.2		6.2	6.4
		1430		2262	2266
		35.75		56.55	56.65

Dec. 28, 1880
2 Persei

C = 44 62, 2 59

3 15-41

+49 24

	B	B	R	R	B		
50	4	30.9	0	50.5	57.2	51.3	50.9
		29.8		49.6	49.7	50.2	50.4
		37.7		58.5	59.0	58.4	57.9
		46.4		7.6	7.4	7.0	7.5
		1448		2265	2273	2269	2267
		3620		5662	5682	5672	5665

60

Dec. 29, 1880

C = 44 62.2

E Urse May.

12 48 42

+56 37

B

45 0 16.5

13.5

24.0

33.0

870

21.75

V Cassio. S. e

0 49 25

+119 56

B

30 0 46.3 0 19.0

45.9 17.4

48.2 20.9

56.2 29.4

1966 867

49.15 21.68

Lent A
+1

A4 & e

Dec. 29, 1880

C = 44 62.2

E Virginis

12 56 9

+11 37

B

B

R

40	4	26.9	0	45.1	45.2
		29.9		49.1	49.1
		40.2		58.8	58.4
		44.8		2.8	4.2
		1418		3.2	2169
		3545		5405	5422

δ Cassiopeiæ L.C.

1 17 35

+12 0 24

B

B

B

0	4	33.9	41.2	5.4
		33.1	40.4	2.9
		35.1	42.7	5.1
		41.9	49.7	13.5
		1440	1740	269
		3600	4350	6.72

62

Dec. $\frac{29}{30}$, 1880

C = 44 62.2

C = 44 62.2

18 41 12

-23 7

	B		B
5 4	431	40 3	10.3
	48.5		16.3
	58.5		26.2
	58.5		27.8
	2090		806
	52.25		20.15

Both limbs in S + R.A.
Seeing very bad.

S Cassiope.

1 17 55

+59 34

	B		B		B
40	3	46.8	4	30.1	0 7.5
		43.0		24.2	2.0
		50.3		35.5	10.3
		58.2		41.5	19.6
		1983		1313	394
		49.58		32.82	9.85

B Arietis

1 47 58

+20 13

	B		B		R
5 1	48.2	2	54.4		54.3
	48.8		56.3		56.2
	57.2		55		5.3
	40		100		10.1
	2182		2462		2459
	54.55		61.55		61.48

Dec. 30, 1880 $C = 44$ 62.2
 E. M. Hay & Co. 0.4825

128 + 42
~~756.37~~
 R 12323

+604
 R R

d 3 475
 457
 454
 56.1
 1947
 48.681

152 330 333
 29.2 29.1
 36.6 37.2
 45.9 45.6
 1447 1452
 36.18 36.30

A 72e

Perhaps his telescope

X Androm.

1 56 29

B +4145

35 0 9.7
 8.0
 18.1
 24.6
 60.2
 15.05

Davidson's

1 58 40

-12 26

B B R

45 0 59.0 139.2 38.7
 2.2 ~~413~~ 42.6
 17.5 ~~1550~~ 53.3
 18.0 57.1 56.9
 36.7 19.26 19.35
 9.18 48.15 48.38

