KG
11366
v.405

1963phae.proj..1408B

Fundamental Stars.

A_2 Circle Readings

From Feb. 11, 1881 to Apr. 11. 1881.

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A30

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1981ApJ...249..481B

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Feb. 10/11, 1881

⊙

C = 44 63.7

21 42 3

−13 48

	B	B	
3 5 1	96	5 4	24.8
	175		33.6
	38.6		53.4
	23.2		38.2
	889		1500
	2222	9	37.50

Both limbs in S + R.A

Seeing very good

C = 44 63.7

γ Cassiop.

0 49 25

+60 4

B	B	B
0 0 45.1	43.0	2 18.4
45.2	43.1	11.0
1.8	59.5	27.8
51.4	49.9	17.7
2035	1955	669
50.88	48.88	16.72

γ Androm.

1 56 29

+41 45

B	B	R	
15 4	24.4	0 46.8	46.0
	27.5	49.0	49.1
	44.2	53	53.2
	33.9	55.9	56.4
	1300	2170	2167
	32.50	54.25	54.18

α Arietis

2 0 21

+22 53

B	B	R	R	B
15 0	34.9	2 3.1	3.0	3.1	3.1
	39.5	8.8	8.7	8.8	9.0
	53.4	22.0	22.7	22.1	22.1
	45.9	14 2	13.6	13.8	13.8
	1737	481	480	478	480
	43.42	1202	1200	1195	1200

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Feb. 11, 1881 C = 44 63.7

δ Cassiop.

1 17 55

+59 36

		B	B	B
25	3	7.0	58.2	4 30.3
		6.8	58.2	30.9
		22.2	14.0	46.0
		14.0	7.3	87.1
		500	2557	1443
		1250	6392	36.08

β Arietis

1 47 58

+20 13

		B	B	R	R
50	1	13.0	232.1	32.4	31.9
		18.7	37.6	37.9	38.1
		34.1	53.3	53.7	53.1
		24.7	43.8	44.4	44.7
		905	1670	1684	1678
		2262	4175	4210	4195

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4

Feb. 12/13 1881

Ⓔ

21 49 54
−13 8

No ∫

2nd limpia RA

Feb 13 C = 44 63.7

2 Cas

U 4925
+60 4

	R	R
0	1 6.4	6.2
	7.0	66
	19.6	193
	11.0	11.1
	440	432
	11.00	10.80

α Arietis

20 21
+22 5 −3

	R	R
10	41.5	41.7
	46.8	46.7
	57.1	57.3
	49.9	49.0
	1956	1947
	48.90	48.68

α Persei

3 15 −41
R +49 26

	R
40	0 89
	5.2
	20.9
	13.7
	527
	13.18

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S Cor

1 17 55

+19 36

	R	R
25 s	40,9	40,9
	41,4	41,4
	53,0	54,0
	46,0	46,0
	1813	1823
	45,32	45,58

B Arietis

1 47 54

+20 13

	R	R
50 l	14,8	14,6
	20,8	20,7
	33,1	33,4
	23,8	24,3
	92,5	93,0
	23,12	23,25

Ch. f.

ε Eridani

3 27 14

−9 52

	R	R
5-5 l	54,8	54,8
	1,3	1,7
	17,6	17,8
	3,3	3,3
	17,0	17,6
	4,25	4,40

S Persei

3 34 18

+48 24

40 l	58,3	
	0,7	
	12,2	
	3,5-	
	14,7	
	3,68	

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6

Feb 13 1881 G.C. 44637

ε Eridani

3 37 27 −10.10

R	
10 42 72	
340	
507	
369	
1488	
37.20	

ε Lamii

4 28 59 +66 16

R	R
45 3 353	351
417	413
542	543
427	424
1739	1731
43.48	43.28

β Orionis

5 8 44 −8 21

R	R
20 4 824	330
392	397
539	537
396	396
1651	1660
41.28	41.50

γ Orionis

5 18 38 +6 14

R	R
45−4 596	596
82	88
184	188
66	68
328	340
8.20	8.50

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1881phae.proj.1409B

i Aurigae

449.7
+32 58

	R	R
5	1223	227
	256	261
	379	382
	296	298
	1154	1168
	2885	2920

B Eridani

5 1 57

5 5

	R	R
15	3440	444
	512	514
	36	34
	521	522
	2109	2214
	5272	5535

ζ Orionis

5 25 50
−024

	R
25	2431
	508
	27
	575
	2076
	5190

ε Orionis

5 34 47

	R	R
20	1 37	39
	110	101
	229	228
	11.0	11.0
	486	478
	1215	1195

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8

Feb 13 1881 C = 44 637

↓ Columbus

5-35-16

-34 8

	R	R
10 0	47.7	47.8
	56.7	56.9
	7.1	7.0
	54.7	54.6
	2262	2263
	56,55	56,58

↓ Orionis

5-42 1

-9 43

	R	R
45-1	46.8	46.9
	53.7	53.7
	8.2	8.6
	54.3	54.8
	2230	2240
	55,75	56,00

↓ Urs. Maj.

18 42 46

+49 55

	B	B	R	R	B
10 1	41.9	2 42.6	42.3	42.0	42.3
	41.9	42.5	42.4	42.7	42.3
	50.1	51.3	50.7	50.8	51.2
	44.0	44.8	44.1	44.6	44.3
	1779	212	195	201	201
	4448	45.30	44.88	45.02	45.02
		45.16	44.95		

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Feb. 13, 1881

χ Cassiop L.C

0 49 25

+119 56

		B	B	B
15	0	21.4	42.0	14.0
		22.5	43.0	15.3
		27.2	45.9	19.1
		18.9	37.4	10.5
		900	1683	588
	15	2250	4208	1470

C = 44 63.6

δ Cassiop L.C.

1 17 55

+120 24

		B	B	B
45	3	37.2	36.0	12.9
		37.3	35.5	12.6
		41.3	39.3	16.7
		32.7	31.0	8.7
		1485	1418	509
		37.12	3545	1272

η Bootis

13 48 55

+19 0

		B	B	R	R	B
5	0	39.9	58.3	58.8	58.7	58.8
		46.8	3.3	3.8	3.9	3.7
		54.0	13.8	13.4	13.3	13.5
		44.3	3.8	2.8	2.7	3.0
		183.0	192	188	186	190
		45.75	4.80	4.70	4.65	4.75
			4.77		4.67	

τ Virginis

13 55 29

+2 8

		B	B	R	R	B
55	3	35.9	35.46	54.6	54.3	54.8
		12.3	1.0	1.7	2.0	1.4
		20.4	9.8	9.9	10.1	9.6
		11.1	0.1	0.0	0.0	0.0
		49.7	45	62	64	58
		12.42	1.12	1.55	1.60	1.45
			1.39		1.57	

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Feb. 13, 1881

α Bootis

14 10 8

+19 49

	B	B	R	R	B
15 1	50.2	3 19.1	18.8	19.7	19.6
	55.0	24.6	24.3	24.8	23.9
	4.8	33.8	34.2	34.0	33.6
	54.0	22.9	23.2	23.0	22.6
	2240	204	205	215	197
	5600	25.10	25.12	25.37	24.92
		25.01	25.24		

C = 44 63.6

τ Bootis

14 27 12

+38 50

	B	B	R	R	B
15 0	46.3	9.4	9.3	9.8	9.4
	49.6	12.9	13.8	13.0	13.1
	59.0	21.8	22.0	21.5	21.7
	50.7	14.0	13.8	13.8	13.2
	2056	181	189	181	169
	5140	14.52	14.72	14.52	14.27
		14.37	14.62		

β Urs. Min.

14 51 7

+74 39

	B	B	B	B	R
25 3	27.0	38.8	4 5.0	27.9	26.0
	26.5	38.9	4.7	27.7	
	34.4	46.1	12.5	35.3	
	28.6	40.0	6.7	29.0	
	1165	1638	289	1194	
	29.12	40.95	7.22	29.85	

Lost A_{+1}

β Bootis

14 57 23

+40 52

	B	B	R	R
10 4	35.9	0 21.2	21.4	21.3	21.2
	38.4	23.3	23.3	23.9	24.0
	47.6	32.7	33.0	32.9	33.0
	39.1	24.3	24.9	24.2	24.5
	1610	235	226	223	227
	4025	25.87	25.65	25.27	25.67
		27.77	25.46		

Lost A_{+1}

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Feb. 13, 1881

ε Bootis

14 39 42

+27 85

	B	B	R	R
30 0	42.3	21.0	11.3	11.2
	45.0	14.1	15.3	15.3
	53.4	23.2	22.1	22.8
	45.0	14.1	14.0	14.0
	1857	624	627	633
	46.42	15.60	15.68	15.82

C = 44 63.6

α² Libræ

14 44 11

-15 32

	B	B	R	R	B
35 1	50.6	2 57.3	58.0	57.3	57.3
	59.7	6.1	6.7	6.4	6.1
	9.3	16.0	16.1	15.9	15.9
	56.6	2.5	3.0	3.3	3.0
	2362	219	238	229	223
	59.05	5.47	5.95	5.72	5.57
		5.52	5.83		

Lost 1st wire

β Libræ

15 10 30

-8 56

	B	B	R	R	B
0 0	40.0	2 0.2	0.2	0.8	0.0
	45.4	6.0	5.9	5.9	5.8
	58.4	18.2	18.1	18.1	18.8
	45.0	4.8	4.9	4.9	4.3
	1693	292	291	297	292
	47.32	7.30	7.27	7.42	7.30
		7.30	7.34		

χ² Ursæ Majr.

15 20 56

+72 16

	B	B	B
50	1318	1 50.7	2 24.2
	30.3	49.3	22.9
	38.3	57.3	30.9
	32.7	51.0	24.8
	131	83	1028
	33.27	52.07	25.70

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Feb. 13, 1881

α Cor. Borial,

15 29 39

+27 7

	B	B	R	R	B
5 5	43.0	36.2	36.8	36.3	36.2
	47.1	41.3	41.8	41.4	40.9
	54.5	48.1	48.0	48.6	48.1
	46.3	39.2	39.7	39.5	40.0

Chf.

C = 44 63.6

α Serpentis

15 38 18

+6 48

	B	B	R	R	B
15 1	48.5	13.8	14.1	14.3	14.0
	53.3	20.6	21.3	21.1	20.7
	48.	29.8	29.9	29.8	29.8
	52.0	17.9	17.6	18.0	18.0
	22.06	21	29	32	25
	55.15	20.52	20.72	20.80	20.62
		20.57	20.76		

δ Ophiuchi

16 80

−3 23

	B	B	R	R	B
20 2	31.0	51.1	51.2	51.1	51.0
	38.0	57.3	58.3	58.2	57.9
	49.3	[illegible]	7.3	7.9	7.2
	35.0	54.8	55.2	56.9	54.5
	1513	309	320	331	306
	37.82	57.72	58.00	58.27	57.65
		57.69	58.13		

α Scorpii

16 21 59

−26 10

	B
10 2	36.9
	46.2
	54.8
	41.9
	1794
	44.95

Last A−1

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Feb. 13, 1881

δ Scorpii

15 53 11

-22 16

		B	B	R	R
20	0	59.9	1 38.4	38.0	38.1
		9 3	46.0	46.3	46.1
		18.9	56.8	56.2	56.4
		3.8	43.0	43.0	42.7
		2.89	24.2	23.5	23.3
		7.22	46.05	45.87	45.82
			46.05	45.85	

C = 44 43.4

B' Scorpii

15 58 24

-19 28

		B	B	R	R	B
30	1	59.9	3 22.1	22.1	22.1	21.9
		7.7	30.3	31.0	31.0	30.6
		18.1	39.8	40.5	40.2	41.0
		4.0	26.2	26.4	26.6	26.8

Chf.

Lost A+1

η Draconis

16 22 22

61 47

		B	B
15	4	57.5	0 19.1
		55.4	17.6
		37	25.8
		56.8	18.5
		2334	810
		58.35	20.25

β Herculis

16 25 1

+21 45

		B	B	R	R
20	0	43.0	1 48.6	49.1	49.0
		46.9	53.3	53.8	54.0
		52.8	59.2	59.0	59.1
		45.6	52.0	52.0	51.7
		1883	2131	2139	2138
		47.08	53.28	53.48	53.45

Acc

8

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Feb. 13, 1881

3 Ophiuchi

16 30 30

−10 19

		B	B	R	R	B
20	3	21.1	4 50.7	50.8	50.9	50.3
		25.9	55.8	55.0	55.8	55.9
		38.8	8.5	8.3	8.9	8.7
		23.8	54.2	54.4	54.8	54.1
		1096	2292	2285	2304	2385
		27.40	57.30	57.12	57.60	59.62

C = 44 63.6

η Herculis

16 38 45

+39 9

		B	B	R	R	B
55	1	28.12	54.9	54.6	54.8	54.2
		29.7	56.4	57.1	57.3	56.1
		38.0	4.8	4.7	4.9	4.9
		29.2	56.3	56.8	56.6	56.0
		1250	2324	2332	2336	2312
		31.25	58.10	58.30	58.40	57.80

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B
542
561
49
560
312
2.80

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Feb. 13/14, 1881

⊙

C = 44 63.6
21 53 48
−12 47

B	B
35 04 28	53 51.2
49.2	58.2
1.3	9.6
47.1	55.7
2004	2347
50.10	58.68

Both limbs in δ + R.A.
Lost 1st w. 2nd limb

C = 44 59.2

δ Cassiop.
1 17 55
+59 36

B	B	B	B
26 3	18.1	14.9	35 3 55.3
	12.1	13.7	34.1 54.4
	19.9	22.3	41.4 1.5
	12.6	14.0	34.9 54.7
	57.7	649	1459 2259
	14.42	16.22	36.48 56.48

B Ursae Min. L.C.
2 ~~55 54~~
51 07
10522

R	R
45 14 2	208
5.4	212
8.7	249
4.7	197
230	866
5.75	21.65

2 Ceti
2 ~~56 9~~
+3 37

(Ex) R
20 2 34.8
42.9
500
410
1687
42.18

Ayec.

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Feb. 14, 1881 C = 44 59.2

β Arietis

1 47 58

+20 13

		B	B	R	R	R
50	1	19.6	30.7	30.7	30.4	30.4
		23.7	35.0	35.2	35.3	34.8
		32.5	43.4	43.2	43.5	43.1
		24.1	35.0	35.6	35.7	35.2
		999	1441	1447	1449	1435
		24.98	36.02	36.18	36.22	35.88

χ Androm.

1 56 29

+41 45

		B	B	R	R B
45	4	32.5	0 55.2	55.1	
		33.9	56.8	56.6	
		44.1	5.9	6.1	
		35.8	58.5	59.1	
		1463	2264	2359	
		36.58	56.60	58.98	

η Draconis L.C.

16 22 22

+118 13

		B	B	B
55	2	24.7	1 52.2	0 57.0
		25.3	54.1	57.9
		26.8	54.8	59.2
		19.3	47.4	52.2
		961	2085	2263
		24.02	52.12	56.58

α Tauri

4 28 59

+16 16

		B	B	R	R B
45	3	36.9	45 0	56.3	56.4 56.0
		42.1	0.5	1.3	1.1 0.9
		51.9	10.2	10.1	9.9 10.2
		39.9	58.7	59.4	59.0 58.5
		1708	54	71	64 56
		42.70	1.35	1.77	1.60 1.40
			1.38	1.68	

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Feb. 14, 1881

β Eridani

5 1 54

−5 15

	B	B	R	R	B
15 3	36.0	59.4	59.9	0.4	59.4
	42.0	56	6.1	6.1	5.4
	51.5	15.1	15.3	15.2	15.1
	39.6	3.4	3.3	3.3	3.0
	1691	235	246	250	96
	4252	587	6.15	6.25	2.40

C = 44 59?

α Aurigæ

5 7 46

+45 52

	B
10 3	6.4
	8.0
	15.2
	7.4
	375
	9.38

δ Orionis

5 25 50

−0 24

	B	B
25 2	47.8	3 36.6
	55.0	43.3
	3.9	53.0
	52.9	41.2
	2196	1741
	54.90	43.52

α Leporis

5 27 24

−17 55

	B	B
55 3	14.6	4 24.9
	23.3	33.3
	32.5	42.3
	18.8	29.2
	892	1297
	22.30	32.42

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1881phae.proj.1409B

Feb. 14, 1881

β Orionis

5 8 44

-8 21

	B	B	R	R	B
25 0	11.9	1 10.2	10.2	10.1	10.0
	17.0	15.8	15.9	15.3	16.1
	24.0	27.0	27.2	27.3	27.1
	14.7	13.1	13.2	13.3	12.8
	72.6	66.5	66.5	66.0	66.0
	18.15	16.62	16.62	16.50	16.50

C = 44 59.2

γ Orionis

5 18 38

+6 14

	B	B	R	R	B
50 0	14.5	1 30.0	30.1	30.0	30.4
	20.1	36.5	37.2	37.3	36.5
	28.8	44.5	44.6	45.1	44.8
	17.6	34.2	34.2	34.0	34.5
	81.0	145.2	146.1	146.4	146.2
	20.25	36.30	36.52	36.60	36.55

A2 C

ε Orionis

5 30 4 -1 17

	B
20 1	27.9
	34.0
	43.0
	31.9
	146.8
	36.70

α Columbæ

5 35 16

-34 8

	B	B	R	R	B
5 4	34.7	100 50.5	51.3	52.0	50.9
	43.2	59.3	59.2	59.9	59.0
	50.0	6.0	6.1	6.7	6.5
	38.2	55.0	55.1	55.1	54.6
	166.1	230.8	231.7	233.7	231.0
	41.52	57.70	57.92	58.42	57.75

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1881phae.proj.1409B

20

Feb 14 1881

K Orionis

5 42 1

−9 43

	B	B	R	R	B
45 1	49.0	3 10.8	11.3	11.3	11.0
	54.1	17.0	16.8	17.0	16.9
	6.2	28.6	29.1	28.3	29.0
	53.0	15.1	15.0	15.0	15.7
	2223	715	722	716	721
	55.58	17.85	18.05	17.90	18.02

C = 44 59.2

α' Herculis

17 9 18

+14 32

30 4	35.7				
	40.3				
	49.3				
	38.0				
	1633				
	40.82				

α Lyra

18 32 50

+38 40

	B	B	R	R	B
20 4	57.0	1 16.1	16.5	16.4	16.0
	58.7	17.8	18.1	18.9	18.0
	6.8	25.9	25.7	25.2	25.8
	58.9	17.8	17.3	17.0	17.3
	2414	376	376	375	371
	6035	19.40	19.40	19.39	19.28
		19.34		19.39	

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1881phae.proj.1409B

Feb. 14, 1881

C = 44 59.2

β Draconis

17 27.42

+52 23

α Ophiuchi

17 29 19

+12 39

R

45 2

45 2

52 8

44,8

1880

47.00

R

25 2 20 4 15,7

24,9 25,1

34,0 34,9

22,7 22,3

1020 1020

25.50 25.50

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Feb. 14/15, 1881

⊙

C = 44 59.2

21 57 41

-12 26 50

	B	B
15 0	46.4	45 3 37.3
	51.5	42.3
	4.4	55.3
	50.8	40.8
	213'1	1757
	53.28	43.92

Seeing pretty bad.
Both limbs in δ & R.A.
Last 1st & 3 wires 2nd limb

~~Last~~

α Tauri

4 28 59

+16 16

	B	B	R	R	B
45 3	33.0	4 53.6	53.6	53.8	53.9
	36.9	58.1	58.4	58.4	58.2
	48.4	9.8	3 9.7	8.9	9.5
	37.2	57.8	57.6	57.8	58.0
	155'5	388	393	389	396
	38.88	59.70	59.82	59.72	59.90
		59.80		59.77	

C = 44 59.2

χ Cassiop

0 49.25

+60 4

	B	B	B
0 0	52.0	44.0	2 24.3
	49.0	42.1	21.8
	57.9	50.5	30.5
	50.9	43.7	23.4
	2098	1803	1000
	52.45	45.08	25.00

ι Aurigæ

4 49 07

+32 58

	B	B	B
5 1	27.5	2 46.1	46.3
	30.4	49.0	48.8
	40.9	59.3	59.1
	32.0	50.1	49.6
	1308	2045	2038
	32.70	51.12	50.95

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1881phae.proj.1409B

Feb. 15, 1881 C = 44 59.2

δ Cassiop
1 17 55
+59 36

	B	B
25 3	15.3	53.2
	13.0	51.4
	21.1	59.2
	14.9	52.4
	643	2162
	16.08	54.05

η Draconis L.C.
16 22 22
+118 13

	B	B	B
55 2	35.4	1.51.4	2.3
	39.0	54.9	5.0
	41.7	56.9	8.2
	32.2	49.0	58.8
	1483	2122	143
	37.08	53.05	3.58

β Eridani
5 1 54
-5 15

	B	B	R	R	B
45 3	42.9	0 5.9	5.1	6.0	5.9
	48.2	10 9	11.0	11.0	11.0
	59.3	21 8	21.5	21.3	22.0
	47.5	11 0	10.9	10.7	11.1
	1979	496	485	490	500
	49.48	12.40	12.12	12.25	1250

α Aurigæ
5 7 46
+45 52

	B
10 2	39.1
	42.1
	49.9
	41.4
	1725
	13.12

Lost 4-1

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1881phae.proj:1409B

Feb. 15, 1881

β Orionis

5h 8.44

−8 21

	B	B	R	R	B
20 4	53.3	0 5 3.2	53.5	52.8	53.2
	58.8	58.7	58.9	58.8	58.8
	11.6	11.1	11.8	12.1	11.0
	57.9	57.5	57.5	57.2	~~57.4~~ 57.8
	24 16	05	17	09	08
24	60.40	26 0.12	0.42	0.22	0.20
		0.16	0.32		

C = 44 59.2

χ Orionis

5h 18 38

+6 14

	B		R	R
50	0 1.3	1 28.1	27.8	28.4
	7.5	35.1	35.8	36.0
	16.8	44.0	44.0	43.7
	6.2	31.9	33.2	33.8
	318	191	208	219
50	7.95	51 34.77	35.20	35.47
		34.77	35.34	

ε Orionis

5h 30 4

−1 17

	B	B	R	R	B
20 1	8.7	2 25.1	25.2	25.0	24.8
	14.7	31.8	32.0	31.3	31.6
	25.8	42.3	42.4	42.5	42.2
	13.2	31.0	30.1	30.1	30.0
	624	1302	1299	1289	1286
21	1560	22 32.55	32.48	32.72	32.15

α Columbæ

5h 35 16

−34 8

	B	B	R	R	B
54	43.6	0 53.4	53.7	53.8	53.3
	52.1	1.8	2.5	2.2	2.0
	1.0	10.3	10.5	10.7	10.5
	48.8	58.3	58.7	59.1	58.8
	2055	38	54	58	46
54	51.38	10.0.95	1.35	1.45	1.15

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Feb. 15, 1881

δ Orionis

5 25 50

−0 24

	B
25 2	36.1
	42.4
	53.6
	42.8
	17 49
27	43.72

C = 44 59.2

α Leporis

5 27 24

−17 55

B	B
55 3	27.4 4 25.2
	37.0 35.3
	47.1 44.9
	33.5 31.8
	14 50 13 7 2
58	36.25 59 34.30

κ Orionis

5 42 1

−9 43

B	B	R	R	B
45 1	55.3	7.9	8.0	7.9	8.0
	0.9	13.5	14.0	14.0	13.5
	14.5	27.3	27.1	27.5	27.2
	1.0	13.1	12.8	13.8	13.1
	21.7	21.8	21.9	22.7	21.8
47	54.2	15.45	15.47	15.67	15.45
		15.45	15.57		

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1881phae.proj.1409B

Feb. 16, 1881

χ Cassiop

0 49 25

+60 4

	B	B	B
0 1	0.4	1 46.8	2 26.3
	58.0	44.8	24.6
	7.3	53.6	33.5
	0.0	46.0	26.2
	59	491.2	1106
	1 1.48	47.30	2 27.65

C = 44 59.2

δ Cassiop

1 17 55

+59 36

	B	B	B
25	3 21.3	4 4/	4 0.4 36.0
	19.3	58.4	58.4 34.4
	28.5		7.3 42.5
	21.2		0.0 36.0
	903		61 1489
	28 22.58		29 1.52 37.22

δ Cassiop L.C.

