1879phae.proj.1402R

KG
11366
v.398

Fundamental Stars.
Circle Readings
A4, 1879

Charles W. Sever, University Bookstore, Cambridge.

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1879phae.proj.1402R

2)-79.9
50.K
34
42

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1879phae.proj.1402R

A23

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1879phae.proj.1402R

U Ophi.

6 15 38

+22 34

	R	P	R
5	3	7 7	8 7 0	5 4
		10 8	10 7	11 4
		12 5	12 4	13 2
		12 2	12 2	12 0

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1879phae.proj.1402R

2

1879 Oct. 1–2

Sun c = 46.869

2 33 32

−3 37

m		m
.45 4 54.9	20 1	35.1
9.3		51.1
18.1		59.9
10.1		52.1
27.4		19.82
8.10		49.55

Seeing pretty fair

α Cor. Bor.

15 29 34

+27 7

m	m	R	R	M
20 1 12.8	2 34.8	34.5	34.7	35.0
25.2	46.9	47.1	47.0	46.4
33.1	53.9	54.0	53.7	54.0
27.3	49.0	49.1	49.2	49.1
9.84	18.46	18.47	18.46	18.45
24.60	46.15	46.17	46.15	46.12
	46.18	46.16		

η Ophiuchi

17 3 27

−15 34

m	m	R	R	M
0 14 2.8	3 3.0	2.5	3.0	3.1
59.1	1.99	2.00	1.99	1.99
7.1	27.9	27.5	27.8	27.8
57.7	17.9	18.8	18.8	18.1
22.67	6.87	6.88	6.95	6.89
56.67	17.17	17.20	17.37	17.22
	17.19	17.28		

ζ Herculis

17 9 18

+14 32

m	m	R	R	M
55 1 29.9	2 50.2	50.1	50.1	50.1
43.0	4.1	4.3	4.8	4.1
50.9	11.0	11.3	11.3	10.9
43.0	3.1	3.6	3.3	2.9
16.68	84	93	95	80
41.70	2.10	2.32	2.37	2.00
	2.05	2.35		

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β Herculis

16 25 1

+21 45

m	m	R	R	m
40 3 14.1	4 32.9	32.2	32.3	32.0
27.1	45.2	45.8	45.8	45.1
32.8	49.9	49.8	50.1	50.0
27.9	45.1	45.9	46.6	46.1
10 19	131	137	1748	1732
25.47	43.27	43.42	43.70	43.80
	43.28	43.56		

ζ Ophiuchi

16 30 30

−10 19

m	m	R	R	m
45 1 51.9	3 19.9	13.4	13.7	13.6
6.1	27.0	27.3	27.1	26.9
18.3	38.9	38.8	39.0	38.9
6.9	27.9	28.6	28.7	27.9
26 32	1077	1081	1085	1073
5.80	26.92	27.02	27.12	26.82
	26.87	27.07		

α Ophiuchi

17 29 19

+12 39

m	m	R	R	m
45 4 10.1	50 0 36.0	35.5	35.7	36.0
24.1	48.9	49.3	49.2	48.6
30.9	56.1	56.3	56.0	56.1
23.8	49.1	49.6	49.7	49.9
8 8 9	190 1	1907	1906	1906
22.22	47.52	47.67	47.65	47.65
	47.58	47.66		

δ Hds. Min.

18 11 21

+86 36

m	m	m
50 3 6.6	12.9	17.9
14.9	20.9	25.1
17.6	23.9	28.9
17.2	23.1	28.8
563	808	1007
14.07	20.20	25.17

Rej. false stroke before 2nd δ.

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1879phae.proj.1402R

1879 Oct. 2

ζ Serpentis

18 15 3

−2 56

	m	m	R	R	m
20 3	26.1	4 53.1	53.0	53.6	53.1
	41.1	84	8.7	8.8	8.0
	48.1	14.1	14.7	14.8	14.9
	41.1	8.1	8.2	8.0	8.1
	1564	2637	2646	2652	2641
	39.10	5.92	6.15	6.30	6.02
		5.96	6.22		

51 H. Cephei L. L.

6 43 16

+92 49

	m	m	m	m
40 4	49.9	45.1	37.0	29.1
	58.1	54.9	45.7	37.2
	1.1	58.1	48.1	40.5
	57.2	52.9	45.2	36.1
	2263	2110	1760	1429
	56.57	52.75	44.00	35.72

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1879phae.proj.1402R

o Sagittarii

18 47 46

−26 27

m	m	R	R	m
50 3 2,1	4	27,1	27.7	27.0	27.0
19.0		43.5	43.7	44.0	43,1
26.1		50.0	49.8	49.9	49.9
19.0		43,1	43.8	43.7	42.9
66.2		163 7	165 0	164 6	162 9
16,55		40.92	41.25	41.15	40.72
		40.82	41.20		

λ Aquilae

18 59 50

− 5 4

m	m	R	R	m
30 1 18.1	30	2 54,9	55.1	54.9	55.0
31.8		8,9	9.1	8.9	8,4
39.0		15.2	15.4	15.8	15,1
32.9		9,9	9.7	9.2	9.0
121 8		268 9	269 3	268 8	267 5
30.45		7.22	7.32	7.20	6.87
		7,04	7.26		

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1879phae.proj.1402R

1879 Oct. 2 – 3

Sun C = 46.869

3 37 10

– 4 0

	m		m
10 2	55.5	25 4	40.0
	10.6		53.0
	17.1		0.1
	9.0		52.2
27	22		20 53
	8.05		51.32

Seeing Fearfully bad.
Lost 1st 2 wires of 2d limb.

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1879phae.proj.1402R

1879 Oct. 4

51 Herculis L.C., c = 46.869

6 43 16

+92 49

m	m	m	m	m	m
45 0 7.5	0.4	54.9	42.0	88.5	31.5
16.1	9.0	3.1	51.1	46.9	40.2
18.3	12.1	5.9	53.0	49.9	42.9
14.6	8.1	2.6	47.7	45.0	37.9
565	296	65	1938	1803	1525
14.12	7.40	1.62	48.45	45.07	38.12

σ Sagittarii

18 47 46

−26 27

m	m	R	R	m
50 3 32.9	4 16.1	16.4	15.8	16.0
50.9	33.9	33.9	33.6	33.1
57.4	40.9	40.4	40.5	40.1
47.9	31.9	31.7	31.4	31.9
1891	1228	1224	1213	1211
47.27	30.70	30.60	30.32	30.27
	30.48	30.46		

Rej. 4 strokes

η Aquilae

18 59 50

−5 4

m	m	R	R
30 1 26.9	2 45.9	45.8	
41.1	0.6	0.7	
48.2	7.9	7.8	
40.9	59.3	59.6	
15 71	2337	2339	
39.27	58.42	58.47	

ζ Aquilae

~~50 4 53~~ 19 44 53

+8° 33 ~~11~~

R	R
50 4 ~~58~~ 53	57.0
11.6	11.6
15.8	16.1
8.9	9.3
2736	2740
8.40	8.50
8.45	

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1879phae.proj.1402R

1879 Oct. 4

β Aquilae

19 49 22

+6 6

m	m	R	R	m
20 1 29.2	2 5.04	50.1	50.1	5.06
44.9	6.1	6.7	6.4	5.9
49.1	10.0	9.8	10.2	9.6
43.8	4.0	3.9	4.0	4.3
1670	2505	105	2507	104
41.75	2.62	2.62	2.67	2.60
	2.61	2.65		

θ Aquilae

20 5 4

−1 11

m	m	R	R	m
35 3 23.4	4 43.2	43.3	43.0	42.5
37.1	57.9	57.8	57.8	57.2
43.9	3.5	3.9	3.7	3.7
35.9	56.2	56.7	56.2	56.9
1403	2208	2217	2207	2203
35.07	55.20	55.42	55.17	55.07
	55.13	55.29		

β Aquarii

21 25 11

−6 6

m	m	R	R	m
30 3 33.2	35 0 4.8	5.0	5.2	5.0
47.1	18.9	18.2	18.2	18.8
52.9	25.1	25.0	25.0	25.2
46.3	18.1	18.1	18.4	18.1
1795	669	663	668	671
44.87	16.72	16.57	16.70	16.78
	16.75	16.63		

ε Pegasi

21 38 14

+9 19

m	m	R	R	m
5 3 35.6	10 0 2.9	3.1	3.0	3.1
50.0	16.1	17.0	16.7	17.0
52.9	20.5	20.9	20.8	20.2
48.0	16.6	16.5	16.9	16.9
1865	561	575	574	572
46.62	14.02	14.37	14.35	14.30
	14.16	14.36		

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1879phae.proj.1402R

α^2 Capricorni

20 11 20
−12 55

m	m	R	R	m
20 2 18.9	3 44.9	44.9	44.9	44.8
34.0	0.1	0.2	0.4	59.9
42.1	7.7	7.7	7.9	7.8
32.1	57.9	58.3	58.2	57.9
12.71	23.66	23.11	23.14	23.05
31.78	57.65	57.78	57.85	57.62
	57.63	57.81		

ζ Cygni

21 7 47
+29 44

m	m	R	R	m
40 4 13.1	45 0 37.7	37.8	37.7	37.6
26.1	49.1	49.2	49.3	49.1
28.6	51.9	52.1	52.2	51.9
26.1	50.9	50.8	51.0	50.9
9.39	18.96	18.99	19.02	18.97
23.47	47.40	47.47	47.55	47.42
	47.41	47.51		

α Aquarii

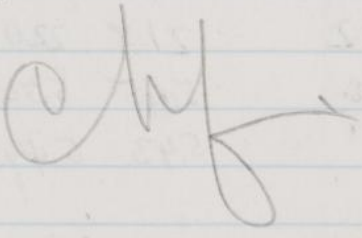
21 59 34
−0 54

m	m	R	R	m
20 1 53.3	3 18.1	18.3	18.7	18.7
7.3	27.5	27.8	27.2	27.6
12.4	33.1	32.9	32.7	33.0
7.9	27.1	27.2	27.7	27.5
26.09	10.08	10.12	10.13	10.08
5.22	25.20	25.30	25.32	25.20
	25.20	25.31		

ξ Ursæ Min. L. b.

18 17 21
−9 3 24

m	m	m
5 3 3.9	57.6	49.0
11.8	5.0	57.0
11.5	5.6	57.5
11.0	4.1	56.3



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1879phae.proj.1402R

10

1879 Oct. 4

μ Geminor.

6 15 38

+22 34

m	m	R	R	M
50 3 57.1	55 0 22.1	21.9	21.6	22.0
10.9	34.1	34.2	34.2	34.1
10.4	35.0	35.0	34.9	34.9
10.9	35.2	35.4	35.5	35.8

γ Geminor.

6 30 43

+16 30

m	m	R	R	M
55 3 17.9	4 39.1	39.0	38.2	38.9
30.0	51.1	52.0	51.3	51.1
34.9	55.0	55.3	54.9	55.2
36.9	57.9	51.8	51.4	52.1
11 37	1971	1981	1958	1973
28.42	49.27	49.52	48.95	49.32
	49.29	49.73		

α Geminor.

7 26 52

+32 9

m	m	R	R	m
15 4 54.1	20 0 56.9	56.0	55.9	56.6
4.1	6.9	6.6	6.6	6.1
7.0	9.1	9.6	10.0	9.1
6.0	9.9	9.8	9.4	9.9
11 2	218	220	219	217
2.80	5.45	5.50	5.48	5.42
	5.43	5.49		

α Can. Min.

