1881phae.proj.14113

KG
11366
v.407

Fundamental Stars.
Observations.
A 4
From Sept. 6. 1881 to Nov. 22, 1881

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1881phae.proj:1411B

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A32

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1881phae.proj.1411B

2

Sept. 6 1881 $\odot$ = 17 66.9

ν Gem.

6 30 54 +16 30

	R	R
40	506	513
	43	54.1
	0.7	0.6
	55.1	55.4
	23 07	22 14
41	57.68	55.35

$\odot$ = 17 66.9

ν Can. Maj

6 39 57 −16 33

	R	R
41	3 53.7	53.6
	52	50
	36	40
	1.0	1.6
	35	42
44	0.88	1.05

α Can. Min.

7 33 7

+5 32

	B	B	R	R
35	4 58.0	1 10.0	10.1	10.3
	13.3	25.0	25.3	25.0
	10.0	21.0	20.8	21.1
	5.1	18.0	18.4	17.9
	264	740	746	743
40	6.60	41 18.50	18.65	18.58

β Geminor.

7 38 5

+28 19

	B	B	R	R	B
50	3 23.6	4 38.7	38.1	38.8	38.2
	41.9	57.0	57.0	56.8	56.9
	37.2	51.9	51.8	51.8	52.1
	28.2	43.0	43.1	43.8	43.1
	1309	1906	1900	1912	1903
53	32.72	54 47.65	47.50	47.80	47.58

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Sept. 6. 1881

β Can. Min.

c = 17 70.1

7 20 48

+8 31

		B	R
40	0	1.5	1.2
		15.4	15.3
		12.5	12.6
		8.5	8.6
		379	379
40		9.48	9.48

Lost last 3 w. Right -1 2

c = 17 70.1

α² Geminor.

7 27 3

+32 9

		B	B	R	R	B
0	3.	39.9	4 35.5	35.2	36.1	35.3
		57.8	54.1	53.1	53.8	54.0
		54.2	~~50.2~~	49.7	50.0	50.0
		43.6	~~38.8~~	39.8	39.7	39.1
		1955	1786	1778	1806	1784
3		48.88	44.65	44.45	45.15	44.60

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1881phae.proj.1411B

Sept. 7. 1881

β Librae

15h 10m 39s

−8° 57′

	B	R
5 2	55.9	55.1
	3.7	3.6
	8.8	8.8
	3.2	3.0
	116	105
8	2.90	2.62

C = 17 70.1

γ² Urs. Maj.

15h 20m 52s

+72° 15′

	B	B	B	B
55	1 59.9	2 16.9	57.2	22.0
	24.9	41.5	22.3	46.7
	25.2	41.3	22.9	46.2
	4.0	20.9	1.6	25.3
	540	1206	440	1402
57	13.50	30.15	11.00	35.05

Mean of 2 strokes for A8

β Scorpii

15h 58m 34s

−19° 29′

	B	B	R
35 4	17.3	0 45.5	45.3
	29.8	56.9	56.4
	33.3	1.3	1.8
	27.0	56.1	56.3
	1074	198	198
39	26.85	40 54.95	54.95

η Draconis

16h 22m 28s

+61° 47′

	B	B	B
20 4	58.2	0 22.7	1 14.6
	23.4	46.6	38.9
	28.0	51.5	42.6
	4.9	50.4	22.1
	545	1712	1182
25	13.62	42.80	26 29.55

Rej last 8

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1881phae.proj.1411B

Sept. 7, 1881 C = 17 70.1

α Cor. Bor.
15 29 41
+27 7

	B	B	R	R
0 4	58.8	1 8.0	7.8	
	17.4	25.7	26.3	
	19.2	27.1	26.8	
	7.3	16.9	17.2	
	42.7	77.7	78.1	
5	10.68	6 19.42	19.52	

α Serpentis
16 38 27
+6 48

	B	B	R
20 3	29.0	4 47.3	47.8
	46.0	3.3	3.3
	46.5	5.0	5.0
	39.9	59.2	0.0
	1604	2348	2361
23	40.10	24 58.70	59.02

β Herculis
16 25 8
+21 45

	B	B	R
25 2	4.2	2 56.7	56.4
	24.4	~~21.4~~ 16.9	16.7
	25.9	~~25.9~~ 18.0	18.1
	13.9	5.7	6.5
	684	373	377
27	17.10	28 9.32	9.42

ζ Ophiuchi
16 30 39
−10 20

	B	B	R
30 0	26.9	48.2	47.8
	37.4	59.1	59.0
	43.0	5.0	4.7
	35.1	56.8	57.1
	1424	291	286
30	3560	31 57.28	57.15

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1881phae.proj.1411B

Sept. 7, 1881

η Herculis
16 38 5.1
+39 9

	B	B	R
0 2	55.3	4 8.4	8.6
	18.3	32.0	31.3
	19.9	32.8	32.8
	2.9	15.5	16.0
	36.4	88.7	88.7
3	9.10	4 22.18	22.18

C = .17 70.1

h Ophiuchi
17 8 27
+5 24

	B	B	R
45 0	26.0	, 38.2	37.6
	39.9	52.1	52.5
	45.2	57.2	57.2
	37.9	50.0	49.9
	149.0	197.5	197.2
45	37.25	46 49.38	49.30

α Tauri
4 29 10
+16 16

	B	B	R
55 0	25.6	1 43.0	42.8
	40.8	59.1	58.8
	41.4	58.8	58.6
	34.2	51.0	52.1
	142.0	211.9	212.3
55	35.50	56 52.98	53.08

ι Aurigæ
4 49 19
+32 59

	B	B	R
10 3	16.1	4 40.2	40.4
	37.0	1.9	1.9
	35.8	0.0	0.6
	23.7	47.9	48.1
	112.6	210.0	211.0
13	28.15	14 52.50	52.75

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1881phae.proj.1411B

Sept. 7, 1881

ζ' Herculis

17 9 16

+14 32

	B	B	R
35 4	57.7	1 12.4	12.0
	10.1	31.2	30.7
	11.8	33.2	33.0
	0.2	22.0	22.4
	138	991	981
40	3.45	41 2478	2452

C = 17 70.1

δ Urs. Min B. Ab

18 10 21

+86 37

	B	B	B
35 1	48.0	52.9	54.4
	15.2	19.0	21.2
	16.5	21.0	22.2
	53.4	0.0	1.2
	151	329	390
37	3.78	8.22	9.75

A_2 to 7,

β Eridani

5 2 3

−5 14

	B	B	R
25 0	35.2	1 44.3	43.6
	50.1	59.0	0.0
	51.1	0.0	0.2
	43.8	52.9	54.0
	1802	2162	2178
25	45.05	26 54.05	54.45

α Aurigæ

5 7 8-9

+45 5 2

	B
15 4	50.0
	11.9
	11.1
	55.9
	289
20	7.22

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1881phae.proj.1411B

Sept. 7, 1881

β Orionis

5 8 52

-8 20

	B	B	R
30 1	39.0	2 31.4	31.4
	52.1	45.1	44.7
	53.4	46.4	46.6
	45.5	38.8	37.8
	1900	17 05	
31	47.50	32 40.42	40.13

c = 17 70.1

β Tauri

5 18 50

+28 30

	B	B	R
40 1	40.0	2 54.0	53.3
	0.2	13.7	14.4
	0.0	13.3	14.1
	49.8	2.9	3.3
	2100	239	251
41	52.50	43 5.98	6.28

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1881phae.proj.1411B

Sept. 7, 1881 C = 17 70.1

δ Orionis

5 25 59

-0 23

	B	R
30 4	36.8	0539
	52.5	18
	53.5	103
	44.7	23
	1875	153
34	46.88	3538.2

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Sept 7/8, 1881 C = 17 70.1

☉

11 9 0
+5° 28

β Librae
15 10 39
−8 57

		B	B	B	B	R	
25	2	17.0	55	4 48.9	5 2	47.5	4 1.0 0.8
		34.7		8.0		1.7	15.3 15.0
		34.5		7.5		3.7	16.8 17.0
		28.8		6.7		55.0	8.1 8.8
		1150		51		2279	412 416
27		28.75	0	1,28	7	56,98	9 10.30 10.40

Seeing very bad. ~~wicked~~
Both limbs in δ + R.A.
Mid wire + fell on
1st limb

α Serpentis
15 38 27
+6 48

		B	B	B	R	
20	3	20.0	4	40.0	39.1	
		38.9		59.5	59.3	
		39.0		59.3	59.7	
		31.1		51.5	52.1	
		129.0		103	102	
23		32,25	24	52.58	52.55	

δ Scorpii
15 53 21
−22 17

		B	B	B	R	
25	2	15.9	3	31.3	31.2	
		30.9		49.8	47.8	
		33.6		49.3	49.8	
		25.9		42.2	42.8	
		106.3		106	116	
27		26.58	28	42.65	42.90	

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1881phae.proj.1411B

Sept. 8, 1881 C = 17 70.1

γ^2 Nunc Min.

15 20 52

+72 15

B	B	B
55 2 52.5	10.0	28.6
17.5	35.0	538
16.2	33.5	52.1
57.4	14.3	33.2
23.6	92.8	167.7
58 5.90	23.20	41.92

α Cor. Bor.

15 29 41

+27 7

B	B	R
0 4 49.5	1 10.3	10.6
11.9	31.7	31.8
11.3	30.5	31.3
57.6	19.9	21.0
12.3	92.4	94.7
5 3.08 6	23.10	23.68

A + C

1 Stwhefulan ✓

B' Scorpii

15 58 34

-19 29

B	B	R
35 4 10.1	0 34.4	34.0
25.2	48.6	48.7
26.9	57.3	50.8
21.1	46.7	46.2
8.33	21.0	19.7
39 20.82	40 45.25	44.93

δ Ophiuchi

16 8 9

-3 23

B	B	R
30 4 22.0	0 44.2	43.9
38.8	0.3	0.1
39.3	1.3	1.5
32.2	54.8	55.8
13.23	22 06	22 [illegible]
34 33.08	~~[illegible]~~	~~57.82~~
	55.12	55.32

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1881phae.proj.1411B

Sept. 8, 1881 $\alpha = 17\ 70.1$

η Draconis
16 22 23
+61 47

	B	B	B
25	0 29.3	14.7	28.1
	52.0	37.2	51.0
	52.1	38.1	51.1
	34.9	20.0	33.8
	16.83	11.02	16.40
	42.08	27.55	41.00

β Herculis
16 25 8
+21 45

	B	B	R
25	1 56.5	2 59.4	57.0
	17.2	20.5	20.2
	16.0	19.0	19.2
	6.0	8.9	9.2
	357	478	476
27	8.92 28	11.95	11.90

η Ophiuchi
~~45~~ 17 3 27 −15 34

	R	R
45	1 30.8	30.4
	46.4	46.1
	47.9	47.3
	42.8	43.8
	167.9	167.6
46	41.98	41.90

ζ' Herculis
17 9 16
+14 32

	R	R
35	4 54.4	54.0
	14.2	14.9
	12.6	13.1
	4.8	5.2
	26.0	27.2
40	6.50	6.80

Rig 15″ S

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Sept. 8 1881 C = 17 70.1

ζ Ophiuchi
16 30 39
−10 20

		B	B	R
30	0	24.1	1 43.9	43.6
		36.4	57.1	57.3
		39.5	59.2	59.6
		32.8	52.2	53.1
		1328	124	136
	30	33.20	31 53.10	53.40

η Herculis
16 38 51
+39 9.

		B	B	R
	0	2 50.4	4 10.8	9.9
		13.5	8.25	32.3
		11.3	31.1	31.3
		58.2	16.7	16.8
		134	911	903
	3	3.35	4 22.78	22.58

δ Urs. Min.
18 10 21
+86 37

		B	B	B	B	B
35	1	7.3	19.1	24.0	26.6	32.0
		32.4	44.1	48.9	51.8	56.9
		30.8	42.4	46.5	50.0	55.6
		14.1	25.3	29.2	32.5	38.0
		846	1309	1486	1609	1825
	36	21.15	32.72	37.15	40.22	45.62

η Serpentis
18 15 13
−2 56

		B	B	R
51		35.0	3 4.1	3.9
		51.0	20.3	20.4
		51.2	20.3	20.8
		45.4	143.3	15.0
		1826	590	601
	6	45.65	8 14.75	15.02

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1881phae.proj.1411B

Sept. 8, 1881

α Lyrae

18 52 57

+38 41

		B	B	R
30	1	10.9	2 23.3	33.4
		32.8	55.9	56.1
		30.1	53.0	53.0
		18.7	41.1	41.7
		92.5	1833	1842
31		23.1	2 32 45.2	46.05

C = 17 70.1

51 Cephei L.C.

18 44 42

+92 47

		B	B.	B	B
25	2	25.4	21.0	17.9	14.8
		49.8	46.0	42.2	38.9
		48.2	43.6	40.8	37.5
		31.0	27.0	24.1	20.8
		154.4	137.6	125.0	112.0
27		38.60	34.40	31.25	28.00

A_8 to A_2

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1881phae.proj.1411B

Sept. 8, 1881

σ Sagittarii

18 47 57

−26 26

B	B	R
35 1 0.0	2 21.8	26.4
16.5	43.5	44.1
18.8	45.2	44.8
14.8	40.6	40.7
501	1561	1562
36 1252	37 39.02	39.05

C = 17 70.1

γ Aquilæ

19 00 00

+13 42

B	B	R
25 4 54.9	1254	25.3
13.7	43.6	44.1
10.3	41.0	41.5
3.2	35.3	35.8
321	1453	1467
30 8.02	31 36.32	36.68

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1881phae.proj.1411B

Sept $\frac{8}{9}$, 1881 $\odot$ = 17 70.1

		11	12	36	
			+5	5	
		B		B	
SW	0	29	20	2	35.7
		21.5			34.9
		16.1			31.8
		10.5			28.0
		5	8	0	19 04
	50	14.50	22		47.60

Both limbs in S & R. A.
Seeing pretty fair
~~Cloud~~ Haze

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1881phae.proj.1411B

Sept 12/13 1881 C = 17673

α Hercules

17 9 16 +1432

	R	R
40	0 7.6	7.8
	23.0	23.5
	17.9	18.3
	14.1	14.0
	6.26	6.36
40	15.65	15.90

C = 17669

β Draconis

17 27 45

+52 24

	R
45	3 38.5
	57.5
	54.2
	41.0
	19.12
48	47.80

17669 (1881 - Sept)

δ Ursa Min.

18 10 21

+86 37

	R	R
35	1 24.6	8.29
	9.17	5.76
	4.22	3.02
	27.6	35.7
	14.23	15.44
36	35.58	38.60

η Serpentis

18 15 13

-2 56

	B	B	R
5	1 48.2	3 4.9	3.4
	3.1	18.0	18.4
	59.5	15.8	15.0
	54.3	10.8	10.9
	22.51	49.5	47.7
6	56.28	8 12.38	11.92

A 2, to 7,

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1881phae.proj.1411B

Sept. 12, 1881

ζ Ophiuchi

17 25 27

+2 39

R R

30	3	54.6	53.9	
		11.0	11.7	
		4.8	4.9	
		0.0	0.0	
		10.4	10.5	
	34	2.60	2.62	

ζ 2 α C

g Draconis

17 53 52

+57 31

R R

40	1	49.0	48.8	
		8.5	8.4	
		5.9	6.2	
		53.0	62.8	
		2367	62	
41		59.18	42 1.55	

C = 17, 66.9 (sure)

α Lyrae

18 32 57

+38 41

B B

30	1	14.6	2 37.5	
		34.4	58.4	
		28.0	51.3	
		18.7	41.4	
		957	1887	
31		23.92	32 47.18	

51 Ophei L.C.

6 +8 44 42

+9 2 47

B B B B

25	2	48.1	39.2	37.1	30.7
		10.4	1.3	59.8	52.9
		5.5	57.5	54.9	48.5
		50.0	41.6	39.4	32.5
		1740	1996	1912	1646
27		43.50	49.90	47.80	41.15

A9 to 40

Forgot to read C for previous stars. It may have been set wrong. Oph ζ Herculis

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1881phae.proj.1411B

Sept. 12. 1881

σ Sagittarii

18 47 5·7

−26 24

	B	B	R
35	1 16.4	2 31.8	~~30.4~~
	31.2	46.8	46.8
	28.9	44.1	44.2
	26.5	41.8	42.0
	10 30	45	47
36	25 7.5	37 41.12	41.18

C = 17 66.9

ζ Aquilæ

19 00 00

+13 42

	B	B	R
30	0 0.2	1 19.9	19.6
	17.0	36.8	35.7
	10.0	30.4	29.8
	6.9	26.0	26.0
	3 41	3 23	3 11
30	8.52	31 28.08	27.78

α Aquilæ

19 45 2

+8 34

	B	B	R
35	2 57.0	4 93	8.6
	7.1	25.8	25.2
	2.2	20.3	20.9
	58.3	16.2	17.0
	23 86	7 16	7 17
37	59.65	39 17.90	17.92

β Aquilæ

19 49 32

+6 7

	B	B	R
0	4 26.2	4 49.6	48.6
	42.1	6.2	5.9
	37.3	0.9	0.9
	33.6	58.0	58.2
	13 92	23 47	23 36
4	34.80	58.68	58.40

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1881phae.proj.1411B

Sept. 12, 1881

β Cygni
19 26 5.8
+27 43

	B	B	R
26	48.8	15.1	14.8
	8.0	33.3	33.0
	1.9	28.1	28.2
	54.5	20.9	21.9
	2332	174	179
28	58.30	24.35	24.48

C = 17 66.9

γ Aquilæ
19 40 40
+10 20

	B	B	R
50	53.3	37.0	6.7
	9.5	23.2	23.9
	3.3	17.6	18.1
	59.4	13.5	14.4
	55	613	631
52	1,38	53 15.32	15.78

θ Aquilæ
20 5 14
-1 19

	B	B	R
20	14.0	2 40.8	40.8
	27.1	55.0	54.7
	24.2	50.9	50.6
	20.0	47.0	47.3
	853	1937	1934
21	2,32	22 48.42	48.35

α² Capricorni
20 11 61
-12 54

	B	B	R
5	14.0	13 7.0	36.6
	25.4	49.1	48.9
	22.9	46.5	46.0
	20.9	44.0	44.1
	832	1766	1756
5	20,80	6 44.15	43.90

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1881phae.proj.1411B

Sept-12 1881

γ Draconis L.C.

16 22 23

+118 13

B B B

0 4 11.3 3 26.4 3 51

36.0 52.0 29.2

33.5 50.7 27.2

16.2 32.4 15.0

96.0 163.5 71.5

4 24.00 3 40.88 17.88

C = 17 66.9

α Tauri

4 29 10

+16 16

B B R

55 0 31.4 1 48.3 48.8

15.9 34 3.2

39.6 57.1 57.2

35.8 53.0 53.3

152.7 218 225

55 38.18 56 55.45 55.62

α Aurigæ

5 7 89

+45 52

B

15 4 49.0

8.7

2.2

50.5

2304

19 57.60

β Orionis

5 8 52

-8 20

B B R

30 2 31.9 2 52.8 52.3

43.5 44 4.0

38.9 0.2 0.7

33.9 55.0 56.3

148.2 324 336

32 37.05 58.10 58.40

A & C

B Stokes for cont-n

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1881phae.proj.1411B

Sept. 12. 1881

ι Aurigæ

4 49 49

+3 2 59

	B	B	R	
10	3 23.3	4 44.5	44.7	
	42.1	3.4	3.2	
	35.1	56.2	57.1	
	26.8	48.0	48.1	
	12.3	12.1	13.1	
13	31.82	14 53.02	53.28	

@ = 17 66.9

β Eridani

5 2 3

−5 14

	B	B	R	B	R
25	0 26.5	1 47.0	46.8	47.0	46.9
	40.5	59.8	0.1	0.0	0.3
	35.8	56.0	56.0	55.9	55.9
	32.0	51.4	52.0	51.1	52.0
	13.8	14.3	13.9	14.0	15.1
25	33.70	26 53.58	53.48	53.50	53.76
		53.54	53.61		

χ Orionis

5 18 48

+6 15

	B	B	R
25	1 58.4	3 11.0	10.7
	14.9	27.8	28.0
	8.4	21.6	21.4
	5.5	18.4	19.0
	27.2	38.8	39.1
27	6.80	28 19.70	19.78

δ Orionis

5 25 59

−0 23

	B
30	4 27.0
	40.6
	36.4
	31.4
	13.54
34	33.85

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1881phae.proj.1411B

Sept. 12. 1881

c = -17 46.9

α Leporis

5h 27 32

-17 5 4

		B	B
0	4	52.9	11.1
		6.2	22.6
		1.5	18.8
		59.8	17.1
		04	696
5		0,10	6 17,40

ε Orionis

5h 30 14

-1 17

		B	B	R
25	2	49.6	200	19.8
		4.0	34,9	34.6
		59.9	30,4	29.8
		54.5	25,0	25.3
		2280	1103	1095
27		57,00	29 2758	2738

α Orionis

5h 48 47

+7 23

		B	B	R
45	3	26.6	44,0	44.
		42.4	0.3	0.8
		36.5	53,8	54.3
		33.5	51,0	51.0
		1390	2691	1105
48		34,7549	5228	27.62

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1881phae.proj.1411B

Sept. 12, 1881

ζ Orionis

5h 34m 39s

−2 0

		B	B	R
10	1	37.9	2 54.4	54.1
		52.1	8.9	9.4
		47.1	3.8	4.1
		43.6	0.8	0.9
		1807	79	85
	11	45.18	13 1.98	2.12

C = 17 66.9

κ Orionis

5h 42m 10s

−9 43

		B	B	R	B	R
50	3	38.9	0 29	2.3	26	2.7
		50.0	13.4	12.8	13.4	13.8
		46.0	10.4	9.9	10.4	10.0
		40.7	6.9	6.6	6.6	6.8
		1756	336	316	330	333
53		43.90	5 5.40	7.90	8.25	8.32

γ Geminorum

6h 30m 54s

+16 30

		R	R
40	1	57.1	55.0
		8.8	9.3
		3.3	3.7
		59.7	59.9
		69	79
	42	1.72	1.98

2 Camelopardalis

6h 35m 7s −16 33

		R	R
40	3	46.7	47.8
		0.2	0.0
		55.8	56.2
		54.3	54.0
		2170	2180
	43	54.25	54.50

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1881phae.proj.1411B

Sept 12 1881

C = 17 66.9

⊙

11 26 58

+3 34

B B

20 1 41.0 50 4 7.9

57.9 24.0

533 18.0

48.5 13.1

2007 630

21 5 0 18 54 15.75

C = 17 66.9

α Draco.