13 17 55

+120 24

	B	B
45	3 33.0	6.0
	34.1	7.1
	37.0	10.4
	28.7	0.7
	1328	242
	48 33.20	6.05

α Virginis

13 18 49

−10 32

	B	B	R
35	1 41.2	3 3.9	3.9
	47.0	9.9	10.1
	08	23.8	23.8
	47.3	9.6	10.0
	196.3	382	478
	36 49.08	~~9.55~~	
		38 12.05	11.95

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1881phae.proj.1409B

Feb. 16, 1881

x Cassiop L.C.

~~0~~ 49 25

+119 56

	B	B	B	B
15 0	56.8	17.1	437.1	9.9
	57.1	17.8	38.3	11.1
	0.1	21.3	41.3	13.7
	52.6	12.9	33.3	6.0
	2266	691	1500	407
15	56.65	17.28	14 37.50	10.18

ζ = 44 59.2

ε Virginis

12 56 9

+11 37

	B	B	R	R	B
25 4	40	0 20.2	20.1	20.0	20.2
	5.3	24.8	25.8	25.0	25.0
	16.2	35.8	35.2	35.2	35.4
	15.8	24.9	25.0	25.3	25.2
	373	257	261	~~255~~	~~258~~
29	9.32	30 26.42	26.52	~~26.57~~ 26.37	~~8.95~~ 26.45
		26.43	26.44		

η Urs. Maj

13 42 46

+49 55

	B	B	R	R	B
10 1	21.7	24.4	45.3	45.4	45.0
	21.4	45.7	45.4	45.3	44.6
	30.2	53.3	53.1	52.8	53.5
	23.3	46.5	46.8	46.6	46.6
	966	296	306	301	297
11	24.15	47.40	47.65	47.52	47.42
		12 47.41	47.58		

η Bootis

13 48 55

+19 0

	B	B	R	R	B
5 0	34.0	1 46.9	47.4	47.0	47.3
	39.1	52.2	52.1	52.8	52.7
	48.7	1.9	1.4	1.9	1.8
	37.9	51.5	51.7	52.0	51.2
	1597	125	129	137	130
5	39.92	~~55.62~~			
		6 53.12	53.22	53.42	53.22
		53.17	53.32		

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Feb. 16, 1881

T Virginis

13 55 29

+2 8

	B	B	R	R	B
55 2	15.0	3 36.4	37.0	36.4	36.5
	21.6	43.1	43.3	43.4	43.3
	29.8	51.0	51.5	51.4	51.3
	20.1	41.4	41.8	42.0	41.5
	86.5	119	136	132	126
57	21.62	58 42.97	43.40	43.30	43.16
		43.06	43.35		

C = 44 59.2

α Bootis

14 10 8

+19 49

	B	B	R	R	B
15 1	54.0	20.5	21.0	21.1	21.0
	59.0	25.8	26.0	25.7	26.0
	8.0	35.1	35.8	35.0	35.0
	57.1	24.8	24.4	24.9	24.7
	238.4	262	272	267	267
16	59.60	17 26.55	26.80	26.67	26.67
		26.61	26.73		

α² Librae

14 44 11

−15 32

	B	B	R	R	B
35 1	31.0	2 46.9	47.6	47.3	46.8
	39.4	55.9	55.8	56.0	55.3
	49.4	5.2	5.0	5.3	5.1
	37.5	53.0	52.9	52.6	53.0
	157.5	210	213	202	207
36	39.38	37 55.25	55.32	55.05	55.17
		55.21	55.18		

β Urs. Min.

14 51 7

+74 39

	B	B	B	B	B
25 2	58.9	3 22.0	39.3	4 2.8	4.9
	58.3	21.5	39.0	2.7	4.3
	5.2	28.6	46.1	10.3	11.8
	0.1	23.9	41.8	4.3	8.0
	25	160	62	201	761
28	0.62	24.01	41.55	29 5.02	19.02

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Feb. 16, 1881

x Bootis

14 27 12

+38 50

	B	B	R	R	B
15 0	46.8	24.0	9.1	9.2	9.1
	49.8	12.0	12.0	12.3	11.8
	58.2	20.9	20.8	20.1	20.8
	50.8	13.5	13.0	13.0	12.9
	20 56	154	149	146	146
15	51 40	17 13.85	13.72	13.65	13.65
		13.75	13.69		

C = 44 59.2

ε Bootis

14 39 42

+27 35

	B	B	R	R	B
30 0	37.3	2 30	3.5	2.9	3.0
	39.8	5.2	6.3	6.1	6.3
	47.3	14.0	14.0	13.8	13.9
	41.1	6.3	5.9	5.8	5.8
	16 55	285	297	286	286
30	4 38	32 7.12	7.42	7.15	7.15

β Bootis

14 57 23

+40 52

	B	B	R	R	B
10 4	1.2	0 21.2	20.8	21.8	21.3
	4.0	22.3	23.3	23.11	22.9
	13.1	32.4	32.8	32.4	32.4
	4.4	24.6	24.7	24.8	24.4
	22 7	205	216	221	210
14	5.68	15 25.12	25.40	25.52	25.22
		25.17	25.46		

β Libra

15 10 30

−8 56

	B	B	R	R	B
0 0	39.9	1 58.0	58.1	58.2	58.2
	44.5	2.6	3.6	3.5	2.9
	58.11	16.8	15.9	15.9	15.8
	44.6	3.2	3.2	3.8	3.0
	187	198	208	214	199
0	46 7.8	4.95	5.20	5.35	4.98
		4.97	5.27		

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Feb. 16, 1881

χ^2 Urs. Maj

15 20 56

+72 16

	B	B	B
50	1 5.8	1 82.0	7.3
	4.5	80.8	6.2
	11.8	88.2	6.3
	7.2	82.7	13.7
	293	1337	335
51	7.32	33.42	52 8.38

C − 44 59.2

α Cor. Bor.

15 29 39

+27 7

	B	B	R	R	B
55	3 57.3	4 3 54	39.9	39.8	39.8
	30	43.7	44.3	44.0	44.0
	11.0	51.1	51.4	51.3	51.2
	2.6	42.3	43.1	43.0	42.6
	159	165	187	181	176
59	3.98	44.12	44.67	44.52	44.40
		44.26	44.59		

Sol 1 ST 20

β Scorpii

15 58 24

−19 28

	B	B	R	R	B
30	2 5.1	3 19.0	19.3	18.6	19.0
	13.4	27.3	27.3	27.4	27.6
	23.9	37.5	37.6	37.6	37.5
	10.8	24.2	24.3	24.2	24.5
	532	280	285	278	286
32	1330	33 27.00	27.12	26.95	27.15
		27.07	27.04		

δ Ophiuchi

16 8 0

−3 23

	B	B	R	R	B
25	2 42.9	3 50.0	50.3	50.0	49.9
	49.8	57.0	57.0	57.5	57.2
	5.8	6.2	6.5	6.6	6.4
	46.3	54.0	54.5	54.3	54.0
	1988	272	283	284	275
27	49.70	28 56.80	57.07	57.10	56.88
		56.84	57.08		

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1881phae.proj.1409B

Feb. 16, 1881

α Serpentis

15 38 18

+6 48

	B	B	R	R	B
15 2	21.3	3 18.5	18.6	19.0	18.9
	27.9	25.4	26.6	25.3	25.3
	33.8	34.7	34.9	34.6	34.2
	25.2	22.5	23.0	23.7	22.8
	122	211	231	226	212
40 17	28.05 18	25.27	25.77	25.65	25.30
		25.29	25.71		

A_3 + foll.

δ Scorpii

C = 44 59.2

15 53 11

−22 16

	B	B	R	R
20 0	10.3	21.0	21.5	21.4
	11.0	28.8	29.0	29.1
	28.9	39.4	39.1	39.2
	15.6	26.3	26.7	26.8
	728	1155	1163	1165
	20 18.20	21 28.88	29.08	29.12

Perhaps extra & none for 1st

α Scorpii

16 21 59

−26 10

	B
99 10 2	29.3
7.2	37.4
4	47.2
10	35.0
75	1489
6.88 12	37.22

Lost A_{-1}

η Draconis

16 22 22

+61 47

	B	B
20 0	14.9	30.0
	13.0	28.8
	21.1	36.4
	14.9	29.6
	639	1248
20	15.98	31.20

A & C

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1881phae.proj.1409B

Feb. 16 1884 C = 44 59.2

β Herculis

16 25 1

+21 45

		B	B	R	R	B
20	0	52.9	1 48.1	48.7	48.1	48.0
		57.3	52.7	53.4	52.9	52.5
		2.7	57.7	57.9	58.1	58.1
		56.7	52.2	51.8	51.8	51
		22.96	21.07	21.13	21.09	20.96
	20	57.40	21 52.64	52.82	52.72	52.410

ζ Ophiuchi

16 30 30

−10 19

		B	B	R	R	B
20	3	28.2	4 52.4	52.4	52.3	52.3
		33.0	57.9	57.9	58.0	58.0
		45.7	10.0	10.1	10.2	10.1
		31.9	56.5	57.0	56.6	56.3
		13.88	23.71	23.74	23.71	23.67
	23	34.70	24 59.28	59.35	59.28	59.18

J.

Lost A +1

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1881phae.proj.1409B

Feb. 16, 1881

η Herculis

16 38 45

+39 9

			B	B	R	R	B
3	55	2	7.5	56.5	56.1	56.1	56.0
			10.3	58.6	59.2	58.8	59.3
			18.0	17.0	6.3	6.8	6.2
3			10.2	58.8	59.4	59.1	58.5
.7			4.60	09	10	09	4.10
		57	1.50	58 0.22	0.25	0.20	0.25

C = 44 59.2

η Ophiuchi

17 3 27

−15 34

			B	B	R	R	B
	35	3	13.1	4 37.9	38.1	37.6	37.8
			22.0	46.9	46.8	47.0	46.9
			31.5	55.8	55.3	55.8	55.3
			18.0	42.5	42.1	42.3	42.3
			4.46	23.1	22.3	22.7	22.3
	38	21.5	39	45.77	45.57	45.67	45.57
				45.67	45.62		

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1881phae.proj.1409B

Feb. 16/17, 1881 C – 44 59.2

⊙

~~C = 44 59.2~~

22 5 25
−11 45

B B

2d 3 81	5 1	12.2	
132		17.3	
270		80.3	
119		16.0	
602		758	
33	15.05	36	18.95

χ Cassiop

0 49 25
+60 4

B B B

0	1 6.9	48.3	2	30.1
	4.0	46.2		27.6
	13.8	55.3		36.6
	7.2	48.6		30.0
	319	1984		1243
1	7.98	49.60	2	31.08

Both limbs in δ + R.A
Seeing very good.

χ Androm.

1 56 29
+41 45

B B

15 4	27.40	46.0	
	28.9	47.5	
	39.2	57.2	
	30.7	48.8	
	1262	1995	
19	31.55	20	49.84

B Persei Min

2 57 7
+40 52

R P

45	1 3.1	27.0	
	3.8	27.0	
	4.4	31.2	
	4.3	27.1	
	186	1123	
46	4.65	28.08	

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1881phae.proj.1409B

Feb. 17, 1881 C = 44 59.2

δ Cassiop

1 17 55 δ

+59 36

B B B B

25	3	15.3	44.9	4	28.2	4	59.5	50	1 9.9	2 33.9	33.5	33.1	33.0
		13.8	43.4		27.1		57.7		14.0	38.0	38.0	38.0	38.2
		23.0	51.8		36.4		5[illegible]		22.9	46.5	46.8	46.8	46.7
		15.9	44.5		28.8		58.2		14.5	39.0	38.6	39.2	38.2
		68 0	1846		1205		17		613	1574	1569	1571	1561
	28	17.00	46.15	29	30.12	30	0.28	31	15.32/52	39.35	39.22	39.28	39.02

β Arietis

2 53 1 47 5[illegible]

+20 18

B B R R B

25	3	15.3	44.9	4	28.2	4	59.5	50	1 9.9	2 33.9	33.5	33.1	33.0
		13.8	43.4		27.1		57.7		14.0	38.0	38.0	38.0	38.2
		23.0	51.8		36.4		5[illegible]		22.9	46.5	46.8	46.8	46.7
		15.9	44.5		28.8		58.2		14.5	39.0	38.6	39.2	38.2
		68 0	1846		1205		17		613	1574	1569	1571	1561
	28	17.00	46.15	29	30.12	30	0.28	31	15.32/52	39.35	39.22	39.28	39.02

Cet

2 57 57

+3 37

R R

25	1	40	4.6
		130	131
		215	211
		127	128
		512	516
	26	1280	1290

α Persei

3 15 41 26

45

R R

35	3	59.0	58.9
		59.0	59.0
		7.9	7.9
		1.3	0.7
		72	65
	39	180	162

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Feb. 17 1881 C = 44 59.2

3 20 56
ν_2 Ursae Majoris 10 44

η Draconis L.C.
16 22 22
+118 13

	R	R	B	B	B
N	3 37.8	2 32.1	55 2 19.5	1 25.3	1.9
	39.2	33.1	21.8	27.0	3.1
	43.7	37.7	24.0	29.1	4.6
	37.9	31.9	15.5	21.1	57.6
	15.86	13.48	8.08	10.25	72
	23 39.65	22 33.70	57 20.20	56 25.62	1.80

β Eridani
5 1 54
−5 15

	B	B	R	R	B
15	3 33.7	0 2.4	2.3	2.2	2.3
	40.3	9.3	7.6	7.8	7.4
	50.4	18.0	17.4	17.9	17.9
	38.8	17.3	7.3	7.0	6.7
	16.32	8.50	3.46	3.49	3.43
18	40.80	20 8.75	8.65	8.72	8.58

α Aurigae
5 7 46
+45 52

	B	B	R	R	B
10	2 39.1	3 49.5	49.2	49.2	49.4
	41.5	52.9	52.8	52.7	52.2
	48.9	59.1	59.1	58.8	59.3
	40.6	51.1	52.0	51.7	51.0
	17.01	12.6	13.1	12.4	11.9
12	42.52	53.15	53.27	53.10	52.98
		53.06	53.18		

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1881phae.proj.1409B

Feb. 17. 1881 C = 44 59.2

α Tauri
4 29 5.9
+16 16
B B R R B
45 3 32.9 4 51.6 51.8 51.7 52.0
37.9 56.9 57.2 57.2 56.8
48.1 7.4 7.2 7.7 7.0
36.9 5 5.8 55.4 55.7 55.3
1558 317 316 323 311
48 38.95 57.92 57.90 58.07 57.77
57.85 57.98

ι Aurigæ
4 49 7
+32 58
B B R R B
5 1 40.3 2 47.0 47.0 46.8 46.7
44.2 50.0 50.4 50.1 50.1
53.1 59.3 59.2 59.7 59.2
45.0 51.0 51.0 50.7 50.8
1826 73 76 73 68
6 45.65 7 51.82 51.90 51.82 51.70
51.76 51.86

γ Orionis
5 18 38
+6 14
B B R R B
50 0 3.5 1 23.3 23.6 23.3 23.6
9.7 30.1 31.0 31.2 30.5
18.5 38.8 39.1 39.0 39.0
7.3 28.0 29.5 28.9 28.5
390 1202 1232 1224 1216
50 9.75 51 30.05 30.80 30.60 30.40

δ Orionis
5 25 50
-0 24
B B
25 2 33.0 3 38.8
39.1 5.7
49.8 16.1
38.3 4.1
1602 247
27 40.05 28 6.18

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38

Feb. 17 1881

C = 44 59.2

α Leporis

5h 27 24

-17 55

B

55 4 19.0
28.8
38.1
24.1
1100

59 2.750

ε Orionis

5 30 4

-1 17

	B	B	R	R	B
20 1	2.8	2 28.4	28.3	28.6	28.5
	8.8	35.1	35.2	35.3	35.3
	19.8	45.0	45.2	45.3	45.8
	7.9	33.8	32.7	33.2	33.6
	393	1426	1414	1424	1432
21	9.82	22 35.65	35.35	35.60	35.80

Rej all wires preceedg A3

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1881phae.proj.1409B

Feb. 17, 1881 C=44 59.2

α Columbæ

5 35 16

-34 8

	B	B	R	R	B
5 4	42.8	0 57.2	57.5	57.7	57.0
	51.6	6.0	6.3	5.9	5.8
	59.9	13.7	14.0	14.2	13.9
	47.7	1.8	2.5	2.7	2.0
	2020	187	203	205	187
9	50.50	10 4.68	5.08	5.12	4.68

K Orionis

5 42 1

	B	B	R	R	B
45	48.1	3 13.1	13.4	13.2	13.3
	54.0	19.3	20.1	19.9	19.2
	7.1	32.1	32.0	31.9	32.0
	53.7	18.9	18.9	19.3	18.3
	2229	834	844	843	828
46	55.72	48 20.85	21.10	21.08	20.70

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Feb. 19, 1881

κ Cassiop B obs.

0 49 25

+60 4

	B	B
0 2	20.0	20.4
	18.6	18.8
	28.4	28.4
	20.4	20.8
	87.4	88.4
2	21.85	22.10

C = 44 59.2

δ Cassiop B. obs.

1 17 55

+59 36

	B	B
25 4	33.0	33.1
	32.2	32.0
	41.2	41.8
	34.0	33.6
	140.4	140.5
29	35.10	35.12

η Draconis L.C.

16 22 22

+118 13

	B	B	B
55 2	7.5	1 14.7	0 44.0
	+	16.8	46.2
	11.6	18.7	48.3
	4.8	10.8	41.2
		61.0	179.7
	56	15.25	55 44.92

α Tauri

4 28 59

+16 16

	B	B	R	R	B
45 3	25.9	4 50.0	50.3	50.2	49.9
	30.9	55.0	55.1	55.5	55.0
	41.3	5.5	5.2	5.8	5.3
	31.4	54.5	55.1	55.3	54.8
	129.5	250	257	268	250
48	32.38	49	56.25	56.42	56.70	56.25
			56.25	56.56		

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Feb. 19. 1881

β Arietis B obs.

1 47 58

+20 13

	B	B
50 2	41.2	41.0
	45.5	45.4
	55.3	55.2
	47.0	47.0
	1890	1886
52	47.25	47.15

C = 44 59.2

γ Eridani

3 52 23

−13 37

50	4	46.6			
		54.2			
		54			
		52.9			
		216.1			
54		54.78			

i Aurigæ

4 49 7

+32 58

	B	B	R	R	B
5 1	26.3	2 45.0	45.0	44.9	45.1
	28.7	47.9	47.7	48.0	47.8
	38.8	57.2	57.1	57.7	57.4
	31.4	49.1	49.9	50.2	50.0
	125.2	39.2	39.7	40.8	40.3
6	31.30	7 49.80	49.92	50.20	50.07
		49.93	50.06		

β Eridani

5 1 54

−5 15

	B	B	R	R	B
15 3	42.3	04.1	4.8	4.9	4.5
	48.2	9.0	9.8	9.6	9.2
	58.9	20.2	20.1	19.9	20.2
	48.0	9.8	10.6	10.4	9.4
	1974	431	453	48	433
18	49.35	20 10.77	11.32	11.20	10.82

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Feb. 19, 1881

C = 44 59.2

α Aurigæ

5 7 46

+45 5 2

B

10 2 50.4

53.4

0.2

53.9

2181

12 54.52

β Orionis

5 8 44

−8 21

	B	B	R	R	B
20 4	58.8	11.1	10.4	10.4	10.9
	4.5	16.9	16.4	16.3	16.3
	17.5	29.0	29.3	29.3	28.6
	2.0	15.9	16.5	17.2	16.0
	231	729	726	732	718
25	5.78	26 18.22	18.15	18.30	17.95

Lost A-1

α Leporis

5 27 24

−17 55

55 3 10.4

20.0

29.3

18.5

782

58 19.55

ε Orionis

5 30 4

−1 17

	B	B	R	R	B
20 1	3.3	2 29.9	30.3	30.4	30.1
	9.2	36.7	34.6	36.5	36.0
	19.5	47.3	47.2	47.2	47.0
	9.6	37.0	36.1	36.8	37.2
	416	1509	1502	1509	1503
21	10.40	22 37.72	37.55	37.72	37.58

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Feb. 19, 1881

γ Orionis

5 18 38

+6 14

		B	B	R	R	B
50	0	5.6	1 30.8	30.3	30.7	30.9
		11.4	37.1	38.0	37.9	37.3
		20.3	45.7	46.2	45.9	45.8
		10.2	37.5	37.3	37.2	37.0
		47.5	31.1	31.8	31.7	31.0
	50	11.88	51 37.77	37.95	37.92	37.75
			37.76	37.93		

C = 44 59.2

δ Orionis

5 25 3.0

−0 24

		B	B	
25	2	36.3	2 29.5	
		43.2	37.7	
		53.2	47.3	
		44.0	37.0	
		176.7		
	27	44.18		

α Columbæ

5 35 16

−34 8

		B	B	R	R	B
10	0	26.2	57.0	57.8	57.0	56.8
		34.7	5.7	6.3	5.9	5.8
		42.4	14.1	14.7	13.9	13.9
		33.1	3.5	4.4	3.8	4.0
		136.4	20.3	23.2	20.6	20.5
	10	34.10	11 5.08	5.80	5.15	5.12

κ Orionis

5 42 1

−9 43

		B	B	R	R	B
45	1	53.2	3 12.8	13.0	12.9	12.5
		59.0	19.0	19.0	19.9	18.0
		12.5	31.7	31.6	32.1	32.0
		0.3	19.4	19.0	20.0	18.9
		50	82.9	82.6	84.9	82.4
	47	1.25	4 2.072	2.065	2.122	2.060

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Feb. 19, 1881

α Orionis

5 48 37

+7 23

	B	B	R	R	B
40	42.6	2540	54.1	54.1	53.7
	49.1	0.9	0.0	59.8	0.1
	57.2	8.5	8.7	8.6	8.3
	48.0	59.0	59.0	59.0	59.4
	19.69	24	18	15	15
41	49.22	42	0.60	0.45	0.38	0.38

C = 44 59.2

π Orionis

5 5 27

−15 R/R

35	3 17.8	17.2
	2.0	4.5
	3.4	3.2
	2.6	4.8
	10.8	10.7
38	25.45	25.42

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46

Feb. 19
20

☿ 221657
—1041

Mercury

23 22 36
—3 18 4

R

0 0 98
142
28½
157
673
0 16.82

Upper limb in ☌
Last but one 2nd limb

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258
233

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Feb. 21, 1881

C = 44 64.3

δ Cassiop. L.C.Bks.

1 17 55

+120 24

	B	B
45 2	18.7	19.0
	19.0	18.7
	21.1	21.4
	14.4	14.3
	73.2	73.4
47	18,30	18,35

η Ursæ Maj. Bks

13 42 46

+49 55

	B
10 2	48.0
	43.2
	50.8
	44.9
	186.9
12	46.72

α Draco. Bks.

14 1 8

+64 57

	B	B
10 0	49.5	49.2
	46.7	46.3
	53.9	53.9
	50.5	50.8
	2006	2002
10	50,15	50,05

ι Bootis

14 27 12

+38 50

	B	B	R	R	R
15 0	58.0	26.9	7.2	7.0	7.0
	59.3	9.1	9.6	9.9	8.8
	8.2	19.0	18.7	18.6	18.9
	2.1	11.3	11.2	11.1	11.0
	76	463	67	66	57
16	1.90	17	11.57	11.67	11.65	11.42
			11.50	11.66		

Lost A+, 1.2.3.4

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1881phae.proj.1409B

Feb. 21, 1881 C = 44 64.3

η Bootis Bob.
13 48 55
+19 0

		B
5	1	46.4
		51.4
		0.9
		51.8
		2105
	6	52.62

τ Virginis Bob.
13 55 29
+2 8

		B	B
55	3	45.0	45.0
		52.1	52.0
		59.3	59.7
		50.3	50.8
		2067	2075
	58	51.68	51.88

ε Bootis
14 39 42
+27 35

		B	B	R	R
30	0	42.0	2 7.9	8.0	7.7
		44.3	10.0	10.4	10.3
		53.0	18.9	19.1	19.0
		45.5	11.2	11.2	11.1
		1848	480	487	481
	30	46.20	32 1200	1218	1202

α² Libræ
14 44 11
−15 32

		B	B
35	1	28.1	2 5.8
		36.2	59.7
		47.0	10.1
		35.0	57.0
		1463	1776
	36	36.58	37 44.40

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Feb. 21, 1881

β Ursa. Min
14 51 7
+74 39

	B	B	B	B	B
25 2	47.4	2.1	37.4	3.6	20.7
	46.2	1.0	37.0	3.0	20.2
	54.1	9.1	45.2	10.9	28.0
	50.0	3.3	40.2	5.7	22.3
	1977	155	1598	232	912
27	49.42	28 3.88	39.95	29 5.80	22.80

C=44 64.3

β Bootis
14 57 23
+40 52

	B	B	R	R	B
10 4	1.0	0 25.9	25.9	26.1	26.1
	3.4	27.6	28.1	28.0	27.4
	13.4	37.8	38.0	38.0	38.0
	3.8	29.4	30.1	29.8	30.2
	216	07	21	19	17
-14	5.40	15 30.17	30.52	30.47	30.42
		30.30	30.50		

α Cor. Bor.
15 29 39
+27 7

	B	B	R	R	B
55 3	17.3	4 42.3	42.0	41.6	41.8
	20.1	45.8	46.0	46.0	46.1
	28.7	54.0	54.0	54.1	53.8
	20.6	46.0	46.2	46.8	46.1
	867	281	282	285	278
58	21.68	59 47.02	47.05	47.12	46.95
		46.98	47.08		

α Serpentis
15 38 18
+6 48

	B	B	R	R	B
15 1	29.1	3 03	1.0	1.0	0.4
	35.6	0	6.8	7.2	7.2
	45.4	16.6	16.9	17.1	16.8
	34.8	5.8	6.0	5.8	6.2
	1449	297	307	311	306
16	36.22	07.42	7.67	7.77	7.65
		7.53	7.72		

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Feb. 21, 1881

β Libræ

15 10 30

-8 56

		B	B	R	R	B
0	0	38.3	2 1.6	1.7	1.9	1.6
		37.9	6.3	6.4	6.8	6.1
		52.2	20.3	21.0	20.9	20.5
		39.0	7.8	7.7	7.7	7.0
		1624	360	368	373	352
42.	0	40.60	2 19.00	19.20	19.32	18.80
			18.90	19.26		

C = 44 64.3

Σ^2 Urs. Maj.