7 32 58

+5 32

m	m	R	R	M
55 1 3.8	27.6	27.9	27.7	27.9
18.9	43.1	43.2	43.1	42.8
19.9	44.1	44.1	44.1	43.9
17.8	41.8	42.0	41.9	42.1
6 04	1566	1572	1568	1567
15.10	39.15	39.30	39.20	39.17
	39.16	39.25		

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1879phae.proj.1402R

51 H. Cephei
6 43 16
+87 14

	m	m	m	m	m	m
15 2	12.9	17.1	21.4	23.7	27.1	29.8
	20.1	24.8	29.0	30.5	34.4	37.3
	20.6	24.9	28.4	31.2	34.9	37.1
	22.9	26.0	30.9	33.0	37.0	39.9
	765	928	1097	1184	1334	1441
	19.12	23.20	27.42	29.60	33.35	36.02

1 Stunde für 1 min - zeit
LK
-1

β Cam Min.
7 20 35
+8 32

	Rm	m	R	R	Rm
55 1	12.9	2 41.7	41.2	41.0	41.0
	26.2	54.9	55.4	55.0	54.9
	29.2	57.8	57.8	57.4	57.3
	25.1	54.0	54.1	54.1	54.2
	934	89	85	75	74
	23.35	52.22	52.12	51.87	51.85
		52.03	51.99		

β Geminor.
7. 37 55
+28 19

	m	m	R	R	m
5 4	49.6	10 1	6.0	5.7	5.8	6.1
	0.1		16.9	17.2	17.0	16.9
	0.7		18.1	17.7	17.8	17.9
	0.8		18.1	18.0	18.0	18.6
	23 12		591	586	586	595
	57.80		14.78	14.65	14.65	14.87
			14.82	14.65		

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1879phae.proj.1402R

12

1879 Oct. 4–5

Sun C = 46.869

12 44 26

– 4 47

m	m
55 3 25.9	30 1 5.3
41.9	20.1
47.1	26.1
39.1	19.0
1540	705
38.50	17.62

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

α Bootis

14 10 8

+19 49

m	m	R	R	m
40 0 0.1	1 23.1	22.6	22.2	22.7
18.9	39.2	39.0	38.9	38.3
24.8	47.0	47.3	47.6	46.9
15.1	37.5	37.8	37.6	37.8
589	1468	1467	1463	1457
14.72	36.70	36.67	36.57	36.42
	36.56	36.62		

Trouble with Current.

δ Ursæ Min.

18 11 21

+86 36

m
50 3 18.8
28.1
32.1
28.9
1079
26.97

η Serpentis

18 15 3

– 2 56

m	m	R	R	m
20 3 27.1	4 56.1	56.3	55.4	55.9
43.9	12.7	12.7	12.4	12.2
51.1	19.1	19.2	19.5	19.1
41.5	10.3	10.3	10.1	9.9
1636	2782	2785	2774	2771
40.90	9.55	9.62	9.35	9.27
	9.41	9.48		

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1879phae.proj.1402R

α' Herculis
17 9 18
+14 32

m	m	R	R	M
55 1 32.4	2 50.6	50.9	50.3	50.7
47.4	6.1	6.7	6.3	5.9
54.0	12.1	12.2	12.7	11.9
43.3	2.1	2.4	2.0	1.9
16 7.1	109	122	113	104
41.78	2.72	3.05	2.82	2.60
	2.66	2.93		

α Ophiuchi
17 29 19
+12 39

m	m	R	R	M
45 4 18.4	50 0 34.1	34.1	34.0	34.8
33.2	48.6	48.9	49.0	49.1
40.8	57.1	56.3	56.0	55.9
31.0	47.3	47.4	47.3	47.8
1234	1861	1867	1863	1876
30.85	46.52	46.67	46.57	46.90
	4671	46.62		

51 N. Cephei L.C.
6 43 16
+9 2 49

m	m	m	m	m	m
40 4 53.5	46.0	39.6	32.6	25.8	
4.1	58.2	49.9	42.1	35.1	
7.0	1.7	52.8	45.9	39.0	
0.1	55.1	46.1	39.2	32.8	
47	2230	1884	1598	1327	
1.17	55.75	47.10	39.95	33.17	

σ Sagittarii
18 47 46
−26 27

m	m	R	R	M
50 3 2.0	4 25.3	25.9	25.6	25.9
21.0	43.8	44.2	44.0	43.7
28.1	51.0	50.9	50.8	51.1
17.9	41.0	41.3	41.3	40.8
6 9 0	16 1.1	1623	1617	1615
17.25	40.27	40.57	40.42	40.37
	40.32	40.49		

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1879phae.proj.1402R

14

1879. Oct. 5

λ Aquilae

18 59 50

− 5 4

	m	m	R	R	m
30 1	21.0	2 48.0	48.0	48.0	48.0
	36.8	3.6	4.0	3.7	3.2
	44.1	11.5	11.8	11.3	11.5
	34.9	1.9	1.9	1.5	1.2
	13 68	40	57	45	39
	34.20	1.00	1.42	1.12	0.98
		0.99	1.27		

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1879phae.proj.1402R

1879 Oct. 6–7

Sun C=46.875

12 51 45

–5 33

m	m
40 4 16.1	30 2 21.1
30.0	34.2
35.3	40.7
30.9	35.1
10 23	13 11
25.58	32.78

α Bootis

14 10 8

+19 49

m	m	R	R	m
35 4 54.0	40 12 22	21.8	21.1	21.8
7.1		35.1	35.2	35.8 35.0
15.6		41.4	41.6	41.8 41.0
6.9		35.3	36.0	35.2 35.9
26 36		13 40	13 46	13 39 13 37
5.90		33.50	33.65	33.47 33.42
		33.46	33.56	

ε Bootis

14 39 42

+27 35

m	m	R	R	m
50 3 53.5	4 56.3	56.3	56.0	56.1
5.2	7.9	8.2	8.0	8.0
9.5	11.8	11.5	11.3	11.8
5.9	7.9	8.9	8.8	8.9
14 1	23 9	24 9	24 1	24 8
3.52	5.98	6.22	6.02	6.20
	6.09	6.12		

α Scorpii

16 21 5-9

–26 10

m	m
35 1 16.3	2 3 9.7
33.2	56.2
40.3	2.1
32.0	54.1
12 18	2 21
30.45	53.02

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1879phae.proj.1402R

1879 Oct 7

β Herculis

16 25 1

+21 45

m	m	R	R	W
40	8 37.9	4 34.5	34.3	34.0	33.9
	52.2	48.1	48.0	48.1	47.8
	55.3	51.1	51.3	51.2	51.6
	50.2	46.9	47.1	47.7	47.1
	19 56	1806	1807	1810	1804
	48.90	45.15	45.17	55.25	45.10
		45.12	45.21		

ζ Ophiuchi

17 29 19

+12 39

m	m	R	m
45	4 11.9	50 0 15.0	15.0	15.2
	26.1	28.4	28.9	28.1
	33.1	35.9	35.9	35.8
	24.1	28.8	28.3	28.5
	9 52	1081	1081	1076
	23.80	27.10	27.02	26.90
		27.00	27.02	

η Ophiuchi

16 30 30

−10 19

m	m	R	R	m
45	2 30.8	3 23.2	22.8	22.3	22.6
	45.1	36.9	36.8	36.3	36.9
	57.8	46.9	46.3	46.8	46.5
	45.5	35.9	36.8	36.2	36.1
	1752	1429	1427	1416	1421
	43.80	35.72	35.67	35.40	35.52
		35.62	35.53		

Lost among the middle wires of A

δ Ursæ Min.

18 11 21

+86 36

m	m	m	m
50	3 4.9	10.4	16.8	19.9
	13.1	18.9	25.1	28.0
	16.2	21.9	28.7	31.0
	15.2	20.1	27.0	30.0
	94	713	976	1089
	12.35	17.82	24.40	27.22

3 strokes for 1st wire

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1879phae.proj.1402R

η Ophiuchi

17 3 27
−15 34

	m	m	R	R	M
0	1 45.1	3 12.5	12.0	11.9	12.1
	2.0	29.1	28.8	28.9	28.4
	8.8	35.9	35.9	35.7	35.9
	59.0	26.1	26.6	25.9	25.6
	23 49	1036	1033	1024	1020
	58.72	25.90	25.82	25.60	25.50
		25.70	25.71		

α' Herculis

17 9 18
+14 32

	m	m	R	R	M
55	1 39.2	2 5.8	52.0	52.5	52.7
	53.2	6.9	7.0	7.0	6.9
	0.7	13.8	13.3	13.4	13.6
	51.0	4.5	4.5	4.0	4.0
	20 41	2580	2568	2569	2572
	51.02	4.50	4.20	4.22	4.30
		4.40	4.21		

η Serpentis

18 15 3
− 2 56

	m	m	R	R	M
20	3 32.2	4 5.1	51.0	50.9	51.1
	47.2	6.6	6.9	6.9	6.8
	54.4	13.1	13.2	13.6	13.1
	46.1	4.9	5.0	5.3	5.0
	17 99	157	161	167	164
	44.98	3.92	4.02	4.17	4.10
		4.01	4.09		

51 H. Cephei L.C.

6 43 16
+92 49

	m	m	m	m	m	m
40	4 49.6	44.3	39.9	33.9	28.9	24.6
	58.2	53.1	48.1	42.4	36.9	33.1
	1.2	57.1	50.9	45.9	40.5	36.8
	56.9	51.9	46.8	40.9	36.3	32.6
	22 59	64	1857	31	1426	73
	56.47	51.60	46.42	40.78	35.65	31.82

False stroke between 6, + 6$_2$ also between 3 + 3$_2$

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1879phae.proj.1402R

18

1879 Oct 7

σ Sagittarii

18 47 46

−26 27

m	m	R	R	m
50 3 10.1	4 23.1	23.6	23.0	23.1
27.0	40.1	40.0	39.9	39.9
34.1	46.9	45.9	46.2	46.1
25.1	38.1	37.8	37.9	38.0
963	1482	1473	1470	1471
24.07	37.05	36.82	36.75	36.78
	36.86	36.78		

λ Aquilae

18 59 50

−5 4

m	m	R	R	m
30 1 23.1	2 43.9	43.8	43.2	43.4
36.9	57.3	57.1	57.1	57.1
44.3	4.2	4.0	4.3	4.5
36.7	57.0	56.6	56.5	57.0
1410	2224	2215	2211	2220
35.25	55.60	55.38	55.28	55.50

γ Cygni

21 17 47

+29 44

R	R
45 0 36.6	36.0
4 48.3	48.2
51.7	52.0
50.3	50.0
1867	1870
46.67	46.75
46.71	

β Aquarii

21 25 11

−6 6

m	m	R	R	m
30 3 29.2	4 56.1	55.6	55.1	55.6
42.9	9.9	9.3	9.1	9.0
49.4	16.1	15.4	15.8	16.1
42.1	8.2	8.7	8.7	8.0
36	2703	2690	2687	2687
40.90	7.57	7.25	7.17	7.17
	7.37	7.21		

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1879phae.proj.1402R

Ayrine

20 5 4

−1 11

R	R
35 4 43.2	43.1
57.9	57.9
5.0	4.8
56.5	57.1
22.9	22.9
55.72	55.72
55.72	

Lost R 1 2 3 1 and R 1 2 3 4 5
+1

Copernic

20 11 20

−12 55

R	R
20 3 40.0	39.4
55.6	55.8
3.2	3.5
54.7	54.8
21.35	21.38
53.87	53.45
53.41	

ε Pegasi

21 38 14

+9 19

m	m	R	R	m
5 3 37.8	4 52.2	52.0	51.8	52.2
51.3	5.1	5.9	6.0	5.9
56.4	9.9	9.9	10.0	9.9
50.2	4.9	4.4	6.5	4.4
19 57	121	122	133	124
48.92	3.02	3.05	3.32	3.10
	3.06	3.18		

α Aquarii

21 59 34

−0 54

m	m	R	R	m
20 1 52.1	3 1.50	14.9	14.7	14.9
6.1	28.3	29.0	28.3	28.2
11.7	35.0	35.1	34.9	34.5
5.9	29.0	29.6	29.6	29.0
158	1073	1086	1075	1066
3.95	26.82	27.15	26.87	26.65
	26.73	27.01		