14 1 9

+64 57

B B

15 1 8.9 2 5.0

29.9 26.3

24.5 21.1

9.4 6.4

727 588

16 18.18 17 14.70

Both limbs in S of R.A.

Seeing very fine indeed.

Large spots visible.

B Lyncis Min

14 57 28 +40 52

R

35 0 11.6

34.0 cr

29.7

12.2

8.75

35 21.88?

η Draconis

16 42 23 +61 47

10.2 28.8

31.9 50.3

29.0 46.9

12.0 24.7

8.31 15.07

20.78 37.68

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1881phae.proj.1411B

Sept. 13, 1881 C = 17 66.9

α Bootis

14 10 16

+19 48

B B R

20 3 45.4 4 58.4 58.0

2.0 16.0 15.7

58.0 11.1 11.2

50.2 8.4 3.8

2156 289 287

23 53.90 25 7.22 7.18

ε Bootis

14 39 49

+27 33

R

35 21 7.2

36.3

62.3

23.0

1088

37 27.20

β Herculis

16 25 8 +21 45

R R

25 2 59.0 59.2

14.2 18.6

13.0 13.4

5.6 5.0

358 3.62

28 8.95 9.05

η Herculis

R R

0 2 7.1 7.4

29.2 29.2

24.4 24.7

10.6 10.6

7.13 7.19

2 17.82 17.98

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1881phae.proj.1411B

Sept-13 1881

ζ Ophiuchi

17 3 29 −15 38

	R	R
45	41.2	40.0
	53.7	54.2
	52.8	52.8
	50.2	49.8
	19.79	19.68
46	49.48	49.20

ζ Herculis

17 9 16

+14 32

	R	R
40	1 13.6	13.2
	30.5	30.2
	26.0	26.7
	19.7	19.6
	9.01	8.97
41	22.52	22.42

Lost A-1

α Aquilae

19 45 2

+8 34

	B	B	R
35	2 46.0	4 11.9	11.8
	3.7	29.4	29.0
	58.5	24.2	24.7
	52.9	18.6	19.2
	22.11	41	42
37	55.28	39 21.02	21.05

β Aquilae

19 49 32

+6 7

	B	B	R
0	4 32.1	0 48.9	48.0
	50.1	6.0	6.6
	46.5	1.2	1.8
	39.9	57.0	57.3
	16.76	23.31	23.37
4	41.90	5 58.28	58.42

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1881phae.proj.1411B

Sept. 13, 1881 C=17 66.9

β Cygni
19 25 58
+27 43

		B	B	R
25	3	50.5	0 10.0	8.9
		11.1	30.0	30.2
		6.0	24.7	25.1
		55.2	16.1	15.6
		28	08	398
29	0	7.0	30 20.20	19.95

γ Aquilæ
19 40 40
+10 20

		B	B	R
50	1	43.0	3 5.9	5.7
		0.5	23.3	23.7
		55.0	18.2	18.0
		49.5	12.1	12.3
		2080	95	97
51		52.00	53 12.38	12.42

θ Aquilæ
20 5 14
−1 10

		B	B	R
20	1	26.0	2 42.0	42.2
		41.1	57.1	57.2
		37.9	54.0	54.3
		32.0	47.9	47.3
		1370	2010	2010
21		34.75	22 50.25	5025

ζ² Capricorni
20 11 31
−12 52

		B	B	R
50		17.2	1 36.1	36.7
		29.4	48.6	49.1
		28.0	46.0	46.2
		23.7	43.1	42.2
		983	1738	1732
5		24.58	6 43.45	43.30

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1881phae.proj.1411B

Sept. 13, 1881

α Tauri

4 29 10

+16 16

B B

55 1 32.7 2 0.2

48.0 15.4

42.3 10.3

36.8 5.1

1598 310

56 39.95 77.75

A_4 + C

C = 17 66.9

ι Aurigæ

4 49 49

+32 59

B B R

10 3 17.4 4 45 8 45.2

37.6 58 6.4

31.0 58 9 58.9

21.4 48 8 49.6

1074 193 201

13 26.85 14 ~~52.32~~

54.82 55.02

β Orionis

5 8 52

-8 20

B B

30 1 30.2 2 28.0

43.6 40.6

39.1 36.6

33.2 30.3

1461 1355

31 36.52 32 33.88

γ Orionis

5 18 48

+6 15

B B

55 1 57.9 3 17.4

16.0 35.8

10.0 29.9

5.6 20.1

295 1082

57 7.38 58 27.05

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1881phae.proj.1411B

Sept. 13, 1881

β Eridani

5 2 13

−5 14

B	B
25 0 25.1	1 42.3
40.1	57.2
35.8	52.2
30.7	47.3
13.7	1990
25 32.92	26 49.75

C = 17 66.9

α Aurigæ

5 7 5.9

+45 5 2

B
15 4 43.9
4.7
58.4
46.0
2130
19 58.25

δ Orionis

5 25 5.9

−0 23

B
30 4 26.8
42.4
38.5
31.2
1389
34 34.72

α Leporis

5 27 32

−17 54

B	B
0 4 49.0	0 56.4
3.9	9.3
59.8	5.8
57.6	3.6
2303	151
4 57.58	6 3.78

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1881phae.proj.1411B

Sept. 13, 1881

ε Orionis

5 30 14

−1 17

	B	B
25 2	36.0	4 13.6
	11.1	29.2
	7.1	24.5
	1.6	18.8
	158	861
28	3.95	29 21.52

C = 17 66.9

ζ Orionis

5 34 39

−2 0

	B	B
10 1	37.0	2 49.1
	52.5	5.2
	48.1	0.2
	43.6	55.3
	181.2	2298
11	45.30	12 57.45

μ Geminor.

6 15 49

+22 34

	B	B
35 2	34.3	51.5
	54.5	12.2
	47.5	0.9
	39.6	56.9
	17.59	15
37	43.98	38 0.38

ζ Gem.

6 30 54 +16 30

R	R
40 1477	478
2.4	3.1
57.2	59.2
53.1	53.0
2204	2211
41 55.80	55.28

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1881phae.proj.1411B

Sept. 13, 1881

κ Orionis

5 42 10

−9 43

	B	B
50 3	34.1	4 57.9
	47.0	10.9
	43.2	6.3
	37.0	0.8
	1613	159
53	40.32	55 39.8

C = 17 66.9

α Orionis

5 48 47

+7 23

	B	B
45 3	34.5	4 42.6
	52.2	0.6
	46.2	53.7
	42.0	49.2
	1749	2061
48	43.72	49 51.52

α Can. Maj

6 39 57 −16 33

R

40 3	45.2
	57.6
	54.8
	53.2
	2108
43	52.70

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1881phae.proj.1411B

Sept $\frac{13}{14}$. 1881 @ = 17 66.9

⊙

11 30 04
+3 11
B B
40 4 32.2 15 23.1
49.1 20.1
44.2 14.2
39 d 10.4
1645 478
44 41.12 17 11.95

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1881phae.proj.1411B

Sept. 14/15 - 1881 ☌ = 17 66.9

☉

11 34 9
+2 48

B B

5 2 32.6 40 0 19.0
47.9 34.4
43.9 29.5
38.9 25.7
1633 1086
17 40.82 40 27.15

β Libræ
15 10 39
-8 57

B B R

5 3 7.0 61 56.7
17.9 8.2 8.8
16.9 6.0 6.0
10.0 59.9 0.2
518 102 117
8 12.95 2.55 2.92

Both limb in δ + R.A.
Seeing ~~poor~~ rather bad

Lost A-1

α Serpentis
15 38 27
+6 48

B B R

20 3 41.0 41.1 42.0
58.8 59.5 59.3
54.0 55.0 56.2
49.2 50.0 50.0
2030 2056 2065
23 50.75 24 51.40 51.62

δ Scorpii
15 53 21
-22 17

B B R

25 2 22.8 3 41.0 40.6
35.4 55.0 54.8
33.9 52.2 52.2
29.0 47.2 47.6
1211 1952 1952
27 30.28 28 48.85 48.80

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1881phae.proj.1411B

Sept. 15, 1881 $\odot = 17 - 66.9$

γ^2 Urs. Maj.

15 20 52

+72 15

	B	B	B	B
55 2	10.0	46.2	3 9.3	29.1
	33.0	8.7	31.3	52.2
	26.6	2.4	25.1	46.0
	10.7	46.3	9.0	29.5
	803	2236	747	1568
57	20.08	55.90	58 18.68	39.20

α Cor. Bor

15 29 41

+27 7

	B	B	R
0 4 55	3.3	13.1	12.7
	14.0	31.4	31.6
	8.0	26.1	26.3
	59.3	18.0	19.0
	146	886	896
5	3.65	6 22.15	22.40

β^1 Scorpii

15 58 34

−19 29

	B	B	R
35 4	28.0	0 32.0	31.0
	41.4	43.6	43.3
	38.5	41.8	41.2
	35.1	38.5	39.2
	1430	359	347
39	35.75	40 38.98	38.68

δ Ophiuchi

16 8 9

−3 23

	B	B	R
30 4	31.5	5 42.6	42.4
	46.6	58.0	57.4
	43.5	53.1	53.7
	37.2	48.9	49.9
	1588	16	34
34	39.70	50.40	50.85

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1881phae.proj.1411B

Sept. 15, 1881 C = 17 66.9

α Scorpii

16 22 10

−26 10

B

15 4 53.0

8.0

6.1

1.8

89

20 2,22

Last A-1

η Draconis

16 22 23

+61 47

B B B

20 1 8.9 28.1 44.9

29.2 48.1 55

25.9 44.7 1.5

10.3 29.0 45.9

743 1499 2178

21 1858 3748 5645

A-1 < C

ζ Herculis

16 38 51

+39 9

B B R

0 3 4.1 4 10.8 10.1

24.8 31.9 31.3

18.4 28.4 25.2

6.8 13.8 13.9

541 819 805

3 1352 4 2048 2012

ζ Ophiuchi

17 3 27

−15 34

B B R

45 0 21.2 1 27.7 27.1

34.1 40.8 40.9

31.5 38.0 38.3

29.0 35.1 35.8

1158 1416 1421

45 2895 46 3540 3552

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1881phae.proj.1411B

Sept. 15. 1881 C=17 66.9

β Herculis

16 25 8

+21 45

	B	B	R
25 2	20.5	2 55.1	55.0
	39.6	14.1	14.7
	34.2	8.5	8.7
	26.2	0.1	1.0
	1205	178	194
27	30.12	28 4.45	4.85

Lost A_{+1}

ζ Ophiuchi

16 30 39

−10 20

	B	B	R
30 0	29.0	1 48.8	48.7
	40.2	0.0	0.7
	38.3	57.5	58.0
	33.5	52.9	53.7
	1410	192	211
30	35.25	31 54.80	55.28

ζ' Herculis

17 9 16

+14 32

	B	B	R
35 41	57.2	1 15.4	14.4
	10.8	30.4	31.4
	7.8	25.5	26.0
	0.8	19.8	20.3
	166	911	921
40	4.15	41 22.78	23.02

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1881phae.proj.1411B

Sept 16/17, 1881

⊙ B Obs.

11 41 20
+2 1

B

50 3 57.9
16.8
10.5
6.4
33.6
54 8.40

Both limbs in R.A.
Upper limb in S
Seeing moderate

α Lyrae

18 32 57
+38 41

B B R

30 1 22.8 9 36.0 35.6
44.1 57.5 57.8
37.2 50.2 50.2
26.9 40.1 40.2
13 10 18 38 18 38
31 32.75 32 45.95 45.95

C = 17 66.0

η Ursa Maj. Obs.

13 42 52
+49 54

B

15 4 22.6
42.9
37.9
25.6
12 90
19 32.25

51 Cephei S.C.

18 44 42
+82 47

B B B B B B

25 2 55.9 52.3 47.0 43.2 38.0 34.3
20.6 16.8 11.8 7.7 1.8 58.8
15.5 12.2 6.6 2.5 56.7 54.0
58.6 55.0 50.2 45.7 40.3 37.2
30 6 16 3 23 56 21 91 19 68 18 2
28 7.65 4.08 27/58 90 54 78 49.20 46

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1881phae.proj.1411B

Sept. 17, 1881

δ Hrs. Min.
18 10 21
+86 37

R B

35⁻ 1 26.2 37.0
50.2 1.9
44.3 55.5
28.6 38.7
1493 1931
36 37.32 46.28

C=17 Je 6.0
η Serpentis
18 15 13
−2 57

B B R

5⁻ 1 45.0 3 2.5 2.2
59.0 17.5 17.2
55.8 13.6 13.2
51.7 9.0 9.2
2115 426 418
6 52.88 8 10.65 10.45

α Sagittar.
18 47 57
−26 26

B B R

35⁻ 1 10.5 2 29.8 28.7
26.0 44.5 45.0
22.9 41.7 42.1
21.8 39.7 40.2
812 357 360
36 20.30 37 38.92 39.00

λ Aquilæ
19 00 00
−5⁻ 3

B B R

10. 4 27.9 1 50.6 50.2
43.0 6.1 5.8
39.1 0.6 0.5
33.9 56.2 56.5
1439 327 330
14 35.98 16 58.18 58.25

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1881phae.proj.1411B

Sept. 17, 1881 C=17 66.0

β Cygni
19 25 58
+27 43

	R	B
35 1	2 2	37.0 ~~25 8 48.9~~
3	50 7	1.9
	44.3	59.5
	28.6	38.7

	B	B	R
25 3	48.9	0 9.0	8.8
	8.8	28.7	28.6
	2.2	22.5	22.1
	54.8	15.9	15.8
	2342	761	753
28	58.55	30 19.02	18.82

β Aquilæ
19 49 32
+6 7

	B	B	R
0 4	20.1	0 47.6	47.8
	38.5	58	57.4
	32.7	59.1	59.2
	28.4	56.2	56.6
	1197	287	290
4	29.92	5 57.18	57.25

θ Aquilæ
20 5 14
−7 10

	B	B	R
20 1	20.4	2 40.3	40.6
	35.2	55.6	56.0
	31.0	50.9	51.0
	26.9	46.6	47.4
	1135	1934	1950
21	28.38	22 48.35	48.75

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1881phae.proj.1411B

Sept. 17, 1881 C = 17 66.0

γ Aquilæ
19 40 40
+10 20

B	B	R
50 1 40.3	3 4.9	4.6
57.2	21.9	22.4
67.0	15.6	16.2
47.2	11.0	11.2
1957	134	144
51 48.92	53 13.35	13.60

α Aquilæ
19 45 2
+8 34

B	B	R
35 2 56.0	4 10.2	9.8
12.9	27.2	27.3
6.8	21.3	21.8
2.9	18.5	18.2
186	762	771
38 4.65	39 19.05	19.28

α^2 Capricorni
20 11 31
−12 54

B	B	R
50 29.9	1 40.3	40.1
42.0	53.0	53.2
38.9	49.3	49.3
36.9	46.8	47.3
1477	1894	1899
50 36.92	51 47.35	47.48

γ Cygni
20 18 1
+39 53

B	B	R
15 4 12.2	0 19.9	19.3
34.0	39.9	39.7
27.2	33.5	33.2
15.0	23.0	23.1
884	1163	1153
19 22.10	20 29.08	28.82

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1881phae.proj.1411B

Sept 17 1881 c = 17660

α Aurigae

5 4 09

+45 52

	R	R
15 4 5	77	76
	185	186
	111	111
	0.7	0.2
	280	275
20	7.00	6.88

β Tauri

5 18 30

+28 30

	R	R
40 2 5	97	97
	199	200
	128	120
	58	62
	382	379
43	9.55	9.48

Rej. 1st J

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S Orionis
5-25-79
-0 R 23

30 4 27,7
42,8
37,0
32,3
13,98

34 34,95

Last few wires doubtful

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1881phae.proj.1411B

Sept 17/18. 1881 ☌ = 17 66.0

☉

11 41 20
+2 1
R
10 2 14.4
29.2
24.2
21.4
892
17 22,30

Both limbs in R. A
Upper limb in S
Seeing pretty bad

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1881phae.proj.1411B

Sept 18/19, 1881

C = 17 67.0

⊙

11 48 31
+1 14

B B

40	0	36.4	10	3 23.4
		5-27		38.6
		45.5		33.4
		43.1		28.8
		177.7		1242
	40	4442	13	31.05

Lost 1st 2 w. of 2nd limb.
Both limbs in S & R.A.
Seeing good but some trouble with clouds.

δ Scorpii
15 53 21
-22 17

B B R

25	2	11.5	3	40.6 40.0
		24.2		54.0 53.1
		21.2		49.7 49.7
		17.8		46.0 46.8
		747		1903 1896
	27	18.68	28	47.58 47.40

α Ursae Maj
12 48 48
+56 36

R

35	1	35.4
		56.3
		50.0
		38.4
		1801
	36	45.02

β¹ Scorpii
15 58 04
-19 29

B B R

35	4	15.7	0	35.8 35.6
		28.6		48.5 48.1
		24.2		45.1 44.9
		22.0		43.7 43.0
		905		1726 1716
	39	22.62	40	43.15 42.90

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1881phae.proj.1411B

~~Sept. 19~~

~~Serpentis~~ $c = 17$ 67.0

α Cor. Bor.

15 29 41

+27 7

		R	R
5	1	12.8	13.1
		32.2	32.2
		24.8	24.8
		18.7	18.3
		8.85	8.84
	6	22.12	22.10

α Serpentis

15 38 27

+6 48

		B	B	R
20	3	31.1	45.19	51.8
		48.3	9.0	9.2
		42.8	2.2	2.8
		38.9	59.2	59.8
		16.11	23	36
	23	40.28	25 ~~0.08~~ 0.58	0.90

δ Ophiuchi

16 8 9

−3 23

		B	B	R
30	4			
2	37	23.5	0 49.4	49.0
		38.8	4.7	4.7
		34.0	59.6	0.1
		29.5	55.9	56.4
		1258	2296	2302
	34	31.45	35 57.40	57.55

α Scorpii

16 22 10

−26 10

		B
15	4	55.0
		10.0
		6.4
		3.1
		145
	20	3.62

Lost A-1

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1881phae.proj.1411B

Sept. 19, 1881

η Draconis

16 22 23

+61 47

	B	B
25	10.7	279
	32.0	49.3
	28.8	46.0
	12.5	30.9
	84.0	154.1
26	21.00	38.52

Δ_7 + C.

C = 17 67.0

β Herculis

16 25 8

+21 45

	B	B	R	
25	57.9	303.6	3.1	
	11.2	~~23.1~~	23.7	
	4.3	16.8	16.7	
	57.3	84	9.4	
	47	679	529	
27	1.18	~~15.48~~	13.12	12.98

η Ophiuchi

17 3 27

−15 34

	B	B	R	B	R
45.0	15.0	23.9	22.8	24.1	23.6
	28.0	36.9	36.5	36.2	36.5
	25.5	34.9	34.9	34.0	34.2
	23.7	31.9	33.0	32.0	32.7
	92.2	76	72	63	70
45	23.05	31.90	31.80	31.58	31.75
		31.76		31.78	

α Herculis

17 9 16

+14 32

	B	B	R
35.4	54.1	198	9.2
	10.7	269	27.3
	5.0	213	21.3
	59.2	155	16.2
	90	335	340
40	2.25.41	18.38	18.50

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1881phae.proj.1411B

Sept. 19. 1881 C = 17 67.0

ζ Ophiuchi

16 30 39

−10 20

	B	B	R
30 0	3.3	1 48.1	47.3
	44.3	58.9	59.2
	41.0	56.0	57.4
	37.4	52.2	53.3
	15.60	155	172
30	39.00	53.88	54.30

η Herculis

16 38 51

+39 9

	B	B	R
0 3	0.2	4 13.3	13.8
	21.9	35.1	35.3
	15.7	29.1	29.0
	4.0	17.5	17.7
	418	150	158
3	10.45	4 23.85	23.95

β Draconis

17 27 45

+52 24

	B	B
45 3	26.8	4 24.9
	46.0	46.4
	44.7	43.0
	29.9	27.6
	1494	1419
48	37.35	49 35.48

α Ophiuchi

17 29 27

+12 39

	B	B	R
30 2	41.1	3 55.9	56.0
	57.9	12.4	13.6
	51.0	5.9	6.2
	46.0	0.5	1.3
	1960	147	171
32	49.00	34 3.68	4.28

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1881phae.proj.1411B

Sept 19 1881

C = 17 67.0

γ Procris
17 53 52
+51 3'

	R	R
40 1	44.3	44.0
	54.2	54
	2.1	1.9
	47.6	47.8
	2192	2191
41	54.80	54.78

λ Aquilæ
19 00 00
−5 3

		B	B	R
10	4	29.1	0 52.3	52.0
		42.3	58	5.1
		38.5	1.3	1.0
		34.8	58.3	58.6
		1447	2377	2367
14	36.18	15	59.42	59.18

α Aquilæ
19 45 2
+8 34

		B	B	R
35	2	48.9	4 15.5	15.2
		5.4	32.1	32.0
		59.8	26.0	26.6
		56.3	22.5	22.9
		2304	961	967
37	57.60	39	24.02	24.18

β Aquilæ
19 49 32
+6 7

		B	B	R
0	4	37.2	0 52.9	53.0
		54.2	9.3	8.7
		47.9	3.1	3.8
		44.9	0.8	1.1
		1842	61	76
4	46.05	6	1.52	1.90

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1881phae.proj.1411B

Sept. 19. 1881 C=17 67.0

β Cygni

19 25 5 δ

+27 43

	B	B	R	
25 3	52.9	0 12.8	12.3	
	12.0	31.9	32.2	
	5.8	25.4	25.3	
	57.3	18.5	18.2	
	80	886	880	
29	2,00	30 22,15	22,00	

γ Aquilæ

19 40 40

+10 20

	B	B	R	
50. +1	44.0	3 44	3.9	
	0.0	20.8	21.2	
	53.9	14.5	14.8	
	50.2	10.8	11.3	
	2081	506	512	
51	52,02	53 12,65	12,80	

Θ Aquilæ

20 5 14

−1 10

	B	B	R	
20 1	21.0	2 41.2	41.3	
	34.8	55.7	56.2	
	31.2	51.0	51.3	
	27.0	47.9	48.0	
	1140	1958	1968	
21	28.50	22 48.95	49.20	

ζ² Capricorni

20 11 32

−12 54

	B	B	R	
5 20	0 24.3	1 40.3	39.7	
	36.2	52.0	52.5	
	33.2	49.0	49.2	
	31.1	46.1	47.7	
	1248	1880	1891	
5	31,20	6 47.00	47,28	

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1881phae.proj.1411B

Sept. 19, 1881 C=17 67.0

δ Cygni

20 18 1

+39 5 3

	B	B	R
15 4	4.1	0 21.2	20.8
	23.9	41.2	41.4
	17.2	34.5	35.0
	6.2	24.5	24.6
	5 14	1214	1218
19	12.85	20 30.35	30.45

β Eridani

5 2 3

−5 14

	B	B	R
25 0	26.8	1 53.0	52.6
	40.2	58.0	57.81
	35.2	1.1	1.8
	31.5	57.4	58.3
	1337	2385	2397
25	33.42	26 59.62	59.92

β Tauri

5 18 50

+28 30

	B	B	R
40 1	27.5	2 54.8	54.8
	46.3	14.0	14.4
	39.0	6.5	6.7
	32.5	0.0	0.6
	1453	153	165
41	36.32	43 3.82	4.12

δ Orionis

5 20 59

−0 23

	B	B
30 4	24.3	0 17.8
	38.7	31.4
	34.0	27.0
	29.3	22.5
	1263	987
34	31.58	35 24.68

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Sept. 19, 1881

α Aurigæ

5h 7m 5s.9

+45° 52'

B

15h 4m 49s.8
10.2
3.3
51.4
2347
19 58.68

c = 17 67.0

β Orionis

5h 8m 5s.2

−8 20

B B R

30 2 7.2 2 41.0 41.0
18.5 52.9 52.8
14.5 48.1 48.3
9.8 43.4 44.3
500 1854 1864
32 12.50 32 46.35 46.60

α Leporis

5h 27m 32s

−17° 5'.4

B

0h 4m 54s.0
7.6
2.4
0.2
42
5 1.05

A 3 ve

ε Orionis

5h 29m 40s

−5° 5'.9

B

10 0 24.0
36.9
32.2
28.0
1211
10 30.28

Lost 4-1

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1881phae.proj.1411B

Sept. 19

ε Orionis

5⁻ 30 14

-1 17

	B	B	R
25⁻ 3	30.2	4 18.0	17.3
	45.3	32.8	32.9
	39.3	27.7	27.4
	35.6	23.0	24.0
	1504	1015	1016
28	37.60	29 25.38	25.40

Lost 1 not 2 w.