15 20 56

+72 16

		B	B	B
50	4	49.3	1 26.3	2 6.0
		47.4	25.3	4.5
		56.8	33.9	13.3
		51.0	27.7	7.1
		2045	1132	309
54		51.12	56 28.30	57 7.72

σ Scorpii

15 58 11

-22 16

		B	B	R	R
15	4	56.0	1 20.5	20.5	20.2
		4.8	27.8	28.0	28.1
		16.0	39.0	39.7	39.8
		1.1	26.4	26.0	26.0
		179	337	342	341
20	4.48	21	28.42	28.55	28.52
			28.42	28.54	

β' Scorpii

15 58 24

-19 28

		B	B	R	R	B
30	2	2.3	3 25.4	25.2	25.7	24.9
		10.3	33.3	33.8	33.0	33.0
		21.5	44.4	44.6	43.7	43.7
		8.5	31.4	31.1	30.4	30.8
		426	151	147	128	124
32	10.65		33.77	33.67	33.20	33.10
			33.44	33.44		

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1881phae.proj.1409B

Feb. 21, 1881

ζ Ophiuchi

16 8 0

−3 23

		B	B	R	R	B
25ˢ	2	41.1	3 55.0	55.2	54.8	54.7
		47.4	1.3	1.9	1.6	1.4
		58.0	11.9	12.2	12.6	12.2
		45.8	00	0.6	0.1	59.8
		19.23	82	99	91	81
27		4.8.08	2.05	2.47	2.27	2.02
			2.04	2.37		

α Scorpii

16 24 59

−26 10

C = 44 64.3

10	2	48.0	
		56.0	
		6.7	
		54.2	
		22.49	
12		56.22	

ζ Ophiuchi

16 30 30

−10 19

		B	B	R	R	B
20	3	34.0	4 50.6	50.8	51.0	50.4
		39.1	55.7	55.9	55.8	55.7
		53.0	9.0	9.2	9.1	9.2
		38.2	55.0	55.1	55.1	55.5
		16.43	303	310	310	308
23		41.08	24 57.57	57.75	57.75	57.70
			57.63	57.75		

η Herculis

16 38 45

+39 9

		B	B	R	R	B
55		1 36.0	2 55.7	55.4	54.6	55.2
		38.0	57.1	57.7	57.6	57.2
		46.9	6.0	6.1	5.7	6.1
		39.0	57.8	58.0	58.9	59.9
		15.99	357	372	368	363
56		39.98	57 58.92	59.30	59.20	59.4
			59.00	59.25		

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1881phae.proj.1409B

Feb. 21, 1881

η Draconis

16 22 22

+61 47

B

20 0 9.8

7.0

15.9

10.1

428

28 10.70

Rej. 2 d ∫

A-1

C = 44 64.3

β Herculis

16 25 1

+21 45

B B R R

20 1 32.1 44.4 44.7 44.3

36.3 48.8 48.6 49.0

43.2 55.0 53.1 55.0

35.1 49.1 48.8 48.8

1467 373 372 371

21 36.68 49.32 49.30 49.27

49.32 49.29

A+2C

η Ophiuchi

17 3 27

−15 34

B B B R R B

35 3 19.0 24.0 26.8 24.7 26.5

27.3 35.2 35.2 35.3 35.0

37.7 44.9 44.7 44.8 45.0

29.8 30.6 31.3 31.4 31.1

1078 177 180 182 176

38 26.95 34.42 34.50 34.55 34.40

ι Herculis

17 9 18

+14 32

B B R

30 3 17.6 4,33.3 33.6

23.8 38.8 39.6

32.7 44.3 48.7

19.6 35.2 36.6

937 356 385

33 23.42 34 38.90 39.62

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1881phae.proj.1409B

Feb. 21, 1881

β Draconis

17 27 42

+52 23

		B	B
40	2	24.9	3.4
		26.3	5.0
		34.3	12.2
		25.3	4.1
		110.8	24.7
	42	27.70	6.18

C = 44 64.3

α Ophiuchi

17 29 19

+12 39

		B	B	R	R
25	1	2.2	2	12.6	12.6
		6.8	17.2	17.0	
		17.2	27.9	27.2	
		4.9	15.0	16.7	
		31.1	72.7	73.5	
	26	7.78	27	18.18	18.38

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Feb. 22, 1881

C = 44 64.3

⊖ 22 24 35

−9 57

	B	B
15	0 45.3	15 3 42.4
	49.8	47.9
	30	59.5
	49.2	46.8
	2073	1966
	15 51.82	18 49.15

Both limbs in δ & R.A

Seeing moderately good.

~~C = 44 64.3~~

C = 44 57.6

γ Cassiop.

0 49 25

+60 4

	B	B	B
0	1 12.9	58.0	2 20.2
	9.0	55.0	17.1
	19.7	4.4	24.4
	13.9	58.3	20.2
	555	2357	839
	1 13.88	58.92	2 20.98

Rej. 1st δ

γ Androm

1 56 29

+41 45

	B	B
15 4	23.8	0 49.4
	25.6	49.9
	26.5	59.7
	27.8	53.1
	1137	2121
19	28.42	20 53.03

α Arietis

2 0 21

+22 53

	B	B	R	R	B
10 0	49.7	2 8.4	8.7	8.4	8.8
	53.7	12.1	12.2	12.0	12.8
	1.8	20.5	20.1	20.5	20.1
	55.3	14.2	14.0	13.7	13.8
	2205	152	150	146	155
10	55.12	12 13.80	13.75	13.65	13.77
		13.78	13.70		

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1881phae.proj.1409B

Feb. 22, 1881

C = 44 57.6

δ Cassiop

1 17 55

+59 36

	B	B
25 B	25.3	59.9
	23.8	57.4
	32.3	6.5
	25.4	59.2
	106.8	230
24	26.70	29 0.75

Last 3rd δ

β Arietis

1 47 58

+20 13

	B	B	R	R	B
50 1	12.0	23 1.9	31.8	31.7	31.9
	16.0	36.0	35.8	35.5	30.8
	25.0	45.1	45.0	44.9	45.5
	17.4	39.0	39.0	38.6	37.9
	69.4	320	316	307	311
51	17.35	52 38.00	37.90	37.68	37.77
		37.89	37.79		

β Muscae Min

25-107

135-24

	R	R
45 1	31 1	0 24.7
	32.0	25.1
	36.4	24.9
	32.2	26.1
	131.7	105.8
46	32.92	45 26.45

α Celi

2 55-57

+3 37

	R	R
25	2 0.0	59.7
	5.8	6.8
	15.8	16.3
	8.6	8.2
	30.2	31.0
27	7.55	7.75

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1881phae.proj.1409B

Feb. 22 1881 C = 44576

ζ Persei

3

3 15 41 +45 26

R

35	3 53,7	
	53 8	
	3,8	
	56,8	
	2281	
38	57,02	

ζ Tauri

3 22 56

R R R

20	3 48 9	2 58 4	25 0
	50 9	59 5	25 9
	56 0	59	3,4
	50,1	58 8	25 0
	2059	17	1073
23	51,48	0,42	26,82

ζ Eridani

3 37 27

−10 10

R

10 4	50
	10,2
	24 8
	13,0
	530
14	13,25

ν Persei Tauri

3 40 16

+23 44

R R

20 0	340	340
	35,2	38,1
	46 8	46 4
	39,8	39,6
	1588	1581
20	3970	3952

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1881phae.proj.1409B

Feb. 22, 1881

ζ Eridani

3 27 14

−9 52

R R

55 0 4 42 4 57

4 42 4 42

5 0 4 7

5 2.0 5 2.1

2104 2111

55 52.60 52.78

ζ Persei

3 34 18

+47 24

R

40 0 45 8

46.6

55 9

49.1

1974

40 49.35

C = 44 57.6

γ Eridani ζ Persei

3 5 2 23 3 4 6 32

−13 5 1 +31 31

R R

30 3 10 6 18 3

12 7 13 0

2 3.1 2 3 6

16.9 16.9

633 638

33 15.82 15.95

γ Eridani

3 5 2 23

−13 5 1

R R

50 4 4 0 3 4 0 4

47.6 47.6

0 8 0 6

47 5 47 6

1962 1362

54 49.05 34.05

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1881phae.proj.1409B

Feb. 22, 1881

α Tauri B obs.

4 28 59

+16 16

	B	B
45 4	57.0	56.9
	2.3	2.2
	13.6	13.2
	1.9	1.8
	148	141
50	3.70	3.52

C = 44 57.6

ι Aurigæ B obs

4 49 07

+32 58

	B	B
5 2	50.1	50.0
	53.0	53.3
	3.5	3.2
	53.2	54.6
	2218	2211
7	55.45	55.28

Last A+1 1

β Orionis

5 8 44

−8 21

	B	B	R	R	B
2 5 0	2.3	57.2	57.4	57.7	59.8
	7.4	3.2	2.9	3.0	3.2
	21.2	16.9	16.9	16.8	16.6
	7.7	3.3	3.4	3.3	3.3
	386	206	206	208	209
25	9.65	27 5.15	5.15	5.20	5.22
		5.18	5.17		

γ Orionis

5 18 38

+6 14

	B	B	R	R
50	12.3	1 31.6	31.2	31.8
	8.9	38.4	39.0	38.8
	18.8	48.0	47.7	48.1
	7.8	37.8	37.9	37.3
	37.8	35.8	35.8	36.0
51	9.45	38.95	38.95	39.00

A42C

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1881phae.proj.1409B

Feb. 22. 1881

β Eridani

5 1 54

-5 B 5

	B		B	R	R	B
15 3	40.0	0	129	13.4	13.2	
	47.0		17.2	18.0	18.1	
	57.7		29.3	29.3	29.3	
	47.2		19.8	19.2	19.2	
	19.9		7.92	7.99	7.98	
18	47.98	20	19.80	19.98	19.95	

C = 44 57.6

α Aurigæ

5 7 46

+45 52

	B
10 2	34.4
	37.2
	46.1
	37.3
	1550
12	38.75

Lost 4-1

δ Orionis

5 25 50

-0 24

	B
25 2	38.8
	46.1
	58.5
	46.3
	189.7
27	47.42

α Leporis

5 27 24

-17 55

	B	B
55	3 14.5	4 29.9
	24.3	38.9
	34.3	50.0
	22.0	37.2
	961	1560
58	2402	59 39.00

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Feb. 22, 1881

ε Orionis

5 30 4

-1 17

		B	B	R	R	B
20	1	10.0	2 31.0	31.5	31.9	31.1
		15.8	38.0	37.9	37.3	38.0
		27.5	48.6	48.6	48.7	48.8
		16.2	37.9	37.3	37.5	37.9
		69.5	155.5	155.3	155.4	155.8
	21	17.38	22 38.88	38.82	38.85	38.95

C = 44 57.6

α Columbæ

5 35 16

-34 8

		B	B	R	R	B
	5	4 50.8	1 0.5	0.8	0.7	0.8
		0.1	9.0	8.9	9.1	9.1
		8.4	18.8	19.0	18.9	18.7
		57.3	6.9	7.0	7.1	7.1
		236.6	35.2	35.7	35.8	35.2
	9	59.15	10 8.80	8.92	8.95	8.80

α Tauri

4 29 51

16 14

R	R
30 3	33.8 33.5
38.2	39.2
50.0	49.7
39.2	39.1

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1001phae.proj.1409B

Feb. 22, 1881

K Orionis

5 42 1

−9 43

		B	B	R	R	B
45	1	52.8	3 12.7	13.1	12.7	12.9
		59.1	19.1	18.6	18.9	19.0
		13.1	33.0	33.3	33.0	33.3
		0.2	20.0	19.6	19.2	19.6
		52	848	846	838	848
47		1,30	48 21,20	21,15	20,95	21,20

C = 44 57.6

α Orionis

5 48 37

+7 23

		B	B	R	R	B
40	1	32.1	2 55.3	55.0	54.3	54.7
		38.4	1.3	1.1	1.2	1.8
		47.5	10.9	10.4	10.8	11.0
		3.9	0.0	0.0	0.0	0.5
		1549	75	65	63	80
41		38,72	43 1,88	1,62	1,58	2,00

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1881phae.proj.1409B

64

Feb. 22/23, 1881

⊙ 22 28 10
9 35

C = 44 57.6

η Tauri
3 40 18
+23 44

	B	B	R	R	B
20 0	48.0	2 2.4	2.6	2.4	2.8
	51.1	6.3	6.5	6.8	7.0
	0.8	15.9	15.9	15.8	15.9
	53.4	8.2	8.2	8.0	4/6
	2130	328	332	330	333
20	53.25	22 8.20	8.80	8.25	8.32

α Tauri
4 28 59
+16 16

	R	R
30 3	33.8	33.5
	38.2	39.2
	50.0	49.7
	39.2	39.1
	1612	1615
33	40.30	40.38

γ Cassiop. A.C. B No.
0 [illegible] 49 25
+119 57

	B	B
15 0	58.4	57.8
	59.3	59.1
	0.3	0.4
	52.0	51.8
	1700	1691
15	42.50	42.28

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1991phae.proj.14009B

Feb. 23

C = 44, 57, 4

χ¹ Eridani

3 52 23

−13 51

B B R R B

50 4 44.4 0 59.0 59.0 59.6 9.0

52.2 6.4 7.0 7.0 6.9

5.3 19.8 19.2 18.8 19.3

51.5 6.4 7.0 7.3 6.7

2134 319 322 327 419

54 53,35 55 7,95 8,05 8,18 10,45

π Pegasi

42222

11 13

R R R

55 2 24.2 0 54.6 54.4

24.2 57.0 56.9

B04 59.9 59.8

22.7 52.3 52.1

1045 2238 2232

57 26,12 0 55,95 55,80

δ Cassiop. S.C. Bds.

1 17 55

+120 24

B B

45 2 28.0 28.2

29.0 29.0

30,1 30.1

21.2 21.7

1083 1090

47 27,08 27,25

ψ Urs. Maj. Bds.

13 42 46

+49 55

B B

10 2 45.0 44.9

45.0 45.1

51.1 51.0

43.3 43.9

1844 1849

12 46,10 46,22

2 extra tapes follow Aq

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1881phae.proj.1409B

Feb 23 1881

ζ Aquarii

16 32 34 —

~~16 38 41~~

~~+35~~ 1019

R R

2w 3 300 300

341 347

461 460

324 321

1426 1428

23 35.65 35.70

η Herculis

16 38 45

+39

R R

5-51 409 405

426 427

487 490

420 417

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1001phae.proj.1400B

h Orionis
17 3 27
−15 34
R R
35 3 22.6 22.6
30.2 30.3
38.4 38.5
35.6 25.8
1268 1172
38 31.70 29.30

ζ Herculis
17 5 18
+31 40 2
R R
30 3 20.0 20.2
24.2 24.2
32.2 32.0
21.0 20.6
974 968
33 24.35 24.20

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1881phae.proj.1409B

Feb 23/24, 1881

C = 44 54.8

~~C = 44 54.8~~
C = 44 56.4

⊙

22 32 10
−9 13

β Arietis
1 47 58
+20 13

	B		B		B	R
⊙ 1	34.4	30 4	27.2	50 1	49.0	49.7
	37.8		31.3		52.4	53.1
	48.7		43.0		59.0	58.4
	32.8		27.5		49.2	49.7
	1540		1290		96	109
1	38.50	34	32.25	51	52.40	52.72

Both limbs in S + R.A.
Seeing very bad indeed. Lost 1rst wire

β Urs. Min L.C.
14 51 7
+105 22

	B	B	B	B	B
451	46.3	25.9	49.6	39.9	219
	46.1	26.0	49.8	40.2	232
	47.2	27.0	50.9	41.0	231
	40.3	19.9	44.4	33.1	164
	1799	988	1947	1542	846
46	44.98	24.70	45 48.68	38.55	21.15

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Feb. 24, 1881 C = 44 56.4

γ Androm.
1 56 29
+41 45

	B	B	R	R
15 4	41.3	01.1	01.2	
	42.0	0.7	0.3	
	48.5	7.4	6.7	
	40.5	58.3	59.0	
	1723	65	62	
19	43.08	01.62	1.55	

α Arietis
2 0 21
+22 53

	B	B	R
10 0	55.5	2 13.7	14.1
	58.3	19.1	16.7
	2.2	22.0	21.3
	54.1	12.8	13.4
	2301	256	256
10	57.52	12 16.40	16.37

γ Persei
2 56 3
+53 2

	D	B	R
0 3	52.1	4 21.4	22.0
	52.1	21.6	21.8
	57.2	26.8	26.8
	48.3	19.9	18.1
	2097	897	887
3	52.42	4 21.92	22.18

α Persei
3 15 41
+49 26

	B	B	R
5 4	1.4	0 22.2	22.8
	0.1	21.5	21.5
	5.0	26.4	26.1
	57.0	19.6	19.8
	635	897	902
9	1588	10 22.42	22.55

A6 2C

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1881phae.proj.1409B

Ref. 24184

χ^2 Urs. Maj S.C.

15 20 58

+107 44

	B	B	B	B
20	3 40.0	3 24 48.8	326	
	41.6	2.3 49.3	331	
	40.9	3.0 49.3	330	
	32.7	55.1 40.8	249	
	1552	628 1881	1236	
23	3880	15.70 47.02	3090	

C = 44 56.4

δ Persei

3 34 19

+47 24

	B	B
40	0 46.8	2 20.1
	46.5	20.6
	51.7	21.0
	43.9	16.2
	1889	829
40	47.22	42 20.72

Reg 2nd [illegible] is one

3 Persei

3 46 32

+31 31

	B	B	R
30	3 15.0	4 32.8	33.2
	16.3	34.9	35.8
	23.0	41.1	41.3
	13.1	32.1	33.0
	674	1409	1433
33	1685	34 35.22	35.82

χ' Eridani

3 52 23

−13 51

	B	B	R
50	4 44.9	0 59.9	0.1
	51.4	6.2	7.0
	0.1	14.0	14.1
	45.1	1.0	1.0
	2015	211	222
54	50.38	55 52.8	5.55

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1891phae.proj.1400B

Feb. 24, 1881

δ Eridani

3 37 27

−9 10

	B	B
10 4	20.3	0 29.1
	25.4	33.0
	35.5	43.9
	21.0	34.3
	1022	1363
14	25.55	15 34.08

C = 44 56.4

η Tauri

3 40 18

+23 44

	B	B	R
20 0	57.4	2 0.4	1.3
	54.8	4.3	3.8
	58.5	6.3	8.0
	49.1	58.5	0.1
	2138	118	132
20	53.45	22 2.95	3.30

η Draconis L.C.

16 22 22

+118 13

	B	B	B
55 2	36.3	58.3	17.0
	37.0	59.4	17.9
	35.0	57.9	16.1
	26.2	48.4	7.4
	1345	2240	584
	33.62	56.00	14.60

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1881phae.proj.1409B

Feb. $\frac{24}{25}$, 1881 $\quad C = 44\ 56.4$

⊙ $\quad$ γ Cassiop B obs.

22 35 57 $\quad$ 0 49 25

−8 51 $\quad$ +60 4

	B	B	B	B
35−4	29	10 2 11.4	0 2 31.5	31.5
	18	13.9	29.4	29.4
	21.1	24.9	35.3	35.5
	60	11.4	26.9	27.0
			1231	1234
			2 30.78	30.85

Both limbs on ☉ & R.A.
Seeing very bad.

458 $\quad$ 616

39 11.45 $\quad$ 12 15.40

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1881phae.proj.1409B

Feb. 25, 1881 C=44 56.4

δ Cassiop Bds
1 17 45
+59 36

	B	B
25 4	45.3	44.9
	42.7	42.2
	48.9	48.9
	40.2	40.4
	177	1764
29	44.28	44.10

γ Androm. B obs
1 56 29
+41 45

	B	B
50 1	0.0	59.5
	59.4	59.7
	7.1	6.4
	56.4	57.0
	29	26
51	0.72	0.65

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1881phae.proj.1409B

Feb. 26, 1881

κ Cassiop B obs.

0 49 25

+60 4

		B	B
0	2	26.8	26.8
		23.6	23.3
		30.3	30.4
		22.2	22.1
		1029	1026
	2	25.72	25.65

C = 44 56.4

δ Cassiop B. obs

1 17 5⁻5⁻

+59 36

		B	B
25⁻	4	48.6	49.0
		45.6	45.1
		51.5	51.3
		44.8	44.8
		1905	1902
	29	47.62	47.55

β Eridani B ob.

5 1 54

-5⁻ 15⁻

		B
20	0	8.4
		11.9
		20.5⁻
		11.1
		519
	20	12.96

α Aurigæ B obs.

5⁻ 7 46

+45⁻ 52

		B	B
10	4	4.9	5.0
		6.3	6.0
		12.2	12.1
		3.4	4.1
		268	272
	14	6.70	6.80

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1881phae.proj.1409B

Feb. 26, 1881

C = 44 56.4

χ Androm. B. obs

1 56.29

+41 45

B

20 1 6.6
6.8
14.2
6.3
33 9
21 8.48

α Arietis B obs

2 0 21

+22 53

B B

10 2 15.3 15.3
17.3 17.5
22.6 22.4
15.1 15.0
703 702
12 17.58 17.55

γ Orionis B obs.

5 18 38

+6 14

B B

50 1 40.1 40.0
44.9 45.3
51.8 51.8
41.9 42.1
1787 1792
51 44.68 44.80

δ Orionis

~~ε Orionis~~ B obs.

5 25 ~~53~~ ~~5 30 4~~

-0 24 ~~+ 17~~

25 4 8.2
13.3
22.0
11.4
54 9
29 13.72

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1881phae.proj.1409B

Feb. 24, 1881 C = 44 56.4

ε Orionis B obs

~~α Columbæ B obs.~~ α Columbæ B obs

δ⁻ 30 4 ~~δ⁻ 35⁻ 14~~ δ⁻ 35⁻ 16

-1 17 ~~-34 8~~ -38 8

B

20	2	34.7	10	0	58.6
		39.5			5.0
		49.0			11.9
		36.7			59.4
		1599			3149
	22	39.98	11		3.72

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1881phae.proj.1409B

Feb. 26, 1881

C = 44 56.4

K Orionis B obs.

δ⁻ 42 1

-9 43

45 3 15.8
19.9
32.5
17.7
8 5 9
48 2,48

α Orionis B obs.

δ⁻ 48 37

+7 23

	B	B
40	2 55 52	55.6
	0.3	0.4
	7.6	7.5
	56.3	55.9
	2394	2394
42	59.85	59.85

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1881phae.proj.1409B

Mar. 5. 1881 C = 44 36.3

x Cassiop. B. obs.

0 49 25

+60 4

		B	β
0	2	24.0	24.1
		23.2	23.3
		34.0	33.2
		25.7	24.9
		1069	1055
	2	26.72	26.38

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1881phae.proj.1409B

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1881phae.proj.1409B

Mar. 7, 1881

χ Cassiop B.obs.