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1879phae.proj.1402R

20 1879 Oct. 7

δ Orionis

5 25 50

−0 23

m	ow	R
50 1 25.0	2 28.1	28.4
38.2	41.9	42.0
44.9	47.9	48.0
39.6	43.1	43.5

6h failed

m	m
25 1 58.2	3 17.9
11.2	30.2
17.8	36.8
12.6	31.9

6h failed

ζ Orionis

5 48 37

+7 23

m	ow	R	R	m
0 4 54.6	5 1 21.7	22.2	21.3	22.1
9.4	35.4	35.8	35.8	36.0
12.0	39.9	40.2	40.1	35.9
7.7	37.0	36.7	36.9	36.9
26.39	1340	1349	1342	1349
5.97	33.50	33.72	33.55	33.72
	33.61	33.63		

35 Draconis L.C.

17 54 52

+103 1

m	m	m
30 0 8.1	49.4	32.9
16.1	57.1	41.1
16.7	58.1	41.0
18.7	59.8	42.9
5.96	22.44	15.79
14.90	56.10	39.47

Rej. 1st & (pr. long satellite)

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1879phae.proj.1402R

ζ Orionis
5 34 39
−2 0

m	m	R	R	m
25 3 6.8	4 29.1	29.3	29.3	29.0
20.7	43.9	43.5	43.6	44.0
25.8	48.9	48.3	48.3	49.1
20.1	43.9	44.6	44.6	44.9
7.34	58	57	58	70
18.35	41.45	41.42	41.45	41.75
	41.60	41.44		

Close companion follows below

κ Orionis
5 42 1
−9 43

m	m	R	R	m
10 0 8.9	1 39.1	38.9	38.9	38.6
21.1	50.8	50.9	50.9	51.1
30.5	59.2	59.8	59.2	59.7
24.0	53.4	53.4	53.9	53.7
8.45	25	30	29	31
21.12	50.62	50.75	50.72	50.78
	50.70	50.73		

δ Leo. Min. L.C.
18 11 21
+9 3 24

m	m	m
5 3 1.4	56.4	45.1
9.9	3.9	51.6
10.6	5.2	53.9
9.8	5.1	53.1
31.7	106	37
7.92	2.65	50.92

μ Geminor.
6 15 38
+22 34

m	m	R	R	m
50 4 4.9	55 0 19.4	19.2	18.8	19.4
16.9	30.9	30.9	30.6	30.8
17.6	32.5	32.3	32.3	32.0
18.9	34.1	33.9	33.2	34.0
58.3	1169	1163	1149	1162
14.57	29.22	29.07	28.72	29.05
	29.13	28.89		

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1879phae.proj.1402R

1879 Oct. 7

χ Draconis L-C.

18 23 14
+107 19

m	m	m	m	R	R
10 3 33.1	3.9	2 28.9	2.1	1.3	1.7
40.9	12.5	37.0	10.0	10.1	10.2
40.1	11.1	36.7	9.1	9.3	9.2
42.1	12.6	37.2	10.3	11.0	10.9
1562	401	1398	315	317	320
39.05	10.02	34.95	7.87	(7.92	8.00)
			7.87	(7.96	

γ Geminor

6 30 43
+16 30

m	m	R	R
55 3 12.9	4 35.1	35.2	35.0
24.8	46.9	47.7	47.2
30.1	52.1	52.5	52.4
25.9	48.0	49.0	49.0
937	1821	1844	1836
23.42	45.52	46.10	4590
	4552	46.00	

δ Draconis. L-C

19 12 31
+112 33

m	m	m
0 ⓓ 18.6	35.1	55 4 10.0
27.1	43.0	19.1
26.1	42.0	17.0
24.9	40.6	14.9
767	07	210
19.17	40.17	15.25

β Can. Min.

7 20 35
+8 32

m	m	R	R	M
55 1 13.1	2 46.1	48.4	47.8	48.1
25.5	1.3	1.6	1.2	1.1
30.2	5.1	5.0	5.0	4.9
27.1	2.2	2.3	2.1	2.1
959	2367	2373	2361	2362
2398	59.17	59.32	59.02	59.05
	59.11	59.17		

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1879phae.proj.1402R

51 H. Cephei

6 43 16

+87 14

	m	m	m	m	m	m
15 1	11.5	17.9	27.1	33.2	39.4	2 11.1
	18.2	24.4	33.9	40.0	46.0	17.3
	19.9	26.1	35.3	41.7	47.4	18.5
	22.1	28.8	37.9	43.9	50.1	20.9
	7 17	9 72	13 42	15 88	18 29	6 78
	17.92	24.30	33.55	39.70	45.72	16.95

ν Draconis L-C

18 55 52

+10 8 52

	m	m	m	m
40 1	2.1	4 25	35 4 51.7	29.4
	10.9	48.9	0.9	38.3
	9.9	48.9	58.1	37.1
	11.0	50.1	59.6	38.9
	33 9	18 94	23 03	14 37
	8.48	47.35	57.58	35.92

ζ Geminor.

7 26 52

+32 9

	m	m	R	R	M
15 4	37.1	20 1 5.3	5.2	5.3	5.9
	47.1	15.8	15.3	15.5	14.9
	5 15	20.0	19.9	20.0	20.1
	5 10	20.4	20.0	20.3	19.1
	18 67	6 15	6 04	6 11	6 00
	46.92	15.37	15.10	15.27	15.00
		15.18	15.18		

ζ Can. Min.

7 32 58

+5 32

	m	m	R	R	M
55 1	33.0	2 21.9	22.0	21.8	22.0
	47.2	36.5	36.9	36.9	36.3
	49.5	38.1	38.9	38.9	38.9
	47.9	36.9	37.4	37.3	37.1
	176	144	152	149	143
	44.40	33.60	33.80	33.72	33.57
		33.58	33.76		

Ref. 1st ✓

Use 2nd 3rd ✓

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1879phae.proj.1402R

24

1879 Oct. 7

α Hydrae

9 21 38

−8 8

M	M	R	R	M
35 1 11.2	2 10.9	15.3	15.2	15.7
23.1	27.1	27.0	27.8	27.1
31.7	35.1	35.3	35.6	35.0
25.9	29.1	28.6	28.3	28.5
9 19	10 7.2	10 6.2	10 6.9	10 5.8
22.98	26.80	26.55	26.72	26.45
	26.62	26.63		

Lost 1st 2 m

ε Leonis

9 38 59

+24 20

m	m	R	R	m
5 3 59.4	10 0 14.3	14.6	14.3	14.9
11.8	24.8	25.2	24.9	24.2
13.8	28.6	28.7	28.7	28.9
13.2	27.9	27.4	27.4	26.8
27 8.2	9 46	9 59	9 53	9 48
9.55	23.65	23.97	23.82	23.70
	23.67	23.89		

γ' Leonis

10 13 18

+20 27

M	M	R	R	M
0 1 31.1	2 54.9	54.5	54.7	54.0
43.4	5.9	6.0	6.0	6.0
46.2	9.9	10.1	10.1	10.1
44.1	6.2	6.6	6.7	6.9
68	169	172	175	160
41.70	4.22	4.30	4.37	4.00
	4.11	4.33		

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1879phae.proj.1402R

2 Leonis

10 1 56

+12 33

m	m	R	R	m
55 0 44	21.7	21.9	21.9	21.6
16.4	33.0	33.3	33.7	33.0
21.9	39.0	39.1	39.2	39.1
17.2	33.6	34.4	34.0	33.9
59.9	12.73	12.87	12.88	12.76
~~14.98~~	~~12.75~~	~~12.87~~	~~3.22~~	
14.98	3.182	32.18	32.20	3.190
	31.86	32.19		

Leonis

10 9 57

+24 1

m
25 2 36.9
46.1
49.0
47.1
17.91
44.78

Rej. 2nd 8

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1879phae.proj.1402R

1879. Feb. 7–8

Rem. C = 46.875

	R	R
5 2	21.3	21.6
	34.1	34.2
	42.6	42.5
	33.2	33.5
	1312	1318
	3280	3295
	32.87	

1st line in R
and upper line in

ζ Bootis

14 10 8

+19 49

	M		M	R	R	M
35 4	55.3	40 1	11.1	10.3	10.2	10.5
	7.1		23.1	23.1	23.0	22.9
	18.4		31.3	31.4	31.5	31.9
	9.1		23.9	23.9	24.1	23.9
	299		894	887	888	892
	7.47		22.35	22.17	22.20	22.30
			22.32	22.18		

ζ Ophiuchi

16 30 30

−10 19

	R	R
45 2	509	506
	3.9	4.1
	17.6	17.2
	3.8	3.4
	162	153
	4.05	3.82
	3.93	

α Herculis

17 9 14

+14 32

	R	R
55 1	29.0	28.9
	43.2	43.1
	54.2	54.4
	42.0	42.1
	1684	1685
	42.10	42.12
	42.11	

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1879phae.proj.1402R

ε Scorpii
16 2 1.9
−26 10

β Herculis
16 25 1
+21 45

	R	R
40	4 24.5	24.5
	38.5	38.7
	46.0	45.3
	38.5	38.9
	14.85	14.77
	37.12	36.92
	37.02	

ζ Ophiuchi
17 29 19 +12 39

	m	m	R	R	m
45	4 15.9	50 0 35.9	35.8	35.9	36.1
	29.1	48.7	49.0	49.0	48.5
	40.7	0.1	0.2	0.2	59.9
	29.1	48.9	48.8	48.7	48.9
	11 48	19 36	19 38	19 38	19 34
	28.70	48.40	48.45	48.45	48.35
		48.37	48.45		

35 Draconis
17 55 52 +76 59

	m	m	m	m	m
30	0 47.5	1 3.5	29.8	1 49.0	2 1.3
	55.6	11.0	37.1	56.1	8.2
	4.1	19.0	45.4	4.9	16.7
	0.8	16.1	41.2	0.9	13.3
	22 80	96	15 35	23 09	395
	57.00	12.40	38.37	57.72	9.87

Lost A −1, 1, 2, 3

Obs ?

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1879phae.proj.1402R

28

1879 Oct. 8

δ Bas. Min.