C = 17, 67.0

ζ Orionis

5 34 39

-2 0

	B
10 1	30.6
	45.1
	39.6
	36.2
	1515
11	37.88

Font A_1

α Orionis

5⁻ 48 47

+7 23

	B	B	R
45⁻ 3	22.0	4 42.7	42.1
	39.0	59.8	59.7
	32.5	52.8	53.0
	29.0	49.2	49.8
	1225	2045	2046
48	30.62	49 51.12	51.15

μ Geminor

6 15 49

+22 34

	B	B	R
35⁻ 2	29.8	3 49.7	49.1
	49.0	8.8	8.8
	41.6⁻	1.8	2.1
	34.9	55.0	55.3
	1552	2353	2353
37	38.80	38 58.82	58.82

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Sept. 19. 1881 C=17 67.0

ℓ Columbæ

5h 35m 23s

−34° 8′

	B	B	R
15h 2m	6.9	2s 40.3	40.1
	21.0	55.7	55.5
	19.1	52.0	52.9
	16.3	49.3	49.8
	633	1967	1983
14	15.82	49.18	49.58

Lost A+1

κ Orionis

5h 42m 10s

−9° 43′

	B	B	R
50m 3s	53.0	4s 44.4	53.9
	4.7	6.3	6.6
	0.5	1.2	1.7
	55.7	56.2	57.0
	2339	2381	2392
53	58.48	54 59.52	59.80

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Sept 19/20, 1881 C=17 67.0

⊙

11 52 6
+0 51

B B

0	3	51,0	35	1 42.5	
		6.0		55.8	
		06		50.8	
		56.1		47.0	
		2337		1961	
	3	58.42	36	49.02	

Both limbs in δ & R.A.
Seeing very moteady,

γ Aquilæ
19 40 40
+10 20

B B R

50	1	40.5	3	8.5	8.3
		57.1		25.1	25.4
		51.5		19.9	20.4
		48.0		15.9	16.6
		1971		694	707
	51	49.28	53	17.35	17.68

51 Cephei L.C. B.C.
6 44 42
+92 47

B B B B B

25	2	9.9	4.9	1.0	1 58.0	55.0
		32.9	28.1	23.4	21.0	17.9
		28.0	23.4	19.0	15.8	13.3
		12.1	7.2	2.4	57.9	57.4
		829	636	458	347	236
	27	20.72	15.90	11.45	8.68	5.90

A_{7_1} to A_{2_2}

Long breaks for δ's

ζ Aquilæ
19 45 2
+8 34

B B R

35	2	~~55.5~~	5.0	5.3	
		8.1	21.9	~~24.1~~ 21.7	
		3.0	16.6	16.7	
		58.6	12.5	13.2	
		12	560	569	
	38	0.30	14.00	14.22	

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Sept. 20, 1881 C = 17 67.0

λ Aquilæ
19 00 00
−5 3

B	B	R
10 4 40.0	0 50.5	50.1
53.6	4.0	3.3
50.5	0.3	0.4
46.0	57.5	57.9
1901	2323	2317
14 47.52	15 58.05	57.92

β Cygni
19 25 58
+27 43

B	B	R
25 3 53.5	0 10.1	10.2
12.9	29.0	29.9
7.1	24.1	24.1
59.1	18.0	17.1
126	12	13
29 3.15	30 20.30	20.32

β Aquilæ
19 49 32
+ 6 7

B	B	R
0 4 28.5	0 54.5	53.5
45.3	10.7	11.2
40.6	5.8	5.9
36.9	2.4	3.2
151.3	13.4	13.8
4 37.82	5 3.35	3.45

θ Aquilæ
20 5 14
−1 10

B	B	R
20 1 21.3	2 44.2	44.3
35.5	58.9	58.8
32.1	55.0	55.0
28.2	51.0	51.2
1171	2091	2093
21 29.28	22 52.28	52.32

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1881phae.proj.1411B

Sept. 20, 1881

α^2 Capricorni

20 11 31

−12 54

	B	B	R
5 0	25.1	1 48.1	47.4
	37.0	0.0	59.8
	34.7	57.3	57.8
	32.4	54.9	55.1
	129.2	220.3	220.1
5	32.30	6 55.08	55.02

C = 17 67.0

γ Cygni

20 18 1

+39 53

	B	B	R
15 4	56.0	0 21.0	20.2
	25.6	40.7	40.7
	19.6	35.5	35.2
	8.0	24.2	25.0
	58.5	121.4	121.1
19	14.62	20 30.35	30.28

ζ Aquarii

5 25 59

−0 23

	R
30 4	29.0
	43.8
	39.2
	34.9
	14.69
34	36.72

ν Aquarii

5 27 32

−17 57

	R
5	04.13
	57.4
	53.8
	53.8
	21.03
5	52.58

Aug

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1881phae.proj.1411B

Sept. 20, 1881

ε Ursæ Maj. L.C. B. Obs.

α 12 49 48

+123 24

B B

50 4 8.9 8.6

34.4 35.1

33.2 33.3

14.4 15.1

909 921

54 22.72 23.02

α = 17 67.0

δ Cassiop. B. Obs.

1 18 9

+59 37

B

35 1 19.0

38.2

33.2

19.9

1103

36 27.58

A_{+1} 3 + c

ε Ophiuchi

5 34 14

+17

R R

25 2 57.3 57.6

123 126

7.6 7.4

4.1 4.0

213 216

28 5.32 5.40

ε Columbæ

5 55 20

−34 R R

15 2 292 293

438 436

413 413

38.7 38.7

1530 1531

17 38.25 38.28

Lost A+1

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1881phae.proj.1411B

Sept-20 1881 e = 17 67,0

κ Orionis

5 42 10
−9 43

	R	R
5 5 0	5,6	5,6
	16,7	16,8
	12,9	13,2
	9,7	9,2
	4 4 7	4 4 8
5 5	11,18	11,20

α Orionis

5 4 47
+7 23

	R	R
4 5 3	25,8	25,2
	41,8	41,4
	35,0	35,1
	33.0	32,7
	1356	1344
48	33,90	33,60

Rejected
Observed

α Can Maj

6 3 7 5 7
−16 3 3

	R	
4 0 3	5 5 3	56,0
	8,0	8,7
	3,6	4,0
	2,8	3,3
	9 7	120
44	2,42	3,00

ε Can Maj

6 13 59
−28 49

	R	R
5 5 2	5 5 21	5 5 2 2
	8,8	8,2
	2,8	2,8
	1,6	1,4
	5 3	4 6
58	1,32	1,15

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1881phae.proj.1411B

Sept. 20, 1881

μ Gem.

6 15 49

+22 34

	R	R
35 2 39.0		38.4
	58.3	58.8
	50.8	51.0
	45.2	44.8
	19.33	19.33
37	48.32	48.32

C=17 67.0

γ Gem.

6 30 57

+16 30

	R	R
40 1	50.0	50.4
	5.1	5.3
	58.7	58.9
	55.7	55.9
	22.95	23.03
41	57.38	57.58

C=17 67.0

β Cam Mai

7 20 44

+8 31

	R
25 4	56.9
	14.0
	1.8
	3.0
	19.7
30	4.92

δ Cam Maj

7 3 36

−26 12

	R	R
20 2	34	38
	18.1	18.2
	13.0	13.1
	12.4	12.8
	46.9	47.7
22	11.72	11.92

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1881phae.proj.1411B

Sept. 20, 1881

θ Urs. Maj

9 24 56 +52 13

C = 17 65.6

	B	B	R.
5 5 4	35.2	0 50,2	50.2
	55.3	9.2	9.6
	49.3	4.0	3.7
	36.3	53.1	53.6
	1761	2365	2371
59	44,02	0 59,12	59.28

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1881phae.proj.1411B

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1881phae.proj.1411B

Sept. $\frac{20}{21}$. 1881 C=17 65.6

☉

11 55 42

+0 28

B

		B	
25	2	31.2	0 0 13.3
		45.1	26.4
		40.4	20.9
		35.8	18.1
		15'25	787
	27	38.12	30 19.64

Both limbs in δ & R.A.
Lost Δ9 & Δ-1 of 1st limb
Seeing pretty fair but
troubled with clouds
On 2nd limb lost some of last
wires of Δ & some of 1st wires of
Δ-1

E Horae Maj'

12 48 48

+56 36

R	R
35 233.2	334
539	533
471	473
361	468
1703	1798
35 42.58	44.95

δ Scorpii

15 53 21

−22 17

B	B	R	
25	2 40.4	3 33.1	32.87
	54.0	47.1	46.6
	50.0	42.9	43.0
	47.0	39.2	40.0
	191.4	1623	1623
	27 47.85	28 40.58	40.58

β Scorpii

15 58 34

−19 29

B	B	R	
35	4 10.5	0 33.1	32.8
	23.9	45.1	45.6
	18.8	41.7	41.3
	16.6	40.2	40.5
	69.8	1601	1602
	39 17.45	40 40.02	40.05

Lost 1st 2 W.

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1881phae.proj.14118

Sept. 21, 1881 C=17

α Cr. Bn

15 2941

+27 Y

R R

5 0 40 39

231 220

152 151

82 83

505 493

5 12.62 12.32

Chf. 1.

ζ Serpentis

1 5 8 27

+6 B 4 f

B B R

20 4 27.0 45.26 52.8

44.1 9.7 10.0

38.0 3.4 3.2

34.5 59.8 0.1

1436 55 61

24 35.90 25 1.38 1.52

A3 + C

δ Ophiuchi

16 8 9

-3 23

B B R

30 4 29.9 43.4 42.7

44.5 57.5 57.6

40.3 52.5 52.6

36.6 48.9 49.3

1503 2023 2024

34 37.58 50.58 50.60

α Scorpii

16 22 10

-26 10

B

15 4 52.0

6.8

3.0

0.5

23

20 0.58

Lost A-1

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1881phae.proj.1411B

Sept. 21, 1881

η Draconis
16 22 23
+61 47

		B	B
25	1	11.5	1319
		32.3	52.0
		27.3	46.9
		12.7	32.6
		838	1634
	26	20,95	40,85

Δ 6 2e

ζ Herculis
16 25 8
+21 45

		B	B	R
25	2	24.1	2594	59.0
		42.8	18.9	18.9
		36.0	11.1	11.3
		29.1	~~39~~ 44	5.0
		1320	336	342
	27	33,00	28 8,40	8,55

C = 17 65.6

Sept 1ms+ 3 W.

η Ophiuchi
17 3 27
−15 34

		B	B	R
25	0	17.3	1 37.0	37.0
		29.9	50.0	50.4
		26.0	46.0	46.3
		24.6	44.9	45.4
		978	1779	1791
	25	2445	26 44,48	44,78

ζ' Herculis
17 9 16
+14 32

		B	B	R
30	0	5.0	1 14.0	13.3
		20.1	30.0	29.6
		13.9	23.0	23.3
		9.6	181	19.1
		486	851	853
	30	12,531	21,28	21,32

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1881phae.proj.1411B

Sept. 21. 1881 C = 17 65.6

ζ Ophiuchi
16 30 39
−10 20

	B	B	R
30 0	23.8	1 45.9	45.6
	35.4	54.1	57.3
	32.0	54.0	54.3
	28.2	50.4	50.6
	1194	2074	2078
30	29.85	31 51.85	51.95

η Herculis
16 38 51
+39 9

	B	B	R
0 3	0.0	4 13.4	13.5
	20.4	34.2	34.1
	13.8	27.2	27.7
	2.9	16.0	~~17.6~~ 16.6
	371	908	919
3	9.28	4 22.70	22.98

β Draconis
17 27 45
+52 24

	B
45 3	40.0
	69.7
	54.2
	41.2
	1951
48	48.78

α Ophiuchi
17 29 27
+12 39

	B	B	R
30 2	48.2	3 56.2	55.3
	5.5	12.1	12.6
	57.0	4.6	4.7
	52.6	0.0	0.8
	2233	129	134
32	55.82	34 3.22	3.35

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1881phae.proj.14118

70

Sept 21 1881

γ Draco

17 53 52

R + 13 R

40 1	45.2	45.0
	5.8	5.3
	0.3	0.2
	47.6	48.0
	2189	2185
41	54.72	54.62

α Lyr.

10 02 4

+12 33

R R

40 0	597	598
	589 = 8.9	9.2
	48.6	49.1
	51.5	51.2
	2287	2293
40	57.18	57.32

Lat. A +1

Lords.

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1881phae.proj.1411B

Sept 21/22. 1881

⊙ 11 59 17 +0 5⁻

B B

50	0	510	20 3	20.9	
		44		35.9	
		483		30.0	
		556		26.1	
		2093		1129	
	50	52,32	23	28.22	

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

☾ = 17 65.6

☾ = 17 65.6

☾ Urs. Maj. 9 24 56 +52 13

B B R

55	4	40.9	0	400	39.8
		1.2		389	59.2
		54.3		529	53.6
		42.0		425	48.0
		1984		1943	1956
	59	49.60	0	48.58	4890

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1881phae.proj.1411B

Sept. 22, 1881

C = 17 67.2

E Leonis

9 39 8

+24 19

	B	R
50	52.8	51.8
	12.3	11.8
	4.5	4.2
	57.4	58.4
	70	62
54	1.75	1.55

Lost 1 prob 2 w.

Last w. of A-, doubtful

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1881phae.proj.1411B

Sept. 22/23, 1881 C = 17 · 67.2

⊙

12 2 54

=0 19

		B		B
10	4	6.0	45	40.2
		19.0		54.5
		15.0		49.2
		9.8		46.2
		49.8		19.01
	14	12.45	46	47.52

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

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1881phae.proj.1411B

Sept 24/25 @ = 176?.2

⊙
12 10 6
−1 5

Δ R. II limb
No. I
Lines good.

Cor. Bw
15 29 41 R + 27 7

	R	R
5	0 10.9	10.9
	28.5	27.7
	23.2	23.6
	16.0	16.6
	7.86	7.88
5	19.65	19.70

⊙ Aquil al
20 5 14
R 1 R 0

20	1	36.0	36.2
		48.7	48.9
		46.8	47.2
		42.3	42.4
		17.38	17.50
	21	43.45	43.75

ζ Cap.
20 11 31
R 12 R

5	1	43.8	44.2
		44.7	55.2
		53.6	53.9
		51.2	57.0
		19.33	20.43
	6	48.32	51.08

Palisots Jr.
Rij 15e

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1881phae.proj.1411B

Sept 25

α Aquilae

19 52

+8 34

	R	R
35 2	57.4	+16
	6.4	6.4
	3.0	3.0
	58.7	59.0
	23.95	00
37	59.88	38 0.00

β Aquilae

19 45 32

+6 7

	R	R
0 4	42.0	41.6
	58	58.3
	54.1	54.8
	50.4	50.3
	20.53	20.50
4	51.32	51.25

γ Orionis

5 18 48

+6 15

	B	B	R
55 1	54.1	3 17.9	17.3
	9.7	33.1	33.6
	5.3	29.5	29.5
	1.2	24.6	25.2
	10.3	10.51	10.57
57	2.58	58 26.28	26.42

δ Orionis

5 25 59

−0 23

	B	B	R
35 0	20.1	0 55.1	55.2
	32.4	7.1	7.4
	29.9	5.0	5.7
	24.9	0.2	0.1
	10.73	7.4	8.4
35	26.82	36 1.85	2.10

A3 2e

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1881phae.proj.1411B

Sept. 25, 1881

ζ Orionis

5h 29m 40s

−5° 55′ 9″

		B
10	0	57.2
		8.3
		5.5
		0.9
		11 9
11		2.98

C = 17, 67.1

ζ Orionis

5h 34m 39s

−2° 0′

		B	B	R
10	1	37.8	2561	54.0
		50.7	95	9.1
		48.0	6.8	5.7
		43.0	1.8	2.0
		1795	131	128
11		44,88	13 3.28	3.20

A_{+1} 4 A_{123}

Last w. observed is doubtful

Last A_1

γ Geminor

6h 30m 54s

+16° 30′

		B	B	R
40	1	51.3	3 8,1	8.1
		4.3	216	21.6
		0.8	17,5	17.1
		55.2	12,0	12.2
		2316	592	590
41		57,90	43 14,80	1475

α Can. Maj.

6h 39m 57s

−16° 33′

		B	B	R
40	4	7.0	0 8,2	7.9
		19.0	~~18.8~~	18.7
		16,8	17,5	17.3
		13,8	15,8	16.1
		566	613	602
44		14,15	45 15,32	15,05

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1881phae.proj.1411B

Sept. 25, 1881

ζ Orionis

5 4 47

+7 B 23 R

		B	B	R
45	3	34.5	4 56.4	56.1
		50.3	11.9	12.3
		45.9	7.5	7.6
		41.1	2.8	3.4
		1718	186	194
48		4295	50 4655	4.85

End of book

C = 17 67.1

μ Geminor.

6 15 49

+22 34

		B	R
35	2	41.5	41.3
		59.8	59.9
		54.8	54.8
		46.3	46.9
		2024	2029
37		50.60	50.72

A_{+1} A_{123}

ε Can. Maj.

6 53 59

−28 49

		B	R
55	2	56.2	56.3
		11.3	11.0
		9.1	9.2
		5.2	5.5
		218	220
58		5495	5.50

δ Can. Maj.

7 3 36

−26 12

		B	B	R
20	2	8.8	3. 16.5	16.7
		21.5	29.5	29.8
		20.1	28.3	28.2
		16.1	24.1	24.7
		665	984	994
22		16.62	23 24.60	24.85

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1881phae.proj.1411B

Sept 25 1881 C = 17671

β Can Min

7 20 48

+8 31

R	R
40 1 14 0	16 4
31.7	31.4
28.3	28.3
24.1	23.8
10 1 1	9 9 9
40 25.28	24.98

α Hydrae

9 21 47

−8 9

B	B	R
20 0 5.0	1 10 1	9.9
15.4	20.5	20.3
13.9	18.8	19.3
7.8	18	12.3
42.1	6 12	6 18
20 10.52	21 15.30	15.45

α Leonis

10 2 4

+12 33

B	B	R
35 4 4.6	0 18 9	18.2
20.8	34.0	34.0
15.0	29.1	29.2
9.2	23.5	23.8
496	1055	1052
39 12.40	40 26.38	26.30

γ Leonis

10 13 27

+20 26

B	B
45 0 42.1	1 53.1
59.7	9.0
54.0	5.5
47.5	58.1
2033	57
45 50.82	47 1.42

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1881phae.proj.1411B

Sept. 25, 1881 C = 17 67.1

θ Urs. Maj.

9 24 56

+52 13

B	B	R
55 4 58.3	0 45.6	44.8
17.9	4.2	5.0
14.5	1.0	1.3
59.1	47	46.2
298	2185	2193
10 7.45	54.62	54.82

ε Leonis

9 39 8

+24 19

B	B	R
50 3 13.9	4 7.6	7.7
32.0	26.4	26.2
27.8	21.5	22.2
19.5	13.4	13.8
932	689	699
53 23.30	54 17.22	17.48

μ Urs. Maj.