0 49 25⁻

+60 4

	B	B
0 2	23.1	23.0
	22.6	22.3
	32.7	32.8
	23.5	23.4
	1019	1015
2	25.8	25.8

C = 44 56.3

δ Cassiop Bobs

1 17 55.5

+59 36

	B	B
25⁻ 4	36.8	36.8
	35.7	35.2
	45.2	45.9
	38.6	38.3
	1563	1562
29	39.08	39.05

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1881phae.proj.1409B

Mar. 7, 1881

β Arietis B obs.

1 47 58

+20 13

B B

50 2 52.3 52.4

57.8 58.7

8.1 8.0

59.2 58.8

2374 2379

52 59.35 59.48

C = 44 56.3

χ Androm B,6

~~1 47 58~~

1 56 29 +41 45

B B

20 1 54.9 55.1

56.9 57.0

8.0 8.0

59.7 0.2

2395 03

21 59.88 22 0.08

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1881phae.proj.1409B

Mar. 8, 1881

χ Cassiop. B obs.

0 49 25

+60 4

		B	B
0	2	26.9	27.0
		27.0	26.6
		37.5	38.0
		28.9	29.1
		1203	1207
	2	30.08	30.18

C = 44 56.3

δ Cassiop B obs

1 17 55

+59 36

		B	B
25	4	45.9	45.9
		44.7	44.8
		55.5	56.0
		48.4	48.0
		1945	1947
	29	48.62	48.68

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1881phae.proj.1409B

Mar 8, 1881 C = 44 56.3

α Arietis B obs.

2 0 21

+22 53

		B	B
10	2	6.3	6.3
		11.1	11.0
		21.0	20.9
		12.6	12.7
		510	509
	12	1275	12.72

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1881phae.proj.1409B

Mar. 14. 1881

δ Urs. Min. L.C.

18 11 2

+93 24

		B	B	B
40	3	29.1	25.0	18.0
		30.3	25.9	19.1
		38.8	34.4	27.4
		30.4	25.3	19.2
		1286	1106	837
	43	32.15	27.65	20.92

A7 to A1

C = 44 56.3

μ Gemin.

6 15 39

+22 34

		B	B	R	B
30	0	26.8	1	50.0	49.9	50.1
		30.8		54.8	54.8	55.0
		39.7		3.2	3.3	2.9
		33.3		57.3	57.2	57.9
		1306		253	252	259
	30	32.65		56.32	56.30	56.47
				56.39	56.30	

α Cam. Maj.

6 39 49

−16 33

		B	B
35	2	4.0	3 19.2
		13.8	29.0
		24.3	39.5
		13.2	29.0
		553	1167
	37	1382	38 29.18

ε Cam Maj.

6 53 52

−28 48

		B	B	R
50	1	8.2	2 33.3	33.8
		18.0	44.2	42.9
		28.3	53.9	53.7
		19.0	44.3	43.3
		735	157	137
	51	1838	52 43.92	43.42

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1901phae.proj.1409B

Mar. 14, 1881

x Gem.

6 30 43

+16 30

		B	B	R
30	4	44.2	1 12.8	12.9
		49.1	19.0	18.8
		0.3	30.1	30.0
		50.4	20.4	20.8
		20.40	2.3	25
34		51.00	36 20.57	20.62

δ Cam. Maj.

7 3 28

-26 12

		B	B	R
15	0	9.9	1 34.2	34.1
		18.3	43.0	42.8
		31.0	55.3	55.2
		18.8	43.6	44.0
		78.0	176.1	176.1
15		19.50	16 44.02	44.02

ζ = 44 36.3

51 Cephei

6 42 14

+87 14

		B	B	B	B	B
50	2	6.9	11.2	16.4	21.7	9.8
		8.8	13.2	18.3	23.2	11.4
		15.8	20.0	25.5	30.8	19.0
		11.8	16.1	21.6	26.6	14.3
		433	605	818	1023	B
52		10.82	15.12	20.45	25.58	13.8
					545	15.8
					1362	22.2
						17.8
						696
						17.40

Δ_{+1} 12 Δ_{12} to 9.0

— Cam. Min.

7 20 85

+8 32

		B	B	R
30	2	58.2	4 21.3	20.3
		5.1	28.3	28.1
		15.9	38.9	39.1
		6.0	28.3	28.0
		252	1768	1155
33		6.30	34 29.20	28.88

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1881phae.proj.1409B

Mar. 14. 1881

α Gemin.

7 26 52

+32 9

	B	B	R	B
55	1 18.0	2 25.6	26.3	25.8
	20.8	29.0	28.9	29.0
	33.0	40.3	40.4	41.0
	~~33.0~~	33.1	34.0	32.8
	~~25.1~~			
	96.9	128.0	129.6	128.6
56	24.22	57 32.00	32.40	32.15

following star

C = 44 56.3

α Can. Min

7 32 58

+5 32

	B	B	R	B
30	2 46.0	4 7.2	7.7	7.3
	54.0	15.0	15.9	15.2
	4.7	25.8	25.7	25.4
	54.8	15.9	16.6	15.9
	219.5	63.9	65.9	63.8
32	54.88	34 15.98	16.48	15.95

α Scorpii

16 21 59

−26 10

	B
10	2 35.6
	44.9
	55.5
	44.3
	180.3
12	45.08

η Draconis

16 22 22

+61 47

	B	B
15	4 56.9	0 18.0
	55.3	16.8
	6.0	26.0
	59.5	21.8
	237.7	83.1
19	59.42	20 20.78

Just A

-1

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1881phae.proj.14098

Mar. 14, 1881

B Gemin.

7 37 55

+28 19

		B	B	R	B
45	1	14.9	2 34,6	35.1	35.0
		18.6	39,0	39.0	38.5
		27.3	47,6	48.0	47.5
		20.3	40,4	41.3	41.1
		81	161,6	163,4	162,1
46		20,28	47,40,40	40,85	40,52

C=44 56.3

15 Argus

8 223

−23 57

		B	B	R
0	1	7.0	2 17,3	17.4
		15.5	26,0	26.3
		28.4	39,1	39.0
		16.7	27,1	26.7
		67,6	109,5	109,4
	1	16,90	2 27,38	27,35

3 Ophiuchi

16 30 30

−10 19

		B	B	B	R
20	3	30.3	4 51.7	51.2	51.3
		35.1	56.7	56.7	57.0
		50.3	11.3	11.2	11.1
		37.9	58.9	58.4	58.9
		1536	386	375	383
23	38,40	24	59.65	59.37	59.57
			59.51		59.57

η Herculis

16 38 45

+39 9

		B	B	R	B
55	1	34.1	2 50.1	50.0	50.0
		36.0	53.2	52.9	52.8
		46.7	3.1	3.1	3.0
		39.7	58.8	56.1	56.0
		1565	222	221	218
56	39.12	57	55.55	55.52	56.45
			55.50		55.52

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1881phae.proj.1409B

Mar. 14, 1881 C = 44 56.3

η Ophiuchi
17 3 27
−15 34

	B	B	R	B
35 3	58.4	4 3 24	31.9	32.1
	78	40.3	40.5	41.0
	19.2	52.2	52.3	52.3
	6.5	39.8	40.4	39.7
	31.9	43	51	51
39	7.98	41.07	41.27	41.27
		41.17	41.27	

Bol-A_{T1}

ζ Herculis
17 9 18
+14 32

	B	B	R	B
30 3	14.1	4 32.8	32.9	32.8
	19.9	39.1	38.9	39.0
	31.0	49.5	49.7	49.5
	20.0	89.1	39.0	38.7
	8 50	05	05	00
33	21.25	40.12	40.12	40.00
		40.06	40.12	

γ Draconis
17 53 48
+51 30

	B	B	R	B
35 0	34.8	11 45.1	45.4	45.2
	35.7	46.7	46.8	46.4
	44.6	55.9	55.7	56.0
	39.0	49.2	48.9	48.9
	1541	369	368	365
35	38.52	49.22	49.20	49.12
		49.17	49.20	

δ Urs. Min.
18 11 2
+86 36

	B	B	B	B	B	B
30 0	26.0	30.4	36.0	42.1	47.2	51.5
	25.1	29.2	36.1	41.7	46.1	51.0
	32.4	35.9	42.3	48.2	52.7	57.2
	29.2	33.4	39.7	45.1	49.5	54.4

Chf.

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1001phae.proj.14008

Mar. 14, 1881 C = 44 56.3

β Draconis
17 27 42
+52 23

B
40 2 37.7
39.3
48.1
41.8
1669
42 41.72

α Ophiuchi
17 29 19
+12 39

B	B	R	B
25 1 8.7	15	15.1	16.1
14.9	~~20.8~~	21.0	21.0
25.8	~~32.5~~	31.9	31.9
15.2	~~21.2~~	21.4	21.6
646	95	94	96
26 16.15	22.37	22.35	22.40
	22.38	22.35	

α Lyrae
18 32 50
+38 40

B	B	B
~~0 0 0.1~~ 25 0	16.8 1	21.1 21.5
~~6.7~~	4.1	24.0 23.8
	14.0	33.3 33.6
	8.7	27.9 28.1
	286	1063 1070
	25 7.15	26.58 26.75

σ Sagittarii
18 47 46
-26 27

B	B	B
25 4 13.6	0 19.2	19.0
	22.1	27.3 27.2
	33.9	38.5 38.1
	21.2	26.8 26.8
	908	1118 1111
	29 22.70	30 27.95 27.78

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1881phae.proj 1409B

Mar. 14, 1881 C=44 56.3

3 Aquilæ
18 59 51
+13 41
B B B

20 3 31.1 4 50.7 50.2
36.4 56.8 56.1
46.9 7.2 7.8
36.0 56.8 55.9
1504 2315 2300
23 37.60 57.88 57.50

ε Cygni
20 41 19.
+33 31
R R

30 3 32.6 32.7
34.9 35.7
44.9 45.3
38.3 38.6

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1001phae.proj.14000

Mar. 14, 1881 C = 44 56.3

3 Cygni

21 7 47

+29 44

		B		B	R	B
20	1	14.0	2	7.3	7.4	7.4
		17.0		11.0	10.7	11.1
		25.8		19.8	19.2	19.5
		18.5		12.3	12.3	13.2
		753		504	496	512
	21	18.82	22	12.60	12.40	12.80

α Cephei

21 15 41

+62 4

		B		B	R	B
0	1	55.7	2	9.2	8.6	9.7
		53.9		7.5	7.8	6.8
		3.3		16.9	17.1	16.8
		59.0		12.4	12.3	12.2
		2319		460	458	455
	1	57.98	2	11.50	11.45	11.38

Last A_{+1}

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1881phae.proj.1409B

Mar. 14/15, 1881 C = 44 61.4

⊙ β Mrs. Min. L. C.

23 42 40 14 51 7

−1 53 +105 22

B B B B B

40	1	5.13	10	4	31.4	45	1	27.0	2.4	43.6	28.2
		5.71			38.1			30.8	6.9	47.0	32.3
		10.0			50.0			37.4	13.3	53.3	38.3
		0.3			39.8			31.9	8.1	48.3	34.2
		23.87			1593			1271	307	1922	1330
41		59.68	14		39.82	46		31.78	7.68	48.05	33.25

Both limbs in δ of R.A

Seeing rather bad.

η Tauri

3 40 18 +23 44

B B B R R B

2			20	0	58.0	22	13.9	13.6	13.8	13.8
	10	1			1.4		18.3	18.0	17.8	18.1
	2	8			12.8		29.0	29.0	28.8	28.5
	14	9			5.3		20.7	20.9	21.2	21.0
					1.75		8.19	8.15	8.16	8.14
			21		4.38	22	20.48	20.38	20.40	20.35

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1891phae.proj.1400B

Mar. 15, 1881 $C^{o} = 44\ 61.4$

α Persei

3 15 41

+49 26

		B	B	R	R	B
35	4	22.0	0 11.7	11.9	12.0	11.8
		22.9	12.2	12.3	12.0	11.8
		32.7	21.9	22.3	22.4	22.1
		25.6	16.6	16.7	16.8	16.5
		1032	624	632	632	622
	39	25.80	40 15.60	15.80	15.80	15.55

δ Persei

3 34 19

+47 24

		B	B	R		
40	0	46.4	2 58	9.5		
		47.9	10.5	10.5		
		59.1	22.8	21.6		
		51.8	14.5	14.8		
		2052	576	564		
	40	51.30	42 14.40	14.10		

ζ Persei

3 46 32

+31 31

		B	B	R	R	B
30	3	5.0	4 36.5	36.7	37.1	37.0
		7.8	40.3	39.8	40.0	40.0
		20.9	52.5	52.3	52.6	52.2
		12.6	44.3	45.0	45.0	45.0
		463	1786	1738	1747	1742
	33	11.58	34 44.65	43.45	43.68	43.55

α Tauri

4 28 59

+16 16

		B	B	B
45	3	28.9	4 54.4	54.1
		33.9	59.6	59.8
		47.9	12.3	13.2
		37.5	2.5	2.3
		1482	88	94
	48	37.05	50 2.20	2.35

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1881phae.proj.1409B

Mar, 15, 1881 $\mathcal{C} = 44 \quad 61.4$

ι Aurigæ

4 49 7
+32 58

	B	B	B
5 1	31.6	41.0	41.0
	35.0	44.8	44.3
	47.1	56.7	57.2
	39.0	49.6	49.2
	1527	1921	1917
6	38.18	48.02	47.92

β Eridani

5 1 54
−5 15

	B	B	R	R
15 3	38.3	0 1.9	2.0	1.8
	44.1	6.6	6.6	6.3
	57.9	20.9	20.1	19.9
	47.8	10.0	10.8	10.8
	1881	394	395	388
18	47.02	20 9.85	9.88	9.70

β Tauri

5 18 39
+28 30

	B	B	R	B
30 4	30.1	0 56.0	55.5	55.7
	34.3	0.7	0.1	0.2
	44.4	9.9	9.6	10.0
	37.5	3.8	3.3	2.9
	1463	96	85	88
34	36.58	35 2.40	2.12	2.20

δ Orionis

5 25 50
−0 24

	B
25 2	37.1
	44.8
	57.9
	47.6
	1874
27	46.85

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1881phae.proj.1409B

Mar. 15, 1881

C = 44 61.4

α Aurigæ

5 7 46

+45 52

B

10 2 35.1
39.0
49.1
41.3
16 4.5
12 4,12

β Orionis

5 8 44

-8 21

B B B

25 0 23.0 47.8 47.6
28.5 54.1 53.8
43.5 8.9 8.5
31.9 56.4 56.2
126 9 227 2 226 1
25 3172 5680 5652

α Leporis

5 27 24

-17 55

5 5 3 0.7 4 4.7
9.4 14.3
23.0 27.3
11.0 15.0
4 41 6 13
58 11,02 15,32

ι Orionis

5 29 31

-6 0

0 3 31.0
37.7
51,7
39,0
15 9 4
3 39,85

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1881phae.proj.1409B

Mar. 15, 1881 C=44 61.4

ε Orionis
5 30 4
-1 17

B
20 2 2.8
9.9
23.3
11.6
476
22 11.90
Middle w. & foll.

α Columbæ
5 35 16
-34 8

B R R
5 4 29.0 1 24 2.9
38.8 11.2 11.8
49.2 23.1 22.9
38.1 11.9 12.8
1551 486 504
4 38.78 11 12.15 12.60

δ Can. Maj.
7 3 28
-26 12

B B B
15 0 16.3 33.3 33.4
25.3 42.6 42.5
37.5 55.5 54.9
26.0 43.5 43.3
1051 1749 1741
15 26.28 43.72 43.52

– Can. Min.
7 20 35
+8 32

B B R B
30 2 58.2 4 15.3 15.3 15.7
5.7 23.5 22.9 23.0
16.3 33.7 33.8 33.5
5.6 23.2 23.1 23.0
258 957 951 952
32 6.45 34 23.92 23.78 23.80

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1881phae.proj.1409B

Mar. 15, 1881

C = 44 61.4

K Orionis

5 42 1

-9 43

	B	B
45	1 59.0	3 5.8
	5.0	12.4
	21.5	28.6
	8.3	15.2
	338	620
	47 8.45	48 15.50

ε Can. Maj.

6 53 52

	B	B	R	B
50	1 30.8	2 24.2	23.8	24.4
	40.5	33.9	33.8	34.0
	51.2	44.8	44.4	44.5
	41.2	34.1	34.1	34.5
	1637	1370	1361	1374
51	40.92	5234.25	34.02	34.35

α Geminorum

7 26 52

+32 9

	B	B	B	R
55	1 15.2	2 34.2	34.2	33.9
	18.0	37.3	37.7	37.8
	30.2	49.7	49.2	49.2
	22.4	41.2	41.8	41.9
	858	1624	1629	1628
56	21.45	57 4060	4072	4070

α Canis Min.

7 32 58

+5 32

	B	B	R	B
30	2 56.1	4 12.3	12.6	12.6
	4.8	21.0	21.1	21.2
	15.2	31.6	31.2	31.7
	5.6	21.3	21.2	20.9
	217	862	861	864
33	5.42	34 21.55	21.52	21.60

full ##

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1881phae.proj.1409B

Mar. 15, 1881 C = 44 61.4

β Geminor, 15 Argus

7 37 55 8 2 23

+28 19 -23 57

	B	B	B		B	B	B
45	1	21.8	2 31.0	31.0	0 0	58.0	3 11.9	11.4
		26.6	35.5	35.6		7.5	20.7	21.0
		35.4	44.1	44.3		20.1	34.1	34.0
		28.7	37.8	37.5		8.9	22.6	22.3
		11 25	1484	1484		345	893	887
46		28.12	47 37	10 37.10		1 8.62	3 22	32 22.18

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1881phae.proj.1409B

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1881phae.proj.1409B

Mar. $\frac{15}{16}$, 1881

C = 44 61.6

⊙

23 46 19
−1 29

α Ceti
2 55 57 +3 37

	B	R	B
25	2 25 3	25.0	25 6
	32 8	33.0	32 9
	42 9	43.0	43 2
	34 3	34.7	33 8
	135 3	135 7	135 5
27	33.82	33.92	33.88

A_{+1} A_{234}

3 Persei
3 46 32
+31 31

	B	B
30 4	26.0	26.2
	29.9	30.3
	43.0	43.4
	34.8	34.3
	133 7	134 2
34	33.42	33.55

A_{-1} 1 2 3 5

α Aurigæ
4 49 07
+32 58

	B	B	R	B
5 1	20.8	2 43 3	43.6	43.2
	24.3	47 4	47.1	47 3
	37.3	1.0	0.6	1.0
	28.6	52 2	52.6	51 4
	111 0	203 9	203 9	202 9
6	27.75	7 50.98	50.98	50.72

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1881phae.proj.1409B

Mar. 16, 1881 C = 44 61.6

δ Persei
3 34 19
+47 24

	B	B	R	R	B
40 1	1.1	38.1	38.2	38.9	38.2
	3.0	39.5	39.9	39.8	40.2
	14.8	51.7	51.6	52.3	52.1
	6.8	43.7	44.1	44.0	43.6
		1730	1738	1750	1741
	41	43.25	43.45	43.75	43.52

η Tauri
3 40 18
+23 44

	B	B
20	0	45.9 45.2
		49.7 49.8
		0.9 1.0
		54.0 53.3
		2105 2093
	20	52.62 52.32

A_{+1} A_1 to 7

β Eridani
5 1 54
−5 15

	B	B
15	3	37.5 324.0
		44.0 288
		59.1 440
		47.6 337
		1882 1305
	18	47.05 18 32.62

α Aurigæ
5 7 46
+45 52

	B
10	2 34.8
	38.7
	50.9
	42.5
	1669
12	41.72

~~Lost A~~
Lost A and some of the first-Twins of A

Lost A_{-1}

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1881phae.proj.1409B

Mar. 16, 1881

β Orionis

5 8 44

−8 21

		B	B	R	R	B
20	4	37.0	0	41.8	41.8	41.4	42.4
		42.8		47.6	47.6	48.0	47.4
		5.95		4.1	4.2	4.0	3.9
		45.0		51.7	51.4	52.6	51.7
		1843		2052	2050	2060	2049
		46.08		51,30	51,25	51,50	51,22

C = 44 61.6

β Tauri

5 18 39

+28 30

		B	B	R	R	B
30	4	23.8	0	50.4	50.0	50.0	50.0
		29.0		54.9	54.7	54.8	54.4
		40.5		6.0	5.7	5.8	5.3
		3.27		58.0	58.3	58.9	58.7
		1260		2273	2287	2295	1684
		34 31,50		35 55,42		57,18	57,38	42,10

ε Orionis

5 30 4.

−1 17

		B	B	R
20	1	45.0	2	24.4	24.1
		54.8		31.3	31.3
		10.3		46.1	46.2
		59.0		34.5	34.0
		2231		1367	1356
	21	55,78	22	34,18	33,90

Lost 1st 3 w

α Columbæ

5 35 16

−34 8

		B	B	R	R	B
10	0	26.0	1	6.0	6.3	6.7	6.3
		34.8		14.7	14.3	14.9	14.5
		46.5		29.5	27.2	27.9	27.2
		37.2		16.0	16.7	16.4	16.2
		1445		642	645	657	642
	10	36,12	11	16,05	16,12	16,42	16,05

Lost 1st 4 w

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1881phae.proj.1409B

Mar. 16, 1881

C = 44 61.6

ζ Orionis

5 25 50

−0 24

	B	B
25	24 7.1	3 21.1
	54.2	28.1
	8.9	42.2
	58.0	31.3
	22 22	12 27
27	5 5.55	28 30.68

Lost last 2 w

α Leporis

5 27 24

−17 5 5

	B
55	3 30.9
	40.5
	54.3
	41.4
	16 7.1
58	41.78

κ Orionis

5 4 21

−9 43

	B	B	R
45	2 23.9	3 22	22
	30.0	88	9.0
	42.9	26.5	26.3
	34.4	12.8	12.8
	13 12	5 03	5 03
47	32.80	48 12.58	12.58

Lost 1st 4 w?

ν Orionis

5 48 37

+7 23

	R	R
40	1 34.1	34.1
	41.1	40.8
	53.9	54.0
	43.7	43.3
	17 28	17 23
41	43.20	43.08

Lost one or two N

The middle wires of A

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1881phae.proj.1409B

Mar. 20, 1881

3 Aquilae

18 59 51

+13 41

B B B

20	3	33.0	47.4	47.9
		39.2	53.9	54.0
		52.2	6.8	6.4
		40.4	55.1	54.8
		1648	2232	2231
	23	41.20	55.80	55.78

C = 44 61.6

β Leporis

5 25 50

−20 42

R

20	2	27.9
		31.4
		41.5
		35.0
		1361
	22	34.02

β Aquarii

15 45 22

+6 6

R

55	4	9.0
		17.2
		28.0
		18.0
		722
	59	18.05

α Cygni

20 37 18

+44 57

B B R R

15	0	50	26.4	26.2 26.8
		5.2	28.0	27.8 27.6
		17.0	39.3	39.9 39.3
		11.1	33.0	33.5 33.4
			383	1267 1274 1271
	15		9.58	31.68 31.85 31.78

Rej 15 1 − 5

Aug C

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1881phae.proj.1409B

Mar. 20, 1881

δ Aquilæ

19 40 30

+10 19

	R	R
45	0 1 27	123
	1 58	178
	2 58	299
	2 18	214
	8 11	8 14
45	20.28	20.35

ζ Aquilæ

19 44 53

+13 53

	R	R
30	1 15 9	16.4
	22.7	22.8
	34.8	34.2
	24.9	24.8
	9 83	9 82
31	24.58	24.55

C = .44 61.6

ε Cygni

20 40 19 +33 31

	B	B	R	R	B
30	3 57.0	4 57.9	51.6	51.3	57.5
	54.3	54.5	54.3	54.8	54.1
	6.3	6.4	6.2	6.3	6.2
	59.6	59.9	59.1	59.3	59.5
	23 12	32.7	31.2	31.7	31.3
33	57.80	34 58.17	57.80	57.92	57.82
		58.00	57.86		

3 Cygni

21 7 47

+29 44

	B	B	R	R	B
20	0 41.0	2 1.4	1.1	1.1	1.1
	45.2	5.3	5.6	5.8	5.9
	54.7	15.2	15.1	14.9	15.2
	48.3	7.9	8.3	8.7	8.5
	18 9 2	29 8	30 1	30 5	30 7
20	47.30	22 7.45	7.52	7.62	7.67
		7.56	7.57		

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1881phae.proj.1409B

Mar. 20, 1881 — C = 44 61.6

α Cephei — β Aquarii

21 15 41 — 21 25 11

+62 4 — −6 6

		B	B	B	B			B
0	0	89.4	116.0	2 1.0	18.0	5	4	53.0
		38.4	15.4	0.4	19.3			57.8
		50.0	26.3	11.7	28.4			12.2
		45.1	21.2	6.0	22.9			1.7
		1729	389	191	866			47
		43.22	19.72	4.78	21.65		10	1.18

Rej. 2"4 5

α Aquarii

21 59 34.8

−0 6 7.4

	B
55	3 57.1
	4.2
	17.2
	6.3
	24.8
59	6.20

A_4 & C A_5 (?)