18 11 21

+86 36

m	m	m	m	m	m
50 2 45.9	52.6	3 0.5	8.8	15.0	
53.2	59.9	7.9	16.2	22.0	
0.5	7.7	14.9	23.6	29.1	
56.1	2.6	10.1	19.8	24.6	
21 57	28	33.4	684	907	
53.92	0.70	8.35	17.10	22.67	

False stroke before δ

η Serpentis

18 15 3

−2 56

m	m	R	R	m
20 3 28.5	4 51.9	51.7	51.2	51.9
42.8	5.7	6.2	6.1	5.8
54.0	16.9	16.9	16.9	16.5
43.9	6.9	6.8	6.8	6.4
1695	214	216	210	206
42.37	5.35	5.40	5.25	5.15
	5.25	5.32		

σ Sagittarii

18 47 46

−26 27

m	m
50 3 18.1	4 23.1
34.9	39.1
45.9	49.1
34.1	39.1
1330	1504
33.25	37.60

λ Aquilae

18 59 50

−5 4

m	m	R	R	m
30 1 19.2	2 42.8	43.1	43.1	42.9
32.7	55.1	56.0	55.9	55.1
44.2	7.1	7.1	7.1	7.0
338	56.9	57.0	57.2	56.9
1299	2219	2232	2233	2219
32.47	55.47	55.80	55.82	55.47
	55.47	55.81		

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1879phae.proj.1402R

χ Draconis

18 23 14

+72 41

m	m	m	m
45 3 9.9	36.7	4 22.9	39.2
16.9	43.2	29.1	45.9
26.0	52.1	38.4	54.7
21.0	46.9	32.8	50.0
738	1789	1232	1898
18.45	44.72	30.80	47.45

51 H. Cephei L.C.

6 43 16

+92 49

m	m	m	m	m
40 3 58.9	53.9	3 40 0	34.9	31.2
6.3	0.3	47.9	41.9	39.1
12.6	7.9	54.2	48.9	45.9
5.3	0.1	47.1	42.2	38.9
231	22	1892	79	1549
5.78	0.55	47.30	41.98	38.72

A 21 (21) A +1 21

δ Draconis

19 12 31

+67 27

m	m	m	m
0 2 54.9	52.0	3 13.9	28.1
1.9	57.3	20.0	34.1
10.1	6.1	28.7	43.0
5.2	2.0	24.1	39.9
2521	2374	67	1451
3.02	59.35	21.67	36.27

T Draconis

19 17 52

+73 8

m	m	m	m	m
20 1 8.9	33.9	2 5.0	20.2	39.1
15.1	39.2	10.5	25.1	45.0
24.0	48.9	19.6	35.2	54.1
18.9	44.3	14.9	30.6	49.9
669	1663	500	1111	1881
16.72	41.57	12.50	27.78	47.02

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1879phae.proj.1402R

30 001-81879

9. 38 59 C=46875
+24 20

	R	R
5- 8°	57.2	57.2
	80	81
	129	131
	108	106
	2689	2690
	7.22	7.25
	7.23	

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1879phae.proj.1402R

001 72 11 8

51 Cephei

6 43 16 C=46.875

+92 49

	R	R
40 4	44.7	32.7
	49.0	37.9
	51.0	39.9
	52.3	38.7
	197.0	292
	49.25	37.30

Lost 1 last 5 m

o Sagittarii

18 47 46

−26 4

	R	R
50 3	6.1	6.2
	20.3	20.1
	26.1	26.3
	20.8	20.4
	73 3	730
	18.32	18.25
	18.28	

λ Aquilae

18 59 50

−5 4

m	R	R	m
30 1	23.0	23.2	23.2 23.6
	34.1	33.1	33.7 33.2
	41.0	40.9	40.8 40.1
	36.2	35.8	36.0 36.7
	1343	1330	1337 1336
	33.57	33.25	33.42 33.40
	33.48	33.33	

Lost Aql 2 3 4 5

β Cygni

21 27 47

+29 44

m	m	R	R	m
40 4	21.8	45.0	35.9	35.4 35.8 35.6
	30.2		43.7	43.3 43.4 43.4
	33.7		47.1	47.2 47.5 47.8
	32.2		47.1	47.3 47.4 47.5
	1179		1738	1732 1741 1743
	29.47		43.45	43.30 43.52 43.57
			43.51	43.41

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1879phae.proj.1402R

32

1879 Oct. 12

β Aquarii

21 25 11

−6 6

m	m	R	R	m
30 3 31.2	4 52.2	52.1	52.0	52.0
41.1	2.9	3.1	3.2	2.9
48.1	8.9	9.0	9.2	9.6
43.6	4.6	4.9	4.9	4.9
40	8.6	9.1	9.3	9.4
41.00	2.15	2.27	2.32	2.35
	2.25	2.29		

ε Pegasi

21 38 14

+9 19

m	m	R	R	m
5 3 29.1	4 53.9	53.3	53.3	53.8
40.2	4.9	4.9	4.3	4.7
45.2	8.9	8.9	9.1	9.1
41.7	5.3	5.8	5.9	5.2
62	12.8	12.9	12.6	12.8
41.55	3.20	3.22	3.15	3.20
	3.20	3.18		

ε Leonis

9 38 59

+24 20

	R
5 4	44.3
	54.8
	57.2

Adjustment ill

after this ~~star~~

δ Leonis

11 7 40

+21 11

m	m	R	R	m
15 2 37.6	4 1.1	0.9	0.8	0.9
47.0	10.6	11.0	11.3	11.0
49.0	12.2	12.0	12.3	12.8
50.9	13.2	13.6	13.6	13.1
18 4 5	37.1	37.5	38.0	37.8
46.12	9.27	9.37	9.50	9.45
	9.36	9.43		

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1879phae.proj.1402R

α Aquarii
21 59 34
−0 54

	m	m	R	R	m
20	1 53.4	3 24.9	24.9	24.7	24.7
	5.0	35.1	35.2	35.3	35.2
	11.1	41.9	42.0	42.0	42.1
	6.9	37.9	37.8	37.9	37.9
	16.4	13.98	13.99	13.99	13.99
	4.10	34.95	34.98	34.98	34.98

ε Pegasi
9 21 38
−58

	R	R
35	2 6.4	6.1
	17.5	18.1
	2.48	2.49
	19.8	19.8
	6.87	6.89
	17.17	17.22

Adjusted Illumi
19.19 [illegible]
via [illegible]
Mrs Rosenbluth

β Leonis
11 42 53
+15 15

	m	R	R	m
10	3 48.2	48.0	48.0	47.9
	58.1	58.9	59.3	58.8
	3.1	3.0	2.5	3.1
	0.0	0.2	0.0	0.0
	22.94	23.01	22.98	23.00
	57.35	57.52	57.45	57.50
	57.42	57.48		

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1879phae.proj.1402R

1879 Oct 12–13
Sun C = 46.875
13 13 50
−7 49

	m	m
0 0	44.1	30 42.0
	54.1	51.8
	3.1	0.2
	57.0	54.7
	21 8 3	20 8 7
	54.57	52.17

Seeing very bad

Oct. 13
α Bootis
14 10 8
+19 49

	m	m	R	R	m
35	4 55.9	40	127.7	21.0	20.3 21.1
	7.9		31.1	31.0	30.8 29.9
	4.1		26.5	27.1	27.5 29.1
	7.4		32.9	33.9	33.1 31.3
	15 3		11 16	11 30	11 17 11 14
	3.82		27.90	28.25	27.92 27.85
			27.87	28.08	

ε Pegasi
21 38 14
+9 19

	m	m	R	R	m
5 3	31.9	4 51.9	52.0	51.7	51.6
	44.1	47.2	47.4	47.2	47.1
	47.4	47.0	47.0	46.8	47.0
	45.1	45	45.2	45.2	47
	85	76	86	79	74
	42.12	1.90	2.15	1.98	1.85
		1.87	2.06		

α Aquarii
21 59 34
−0 54

	m	m	R	R	m
20 1	53.1	3 11.9	11.8	12.1	11.9
	6.2	24.1	24.3	24.6	24.1
	10.8	29.1	29.0	29.0	29.0
	7.5	25.9	26.7	26.8	26.0
	25 76	9 10	9 18	9 25	9 10
	4.40	22.75	22.95	23.12	22.75
		2275	23.03		

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1879phae.proj.1402R

ζ Cygni

21 7 47
+29 44

m	m	R	R	m
40 4 18.8	45 0 21.9	21.4	21.3	22.1
28.9	31.1	31.6	31.7	31.5
30.2	33.9	33.8	33.1	33.5
30.9	34.9	35.1	35.3	35.0
10 88	18	19	14	21
27.20	30.45	30.47	30.35	30.52
	30.48	30.41		

β Aquarii

21 25 11
−6 6

m	m	R	R	m
30 3 29.5	4 55 1	54.7	54.7	57.5
41.0	4.6	7.8	7.1	7.1
46.4	11.5	11.7	11.9	11.9
42.8	8.9	9.0	8.7	8.5
15 97	26 31	26 32	26 24	26 20
39.92	5.78	5.80	5.60	5.50
	5.64	5.70		

ζ Can. Min.

7 32 58
+5 32

m	m	R	R	m
55 1 4.0	2 28.7	28.7	28.4	28.2
17.2	42.0	42.2	42.2	41.9
18.0	42.6	42.3	42.1	43.1
11.1	41.8	42.3	42.8	42.2
5 63	15 51	15 55	15 55	15 54
14.07	38.78	38.87	38.87	38.85
	38.81	38.87		

α Hydrae

9 21 38
−8 8

m	m	R	R	m
35 0 52.9	2 18.1	18.2	18.0	18.7
3.3	28.1	28.7	28.7	28.1
7.4	32.9	32.3	33.1	32.9
4.9	29.4	28.7	28.0	28.1
85	10 86	10 79	10 78	10 78
2.12	27.12	26.98	26.95	26.95
	27.03	26.96		

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1879phae.proj.1402R

1879, Oct. 13

ζ Leonis

10 1 56

+12 33

m	m	R	R	m
55 0 13.1	1 25.7	25.6	25.1	25.2
24.1	25.9	36.2	36.3	36.9
26.1	36.3	38.6	38.4	38.6
24.2	35.5	35.7	35.8	35.3
75	1354	1361	1356	1352
21.87	33.85	34.02	33.90	33.80
	33.82	33.96		

ζ Leonis

10 9 57

+24 1

m	m	R	R
25 2 36.7	4 8.2	8.2	7.2
46.1	17.9	16.0	17.8
46.3	16.9	18.1	17.9
46.2	17.9	18.6	18.0
1753	609	629	609
43.82	15.22	15.72	15.22
	15.22	15.46	

β Leonis

11 42 53

+15 15

m	m	R	R	W
10 3 47.1	15 0 11.4	11.9	11.8	11.9
58.9	22.1	22.6	23.4	22.1
0.2	24.9	25.0	25.1	25.1
55.8	22.0	21.0	21.7	21.1
2220	04	05	20	02
55.50	20.10	20.12	20.50	20.05
	20.07	20.31		

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1879phae.proj.1402R

γ' Leonis c = 46.875

10 13 18

+20 27

m	m	R	R	m
0 2 36.1	8 8.1	7.9	8.0	8.4
45.2	18.7	18.8	18.8	18.1
47.1	19.2	19.4	19.2	19.6
45.9	18.4	18.1	18.0	18.1
17 43	644	642	640	642
43.57	16.10	16.05	16.00	16.05

Aug c

δ Leonis c = 46.826

11 7 40

+21 11

m	m	R	R	m
15 2 52.2	3 53.0	54.1	54.7	55.8
7.2	8.1	9.0	9.0	8.6
7.0	8.1	8.2	7.8	8.9
6.1	7.0	6.0	6.1	6.7
125	162	173	176	190
3.12	4.05	4.32	4.40	4.75
	4.40	4.36		

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1879phae.proj.1402R

1879 Oct. 13–14

Sun c = 46.826

13 17 33

−8 12

m	m
20 3 11.1	55 0 56.3
22.9	7.1
29.7	14.8
22.9	8.1
66	2663
21.65	6.57

Both limits in R.A. & S.

Seeing good.