64

Dec. 30, 1880

Hall's No. 5

$$\begin{array}{r} 2 \ 10 \ 3 \\ + 56 \ 27 \\ \hline \end{array}$$

B

50 3 46.6

44.2

51.0

58.0

53 49.95

+ 84

53 50.79

C = 44 62.2

Hall's No. 12

$$\begin{array}{r} 2 \ 11 \ 33 \\ + 56 \ 46 \\ \hline \end{array}$$

B B R

35 0 28.5 28.29

25.8 04 59.9

32.2 6 7 7.7

40.9 14 3 14.3

35 ~~32.35~~ 36 6.05 6.20

31.85

+ 11

35 31.96

6.07

6.06

+ 25

6.31

2 Bortle

14 2 7 12

38 50

R

30 2 104

101

188

263

656

1640

Borne Min

14 51 7

+ 74 39

40 4 328

3077

354

466

1455

36.38

A, 12 34 5

3 strokes for 1st win

Dec. 30, 1880

 β Ursa Min L.C. α Ceti

14 51 4

2 55 57

+105 22

+3 37

B B S B

B B R R

0 2 24.3 0.3 35.8 109

40 2 36.9 354.9 53.7 53.6

23.4 57.4 330 7.8

40.0 57.7 58.1 57.8

26.5 0.6 36.4 10.1

48.4 4.9 4.3 4.1

35.4 8.9 45.0 200

53.1 10.7 10.0 10.0

1118 72 1502 488

1784 82 61 2455

2790 180 37.55 1220

44.60 62.05 61.52 61.38

2 Serpens

~~30 15 38 30 1~~

+6 45

R R

30 2 30 36

60 61

14.8 15.2

19.5 19.2

43.3 44.1

10.82 11.02

66

Dec. $\frac{30}{31}$, 1880

C = 44 57.0

①

18 45 37

-23 2

B

B

5 0

189 35 3 26.2

22.5 31.3

32.5 42.2

36.0 44.0

11.03 14.37

27.58 35.92

Both limbs in S + R. A
 Lost 1st wire of 2nd limb
 Seeing pretty fair for
 the low temperature.

68

Jan 1881

Sun May 1881

124542

R +123 23

0 4 411
 40.8
 399
 589
 1727
 43.18

C = 44 57.0

J. Cook

0 4925

+60 04
R

15 2 33.5
 32.0
 37.0
 46.6
 1494
 37.35

2 Arietis

2 0 21

+22 53

B

25 2 260

280

349

42.1

1310

3275

Hall's No. 5

2 10 3

+56 27

B

50 3 54.1

52.4

0.5

9.0

58 59.50

+ 88
54 0.38

2860

59.00

~~Dec.~~ Jan. 1, 1881 δ Cassio.

1 17 55

+ 59 36

C = 44 57.0

Davidson's

1 58 40

- 12 26

	B	B	B
40 3	49.7 4	14.1 0	38
	45.2	10.2	58.4
	54.2	18.9	75
	1.8	269	176
	2109	701	276
	5272	1752	690

	B	B
45 0	26.1	1.28.9
	286	32.9
	427	45.7
	458	47.6
	1427	1551
	3568	3878

Halls No. 12

2 11 33

+ 56 46

	B	B
35 0	35.3	108.9
	31.6	5.3
	38.9	13.1
	49.1	22.8
35	38.72	36 12.52
	+13	+26
35	38.85	12.78

Rij. A 56

B Mrs. Min. L.C.

14 51 4

+ 105 22

	B	B	B	B	B
0 2	38.3	25.3	149.6	29.8	86
	35.1	23.0	47.1	26.6	60
	39.1	26.6	50.2	32.0	101
	50.3	37.1	1.8	41.3	202
	4070	2800	62.15	32.42	44.9
					11.22

Jan 1 1881
2 Ceti

2 55 57

+3 37

B

B

R

R

B

40	2	39.9	3	52.9	52.6	52.1	53.0
		43.7		56.8	57.0	57.1	56.3
		50.4		44	4.0	5.6	4.1
		57.6		10.3	10.0	9.8	9.6
		1916		44	36	46	30
		47.90		110	0.90	1.15	0.75

C=44 57.0

2 Persei

3 15 41

+49 26

B

B

R

R

B

50	4	41.5	0	48.7	48.0	48.8	48.4
		39.5		45.2	45.3	45.8	44.9
		47.0		53.8	53.1	53.1	53.1
		54.8		20	1.3	2.1	2.7
		1828		2097	2077	2098	2091
		4570		5242	5192	5245	5228

Jan 2

B Minor Min & C

14 51 9

105 23

R

R

See page 72

02	132	123
	113	594
	131	310
	263	148
	639	195
	1598	488

Jan 2

2 Persei

2 56 03

+53 2

R

R

153	207	216
178	184	
260	260	
350	356	
995	1016	
2488	2540	

Jan. 2

$$\begin{array}{r}
 1 \\
 45 \quad 0 \quad 42.5 \\
 \hline
 388
 \end{array}$$

Jan 21 1874

Com

1 17 55

+60 04

RR

R

Anita

2 0 21

+22 50

RR

44	3	43.1	313	450	26.5
		39.0	27.9		220
		48.1	348		298
		57.2	44.1		40.3
		187.4	138.1		1186
		46.85	34.52		29.65