10 15 16

+42 6

B.	B	R
5 2 55.9	3 10.2	10.6
14.0	28.3	28.3
10.9	249	25.7
56.3	12.9	13.2
191	763	778
8 4.78	19.08	19.45

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1881phae.proj.1411B

Sept. 26, 1881 C=17 67.1

ε Urs. Maj. η Ophiuchi

12 48 48 17 3 27

+57 36 -15 34

		B	B	B			B	B	R	
30	1	18.0	41.3	2 29.8	45	0	19.0	1 39.0	38.3	3
		36.4	0.1	48.9			29.2	50.2	51.1	
		33.5	57.0	45.8			30.9	51.2	51.0	
		19.5	43.3	31.5			28.2	47.9	48.6	
		1074	2017	1560			1073	1883	1890	
36		26,85	50,42	37 39,00	45		26,82	46 47,08	47,25	

α Ophiuchi γ Draconis

17 29 27 17 53 52

+12 39 +51 31

		B	B	R			B	B	R	
30	2	49.9	3 52.2	51.7	40	1	38.1	2 55.5	55.2	3
		5.4	8.4	8.2			1.0	18.0	18.2	
		3.5	6.0	6.3			0.5	17.8	18.2	
		57.1	59.1	59.1			43.9	1.5	1.6	
		2359	57	53			2035	328	332	
32		58,98	34 1,42	132	41		50,88	43 8,20	8,30	

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1881phae.proj.1411B

Sept. 26, 1881 C = 17 67.1

ζ Herculis
17 9 16
+14 32

B	B	R	
35 4 5	2.8	1 150	14.6
	9.0	30 1	31.0
	6.1	26.6	26.3
5	8.1	20 9	21.3
	60	952	952
40	1,50	41	23,80	23,80

β Draconis
17 27 45
+52 24

B	B	
45 3	33.9	4 20.4
	54.5	41.1
	54.2	41.2
	38.1	25.2
	1807	1279
48	45,18	49	31,98

ζ Aquilæ
18 00 00
+13 42

B	B	R	
30 0	33.2	1 256	24.6
	49 2	41,0	41.1
	46 2	38.1	38.6
	40 4	32	33.1
	1690	1374	1374
30	42,25	31	34,35	34,35

β Cygni
19 25 58
+27 43

B	B	R	
25 3	58,9	0 9.0	8.6
	15,1	24.6	27.6
	11,2	50	24.7
	2.4	16,3	17.0
	246	779	779
29	6,15	30	19,48	19.48

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1881phae.proj.1411B

Sept. 26, 1881 C=17 67.1

γ Aquilæ

19 40 40

+10 20

	B	B	R
50 1	54.1	38.2	7.8
	10.0	24.7	25.0
	7.9	22.0	22.1
	1.8	16.0	16.7
	138	709	716
52	3.45	53 17.72	17.90

γ Orionis

5 18 48

+6 15

	B	B	R
~~55~~			
55 2	18.4	3 10.0	9.7
	36.0	25.4	27.0
	32.2	24.1	24.1
	~~35.6~~	18.5	19.3
	1142	800	801
57	28.55	58 20.00	20.02

ι Orionis

~~0~~ 5 29 40

-5 5.9

	B
10 0	23.8
	37.1
	35.9
	29.1
	1259
10	31.48

Lost A_{-1}

ε Orionis

5 30 14

-1 17

	B	B	R
25 3	22.0	4 18.7	18.5
	36.4	33.1	33.5
	35.7	32.9	32.2
	29.2	25.0	25.7
	1233	1097	1099
28	30.82	29 27.42	27.48

Lost A_{+1}

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1881phae.proj.1411B

Sept. 26, 1881 C=17 67.1

δ Orionis
5⁻ 25⁻ 5⁻9
−0 23

B

30 4 42.5⁻
56.8
55.6
48.6
2035
34 50.8⁺

α Leporis
5 27 32
−17 5⁻4

B

0 4 55.4 36⁴
9.5⁻
8.2
4.8
179
5 44⁸

C=17 67.1
ζ Orionis
5⁻ 34 89
−2 0

B

10 1 33.4
47.5⁻
45.5⁻
40.4
1668
11 41.70

C=17 70.8
α Leonis
10 2 4
+12 03

B R

40 0 16.2 15.4
32.4 32.2
27.5⁻ 27.9
22.1 23.6
985 991
40 24.62 24.78

Last A+1

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1881phae.proj.1411B

Sept. 26/27, 1881 C=17 70.8

⊙ ε Urs. Maj.

12 17 12 12 48 48

−1 5˙3 +5 26 36

B B B B B

45 2 49.0 20 0 20.0 35˙ 1 12.8 2 31.5˙ 41.6

3.8 34.3 32.4 52.4 2.4

˙1 33.3 30.9 48.6 0.2

564 28.1 16.0 35.1 45.1

2313 1157 921 1676 2093

47 57.82 20 28.92 36 23.02 37 41.90 52.32

Both limbs in S. R.A.

Seeing poor.

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1881phae.proj.1411B

Sept. 27/28. 1881

γ Orionis

5h 18m 48s

+6° 15'

	B	R
55 3	10.3	9.9
	28.3	28.1
	24.8	25.1
	20.0	20.7
	834	838
58	20.85	20.95

C = 17 70.8

δ Orionis

5h 25m 59s

−0 23

	B
30 4	25.4
	40.9
	39.4
	32.3
	1380
34	34.50

A6 2c.

ε Orionis

5h 30m 14s

−1 17

	B	B	R
25 3	39.9	4 20.8	20.4
	56.0	36.0	36.2
	53.3	34.5	34.3
		27.3	27.9
		1186	1188
		29 29.65	29.70

Lost A_{+1}

ζ Orionis

5h 34m 39s

−2 0

	B
10 1	34.5
	49.4
	46.8
	42.1
	1728
11	43.20

Lost A_{-1}

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1881phae.proj.1411B

Sept. 28, 1881

α Leporis

5 27 32

−17 54

B	B
5 4 45.8	0 28.6
0.2	41.5
58.5	39.4
54.1	37.4
2186	1469
9 54.65	10 36.72

C = 17 70.8

ζ Orionis

5 29 40

−5 59

B
10 0 12.0
25.3
24.2
18.5
800
10 20.00

Lost A_{-1}

α Columbæ

5 35 23

−34 8

A_3 to A_9

Lost w. A5 or 6.

No δ

κ Orionis

5 42 10

−9 43

B	B	R
35 3 33.6	4566	56.7
46.4	96	9.3
45.1	81	8.4
38.6	~~03~~ 19	1.8
163.7	154	162
38 4092	40385	4.05

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1881phae.proj.1411B

Sept. 28, 1881 C=17 70.8

α Orionis

5 48 47

+7 23

δ Urs. Min. L.C.

18 10 21

+93 23

		B	B	R
45	2	25.0	4 ~~46.2~~ 45.5	45.2
		42.2	38	3.7
		38.9	59.4	59.8
		34.0	54	54.6
		1401	2229	223.3
47		35.02	49 55.72	55.82

		B	B	B
50	1	34.0	28.3	21.5
		56.5	51.0	44.9
		53.0	47.5	41.0
		36.6	31.0	24.2
		1801	1578	1316
51		45.02	39.45	32.90

Got A-1

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1881phae.proj.1411B

Sept. 28, 1881 ☾ = 17 70.8

ζ Geminor.

6 15 49

+22 34

	B	B	R
35 2	22.9	3 44 5	44.8
	42.2	53	4.8
	37.9	60	0.1
	29.9	~~51.7~~	51.8
	13 29	52.2	22 15
		2220	
37	33.22	38 5-5.50	55.38

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1881phae.proj.1411B

Sept. 28/29. 1881

⊙ ☾ = 17 70.3

☾ Urs. Maj

12 24 32 | 12 48 48

-2 39 | +56 36

B B B

30 9 43.5 5 2 14.0 | 35 1 12.1

8.0 29.3 | 33.9

5 7.0 26.2 | 30.0

10.5 21.0 | 17.0

2 1.0 9.05 | 9.30

34 52.75 7 2.62 | 36 23.25

Both limbs in δ & R.A.

Seeing ~~pretty fair~~. moderately good.

$A_{1\ 2\ 6}$ $A_{-1\ 5}$

Add 0.3 to A_5

ν Serpentis

15 15 13 -2 56

R R

5 1 50.0 49.4

7.2 6.4

3.6 2.7

5 8.9 5 8.8

23 9.7 23 7.3

6 59.92 59.32

ν Serpentis

A Early.

$A_{2\ 0\ 4\ 6\ 0}$

Lost 5_0, 5_1, 5_2?

Lost A_{-1}, 5

1881phae.proj.1411B

C = 17 69.2 (?)

B 20 Cows

17 27 45

+52 24

R

45 4 0.0

6.1

3.3

49.4

2388

48 59.70

J 20 Cows

17 53 5-

+51 3/

R R

20 1 5.58 5.58

18.7 18.2

14.9 15.1

0.9 0.9

303 300

42 7.58 7.50

ζ Lyrae

18 3 R 57 58 41 R

R

30 1 13.8 12.6

36.3 36.0

29.3 29.5

19.2 19.2

986 973

31 24.65 24.32

Sun - 1.1

1881phae.proj.1411B

Sept 29/30, 1881

C=17 69.2

⊙

12 28 9

−3 3

B

55	3	26.0		
		42.0		
		37.5		
		32.9		
		13 8 4		
58		34.60		

In R.A lost some of last wires of A + A−1 on 1st limb, + lost last 3 w of A−1 on 2nd limb. U of 2nd limb in 5

~~C=17 69.2~~

C=17 70.3

α Serpentis

15 38 27

+6 48

		B	B	R	
20	3	31.1	4 40.0	39.0	
		48.0	54.7	57.7	
		43.3	52.0	52.3	
		39.6	49.0	49.8	
		1620	198.7	198.8	
	23	40.50	24 49.68	49.70	

Rj first shows of A−1

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1881phae.proj.1411B

Sept. 30, 1881 C = 17 70.3

δ Urs. Maj. L.C. B. Obs.

12 48 48
+1 23 24

		B	B
50	3	57.4	57.3
		24.2	24.0
		22.5	22.5
		4.7	4.6
		488	484
	54	12.0	12.0

δ Cassiops. B. Obs.

1 18 9
+59 37

		B	B
35	1	26.5	26.9
		45.6	46.0
		41.0	41.2
		28.8	28.2
		1419	1423
	36	3548	3558

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1881phae.proj:1411B

Sept. 30
Oct. 1, 1881 C=17 70.3

⊙

12 31 47
-3 26

	B	B
50 2	53.1	20 1 45.9
	7.8	0.8
	4.4	57.1
	59.6	52.7
	49	2165
53	1.22	21 54.12

First limb in R.A.
Both limbs in δ
Seeing pretty fair.

ε Urs. Maj. B. Obs.

12 48 48
+56 36

	B	B
35 2	25.0	25.2
	45.1	45.0
	40.5	40.2
	27.6	27.4
	1382	1378
37	34.55	34.45

β Aquilæ

19 49 32
+6 7

	B	B	R
0 4	46.9	0 47.9	47.2
	5.0	5.0	4.8
	1.2	1.3	2.0
	58.0	57.9	58.1
	2311	2321	2321
4	57.78	5 58.02	58.02

A_{-1} A_{+2} A_{-1} 2345

θ Aquilæ

26 5 14
-1 10

	B	B	R
20	1 51.1	2 45.0	44.2
	6.0	0.3	59.8
	4.5	5 50	58.2
	0.0	5 24	53.3
	16	2162	2155
22	0.40	54.05	53.88

A_{+1} 3 J e

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1881phae.proj.14118

Oct 1, 1881

C = 17 70.3

σ Sagittarii
18 47 5.7
-26 26

B R

35 1 58.8 58.7
13.6 13.8
13.2 13.3
10.5 11.2
361 370
37 9.02 9.25

A 345 A
+1

Rej A −1 1

α² Capricorn.
20 11 31
-12 54

B B R

5 0 51.5 / 340 33.3
4.4 460 46.4
3.7 453 45.7
490 424 43.0
2386 1677 1684
5 59.65 6 41.92 42.10

Sort A +1

γ Aquilæ
19 00 00
+13 42

B B R

30 0 52.9 / 26.8 26.6
11.2 44.5 44.8
6.0 40.8 40.8
0.7 34.4 34.7
108 146.5 146.9
31 2.70 36.62 36.72

A 3 ∨ C

Sort - some wins of A −1

δ Cygni
20 18 1
+39 53

B B R B

15 4 3.7 0 23.2 22.3 23.1
25.6 45.0 44.2 44.3
21.6 40.5 40.8 40.8
8.7 28.4 28.3 28.0
596 1371 1356 1362
19 14.90 20 34.28 33.90 34.05

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1881phae.proj.1411B

Oct. 1, 1881

α Cygni

20 37 26

+44 52

	B	B	R
20 0	17.9	1 240	23.3
	37.6	448	45.0
	34.7	415	41.3
	22.0	98	28.9
	11 24	1385	1385
20	2810	21 3462	34.62

C=17 70.3

ε Cygni

20 41 27

+33 32

	B	B	R
40 0	4.9	1 14	13.5
	24.5	33.8	34.0
	20.1	30.3	30.4
	10.1	20.0	20.0
	596	182	179
40	14.90	41 24.55	24.48

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1881phae.proj.1411B

Oct. 1, 1881

ζ Cygni

21h 56

+29 45

	B	B	R
25 2	22.0	3 17.8	17.7
	42.1	37.2	37.4
	39.1	34.0	34.6
	28.9	24.0	24.7
	132.1	336	344
27	33.02	28 28.25	28.60

C = 17 70.3

α Cephei

21 15 48

+62 5

	B	B	B
5 1	56.1	44.2	14.4
	17.9	4.8	36.0
	14.3	2.5	32.9
	59.4	46.9	17.4
	277	2184	1007
7	6.92	54.60	25.18

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1881phae.proj.1411B

Oct. 3. 1881

η Herculis
16 38 57.1
+39 9

		B	B	R
0	3	10.2	4 15.1	14.9
		31.0	36.1	35.7
		25.1	29.8	29.8
		15.2	19.2	20.3
		8.15	10.02	10.07
	3	20.38	4 25.05	25.18

α = 17 70.3
λ Aquilæ
19 00 00
-5 3

		B	B	R
15	0	9.5	52.3	52.4
		24.0	5.7	5.6
		19.5	2.2	1.8
		17.4	59.4	59.7
		7.04	3.96	3.95
	15	17.60	59.90	59.88

Lot A_{+1}

ζ Aquilæ
19 45 2
+8 34

		B	B	R
35	2	59.0	4 10.8	10.8
		16.0	28.4	28.2
		10.0	22.1	22.3
		7.7	18.4	19.2
		3.27	3.97	0.5
	38	8.18	39 19.92	20.12

β Aquilæ
19 49 32
+6 7

		B	B	R
0	4	33.9	0 47.9	47.8
		51.8	5.0	5.3
		46.0	59.1	59.2
		42.3	56.8	57.4
		17.40	28.8	29.7
	4	43.50	5 57.20	57.42

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1881phae.proj.1411B

Oct. 3, 1881

β Cygni

19 25 58

+27 43

		B	B	R
25	3	49.5	05.3	5.3
		10.2	24.8	24.3
		2.6	18.9	18.7
		55.1	11.9	11.8
		23.74	6.09	6.01
	28	59.35	30 15.22	15.02

C = 17 70.3

γ Aquilæ

19 40 40

+10 20

		B	B	R
50	1	46.6	30 1.2	0.9
		3.3	18.4	18.7
		57.4	11.9	12.4
		53.7	8.9	9.3
		22.10	0.4	1.3
	51	55.25	53 10.10	10.32

Θ Aquilæ

20 5 14

-1 10

		B	B	R
20	1	16.9	2 45.0	45.1
		42.0	0.2	59.9
		38.0	55.5	55.7
		34.5	52.5	52.3
		13.14	21.32	21.30
	21	32.85	22 53.30	53.25

α² Capricorni

20 11 31

-12 54

		B	B	R
5	0	22.1	4.11	40.4
		34.1	53.1	53.6
		30.9	50.0	50.2
		29.6	48.3	49.2
		11.67	3.25	3.34
	5	29.18	6 48.12	48.35

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1881phae.proj.1411B

Oct. 3, 1881 $C = 17\ 70.3$

γ Cygni

$20^h\ 18^m\ 1^s$

$+39\ 53$

	B	B	R
$35^s\ 4$	0.5^s	0 18.6	18.4
	22.0	400	39.3
	15.2	330	32.7
	4.7	230	23.3
	424	1146	1137
39	10.60	40 28.65	28.42

α Cygni

$20^h\ 37^m\ 26^s$

$+44\ 52$

	B	B	R
20	0 17.6	1341	33.8
	37.4	524	53.9
	32.0	481	48.3
	20.8	376	37.8
	1078	1742	1738
20	26.95	21 4355	43.45

α Cephei

$21^h\ 15^m\ 48^s$

$+62\ 5^m$

	B	B	B
$5^m\ 1$	56.3	2 46.5	17.7
	17.2	7.4	38.9
	12.0	1.8	33.3
	58.9	48.6	20.0
	244	2243	1099
7	6.10	56.08	27.48

β Aquarii

$21^h\ 25^m\ 22^s$

$-6\ 5^m$

	B
$15^m\ 1$	16.6
	30.1
	26.4
	22.2
	953
16	23.82

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1881phae.proj.1411B

Oct. 3, 1881 C=17 70.3

ε Cygni

20 41 27

+33 32

	B	B	R
35⁻ 4	53.4	1 15.0	14.7
	14.0	34.1	34.7
	7.1	28.5	28.7
	57.6	20.0	19.8
	121	976	979
40	3.02	41 24.40	24.48

ζ Cygni

21 7 56

+29 45

	B	B	R
25⁻ 2	33.0	3 21.0	20.8
	53.0	40.3	40.3
	46.8	34.8	35.2
	38.5⁻	27.1	27.1
	1713	1232	1234
27	42.82	28 30.80	30.85

β Cephei

21 27 11

+70 3

	B	B	B
10 0	4.0	31.3	58.5⁻
	26.1	53.2	20.1
	18.9	45.8	13.0
	5.2	32.9	59.6
	542	1632	1512
10	13.55	4080	37.80

ε Cam. Maj

6 53 59

−28 49

	B	B	R
55⁻ 2	59.8	4 15.0	15.0
	15.2	31.4	~~31.4~~ 30.4
	11.1	26.9	27.7
	8.2	~~23.6~~ 24.2	25.0
	343	975	987
58	8.58	59 24.38	24.68

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1881phae.proj.1411B

Oct. 3, 1881

δ Can. Maj.

7 3 36

−26 12

		B	B	R
20	2	13.3	8 20.4	20.6
		26.9	35.0	34.9
		22.9	31.0	31.1
		21.0	28.9	29.2
		841	1153	1158
		2,02	28,82	28,95

C = 17 70.3

β Can. Min

7 20 48

+8 31

		B	B	R
40	0	0.8	1181	17.7
		16.3	341	33.8
		9.9	~~28,8~~ 27.5	27.4
		7.2	24.5	24.7
		342	1042	1036
		40 8.55	41 26,05	25,90

β Geminor.

7 38 5

+28 19

		B	B	R
50	3	38.0	4 41.9	41.6
		56.6	11	1.2
		49.4	53.6	53.8
		42.3	46,3	47.2
		1863	2029	2038
	53	46,58	54 50,72	50,95

15 Argus

8 21 31

−23 58

		B	B	R
5	2	48,5	4 13,5	13.1
		1.2	26,8	26.7
		56.6	219	22.2
		54.6	20,2	20.6
		2209	824	826
	7	55,22	9 20,60	20,65

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1881phae.proj.1411B

Oct. 3, 1881

α^2 Geminor.

7 27 3

+33 9

	B	B	R
0 3	24.8	4 38.2	37.6
	4.0	57.1	57.0
	37.4	50.5	50.9
	28.6	41.5	42.7
	1348	1873	1882
3	3.370	4 46.82	47.05

α = 17 70.3

α Cam. Min.

7 33.7

+5 32

	B	B	R
35 4	51.9	14.1	13.8
	8.0	30.1	29.7
	2.2	23.5	23.4
	58.8	21.5	21.6
	09	892	885
40	0.22	2230	2212

α Hydrae

9 21 47

−8 9

	B	B	R
15 4	56.8	13.2	13.4
	8.8	25.8	25.3
	5.1	21.0	21.4
	59.0	16.0	16.3
	97	760	764
20	24221	1900	1910

θ Urs. Maj.

9 24 56

+52 13

	B	B
55 4	55.5	0 42.9
	15.5	1.9
	10.2	56.1
	57.9	45.0
	191	2059
	0 478	5148

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1881phae.proj.1411B

OCT 3 1881

c = 17 70.3

ε Leonis

9 39 8

+24 19

		B	B	R
50	2	54.1	4 08	8.6
		13.7	28	28.3
		6.0	21	21.3
		59.9	14.0	14.1
		+37	727	723
	53	3,42 54	18.18	18.08

α Leonis

10 2 4

+12 33

		B	B	R
35	4	0.8	0 16	16.2
		17.5	33	33.0
		10.0	25.5	26.2
		5.2	22,2	22.5
		335	979	979
	39	8,38 40	24.48	24.46

μ Urs. Maj.