α Bootis

14 10 8

+19 49

m	m	R	R	m
35 4 59.9	40 1 22.7	20.4	19.9	19.9
10.2	31.6	31.6	31.3	31.4
8.9	26.1	27.3	28.0	28.1
10.9	31.1	30.6	30.3	29.8
2699	1110	1099	1095	1092
7.47	27.75	27.47	27.37	27.35
	27.52	27.42		

ν Draconis

18 55 52

+71 8

m	m	m	m	m
20 1 5.2	22.3	53.8	2 14.1	27.9
12.7	28.2	59.9	19.5	34.0
14.9	31.1	2.7	22.9	36.8
14.8	31.7	2.9	22.9	37.2
76	1133	2393	844	1359
11.90	28.32	59.82	21.10	33.97

ζ Aquilae

18 59 50

−5 4

m	m	R
30 1 50.9	2 48.1	48.2
3.7	0.9	1.0
9.7	6.1	6.4
2.9	0.9	0.2
72	2360	2358
1.80	59.00	58.95

Rej Stokes legend

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1879phae.proj.1402R

δ Ursae Min.
18 11 21
+86 36

	m	m	m	m	m	m
50 3	51.9	57.5	4 1.2	5.1	8.1	11.1
	58.4	5.3	8.7	12.1	15.1	18.1
	59.2	5.4	9.6	13.7	15.4	19.1
	59.9	5.1	9.1	12.6	15.8	18.9
	294	133	286	435	544	272
	57.35	3.32	7.15	10.87	13.60	16.80

A 4° to 9°

51 Ursae Cephei L.G.
6 43 16
+92 49

	m	m	m	m	m	m
45 0	2.9	4' 52.6"	45.5	38.7	33.1	26.3
	9.3	58.5	53.0	45.3	40.3	33.4
	10.2	59.8	53.2	46.7	41.1	34.7
	7.9	57.9	50.1	43.7	38.1	31.2
	303	288	18	144	1526	156
	7.57	57.20	50.45	43.60	38.15	33.90

δ Draconis
19 12 31
+67 27

	m	m	m	m
0 2	9.9	23.2	47.9	186
	16.0	29.1	53.8	24.0
	18.3	32.1	56.2	27.1
	19.0	31.9	56.9	26.1
	632	1163	2148	958
	15.80	29.07	53.70	23.95

Gr. 1308 L.G.
7 18 16
+111 17

	m	m	m	m
15 0	12.9	10 4 54.1	5.1	8 38.0
	20.2	2.1	14.0	46.3
	18.6	0.2	12.7	45.2
	16.3	56.0	9.4	41.8
	680	2324	415	1713
	17.00	58.10	10.37	42.82

* Perhaps lost last stroke

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1879phae.proj.1402R

1879 Oct. 14

ζ Cygni

21 7 47

+29 44

m	~~s~~	m	R	R	m
40 4 14.6	45 0	36.1	36.3	35.7	36.4
26.1		46.2	47.1	46.7	46.6
28.9		49.9	50.0	50.1	50.3
25.0		47.1	47.0	47.4	46.8
946		1794	1804	1799	1801
23.65		44.85	45.10	44.98	45.02
		44.93	45.04		

β Aquarii

21 25 11

−6 6

m	m	R	R	m
30 3 34.9	35 0.4	0.6	0.7	0.2
47.7	13.6	14.0	13.7	13.9
546	21.0	20.3	20.8	20.1
46.1	13.1	13.2	13.0	12.9
1833	481	481	482	481
45.82	12.02	12.02	12.05	12.02
	12.02	12.03		

Gr. 130 8

7 18 16

+68 43

m	m	m
45 2 3.2	18.1	3 2.2
8.4	23.4	7.3
11.2	26.3	9.9
12.1	27.6	11.9
349	954	313
6.72	23.85	7.82

β Cam. Min.

7 20 35

+8 32

m	m	R	R	m
55 1 14.9	2 38.9	38.2	37.9	38.1
26.9	50.8	51.3	50.9	50.9
31.1	54.7	55.0	54.9	54.0
25.0	49.1	49.1	49.2	49.9
979	1935	1936	1929	1929
24.47	48.37	48.40	48.22	48.2
	48.29	48.31		

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1879phae.proj.1402R

ε Pegasi

21 38 14

+9 19

m	m	R	R	m
5 3 34.0	0 22	1.9	2.1	22
47.1	14.4	15.0	15.0	15.1
52.1	19.8	19.9	19.1	19.3
45.8	13.9	14.3	14.0	13.9
17 90	503	511	502	505
44.75	12.57	12.78	12.55	12.62
	12.59	12.66		

ζ Aquarii

21 59 34

−0 54

m	m	R	R	m
20 1 56.1	3 16.4	16.0	16.6	16.0
9.6	29.1	29.8	29.9	29.5
15.1	36.1	36.8	36.8	35.9
7.4	28.5	28.8	28.7	28.0
268 2	1101	1114	1120	1094
7.05	27.52	27.85	28.00	27.35
	27.43	27.92		

Gr. 2900 L.C

19 28 59

+100 38

m	m	m	m
50 3 25.1	12.1	2 55.8	38.9
31.1	17.8	1.7	45.6
30.9	17.0	0.9	45.3
30.1	16.9	0.2	44.9
11 72	238	2386	1747
29.30	15.95	59.65	43.67

ζ Can. Min.

7 32 58

+5 32

m	m	R	R	m
55 1 1.8	2 30.4	30.3	30.2	30.1
16.1	44.1	44.3	44.8	44.2
18.2	41.3	46.9	46.5	45.1
13.9	42.9	43.0	43.0	41.9
500	37	45	45	33
12.50	40.92	41.12	41.12	40.82
	40.87	41.12		

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1879phae.proj.1402R

42

1879 Oct. 14

ζ Leonis

10 9 57

+24 1

	m	R	R	M
25 2	39.3	39.4	39.2	39.9
	50.1	50.3	50.3	50.1
	52.1	52.9	52.8	52.1
	50.2	50.0	50.9	50.1
	1917	1926	1932	1922
	47.92	48.15	48.30	48.05
	47.98	48.22		

γ' Leonis

10 13 18

+20 27

	m	m	R	R	M
0 1	37.1	2 57.9	57.4	57.4	57.1
	48.0	9.1	8.9	9.0	8.9
	52.1	11.9	11.8	12.0	11.6
	47.4	8.2	8.0	8.2	7.9
	1846	2671	2661	2666	2655
	46.15	6.78	6.52	6.65	6.37
		6.57	6.58		

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1879phae.proj.1402R

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1879phae.proj.1402R

1879 Oct. 14–15

Sun C=46.826

13 21 16

−8 34

m	m
45 0 25.9	15 3 13.7
39.1	26.4
49.8	37.9
40.0	27.0
15 48	10 50
38.70	26.25

Both limbs in R.f. + S.

Seeing very good indeed.

ε Aquilae

1944 B

+8 33

R R

25 1	9,3	9.1
	23.2	23.7
	30.9	31.0
	23.1	23.3
	8 65	8 71
	21.62	21.78
	21.70	

ζ Cygni

21 7 47

+29 44

m	m	m	R	R	m
40 4 14.0	45 0	34.7	34.5	34.6	34.9
26.9		45.4	46.0	46.0	45.1
31.5		51.1	51.7	51.0	51.0
26.9		48.0	48.0	48.3	47.9
9 9 3		179 2	180 2	179 9	178 9
24.82		44.80	45.05	44.98	44.72
		44.76	45.01		

ε Pegasi

21 38 14

+9 19

m	m	R	R	m
5 3 28.2	4 54.5	54.4	53.6	54.1
41.9	8.1	8.7	8.5	8.1
46.0	13.5	14.7	15.0	13.5
42.1	7.1	7.8	8.0	7.2
0 2	26 35	26 56	26 51	26 29
40.05	5.87	6.40	6.27	5.72
	5.79	6.33		

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1879phae.proj.1402R

θ Aquilae

20 5 4

−1 11

R R

35 4 49 48.7

38 38

11.3 11.0

5.0 4.8

24.96 .83

2.40 2.07

2.23

Rej 1.51

α₂ Capricorni

20 11 20

−12 55

R R

2 2 19.7 19.4

35.3 35.2

45.3 45.0

35.2 35.0

13.55 18.49

33.87 33.72

33.89

λ Aquarii

21 59 34

−0 54

m	m	R	R	m
20 1 56.7	3 20.0	19.7	19.7	19.1
10.1	33.1	33.1	33.3	33.2
17.5	41.1	41.3	41.4	41.2
10.2	32.4	33.4	33.9	33.9
27 45	12.66	12.75	12.83	12.74
8.62	31.65	31.87	32.07	31.85
	31.75	31.97		

η Pegasi

22 37 20

+29 35

m	m	R	R	m
50 2 50.1	4 6.9	6.7	6.3	6.3
2.2	18.1	18.6	18.9	18.2
5.2	22.4	22.6	22.3	21.9
2.0	18.4	19.8	19.8	19.1
23 9 5	6.61	6.77	6.73	6.55
59.87	16.52	16.92	16.82	16.37
	16.45	16.87		

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1879phae.proj.1402R

1879 Oct. 15

ζ Pegasi

22 58 44

+14 33

m	m	R	R	m
50 4 40.4	55 0 55.9	55.9	55.3	56.2
53.5	9.1	9.3	9.6	9.1
59.1	15.4	15.9	15.7	15.2
52.6	9.7	9.4	9.6	9.4
56	27 01	27 05	27 02	26 99
51.40	7.52	7.62	7.55	7.47
	7.49	7.58		

ζ Androm.

0 2 8

+28 25

m	m	R	R	m
0 2 50.3	4 4.7	4.4	4.1	4.0
1.0	15.0	15.4	15.6	15.0
4.8	18.3	19.0	19.1	18.1
3.0	16.1	16.7	16.4	16.4
23 91	54 1	55 5	55 2	53 5
59.78	13.52	13.87	13.80	13.37
	13.45	13.83		

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1879phae.proj.1402R

γ Pegasi

0 7 0

+14 31

	m	m	R	R	m
55 2	23.0	3 30.2	30.9	30.3	29.9
	36.6	43.1	43.6	43.8	43.2
	42.4	49.9	50.0	49.9	49.3
	35.9	43.1	43.8	43.7	43.1
	13 79	63	1683	77	1655
	34.48	41.57	42.07	41.92	41.37
		41.47	41.99		

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1879phae.proj.1402R

48

1879 Oct. 16

α Bootis C=46.826

14 10 8

+19 49

	m		m
S	40	0	29.3
			39.8
			47.4
			44.3
			16 08
			40.20
		1	26.8
			37.4
			42.0
			41.7
			14 79
			36.98

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1879phae.proj.1402R

1879 Oct. 18

γ Aquilae C = 46.826

19 40 30
+10 19

m	m	R	R
5.3 43.6	10 0	14.1	14.1	13.7
55.1		24.7	24.9	25.3
1.1		31.9	32.1	32.2
57.1		28.1	29.0	28.4
21 69		9 88	1001	996
54.22		24.70	25.02	24.90
			24.96	

ζ Aquilae

19 44 53
+8 33

m	m	R	R
50 4 54.2	6 5 1	23.6	23.9	23.0
7.1		35.0	35.8	35.3
12.1		41.9	41.9	41.9
6.9		36.4	37.5	37.6
26 03		1369	1391	1378
5.07		34.22	34.78	34.45
			34.61	

β Aquilae

19 49 22
+6 6

m	m	R	R	m
20 1 30.7	2	50.0	50.0	49.4	49.2
44.1		3.3	3.8	3.4	3.1
49.9		8.1	8.9	8.9	8.9
44.9		3.7	5.0	4.9	3.9
96		57	77	66	51
42.40		1.42	1.92	1.65	1.27
		1.35	1.78		

δ Aquilae

20 5 4
−1 11

m	m	R	R	m
35 3 38.1	4	46.3	46.5	46.0	46.4
51.1		59.9	0.0	59.7	59.1
59.1		6.4	7.1	7.3	6.5
52.3		59.9	1.0	0.5	0.1
06		23 25	2346	2335	2324
50.15		58.12	58.65	58.37	58.10
		58.11	58.51		

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1879phae.proj.1402R

50

1879 Oct. 18

2 Capricorni.

20 11 20

−12 55

	m	m	R	R	M
2a 2	18.1	3 46.1	46.1	45.4	45.6
	32.0	0.1	0.0	0.2	0.1
	41.3	8.7	8.9	9.2	8.1
	32.9	0.0	0.7	0.2	59.9
	1243	2349	2357	2350	2337
	31.07	58.72	58.92	58.75	58.42
		58.57	58.83		

ζ Cygni

21 7 47

+29 44

	m	m	R	R	M
40 4	16.1	45.0	3 58	35.7	35.0	35.2
	25.9		45.0	45.0	45.0	44.9
	29.3		48.7	49.2	48.9	49.1
	26.9		47.9	49.0	48.6	47.9
	9 82		1794	1789	1775	1771
	24.55		44.35	44.72	44.37	44.27
			44.31	44.54		

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1879phae.proj.1402R

Oct-19

ζ Hydrae

9 21, 0 8

−8 8

25 1 5 29 5 26

1 2 1 2

5 2 4 9

5 3 0 9

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1879phae.proj.1402R

52

Oct 19 1879

ζ Cor Bor / C = 46826

13-29 34

+27 7

	R	R	R	d
20	1	188	204	203
		30,1	30,4	30,1
		35,3	35,7	35,4
		33,2	38,5	33,8
		1185	00	1196
		29,62	30,00	29,90
		29,84		

ζ Lupi

14-38 16

+64 6

	R	R	R	R
40	1	8,2	7,9	79
		21,8	21,0	21,5
		27,2	27,0	95,2
		22,7	22,7	23,0
		799	786	796
		19,98	19,65	19,90
		19,84		

β Aquilae

19 49 22

+6 6

	m	m	R	R	dd
20	1	28,3	2 54,0	53,4	53,0	53,7
		41,1	6,4	6,8	7,0	6,8
		44,5	9,9	9,9	9,8	9,9
		40,9	6,1	7,0	6,4	6,11
		1548	164	171	172	165
		38,70	4,10	4,27	4,30	4,12
			4,11	4,28		

θ Aquilae

20 5 4

−1 11

	m	m	R	R	dd
35	3	58,1	4 50,2	52,8	52,7	53,1
		10,1	5,9	6,3	6,0	5,7
		15,1	9,3	9,9	10,0	10,1
		10,9	5,7	5,8	6,2	5,0
		2842	141	148	149	139
		11,05	3,52	3,70	3,72	3,48
			3,50	3,71		

A + 5 + c.