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1881phae.proj.1409B

Mar. 20, 1881

β Cephei

21 27 4

+70 2

	B	B	TO
0 4	25.0	41.1	0 1.2
	24.9	40.8	0.0
	36.0	57.7	11.0
	31.0	47.1	6.3
	1169	1807	185
4	29.22	45.18	4.62

A, 2C

C = 44 61.6

ε Pegasi

21 38 14

+9 19

	B	B	R	R	B
40 4	39.9	1 4.1	3.9	4.3	3.7
	46.4	9.0	9.8	10.0	9.8
	58.0	21.4	21.9	21.6	21.2
	48.0	12.9	13.0	13.2	12.7
	1923	474	486	491	474

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1881phae.proj.1409B

Mar. 21, 1881

δ Persei

3 34 19

+47 24

C = 44 61.6

α Tauri

4 28 59

+16 16

B B

453 364 341

42.7 42.7

57.0 56.5

45.9 46.1

1824 1824

48 45.60 45.60

A_{+1} No δ

A_{+1} $A_{8\ 9}$ A_{-1}

δ Orionis

5 25 50

−0 24

B

25 2 41.1

48.6

2.8

52.7

2052

27 51.30

α Orionis

5 29 31

−6 0

B

0 3 28.1

34.2

49.6

38.4

1503

3 37.58

A_{+1} $A_{1\ to\ 5}$

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1881phae.proj.1409B

Mar. 21. 1881

β Orionis

5 8 44

−8 21

	B	B
20 4	32,0	0 55,2 55,0
	38,2	1,0 0,8
	35,0	17,4 17,5
	41,1	4,9 4,9
	1463	185 182
24	36,58	25 4,62 4,55

C = 44 61.6

β Tauri

5 18 39

+28 30

	B	B
35	0 15,8	15,9
	20,4	20,4
	32,4	32,3
	25,2	25,5
	940	941
35	2350	2352

Last A_{+1} + A_{-1}

ε Orionis

5 30 4

−1 17

	B	B
20 1	51,9	2 33,2
	583	39,9
	132	54,7
	2,2	48,7
	56	171 5
22	1,40	42,8 8

A_2 ∴C

ζ Gem.

6 30 43

+16 30

	R	R
35 1	1 8	1,5
	7,1	7,3
	21,7	21,8
	9,8	10,1
	404	407
36	10,10	10,18

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1881phae.proj.1409B

Mar 21 1881 c = 44616

ε Can Maj

6 39 49

R–16 R

25 2 6.8 10.6

16.1

29.6

18.6

71.1

27 17.78

51 Epsilon

6 42 14

+8 14 R

50 43 45

6.3 6.2

16.3 16.0

11.0 16.0

37.9 37.7

53 9.48 9.42

– Canis Min

7 20 35

+8 32

B B R R B

30 3 4.3 4 21.8 21.6 21.0 21.6

12.0 28.3 29.1 29.4 29.3

24.8 41.6 41.2 41.3 41.5

14.1 31.5 31.3 31.8 31.9

5 5 2 32 32 35 33

33 13.80 30.80 30.80 30.87 30.82

30.81 30.83

α Geminorum

7 26 52

+32 9

B B R R B

55 1 6.8 2 28.8 29.0 29.0 28.9

9.9 31.9 32.0 32.6 31.9

24.0 46.3 46.4 46.2 46.1

16.2 37.9 38.2 38.4 38.2

6 6 9 24 9 25 6 26 2 25 1

56 16.72 36.22 36.40 36.55 36.73

36.25 36.48

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1001.phae.proj.1409B

Mar. 21, 1881

ε Can. Maj

6 + 35 2

R R

50 1 25.3 25.2

34.2 34.5

47.1 47.5

37.8 37.6

144.4 144.8

51 36.10 36.20

C = 44 61.6

ζ Can Maj

7 3 25

R R

15 1 367 368

458 455

597 591

488 488

1910 1902

16 47.75 47.55

α Can. Min

7 32 58

+5 32

B B R R B

30 2 52 2.8 4 4.9 4.9 4.9 5.1

1.3 13.4 13.7 13.8 13.3

13.8 25.6 25.7 25.5 25.8

34 15.0 15.7 16.1 15.0

113 189 200 203 192

33 2.82 β 14.72 ~~+2.22~~ 15.00 15.07 14.80

14.76 15.03

β Geminorum

7 35 37 55

+28 19

B B R R R

45 1 24.0 2 31.1 31.2 31.2 31.0

27.9 35.9 35.6 35.7 36.0

38.9 46.6 46.4 46.7 46.5

31.5 39.8 39.8 39.2 39.4

1223 1534 1530 1528 1524

46 30.58 47 38.35 38.25 38.20 38.22

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1881phae.proj.14098

Mar 21 1881

15 Argus

8 2 23

−23 57

	B	B	R	R	B
0 0	56.3	2 10.0	10.3	10.6	10.7
	5.9	19.8	19.3	19.0	19.3
	20.7	34.1	33.9	34.4	34.5
	8.6	22.5	22.3	22.0	22.2
	3 1.5	64	58	60	67
1	7.88	21.60	21.95	21.50	21.67
		21.63	21.72		

C = 44 61.6

α Serpentis

15 38 18

+6 48

	R
15	37.6
	45.2
	55.4
	47.6
	18.78
16	46.95

δ Ophiuchi

16 8 0

−3 23

	B	B	R	R	B
25 2	29.8	3 5 2.9	52.8	52.5	52.8
	37.1	0.4	0.1	0.3	0.3
	50.10	13.3	13.1	13.2	12.9
	39.3	2.8	2.4	2.7	1.8
	15.62	94	84	87	78
27	39.05	29 2.35	2.10	2.17	1.95
		2.15	2.13		

α Scorpii

16 21 5.9

−26 10

	B	B	R	R
10 2	36.1	4 3.3	3.1	3.4
	45.0	12.7	13.1	12.5
	57.5	26.0	25.9	26.0
	46.8	13.9	14.1	14.1
	18.54	559	562	560
12	46.35	14 13.98	14.05	14.00

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1881phae.proj.1409B

Mar. 21, 1881

δ Scorpii

15 53 11

−22 16

		B	B	R	R	B
20	0	10.3	31.1	31.2	31.0	31.4
		18.3	40.0	39.9	39.8	39.4
		33.1	53.8	53.2	53.7	53.8
		20.9	41.4	41.7	42.0	41.5
		8.26	63	60	65	61
	20	20.65	41.57	41.50	41.62	41.52
			41.54	41.56		

C = 44 61.6

β' Scorpii

15 58 24

−19 28

		B	B	R	R	B
30	2	13.8	31.4	31.6	31.6	31.3
		23.3	40.4	41.0	40.8	40.4
		37.0	54.0	54.0	53.9	54.0
		24.8	42.1	42.4	42.1	42.1
		9.89	79	90		84
32	2	47.72	33 41.97		42.25	42.10
			41.96		42.17	

(1678
41.95

β Herculis

16 25 1

+21 45

		B	B	R
20	1	25.8	26.3	26.1
		30.8	31.3	31.3
		40.0	40.0	40.1
		34.9	34.2	34.7
		13.15	13.18	13.22
	21	32.88	32.95	33.05

3 Ophiuchi

16 30 30

−20 19

		B	B	R	R	B
20	3	26.0	47.2	47.2	47.2	47.3
		32.5	53.5	53.7	53.4	53.5
		48.3	9.2	8.7	9.2	10.0
		36.0	56.8	56.8	57.0	57.0
		14.28	26.7	26.4	26.8	27.8
	23	35.70	56.67	56.60	56.70	56.9
			56.81		56.65	

A −1

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1881phae.proj.1409B

Mar. 21, 1881

η Herculis

16 38 45

+39 9

B B R R B

53 1 38.1 2 55.3 55.4 55.0 55.6

40.8 58.0 58.5 58.8 58.9

52.1 10.6 10.2 10.0 10.0

45.8 3.9 3.3 3.3 3.1

1768 80 74 71 76

56 44.20 58 2.00 1.85 1.78 1.90

1.95 1.82

C = 44 61.6

η Ophiuchi

17 3 27

−15 34

B B R

35 0 14.9 4 27.9 27.7

24.6 37.6 37.1

37.8 50.0 50.1

25.5 37.9 37.9

1028 1534 1528

38 25.70 39 38.35 38.20

α Ophiuchi

17 29 19

+12 39

B B R B

25 1 34.5 2 20.0 20.0 20.0

40.4 26.7 26.5 26.4

52.8 39.0 38.8 38.9

42.4 28.0 28.2 28.5

1701 1137 1135 1138

26 42.52 27 28.42 28.38 28.45

Last 1st 2 w.

3 Cygni

21 7 47

+29 44

B B

20 1 17.3 2 3.3

21.4 8.0

30.9 17.5

23.3 10.4

929 390

21 23.22 29.75

Last 1st 2 w

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1881phae.proj.1409B

Mar. 21, 1881

α' Herculis

17 9 18

+14 32

B		BR	B.	
30 3	21.1	4 37.0	37.5	37.7
	27.5	43.3	43.1	43.9
	39.9	55.9	55.8	55.8
	29.0	45.1	46.1	45.2
	11.5	21.3	22.5	22.6
33	29.38	45.32	45.62	45.65
		45.32		45.63

C = 44 61.6

β Draconis

17 27 42

+52 23

B	
40 2	25.1
	28.2
	38.1
	31.3
	1227
42	30.68

Rej 2nd δ

ε Cephei

21 10 24 ~~6 2 4~~

6 2 4

B	B	B	
0 1	5.9	45.9	2 2.4
	3.8	44.4	0.7
	15.3	55.3	11.5
	10.4	50.3	6.8
	3.54	19.59	2.14
1	8.85	48.98	2 5.35

β Aquarii

21 25 11

−6 6

B	
10 0	29.0
	34.0
	47.1
	36.3
	1464
10	36.60

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1881phae.proj.1409B

Mar. 21, 1881

β Cephei

21 27 6

+70 2

	B	B	B	R	R	R
0 4	20.2	33.0	51.9	52.2	52.0	51.9
	19.9	32.4	51.2	51.8	52.0	51.8
	31.4	43.5	2.2	2.0	1.9	2.5
	25.1	38.4	57.5	58.1	57.9	57.3
	966	1473	2228	2241	2238	2235
4	24.15	36.82	55.70	56.02	55.95	55.88

Sent 1st N

C = 44 61.6

ε Pegasi

21 38 14

+9 19

	B	B	B
40 4	46.8	1 57.6	57.3
	52.9	11.4	11.3
	4.0	23.6	22.9
	53.8	13.2	13.2
	2175	539	527
	54.38	13.48	13.18

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1801.phae.proj.1409B

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1881phae.proj:1409B

Mar 21/22. 1881

⊙

0 8 10
+0 53

B

5 + 0	50.9	25 3	38.3
	55.8		45.3
	9.0		58.1
	1.1		49.1
	2368		1908
55	59.20	28	47.70

Both limbs in δ + R.A.
Seeing moderately good.

C = 44 6.6

γ Leon.

6 30 43
+6 30

R R

30	4 54.8	54.2
	1.0	1.3
	15.2	15.6
	5.2	5.6
	162	167
35	4.05	4.18

ε Can. Maj.

6 5 3 5.2
−28 48

B	B	R	R	B
50 1 21.1	2 33.8	33.1	32.9	33.3
31.0	42.4	42.1	42.3	43.0
43.5	55.7	55.2	55.6	55.8
33.2	44.1	45.0	44.3	44.7
1288	155	154	151	163
51 32.20	52 43.87	43.85	43.78	44.07
	43.97		43.82	

δ Canis Maj.

7 3 28
−26 12

B	B	R	R	B
15 0 29.4	1 37.9	37.7	38.1	38.1
38.0	46.4	47.0	46.8	46.4
52.8	0.8	1.0	0.9	1.0
40.3	49.3	49.2	49.6	48.8
1605	1944	1949	1954	1943
15 40.12	16 48.60	48.72	48.85	48.57
	48.59		48.78	

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1001phae.proj.1400B

Mar. 22, 1880

C-

α Can. Maj

6 39 49

−16 33

B V B R R

35 2 39.4 3 26.7 27.0 27.0

48.2 36.0 35.6 36.0

2.2 49.5 48.3 49.0

50.8 38.2 38.4 38.1

2006 1504 1495 1501

37 50.15 38 37.60 37.38 37.52

51 Cephei

6 42 14

+87 14

B B B B

50 3 5.0 8.3 11.2 14.8

6.6 10.0 13.0 16.8

16.8 20.0 23.2 27.3

10.8 14.2 17.0 21.1

392 525 644 800

53 A_3 9.80 13.12 16.10 20.00 to 9_0

— Can Min

7 20 35

+8 32

B B R R B

30 2 49.8 4 28.1 28.4 28.4 28.5

57.3 36.0 36.0 36.6 35.9

9.9 48.7 49.1 48.8 48.6

59.3 37.8 38.1 38.0 37.4

23 63 306 316 318 304

32 59.05 34 37.65 37.90 37.95 37.60

37.63 37.93

α Geminor.

7 26 52

+32 9

B B R R B

65 1 9.2 2 29.5 30.0 30.2 29.8

12.3 33.9 33.7 33.2 33.3

27.0 47.1 47.1 46.7 47.4

18.0 38.4 39.0 38.8 38.5

665 1489 1498 1489 1490

56 16.62 57 37.22 37.45 37.22 37.25

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Mar. 22, 1881

α Cam. Min

7 32 58

+5 32

	B	B	R	R	
30	2 55.0	4 14.9	15.0	14.9	45 2
	3.0	23.3	23.7	23.5	
	15.1	35.4	35.1	34.9	
	4.7	24.6	25.8	25.8	
	17.8	98.2	99.6	99.1	
32	4.45	34 24.55	24.90	24.78	

C = 44 61.6

β Geminor.

7 37 55

+28 19

	B	B	R	R	B
	7.4	-45.4	45.4	46.1	46.0
	12.0	50.[illegible]	50.9	50.7	50.6
	22.8	0.9	1.1	1.6	1.0
	15.3	53.[illegible]	54.1	54.2	54.0
	57.5	10.2	11.5	12.6	11.6
47	14.38	52.55	52.87	53.15	52.90
		52.72	53.01		

Sort A+1

χ Draconis

17 53 48

+59 30

	B	B	R	R	B
30	0 37.9	2 54.6	55.1	55.8	55.1
	39.6	56.8	56.7	56.5	57.0
	50.0	7.0	7.2	7.2	7.2
	43.0	0.7	0.7	1.2	0.5
	17.05	39.1	39.7	0.7	39.8
30	42.62	59.77	59.92	60.17	59.95
		59.84	60.04		

η Serpentis

18 15 29

-2 56

	B	B	R	R	B
	55.4	57.9	1 21.3	20.3	21.2
		5.7	27.9	28.1	28.1
		18.3	41.1	40.6	40.8
		58.1	29.9	29.8	30.1
		27.7	0.2	38.8	0.2
	0 6.92		1 30.05	29.70	30.05
			29.92	29.87	

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1991phae.proj.14008

Mar. 22, 1881

β Draconis

17 27 42

+52 20

B	B
40-2 27.0	3 29.4
30.0	31.8
39.9	41.8
33.0	34.4
1299	1374
42 32.48	43 34.35

C = 44 61.6

α Ophiuchi

17 29 19

+12 39

B	B	R	R	B
25 2 16.9	42.2	42.2	42.2	42.3
23.3	48.0	48.5	48.6	48.5
3.6	1.0	1.0	0.8	1.1
25.0	50.0	49.9	50.0	50.1
1008	2012	16	16	20
27 25.20	50.30	50.40	50.40	50.50
	50.40	50.40		

$A_5 - \alpha$ C

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1881phae.proj.1409B

Mar. 22/23. 1881

⊙

0 11 49

+1 17

B

30 2 22.1

18.8

39.4

30.5

11 08

32 27.70

Upper limb in δ

4+1 4 + c 2nd limb in R.A.

Observation rather

doubtful — clouds.

c = 44 61.6

χ Androm. B obs

1 56 29

+41 45

ΔR. only

α Orionis

5 − 46 37

+7 20

R R

40 1 30.6 30.4

37.0 37.2

48.2 48.4

38.2 38.8

1540 1550

41 38.50 38.75

β Draconis

17 27 42

+52 28

B

40 2 20.9

22.2

31.3

24.5

989

42 24.72

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1881phae.proj.1409B

Mar. 23, 1881

α Aurigæ
5h 7m 44s
B +45° 52'

10	2	33.7
		36.0
		46.6
		39.4
		1557
	12	38.92.

Rej 2nd δ

A+1 A, to B

β Orionis
5h 8m 44s
−8° 21'

	B	B	R	R	B
25h	0	7.2	51.2	51.2	57.5	57.5
		12.4	56.2	56.3	56.3	57.0
		29.6	12.5	12.6	13.0	12.4
		15.9	59.3	59.8	1.8	59.3
		651	392	399	26	02
	25	16.28	59.80	59.97	60.65	60.05
			59.92	60.31		

Lvl −1.51 2w

α Ophiuchi
17h 29m 19s
+12° 39'

		B	B	R	R	B
25h	1	5.2	2 21.0	20.8	20.8	21.2
		10.2	26.2	26.8	26.0	26.8
		21.6	B37.9	38.0	37.8	38.0
		12.2	28.0	28.1	27.9	27.6
		49.2	331	337	325	336
	26	12.30	28.27	28.42	28.12	28.40
			28.33	28.27		

γ Draconis
17h 53m 48s
+51° 30'

		B	B	R	R	B
35°	0	38.2	1 43.9	44.3	44.1	44.0
		38.8	44.9	44.6	45.1	45.1
		48.5	54.1	54.1	64.4	54.0
		42.1	47.5	48.7	48.6	46.8
		1676	1904	1917	1922	1899
	35	41.90	36 47.60	47.92	48.05	47.48

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1881phae.proj.1409B

Mar. 23, 1881

C = 44 61.6

δ Ursæ Min.

18 11 2

+86 36

η Serpentis

18 15 29

−2 57

		B	B	B	B	B	B		B	B	R	R	B
25	4	41.0	48.8	54.1	5.7	13.0	21.0	0	09.7	1	26.7	27.2	27.3	27.1
		40.5	48.8	54.2	4.5	11.8	19.5		15.5		33.3	33.0	33.0	33.2
		47.3	55.5	1.3	11.2	18.8	26.6		27.9		45.4	46.1	45.0	45.3
		42.4	52.0	57.0	8.4	15.3	23.4		16.2		33.7	34.1	34.6	33.8
		17.12	20.51	22.66	2.98	5.89	9.05		6.93		1.91	1.94	1.99	1.94
29	4	28.0	51.28	56.65	7.45	14.72	22.62	0	17.32		34.77	34.85	34.97	34.85
											34.81		34.91	

stroke of

Rej. δ just preceding (30) +1.0

λ Aquilæ

18 59 56

−5 3

β Cygni

19 25 50

+27 42

		B	B	R	R	B			B	B	R	R	B
5	3	5.6	4	11.1	11.0	11.4	11.1	20	2	28.9	3	48.1	47.8	48.2	48.0
		12.0		18.0	17.3	17.1	17.1			31.6		50.9	50.7	50.6	50.6
		23.0		28.9	28.9	28.8	29.0			40.5		59.3	59.2	59.2	59.4
		11.7		17.5	17.8	18.0	17.0			33.1		52.5	52.8	52.4	52.0
		5.23		3.45	3.50	3.53	3.42			13.41		1.08	1.05	1.04	1.02
8		13.08	9	18.87	18.75	18.82	18.55	22		3.52	23	52.70	52.62	52.60	52.55
				18.71		18.78						52.62		52.61	

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1881phae.proj.1409B

Mar. 23, 1881

α Lyra

18 32 50

+38 40

	B	B	R	R	B
20 4	58.2	1 16.8	16.7	16.9	16.3
	0.3	19.0	19.0	19.0	18.7
	11.0	28.8	28.8	28.7	28.8
	3.4	22.8	23.0	23.1	22.7
	12 9	74	75	77	65
25	3,22 26	21.85	21.87	21.92	21.62
		21.74	21.89		

C = 4.4 6.1.6

σ Sagittarii

18 47 46

−26 27

	B	B	R	R	B
25 4	11.0	26.1	26.1	26.7	26.3
	19.9	34.0	34.2	34.1	34.3
	32.0	45.6	45.5	45.7	45.5
	18.7	34.9	34.6	34.8	34.3
	8 16	206	204	213	204
29	20 40 30	35.15	35.10	35.32	35.10
		35.13	35.21		

α Aquilæ

19 44 58

+8 33

	B	B	R	R	B
30 1	18.2	2 39.0	39.0	39.4	39.3
	23.0	45.1	45.1	45.0	45.0
	33.5	54.8	53.8	54.8	54.9
	23.2	45.0	44.6	44.8	44.0
	9 79	1839	1825	1840	1832
31	24.48	32 45.98	45.62	46.00	45.80

β Aquilæ

19 49 22

+6 4

	B	B	R	R	B
55 2	55.0	4 12.9	13.3	13.4	13.3
	2.3	20.7	19.9	19.9	19.9
	4.4	29.6	29.7	29.4	30.0
	1.0	19.1	19.7	19.8	19.0
	97	823	826	825	822
58	2.42	20.58	20.65	20.62	20.55

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Mar. 23, 1881

C = 44 61.6

θ Aquilæ

20 5 4

−1 11

		B	B	R	R	R
10	4	37.9	41	4.6	4.7	4.7
		44.3	9.3	10.0	10.1	9.2
		55.2	22.0	22.1	22.0	22.0
		43.8	9.2	9.8	9.8	9.8
		1812	446	1065	1066	457
14		45.30	16 11.5	2662	2665	1142

α² Capricorni

20 11 20

−12 55

		B	B	R	R	B
55	3	38.0	4 48.4	47.9	48.3	48.1
		47.3	55.0	55.1	55.1	55.0
		57.9	8.1	8.0	8.1	8.5
		43.9	54.7	53.8	54.3	54.4
		1871	2262	2248	2258	2260
58		46.78	59 56.55	56.20	56.45	56.50

ζ Cephei

21 15 41

+62 4

	R	R
0	120.0	209
	18.9	18.6
	28.7	28.7
	23.0	22.7
	90.6	90.9
1	2265	2272

β Aquarii

21 25 11

−6 6

R	R
54 48.9	49.2
53.9	53.8
6.2	6.0
54.0	54.9
2230	2239
54 55.75	55.98

End 1st Ser

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Mar. 23, 1881

χ Cygni

20 17 53

+39 52

	B	B
10	2 40.1	4 3.1
	42.0	5.9
	52.0	16.0
	44.5	8.4
	1786	3344
12	44.65	8.35

C = 44 61.6

η Cephei Cygni

21 43 47

+61 44

	R	R
20	0 5-9.0	5-9.0
	28	22
	10.7	10.7
	3.8	4.0
	163	159
21	4.08	3.98

ε Pegasi

20 38 14

+9 19

	B	B	R	R	B
40	4 40.4	0 59.9	59.8	59.8	59.9
	46.0	4.1	4.7	4.0	4.7
	56.4	15.1	15.0	14.9	15.0
	46.1	5.5	6.1	6.0	5.0
	1889	246	256	247	246
44	47.22	45 6.15	6.40	6.17	6.15
		6.15	6.28		

C = 44 61.6

α Aquarii

21 59 34

−0 54

	B	B	R	R
55	3 12.2	4 26.5	26.8	26.2 ~~33.2~~
	18.3	32.5	32.2	33.2
	30.3	44.9	44.8	45.0
	19.2	32.7	33.5	33.1
	800	1366	1373	1375
58	20.00	59 34.15	34.32	34.38

A+1 A123-5

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1881phae.proj.1409B

c = 44 60.1

Mar 23, 1881

c =

η Pegasi

ℓ 2 37 20

+ 29 35

	B	B	R	R	B
30 0	41.4	41.0	40.8	41.0	41.2
	145	44.0	44.2	43.9	44.0
	23'3	53.4	52.5	53.1	53.4
	16.9	46.8	45.8	46.8	46.3
	661	1852	1833	1848	1849
30	16.52	46.30	45.82	46.20	46.22

47 2 c

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Mar. 23/24, 1881

⊙

0 15 27
+ 1 40

	B	B
5 3	51.1	40 1 36.3
	49	42.1
	48	53.0
	56.7	42.7
	2345	1741
8	58.62	41 43.52

Both limbs in S of R.A.
Seeing very fine indeed.