10 15 16

+42 6

		B	B	R
5	2	22.9	3 49	5.6
		40.5	23.2	23.8
		34.9	18	18.0
		24.8	7.0	7.4
		1231	529	548
	7	30,78	8 13,22	13,70

Lost A_{+1}

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1881phae.proj.1411B

Oct. 3, 1881 c=17 70.3

ζ Leonis

10 10 6

+24 0

		B		B	R
10	1	32.8	2	52.0	52.4
		52.2		12.4	12.0
		44.8		5.0	5.7
		38.6		58.5	59.1
		1684		82	92
	11	42.10	13	2.05	2.30

γ Leonis

10 13 27

+20 26

		B		B
45	0	46.9	1	48.1
		45		44
		57.2		58.5
		52.4		52.6
		2210		2236
45		55.25	46	55.90

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1881phae.proj.1411B

Oct. 4, 1881 $\odot = 17\ 70.3$

γ Cassiop. B. Obs.
0 49 38
+60 5

	B	B
5 4	1.0	0.8
	21.7	21.7
	13.3	13.2
	0.8	0.1
	368	358
9	9.20	8.95

δ Cassiop. B. Obs.
1 18 9
+39 37

	B
35 1	32.0
	51.7
	43.2
	31.6
	1585
36	39.62

A-1 only

5-1 Cephei
6 44 42

	R	R	R	R
0 1	28.3	41.3	47.2	5-1.7
	5.6	2.6	8.8	11.8
	3.8	5-2.0	5-8.2	1.6
	28.0	40.7	47.0	5-0.6
	1467	1966	2212	2357
	1 36.68	49.15	55.30	58.92

ε Cam. Maj.
6 +35 58
-28 49

	R	R
5 5	25 13.3	41.2
	6.9	12.1
	5-9.8	0.5
	5-9.1	5-9.3
	2371	2331
57	59.28	58.28

A 40 to 60

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1881phae.proj.1411B

© = 17743

γ Gem

6 30 54

+16 30

R R

40 2 88 8,8

238 23,5

14,8 15,2

11,8 12,4

592 594

42 1480 14,85

Lost 1 J 12 W

ζ CMa Nov

6 39 57

−16 33

R

40 3 43,9

46,1

49,8

48,4

1985

43 49,62

Do

ν CMa Nov

7 3 36

−9 12

R R

20 2 57 53

17,8 18,0

10,9 11,2

11,9 12,2

463 467

22 11,58 11,68

Beau Mis

7 20 46

R +8 R 31

40 1 136 128

270 263

16,7 16,1

17,2 16,8

745 720

41 1862 18,00

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1881phae.proj.1411B

Oct 4 1881 C = 17 7.3

α_2 Gem.

7 27 3

+32 9

		R	R
0	4	366	367
		53.0	53.8
		41.6	42.5
		37.0	37.0
		1682	1700
	4	42.05	42.50

α Cam. Min.

7 33 7

+5 32

		B	B	R
35	4	52.0	1 5.0	5.7
		6.2	19.1	18.8
		57.2	7.5	8.2
		55.9	9.2	9.8
		2313	408	425
	39	57.82	41 10.20	10.62

C = 17 7.3

α Hydrae

9 21 47

-8 9

		B	B
20	1	8.2	8.2
		17.7	17.2
		6.8	7.0
		4.6	4.2
		373	366
	21	9.32	9.15

C = 17 58.5

ε Leonis

9 39 8

+24 19

		B	B
50	2	52.2	4 13.1
		8.2	29.0
		54.0	14.9
		60.5	11.2
		2249	682
	52	56.22	54 17.05

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1881phae.proj.1411B

Oct. 4, 1881 $c = 17$ 70.3

β Geminor.
7 38 5
+28 19

	B	B	R
50 3	21.1	4 40.8	40.7
	37.0	57.0	57.2
	26.4	46.2	46.4
	21.8	45 20	42.7
	1063	1860	1870
	53 26.58	54 46.50	46.75

15 Argus
8 20 31
−23 58

	B	B
5 2	46.8	3 58.9
	58.1	10.6
	48.7	1.4
	48.6	0.6
	2022	115
	7 50.55	9 2.88

α Leonis
10 2 4
+12 33

	B	R
~~4 13.1~~ 40 0	.198	20.0
	33.9	33.9
	193	18.9
	174	18.2
	904	910
40	2260	2275

A_0 A_{-1}

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1881phae.proj.1411B

Oct 4/5, 1881

c = 17 58.3

⊙

12 46 19
−4 59

	B	B
50	49.2	25 1 31.8
	15	42.5
	48.0	32.2
	47.2	29.3
	206'9	1358
53	51.72	26 33.95

γ Aquilæ

1900

−δ − B

	R	R
10 4	376	388
	51.0	41.2
	40.4	40.6
	38.2	38.0
	1682	1686
14	42.05	42.15

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

α Aquilæ

19 45 2
+8 34

	B	B	R
35 3	0.2	4 15.0	14.9
	14.9	29.2 29.8	
	2.9	17.7	17.6
	1.9	15.6	16.4
	199	775	787
38	4.98	39 19.38	19.68

β Aquilæ

19 49 32
+6 7

	B	B	R
0 4	33.6	0 55.4	55.7
	48.2	10.0	10.3
	37.2	57.8	58.0
	34.8	57.5	57.8
	1538	07	18
4	38.45	6 0.18	0.45

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1881phae.proj.1411B

Oct. 5, 1881

C = 17 58.3

β Cygni

19 25 58

+27 43

	B	B	R
25	4 4.3	0 15.6	15.7
	2 2.1	3 2.4	31.7
	8.4	20.1	19.7
	3.2	1 55.1	16.1
	382	832	832
29	9.55	30 20.80	20.80

γ Aquilæ

19 40 40

+10 20

	B	B	R
50	1 50.0	3 11.2	11.6
	4.7	25.5	26.0
	52.3	12.8	13.8
	50.9	11.9	12.4
	2179	614	638
51	54.48	53 15.35	15.95

β Eridani

5 23

−5 14

	B	B	R
25	1 6.0	1 54.8	57.3
	17.1	29	3.7
	5.8	54.9	52.0
	3.8	49.0	50.3
	327	156	173
26	8.18	53.90	54.32

α Aurigæ

5 7 89

+48 52

	B
20	0 0.8
	16.1
	3.5
	55.1
	155
20	3.88

Lost A +1

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1881phae.proj.1411B

Oct. 5, 1881

β Orionis

5 8 52

−8 20

		B		B	R
3					
30	1	31.0	2	36.2	36.2
		41.0		46.1	46.2
		29.5		34.9	35.1
		26.8		32.2	32.7
		1283		1494	1502
	31	32.08	32	37.35	37.55

C=17

β Tauri

5 18 50

+28 30

		B		B	R	
40	1	5 20	03	5.0	4.8	30
		7.8		2.8	21.3	
		34.6		7.3	7.7	
		50.3		39	4.7	
		2247		380	385	
	41.	56.18	43	9.50	9.62	

ι Orionis

5 29 40

−5 59

		B
10	0	19.8
		29.1
		18.2
		17.0
		841
	10	21.02

ε Orionis

5 30 14

−1 17

		B		B	R
25	3	30.9	4	20.2	20.8
		42.8		33.0	33.0
		31.2		20.8	21.3
		27.5		18.5	18.7
		1324		925	938
	28	33.10	29	23.12	23.45

Lost A_{-1}

Lost A_{+1}

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1881phae.proj.1411B

Oct. 5, 1881

δ Orionis

5⁻ 25⁻ 5⁻9

−0 23

B

30 4 37.2
49.7
37.8
35.6
1603
34 40.08

C = 17 58.3

α Leporis

5⁻ 27 32

−17 5⁻4

B

5⁻0 2.7
13.1
1.2
2.6
196
5 4.90

α Columbæ

5 35 ~~33~~ 23

−34 8

B B R

15⁻ 1 19.0 2 27.0 26.5
30.7 38.8 39.0
22.0 29.0 29.5⁻
20.9 28.5 29.0
926 1233 1240
16 23.15 17 30.82 31.00

K Orionis

5⁻ 42 10

−9 43

B B R

50 3 43.0 4 5⁻35 5⁻3.5
5⁻3.0 3.8 ~~3.9~~ 3.0
41.0 5⁻1.6 5⁻2.1
38.9 49.1 49.2
1759 2183 2187
53 43.98 54 54.58 54.68

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1881phae.proj.1411B

Oct. 5, 1881

α Orionis

5 48 47

+7 23

		B	B	R
45	3	28.8	4 51.0	51.5
		42.3	6.0	6.0
		28.2	51.3	51.6
		28.0	50.2	50.7
		1273	2185	2198
	48	31.82	49 54.62	54.93

δ Urs. Min. L. C.

18 10 21

+93 23

		B	B	B
50	1	1.3	44.3	41.6
		18.9	1.1	59.3
		6.5	48.2	45.2
		55.3	37.0	35.2
		220	1906	1813
	51	5.50	47.65	45.32

C = 17 58.3

α Cam. Majr.

6 39 59

−16 33

		B	B
40	4	0.1	0 12.0
		10.2	21.8
		59.3	10.2
		59.7	11.7
		1293	557
	44	3232	45 1392

51 Cephei

6 44 42

+87 13

		B	B	B	B	B
0	0	32.2	36.0	40.2	45.9	49.1
		51.0	54.6	59.3	4.9	7.2
		36.2	39.2	44.0	49.2	52.9
		25.8	29.0	34.9	39.1	42.7
		1452	1588	1784	1991	2119
	0	3630	39.70	4460	4978	5298

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Oct. 5, 1881

μ Geminor

6 15 49

+22 34

	B	B	R
35 2	42.0	3 53.9	54.7
	57.8	10.0	10.3
	43.4	56.0	56.2
	40.0	54.9	52.2
	1832	2318	2334
37	45.80	38 57.95	58.35

C = 17 58.3

γ Geminor.

6 30 54

+16 30

	B	B	R
40 1	59.6	3178	17.5
	10.0	2.97	30.0
	56.7	16.0	16.4
	55.6	~~14.8~~ 15.0	16.0
	19	785	799
42	0.48	43 19.62	19.98

ε Can. Maj.

6 53 59

−28 49

	B	B	R
55 3	19.2	4 6.2	6.0
	32.1	19.8	19.8
	21.0	7.5	8.0
	20.0	6.9	6.6
	923	404	404
58	23.08	59 10.10	10.10

δ Can. Maj.

7 3 36

−26 12

	B	B	R
20 1	55.53	10.0	9.6
	6.0	21.0	21.1
	55.7	9.1	9.3
	55.5	9.2	10.31
	2327	493	501
21	58.18	23 12.32	12.52

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1881phae.proj.1411B

Oct. 5, 1881

β Can. Min

7 20 48

+8 31

		B	B	R
40	0	11.6	1 22.4	23.0
		24.2	35.6	36.0
		10.1	22.0	22.2
		9.9	20.8	20.7
		5 58	10 08	10 19
	40	13 95	41 25.20	25.48

C = 17 58.3

α² Geminor.

7 27 3

+32 9

		B	B	R
0	3	49.6	4 39.1	39.4
		5.8	55.0	55.0
		51.3	41.2	41.2
		45.9	35.1	35.0
		20 26	17 04	17 06
	3	50.65	4 42.60	42.65

15 Argus

8 22 31

-23 58

		B
5	4	5.1
		15.1
		1.2
		2.0
		2 34
	9	5.85

γ' Leonis

10 13 27

+20 26

		B	B
45	0	40.1	1 59.3
		51.2	11.3
		37.5	57.9
		35.0	57.8
		16 38	23
	45	40.95	47 0.58

A-1 2345

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1881phae.proj.1411B

Oct. 5, 1881

α Can. Min

7 33 7

+5 32

		B	B	R
35	4	54.0	1 14,4	14.7
		7.2	2 0	27.4
		53.2	12 9	12.9
		51.9	12.1	12.6
		2263	674	676
	39	56,58	41 16,85	16,90

C=17 58.3

β Geminor.

7 38 5

+28 19

		B	B	R
50	3	35.2	4 45	45.4
		51.0	0,8	1.2
		36.2	46,8	46.5
		32.0	42 (21 0)	42.4
		1544	1951	1957
	53	38,60	54 46,76	48,92

μ Urs. Maj.

10 15 16

+42 4

		B	B	R
5	2	5.9	3 63	5.9 ~~4.3~~
		19.9	19,8	20.8 ~~21.5~~
		5.5	6.4	6.7
		59.0	59.1	59.7
		303	316	326
	7	7.58	8 7.90	8,15

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1881phae.proj.1411B

Oct. 5/6, 1881

⊙

12 49 59

B −5 23

15 2	16.0	45 4	49.3	
	96.7		58.7	
	13.5		46.7	
	12.5		45.0	
	682		1992	
17	1705	49	49.80	

Both limbs in ☌ + R.A.
Seeing very bad indeed.

C=17 59.8

β Herculis

16 25 8

+21 45

	B	B	R
25 1	53.9	3 9.1	9.5
	8.0	24.8	24.3
	54.9	11.4	12.0
	53.0	8.5	9.0
	298	538	548
26	57.45	28 13.45	13.70

Chf.

η Ophiuchi

17 3 27

−15 34

	B	B	R
45 0	32.1	1 42.8	42.4
	41.2	52.0	52.6
	32.3	43.2	42.8
	34.7	45.6	45.6
	1403	1836	1834
45	35.08	46 45.90	45.85

α' Herculis

17 9 16

+14 32

	B	B	R
40 0	2.2	1 28.9	28.5
	14.8	41.1	41.8
	3.0	29.9	30.2
	1.7	28.0	29.1
	21.7	1279	1296
40	5.42	41 31.98	32.40

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1881phae.proj.14118

Oct. 6 1881

C = 17 39.8

ζ Ophiuchi

16 30 39

−10 20

		B	B
30	0	22.7	1 53.5
		30.2	1.7
		20.9	53.1
		21.1	52.3
		9 49	22 06
	30	23.72	31 55.15

η Herculis

16 38 57

+39 9

		B	B
0	3	10.6	4 23.2
		28.1	41.0
		16.0	28.2
		8.3	20.0
		6 30	11 24
	3	15.75	4 28.10

Lost 1st W.

Clf.

β Draconis

17 27 45

+52 24

		B
45	3	42.2
		59.1
		49.1
		39.7
		19 01
	48	47.52

α Ophiuchi

17 29 27

+12 39

		B	B	R
30	2	44.1	8 59.5	59.0
		57.1	13.0	12.6
		44.5	10 1.3	
		44.2	59.5	59.9
		18 99	2 20	1 28
	32	47.48	34 5.50	3.20

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1881phae.proj.1411B

Oct. 6. 1881

C = 17 59.8

340

γ Draconis

17 53 52

+51 31

	B	B	R
40 1	52.1	2 58.0	57.7
	10.4	16.8	16.3
	0.8	7.0	7.2
	50.3	56.6	56.4
	2336	174	176
41	58.40	43 4.35	4.40

S Ursae Min

18 10 21

+86 37

	B	B	B	B	B	B
35 1	141	220	260	307	326	355
	35.0	42.1	46.7	50.4	53.2	56.3
	23.0	30.9	35.0	38.1	41.3	44.5
	108	184	222	260	290	322
	829	1134	1299	1411	1561	1685
36	2072	2835	3248	3528	3902	4212

51 Cephei Lc.

6 44 42

+82 47

	B	B	B	B	B
25	2599	643	504	463	411
	212	143	113	64	116
	10.0	4.0	5.87	5.55	5.01
	570	547	478	436	389
	281	43	2282	2118	1917
28	7.02	1.08	27 57.05	52.95	47.92

σ Sagittarii

18 47 57

-26 26

	B	B	R
35 1	35.3	2 35.8	35.4
	47.3	48.0	47.8
	38.4	39.1	39.6
	40.4	41.2	41.2
	1614	1641	1640
36	40.35	37 41.02	41.00

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1881phae.proj.14118

Oct. 6, 1881 C = 17 59.8

η Serpentis

18 15 13

−2 56

	B	B	R
5 1	49.5	2 42.3	41.9
	0.3	53.6	53.6
	50.8	44.0	44.7
	50.9	43.8	44.0
	211.5	183.2	184.2
6	52.88	7 45.80	46.05

α Lyrae

18 32 57

+38 41

	B	B	R
30 1	29.3	2 42.3	41.8
	48.0	1.0	1.3
	84.3	47.4	47.3
	27.8	40.0	40.7
	139.4	190.7	191.1
31	34.85	32 47.68	47.78

ζ Aquilæ

19 00 00

+13 42

	B	B	R
30 0	32.2	1 28.0	27.4
	46.0	42.5	42.1
	34.0	29.9	29.4
	32.8	28.5	28.5
	145.0	128.9	127.4
1 30	36.25	31 32.22	31.85

α Hydræ

9 21 47

−8 9

	B	B	R
15 4	57.2	1 13.8	13.4
	6.9	23.5	23.1
	57.1	12.3	12.6
	54.4	10.0	10.1
	235.6	59.6	59.2
19	58.90	20 14.90	14.80

Lost A_1 Rej A_2

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Oct. 6, 1881

θ Urs. Maj.
9 24 56
+52 13

		B	B
0	0	10.0	12.5
		25.9	19.1
		14.9	8.2
		7.4	59.5
		582	293
	0	14.55	17.32

ε Leonis
9 39 8
+24 19

		B	B	R
50	3	10.0	41 46	14.3
		27.0	32.0	31.4
		13.3	17.8	18.7
		10.2	13.9	14.3
		605	783	787
	53	15.12	54 19.58	19.68

ζ = 17 59.8

ϒ' Leonis
10 13 27
+20 26

		B
45	1	1.5
		15.3
		3.3
		1.2
		213
	46	5.32

μ Urs. Maj.
10 15 06
+42 6

		B	B	R
5	2	17.2	~~43~~ 44	4.4
		31.9	~~3~~ 194	19.6
		19.9	~~18~~ 8.1	8.3
		18.2	0.7	1.7
		822	226	340
	7	20.55	8 5.65	8.50

Rej. 2nd δ

Last 1st W

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Oct. 6, 1881

α Leonis

10 2 4

+12 33

	B	B	R
35 4	7.9	0 22.0	22.2
	22.0	36.0	35.7
	8.82	22.7	23.2
	6.5	21.4	21.6
	446	1021	1027
39	11.15	25.52	25.68

C = 17 59.8

ζ Leonis

10 10 6

+24 0

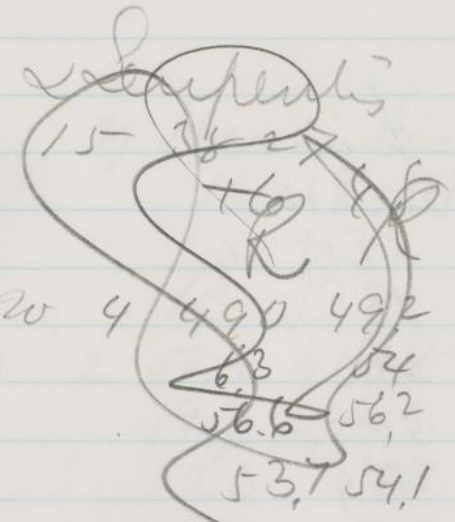
	B	B.	R
10 2	10.8	2 58.4	58.9
	27.7	15.1	15.3
	14.8	1.9	2.7
	11.5	59.2	59.X3
	648	146	162
12	16.20	13 3.65	4.05

ε Urs. Maj.

12 48 48

+56 36

	B	B
35 1	24.6	2 1.0
	42.5	19.2
	33.6	8.7
	23.8	59.6
	245	285
36	31.12	37 7.12



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6

Oct. 7, 1881

⊙

12 53 38
−5 45

35 4	53.1	10 2	30.3
	5 0		41.1
	55.1		32.1
	51.7		29.8
	2249		1333
39	56.22	12	33.32

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

C = 17 59.8

2 Serpentis
15 38 27
+6 48

24	49.0		45.2
	6.13		5.7
	56.6		16.2
	53.7		54.1
	2256		2249
24	56.40		56.22

α Scorpii
16 22.10
−26 10
B

20 0	38.0	
	50.5	
	42.9	
	42.0	
	1734	
20	43.35	

A 345 − A
+ 1 for 1 − A−1

η Draco.
16 22 23
+61 47
B B

25 1	22.9	1434
	43.8	4.4
	37.5	58.6
	243	44.5
	1285	2109
26	32.12	52.72

A & C

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Oct. 7. 1881

δ Scorpii

15 53 21

−22 17

B B R

25 3 11.5 −3 40.9 40.1

23.1 52.5 52.2

14.8 44.9 44.4

13.2 43.0 43.1

626 1813 1798

28 15.65 45.32 44.95

A6 L e

ζ Ophiuchi

16 30 39

−10 20

B R

30 1 −2.3 51.7

3.2 2.8

54.9 54.3

53.0 54.0

2234 2228

31 55.85 55.70

A4 L e

C = 17 59.8

δ Ophiuchi

16 8 9

−3 23

B B

30 4 28.3 −53.2

41.2 6.3

33.4 58.4

30.0 56.3

1329 2742

34 33.22 35 58.55

η Herculis

16 38 51

+39 9

B B R

0 2 58.4 4 18.9 19.1

19.8 40.9 40.1

10.6 30.5 30.6

0.4 20.3 21.3

292 1106 1111

3 7.30 4 27.65 27.78

A4 L e

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Oct. 7, 1881

C = 17 59.8

η Ophiuchi

17 3 27

−15 34

	B	B	R
45 0	16.6	1 40.2	39.9
	28.0	52.0	52.4
	21.5	44.3	44.8
	22.5	45.4	46.3
	88.6	181.9	183.4
45	22.15	46 45.48	45.85

α' Herculis

17 9 16

+14 32

	B	B	R
40 0	0.7	1 19.0	18.2
	16.8	34.6	34.6
	7.0	25.4	24.8
	3.9	21.5	21.6
	28.4	100.5	99.2
40	7.10	41 25.12	24.80

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Oct 7/8, 1881 ☌ =

☉

12 57 18
-6 8

B

☉ 2 45.0
56.7
49.5
47.1
1983
2 49.58

2nd limb in R.A.
Lost A_{+1} & A_7
Upper limb in δ
Seeing steady, but clouds
δ was taken under such
such difficulties as to
render it somewhat doubtful.

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Oct. 8

μ Nunc Maj

10 15 16

+42 6

		R	R
5	3	2,8	2,6
		2,2	2,3
		12,8	13,1
		4,6	4,3
		414	403
	8	10,35	1,08

Sol-A 12

+1

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1881phae.proj.1411B

Oct 8/9 1881

C = 17 56.2

Θ

13 0 58 Δ

− 6 30 27

R

25 − 0 15.7
28.2
23.2
19.8
8 69
25 21.72

Some limb in V
Both Circles in R.A.
Seeing tolerably good

ε Can. Maj.

6 53 59
−28 49

B B

5 5 3 0.0 4 13.9
16.3 29.4
9.8 24.0
8.5 21.3
346 886
58 8.65 59 22.15

ζ Gem.