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1879phae.proj.1402R

η Aquilae

19 40 30
+10 19

m	m	R	
5 3 54.0	10 01	21	12.1
5.8		23.0	23.9
10.2		29.9	28.9
6.1		25.9	26.2
2561		89	911
4.02		22.22	22.78

α Aquilae

19 44 53
+8 33

m	m	R	R
50 4 56.9	55	118.1	17.4	17.0
8.9		28.4	29.8	29.9
12.1		38.9	34.2	34.2
7.1		30.1	30.5	30.2
2650		1105	1119	1113
6.25		27.62	27.97	27.82
			27.89	

α² Capricorni

20 11 20
−12 55

m	m	R	R	m
20 2 18.9	3 42.5	42.0	41.9	42.1
32.9	55.0	55.7	55.6	55.1
38.5	1.9	1.8	2.1	1.9
31.9	54.9	54.6	54.7	54.1
1222	2143	2141	2143	2132
30.55	53.57	53.52	53.57	53.30
	53.43	53.55		

ζ Cygni

21 4 47
+29 44

m	m	R	R	m
40 4 19.3	2 50	34.5	37.1	37.2	37.9
28.0		45.1	46.1	46.3	45.1
28.9		47.0	47.4	47.4	47.1
29.8		49.1	49.8	49.3	48.5
1060		187	1804	1802	1786
26.50		44.67	45.10	45.05	44.65
		44.66	45.07		

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1879phae.proj.1402R

1879 Oct. 19

3 Aquarii

21 25 11

−6 6

m	m	R	R	m
30 3 29.8	4 54.0	53.6	53.3	53.5
39.9	4.1	4.9	4.9	4.1
43.9	9.0	8.7	8.7	8.5
40.9	4.5	5.1	4.8	4.9
154.5	116	123	117	110
38.62	2.90	3.07	2.93	2.75
	2.82	3.00		

ε Pegasi

21 38 14

+9 19

m	m	R	R	m
5 3 28.2	4 55.1	54.8	54.3	54.4
39.0	5.8	6.3	6.2	5.1
41.3	7.6	7.9	7.8	7.5
38.6	5.0	6.2	5.4	4.9
147.1	135	152	137	119
36.78	3.37	3.80	3.42	2.98
	3.17	3.61		

α Piscis Aust.

22 50 58

−30 16

m	m	R	R	m
40.1 12.3	2 32.1	31.6	31.8	32.1
24.1	44.1	44.9	44.7	44.2
25.1	44.9	44.3	44.9	44.9
23.0	42.1	42.7	42.9	42.1
45	32	35	43	33
21.12	40.80	40.87	41.07	40.82
	40.81	40.97		

α Pegasi

22 58 44

+14 33

m	m	R	R	m
50 4 40.1	55 0 55.5	55.0	54.6	55.1
49.7	5.0	5.8	6.0	5.1
52.3	7.7	7.8	7.9	7.7
48.0	4.9	5.5	5.3	4.4
190.1	131	141	138	123
47.52	3.27	3.52	3.45	3.07
	3.14	3.48		

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1879phae.proj.1402R

ζ Aquarii

21 59 34
−0 54

m	m	R	R	m
20 1 54.0	3 22.0	21.9	21.2	21.3
48	32.1	32.3	32.3	32.1
7.9	36.1	36.1	36.3	36.1
5.0	32.7	32.8	33.1	33.0
11.7	29	31	29	25
29.2	30.72	30.78	30.72	30.62
	30.67	30.75		

η Pegasi

22 37 20
+29 35

m	m	R	R	m
50 3 18.8	4 8.1	7.6	7.0	8.0
25.9	15.2	16.3	15.8	15.7
26.1	14.9	15.7	15.9	15.1
26.4	17.0	17.0	17.0	16.1
9.7.2	552	566	557	549
24.30	13.80	14.15	13.92	13.72
	13.76	14.03		

Lon. A 1 < 2
+1

α Androm.

0 2 8
+28 25

m	m	R	R
0 2 47.9	4 12.1	11.4	11.0
52.1	18.9	19.7	19.8
53.0	17.2	18.1	18.1
	19.3	19.4	19.7
	275	286	286
	16.87	17.15	17.15
		17.15	

γ Pegasi

0 4 0
+14 31

m	m	R	R	m
55 2 20.9	3 34.8	33.9	33.0	34.0
30.9	43.3	43.3	41.8	43.1
31.9	44.9	45.1	44.8	44.9
28.1	41.9	41.9	42.4	41.9
11.18	49	42	20	39
27.95	41.22	41.05	40.50	40.98
	40.10	40.77		

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1879phae.proj.1402R

56

1879. Oct. 19

α Hydrae

9 21 38

− 8 [illegible]

	Pa	Pb
35 Hy	52.9	52.6
	1.2	1.2
	5.2	4.9
	(5.3)	0.9

β Leonis

11 42 53

+15 15

m	m	R	R	M
10 3 48.2	15 0	12.5	12.2	11.9	12.6
	58.5	21.2	22.6	22.7	21.8
	56.7	20.9	21.2	20.9	20.9
	51.9	17.9	19.2	16.4	17.8
	15 3	7.28	7.32	7.19	7.31
	53 82	18.20	18.30	17.98	18.27
		18.23	18.14		

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1879phae.proj.1402R

1879 Oct. 19 - 20

~~13 40 0~~ Sun c = 46.826

~~10 24~~ 13 40 0

−10 24

m		m	
30 4	57.1	5 3	19.1
	6.6		28.1
	9.7		33.9
	6.6		26.9
	20 0		1080
	5.00		27.00

Oct 20

α Bootis

14 10 8

+19 49

m	m	R	R	m
40 0	50.3 1	39.1	39.0	38.8	39.5
	58.1	47.1	48.0	48.1	47.6
	59.9	47.1	46.9	47.1	47.9
	59.2	46.1	46.8	46.7	46.5
	27 5	1794	1807	1807	1815
	5687	44.85	45.17	45.17	45.37
		45.11	45.17		

Mid Minus Fore

α Serpentis c = 46826

15 38 18

+6 48

m		m	R	R	m
35 4	53.9	40 1	19.5	19.2	18.9	20.1
	5.0		30.1	30.8	31.0	30.1
	5.9		32.1	32.3	32.4	32.1
	30		30.1	30.0	30.7	30.1
	18		1118	1123	1130	1124
	1.95		27.95	28.07	28.25	28.10
			28.02	28.16		

β Aquarii c = 46.791

21 25 11

−6 6

m		m	R	R	m
30 3	38.0	4	56.6	56.5	56.0	56.0
	48.9		7.1	7.8	7.8	7.5
	52.6		10.0	10.9	11.0	9.9
	47.9		5.9	6.7	6.0	5.5
	1874		2596	2619	2608	2589
	46.85		4.90	5.47	5.20	4.72
			4.81	5.33		

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1879phae.proj.1402R

ε Bootis
14 39 42
+27 35

m	m	R	R	M
50 3 55.2	4 55.2	53.0	52.0	51.1
5.4	4.0	2.2	2.7	59.4
57.0	50.1	50.5	50.8	57.1
0.9	58.8	58.6	58.8	58.2
23 8 5				
59.62				

A change in the position of ε Bootis will without doubt take place here. Have seen one case before this. Sp dole

α Cor. Bor.
15 29 34
+27 7

m	m	R	R	M
20 1 22.1	2 45.1	44.1	43.7	44.9
30.1	52.4	52.7	52.7	52.0
30.9	52.9	52.7	52.7	52.5
30.9	52.9	53.0	53.0	52.9
11 40	33	25	21	23
28.50	50.82	50.62	50.52	50.58
	50.70	50.57		

ε Pegasi
21 38 14
+9 19

m	m	R	R	m
5 3 33.0	4 56.0	55.9	55.3	55.2
43.1	6.6	7.1	7.0	6.3
45.1	7.9	7.4	7.8	7.9
41.1	4.9	4.5	4.2	3.9
23	154	149	143	133
40.57	3.85	3.72	3.57	3.32
	3.58	3.65		

α Aquarii
21 59 34
−0 54

m	m	R	R	M
20 2 1.8	3 21.4	20.9	20.3	20.1
13.0	31.1	31.2	31.2	31.1
15.1	34.7	35.2	34.7	34.1
11.1	30.2	30.3	30.3	30.0
10	1174	1176	1165	1153
10.25	29.35	29.40	29.12	28.82
	29.08	29.26		

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1879phae.proj.1402R

1879. Oct. 20

35 Draconis L.C.

17 54 52

+103 1

	m	m	R	R	M
30	12.2	54.0	40.1	39.9	39.0
	16.1	57.1	44.9	45.0	44.9
	12.9	55.1	41.9	42.0	41.8
	15.4	57.6	44.0	44.0	44.0
	16.6	23.8	10.9	17.09	9.7
	14.15	55.95	42.72	42.72	42.42
			42.55	42.57	

A 6.54 W 8

3 observations last

δ Ursæ Min. L.C.

18 11 21

+79 3 24

	m	m	m	m
53	1.3	56.6	25.1	2 2.1
	5.1	59.8	27.2	5.1
	3.1	58.1	27.5	3.1
	2.9	58.7	28.1	4.6
	12.4	33.2	27.9	14.9
	8.10	58.30	26.97	3.72

After 4 Gem.

γ Geminorum

6 30 43

+16 30

	m	m	R	R	M
55	3 19.0	4 45.0	44.4	43.3	44.6
	26.7	53.4	54.3	53.9	53.2
	30.1	55.1	55.5	55.3	55.6
	26.2	52.8	52.0	52.3	52.3
	10.20	63	62	48	57
	25.50	51.57	51.55	51.20	51.42
		51.49	51.37		

51 Ho Cephei

6 43 16

+87 14

	m	m	m	m	m	m
15	1.26.9	36.5	38.8	51.0	2 19.9	22.0
	28.2	38.0	41.1	52.4	21.1	24.1
	27.1	37.1	40.0	51.1	20.1	23.1
	30.4	40.7	43.9	54.9	24.1	26.1
	11.26	15.23	38	94	52	143
	28.15	38.07	40.95	52.35	21.30	23.57

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μ Geminor.

6 15 38
+22 34

m	m	R	
50 4 53	55 0	39.1	31.8
14.0		40.8	41.2
12.6		39.9	40.0
13.3		41.9	42.0
52		1547	1550
11.30		38.67	38.75

χ Draconis L.C.