C = 44 60.1

α Aurigæ

5 7 46
+45 52

	B
10 2	42.1
	41.9
	55.7
	47.4
	190.1
12	47.52

δ Orionis

5 25 50
−0 24

	B
25 2	41.8
	48.5
	1.2
	49.5
	2010
27	50.25

α Leporis

5 27 24
−17 55

	B	B
55 3	10.1	4 29.9
	19.1	39.0
	31.6	51.3
	19.3	38.0
	801	1582
58	20.02	59 39.55

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1881phae.proj.14098

Mar. 24, 1881

β Orionis

5ʰ 8ᵐ 44ˢ

−8° 21′

		B	B	R	R	B
25	0	13.8	54.3	54.3	54.3	54.4
		18.2	59.8	59.7	59.7	59.3
		34.0	14.2	14.9	14.4	14.4
		19.5	1.0	1.3	1.7	0.8
		855	93	102	101	92
25	2	1.38	2.32	2.55	2.52	2.30
			2.31	2.54		

C = 44 60.1

β Tauri

5ʰ 18ᵐ 39ˢ

+28° 30′

		B	B	R	R	B
30	4	42.2	1 36	3.1	4.2	3.9
		46.3	7.2	7.2	7.8	7.2
		56.3	17.0	16.8	16.9	17.0
		48.4	9.2	9.2	9.7	9.5
		1932	370	363	386	376
34		48.30	9.25	9.07	9.65	9.40
			9.32	9.36		

ε Orionis

5ʰ 29ᵐ 31ˢ

−6° 0′

		B	B
0	3	36.1	4 57.0
		41.8	3.0
		55.7	17.0
		43.2	3.6
		176.8	20.6
3	4	42.0	5 5.15

α Columbæ

5ʰ 35ᵐ 16ˢ

−34° 8′

		B	B	R	R	B
5	4	50.0	1 01.1	0.8	1.6	1.1
		58.8	9.5	9.6	9.9	9.8
		9.0	20.1	20.0	20.6	20.1
		57.2	9.0	8.9	9.1	8.9
		2350	397	393	412	399
9		58.75	11 9.92	9.82	10.30	9.98

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1881phae.proj.1409B

Mar. 24, 1881

κ Orionis

5 42 1

−9 43

B	B	R	R	B
45	52.8	3 10.4	10.4	11.0	10.6
	58.2	16.3	16.4	16.8	16.3
	14.6	32.2	32.2	32.1	32.0
	0.5	18.3	18.7	18.7	19.1
		61	772	777	786	780
47	15	24.8	19.30	19.42	19.65	19.50

C = 44 601

α Orionis

5 48 37

+7 23

B	B	R	R	B
40	43.1	2 50.2	50.4	50.7	50.0
	49.9	56.5	56.6	56.3	56.3
	0.1	8.2	7.2	7.6	7.86
	49.1	58.4	57.0	57.7	56.8
		2022	2313	2312	2313	2304
41	50.55	42	57.82	57.80	57.82	57.68

γ Gem.

6 30 43

+6 30

R R

30	44.84	48.2
	54.7	54.4
	6.7	6.4
	56.4	57.0
	2262	2260
34	56.55	56.50

ζ Can Maj

6 39 49

−16 33

R R

35	2	7.8	8.0
		16.4	16.8
		28.2	28.2
		16.3	16.9
		687	702
37		17.18	17.55

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1881phae.proj.1409B

δ Ursae Min L.C.

6 1 1 2

+ 8 3 2

R R

40 B 20 4 11,6

21.0 12 3

30,1 21,2

22,4 13,2

9 3 9 5 8 3

43 23,48 14,58

Wilson.

6 15 39

+22 34

R R

30 0 37,2 37,8

42 0 42,1

50 7 50,2

43 8 44,3

17 3 7 17 4 4

30 43,42 43,60

A 6, to B 2

χ Cassiop. 13 obs.

+2 49 25

+119 56

B B

10 4 6.0 6.0

7.5 7.1

11.3 11.4

4.3 3.5

291 282

14 7.28 7.05

Lost some of the last two nights Clouds.

α Virginis 18 obs,

13 18 49

−10 32

B

35 3 4.1

10.0

24.3

11.6

500

38 12,50

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1881phae.proj.1409B

Mar 24 1880 C = 44

γ Draconis

17 + 34 δ

+ 5 / 30 R R

35	0 24,4	24,8
	25,0	24,9
	34,7	35,0
	29,1	28,7
	11 32	11 34.
35	28,30	28,35

Sheut Sui

18 + 12

+ 16 36 R R

R			
25	4 56,1	10,9	21,4
	55,7	10,8	20,1
	0,7	15,7	26,4
	10,7	14,1	24,1
	23 26	5 15	9 20
29	58,15 30	12,88	23,00

~~β Aquilae~~ α Aquilae

~~19 15 10~~ 19 59 26

~~+ 7~~ / 42 − 5 − 3

55	2 48,1	
	54,6	
	4,2	
	55,0	
	22 19	
57	55,48	

β Cygni

19 29 50

+ 27 / 92

22	2 30,9	
	34,2	
	41,6	
	3,8	
	14 25	
22	3 5,62	

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1901phae.proj.1400B

ν Aquarii

	R	R
0	6.4	6.1
	12.5	11.8
	23.1	23.2
	13.6	13.1
	5.56	5.42
1	13.90	13.55

ξ Lyncis

	R
2	5.0 4.6
	6.8
	15.6
	11.0
	3.80
25	9.50

ζ Aquilae

	R	R
30	1 16.2	16.6
	23.0	23.7
	31.5	31.9
	23.8	23.2
	9.45	9.54
31	23.62	23.85

θ Aquilae

	R
55	4 4.3
	11.8
	20.0
	11.7
	4.78
59	11.95

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1881phae.proj.1409B

May 24, 1881

β Cygni

21 7 47

+29 49 4

C = 44 60,1

α Cephei

21 15 41

+62 4

			R	R			B	B	B	
15	4	43	20	0 42,2	42,4	0	0 53,3	1 43,0	2 8,0	
		44,8		45,8	45,1		51,3	41,1	5,6	
		50,0		52,7	52,8		0,2	50,6	15,1	
		11,6		47,2	47,0		56,1	45,8	45,8	
				1879	1873		2209	1799	745	
			20	46,98	46,82		0 55,22	14,98	2 18,62	

Mercury

22 56 3

− 6 B 18

		B	B	R	R	B
20	2	9.0	3 2 18	20.7	21.0	21,6
		13.7	26,9	26.7	24.8	27,1
		27.0	38,7	40.0	39.9	39,5
		15,3	27,9	27.2	27,2	24,7
		650	1163	1146	1149	1161
		16,25	29,08	28,65	28,72	29,02

Center in S

Pole line in Rt

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1881phae.proj.1409B

Mar. 24, 1881

β Aquarii

21 25 11

−6 6

	B	B	R	R
5 4	42.3	6.4	6.2	7.0
	47.8	10.6	10.9	10.9
	0.0	23.0	23.0	23.1
	4.0	11.9	12.0	12.0

Shf.

C = 44 60.1

ε Pegasi

21 38 14

+9 19

	B	B	R	R	B
40 4	47.8	1.73	7.0	7.8	76
	54.1	12.9	12.7	12.0	12.3
	3.2	23.0	23.0	22.9	23.3
	53.3	12.8	13.2	13.0	12.9
	2184	560	539	557	563
44	54.60	46	14.00	13.46	13.92	14.08

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1881phae.proj.1409B

Mar. 24/25, 1881

⊙

0 19 5⁻

+ 2 4

B

~~450~~

450 1 4

2 4 1

3 5 0

2 7 0

Cloudy

C = 44 60.1

κ Cassiop.

0 49 25⁻

+ 6 0 4

B B B

0 1 6.8 32.0 2 22.9

5.3 30.4 22.5

16.6 40.9 23.1

9.3 33.4 25.5

380 1367 940

1 9.50 34.18 2 23.50

A_{+1} A 1 2 3 4

ζ Orionis

5⁻ 29 31

−60

R R°

0 3 37.1 37.2

43.6 44.1

57.2 57.2

45.2 45.3

1831 1828

3 45.78 45.70

β Orionis

5⁻ 34 39

−2

R R

0 4 48.1 48.6

55.3 55.8

9.2 8.7

57.6 57.6

2302 2307

4 57.55 57.65

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1001.phae.proj.1409B

δ Orionis
5 25 50
−0 24

C.R.

ε Leporis
~~47~~ 5 24 24
+47 5 −5

R
5 5 3 46.9
56.3
9.1
5.7
23 8 0
58 59.50

κ Orionis
5 42 1
−9 43

R R
45 2 20.5 −20.8
26.9 26.8
42.6 42.9
29.2 28.9
11 9 0 11 9 2
47 29.75 29.80

κ Orionis
5 48 37
−9 57 23

R R
40 2 39.8 39.8
46.4 45.8
57.4 57.9
47.0 47.0
19 0 6 19 0 5
42 47.65 47.62

A ε C

Chf

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1881phae.proj.1409B

Mar. 25, 1881 C = 44 60.1

δ Ursæ Min. L.C. μ Geminor.

18 11 2 6 15 39

+93 24 +22 34

		B	B	B	B		B	B
40	3	57.1	53.4	46.0	42.1	30 0	34.9	144.9
		58.8	56.0	47.3	43.8		39.3	50.2
		8.5	5.5	57.3	53.1		48.8	59.8
		59.6	56.0	46.0	43.0		42.1	51.8
		40	2309	1986	1820		1651	2067
44		1.00	57.72	49.65	45.50	30	41.28	31 51.68

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1001phae.proj.1400B

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1881phae.proj.1409B

Mar. 26, 1881 C = 44 60.1

51 Cephei

6 42 14

+87 14

	B	B	B	B	B
50	3 9.9	11.3	14.9	17.6	19.4
	10.8	11.8	15.4	18.3	20.1
	19.6	20.8	24.1	27.2	28.9
	12.4	13.0	16.8	19.6	21.4
	5 27	5 69	7 12	8 27	8 98
53	1 3.18	1 4.22	1 7.80	2 0.68	2 2.45

ε Cam. Maj.

6 53 52

−28 48

	B	B	R	R	B
50	1 18.5	2 24.7	24.8	24.9	25.0
	27.3	34.3	34.0	33.4	33.9
	39.4	45.3	45.2	45.1	45.5
	26.4	32.8	32.1	32.2	33.1
	11 1.9	1 7.1	1 6.1	1 5.6	1 7.5
51	27.98	52 34.27	34.02	33.90	34.37
		34.32			33.96

Lost just W

α Geminor.

7 26 52

+32 9

	B	B	R	R	B
55	1 8.8	2 18.8	18.9	19.0	18.9
	11.0	21.5	21.3	21.4	21.2
	23.3	33.3	33.3	32.9	33.4
	14.7	24.6	25.0	24.9	25.2
	5 78	1 82	1 85	1 82	1 87
56	14.45	57 24.55	24.62	24.55	24.67
		24.61			24.59

α Cam. Min.

7 32 58

+5 32

	B	B	R	R
30	3 56.0	4 15.1	15.1	15.2
	3.7	22.9	23.1	23.7
	14.1	33.0	33.0	33.0
	3.4	21.9	22.3	22.8
	1 72	9 29	9 35	9 47
33	4.30	34 23.22	23.38	23.68

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1881phae.proj.1409B

Mar. 26, 1881 C = 44 : 60.1

δ Com Maj
7 3 28
−26 12

	B	B	R	R	B
15 0 21.9	1 35.1	34.9	35.0	35.1	
29.9	43.1	43.4	43.3	43.0	
43.1	56.3	55.8	55.8	56.0	
29.7	43.3	43.1	43.2	42.9	
12 46	178	172	173	170	
31.15	44.45	44.30	44.32	44.25	
	44.35	44.31			

— Cam. Min
7 20 35
+8 32

	B	B	R	R	B
30 3 3.9	4 25.8	26.0	25.9	26.0	
10.7	32.3	33.3	33.0	32.5	
21.3	43.3	43.3	43.7	43.5	
9.7	32.0	31.6	32.0	32.0	
456	134	142	146	140	
33 1 1.40	33.35	33.55	33.65	33.50	
	33.43	33.60			

β Geminor.
7 37 55
+28 19

	B	B	R	R	B
4 15 1 25.1	2 38.0	37.8	37.8	37.9	
27.8	41.0	41.0	41.0	41.0	
37.2	50.0	~~49.2~~ 49.4	50.1	50.2	
30.3	42.9	42.7	42.3	42.3	
1204	119	117	112	114	
46 30.10 47	42.97	42.92	42.80	42.85	
	42.91	42.86			

15 Argus
8 2 23
−23 57

	B	B	R	R	B
0 0 57.2	2 20.5	20.3	21.0	20.2	
4.8	28.4	28.8	29.1	28.4	
17.5	41.6	41.6	41.2	41.1	
5.0	28.9	28.2	28.4	28.1	
245	388	389	397	378	
1 6.12	2 29.70	29.72	29.92	29.45	
	29.57	29.82			

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1881phae.proj.1409B

Mar. 26, 1881 C = 44 60.1

α Cephei L.C. α Hydræ

21 15 41 9 21 38

+117 56 −8 8

	B	B	B		B	B
15 0	6.3	4 34.7	3 57.5	10 2	55.2	4 7.5
	7.3	37.7	59.7		1.0	13.0
	10.7	40.1	2.5		13.9	26.0
	2.8	32.4	54.8		0.0	12.0
	27.1	144.9	234.5		10.1	85
15	6.78	36.22	58.62	13	2.52	14 2.62

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1881phae.proj.1409B

Mar. 26, 1881 C = 44 60.1

σ Ursæ Maj. β Cephei L.C.

9 24 45 9 27 6

+5° 2' 14 +10 9 58

		B		B	B	B	B
50	2	16.4	10	0	58.0	32.0	1.1	45.3
		17.8			57.9	32.9	1.4	46.9
		27.1			2.6	36.9	6.3	50.4
		19.0			55.5	30.6	59.5	43.4
		703			2340	1324	683	1860
52		17.58	10		58.50	33.10	1.708	46.50

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1881phae.proj.1409B

Mar 26/27

☉ 0 26 21
+2 51

Mercury —
22 59 24
— 6 42

5 5 2 52,9
57
13,7
3.1
2 8 8
57 7,20
Sun Steady
Supplement
Bon Mercury R.A.

Tried to see it but failed.

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1881phae.proj.1409B

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Mar. 27/28, 1881 C = 44 57.6

⊙

0 30 00
+3 14

B

30	4 46.8	5 2 25.1	
	54.6	32.2	
	3.1	42.2	
	54.8	33.1	
	21.93	1326	
	34 54.82	7 33.15	

Both limbs in δ & R.A.
Seeing very good.

η Tauri

3 40 18
+23 44

B B B

20	1 29.9	2 11.6	11.4
	34.1	16.1	15.9
	44.1	26.3	25.9
	34.9	16.7	16.9
	1430	707	701
21	35.75	22 17.68	17.52

A_3 & C

ι Aurigæ

4 49 07
+32 58

B B R R B

5	1 26.9	2 49.3	47.3	47.2	49.1
	30.5	51.2	51.3	50.9	51.0
	43.0	3.9	3.9	4.0	3.3
	33.4	54.5	54.2	54.7	53.8
	1338	269	267	268	252
6	33.45	7 46.72	46.68	46.70	46.30
		46.51		46.69	

β Eridani

5 1 54
−5 15

B B R R B

15	4 36.9	0 20.8	20.8	21.2	21.?
	43.3	26.4	26.8	26.7	26.9
	56.6	39.5	39.6	39.8	39.9
	43.5	27.1	27.5	27.8	27.5
	1803	338	347	355	355
19	45.08	20 28.45	28.68	28.87	28.87
		28.66		28.78	

A_2 C

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1881phae.proj.1409B

Mar. 28, 1881 $C = 44\ 57.6$

3 Persei
3 46 32
+31 31

		B	B	R	R	B
30	3	12.3	26.6	27.2	27.4	27.0
		15.3	29.6	30.6	31.1	30.3
		27.6	42.3	42.8	43.0	42.5
		17.5	32.3	33.1	33.7	32.8
		727	110	137	152	126
33		18.18	32.75	33.42	33.80	33.15
			32.95	33.61		

α Tauri
4 28 59
+16 16

		B	B	R	R	B
45	3	35.5	53.8	55.7	55.9	56.0
		40.8	1.4	1.8	1.8	1.8
		53.7	14.2	14.9	14.4	14.0
		41.0	1.5	1.7	1.5	1.4
		1710	129	141	136	127
48		42.75	3.22	3.52	3.40	3.18
			3.20	3.46		

α Aurigæ
5 7 46
+45 52

		B
10	2	37.1
		40.9
		51.0
		41.6
		1706
12		4265

Lost A-1

β Orionis
5 8 44
−8 21

		B	B	R	R	B
25	0	10.0	53.4	53.8	53.3	53.6
		15.4	59.5	59.7	0.0	59.6
		31.2	14.8	14.3	14.7	14.3
		16.0	0.4	0.5	0.4	0.1
		726	81	83	84	76
25		18.15	2.02	2.07	2.10	1.90
			1.96	2.08		

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1881phae.proj.1409B

Mar. 28, 1881 C=44 57.6

β Tauri
5 18 39
+28 30

	B	B	R	R	B
15 4	47.6	0 54.3	54.2	54.4	54.9
	53.0	59.2	59.8	59.1	59.1
	2.8	9.4	9.2	9.6	9.1
	54.2	59.2	0.2	0.8	0.2
	2176	21	34	39	33
19	54.40	20 0.52	0.85	0.97	0.82
		0.67	0.91		

δ Orionis
5 25 50
−0 24

	B	B
25 2	39.0	3 47.4
	46.8	55.5
	59.9	8.2
	48.4	56.3
	1941	2274
27	48.52	28 5 6.85

ε Orionis
5 34 39
−2 0

	B
0 4	45.1
	52.4
	5.8
	51.6
	2149
4	53.72

κ Orionis
5 42 1
−9 43

	B	B	R	R	B
45 1	54.8	3 12.0	12.0	11.9	12.3
	59.8	18.0	18.2	18.1	18.1
	16.5	34.3	34.0	33.7	34.2
	2.0	20.0	19.9	19.8	20.1
	1931	843	841	835	847
46	48.28	21.07	21.02	20.88	21.17
		21.12	20.95		

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1881phae.proj.1409B

Mar. 28, 1881 C = 44 57.6

α Leporis
5 27 24
-17 55

		B
55	4	13.3
		22.9
		35.9
		22.2
		94 3
	59	23.58

47 α C

ι Orionis
5 29 31
-6 0

		B	B	R	R	B
0	3	34.7	4 57.0	57.1	57.3	57.1
		41.1	3.8	4.0	4.1	3.9
		55.0	17.4	17.8	17.7	17.6
		42.3	3.8	4.0	4.0	4.1
		1731	220	229	231	227
3		43.28	5 5.50	5.72	5.78	5.68
			5.59	5.75		

α Orionis
5 48 37
+7 23

		B	B	B
40	1	32.2	3 0.8	0.3
		39.0	7.2	7.2
		50.8	19.0	18.8
		39.0	5.9	6.4
		1610	329	327
41		4.025	43 8.22	8.18

δ Urs. Min L.C.
6 11 2
+93 24

		B	B	B	B	B
40	3	43.0	41.6	30.3	25.2	21.1
		45.2	44.0	33.0	27.5	23.4
		55.0	53.4	42.3	36.9	32.3
		45.0	44.1	32.0	26.2	22.2
		1882	1831	1376	1158	990
43		47.05	45.78	34.40	28.95	24.75

Seeing very bad.

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1881phae.proj.1409B

Mar. 28, 1881 C = 44 57.6

μ Geminor.
6 15 39
+22 34

		B	B	B
30	0	29.7	34.7	35.1
		34.9	39.9	40.0
		43.9	49.3	49.7
		36.4	41.6	41.9
		1449	1655	1667
30		36.22	31 41.38	41.68

15 Argus
8 2 23
−23 57

		B	B	R	R	B
	0	1 41.0	2 23.8	23.7	23.9	24.0
		49.4	32.4	32.8	32.3	32.5
		2.8	45.6	45.8	45.4	45.6
		50.1	33.5	32.8	33.0	33.4
		2033	1356	1351	1346	1355
		1 50.82	2 33.90	33.78	33.65	33.88

Last A_{+1}

θ Urs. Maj.
9 24 45
+52 14

		B
50	2	14.7
		16.0
		26.8
		18.3
		758
52		18.95

β Cephei L. C.
21 27 6
+70 58

		B	B	B	B
10	0	52.2	30.9	11.4	4 57.0
		53.4	32.3	13.2	53.9
		58.8	37.2	18.0	59.2
		52.0	30.2	11.6	50.9
		2164	1306	542	2150
10		54.10	32.65	13.55	9 53.75

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1881phae.proj.1409B

Mar. 28, 1881 C = 44 57.6

α Cephei L.C.

21 15 41
+117 56

	B	B	B
15 0	13.7	4 22.9	3 53.4
	16.0	26.7	57.5
	20.2	30.5	01
	17.4	21.2	57.0
	643	1013	2230
15	16.08	14 25.32	13 55.75

α Hydrae

9 21 38
-8 8

	B	B
10 2	50.4	4 2.0
	57.0	8.1
	10.9	22.2
	57.3	9.4
	1756	417
12	43.90	4 10.42

ε Leonis

9 38 59
+24 20

	B	B	R	R	B
45 0	47.9	2 8.3	8.1	7.9	8.4
	52.0	12.4	12.4	12.8	12.0
	2.2	22.9	22.9	22.7	22.7
	53.8	15.0	14.5	14.3	14.3
	2159	586	579	577	574
45	53.96	47 14.65	14.48	14.42	14.35

η Ursa Maj. Bode

13 42 46
+49 55

	B	B
10 2	40.3	40.8
	41.1	41.3
	50.2	50.8
	43.7	43.9
	1753	1768
12	43.82	44.20

Lost A_{+1}

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1881phae.proj.1409B

Mar. 28, 1881 C=44 57.6

η Bootis Obs.

13 48 55

+19 0

	B	B
5 1	47.3	47.7
	52.8	52.3
	3.4	4.0
	53.3	52.6
	2168	2166
6	54.20	54.15

2 Draconis

17 53 48

R +R30

35 0	44.7	45.3
	46.1	45.9
	55.7	55.0
	47.9	48.0
	1944	1942
35	48.60	48.55

α Lyrae

18 32 50

+38 R40

25 0	70	70
	84	90
	18.7	19.2
	11.8	12.1
	459	473
	11.48	11.82

γ Aquilae

18 59 56

R −53

5 3	56.3	56.4
	2.4	2.5
	13.8	13.6
	2.3	2.4
	148	149
9	3.70	3.72

Lost A 41

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1881phae.proj.1409B

α Ursae Min
18 11 12
+86 39

	R	R	R	R
25	4 53.3	6.4	14.5	24.0
	53.8	5.8	14.0	24.2
	0.2	12.5	21.2	31.2
	55.9	8.2	17.0	26.2
	2232	329	667	1056
29	55.80	30 8.22	16.68	26.40

α Serpentis
18 ~~8 2 50~~
15 25
+6 56

	R
	0 0
	24.0 17.0
	~~21.3~~ 23.7
	31.9
	23.1
	997
	0.2492

β Cygni
19 25 50 +27 42

	R	R
29	23 1.9	32.1
	35.2	34.9
	44.2	43.9
	36.5	36.4
	1478	1473
22	36.95	36.82

Lost A+1
γ Aquilae
19 40 50
+10 19

	R	R
45	1 30.9	31.3
	36.3	36.1
	46.4	46.9
	37.2	37.2
	1508	1513
46	37.70	37.82

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1881phae.proj.1409B

Mar 28 1881 C = 44 57.6

α Lyrae
19 44 53
+833

R R
45 24.7 24.9
30.9 30.8
40.7 40.4
29.5 29.7
12 58 12 58
46 31.45 31.45

β Aquilæ
19 49 22
+6 6

R
55 4 1.50
2.26
3.18
2.10
9 04
59 22.60

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1881phae.proj.1409B

Mar. $\frac{28}{29}$, 1881

⊙

0 33 38

+3 38

			B
10	15	22.8	40 4 27.2
		58.7	34.1
		8.5	44.5
		00.	34.3
		2394	1401
		59.85	44 35.02

Both limbs in δ & R.A.
Seeing pretty good
Lost 1st " 3 w. of 2nd limb.