7 27 3
+32 9

B B

0 3 23.4 4 45.9
41.5 4.2
32.8 56.2
26.0 48.0
1237 2143
3 30.92 4 53.58

ζ Can Mai

7 33 7
+ 32

R R

3 5 − 4 5 1.0 5 14
7.8 7.8
5.98 5.97
5.82 5.82
2368 2371
39 59.20 59.28

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1881phae.proj.1411B

Oct. 9. 1881 C = 17 56.2

δ Cam. Maj.
7 3 06
-26 12

B	B
20 2 1.8	3 5.3
15.0	19.7
8.4	13.6
7.9	12.0
331	506
22 8.28	23 12.65

β Cam. Min.
7 20 48
+8 31

B	B
10 0 15.1	1 31.0
31.2	46.8
22.0	38.4
20.2	36.1
885	1523
10 22.12	11 38.08

3 strokes 2nd δ

Rigem
7 38 5
+28 19

50 4 4 5.0	4 5.0
4.7	4.6
5.46	5.48
4.98	4.98
21 4.1	21 4.2
54 53.52	53.55

15 Argus
8 20 31
-23 5.8

B
5 3 57.8
10.0
3.2
2.0
13.0
9 3 25
6

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1881phae.proj.1411B

Oct. 9. 1881

β Cephei L.C. B. Obs.

21h 27m 11s

+109 57

	B	B
15 2	18.8	18.9
	41.4	41.3
	34.3	34.3
	20.1	19.8
	1146	1143
17	28.65	28.58

C = 17 56.2

α Leonis C=17 56.6

10h 2m 4s

+12 33

	B	B	R	
35 4	33.9	0 30.1	29.7	10
	50.1	45.7	45.9	
	40.1	35.5	35.8	
	36.4	33.1	33.7	
	1605	1444	1451	
39	40.12	40 36.10	36.28	

μ Urs. Maj.

10h 15m 16s

+42 6

	B	B	R	
5 2	50.3	3 6.1	5.3	
	8.1	23.7	24.0	
	59.8	15.3	15.6	
	50.7	6.3	7.2	
	2289	514	521	
7	57.22	8 12.85	13.02	

β Urs. Maj.

10h 54m 4s

+57 1

	B	B	
10 1	36.9	2 22.3	4
	55.2	41.4	
	46.7	33.1	
	37.4	23.5	
	1762	1203	
11	44.05	12 30.08	

A4 PC.

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1881phae.proj.1411B

Oct. 9. 1881 C=17 66.6

ζ Leonis C=17 66.6

10 10 6

+24 B 0

		B	B	R
10	1	35.5	2 54.7	54.3
		54.9	14.5	13.8
		44.2	3.0	3.7
		39.9	58.9	59.6
		1745	111	114
	11	43.62	13 2.78	2.85

γ' Leonis

10 13 27

+20 26

		B	B
45	0	38.0	1 50.9
		53.5	6.9
		43.9	57.0
		41.2	53.2
		1766	2280
	45	44.15	46 57.00

α Urs. Maj.

10 56 23

+62 23

		B	B	R
45	4	47.9	0 34.0	0 52.0
		7.1	52.3	11.0
		58.0	44.0	21
		46.3	34.0	52.5
		2193	1643	2376
	49	54.82	50 41.08	59.40

λ Urs. Maj.

11 3 0

+45 8

		B	B	R
0	4	23.6	0 18.0	13.3
		42.3	32.2	32.0
		34.3	22.9	23.1
		24.9	14.2	14.2
		1251	923	826
	4	31.28	23.08	20.65

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1881phae.proj.1411B

Oct. 9, 1881 C=17 66.6

δ Leonis

11 7 49

+21 10

	B	B	R
0 1	34.9	0 25,40	63.1
	52.1	11,7	11.3
	42.5	1,2	1.4
	38.3	5,5	57.7
	16,8	44	35
1	41,95	3 8,95 1,10	1 0,88

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1881phae.proj.1411B

Oct $\frac{9}{10}$, 1881

⊙

(13) 10 4 39
−6 52

	B	B	R
453	7,9	20 0	54.9
	20.0		6.9
	13.0		0.4
	10,4		57.5
	51.6		2397
48	12,90	20	59.92

Both limbs in δ + R.A.
Seeing very fine indeed

C = 17 66.6
α Serpentis
15 38 27
+6 48

	B	B	R
20 3	33.4	4.49	49.0
	50.0	6.0	6.2
	42.0	57.5	57.8
	40.2	56.0	56.4
	1656	2293	2294
23	41,40	24 57,32	57.35

β Can. Min.
7 20 48
+8 31

	B	B	R
40 0	4.5	1 16.6	16.4
	18.6	30.5	31.2
	7.8	19.4	20.0
	7.2	18.6	18.3
	381	851	859
40	9,52	41 21,28	21,48

α² Geminor.
7 27 3
+32 9

	B	B	R
0 4	8.5	4 46.0	46.4
	26.3	4.0	3.87
	14.0	52.1	52.3
	8.4	45.5	45,5
	572	2076	2079
4	14,30	51,90	51,98

Sont 1st 3 W

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1881phae.proj.1411B

Oct. 10, 1881

α Scorpii

16 22 10

−26 10

		B	B	R
20	0	38.0	1 18.8	18.5
		52.2	32.5	33.1
		46.1	27.3	27.3
		45.5	26.5	26.8
		1818	1051	1057
	20	45.45	21 26.28	26.42

C = 17 66.6

51 Cephei. B. Cs.

6 44 42

+87 13

		B	B	B	B
0	0	50.1	53.4	58.0	1 2.0
		11.0	14.9	19.1	23.9
		58.5	2.9	7.1	10.7
		47.2	52.0	56.5	0.7
		2268	32	207	373
	0	56.70	1 8.00	5.18	9.32

A 2 α C

A 2 to δ

α Cam. Min

7 33 7

+5 32

		B	B	R
35	4	58.0	1 12.8	12.8
		14.0	27.1	27.1
		2.3	15.2	15.6
		0.8	15.5	15.8
		151	712	713
	40	3.78	41 17.80	17.82

α B Geminor.

~~4 45 0~~ 7 38 5

+28 19

		B	B	R
50	3	23.4	4 45.0	45.4
		41.3	25	3.2
		28.2	49.7	50.2
		24.0	45.4	46.4
		1169	2026	2049
	53	29.22	54 50.52	51.22

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1881phae.proj.1411B

Oct. 10, 1881 C=17 66.6

β Cephei L.C. B. Obs. α Leonis

21 27 11 10 2 4

+109 57 +12 33

B B B B R

15 2 35.0 34.9 35 4 5.6 0 24.0 24.2

56.4 56.3 19.9 38.0 38.2

46.1 45.1 4.7 23.5 23.8

36.4 31.1 2.9 22.1 22.3

1679 1674 331 1078? 1085

17 41.98 41.85 39 8.28 40 26.95 27.12

As ∀C.

~~Probably lost all of~~

~~A by Chf.~~

Last $A_{+1\,3\,2\,1}$

C=17 62.1

μ Urs. Maj. C=17 66.6 β Urs. Maj.

10 15 16 10 54 41

+42 6 +57 1

B B R B B

45 2 45.6 3 10.8 10.8 10 1 48.1 2 32.1

0.9 26.9 27.6 4.3 48.9

47.4 13.0 13.9 51.2 36.9

40.8 6.5 6.3 43.7 27.3

1947 572 586 2073 1452

47 48.68 48 14.30 14.65 11 51.82 12 36.30

Lost A_{11}

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1881phae.proj.1411B

Oct. 10, 1881

ζ Leonis

10 10 6

+24 0

	B	B	R
10	48.0	3 08	0.8
	5.3	17.4	18.2
	49.4	34	4.0
	45.7	59.8	1.0
	2084	21.4	240
11	52,10	13 5.35	6,00

c = 17

γ' Leonis

10 13 27

	B	B
45	0 28.6	1 56.5
	42.4	11.4
	29.3	57.0
	26.4	54.8
	1266	2397
45	31,65	46 59.92

α Urs. Maj.

10 56 23

+62 23

	B	B	B
45	4 51.9	0 33.0	0 47.0
	9.7	49.7	4.4
	56.4	36.7	51.0
	45.3	27.4	41.7
	2233	1468	2041
49	55,82	50 36,70	51,02

χ Urs. Maj.

11 30

+45 8

	B	B	R
0	4 14.0	0 26.2	26.7
	31.6	42.8	43.6
	18.2	29.9	30.2
	9.2	20.8 21.1	21.7
	730	1200	1222
4	18.25	5 30.00	30,55

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1881phae.proj.1411B

Oct. 10, 1881 C=17 62.1

ε Urs. Maj. B. Obs.

12 48 48

+56 36

	B	B
35 2	48.1	48.3
	5.8	5.7
	53.3	52.9
	44.2	44.9
	2114	2118
37	52.85	52.95

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Oct. 10/11. 1881

☉

13 8 21
-7 16

	B		B
10 1	2.8	40 3	49.7
	13.2		1.3
	2.5		49.7
	8.0		46.6
	189		2073
11	4.92	43	51.82

Both limbs in δ & R.A.
Seeing very bad indeed
Lost 1st C. N of 2nd limb

C = 17, 62.1
γ Serpentis
18 15 13
-2 56

	B	B	R
5 1	58.8	3 12.5	12.4
	10.0	25.0	25.0
	0.7	15.0	15.3
	0.0	~~13.4~~ 14.3	14.9
	95	668	676
7	2.38	8 16.70	16.90

λ Aquilæ
19 00 00
-5 3

	B	B	R
10 4	34.1	150.6	50.0
	46.8	21	1.4
	36.1	5 21	52.1
	34.6	57 3	51.3
	1516	22.2 1	2148
14	37.90	55.52	53.70

Tupman's Stars
4 34 55
+5 1 40 37

Seen but too faint to observe.
Seeing very bad indeed.

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1881phae.proj.1411B

Oct. 11, 1881

α Lyrae

18 ~~32~~ 57

+38 41

	B	B	R
30 1	30.8	2 42.8	42.4
	49.8	2.0	1.9
	36.5	48.8	49.1
	29.7	42.0	42.4
	146.8	195.6	195.8
31	36.70	32 48.90	48.95

C = 17 62.1

σ Sagittarii

18 47 57

−26 36

	B	B	R
35 1	15.9	2 29.3	29.0
	28.0	42.4	42.6
	18.7	33.0	33.0
	20.0	34.1	34.0
	82.6	138.9	138.6
36	20.65	37 34.72	34.65

4 35 38

+51 36 40

Seen but too faint to observe.
Seeing very bad indeed

4 37 28

+51 48 9

B

25 0 21.3
40.0
27.0
19.2
107.5
25 26.88

Seeing very bad indeed

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1881phae.proj.1411B

Oct. 11, 1881 C = 17 62.1

4 37 38
+51 41 36

4 50 59
+54 4 30
B
5 3 40.8
0.0
45.8
37.3
1839 6
8 45.98
Seeing very bad indeed

S. Canes
4 42 14
+66 08

α Tauri
4 29 10
+16 16

B	B	R	B	B	B
55 0 38.5	1 57.5	58.0	5 0 1.2	0 43.0	0 59.7
51.1	1983	11.1	20.8	2.9	19.5
38.9	57.8	58.0	6.2	47.4	4.4
38.2	56.6	57.7	57.3	38.7	54.9
1667	22	+1848	255	1920	185
55 41.68	57 0.55	+6.20 1.20	5 6.38	48.00	6 4.62
2					

Seeing very bad indeed.

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1881phae.proj.1411B

Oct. 11, 1881

4 5^2 38
+5^4 11 30

B		B	
0 1	5^1.1	2	8.4
	8.6		26.3
	55.4		13.2
	48.4		5.8
	2235		537
1	5^5.88	2	13.42

Seeing very bad indeed

c = 17 62.1
η Draconis L.C.
16 22 23
+118 13

B		B	
0 3	39.3	3	22.8
	2.5^		44.3
	5^2.6		35^.0
	39.1		21.9
	1935		1240
3	48.38	3	31.90

ι Aurigæ
4 49 19
+32 59

B		B	
~~25~~ 0	~~21.3~~	10 3	37.4
	~~40.0~~		56.4
	~~21.0~~		41.1
	~~19.2~~		36.2
			171.1
		5	~~13~~ 42.78

5^h 0^m Seeing too bad to continue the observations,

~~Seeing too bad~~ to continue the observations.

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1881phae.proj.1411B

Oct. 11/12, 1881 c = 17 62.1

⊙

13 12 2
−7 38
B B

30	3	310	5	18.2
		483		16.3
		309		7.2
		283		4.9
		1305		366
	33	3262	6	9.15

Both limbs in ♌ of R.A.
Clouds; but seeing steady
Last A_{+1}, 1st limb, last A_{-1}, 345⁻
of 2nd limb.

α Hydra

9 21 47
−8 9
B B R

20	0	5.2	1	15.4	15.2
		14.0		24.5	25.6
		6.0		17.3	17.8
		4.0		14.9	15.1
		292		721	737
	20	7.30	21	18.02	18.42

α Leonis c = 17 64.0

10 2 4
+12 33
B B R

35⁻	4	18.1	0	27.3	27.8
		33.0		41.5	42.80
		21.5⁻		30.8	30.3
		19.0		28.8	29.1
		916		1284	1292
	39	2290		3210	32.30

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1881phae.proj.1411B

Oct. 12, 1881

C = 17 62.1

C = 17 62.1

o Urs. Maj.

9 24 56

+52 13

	B	B
55 4	43.9	0 31.0
	2.0	48.3
	57.9	39.3
	42.7	30.2
	2005	1488
59	50.12	0 37.20

ε Leonis

9 39 8

+24 19

	B	B	R
50 3	2.7	4 14.8	14.8
	18.9	31.6	31.8
	7.6	20.3	20.7
	4.2	16.8	17.7
	334	835	850
53	8.35	54 20.88	21.25

ζ Leonis

10 10 6

+24 0

	B	B	R
10 1	46.7	3 ~~59.0~~ 58.5	59.0
	4.6	17.9	17.3
	52.9	6.0	6.2
	49.2	1.8	2.0
	2134	257	245
11	53.35	13 6.42	6.12

γ' Leonis

10 13 27

+20 26

	B	B
45 0	34.3	155.2
	49.0	98
	38.8	59.1
	35.8	56.4
	1579	05
45	39.48	47 0.12

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1881phae.proj.1411B

Oct. 12, 1881 c = 17 64.0

ε Urs. Maj.

12 48 48

+57 6 36

	B	B	B
35	1 45.0	2 34.6	2 47.4
	1.8	50.3	43
	52.8	41.8	55.9
	43.8	32.5	46.5
	2034	1592	2141
36	50,85	37 39,80	37 53,52

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Oct. 12/13, 1881

⊙

13 15 45

β = 8 B 1

B B

55 0 41.0 25 3 23.3
48.8 32.0
44.4 26.1
42.9 25.2
17.71 10.66
55 44.28 28 26.65

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

C = 17 64.0

δ Lyrae

18 22 57

+38 41

B B

30 1 36.9 2 45.1
57.3 6.0
49.5 58.2
40.1 49.1
18.38 21.84
31 45.95 32 54.60

β Aquarii

21 25 22

−6 5

B

15 1 33.2
43.3
39.4
36.9
15.28
16 38.20

β Cephei

21 27 11

+70 3

B B B B

10 0 6.9 33.3 1 0.0 12.2
27.2 53.3 19.5 32.2
18.2 45.0 1.14 23.1
7.0 33.2 58.9 11.4
5.93 16.48 8.98 7.89
10 14.82 41.20 1.22.45 19.72

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1881phae.proj.1411B

Oct. 13, 1881

ζ Cygni

ζ 21 7 56

+29 45

	B	B	R
25 2	10.8	3 23.8	23.2
	27.2	40.1	40.7
	20.7	33.8	34.0
	14.0	26.8	26.7
	72.7	124.5	124.6
27	18.18	28 31.12	31.15

C=17 64.0

α Cephei

21 15 48

+62 5

	B	B	B	B
5 1	55.7	2 17.0	3 14.6	3 28.3
	14.2	35.5	34.1	46.9
	7.7	29.5	20.3	41.1
	55.4	17.2	14.7	28.4
	130	99.2	90.7	144.7
4	3.25	24.80	8 22.68	36.18

ε Pegasi

21 38 25

+9 20

	B	B	R
50 1	31.2	2 45.0	44.3
	44.8	58.2	58.2
	38.4	52.4	62.6
	37.2	50.9	51.2
	151.6	206.5	206.3
51	37.90	52 51.62	51.58

Can. Maj.

6 39 57

−16 33

45 0	3.6
	15.8
	9.8
	10.0
	39.2
45	9.80

Lond. A +1

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1881phae.proj.1411B

Ⓒ C-13 1881 C=17 64.0

57 Nu Cephei.

6 44 42

		R	R	R	R		B	B	R
0	0	49.7	54.1	44	74	40 0	8.0	1 19.6	18.9
		11.4	14.8	25.3	28.7		21.3	33.5	33.7
		0.3	5.0	16.1	19.0		13.5	25.9	25.6
		49.7	54.2	4.3	7.3		13.4	24.3	24.2
		22 61	1 81	5 01	619		562	1033	1024
	0	56.32	1 2.02	12.52	15.48	40	14.05.41	25.82	25.60

A 51 ~ C

β Can. Min.

7 20 48

+8 31

β Geminor.

7 38 5

+28 19

		B	B	R
50	3	28.0	4 50.8	50.0
		44.4	7.0	7.8
		35.1	57.6	57.8
		30.1	52.0	52.8
		1376	2274	2284
	53	3.44.0	54 56.85	57.10

Sat only 1st ∫

+ A+1 1284 of above

chf.

ζ Leonis

10 10 6

+24 0

		B	B	R
10	1	47.1	3.8	3.7
		4.8	20.9	20.8
		53.3	10.1	10.8
		49.4	5.8	6.0
		2146	406	413
	11	53.65	10.15	10.32

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1991phae.proj.14111B

Oct. 13, 1881 C = 17 64.0

α^2 Geminor
7 27 3
+32 9

	B	B	R
0 3	38.0	4 40.8	40.1
	54.4	~~55.0~~	58.2
	45.0	49.1	49.5
	39.5	42.4	~~41.7~~ 42.2
	1769	1903	1900
3	44.22	47.58	47.50

α Can. Min.
7 33 7
+5 32

	B	B	R
35 4	53.0	1 8.0	8.4
	7.9	22.7	22.9
	59.3	13.1	13.5
	59.0	~~18.7~~ 13.8	13.8
	2392	576	586
39	59.80	41 14.40	14.65

γ^1 Leonis
10 13 27
+20 26

	B
45 0	34.8
	50.0
	39.5
	36.4
	1607
45	4018

μ Urs. Maj.
10 15 16
+42 6

	B	B	R
5 1	47.0	3 19.2	19.0
	2.8	35.0	35.8
	53.3	25.9	26.6
	46.0	18.4	18.7
	2091	985	1001
6	5-2.28	8 24.62	25.02

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1881phae.proj.1411B

Oct-13 1881 c = 17 64.0

B Mrs. May,

10 54 40

+57 1

B

10 1 45.7

2.1

52.2

43.9

2039

11 50.98

2 Miss May

+62 2

B B B

50 0 19.0 43.0 0 59.6

35.0 59.4 N.J.

25.4 49.2 6.0

15.6 39.8 57.0

9 50 19 14 181

50 23 75 47.85 5T 4.52

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1891phae.proj.14111B

Oct. 13, 1881

× Urs. Maj.

11 3 0

+45°

B	B	R
5 0 6.0	0 3 0 6	30.8
23.2	48.2	48.8
13.3	38.3	38.2
5.0	29.1	29.2
4 7 5	1462	1470
5 11.88	36.55	36.75

C = 17 64.0

δ Leonis

11 7 49

+21 10

B	B	R
0 1 45.3	2 59.2	59.0
1.4	15.5	16.0
50.9	4.3	4.9
47.2	1.1	1.2
2048	201	211
1 5 1.20	3 5.02	5.28

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1881phae.proj.1411B

Oct. $\frac{13}{14}$, 1881 C=17 64.0

⊙

13 19 27

−8 23

B B

15−2 40 50 0 56.7

15.5 5.5

2.8 58.2

3.9 55.1

3½ 2 35 5

18 7.80 50 58.88

Both limbs in δ & R.A.

Seeing very bad indeed.

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1881phae.proj.1411B

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1881phae.proj.1411B

Oct. 15/16, 1881

C = 17 83.7

f.c.

N.P. Procyon R 4 22 23 +11 8 13

O

13 26 55

−9 8

R

O 2 20 8

30.7

26.7

24.6

1028

2 25.70

O 3 25.2

30.0

43.8

27.7

1467

3 36.68

Thompson's Star

4 50 59

+54 4

B

5 2 51.5

11.1

2.1

49.9

2346

7 58.65

(Sood A t, 2)

Thompson's Star.

4 52 38

+54 11

B B

0 2 12.1 22 20.