251	176	173
189	19.1	
249		
35.1	253	
	360	
967	957	
2418	2442	

B Librae

15 10 30

-5 56

R R

151	52.5	53.2
	55.2	55.5
	86	88
	120	118
	106	93
	2.65	2.32

Jan 2, 1881

C = 44 57.0⁷³

2 Arct. Mag

12 48 42
+ 56 37

B
45 0 425
388
469
56.7
1849
46.22

5 Cassiop. L.C.

1 17 55
+ 59 34
+ 120 24
B
B

0 4 18.4	3 0.1
16.4	58.0
18.1	58.9
27.1	8.5
800	55
2000	1.38

A 3 < C

74

Jan 3, 1881

♂ Cassiope

1 17 65

B

+59 34

40 3 55.1 4 29.8 0 12.5
 52.3 27.1 8.9
 0.5 34.4 16.7
 8.8 43.3 27.3
 2367 1346 654
 59.18 33.65 16.35

C = 44 57.0

Davidson's

1 58 40

-12 26

B B

45 0 6.8 12.5
 9.3 27.6
 24.8 42.4
 29.2 47.0
 701 220
 17.52 35.50

Hall's No. 12

2 11 33

B

+57 46

B R R B

30 4 43.0 54 6 57.0 57.0 57.0
 40.0 54.2 54.0 54.8 54.8
 49.1 2.4 3.4 3.6 3.0
 57.4 12.8 12.4 12.0 12.8
 18.95 70 68 74 76
 47.34 51.75 51.76 51.85 51.90

34 47.38
 + 1.06
 48.44

51.82 51.77
 -13
 64
 51.64
 146

36 51.73
 + 22
 1.95

Jan. 3, 1881

C=44 57.0

α Arctis

Halls No. 5

2 0 21

2 10 3

B +22 53
B R R R

+56 27

25 2 11.9 513 51.1 51.3 517
 14.0 531 53.8 53.8 538
 21.3 517 0.4 0.1 017
 31.1 108 10.9 10.3 186
 785 2359 62 55 65
 1962 58.97 59.05 58.87 59.15
 59.06 58.96

50 3 11.8 38.4
 10.4 36.0
 18.9 45.7
 28.0 54.3
 291 144
 53 17.27 43.60
 +23 +81
 53 18.00 44.41

Sot A 1234

B time Mini S.C

14 51 4 +105 22

B B B B

0 2 27.4 11.4 34.0 57.5
 26.0 10.8 33.1 4.2
 31.2 14.5 37.1 78
 41.8 26.6 48.8 193
 1264 633 1530 368
 3160 1582 3825 9.20

Sot A

γ Persei -1

2 56 03 +53 2
B B R R B

15 3 23.4 4 321 31.8 31.6 32.3
 21.1 298 30.5 30.7 30.0
 29.9 390 38.6 38.2 38.2
 40.2 410 48.0 47.8 48.0
 1146 1489 89 83 85
 2865 37.22 37.22 37.07 37.12
 37.17 37.14

Jan 3, 1881

α Persei

3 15 41

+49 26

B B R R B

50 4 39.6 0 18.0 17.9 17.8 18.1
 37.3 15.0 15.2 15.0 14.8
 45.8 23.2 23.8 23.8 23.0
 54.2 33.6 33.7 33.5 34.4
 1769 89.8 90.6 90.1 90.3
 44.22 22.45 22.65 22.52 22.57
 22.51 22.58

C = 44 570

γ Cassiope L.C (B)

0 49 25

+119 56

B B

30 0 18.8 19.1
 17.2 17.0
 18.7 18.1
 28.9 29.0
 83.6 83.2
 2090 2080

Lost A₁

Blumenau

14 51 7

+74 39

R R R R

40 3 30.0 56 55.8 45 0 3.2
 27.0 6.1 33.2 0.0
 33.8 12.4 39.4 6.2
 44.7 23.8 50.5 18.0
 13.5.5 51.9 15.8.9 27.4
 33.88 12.98 39.72 68.5