C = 44 57.6

α Lyræ

18 32 50 +38 40

	B	B	R	R	B
25 0	2.1	18.9	18.9	19.5	19.0
	4.8	22.0	22.0	22.1	22.1
	17.6	33.9	33.8	33.7	33.3
	9.7	26.0	26.4	26.2	26.0
	342	208	211	211	204
25	8.55	26 25.20	25.27	25.27	25.10
			25.15	25.27	

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1881phae.proj.1409B

Mar. 29, 1881 C = 44 57.6

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1881phae.proj.1409B

Mar. 31, 1881

β Cygni

19 28 50

+27 42

		B	B	B
20	2	24.1	3 48.0	48.4
		26.3	41.0	40.6
		36.4	50.2	50.0
		28.4	42.1	41.5
		1152	1813	1805
22		2880	23 45.32	45.12

ζ = 44 57.6

χ Aquilæ

19 40 30

+10 19

		B	B	B
45	0	28.0	1 31.0	31.0
		33.3	36.1	36.2
		44.0	47.3	47.1
		34.1	38.1	37.3
		1394	1525	1516
45		31.85	46 38.12	37.90

χ Cygni

20 17 53

+39 52

		B	B	B
10	2	54.3	4 6.2	6.2
		57.5	9.3	9.4
		8.2	20.0	20.1
		0.3	12.4	11.9
		03	479	476
13		0.08	14 11.98	11.90

α Cygni

20 37 18

+44 57

		B	B
10	4	15.5	0 27.4
		17.4	28.0
		28.0	38.8
		20.0	32.1
		809	1263
14		20.22	15 31.58

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1881phae.proj.1409B

Mar. 31, 1881

θ Aquilæ

20 5 4

−1 11

	B	B
10 4	50.7	0 56.8
	57.3	1.7
	9.5	14.7
	56.9	3.1
	2344	163
	5860	4.08

C = 44 57.6

α^2 Capricorni

20 11 20

−12 55

	B	B	B
55 4	22.8	51.6	51.8
	29.9	58.8	59.0
	43.9	12.5	12.7
	29.9	58.9	59.0
	1265	1818	1825
	31.62	45.45	45.62

Last Δ_{+1}

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1881phae.proj.1409B

Mar. 31
Apr. 1, 1881

⊙

0 44 33
+4 47

	B	B
0	21.0	30.4 30.9
	7.8	38.2
	19.9	49.5
	10.8	39.9
	595	1585
2	14.88	34 39.62

Both limbs in δ-Rt.
Seeing pretty good.

C = 44 57.6

β Tauri
5 -18 09 +28 30

R	R
30 4 42.0	42.6
46.6	47.0
58.2	58.9
51.4	50.9
1992	1994
34 49.80	49.85

β Orionis
5 -34 39
-2

R	R
0 08	07
7.2	7.2
23.1	23.3
11.1	11.0
417	422
5 10.42	10.55

ζ Tauri
6 11 2
+9 24

R	R
12.7	7.2
14.2	9.2
26.9	21.9
17.5	12.5
707	508
1768	1270

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1881phae.proj.1409B

υ Orionis
5-25-30
R-024

29	2	35.1
		49.1
		0.4
		+0.3
		19 52
	31	48.80

ι Orionis
5-2931
-6 0
R R

		33.7 34.0
		39.8 40.0
		56.1 56.1
		44.1 44.1
		17 37 17 45
		- 43.42 43.62

γ Leonis
6 15 29
+22 34
R R

30	1	45.7 45.8
		50.7 50.9
		27 28
		56.3 57.8
		21 54 21 53
	31	53.85 53.82

Right Asc

κ Canis Maj
6 22 41
-16 33

		+6 33 21.7 R
		20.0 20.0
		35.2 35.0
		23.2
		89 3
	37	22.32

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1881phae.proj.1409B

Apr. 1, 1881 C = 44 57.6

κ Cassiop. L.C. Bobs. ν Urs. maj Bobs.

Oh 2 49 25 13 42 44

+1.19 56 +49 53

		B	B			B	B.
10	4	0.4	0.3	10	2	33.9	33.8
		2.5	2.3			35.4	35.6
		10.4	10.2			48.3	47.9
		1.8	1.2			40.3	39.7
		15 1	14 0			1581	1570
	14	3,78	3,50		12	39,52	39,25

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Apr. 2, 1881 C = 44 57.6

χ Cassiop. Bobs.

U 49 25

+60 4

		B	B
0	2	22.2	22.3
		21.6	21.5
		34.0	34.8
		26.0	25.9
		1038	1045
	2	25,95	26,12

15 Argus

8 2 23

−23 57

		B	B	R	R	B
0	1	5.8	2 25.3	25.2	25.2	25.
		14.0	34.1	34.1	33.8	34.0
		29.0	48.5	48.6	48.8	48.5
		15.9	36.0	35.3	35.6	36.0
		6 47	239	232	234	240
	1	16,18	2 35.97	35.80	35.85	36.0
			35.98	35.82		

α Cephei L.C.

21 15 41

+117 56

		B	B	B
10	4	55.4	29.6	3 56.3
		58.9	32.3	0.0
		2.8	36.9	4.0
		65.2	28.7	5.9
		2328	1275	2362
14		58.20	31.88	13 59.05

Lost A-1

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1881phae.proj.14093

DM 2 1881

α Can Min

7 32 5 + 7 5 32

3 R

30 3 4 4 0

5 2 7

4,3

5 5 0

2160

33 54,00

C = 44 57.6

B Gem

7 37 5 5-

+24 19

R R

45 1 166 167

209 208

316 320

24,2 240

931 935

46 23,28 23,35

α Hydrae

9 21 38

-8 8

B B . R

10 2 55.3 4 16 4 16.3

2.1 23,1 23.2

16.3 37,5 37.7

3.0 23,8 24.0

167 1008 1012

12 4,18 14 25.20 25,30

θ Urs. Maj.

9 24 45

+52 14

B B

50 2 2.4 3 7 4

4.8 401

15.2 508

7.1 42.5-

295 1708

52 7.38 53 42,70

Last 1st 2 w.

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1881phae.proj.1409B

Apr. 2, 1881 — C = 44 57.6

β Cephei L.C.

21 27 6

+109 58

		B	B	B
10	0	29.4	15.0	4 50.1
		32.0	16.8	52.8
		37.3	23.0	58.7
		31.3	16.3	51.1
		1300	711	2127
	10	32.50	17.78	9 53.18

ε Leonis

9 38 59

+24 20

		B	B	R	R	B
45	0	51.0	2 8.5	8.2	8.2	8.4
		55.3	13.9	13.6	14.4	13.8
		6.5	23.6	24.0	24.0	24.0
		58.1	15.4	15.1	15.4	15.0
		2309	609	613	620	612
	45	57.72	4 15.22	15.32	15.50	15.30

Ag + C

ζ Cygni

20 37 16

+44 51

10	4	406
		429
		527
		434
		1799
	14	44.98

ζ Lyrae

18 41 19

+38 33

30	3	434
		463
		570
		481
		1952
	33	48.80

		437
		454
		531
		481
		1908
		47.70

Lost 1st 4 Wires

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1881phae.proj.1409B

Aur & O = 44 5 76

2 Lyncis

	R	R	R
45	1 323	326	
	382	380	
	480	480	
	389	390	
	1574	1576	
46	39,35	39,40	

2 Lyncis

B 44 I 3

	R	R
30	1 231	237
	298	297
	387	390
	291	289
	1207	1213
31	30,18	30,32

A – 1

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1881phae.proj.1409B

Mar 2/3 1881 C = 44 5/6

⊙

0 5-1 50
+5 33

30 1 44.4
58.6
8.4
5.6
22.90
31 57.25

Seeing tolerable
Atmosphere unsteady
A fine 2nd limb

ζ Orionis
ζ-O 15 39 31
760
R R
03 41.2 41.9
48.6 48.4
1.4 1.7
49.1 49.0
20 03 20 10
3 50.05 50.25

2 Gain
4 28 59
+16 16
R R
45 4 31.1 31.3
36.1 36.3
51.2 50.8
35.3 39.4
156.7 157.8
Mt.

3 Orionis
5-34 29
-20
R R
0 4 52.4 53.3
0.3 0.6
13.2 14.0
0.7 0.7
1.69 1.86
5 1.72 2.15

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1881phae.proj.1409B

ι Aurigae

44907

+32 58

		R	R
5-	1	28.2	28.2
		31.5	31.2
		43.4	43.9
		34.9	34.9
		1383	1382
	6	34.58	34.55

β Eridani

5-15-4

-5 15-

		R	R
15	3	10.6	57.3
		57.3	57.3
		10.6	10.3
		58.2	58.7
		1767	1776
		44.18	44.40

ζ Orionis

5 4837

R R +23

40	1	48.8	49.3
		58.8	59.9
		7.2	6.8
		55.2	55.5
		2300	2275
	41	57.50	56.88

ε Geminorum

6 15-39

+22 34

30	0	35.9	36.1
		41.3	41.2
		45.9	50.0
		42.0	42.6
		1651	1699
	30	41.24	42.48

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1881phae.proj.1409B

Alpha 1881 α = 44 54 6

2 Eseir.

6 20 43

+16 30

	R	R
30	4 49,1	49,0
	56,1	55,2
	80	80
	55,3	55,6
	2285	2278
3	57,12	56,95

2 Canis Maj

6 35 45

−16 33

	R	R
35	2 10,6	10,9
	20,0	19,8
	31,5	31,6
	18,2	18,3
	803	806
37	20,08	20,15

15 Aquar

S 2 20

−23 57

	R	R
⊙ 2	21,4	21,6
	31,0	31,0
	42,3	42,1
	30,6	30,3
	1253	1250
2	31,32	31,25

Font A+1

α Leaphei Ile

9 15 41 +17 57

	R	R
40	0 15 34,0	45,0
	17,0	55,6
	19,1	57,2
	11,8	50,2
	632	2160
45	15,80	44 54,00

Font A+1

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1881phae.proj.1409B

2 Can Maj
6 53 52
−28 48

R R
50 17,7 18 0
27 8 27,2
32 7 37,7
26,3 26,4

Ch

S Can Maj
7 32 5
−26 12

R R
11 −0 16,5 16 9
25 7 25 8
37 2 36 9
25 4 25,0
1042 1046
15 26,05 26,15

α Hydrae
R 9 21 35
−8 8

10 15 5,2
2 2
14,2
1 2
12 8
12 3,20

O Mensae Maj
9 24 45
+5 2 14

50 2 24,2
26,2
34 4
27 2
11 18
52 27,95

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1881phae.proj.1409B

Aug 31, 81 G = 14 5 26

β Cephei L.C.

9 27 6

+10 R 58

		R	R
10	0	16.7	5 44 61
		18.4	48.0
		22.0	51.8
		16.7	46.3
		73.3	192.2
	10	18.32	9 48.05

ζ Leonis

9 38 59

+24 20

		R	R
45	0	45.6	46.3
		50.8	51.0
		54.2	53.7
		52.2	52.2
		207.8	209.2
	45	51.95	52.30

η Serpentis

18 15 29

−2 56

		B	B
0	0	36.9	1 21.8
		42.9	27.9
		54.7	39.9
		42.1	26.4
		176.6	114.0
	0	44.15	1 28.50

α Lyræ

18 32 50

+38 40

		B	B	R	B
25	0	6.6	1 20.8	21.4	21.0
		8.8	22.9	23.0	22.9
		18.4	32.2	32.8	32.5
		11.8	25.7	25.5	25.6
		45.6	21.6	22.9	22.0
	25	11.40	25.40	25.72	25.50
			25.45	25.72	

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1881phae.proj.1409B

Apr. 3, 1881

C = 44 57.6

γ Draconis

17 53 48

+51 30

	B	B	R	R	B
35	0 32.3	1 51.2	51.2	51.1	51.0
	32.8	52.2	52.1	52.3	51.6
	41.4	1.0	1.2	1.1	1.0
	35.4	53.9	53.8	53.8	53.7
	1419	183	183	183	173
35	35.42	36 54.57	54.57	54.57	54.32
		54.44	54.57		

δ Urs. Min

18 11 2

+86 36

	B	B	B	B	B
30	0 26.9	54.4	6.3	10.6	12.0
	24.8	53.0	5.0	9.3	10.9
	31.6	57.3	11.7	16.0	17.3
	27.3	55.0	7.9	11.3	13.6
	1106	2217	309	472	538
30	27.65	55.42	7.72	11.80	13.45

σ Sagittarii

18 47 46

−26 27

	B	B
25	4 56.9	0. 28.0
	5.4	86.9
	16.5	47.4
	2.0	84.4
	208	146.7
30	5.20	3668

Last A.

β Aquilæ

18 59 51

+13 41

	B	B
20	3 43.1	52.2
	47.8	57.8
	58.9	8.1
	45.9	55.3
	1957	2334
23	48.92	58.35

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1881phae.proj.1409B

Apr. 3, 1881

β Aquilæ

19 49 22

+6 6

	B		B
55 2	50.8	4	15.0
	57.0		22.1
	5.8		30.5
	54.3		19.1
	2279		867
57	56.98	59	21.67

C = 44 57.6

θ Aquilæ

20 5 4

−1 11

	B		B
10 4	45.1	1	0.5
	51.4		5.5
	2.0		17.2
	48.9		4.1
	2074		27.3
14	51.85	16	6.82

β Aquarii

21 25 11

−6 6

C = 44 57.6

10 0 31 12

- 30 6
- 47 3
- 30 40
- 1491

10 37.28

C = 44 55 7

Mercury.

23 16 47

−6 18

	B		B
20	221.4	3	427
	226.9		485
	39.0		0.9
	25.9		445
	1132		1996
22	28.30	23	49.90

Centre for S

Pole Limb for RA

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1881phae.proj.1409B

Apr. 3, 1881

α^2 Capricorni

20 11 20

−12 55

	B	B
55	35.9	6.7
	42.2	12.0
	53.1	25.4
	40.0	11.1
	17 32	5 52
58	43.30	13.80

Some false strokes preced 2nd δ

C = 44 57.6

γ Cygni

20 17 53

+39 52

	B	B
10	2 53.7	4 9.4
	55.6	11.8
	5.3	21.5
	56.7	12.0
	23 13	5 47
12	57.82	14 13.68

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1881phae.proj.1409B

Apr. 3/4, 1881

⊙

0 55 29
+5 56

	B	B
50 3	4,9	25 0 44,8
	11,0	50,5
	2,9	1,4
	10,5	51,5
	483	2077
53	12,08	25 51,92

Both limbs in S & R.A.
Seeing moderately good.

© = 44 55,7
μ Geminorum
6 15 39
+22 34

	B	B
30 1	49,4	12,7
	54,7	17,6
	4,0	29,0
	55,4	18,1
	2235	754
31	55,88	18,85

ε Can. Maj
6 53 52
−28 48

	B	B	R
50 1	18,9	2 36,0	36,0
	29,1	46,1	46,0
	40,0	57,3	57,2
	27,9	45,0	45,3
	1159	1844	1845
51	28,98	52 46,10	46,12

S Can Maj
7 32 8
−26 12

	B	B
15 0	30,4	56,2
	40,0	5,7
	52,8	18,3
	39,4	4,7
	1626	249
15	40,65	17 6,22

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1881phae.proj.1409B

Apr. 4, 1881

γ Geminor

6 30 43

+16 30

	B	B	R	R	B
30 4	52.8	163	16.1	16.3	165
	58.5	220	22.9	22.1	225
	11.2	355	34.8	35.0	349
	57.6	216	22.7	22.7	222
	1801	954	965	961	964
34	45.02	31	23.85	24.12	24.02	24.10

C = 44 53.6

α Cam. Maj

6 39 49

−16 33

	B	B	B	R
~~165~~	35	26.6	8	288 287
~~225~~		161		381 38.2
~~349~~		26.5		498 50.2
~~222~~		15.7		87 237.0
		669	1539	1841
	37	16.72	38	38.48	46.02

4 Aquæ

f 220

−23 57

	R	R
0 2	21.3	21.7
	31.8	31.3
	43.8	44.6
	31.2	31.0
	1281	1286
2	32.02	32.15

α Cephei L.C.

21 15 41

+117 56

	B	B	B	B
15 0	17.4	4	24.8	3 52.1	38.9
	20.9		29.0	55.4	42.6
	25.5		34.3	0.5	47.1
	16.2		24.0	51.2	87.3
	800		1121	2192	1659
15	20.00	14	28.02	13 54.80	41.48

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1881phae.proj.1409B

Apr. 4. 1881

α Hydrae

9 21 38

−8 8

B B

10	2	59.8	4 18.7
		6.5	25.8
		21.0	39.4
		6.3	24.3
		3 36	10 8 2
	12	8.40	14 27.05

C = 44 55.7

θ Urs. Maj

9 24 45

+52 14

B

50	2	11.8
		14.7
		25.6
		15.4
		67 5
	52	16.8

γ Draconis

17 53 48

+51 30

B B R R B

35	0	33.8	15.0	55.6	55.3	55.3
		34.2	56.0	56.0	56.1	56.1
		44.2	6.2	6.4	6.1	6.0
		35.9	57.5	57.8	58.0	57.0
		1481	347	358	355	344
	35	37.02	36 58.67	58.95	58.87	58.60
				58.64	58.71	

δ Urs. Min

18 11 2

+86 36

B B B

30	0	14.4	21.0 26.2
		14.1	20.4 25.4
		23.4	28.2 33.0
		17.4	22.8 26.9
		713	924 1115
	30	17.82	23.10 27.84

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1881phae.proj.1409B

Apr. 4. 1881

β Cephei L.C.

21 27 6

+109 58

	B	B	B	B
10 - 0	58.9	0 26.3	0 11.8	4 53.4
	0.6	28.3	13.4	56.2
	7.3	35.0	19.9	2.5
	58.4	26.7	11.6	53.1
	52	1163	567	2232
11	1.30	10 29.0	14.18	9 55.80

ζ = 44 55.7

ε Leonis

9 38 59

+24 20

	B	B	R	R	B
45	0 48.9	2 11.3	11.3	11.6	11.1
	52.5	15.6	17.0	16.4	16.1
	4.0	28.1	27.0	26.4	24.1
	54.7	17.8	17.5	17.3	17.0
	2201	710	728	717	713
45	55.02	47 17.75	18.20	17.92	17.82

η Serpentis

18 45 29

−2 56

	B	B	R	R	B
0 0	1.1	1 18.7	18.3	18.8	18.1
	6.5	24.9	25.2	26.0	25.7
	20.4	37.6	37.8	37.7	38.0
	6.3	23.3	23.8	23.6	23.5
	343	247	251	261	253
0	8.58	1 26.17	26.27	26.52	26.32
		26.25	26.40		

α Lyrae

18 32 50

+38 40

	B	B	R	B
25	0 2.0	1 26.3	27.5	27.0
	3.2	28.9	29.3	28.6
	14.9	39.7	39.2	39.4
	7.2	31.2	31.2	31.9
	273	1261	1272	1269
25	6.82	26 31.52	31.80	31.72

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1881phae.proj.1409B

Apr. 4, 1881

σ Sagittarii

18 47 46

−26 27

	B	B
30 0	25.1	24.9
	32.9	32.8
	45.0	44.9
	31.0	30.5
	134.3	1331
30	33.58	33.28

A−1

λ Aquilæ

18 59 66

−6 3

	B	B	B
5 2	46.0	4 10.2	9.9
	51.8	16.0	16.1
	3.3	28.3	27.9
	49.8	14.0	13.8
	210.9	68.5	67.7
7	52.72	9 17.12	16.92

β Aquilæ

19 49 22

+6 6

	B	B	R
5 5 2	54.7	4 20.8	
	1.1	29.4	
	10.2	37.0	
	58.0	23.3	
	4.0	10.85	
58	1.00	59 27.12	

θ Aquilæ

20 5 4

−1 11

	B	B	R	R	B
10 4	55.7	1 9	8.7	9.1	9.5
	1.2	13.0	14.1	13.8	13.4
	12.3	26.3	25.9	25.9	25.2
	58.1	10.4	11.2	11.7	11.0
24	87.3	59.1	59.9	60.5	59.1
14 61	4.82	16 14.98	14.98	15.12	14.78

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Apr. 4, 1881

β Cygni

19 25 50

+27 42

	B	B	B
20 2	30.1	3 39.0	38.8
	32.7	41.2	41.3
	42.1	50.6	50.6
	32.1	40.3	40.7
	1370	1711	1714
22	34.25	23 42.78	42.85

C = 44 55.7

α Aquila

19 44 53

+8 33

	B	B	R	R
30 1	17.5	2 4 04	40.9	40.7
	22.7	45.9	46.0	46.4
	33.3	55.6	55.6	56.0
	20.1	43.3	43.8	43.1
	936	1852	1863	1864
31	23.40	32 46.30	46.58	46.60

γ Cygni

20 17 53

+39 52

	B	B
10 2	54.0	4 6.9
	58.1	9.5
	8.1	18.6
	56.9	9.0
	2391	450
12	59.78	14 11.25

α Cygni

20 37 18

+44 51

	B	B	R	R
10 4	9.4	0 30.8	29.9	30.7
	10.9	30.2	31.2	31.5
	20.5	40.2	40.1	40.2
	8.9	31.1	30.9	31.1
	497	1323	1321	1335
14	12.42	15 33.08	33.02	33.38

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Apr. 4, 1881 @ = 44 55,7

ε Cygni · η Pegasi

20 41 19 22 37 20

+33 31 +29 35

	B	B		B	B
30	3 46.6	0 2.6	25	47.0	0 28,5
	48.1	4.1		9.4	31.0
	59.2	14.2		19.0	39.6
	48.3	4.5		7.8	30,8
	2022	254		432	1294
33	50,55	35 6,35	29	10,80	30 32,35

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Apr. 4/3, 1881 C = 44 55.7

☉

0 59 8
+ 6 19
B B

30	0	3.0	0	2	53.5
		8.3			0.5
		18.0			9.7
		5.3			57.7
		3.46			1.4
30		8.65	3		3.50

Both limbs in δ & R.A
Seeing very fine indeed.
Spot A_1 23 2nd limb.

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Apr. $\frac{5}{6}$, 1881

⊙

1 2 48

+6 42

α = 4 4 5 5.7

α Orionis B obs

5 48 37 ~~δ Wrs. Ann. A.C. (B)~~

+7 23

	B	B
35-4	19.5	56.7
	27.0	3.4
	37.2	13.9
	23.0	58.4
	1067	1924
39	26.68	48.10

R.A. only

Upper limbs in δ 2 settings

2nd limbs in R.A.

Rej. A-1 4, Lost A-1 5

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Apr. 6, 1881 C = 44 55.7

δ Ursæ Min. L. C, (B) γ Geminor B obs.

18 11 2 6 30 43

+93 24 +16 30

B B B

40 3 10.0 6.4 58.0

8.8 5.5 56.9

17.0 13.8 5.7

6.9 3.3 55.4

427 290 2360

43 10.68 7.25 59.00

R. A obs.

A_{y_2} to A_1

Lost last stroke of A_0 + A_{+1} 4

Lost A_{+1} 1

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1881phae.proj.1409B

Apr. 6/7, 1881

O

1 6 27

+7 4

	B		B
40	4 55.6	15	2 53.0
	59.0		58.0
	10.7		10.2
	58.3		58.2
	1836		1794
44	45.90	14	44.85

Both limbs in δ + R.A.
Seeing unsteady.

C = 44 5 5.7

β Arietis

1 47 58

+20 13

	B
50	1 22.3
	27.4
	37.0
	27.3
	1140
51	28.50

A+1, A-1 2 3

β Eridani

5 1 54

−5 15

	B		B
15	4 24.6	0	6.4
	30.2		11.0
	44.1		25.7
	31.9		13.7
	1308		568
19	32.70		14.20

α Aurigæ

5 7 46

+4 5 5.2

	B	B
10	3 33.5	34.6
	39.1	38.8
	50.4	50.8
	39.7	39.1
	1629	1631
13	40.72	40.78

Lost A+1

A2 + C
Lost A-1 2 3 4

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1881phae.proj.1409B

Apr. 7, 1881

τ Androm.