31.4 41.6

23.9 33.1

11.5 21.7

789 1184

2 · 19.72 29.60

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1881phae.proj.1411B

Oct. 16. 1881

Tafelmans Star

4 37 28 +51 48

B

25 (?) 0 37.0
56.1
47.5
36.2
1768
25? 44.20

Lost A_{+1}

C = 17 83.X.7

9 Camel.

4 42 22 +66 8

B B

0 4 38.4 0 46.9
0.4 7.2
49.5 57.6
36.9 44.9
1852 2166
4 46.30 54.15

β Eridani

5 2 3

−5 14

B

25 2 4.4
16.4
9.1
6.2
361
29 902

A_4 +C

α Aurigæ

5 7 5 9

+45 5 2

B B R

20 0 9.1 19.9 20.2
27.7 38.6 39.0
20.1 31.0 30.9
8.6 19.1 19.7
655 1088 1098
20 16.38 21 27.20 27.45

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1881phae.proj.1411B

Oct. 16, 1881

β Tauri

5h 18m 50s

+28° 30'

		B	B	R
40	1	46.0	3 11.1	11.0
		5.0	31.0	30.7
		54.3	20.6	20.3
		47.9	13.8	14.6
		2132	765	766
		53.30	19.12	19.15

c = 17 83.7

δ Orionis

5h 25m 59s

−0° 23'

		B
30	4	30.4
		43.4
		35.6
		31.7
		1411
		35.28

ε Orionis

5h 30m 14s

−1° 17'

		B	B	R
25	3	43.0	4 39.8	39.7
		56.8	53.3	53.4
		46.9	45.0	45.1
		44.6	40.8	40.9
		1933	1789	1793
		28 48.32	29 44.72	44.82

α Columbæ

5h 35m 23s

−34° 8'

		B	B	R
15	1	25.0	2 46.8	46.0
		39.7	1.0	0.7
		33.3	54.2	55.0
		31.7	52.0	52.0
		1297	2140	2137
		16 32.42	17 53.50	53.42

Lost 15m 2s

Perhaps one 4 sketches
for lost ♂

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1881phae.proj.14118

Oct. 16, 1881

α Leporis

5h 27 32

−17 54

B

5 0 6.3
18.0
10.4
9.8
4 4 5
5 11.12

c = 17 83.7

c Orionis

5h 29 40

−5° 59

B

10 0 25.4
38.0
30.8
27.1
12 1 3
10 30.32

Lost 1

1881phae.proj.1411B

Oct 18 1881 C = 17 837

α Gem

7 27 3

+32 9

R

0 4 577

148

22

56,3

110

5 275

A — 1

α Can Min

7 33 7

+5-32

R R

40 0 F1 84

226 234

10,3 108

11,8 12,2

528 548

40 13.20 13.70

C = 17 830

β Mon Maj

10 54 41

+57 1

R

0 2 154

318

193

89

754

2 1885

χ Mon Maj

11 30

+41-8

R R

5 0 39,7 39,1

54,0 54,2

42,0 41,5

32,2 32,7

1679 1475

5 4198 3688

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1001phae.proj.14118

@ = 17837

11 Argus
+2 31
-26 J F
R R
5- 2 52.1 52.8
52.0 52.6
54.7 54.2
55.8 55.7
2276 2283
7 56.90 57.08

B Argus
7 J F J-
+24 19
R R
J-0 3 46.2 46.8
8.4 8.7
50.3 50.7
45.8 45.7
2057 2059
53 51.42 51.48

S Leonis
11 7 49
+21 10
R R
0 1 J J.8 45.2
1.8 2.1
46.8 46.6
45.8 45.0
2102 1989
52.55 49.72

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1881phae.proj.1411B

Oct 18/19 1881

☉ 13 38 11
−10 13
R
5 2 48.2
58.8
48.3
46.9
20.2.2
7 50.55

Both limbs R.V.
Upper limb in S

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1881phae.proj.1411B

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1881phae.proj.1411B

Oct 19/20 1881

Oct 20

C = 17 B.O

α Cyg Mic

~~κ₂~~ Glen

⊙

13 41 57 −10° 35′

7 33 7 +5 32

R R

0.1 26.0 40 0 33.4 33.9

36.3 47.6 47.6

25.2 33.3 33.7

25.2 36.0 35.6

11 27 1503 1508

1 28.18 40 37.58 37.70

Both Cumbersome Red

Seemy Good

Some Cumbersome

Seemy

many Good

S Leonis

11 7 45

+21, 0

R R

0 2 9.0 9.2

24.6 24.3

9.0 8.7

6.7 7.1

493 493

2 12.32 12.32

β Leo. 11 43 1 +15 14

R

5-5 4 18.4

33.2

16.8

15.0

8 34

59 20.85

A 3 C

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1881phae.proj.1411B

OCT 20

Elsen

7 38 5

+24 19

R

50 4 14

1 54

2 6

5 9,2

2 0 6

54 5.15

C = 17 53,0

α Aurigae May

10 56 23

+62 23

R R

50 0 0 6 0,2

1 7 6 1 7,2

3,2 3,1

55,2 55,0

1 6 6 1 5 5

50 4.15 3.88

Lost A+1

seeing very

bad.

γ Aurigae May

R 11 47 37 54 21

R

50 1 4 4 0 4 4 8

4,2 4,3

4 9 2 4 8 8

3 9,8 3 9,8

1 9 7 2 1 9 7 7

51 49.30 49.42

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1881phae.proj.1411B

Oct 21 C=17 B.C.

R

⊙ 13 45 45 −10 56

50 0 45 3
45 4.9
43 7
44 3
1882
50 47.05

BD 20° 3045
17 27 45
+5 2 24

A. R.

Appearance in S
Foot of Limb I
T
Seeing moderate.

4 2 × C

1881phae.proj.14118

Oct-21 1881

J Merae Mey

1753 32 +5° 31

i	R	R
40	2 144	149
	329	329
	221	216
	128	124
	822	821
42	20,55	20,52

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1881phae.proj.1411B

Oct 22/23 1881 C = 17 80.3

☉ 13 53 21
−11 38

R
30 2 57.4
77
59.8
59.1
38
33 0.95

η Pegasi
22 37 30
+29 36 R R
35 2 0,9 00
196 189
95 87
3.7 3.8
337 314
37 8.42 7.85

Upper limb in S
2nd limb in R.A.
Seeing good

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1881phae.proj.1411B

α Pegasi

22 58 54 +R4 34

	R	
3 5 – 3 5	23	518
	78	78
	552	554
	547	547
	2300	2397
38	57.50	59.92

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1881phae.proj.1411B

Ex Bobcock

Jan. 24
25

0
12 2 0
-12 20

R
45 1 30.8
40.2
31.0
32.8
13 48
5 33.70

Lower limb in S

Set L and 2 wires of A
for 2nd limb

C = 17 8 53

σ Sagittarii
18 47 57

R26 R26
35 1 34.6 34.4
48.0 48.6
39.0 38.7
39.6 40.2
16 12 16 23
36 40 30 40 58

α Hydrae
9 21 47
-8 9

R
15 4 59.9
10.8
59.0
59.8
19.5
19 2.38

Θ Ursae Majoris
9 24 56
+52 13

R
17 4
36 1
24.8
16.2
9 43
23.58

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1881phae.proj.1411B

C = 17 86.6

β Cygni

15 25 58
+27 43

25 4 58
254
117
78
507
29 12.68

γ Cygni

20 12 1
+39 53

R

20 0 346
529
404
354
1633
20 40.82

L, 24 5

B Normae Mayf

10 54 41
+57 1

10 2 40.3
576
438
358
1775
12 44.38

B Cephei L.C.

9 24 11
109 57

R

15 2 521
136
14
504
2375
17 59.38

A 3 4 5
41

1881phae.proj.1411B

00 25 18 81 C = 17 86,6

α Persei Maj

10 56 23

+6 23 3

R R

50	0	8,0	30
		2,03	2,12
		8,2	8,2
		58,8	58,7
		3 0 3	3 1 1
	50	7.58	7,78

χ Persei Maj

11 3 0

+45

R R

50	3	8,2	38,6
		55,7	55,0
		4,03	4,12
		32,8	33,3
		2164	1681
	53	54,10	42,02

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1881phae.proj.1411B

S Lev.

11 7 49

R + 2R 10

0	1	53,8	54,1
		10,2	10,4
		53,8	54,2
		51,6	51,7
		229 4	230 4
	1	57,35	57,60

J Mercurius

11 47 35

+54 21

		R	R
50	1	41,2	42,0
		4,1	3,8
		46,8	47,4
		35,2	39,6
		1913	1928
	51	47,82	48,20

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1881phae.proj.1411B

Oct. 25/26 1881

C = 17466

B Draconis

17 27 45

+52 2 R

50 0 128
287
169
93
677
50 16.92

①

14 4 51

*-12 40

Both limbs in R.A.

No S

Seeing very bad.

ε Lyrae

18 32 57

+38 41

	R	R
45 1	31.5	31.4
	49.6	49.6
	34.1	34.8
	29.9	30.0
	14 51	14 58
46	36.28	36.45

σ Sagittarii

18 47 57

-26 26

	R	R
35 2	40.4	40.0
	43.0	42.8
	41.6	41.3
	42.0	42.4
	16 68	17 65
37	41.70	41.12

46 ②

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1881phae.proj.1411B

α Ophiuchi
17 29 27
+12 39
L R

30	4	174	169
		~~8~~ 12.4	8.2
		16.3	16.4
		16.6	16.5
		8.17	8.10
	34	20.42	20.25

ζ Draconis
17 35 2
+57 31
R R

40	2	135	129
		+309	303
		17.4	17.5
		9.2	9.6
		7.10	7.03
	42	17.75	17.58

η Aquilae
19 50 11
+1 57
R

γ Cygni
20 14 1
+39 58
R R

20	0	38.8	37.8
		55.2	55.7
		39.8	39.7
		35.0	35.2
		16.8.8	16.7.8
	20	42.20	41.95

A 1 3 2 C

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1881phae.proj.1411B

Oct 26/1881 C = 17866

ν Cygni

20 37 26

+44 52

R R

20 0 333 341

504 505

348 347

288 286

146'8 147'9

36.70 36.98

Σ Cygni

20 41 27

+33 32

R R

40 0 427 428

582 588

418 416

386 382

181'3 181'4

45.32 45.35

B Aquarii

21 25 22

−6 5

R

15 1 40 0

525

37'4

29.0

1599

16 39.98

B Capricorni

20 21 27 11

+20 3

R R

10 0 53 354

23'4 539

6'0 360

582 28.6

3'29 1539

10 822 38.48

L & C

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1001phae.proj.1411B

β Cygni
21 56
+29 40

	R	R
25–2	470	466
	11.9	25–
	468	464
	429	429
	2086	1984
27	52.15	49.60

ζ Cephei
21 44
+58 5

	R	R
5–3	353	356
	5–25	526
	373	373
	29.2	29.0
	1543	1545
8	38.58	38.62

South Ring 2

ε Pegasi
21 38 25
+9 20

	R	R
50	1384	378
	5-18	512
	35.2	348
	380	377
	1634	1615
51	40.85	40.38

η Pegasi
22 37 30
+29 36

	R	R
35–0	415	409
	560	567
	398	402
	372	368
	1745	1746
35	43.62	43.65

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1881phae.proj.1411B

Oct 26 1881 C = 17 46,6

2 Piscis

22 51 9

−30 15

R

25 0 33,3 9 1

46,2

32,2

34,7

1464

25 36,60

α Aquarii Mus

22 56 24

−1 11 37

35 4 42,8 9,1

3,1 2,9

48,3 15,3

37,3 3,7

1910 57,9

39 47,75 14,48

ε Leo. C = 17.86,6

9 39 8

+24 19

R R

50 3 6,0 6,2

228 225

38 4,0

3,7 3,0

363 357

53 9,08 8,92

C = 17 84,2

β Leonis

11 43 1

+15 14

R R

55 4 24,7 24,7

36,3 36,4

18,1 18,2

19,8 17,3

969 966

59 24,22 24,15

Reg 15 S

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1881phae.proj.1411B

ζ Hydrae

9 29 47
−8 9

	R	
W	153	10,1
	217	224
	80	80
	8,2	8,2
	532	537
20	1330	1342

θ Hydrae Bor.

9 24 56
−2 13

	R
1	15,6
	31,8
	14,8
	7,6
	69,8
1	17.45

ι Hydrae Bor.

11 47 35
−34 21

	R	R
50	1426	423
	1,8	1,1
	424	426
	34,6	34,4
	1817	1804
51	45,42	45,10

ε Hydrae Bor.

12 4 58
−26 36

	R	R
35	2 49,3	49,2
	6,1	5,3
	478	483
	40,8	40,1
	2040	2029
37	51,00	50,72

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1881phae.proj.1411B

Oct 26 1881 C=1784 Eq. C.
27

⊙

14 8 42
−13 1
— — 318
418
276
285
1297
— 312,42,

Sun's Anom. Limb in S

γ Draconis
17 53 52
51 36

	R	R
40	2 50	4,4
	218	220
	51	6,9
	57,6	57,8
	315	311
42	7.88	7.78

σ Sagittarii
18 47 57
−26 26

	R	R
35	1 288	290
	410	408
	288	287
	303	308
	1284	1293
36	3210	3232

γ Aquilae
19 01 00
−3 3

	R	R
30	0 226	228
	368	368
	205	207
	202	208
	1001	1011
30	2502	2528

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1881phae.proj.1411B

ν Serpentis
18 15 13
−2 56

		R	R	1
5	2	60	56	
		163	160	
		26	26	
		4,1	3,3	
		290	275	
	7	7,25	6,88	

ε Lyrae
18 32 57
+38 41

		R	R
30		1340	337
		520	523
		351	357
		308	30,2
		1519	1513
	31	37,98	37,82

ζ Aquilae
19 40 40

		R+R	10	20
50	2	222	223	
		373	371	
		209	212	
		212	205	
		1016	1011	
	52	2540	2528	

		R	R
35	3	39,2	
		542	
		384	
		393	
		1711	
	38	42.78	

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1881phae.proj.1411B

Oct 27 1881 C = 17 43

β Aquilae

19 49 52

+6 5

		R	R
5	1	6.7	6.2
		20.4	20.1
		4.9	5.1
		7.2	7.2
		39.2	38.6
	6	9.80	9.65

ζ Cygni

20 37 26

+44 52

		R	R
20	1	56.1	55.9
		14.2	13.6
		57.7	58.2
		50.5	57.0
		2385	2387
	21	59.62	59.68

α Cephei

21 15 48

+62 5

		R	R
5	2	54.1	2 39.2
		11.8	57.2
		56.2	41.5
		48.6	34.0
		2307	1719
	7	57.68	42.98

β Cephei

21 27 11

+70 3

		R	R
10	1	63.3	33.7
		25.0	52.5
		7.7	3.53
		0.2	27.1
		392	1486
	11	9.80	37.15

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1881phae.proj.1411B

ε Cygni

20 41 27

R + 33 32

40	1	370 374
		53 540
		371 364
		33.2 32.8
		1608 1606
	41	40.20 40.15

γ Cygni

21 h 56

+ 39 45

25	3	42.2
		578
		412
		87.2
		1784
	28	44.60

A 6 2 C

β Aquarii

21 27 22

− 6 5

No. 8

ε Pegasi

21 36 25

R R 2

52	1	42.5 42.2
		55.9 56.3
		402 40.0
		430 43.0
		1816 1815
	51	45.40 45.38

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1881phae.proj.1411B

Oct 27 1881 C = 1784,3

α Aquilae
21 59 45
−1 53

R R
1 0 0,0 0,8
10,4 10,8
57,3 57,3
0,0 0,0
7,7 8,9
0 1,92 2,22

α Lyrae
92,47
−8,7

R
20 0 8,0 8,8
16,4 17,1
2,6 8,6
5,0 4,9
3,30 3,44
20 8,25 8,60

α Herculis
~~10 34 11~~ 10 56 23
~~+5 7 1~~ +16 23

R
50 1 5,6
2,0
5,4
5,8,0
3,10
51 7,75

~~α Herculis~~
λ Lyrae 30
+45 − 8

R R
5 − 0 40,6 40,6
5,6,2 5,7,0
39,0 38,4
35,2 34,3
17,10 17,06
5 42,75 42,65
Fool - A+1

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1881phae.proj.1411B

O Nova Sag.

G 24 56

+52 13

R

0 0 47 2

42

48 1

42 3

17 9 1

0 44.78

End of book

B Nova Sag

10 52 41

+52 1

R

10 2 56 1

11 3

54 8

48 0

23 0 2

12 57.55

S Lewis

11 7 49

+21 10

R R

0 2 1.8 12

16 1 15 7

54 8 58 8

58 1 57 6

13 8 19 2 8

2 34.5 48.20

B Lewis

11 43 1

+15 R

R R

55 4 24 6 24 5

36 8 37 6

18 7 19.0

19 8 19 8

9 9 9 10 0 9

59 24 9 8 25.22

Lost A 11

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δCl 27 1881 C = 17 54.3

J Nyssae Maj
1 47 30

+52 21
R

50 2 19.6
3 17.6
2 01
1 4.2
9 8.5
52 22.88

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Oct 27/28 C = 17 46.1

☉

14 12 34
+13 21
15 0 19.6
27.8
15 2
19.0
8.6
15 20.401

Sing Nuy body.
Upper limb in
Both limbs in D.A.

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Nov. 5 1881

α Cygni

20 37 18

+44 5 1

A. R. Sulley

ε Cygni

20 41 19

+33 31

A. R. Sulley

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1881phae.proj.1411B

1881 C — 17 46

Leo's
10 2 9
+12 33

R

10 2 50.
2,6
5-6
5-3
3,75
12 9.38

Leo's
10 10 6
+24 0

R

45 0 55.9
9,1
5-39
5-5,6
23 45
45 58.62

Nine Mus
10 56 23
+6 22 3

R R

50 1 41 8,7
20,0 19,9
6,8 6,3
58,2 58,8
29,1 28,7
51 7,28 7,18

L 32e

Nine Mus
11 3 0
+45-6

R

5 0 43,7
58,2
44,3
38,8
18 5 0
5 46.25

Font A +1.2

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1881phae.proj.1411B

17 84.6

Nova May

10 15-16

+42 6

	R	R
5- 3	296	297
	448	449
	309	302
	24.1	246
	1294	1294
8	32,35	32,35

17 86.3

B Nova May

10 54 41

++7 1

	R
10 2	144
	30.2
	168
	9,1
	705
12	17.62

Lost A-1

S Leo

11 74 9

+24 10

	R
0 2	23
	171
	1,3
	1 1.4
	221
2	5.52

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Nov. 5/6 1881

C = #17 H63

(1)

14 47 59
−16 11

In A Rad

A 345-67

Clouds.

#8 Aquilae
19 40 40
+10 20
R R
50 2 10,2 10,8
23,4 23,2
12,3 12,3
12,2 12,6
58,1 58,9
52 14,52 14,72

λ_2 Cop.
20 11 31
−12 52 R
0 5 35,2
44,2
36,1
36,8
15 2 3
5 38,08

γ Cygni
21 16 1 +39 53
R
20 0 35,4
52,3
41,3
34,2
16 3 2
20 40,80

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1881phae.proj.1411B

ε Lyncis
19 45 −2
+ 34

	R	R
35 4	27,2	26,7
	40,7	40,8
	29,6	29,8
	30,0	30,2
	127,5	127,5
39	31,88	31,88

β Lyncis
19 45 32
+ 60

	R	R
0 4	46,6	46,5
	49,7	49,4
	48,1	47,8
	49,1	48,7
	2035.	2027
4	50,88	50,68

46 ε Cygni
20 03 26
44 52

	R	R
20 0	32,8	32,7
	48,4	48,3
	37,7	37,7
	28,8	29,6
	1477	1483
20	36,92	37,08

ζ Cygni
20 41 27
53 37

	R	R
40 1	31,8	35,2
	51,0	50,7
	38,8	38,7
	33,3	33,6
	1589	1582
41	39,72	39,55

Ay ε Cygni

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1881phae.proj.1411B

~~Oct~~ Nov 6 1881 @ -17 863

α Aquarii

21 59 45

−0 53

	R	R
5 − 0	184	181
	283	285
	191	186
	182	181
	840	833
5	21.00	20.82

β Pegasi

22 37 30

+29 36

	R	R
35 − 2	0.8	1.2
	16.2	17.1
	4.7	4.7
	5.8	0.2
	21.5	23.2
37	5.38	5.80

ο Aquarii

9 24 16

+5 2 13

	R
0 0	25.3
	41.9
	28.7
	19.2
	11 51
6	28.78

β Capricorni

9 27 11

+10 9 57

	R
	3.0
	22.9
	9.6
	5.81
	336
	8.40

Above

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α Pegasi

2 2 58 54
+14 34
R R

35 B 49.4 49.7
2.8 2.8
29.0 49.1 = 29.1
48.7 48.6
18.99 19.02
38 47.48 47.55

α Ly drae

9 2 14 17
Q 8 9

20 0 15.2
23.3
10.7
9.7
5.89
20 14.72

Lost A +1

2 Leo.

9 55 8
R 24 1 8
R R

50 B 32.2 32.0
50.8 50.4
32.2 33.2
30.3 29.9
14.55 14.55
53 36.38 36.38

B Ursae Maj

10 54 41
+57 1
R

10 2 23.6
39.3
24.3
15.7
10.29
12 25.72

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1881phae.proj.1411B

Nov 8 1881 C = 17 86,3

0,15 − 0 2
−17 3
R
50? 2 47,7
56,6
46,1
49,2
1996
52? 49.90

Seeing good

Lost one of the last wires of Ad A−1
for 1st limb
Lost all the wires for 2nd limb.
Seeing poor

α Leonis
10 24
+12 33

	R	R
4 0 0	480	482
	04	08
	470	472
	480	477
	2034	2039
40	50,85	50,98

Lost A+1

α Ursae Min
10 15 +42 6

	R
55 3	256
	41,1
	28,2
	21.3
	1162
58	29.05

α Ursae Min
10 56 23
+62 23

	R	R	R
46 4	58,5	138	139
	14,2	130,0	30,2
	2,4	17,3	17,3
	6,6	8,6	8,7
	220	699	701
50	5.50	17,46	17,52

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β Leonis

10 10 6

+240

10 1 52.8

9.0

50.7

53.3

2308

11 57.70

γ Leonis

10 18 27

+20 26 0

41–053.0

6.2

52.2

51.8

2232

45 55.80

η Virginis Nov

11 30

+458

R R2

50 1 138 50 0 44.2 44.8

59.3 59.4

45.4 45.8

40.4 40.4

1893 1904

47.32 47.60

Lowell A-1

δ Leo.

11 7 49

+21 10

R R

0 1 55.0 56.2

51 49.6

54.3 56.0

54.1 54.3

2345 2351

1 58.62 58.78

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1881phae.proj.1411B

Nov. 9 1881 C = #17863

B Lewis

11 43 31

+15 14

	R	R
55 3	1,8.3	178
	29.2	29'5
	16,0	15'8
	15-0	15'8
	78'5	78'9
58	19.62	19.72

J Rowe Mej

11 47 35

+54 2

	R	R
5	1 5-7.0	576
	14 9	139
	12	10
	54,0	5-3,8
	.71	63
52	1.78	1,58

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1881phae.proj.1411B

$\odot = 1789.7$

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1881phae.proj.1411B

Nov 9/10 1881 $\odot = 17 + 9.7$

$\odot$

15 4 5
−17 20

45 2 0.2
9.1
5+2
1.7
+0.2
47 2.55

~~Autumn~~ Their work is very good.