Jan 3.1881
 5 Cassiopeia L.C

1 17 55

+120 24

	B	B	B
0 4	53.0	3 13.2	538
	51.3	11.3	517
	57.7	12.6	528
	2.3	23.0	3.3
	2183	601	2216
	5458	1502	5540

C = 44 57.0

T Virginis

18 55 29

+28

	B	B
10 2	50.3 ⁴	3.2
	54.9	7.3
	1.8	14.3
	9.4	21.5
	2364	463
	5910	1158

B Librae

15 10 30

- 8 56

R R

15 2	238	241
	242	246
	341	348
	43.0	43.6
	13 31	13 51
	3328	3378

78

Jan $\frac{3}{4}$, 1881

C =

C = 44 59.0

19 3 15

-22 39

B

B

40 2 18 15 0 41.6

5.2

45.9

16.7

57.4

20.8

0.3

445

20 52

11.2

51.30

80

Jan $\frac{4}{5}$, 1881

$$C = 44 \quad 59.0$$

$$19 \quad 7 \quad 38$$

$$-22 \quad 33$$

β	β
350 44.0	53 41.0
46.9	45.5
58.9	56.0
37	58.5
215.5	2010
53.88	50.25

Both limbs in S + RA.
 Seeing very fine indeed.

Jan 6, 1881 C = 44 59.0
 5 Cassiope L.C. Obs. & Bootis B. Obs.
~~0 49~~ 1 17 55 14 10 8
 +120 24 +19 49

B B

0 2 47.0 46.2

46.2 46.3

48.1 48.6

59.9 59.9

2012 2010

5030 5025

B

30 4 0.8 0.4

4.6 4.8

14.3 / 4.0

22.3 22.3

420 415

1050 1038

84

Jan $\frac{6}{7}$, 1881

C = 44 59.0

19 16 23

 β -22 18.3

w o 6.9 50.3 56.5

13.8 3.9

26.6 15.0

30.9 19.3

78.2 34.7

19.55 8.68

C = 44 59.0
 δ Cassiope B. all
1 17 50.5
+59 36

B

45 0 4.0

3.0

13.2

25.1

45.3

11.32

Both limbs in δ + R.A.
Seeing pretty fair

86

Jan 8 1881
 1755

114 36

R
 410 3 110
 39.1
 48.2
 58.1

C = 44 59.0

Davidson's

1 58 40

B⁻¹² B²⁶

45 0 12.8 11 279
 19.0 34.0
 31.8 47.6
 36.7 51.2
 100.3 160.7
 25.07 40.17

Hall's No. 12

2 11 33

+56 46

B B

35 0 11.4 58.4

9.0 57.8

18.4 6.6

28.1 17.5

66.9 20.3

35 16.72 65.07

B Ursa Min L.C.

14 51 4

+105 22

B B B B

0 2 33.0 16.9 36.0 64

32.1 15.95 35.2 5.7

36.8 20.3 39.8 9.9

48.9 32.6 52.2 22.6

1508 853 1932 446

3770 2132 4830 1115

Jan. 8, 1881

C = 44 59.0

 α Arietis

2 0 21

+22 53

B B R R B

25 2 14.2 509 50.5 50.3 508
 176 541 54.7 54.8 550
 26.0 19 2.0 1.8 18
 36.1 121 12.4 12.8 123
 939 00 396 392 399
 2348 60.00 59.90 59.80 59.97
 59.98 59.85

Hall No. 5

2 10 3

+56 27

B B

50 3 14.2 4 2.2
 13.5 0.0
 22.1 11.4
 31.7 19.8
 815 334
 53 20.37 54 8.35

Lost 1st wire γ Persei

2 56 3

+53 2

B B R R B

15 3 27.2 4 24.7 24.5 24.1 248
 239 24.6 24.3 2448
 35.2 332 33.1 33.0 330
 45.7 430 42.3 42.9 430
 48 45 43 51
 31.20 31.12 31.08 31.27
 31.23 31.10

 α Persei

3 15 4

+49 26

B B R R B

50 4 42.3 0 555 55.9 56.4 56.0
 41.4 544 55.3 55.2 552
 679.6 3.1 3.1 3.3 30
 59.5 135 13.2 14.5 149
 75 85 94 89
 61.87 62.12 62.35 62.22
 62.05 62.24

Jan. 8, 1881
 ε Eridani

3 27 14

- 9 52

	B	B	R	R	B
10	1 51.6	2 24.8	24.4	24.3	24.8
	10.0	29.4	29.8	30.1	30.2
	23.3	43.0	43.6	43.2	43.0
	26.9	46.8	46.3	46.8	47.0
	658	240	241	244	250
	1645	36.00	36.02	36.10	36.22
		36.11	36.06		