18 23 14
+107 19

m	m	m	m
10 3 19.9	2 55.0	30.1	8.2
22.9	58.9	34.1	12.4
19.7	55.9	30.8	8.9
22.1	57.9	32.9	11.1
846	277	79	406
21.15	56.92	31.98	10.15

ε Can. Maj.

6 53 5½
−28 48

m	m	R	R	m
10 4 17.1	15 0	35.0	35.0	34.3	35.0
29.1		46.2	46.8	46.9	46.9
29.1		46.9	47.3	47.2	46.4
25.9		45.0	45.1	44.9	45.2
10½		1731	1742	1733	1735
25.30		43.27	43.55	43.32	43.38
		43.62	43.43		

δ Can. Maj.

7 3 28
−26 12

m	m	R	R	m
35 3 18.9	4 39.6	39.4	38.2	39.0
31.1	51.4	52.4	52.3	67.9
32.9	52.4	52.5	52.7	53.1
29.9	48.9	49.8	49.6	50.0
1128	1923	1941	1928	1940
28.20	48.07	48.52	48.20	48.50
	48.28	48.36		

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1879phae.proj.1402R

1879 Oct. 20

δ Draconis

19 12 31

+11 2 33

m	m	m
0 1 41.1	55 4 50.6	39
44.2	54.8	9.1
39.1	49.8	4.1
39.1	49.1	2.1
35	43	19 2
40.87	51.07	4.80

I Draconis

19 17 52

+106 52

m	m	m
40 0 46.0	22.1	35 4 24.8
50.7	25.1	29.1
47.1	22.1	25.9
49.2	24.9	27.3
1930	14 2	27.1
48.25	23.55	26.76

ε Draconis

19 48 34

+110 2

m	m	R	R	m
25 4 56.9	27.1	26.2	25.9	26.5
59.9	29.9	30.8	30.7	30.3
55.1	26.8	26.4	26.3	25.9
56.2	28.0	28.2	28.6	28.7
28 1	31 8	11 16	11 15	11 04
57.02	27.95	27.90	27.87	27.60
	27.77	27.88		

Rejected all stations before middle wire

ζ Argus

8 2 23

−23 57

m	m	R	R	m
20 3 57.9	25 0 16.3	15.8	15.8	16.0
9.6	27.8	28.2	28.0	27.5
9.7	28.9	29.0	29.0	28.9
6.3	25.9	26.0	26.1	26.0
23 5	989	990	989	984
5.87	24.72	24.75	24.72	24.60
	24.66	24.74		

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1879phae.proj.1402R

β Can. Min

7 20 35

+8 32

	M	m	R	R	M
35	1 25.1	2 53.7	52.8	52.4	53.0
	35.4	2.1	2.8	3.0	2.6
	35.0	2.9	3.6	3.4	3.0
		0.2	0.2	0.5	0.2
		2389	2394	2393	2388
		59.72	59.85	59.82	59.70
		59.71	59.83		

α Can. Min.

7 32 58

+5 32

	M	m	R	R	M
55	16.4	2 42.9	42.1	42.1	42.0
	17.2	53.6	54.0	53.6	53.6
	16.6	52.5	53.0	52.7	52.6
	16.5	50.3	51.4	51.8	51.1
	27.2	1993	05	02	1993
	16.80	49.82	50.12	50.05	49.82
		49.82	50.08		

α Leon

10 1 56

+12 33

R	R
55.0	10.1	10.0
	19.6	19.4
	19.4	19.6
	19.0	18.0
	28.1	27.0
	17.02	16.75
	16.88	

γ Leo

10 9 57 +24 1

R	R
25.4	3.5	3.5
	12.3	12.2
	10.1	10.2
	11.2	11.0
	37.1	36.9
	9.27	9.22
	9.25	

Rej 1st

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1879phae.proj.1402R

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Oct 20 1879

γ' Leonis

10 13 16 + 20 27

	R	R
0 2	36.0	37.8
	47.0	48.7
	45.6	45.9
	45.3	45.0
	17 59	15 4
	43.98	43.85
	43.91	

ζ Leonis

11 7 40

+21 11

	R	R
15 2	43.1	42.7
	51.6	51.6
	49.9	49.7
	50.1	50.9
	19 47	19 49
	48.67	48.72
	48.69	

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1879phae.proj.14028

B Lev

11 4253
+15-15

R	R
1504.6	~~8.2~~
16.2	16.0
15.6	16.1
9.8	10.0
462	453
11.55	11.32
11.43	

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1879phae.proj.1402R

1879 Oct 20–21

Sun c = 46.791

13 43 48

−10 45

	m	m
55 1	33.1	25 4 24.9
	43.1	37.2
	57.9	44.1
	44.1	35.4
	17 22	14 16
	43.05	35.40

η Bootis.

13 48 55

+19 0

	m
25 3	27.9
	38.2
	43.0
	37.6
	1467
	36.67

Lost 1st wire
Rej. 2–8

2 Aquilae

19 44 53

+8 33

	m	m
55 0	1.6	1 28.1
	13.7	39.1
	18.9	44.9
	13.7	40.0
	4 7 9	15 21
	11.98	38.02

ε Draconis

19 48 34

+69 58

	m	m	m	m	m
30 1	25.3	52.2	17.5	36.6	54.0
	30.9	57.1	22.6	41.9	58.8
	37.1	2.0	28.9	47.2	4.9
	36.8	2.9	28.8	46.9	5.1
	13 01	23 42	9 78	17 26	24 28
	32.52	58.55	24.45	43.15	60.70

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1879phae.proj.1402R

α Cor. Bor.

15 29 34

+27 7

M	M	R	R	M
20 1 28.1	2 41.1	40.4	39.9	40.1
37.1	50.1	50.6	50.3	50.2
41.4	53.9	54.0	53.7	54.0
39.7	52.0	52.2	52.0	52.3
14 63	19 71	19 72	19 59	19 66
36.57	49.27	49.30	48.98	49.15
	49.21	49.14		

Perhaps last 1 of the middle strokes of the 9's.

γ Aquilae

19 40 30

+10 19

M	R
5- 8 51.2	54.6
7.1	7.7
12.3	12.4
5.8	9.4
26 24	26 41
5.60	6.02

~~5.81~~

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1879phae.proj.1402R

1879. Oct. 22

β Leonis C=46.791

1 4 2 53

+15 15

	m	mR	R	m
10 3 43.9	1.50	8.3	7.8	7.8	8.5
58.2		20.7	21.0	21.1	20.0
3.9		27.1	27.0	27.2	27.6
3.5		22.9	22.9	23.0	22.4
2245		7.90	7.87	7.91	7.85
56.12		19.75	19.67	19.78	19.62
		19.68	19.72		

A_2 first A 2 3 4
1.51 ? Clouds.

ε Leonis

1.0 0 37.8 37.3
46.4 47.0
50.0 50.2
49.9 49.3

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1879phae.proj.1402R

1879. Oct. 23

~~Sun~~ ζ Cygni c=46.809

21 7 47

+29 44

m	m	R	R	m
40 4 43.1	45 0 39.3	38.7	38.3	38.9
52.1	47.1	48.0	47.9	47.6
57.0	53.1	53.7	53.2	53.1
55.1	52.1	52.4	53.0	52.1
73	1922	1928	1924	1917
51.82	48.05	48.20	48.10	47.93
	47.99	48.15		

α Hydrae

9 21 38

−8 8

m	m	R	R	m
35 0 52.1	2 12.9	12.7	12.3	12.9
2.4	23.5	24.0	24.1	23.1
11.1	31.5	32.0	31.9	31.9
4.9	24.9	25.0	24.8	25.1
105	928	937	931	920
2.62	23.20	23.42	23.27	23.00
	23.10	23.35		

ε Leonis

9 38 59

+24 20

m	R	R	m
10. 0 37.8	37.3	37.0	37.1
46.4	46.4	46.8	46.6
50.0	50.0	50.0	49.3
49.9	49.3	49.8	49.9
1841	1830	1836	1829
46.02	45.75	45.90	45.72
45.87	45.82		

α Leonis

10 1 56

+12 33

m	m	R	R	m
55 0 10.9	1 35.1	35.0	34.3	34.4
20.2	44.9	45.5	45.7	45.6
26.3	51.0	51.0	51.0	51.0
23.1	47.5	48.4	48.0	48.1
05	1785	1799	1790	1801
20.12	44.62	44.98	44.75	45.02
	44.82	44.86		

Lost A +1

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1879phae.proj.1402R

70

1879 Oct. 23

Leonis

10 13 18

+20 27

		m		m	R	R	m
Q	1	36.1	0	2 56.4	55.6	55.8	55.9
		45.9		5.9	6.1	6.7	5.9
		50.3		9.1	9.6	9.7	9.3
		48.7		8.1	8.4	9.3	8.1
		181.0		195	197	215	192
		45.25		4.88	4.92	5.37	4.82
				4.85	5.15		

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1870phae.proj.1402R

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1879phae.proj.1402R

1879 Oct. 25

γ Aquilae C=46.809

19 40 30
+10 19

	m	m
5	3 50.2	10 01.69
	58.1	23.4
	54.1	24.0
	56.4	23.9
	23.8	8.2
	55.95	22.05

Seeing Newbod

α Aquilae

19 44 53
+8 33

	m	m	R	R	m
55	0 1.8	1	23.0	22.3	21.6	22.1
	9.2		30.1	31.0	30.9	29.9
	9.2		30.1	30.6	30.7	30.1
	6.9		28.0	28.3	28.2	28.1
	27.1		11.12	11.22	11.14	11.07
	6.78		27.80	28.05	27.85	27.67
			27.73	27.95		

η Bootis

13 48 55 C=46.759
+19 0

	m
25	3 42.9
	50.1
	49.2
	47.1
	1893
	47.32

Seeing very bad
Lost A, 1, 2, 3
-1

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1879phae.proj.1402R

β Aquilae

19 49 22

+6 6

	m	m	R	R	m
20	2 13.5	2 5.72	5.82	5.57	5.68
	22.4	6.7	7.3	7.6	7.0
	22.1	6.1	6.0	5.8	5.8
	19.5	8.8	4.3	4.2	3.2
	7.75	13.8	13.8	13.3	12.8
	19.37	3.45	3.45	3.32	3.20
		3.32	3.38		

γ' Leonis

10 13 18 C=46.809

+20 27

	m	m	R	R	m
0	1 48.4	0 3 15.7	15.70	14.8	15.2
	52.9	20.1	22.0	21.8	21.1
	49.9	17.3	17.5	17.8	17.9
	50.1	16.9	18.0	16.3	18.0
	13	7.08	7.25	7.27	7.22
	50.32	17.70	18.12	18.17	18.05
		17.87	18.15		

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1879phae.proj.1402R

~~74~~ 79 Oct. 25–26

Sun C = 46759

14 2 52

– 12 30

m		m
40 1 0.9	10 4	13.0
9.9		22.8
10.9		23.0
7.1		17.2
28.8		76.0
7.20		19.00

Seeing pretty fair.