α Hydrae

9 21 47
−5 9
R
20 0 4.8
11.2
5+.6
0.0
146
20 3.65

α Leonis

10 2 4
+12 35
R R
35 4 22.8 22.6
36.4 35.9
17.3 18.0
17.8 17.6
9 4 3 9 4 1
39 23.58 23.52

Leo.

$\odot$ 10 10 6
+24 0
R
10 2 8.3
24 9
5+3
5.1
456
12 11.40

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1881phae.proj.14118

Ω Nrae Maj
9 24 56
+52 13
R
307
458
318
232
1310
32.75

A a h k

B Cephei
9 27 11
109 R 7 R
15 3 231 489
41.9 88
277 554
168 425
1095 2156
18 27.38 53.90

A & C
C h k

C = 89.7
Leo,
2 10 13 27
+20 26
R
45 0 532
71
498
487
2188
45 54.70

C = 1785.3
2 Nrae Maj
134252 +49 54
R R
15 3 481 488
1.3 0.5
444 443
366 362
1904 1883
18 47.60 47.08

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1881phae.proj.1411B

Nov. 10/11 1881 C=17 f 53

⊙

15 f 8

−17 37

R

30 1 18.8
27.4
12.3
14.3
7.2.8
31 18.20

Both limbs in R.A.

Seeing moderately good

Upper limb in S

γ Aquilae

19 00 00

+13 42

R

30 1 39.4
51.2
33.8
34.7
1591
31 3978

β Aquilae

19 09 24

+6 7

R

5 1 6.9
19.0
1.5
4.0

Rg 1 S 1 Sh

1881phae.proj.1411B

β Leporis

19 25 58

+27 43

R

30 0 32,4

47,3

27,8

27,4

13 5 2

30 33,80

α Aquilae

19 45 2

+8 34

R

35 3 13,0

25,3

8,6

10,8

5,7 7

38 14,42

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1881phae.proj.1411B

Nov 12 1881 C = 17 8 53

ζ Draconis

14 1 9

+64 57 R

15 1	53.6	54.1
	55	5.0
	50.3	50.2
	45.0	45.0
	2176	2183
16	54.40	54.58

ζ Bootis

14 10 16

+19 48

20 4	21.0
	32.8
	13.2
	13.3
	843
24	21.08

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Nov 12/13 1881 17, 873

α Leo.

10 2 4

⊙

15-16 18

1889

+12 33

	R		R
~~21-4 7~~ 035 1	52.2	40 0468	45.9
328	58.7	59.1	58.6
152	45.4	41.2	41.0
153	49.5	42.7	43.3
	2038	1898	1888
	36 5095	40 47.45	47.20

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1881phae.proj.1411B

C = 17 85.3 C = 17.89.2

3 Leo

10 10 6

+24 8

R

10 2 1,6

16.3

~~9,6~~

~~8,8~~

26 5

12 6.62

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1881phae.proj.14711B

Nov. 13/14

0 15 20 24

−18 25

		R
15	4	1,2
		10,3
		5,4
		0,9
		9 8
	19	2,45

C = 17 8 9 2 & Pisces Aus

~~B Aurigae~~

~~22 54 41~~ 22 51 9

~~1 22 59~~ −30 15

		R
20	4	14,3
		26,2
		14,1
		14,6
		6,92
	24	17,30

J Aurigae

23 47 35

125 39

		R	R
40	2	138	0 56,2
		34,3	17,0
		23,1	5,1
		12,9	56,0
		8,41	14,3
	42	21,02	41 3,58

α Andromedae

0 2 19

+28 26

		R	R
45	0	43,8	45,7
		59,6	59,2
		43,1	43,0
		42,1	42,4
		19,06	19,03
	45	47,65	47,58

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1881phae.proj.1411B

B Nunc Mag

22 54 41
122 55

15 4 39.1
+9.6
47.2
36.5
18.24
19 45.60

ε Nunc Mag

22 56 24
117 37

41.6 85 35 03
0.6 10.7
48.3 1.83
37.7 48.2
18.84 22.5
47.10 38 56.88

Σ Nunc Mag

0 48 48
+123 24
R R

55 0 22.7 50 43.2
40.8 21.0
29.6 11.8
20.0 1.2
11.31 41.2
55 28.24 54 10.30

Lon L = 1

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Nov 14 1881
15

25 4 R
574
2.1
466
498
679
30 15,72

Nov 15 C=17 69.2
2 Nunc Ny
22567 +11737
0? 4? 270
449
312
906
1237
4? 30.92

2 Andromi
0 219
+2826

R
45 1 46?
585
398
391
1836
46 4590

2 Pegasi
0 711
+1432

R R
40 0 12,4 13,0
22,3 22,0
4,3 3,7
7,0 6,4
460 451
40 11,50 11,24

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1881phae.proj.1411B

ε Reyani

22 54 54 +14 34

	R	
35	2 34 8	
	46 4	
	27 1	
	29 3	
	13 76	
37	34 40	

ζ Merae Maj

23 47 35

+13 39

	R	R
40	2 39 1	1 20 5
	588	400
	45 4	25 2
	36 2	17 0
	1795	1027
42	44 84	41 25 68

η Merae Maj

0 48 48

12 24

	R	R
50	5 16 4	15 2
	20 9	33 8
	6 2	19 6
	54 9	8 7
	236	773
55	590	54 1932

ζ Cephei

9 15 45

+11 7 5

	R	R
	-13 2	20 1 45 3
	30 1	1 3
	46 2	46 2
	36 5	36 3
	1260	1891
	- 3150	21 47 28

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1881phae.proj.1411B

Nov 15 1881 C = 17,892

θ Persei Maj

9 24 56

5-2 13

		R
0	0	24
		150
		57,3
		52,3
		70
	0	1.75

Lost A -1

β Persei Maj

10 54 41

+571

		R
3	1	54,3
		71
		48,4
		42,2
		2120
	4	53.00

β Persei

9 27 11

10 9 57

	R	R
15	3 3,7	3,4
	20,9	20,4
	26	23
	58,2	53,3
	204	194
18	5.10	4.85

A +1 321

α Persei Maj

10 56 23

+6 2 23

		R	R
50	0	34,1	33,9
		46,2	46,4
		28,5	28,7
		21,8	22,1
		1306	1315
	50	32.65	32.38

A +1,3 ve

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1881phae.proj.1411B

α Leonis
10 24
+12 33

	R	R
35 4	305	296
	40.2	40.4
	2.4	2.9
	2.5	2.5
	1146	1132
39	28.65	28.30

ζ Leo
10 10 6
+24 02

	R	R
10 2	6.2	5.9
	19.2	19.4
	5.6	5.9
	5.1	5.4
	241	246
12	6.02	6.15

J Hunc Nonj
11 47 35
+54 21

	R	R
50	2340	59.0
	5.2	12.7
	33.1	5.3.0
	27.0	47.6
	1503	2323
52	37.58	58.08

Hunc Nonj
12 44 45
+76 36

	R	R
35 8	467	3 14.1
	5.2	2.0
	40.0	8.1
	35.2	2.2
	1811	514
38	45.28	12.85

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1881phae.proj.1411B

Nov 15–1881 · C = 17 49.2

ζ Ursae Maj

13 42 52

+49 57

	R	R
15 3	38.2	38.6
	51.2	51.4
	33.2	34.1
	24.6	26.3
	1502	1504
18	37.55	37.60

ζ Bootis

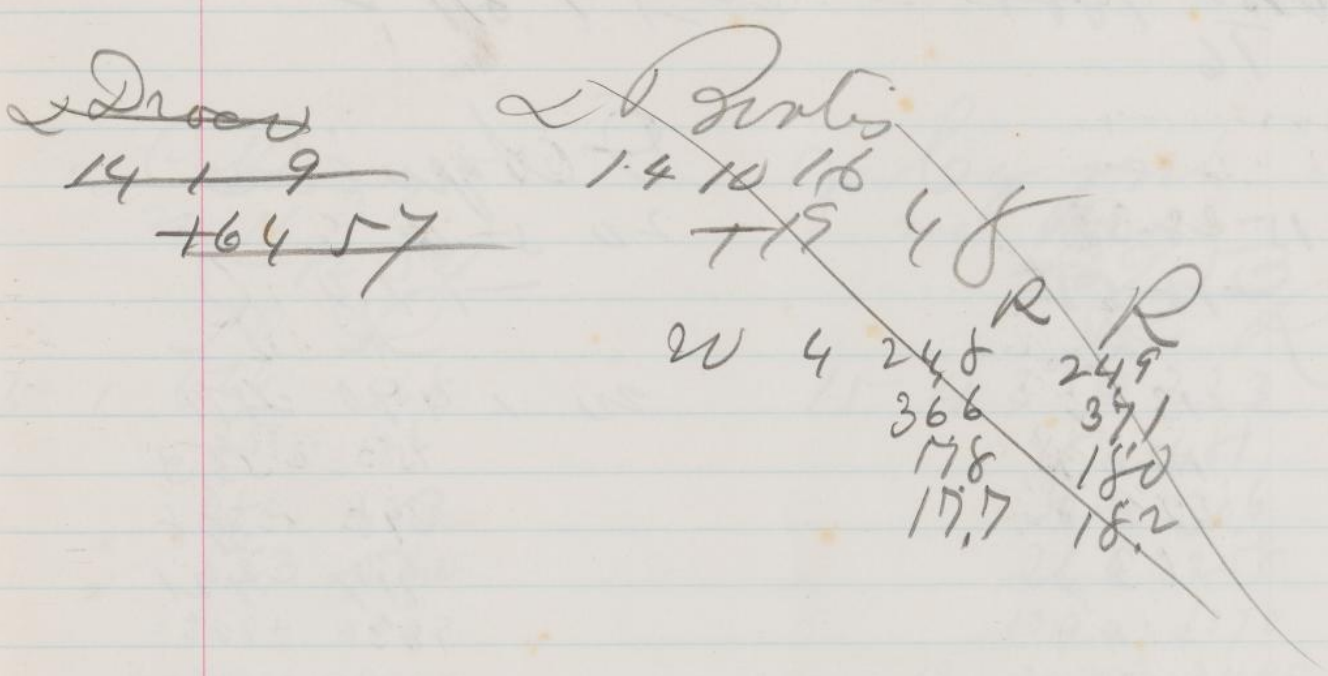
13 49 3

+19 0

	R	R
10 2	51.3	52.2
	18	21
	42.4	42.6
	43.2	43.1
	1990	2002
-12	49.75	50.05

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Nov 15/16 1881

Θ = 17 89 7

Θ 15 - 28 39
— 18 55 —

R
— — 13 2
19 6
2 3
6 3
4 1 4
— 10,35

Θ Aquilae
20 5 — 14
— 1 1

R R
20 1 47 0 47 1
15 3 = 55 3 55 3
39 8 39 8
41 7 42 1
18 38 18 43
21 45 9 5 46 08

Upper limb in S
sling bad

2 Leyqui
20 37 26 + 44 5 - 2

R
20 0 48 8
1 7
9 5 9
40 10
1 9 6 4
20 49 10

2 Cygni
21 17 56 + 29 4 5

R R
25 2 24 6 23 4
37 2 37 0
19 8 20 0
17 0 17 2
9 7 6 9 7 6
27 24 10 24 10

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1881phae.proj.1411B

α CoP
20 11 31
−12 54

		R	R
5	1	5 64	568
		3 5	3 2
		4 8 2	4 8 3
		5 2 3	5 2 0
		2204	2203
	6	55,10	55,08

γ Cygni
20 +39 50

		R	R
15	4	338	33.3
		484	481
		30.6	30.6
		26.6	25.8
		139 4	1378
	19	34,85	34,45

Rig Sz false obs. heavily
use S optimum

ε Cephei
21 15 48 +62 05

		R	R
5	3	57.3	348
		11.1	48.7
		55.2	31.8
		52.8	24.5
		2364	1398
	8	59,10	34,95

ε Pegasi
21 38 +9 29

		R	R
50	1	44.0	44.0
		54.3	52.6
		36.8	37.1
		41.0	41.0
		1761	1767
	51	44,02	44.18

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1881phae.proj.14118

Nov 16 1881 C = 17 189,2

ζ Aquarii

21 59 45

−0 53

	R	R
5 − 0	6,4	68
	14,0	13,3
	58,0	58,4
	1,8	1,3
	2 0 2	1 98
5	5,05	4.95

No Check Obs'

α Andromedae

0 2 19

+28 36

	R	R
45 − 0	55,6	
	8,0	
	49,2	
	49,3	
	22 21	
45	55,52	

ι Arietis

2 11 3 20

+27 6

	R	R
0	4 40,1	40,0
	53,7	53,5
	35,2	35,2
	30,4	29,9
	159 4	158 6
4	39,85	39,65

α Bootis

14 10

+19 48

	R	R
20 4	24,6	24,5
	30,6	37,1
	15,6	15,0
	15,7	15,2
	96,9	98,2
24	24,22	24,55

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1881phae.proj.1411B

β Mensae May'

10 54 41

+5-71

10	3	583	50 0	10.2
		11.8		23.4
		5.37		5.3
		4.80		0.4
		2318		1.2
	13	57.95		

α Mensae May'

10 56 23

2 2 3

50	0	10.2	9.8
		23.4	23.0
		5.3	5.4
		0.4	0.9
		397	394
	50	9.92	9.85

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1881phae.proj.14118

Nov 16/17 1881 C = 17 492

⊙ ~~α Aqua~~ α Aquarii

15- 32 & 8
-19 9

	α		δ
	21	55	45
			R - 053
0	4	59.3	5- 1 20.3
		56	28.5
		57.2	13.3
		54.8	15.5
		23 29	7.6
	4	5.822	6 19.40

Upper limb in S
Setting fair

1881phae.proj.1411B

2 Piscis Aust-

2251 9

-3015

	R	R
25 - 0	30.8	30.7
	46.1	46.2
	32.2	32.3
	37.4	37.4
	15.15	15.16
25	37.88	37.90

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1881phae.proj.1411B

Nov. 19 1881. C = 17 δ 9,2

B Nova Maj'
10 57 41
+571

R
23,8
38,2
20,2
15,7
9 7 9
24.48

Nova A-1

α Nova Maj'
10 56 23
+62 28

R R
50 0 32,4 32,2
41,8 46,2
30,0 29,9
23,2 22,2
13 1 7 13 0 3
50 32,92 32,58
Ave
+1

α Nova Maj'
12 48 48
+56 36

R R R
35 3 54,2 21,5 21,8
7,6 34,7 35,3
49,4 16,8 17,3
43,5 10,4 10,4
21 4 7 8 3 7 8 5 1
38 53,6 39,2 09,2 21,28
Ave Ky
+3 +1

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1881phae.proj.1411B

χ Ursae Maj

11 3 0

+45 8

R R

5 0 51,6 57,4

5.0 5,3

4,80 4,79

4,32 4,30

2078 2079

5 51.95 51.98

Lost - A+1

ν Leonis

11 7 4,9

+2 1 0

R R

0 2 7.3 7.8

1.88 1.93

0,4 0,8

0,8 1,0

276 289

2 6.90 7.22

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1881phae.proj.1411B

Nov 19/20 1881 C = 17 49.2

ζ Aquilae

19 45 +834

⊙

15 45 15

−19 57

15 8 569

57

483

573

Low limbs ✓

Low ⊙ 1 1st limb

Sliding gain

22 16

18 55.40

35 4 31.6

44.2

26.8

29.3

1319

39 32.98

γ Cygni

20 16 1

+39 53

R R

15 4 32.2 32.3

45.6 45.4

29.1 28.4

23.8 23.8

1307 1299

19 32.64 32.48

α Cygni

20 37 26

+44 58

R R

20 04 9.7 4.90

2.3 2.6

45.2 45.6

40.6 39.8

1978 1970

20 49.45 49.25

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1881phae.proj.1411B

β Aquilae

		R	R
5-	1	9.7	9.4
		2.4	2.4
		3.4	3.2
		6.1	6.3
		3.96	3.99
	6	9.90	9.98

δ Aquilae

		R	R
21	1	4.48	4.58
		3.1	3.86
		3.71	3.72
		3.89	3.86
		17.39	17.47
	21	43.48	43.68

ε Cygni

	R
	41.3
5-	3.7
	3.56
	32.8
	16.34
	40.85

γ Cygni

		R	R
25-	2	23.2	23.8
		3.61	3.64
		18.5	19.2
		17.1	16.6
		9.49	9.60
	27	23.72	24.00

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1881phae.proj.1411B

Nov 20 1881 C = 17 89.2

α Cephei
21 15 41
+62 5
R R

5 2 35.8 5 5.8
49.5 8.4
33.4 5 20.0
25.3 44.3
1440 2208
7 36.00 55.20

β Aquarii
21 25 22
−6 5

15 24 7.2 10.2
5 5.8
35.2
4.2
1839
17 45.98

α Piscis
22 51 9
−30 15

20 4 19.4
29.2
13.8
15.3
780
24 19.50

β Piscis Mer.
22 57 41
R +12 25 9

15 4 57.1
43.6
29.0
18.3
1160
19 46 29.90 C

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1881phae.proj.1411B

B Cephei
21 27 11
+703

~~10,2~~ R R
1 U 2 12,1 36,4
26,7 31,8
5,2 32,5
0,4 25,8
4,67 12,68
12 11,68 31,70

ε Pegasi
21 38 25
+5 20

R R
50 1 45,4 44,8
46,1 43,8
38,2 38,4
40,9 41,8
18,06 18,11
51 45,15 45,28

J Monocerotis
22 46 24
+11 37

R
3 5 4 5 9,7
16,9
1,7
50,8
9.0
40 2,25

J Monocerotis
23 47 35
+1 25 59

R R
40 1 45,2 33,0
8,6 31,2
54,1 37,7
44,3 28,0

Image distorted by Cage
2162 1499
41 54,05 37,48

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1881phae.proj.1411B

1881 Oct 20 C = 14 192

ν Andromedæ

0.219

+2826

R R

45	0	47,0	47,2
		0 0	3 9 2
		41,2	41'0
		39,3	39,1
		1875	1865
	45	46.88	46,62

ξ Pegasi

0 711

+4 32

R R

40	1	37,0	36,3
		46,3	46 4
		28,0	28,2
		29,3	28,4
		1406	1399
	41	35.15	34.98

Lost A+1

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1881phae.proj.1411B

2 Nyrae Majs

0 48 48

+123 24

R R

50 4 57 396

174 577

20 485

516 305

107 1755

55 268 4388

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1881phae.proj.1411B

Nov 21 1881

B Leo.

11 43 0 +5 13

R R

5-5 3 2 12 21.2

30.2 29.3

11.2 11.6

12.2 12.5

7 48 7 46

58 18.70 18.65

Nov 21 1881

11 43.5 +5 20 R

52 R 42.7 137

~~50~~ 3 57.7 28.7

40.6 10.0

35-49

1765 573

52 44.12 14.32

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Nov 21/22

⊙ ☌ ☿

15 53 44
−20 17

R
10 1 34.8
42.2
25.7
29.0
13.17
11 32.92

Jupiter limb in S
Lost A II limb
Semis + upper limb

ζ Cephei
21 15 48
+62 S

5 3 9.5 3 9.4
2.21 5.27
.42 3.40
5.7.8 26.8
3.36 15.29
8 8.40 38.22

ε Pegasi
21 38 23
+9 20

R R
50 1 41.8 41.8
52.9 52.9
32.8 33.3
36.11 36.3
16.36 16.43
51 40.90 41.08

ζ Piscium
22 51 9
−30 11

R
20 4 57.6
4.4
46.6
48.7
21.43
24 53.58

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B

B Asyadne

B Sophia

B Vera May

B Anne May

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1881phae.proj.1411B

Nov 22 1881

γ Ursae Min

11 47 32

+125 15

	R	R
40	1438	1292
	08	472
	471	330
	367	223
	1884	1317
41	47.10	41 32.92

A 7.2 e

α Andromedae

0 2

+

	R	R
45	270	65
	183	183
	562	559
	1352	538
	1347	1345
47	33.68	33.62

A 3.2 e

γ Pegasi

0 27

+14 36

	R	R
40	0238	237
	328	331
	103	112
	97	93
	766	773
40	19.15	19.32

ε Ursae Min

12 48 48

+123 24

	R	R
55	0238	4526
	39.6	7.8
	23.2	50.2
	12.6	38.0
	992	980
55	24.80	45 24.50

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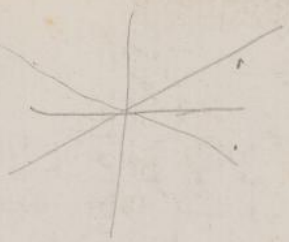
31,3
12 d
15.3

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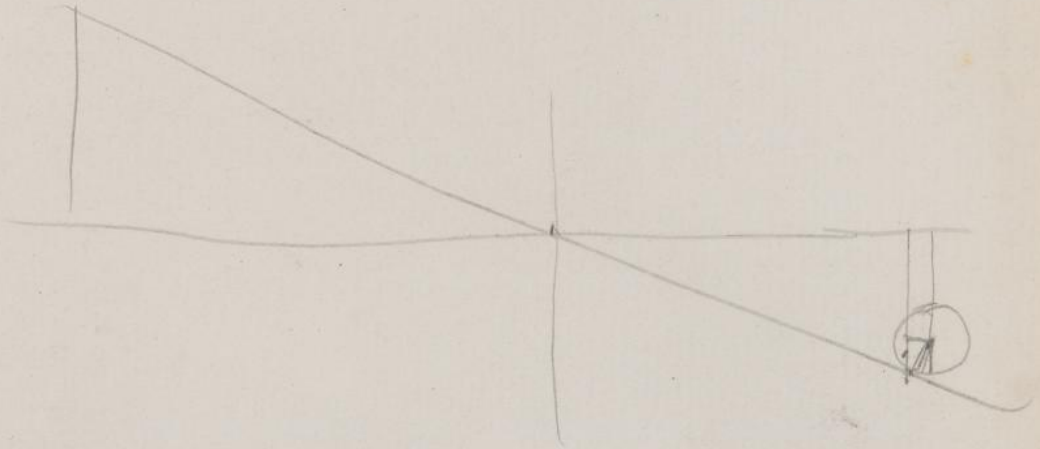
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20 11 20 18



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