C = 44 59.0

δ Persei

3 34 19

+ 47 24

	B	B	R
55	1 35.2	2 34.7	35.3
	34.3	34.4	35.3
	44.0	44.0	44.8
	54.3	53.8	53.1
	1678	1669	1685
	4195	4172	42.12

Jan 8, 1881
 δ Eridani

C = 44 59.0

3 37 27

-10 10

B B

30 0 49 94

8'2 30

22' 17'9

25' 2'02

608 1505

1520 1262

Lost 1st 2 wires

90

Jan. #9 1881

①
19 25 6
-22 01

35 0 R
480
537
42
68
23 27

58.18

Seeing pretty fair
Both circles in R.A.
Lower circle in ✓

92

Jan 10, 1881
 α Virginis B. obs.

12 56 9

+11 37

B B

45- 0 46.0 46.2

50.6 ~~34.0~~ 50.00.8 ~~52.8~~ 0.8

8.0 4.9 8.1

2254 2251

56.35 56.28

C = 44 59.0
 α Virginis

18 18 49

-10 32

B B R R B

50 2 00 3 199 20.2 19.3 201

3.9 25.3 26.0 25.2 25.3

18.0 38.4 39.1 39.0 38.4

22.9 43.0 42.2 42.0 42.8

448 126.6 127.5 55 66

11.20 31.65 31.87 31.37 31.65

31.65 31.62

2² Librae B. obs.

14 44 11

-15 32

B B

50 3 19.0 19.0

27.3 27.2

38.0 38.1

42.2 41.7

1265 1260

31.62 31.50

Seeing very bad
 clouds.

Jan. 10, 1881
 N. W. & May
 13 42.46
 +49.55

B B

25 2 10.5 10.8
 99 9.8
 19.3 19.5
 29.0 29.9
 68.7 70.0
 17.18 17.50

C = 44 59.0
 T. Virginis
 18 55.29
 +2.8

B B

10 2 53.9 4 5.0
 59.8 11.7
 8.2 19.8
 17.0 27.4
 18.9 63.9
 4.72 15.98

Lost some of 1st wire
 of A + A-, 45

Jan. ¹⁰/₁₁, 1881
 C =

19 ~~29~~ 33 47
 -21 42

Jan. ¹¹/₁₂, 1881
 C = 44 62.4

19 38 7
 -21 32

350 155 53 47.9
 222 54.4
 333 6.2
 375 9.6
 1085 2381

2712

59.52

Both links in S & R.A.
 Lost 1st wire of 2nd link
 Seeing very bad indeed.

Halls No. 12

2 11 33
 +56 46

B

B

350 15.3 1 15.2
 12.5 13.9
 22.0 22.3
 33.0 32.8

35 20.70 36 24.05

γ Cassiop. S.C. (B. 0.05)

0 49 25

+119 56

B

B

30 0 11.3 11.4
 9.1 8.8
 11.12.0 11.1
 22.0 22.3

535 536

1338 1340

5 Cor Jan. 12, 1881

C = 44 62.4

+11755

+59 36

Hall's No. 5

2 10 3

+56 27

R R R

404380	4178	450232
872	164	222
460	249	309
55.1	350	41.0
178.3	941	1173
44.08	2352	29.32

B	B
50 350.8	4 32.0
50.0	31.0
58.2	40.0
7.4	48.8
5-3 56.0	37.95

Record on sheet -
illegible

5 Cassio. S.C. (Bob) 2 hrs @ May' (B. ob)

1 17 55

+120 24

13 42 46

+49 55

B	B
0.3 1.9	1.9
0.0	59.9
1.0	0.8
12.5	2.5
154	51
3.85	1.28

B	B
25 3 6.9	7.1
5.3	5.2
13.0	13.9
24.0	24.1
492	503
12.30	12.58

Jan 12, 1881

C = 44 62.4

21 Bootis (B. obs)

T Virginis (B. obs)