1 56 29

+41 45

	B	B	B
-15	4 41.0	0 57.1	57.9
	50.0	6.2	6.0
	56.3	11.5	11.4
	46.9	3.0	2.5
	1942	178	178
19	48,55	21 4,45	4,45

C = 44 55.7

α Arietis

2 0 21

+22 53

	B	B
10	1 44.3	2 24.1
	56.3	36.3
	58.0	38.3
	49.0	29.0
	2076	1277
11	5.90	12 31.92

A4 + C.

β Tauri

5 18 39

+28 30

	B	B	
30	4 38.5	35.0	57.3
	42.3	~~57.3~~	0.8
	53.5	~~0.6~~	12.2
	44.5	~~12~~	3.6
	1788		139
	34 44.70	35	3.48

ι Orionis

5 29 31

−6 0

	B	B	B
0	3 36.8	4 51.2	51.2
	42.1	57.1	57.0
	57.2	12.2	12.1
	44.8	58.6	58.5
	1809	1791	1788
	3 45.22	4 44.78	44.70

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Apr. 7. 1881

3 Orionis

5 34 39

−2 0

	B	B	B
0 4	43.8	1 5.2	6.0
	51.5	12.6	12.1
	5.7	26.3	26.2
	51.5	12.2	12.8
	2125	563	571
4	53.12	14.08	14.28

C = 44 55.7

K Orionis

5 42 1

−9 43

	B	B
45 1	55.9	2 41.1
	1.4	46.9
	18.6	4.1
	4.0	50.2
	199	2023
46	4.98	47 50.58

2 Cam. Maj.

6 39 49

−16 33

	B	B	B
35 2	12.0	2 59.1	0.0
	20.3	7.3	7.4
	35.0	21.9	22.3
	22.0	8.8	8.5
	893	2171	382
37	22.32	54.28	389.55

δ Cam. Maj

7 3 28

−26 12

	B	~~B~~
15 0	29.0	~~30 2 2.4~~
	37.5	
	52.0	
	39.0	
	1575	
15	39.38	

A_{+1} 345 A_{12}

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1881phae.proj.14098

Apr. 7. 1881

μ Geminor

6 15 39

+22 34

		B	B	B
30	1	7.8	41.5	41.4
		11.3	45.9	45.8
		22.4	56.5	56.3
		16.2	49.2	49.0
		567	1931	1925
	31	14.18	48.28	48.12

Lost 1st & 3 wire.

C = 44 55.7

ν Geminor

6 30 43

+16 30

		B	B	B
30	4	57.4	28.1	28.1
		2.4	33.4	33.2
		17.0	48.9	47.9
		3.1	34.9	34.1
		199	1443	1433
	34	4.98	35 36.08	35.82

Lost A 6 7 8

Can Min

7 20 35

+ 7 32

R R

30	2	24	20
		10.5	10.8
		23.7	23.4
		10.8	11.0
		474	472
	32	11.85	11.80

Lyncis

7 26 52

+32 9

R R

5	1	12.7	12.6
		16.6	17.2
		30.9	30.8
		21.3	21.1
		815	817
	6	20.38	20.42

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1881phae.proj.1409B

Mar. 7 1881 C = 44 5 5,7

α Can Min

▽ 0258

+5 32

		R	R
30	4	12,3	12,0
		20,7	20,7
		32,3	32,9
		21,0	21,2
		9 13	868
	34	22.82	21,70

β Leon

▽ 10 37 55

+21 19

		R	R
45	1	19,0	19,0
		24,7	24,0
		35,7	35,7
		26,0	26,0
		10 48	1041
	46	26,20	26.02

α Lyræ

18 32 50

+38 40

		B	B	B
25	0	0.6	1 20,8	20.6
		2.1	22,1	22.9
		14.8	35,0	34,9
		6.4	27,1	27.8
		239	1050	1062
	25	5,98	26 26.25	26,55

σ Sagittarii

18 47 46

−26 27

		B	B	B
25	4	8,6	0 22,8	22,6
		17,6	31,1	31,1
		31.7	45,0	44,5
		17,0	30,7	30,4
		749	1296	1286
	29	18,72	32,40	32,15

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Apr. 7, 1881

δ Urs. Min.

18 11 2

+86 36

		B	B	B	B
25	4	55.7	0 6.4	17.1	21.3
		55.3	4.4	15.0	19.9
		4.4	14.7	25.8	30.1
		57.8	9.9	20.0	24.2
		2332	354	779	955
29		58.30	8.85	19.48	23.88

C = 44 55.7

γ Serpentis

18 15 29

−2 56

		B	B	B
0	0	2.3	1 22.3	22.8
		8.4	29.0	29.1
		23.8	43.9	43.7
		10.4	30.6	29.9
		449	1258	1255
0	11.22		1 31.45	31.38

---

51 Cephei L.C. Bode

6 42 14

+9 2 46

A.R. only

3 Aquilæ

18 59 51

+13 41

		B	B	B
20	3	40.4	4 50.2	50.2
		46.0	55.9	56.6
		59.5	9.7	9.3
		45.8	56.0	55.4
		1917	2318	2315
23		47.92	24 57.95	57.85

A_0 to A_1

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Apr. 7, 1881

β Cygni
19 25 56
+27 42

	B	B	B
20	2 40.1	3 49.9	50.6
	43.0	53.3	52.3
	54.0	4.6	4.1
	44.8	54.9	54.2
	1819	2227	2206
22	45.48	23 55.68	55.15

Chf.

α² Capricorni
20 11 20
−12 55

	B	B	B
55	3 55.9	4 50.1	49.9
	2.8	57.0	57.1
	18.6	12.6	12.7
	2.4	57.3	56.8
	197	1770	1765
59	4.92	59 44.25	59 44.12

C = 44 55.7

α Aquilæ
19 44 53
+8 33

	B	B	B
30	1 13.2	2 30.5	35.0
	19.3	41.7	41.5
	31.9	53.4	53.8
	19.3	42.0	42.6
	837	1726	1779
31	20 9.2	32 43.15	44.48

χ Cygni
20 17 53
+39 52

	B	B	B
10	2 51.9	4 6.2	6.4
	54.4	8.8	8.9
	7.1	22.4	22.1
	57.0	12.3	12.1
	2304	497	495
12	57.60	11 12.42	12.38

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1881phae.proj.1409B

Apsr. 7, 1881 C = 44 53.7

β Aquilæ

19 49 22
+6 6

	B	B	B
5 5⁻	2 54.5	4 20.0	20.1
	2.3	27.6	27.4
	14.0	39.1	39.11
	2.3	26.0	27.0
	131	1127	1136
	58 3.28	59 28.18	28.40

θ Aquilæ

20 5⁻ 4
−1 11

	B	B	B
10 4	44.1	1 5.7	5.9
	51.3	11.2	11.0
	5.0	26.0	25.4
	51.2	12.2	11.7
	2116	551	540
14	52.90	13.78	13.50

α Cygni

~~α Cygni~~ 20 37 18
+44 51

	B		B	B
10 4	12.2	υ	26.0	26.0
	13.4		96.5⁻	26.7
	26.5⁻		39.1	39.3
	16.3		30.4	30.5⁻
	686		1220	1225
14	17.15	15	30.50	30.62

ε Cygni

20 41 19
+33 31

	B		B	B
30 3	40.3	0	3.4	3.3
	42.1		4.5⁻	4.8
	56.1		18.3	18.5⁻
	46.8		9.1	8.5⁻
	1853		353	351
33	46.32	35	8.82	8.74

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Nov 1881 @ = 44 55.7

α Equulei

21 9 34

−5 17

		R	R
55	3	4.1	4.2
		10.9	10.4
		25.2	25.2
		13.0	12.2
		532	520
	58	13,30	13,00

η Pegasi

2 37 20

+29 35

			B	B	B
25	4	8.0	0	29.1	28.9
			13.0	32.0	31.9
			24.1	43.0	43.1
			14.9	34.5	34.7
			603	1386	1386
	29	15,0	830	34,65	34,65

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Apr. 7. 1881

δ Pegasi

22 58 44

+14 33

	B	B	B
30 0	53.9	26.2	6.9
	59.0	12.3	12.4
	13.0	26.1	26.0
	0.9	13.1	13.5
	68	577	588
31	1.70	32 1442	14.70

C = 44 55.7

Mercury

23 31 10

−5 20

	B	B	B
25 0	2.4	1 24.3	26.4
	7.4	31.4	32.0
	23.0	47.2	47.0
	10.9	34.3	34.5
	437	1392	1599
25	10.92	26 34.80	34.98

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Apr. 7, 1881

C = 44 55.7
C = 18 p.3
2 Cephei S.C.B.
21 15 41
+117 36

☉
110 7
+7 27

	B	B		B	B
20 2 27.6	55 0	14.4	10 3	12.7	13.2
33.1		19.5		16.5	16.7
48.0		34.3		25.8	24.8
36.4		22.4		15.1	14.4
1451		908		701	691
22 36.28	55	22.70	13	17.52	17.28

Both limbs in δ & RA.
Seeing very good.

ε Leonis Obs.
9 38 59
+24 20

	B
45 0	30.7
	34.4
	50.0
	40.0
	1551
45	38.78

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1881phae.proj.1409B

Apr. 8, 1881 C = 18 0.94

α Hydræ Bobs. θ Urs. Maj. Bobs

9 21 38 9 24 45

−8 8 +52 14

		B			B	B
10	3	36.1	50	2	0.4	0.4
		42.1			3.0	2.7
		1.6			18.0	17.8
		48.0			8.3	7.9
		1878			297	288
	13	46.95		52	7.42	7.20

Last 4.1

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1881phae.proj:1409B

202

Apr. 9 1881

15 Argus

8 22 23

−33 57

	B	B	R	R	B
0 0	35.9	1 39.4	39.2	39.4	39.0
	44.3	48.0	48.2	48.2	47.8
	3.1	6.3	6.2	6.2	6.4
	50.5	53.4	54.1	53.7	53.8
	1938	71	77	75	70
0	48.45	1 51.77	51.92	51.87	51.75
		51.76	51.89		

C = 18 0.4

α Cephei L.C.

21 15 41

+117 56

	B	B	B
10	3 42.8	19.7	36.0
	48.0	24.6	0.7
	56.4	33.1	9.8
	46.7	24.3	0.1
	1939	1017	66
13	48.48	25.42	1.65

Lost A−1

β Cephei L.C.

21 27 6

+109 58

	B	B
5 4	40.3	4 17.9
	43.9	21.8
	55.0	33.0
	45.6	23.1
	1848	9 58
9	46.20	23.95

A5 4c

ε Leonis

9 38 59

+24 20

	B	B	R	R	B
15 0	10.7	1 27.2	27.2	27.0	27.5
	15.0	31.8	32.6	32.8	32.0
	31.5	47.9	47.8	47.6	47.7
	21.9	38.6	39.2	38.9	38.1
	791	255	268	263	253
15	19.78	16 36.37	36.70	36.57	36.33
		36.35	36.64		

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1881phae.proj.1409B

Apr. 9, 1881

C = 18 0.4

α Hydræ

θ Urs. Maj.

9 21 38

−8 8

9 24 45

+5 2 14

	B	B		B	B	B
10	2 17.8	3 4 34	3 5 0	1 54.0	3 0	1 45.0
	25.0	50.8		57.7	8 4	8 4
	44.0	10 2		12.9	18 3	18 3
	30.4	5 6 4		4.0	9 1	9 2
	1 7 2	2 2 0 8		86	3 0 9	4 0 9
	12 29.30	13 55.20		5X² 215	53 7.72	54 10.22

A5 ∠ C

α Leonis

10 1 56

+12 33

	B	B	R	R	B
30	1 16.1	2 4 4.0	43.7	43.8	43.9
	22.9	51.2	51.6	51.2	51.3
	39.8	8.0	7.8	8.0	8.0
	26.7	55.3	55.1	55.2	55.0
	10 5 5	21 8 5	21 8 2	21 8 2	21 8 2
31	2 6.38	32 54.62	54.55	54.55	54.55

3 Leonis

10 9 57

+24 1

	B	B	R
0	3 45.1	0 9.2	9.2
	51.1	13.8	14.3
	6.7	30.0	29.4
	67.2	20.4	20.4
	21 9 1	7 4 4	7 3 3
3	54.78	5 18.60	18.32

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Apr. 9, 1881

γ Leonis

10 13 18

+20 27

B

35 2 54.9
1.0
16.2
6.3
184
38 4.60

preceeding star,

λ Aquilæ

18 55 56

−5 3

R R

6 3 8.0 8.4
16.2 15.1
31.2 31.5
18.5 18.9
739 744
8 18.48 18.60

Lost d+1?

C=18 0.4

μ Urs. Maj.

10 15 7

+42 6

B B

56 3 54.0 0 10.9
54.8 13.4
11.5 30.7
2.0 21.3
2393 763
58 59.82 0 19.08

β Cygni

19 25 50

+27 42

R

2v 3 1.7
5.2
18
9.8
355
23 8.88

Lost d+1?

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ζ Lyrae
18 32 55
+38 40

R R

20 4 274 273
308 311
457 452
369 369
1408 1406
24 35.20 35.15

σ Sagittarii
18 47.4
−26 47

R R

25 3 311 312
409 408
563 564
431 430
1714 1714
28 42.85 42.85

ε Cygni
20 41 9
+33 31

R R

30 4 188 188
218 218
365 366
269 271
1040 1043
34 26.00 26.08

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206

Aug 9/10 1881 C = 18 02 C = 18 7.2

η Serpentis

18 15 29

−2 56

⊙ 1 17 27

+8 11

B

55 4 21.6

29.4

46.3

31.0

1283

59 32.08

51 Cephei L.C.

1842 14

+92 46

B	B	B	B	B	B	B	B	B	B
20 1	1.4	1 55.7	49.8	46.9	28 33.1	9.0	5.8	4.5	1.3 4 58.
	1.0	55.0	49.4	45.9	43.1	8.1	5.2	3.8	0.2 58.
	12.8	7.0	1.3	58.0	59.1	19.7	17.0	15.7	12.3 9.8
	4.1	58.5	52.1	48.5	44.9	11.2	6.9	6.5	3.4 0.3
	Chf.	Chf.	Chf	Chf.		480	329	305	172 59
						30? 12.00	8.22	7.62	4.30 29 1.48

A_{6_2} to 1_0

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1001phae.proj.1409B

Apr. 10. 1881
8 Urs. Min.
18 11 2
+86 36

		B	B	B
30	0	19.9	24.7	27.9
		18.9	23.8	27.2
		31.9	36.1	39.8
		26.0	30.1	34.3
		967	1147	1292
30		24,18	28.68	32,30

A-1 34
~~21.9~~

c = 18 7.2
α Lyrae
18 32 50
+38 40

		B	B	R	R
25	0	19.4	42.1	42.6	
		21.9	45.4	45.8	
		37.3	0.2	59.9	
		27.9	52.0	52.4	
		1065	1997	2007	
25		26,62	49,92	50,18	

A 3 < C Rej pr. stroke

σ Sagittarii
18 47 46
-26 27

25	3	33.6	4	10.3	5	
		43.1		0.3		
		59.7		16.9		
		44.9		1.4		
		1813		189		
28		45,32	30	2.22		

3 Aquilae
18 59 51
+13 41

		B	B	R	R	
20	2	59.2	4	8.8	9.0	9.1 8.9
		5.9		15.5	15.9	16.1 15.4
		21.6		31.0	30.8	30.8 31.0
		8.3		17.0	17.3	17.4 16.8
		350		723	730	734 723
23		8,75	24	18.07	18,25	18,35 18.07
				18.07	18.30	

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1881phae.proj:1409B

Apr. 10, 1881

β Cygni

19 25 50

+27 42

	B	B	B
20 1	50.4	3 23.1	23.0
	54.0	26.3	26.4
	7.1	39.9	40.0
	58.5	30.4	29.9
	2300	1197	1193
21	57.50	23 29.92	29.82

c = 18 7.2

γ Aquilæ

19 40 30

+10 19

	B	B	R	R	B
45	0 12.9	59.2	59.8	59.9	0.2
	17 9	5.2	5.8	5.8	5.1
	32.8	20.5	20.3	20.1	20.0
	22.7	9.8	9.8	9.3	9.2
	863	347	357	351	345
45	21.58	8.67	8.92	8.77	8.62
		8.65	8.85		

θ Aquilæ

20 5 4

−1 11

	B	B	R	R	B
10 3	59.0	0 14.9	14.2	14.6	15.0
	6.0	20.0	20.3	20.2	20.3
	22.6	37.3	37.3	37.4	27.1
	8.9	24.4	24.2	24.0	23.5
	365	166	160	162	159
14	9.12	15 24.15	24.00	24.05	23.97
		24.06	24.03		

γ Cygni

20 17 53

+39 52

	B	B	B
10 2	5.3	3 26.3	26.0
	8.4	29.8	30.5
	24.3	44.2	44.3
	13.0	34.9	34.2
	510	1352	1350
12	12.75	13 33.80	33.75

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1881phae.proj.1409B

Apr. 10, 1881

α Aquilæ

19 44 53

+8 33

B	B	R	R	B
30 0 43.0	/ 53.9	54.0	54.0	54.5
49.3	0.3	1.4	1.4	1.0
3.5	15.0	15.2	15.0	52.3 (?)
51.9	3.4	3.0	2.6	3.2
2077	126	136	130	~~00~~
30 51.92	32 3.15	3.40	3.25	—

3.15 3.32

Seeing very poor

c = 18 7.2

β Aquilæ

19 49 22

+6 6

B	B	B
55 2 23.9	3 42.0	41.8
32.0	50.3	49.8
46.1	3.4	3.8
34.0	51.7	51.8
1360	2074	2072
57 34.00	58 51.85	51.80

α Cygni

20 37 18

+44 51

B	B	R	R	B
10 3 23.0	4 43.2	43.2	43.0	43.3
25.2	45.9	46.0	46.1	46.0
39.8	50.5	0.1	0.0	0.0
30.2	50.3	50.3	50.6	50.8
1182	1989	1996	1997	2001
13 29.55	14 49.72	49.90	49.92	50.02

ε Cygni

20 41 19

+33 31

B	B	R	R	B
30 3 6.04	19.0	18.7	18.7	18.3
9.3	21.4	21.8	21.3	21.3
24.2	36.9	36.8	36.5	37.0
14.9	27.4	27.1	27.2	27.3
542	1047	1044	1037	1039
33 13.55	26.18	26.10	25.92	25.98

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Apr. 10, 1881 C=18 5.5

Mercury

23 43 35

−4 20

		B		B
20	3	35.4	4	18.0
		43.0		61
		0.9		233
		47.0		10.2
		1863		376
	23	46.58	25	9.40

Centerfield. Climb field.

Seeing very bad



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Oct. 10 1881

C = 18 5.4

α Aurigæ

5h 7m 46s

+45° 52'

1 21 7

+8 33

B	B	B
15 0 55,1	45° 3 41.0	10 1 54.8
0.6	46.8	59.8
18.0	3.0	16.6
7.0	52.9	6.0
207	2037	172
16 5.18	48 50,92	12 4,30

Both limbs in δ & R.A.
Seeing horrible.

δ Orionis

5h 25m 50s

−0 24

B	B
25 2 0.2	3 18.9
9.1	28.0
29.0	47.4
16.0	34.3
543	1286
27 1,358	28 32,15

α Leporis

5h 27m 24s

−17 58'

B
5 5 2 53.6
5.2
24.0
10.0
328
58 8,20

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1881phae.proj.1409B

Apr. 11, 1881 C = 18 5:4

β Orionis

5h 8m 4s

−8 21

	B	B	R	R	B
20 4	47.8	30.5	30.6	30.7	30.6
	54.3	37.1	37.2	37.6	37.1
	16.3	58.9	58.9	59.0	59.1
	1.4	44.8	45.1	45.1	45.0
	23.98	113	118	124	118
24	59.95	42.82	42.95	43.10	42.95
		42.88		43.02	

ν Orionis

5h 18m 38s

+6 14

	B	B	R	R	B
45 4	27.4	1 6.4	5.9	6.4	6.0
	37.5	14.4	15.4	15.9	14.9
	54.5	32.0	33.2	33.3	33.1
	41.7	19.9	20.3	20.8	20.6
	16.11	337	348	364	346
49	40.28	51 18.42	18.70	19.10	18.65
		18.54		18.90	

Lost somewhat last nights

Last last 3 w.

L Orionis

5h 29m 31s

−6 0

	B	B	R	R	B
D 3	3.0	4 14.0	13.9	14.0	14.0
	10.9	22.2	22.2	22.3	22.0
	31.2	42.3	42.9	42.3	42.3
	17.6	25.5	28.4	28.4	27.8
	6.27	275	274	270	261
3	15.68	26.87	26.85	26.75	26.52
		26.70		26.80	

3 Orionis

5h 34m 39s

−2 0

	B	B	R	R	B
0 4	14.8	0 21.9	21.4	21.8	21.0
	24.0	30.4	30.9	30.1	30.4
	43.4	50.8	50.1	50.2	49.7
	28.6	35.5	36.0	35.8	30.2
	11.08	186	184	179	163
4	27.70	34.65	34.60	34.47	34.08
		34.36		34.54	

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1881phae.proj.1409B

Apr. 11, 1881 C = 18 5.4

α Orionis

5 48 37

+7 23

	B	B	B
40	1 8.0	2 15.9	16.1
	16.9	24.9	24.6
	36.2	43.5	43.6
	21.8	29.7	28.9
	829	1140	1132
41	20,72	42	28,50	28,30

μ Geminor.

6 15 39

+22 34

	B	B
25	4 54.2	1 6.0
	3.6	13.1
	20.6	30.1
	10.0	29.9
	284	701
30	7.10	31 17.52

ε Can. Maj.

6 53 52

−28 48

	B	B	B
50	1 7.1	1 57.3	57.7
	17.8	8.2	9.0
	38.2	28.2	27.9
	24.9	14.8	14.8
	880	485	494
51	22,00	52 12,12	12.35

δ Can. Maj.

7 3 28

−26 12

	B	B	B
10	4 46.1	1 1.6	1.2
	54.1	12.8	12.1
	17.2	31.4	32.0
	3.0	17,4	17.7
	34	624	630
15	0.85	16 15.60	15.75

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Apr. 11, 1881 $\mathcal{C} = 18$ 5.5

χ Geminor.

6 30 43

+16 30

	B	B	B
30 4	10.9	0 30,4	29.9
	18.7	38.0	38.1
	39.8	59.0	59.0
	26.3	45.4	46.1
	957	1728	1731
34	23.92	35 43.20	43.28

α Can. Maj

6 39 ~~49~~

+16 33

	B	B	B
35 0	19.8	2 47.9	48.5
	29.5	58.6	58.2
	50.5	19.1	18.9
	37.7	5.4	5.1
	1375	110	107
35	34.38	38 2.75	2.68

Seeing very good.

– Can. Min.

7 20 35

+8 32

	B	B	B
30 2	28.0	3 36.9	37.1
	38.5	~~49.7~~	47.1
	57.0	6.3	6.0
	43.7	52.2	51.5
	1672	2031	2017
32	4.180	33 5078	5042

α_2 Geminorum

7 24 52

+32 9

	B	B
55 0	22.0	5 3.0
	28.8	59.1
	48.5	20.2
	38.3	8.6
	1376	209
55	34.40	56 5.2.2

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Apr. 11, 1881 C = 18 5.5

α Cephei L.C.

21 11 5 41

+117 56

	B	B	B	B
10 4	39.1	19.2	3 45.1	10.6
	45.0	25.4	50.9	16.0
	57.0	36.1	1.8	27.1
	47.6	27.8	51.9	17.0
	1887	1085	2097	707
14	47.1	27.12	13 52.42	17.6

α Hydrae

9 21 38

-8 8

	B	B
10 2	43.9	29.9
	51.4	37.8
	12.5	59.0
	58.3	44.0
	1661	1707
12	41.52	12 42.6

θ Urs. Maj.

9 24 45

+52 14

	B
50	39.1
	44.0
	0.5
	52.7
	1963
51	49.08

β Cephei L.C.

21 27 6

+109 58

	B	B	B	B
10 0	14.9	4 53.2	4 27.6	8.1
	18.6	58.1	31.9	12.7
	31.5	10.4	44.5	25.4
	24.3	2.1	36.2	16.7
	893	38	1402	629
10	2.232	0.95	3.505	1.572

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