13 48 55

13 55 29

+ 2 8

B 13+19 0

B B

20 2 21.4 21.1

10 4 5.3 4.9

24.1 24.8

10.2 9.9

33.3 33.7

18.0 17.5

40.3 40.9

25.0 25.0

1191 1205

585 573

2978 3012

14.62 14.32

B Libra

15 10 30

-8 56

B 13

15 1 5.3 2 33.0

7.8 35.9

22.0 45.0

24.7 52.0

598 1699

14.95 42.48

Jan. 12, 1881
 α Bootis (B obs.)
 14 10 8
 +19 49

	B	B
30 3	54.8	54.2
	56.8	56.9
	6.0	6.2
	12.8	12.3
	104	96
	260	2.40

C=44 42.4
 α^2 Libra (B obs.)
 14 44 11
 -15 32

	B	B
50 3	13.2	13.8
	20.3	20.8
	30.6	30.4
	34.3	34.0
	984	990
	24.60	24.78

Jan $\frac{12}{13}$, 1881

$$C = 44 \quad 62.4$$

$$19 \quad 41 \quad 32$$

$$-21 \quad 24$$

B

B

$$21-0 \quad 14.6 \quad 55 \quad 3 \quad 10.7$$

$$19.3$$

$$18.4$$

$$1300$$

$$26.9$$

$$34.7$$

$$30.6$$

$$986$$

$$866$$

$$24.65$$

$$21.65$$

Both limbs in S + Rt.
Lost A 123 2nd limb
Seeing very good.

100

Jan ¹⁴/₁₅, 1881
 (1) B. obs
 C = 44 62.2
 19 57 01
 -21 0

R.A. only

Both limbs in R.A.
 Seeing very poor.

Jan 15 C = 44 62.2
 B Urse Min S.C.
 24 57 4

+10 5 -22

B B B B B B

0 2 37.0 23.0 55.0 29.8 7.9 56.8
 36.0 21.2 53.4 26.8 5.0 54.3
 40.0 25.0 56.8 30.7 9.9
 51.1 37.2 9.0 43.1 21.7
 1641 1064 2342 1304 445
 4102 2660 5855 3260 1112

ϵ Eridani

3 27 14
 -9 52

B B R R B

10 112.0 2 31.5 30.8 30.8 30.6
 15.3 34.8 35.0 35.1 34.6
 28.8 47.7 47.5 47.8 47.8
 31.3 50.2 50.4 50.6 50.2
 874 1645 1637 1643 1632
 2185 4112 4092 4108 4080

δ Persei

3 34 19
 +47 24

B B

55 1 16.4 2 29.9
 15.1 28.3
 25.1 37.3
 33.8 —
 904
 2260

Jan. 15, 1881

X Persei

2 56 03

+53 2

B B R

15 3	27.0	4	37.8	38.0
	25.3		36.0	37.3
	34.3		45.0	45.2
	43.5		54.5	54.2
	13.01		13.8	14.7
	32.52		43.57	43.67

C = 44 62.2

α Persei

3 15 41

+4.9 26

B B R R B

50 4	37.8	0	48.4	49.2	49.0	48.9
	37.0		45.3	47.8	48.0	47.4
	43.8		55.6	56.0	55.4	55.0
	54.9		55.5	55.0	55.0	55.2
	17.35		16.8	18.0	17.4	16.5
	43.38		54.20	54.58	54.35	54.13
			54.16	54.42		

δ Eridani

3 37 27

-10 10

B B

55 4	28.0	0	43.8
	31.9		46.4
	44.3		59.9
	46.8		2.0
	15.10		21.23
	37.75		53.08

η Pauri

3 40 18

+23 44

B B

35 1	7.7	2	31.0
	11.9		34.2
	18.3		40.7
	25.3		48.2
	6.32		15.41
	15.80		38.52

Jan. 15, 1887
5 Persei

3 46 32

+31 31

45	3	β	β
		32.3	4 56.2
		34.6	56.2 59.0
		43.2	59.0 7.0
		51.5	15.8
		<hr/> 161 6	180
		40.40	4.50

$C = 44 \quad 62.2$

γ Persei
1, 24, 12

+35 10

R
240

216

373

$168 = 468?$ $\frac{468}{1217}$
2092
3542

201-~~1~~ 1345

B Move Min

74 517 439

R R R

150 432 459

120 408 441

118 477 492

30.6 59.3 2.3

757 1910 2015

1892 4775 5038

104

Jan 15/1881 C=

①
 19 55 18
 - 20 49

A.R. bolometers

Rij
 Illuminating area

✓ Corr

1 17 55
 + 19 36

	R	R
40 4 13 3	45 0 28 2	
11 1	25 7	
20 0	34 2	
29 7	44 6	
74 1	13 27	
18 52	33 18	

8 Persei

2.57 3

753 ~~5~~
154 35.0 R

34.2

42.3

51.7

1632

4080

B Wren Min LC

14 51 7

105-21

R R
50 (2) 54.9 (3) 55.1

54.7 50.8

58.7 53.8

10.2 6.4

2385 2259

59.62 56.48

Jan. 17, 1881

 δ Cassiope (B obs.)

1 17 58.5

+ 59 34

Reg' δ $C = 44$ 61.8

B Arietis B obs

1 47 58

+ 20 13

B B

5 3 4.1 4.7

7.0 6.6

17.0 16.9

2573 25.1

534 533

1335 1332

Jan. 18. 1881

C = 44 61.8

 δ Cassiope Bob.

1 17 55

+59 36

B B

45 0 16.2 16.3

11.3 12.0

21.9 22.5

31.6 32.1

810 829

2025 2072

 β Arietis Bob.

147 58

+20 13

B B

5 2 0.8 1.0

3.2 3.3

13.7 13.3

21.1 21.1

388 387

9.70 9.68

Jan. 20, 1881
 C. Ursae May C. B. obs.
 +2 48 42
 +12 3 23

B B
 0 3 54.4 54.3
 55.1 54.8
 57.4 57.4
 7.9 7.3
 2348 2338
 58.70 58.45

C = 44 61.8
 δ Cassiope ~~Lib.~~ B.M.
 1 17 55
 +59 36

B B
 45 0 10.7 11.5
 7.9 7.6
 18.4 18.1
 27.6 28.0
 646 652
 16.15 16.30

Jan. 20, 1881
 B Arietis B. obs.

1 47.58

+20 13

B B

5 3 1.2 1.7

4.3 3.8

14.0 14.1

22.7 22.8

422 424

10.55 10.60

C = 44 61.8

Jan. $\frac{22}{23}$, 1881

C = 44 61.9

20 24 55

-19 17

C = 44 61.9

Jan. 29, 1881

✓ Androm (Boh)

1 56 29

+41 45

B

351 38.8

37.0

46.0

54.5

1763

44.08

Jan Feb. 2, 1881 C=44 61.9

γ Androm. B. obs.

1 56 29

+41 45-

B

35-1 31.2

30.2

39.3

45.4

1461

36.52

Lost A_{+1} + A_1

Feb. 3, 1881

C = 44 61.9

~~Polaris H.C.~~~~B. obs.~~

B B B B B B

40 1 ~~10.0~~ 15.0 20.7 24.4 26.0 34.46.1 11.4 ~~16.7~~ 20.2 22.1 30.4

10.7 16.7 21.1 25.3 27.1 35.0

19.8 25.2 31.0 34.5 36.0 45.1

B B B B

40 2 ~~0.4~~ 2.0 4.0 5.4

56.2 57.8 0.2 1.7

0.3 2.3 4.8 5.8

11.2 12.6 14.1 15.2

See proper book.

Feb. 3, 1881 $C = 44 \ 61.9$

γ Androm. B obs.

1 56 29

+41 45

β

35 1 26.0

24.4

32.9

40.2

1235

3088

116

Feb. 4, 1881 $C = 44$ 61.9
 γ Androm. B obs

1 56 29

+ 41 45"

B

35 1 38.8

37.2

45.2

54.2

175 4

4385

Feb. 5, 1881

C = 44 61.9

Androm. Boh.

1 56 29

+41 45

B

35 1 37.8

32.8

41.3

50.5

1624

4060

Feb. 7. 1881

 γ Androm. B. bs.

1 56 29

+41 45

 β

35 1 31.1

31.3

41.0

50.1

1535

38.38

C=44 61.9

 α Arietis B oh,

2 0 21

+22 53

 β β

25 2 54.0 54.0

56.3 56.6

4.2 4.2

12.8 12.5

73 73

1.82 1.82

1680pine.proj.1408B