Oct. 25–26

α Bootis

14 10 8

+19 49

m	m	R	R	m
40 0 23.9	1 10.6	49.3	48.8	49.9
30.8	56.3	57.4	57.8	56.9
30.1	55.9	56.3	56.2	56.4
28.0	54.9	55.5	55.1	55.8
11 28	177	185	179	2190
28.20	54.42	54.62	54.48	54.75

ε Pegasi

21 38 14

+9 19

m		m	R	R	m
5 4 5.0	10 0	5.2	4.8	4.8	5.8
14.9		14.3	15.6	15.6	14.9
15.0		15.2	15.3	15.2	15.1
11.8		13.1	12.6	12.8	12.8
6.7		7.8	8.3	8.4	8.6
11.67		11.95	12.07	12.10	12.15
		12.05	12.08		

α Aquarii

21 59 34

– 0 54

m	m	R	R	m
20 2 0.5	8 2.19	22.1	22.3	219
10.2	32.3	32.9	33.1	32.8
11.7	34.9	35.0	35.0	35.0
9.0	29.9	30.1	29.9	29.5
29.4	1190	1201	1203	1192
7.35	29.75	30.02	30.07	29.80
	29.77	30.05		

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1879phae.proj.1402R

Oct. 26

ε Bootis

14 39 42

+27 35

m	m	R	R	m
50 3 51.1	55 01 1.2	11.2	10.6	11.6
59.1	19.1	20.1	20.4	20.0
53.9	12.9	12.6	12.7	12.9
54.1	13.4	13.3	13.8	14.0
1.82	16.9	57.2	57.5	58.5
54.55	14.22	14.30	14.38	14.62
	14.42	14.34		

ζ Serpentis

15 38 18

+6 48

m	m	R	R	m
40 0 48.8	48.3	48.1	49.1	
56.4	58.1	58.1	58.2	
57.8	58.2	58.1	58.8	
56.6	57.0	56.8	57.5	
2.16	2.16	2.11	2.26	
55.40	55.40	55.27	55.65	
55.52	55.33			

A, lost

η Pegasi

22 37 20

m	m	R	R	m
50 2 49.0	4 8.9	8.8	8.8	8.8
57.4	17.1	17.2	17.1	17.0
55.8	15.1	15.3	15.3	15.0
54.1	14.9	14.9	15.4	15.1
2.63	56.0	56.2	56.6	55.9
54.07	14.00	14.05	14.15	13.98
	13.99	14.10		

α Piscis Aust.

22 50 58

−30 16

m	m	R	R	m
40 1 11.9	32.9	33.6	32.8	33.3
24.5	46.2	46.3	46.7	46.3
23.6	45.1	45.3	45.8	45.1
21.2	42.1	42.2	42.2	42.1
8.12	16.73	16.74	16.75	16.68
20.30	41.82	41.85	41.87	41.70
	41.76	41.86		

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1879phae.proj.1402R

1879 Oct. 26

2 Pegasi

2 58 44
+14 33

m	m	R	R	m
50.4 53.1	55 0 53.1	53.2	52.9	53.4
4.2	2.9	3.6	3.8	3.8
5.0	3.9	4.2	4.7	4.8
0.1	1.5	1.2	1.2	1.2
24	1.4	2.2	2.6	2.6
0.60	0.35	0.55	0.65	0.65
	0.50	0.60		

2 Androm.

0 2 8
+28 25

m	m	R	R	m
0 2 52.0	3 57.0	50.8	50.1	50.6
59.9	58.1	58.2	58.0	57.8
56.2	52.4	54.9	54.9	54.9
59.2	57.1	56.9	56.9	56.6
27 3	20 6	20.8	19.9	20.1
56.82	55.15	55.20	54.98	55.02
	55.08	55.09		

ε Leonis

9 38 59
+24 20

m	m	R	R	m
5 4 27.4	10 0 42.6	42.2	41.8	42.2
24.9	48.7	49.0	49.0	49.1
21.2	45.2	45.7	45.9	45.8
22.7	47.2	47.2	47.0	46.9
96.2	23.7	24.1	23.7	24.0
24.05	45.92	46.02	45.92	46.00
	45.96	45.97		

2 Leonis

10 1 56
+12 33

m	m	R	R	m
55 0 37.0	1 30.9	30.7	30.4	31.3
44.1	38.9	39.3	39.7	39.3
44.4	38.9	38.9	38.9	38.4
41.5	36.8	36.3	36.7	36.1
70	25.5	25.2	25.7	25.1
41.75	36.38	36.30	36.42	36.27
	36.32	36.36		

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1879phae.proj.1402R

γ Pegasi

0 4 0

+14 31

m	m	R	R	m
55 2 11.9	3 31.0	31.4	30.2	30.7
21.0	39.9	40.1	40.2	39.4
21.0	40.1	39.3	39.4	39.7
18.0	36.9	37.2	37.2	37.0
719	1479	1480	1470	268
17.98	36.98	37.00	36.75	36.70
	36.84	36.87		

ζ Hydrae

9 21 38

−8 8

m	m	R	R	m
35 0 57.8	2 16.9	16.5	16.7	16.0
6.1	24.1	24.4	24.5	24.1
7.8	25.9	26.3	26.7	26.0
3.1	21.9	21.6	22.0	21.0
148	88	88	99	71
2.96	22.20	22.20	22.47	21.78
	21.89	22.33		

ζ Leonis

10 9 57

+24 1

m	m	R	R
2[illegible] 2 53.9	4 7.7	7.4	7.0
1.8	14.9	15.0	15.3
57.3	11.1	12.0	12.0
59.0	11.6	12.0	11.9
2320	53	64	62
58.00	11.32	11.60	11.55
	11.32	11.57	

γ' Leonis

10 13 18

+20 27

m	m	R	R	m
0 1 43.6	3 4.2	3.9	4.2	4.0
51.1	12.1	12.6	12.8	12.0
49.1	10.7	10.0	10.1	9.9
48.0	9.1	8.9	9.3	9.3
320	361	354	364	352
48.00	9.02	8.85	9.10	8.80
	8.91	8.97		

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1879phae.proj.1402R

Oct. 26

78 5 Leo

11 7 40

+21 11

R R

15 2 49.9 49.7

54.0 55.5

53.9 53.6

54.8 55.0

15.6 15.8

53.90 53.95

53.92

β Leonis

11 42 53

+15 15

m m R R m

10 4 17.2 15.0 14.2 14.0 13.2 14.2

27.0 28.1 24.6 24.1 28.5

25.4 22.9 22.2 22.5 22.4

21.4 20.1 19.9 19.8 19.1

11.0 03 07 7.96 7.92

22.75 20.08 20.18 19.90 19.80

19.94 20.04

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1879phae.proj.1402R

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1879phae.proj.1402R

1879 Oct. 26-27

Sun C = 46.759

14 6 43

−12 50

m		m
0 1	17.2	30 4 7.8
	27.9	19.2
	32.1	22.2
	25.9	15.5
	10 31	647
	25.78	16.17

Setting pretty bad

α Bootis

14 10 8

+19 49

m	m	R	R	m
40 0	5.1 1	26.1	25.7	25.1 25.8
	8.9	34.0	34.4	34.8 34.2
	15.8	30.7	30.9	30.9 30.6
	11.9	33.9	33.0	33.0 33.3
	4 17	97	90	88 89
	10.42	32.42	32.25	32.20 32.22
		32.32	32.22	

η Pegasi

22 37 20

+29 35

m	m	R	R	m
50 2	47.9 4	9.1	8.8	8.3 9.1
	56.6	18.3	18.2	18.5 18.0
	56.8	17.5	18.2	18.2 17.5
	55.8	17.0	17.2	17.0 16.9
	171	619.	624	620 615
	54.28	15.48	15.60	15.50 15.38
		15.43	15.55	

α Piscis Aust.

22 50 58

−30 16

m	m	R	R	m
40 1	21.1 2	36.3	35.6	35.2 36.1
	34.6	49.9	50.0	49.8 49.9
	35.6	50.4	50.0	50.2 50.1
	32.1	46.9	46.9	46.7 45.8
	34	183 5	182 7	181 9 181 9
	30.85	45.88	45.68	45.48 45.48
		45.68	45.58	

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1879phae.proj.1402R

ε Pegasi
21 38 14
+9 19

m	m	R	R	M
5 3 36.1	4 56.1	56.2	55.9	56.1
46.9	8.0	8.2	8.5	7.8
49.1	8.8	9.0	9.2	8.8
44.8	4.2	4.9	4.8	5.0
169	171	183	184	177
44.22	4.27	4.57	4.60	4.42
	4.35	4.58		

ζ Aquarii
21 59 34
−0 54

m	M	R	R	M
20 2 0.3	3 25.3	24.9	24.2	25.1
11.1	36.1	36.8	36.4	36.1
14.8	39.5	40.5	40.7	39.9
9.1	34.9	35.0	35.2	34.9
353	1358	1372	1365	1360
8.82	33.95	34.30	34.12	34.00
	33.97	34.16		

ζ Pegasi
22 58 44
+14 33

m	M	R	R	M
50 4 42.9	0 58.8	58.9	58.6	59.1
53.2	9.6	10.8	10.2	9.9
55.8	12.2	12.8	12.9	12.0
51.4	8.0	8.6	8.0	8.1
33	286	311	297	291
50.82	7.15	7.78	7.42	7.27
	7.21	7.60		

ζ Androm.
0 2 8
+28 25

m	m	R	R
0 3 21.5	4 8.9	8.0	8.2
29.1	16.9	17.0	17.1
29.5	16.2	17.0	17.0
29.6	16.1	18.2	17.7
29.7	58.1	60.2	60.0
27.42	14.52	15.05	15.00
	14.52	15.02	

A 5 ζ C
+1

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1879phae.proj.1402R

82

1879 Oct. 27

γ Pegasi

0 h 0

+14 31

	m	m	R	R	m
55 2	17.6	3 37.1	37.0	37.0	37.1
	27.9	47.1	47.8	48.0	47.1
	30.2	49.9	50.0	50.0	50.0
	26.9	45.7	45.8	46.1	45.3
	10 26	17 98	18 06	18 11	17 95
	25.65	44.95	45.15	45.27	44.88
		44.91	45.21		

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1879phae.proj.1402R

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1879phae.proj.1402R

84

5 Leo Oct 28/1879

11 7 40

+21 11

		R	R
10	4	9.2	9.8
		18.8	18.4
		18.5	18.7
		17.8	17.7
		64 3	64 9
		16.07	16.22
		16.15	

β Leonis

11 42 53

+15 15

		m	m	R	R	R	m
10	4	29.9	15.00	19.5	19.2	18.9	20.0
		39.5	19.5	27.1	28.0	28.2	27.6
		42.6	27.1	31.4	30.9	31.2	31.1
		39.1	31.4	29.0	29.3	28.7	28.6
		15 1 1		10 7 3	10 7 4	10 7 0	10 7 6
		37.78		26.82	26.85	26.75	26.90
				26.86	26.80		

Lost A +1

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1870phae.proj.1402R

η Boötis
13 48 5-5
+19 0
m
25 3 38.4
48.0
52.8
48.5
1877
46.92

δ?

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1879phae.proj.1402R

1879 Oct. 28–29
Sun C=46.759
14 14 27
– 13 30

m	m
40 1 30.2	10 4 37.7
42.1	51.1
48.9	55.5
41.9	49.1
31	1934
40.78	48.35

Seeing very bad.

Oct. 29
ζ Cygni
21 7 47
+29 44

m	m	R	R	m
40 4 21.1	45 0 38.8	38.1	38.7	39.4
30.9	47.9	48.0	48.1	47.1
32.7	50.4	50.6	50.2	49.9
31.0	49.3	49.7	50.0	50.7
1157	1864	1864	1870	1865
28.92	46.60	46.60	46.75	46.62
	46.61	46.67		

α Aquarii
21 59 34
– 0 54

m	m	R	R	m
20 2 1.4	3 24.6	24.4	24.2	24.2
13.5	36.4	36.4	36.1	36.2
18.5	41.4	41.7	41.7	41.6
12.9	36.1	36.7	36.5	36.0
463	1385	1392	1385	1380
11.57	34.62	34.80	34.62	34.50
	34.56	34.71		

η Pegasi
22 37 20
+29 35

m	m	R	R	m
50 2 45.4	4 4.6	7.0	7.4	7.4
54.9	17.0	16.9	17.3	17.1
56.1	18.2	18.8	18.7	18.1
55.4	17.7	17.8	18.2	17.1
2118	605	605	616	597
52.95	15.12	15.12	15.40	14.93
	15.02	15.26		

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1879phae.proj.1402R

β Aquarii

21 25 11

−6 6

	m	m	R	R	m
	30 3 35.0	4 58.0	58.1	57.8	58.1
	46.2	10.1	10.1	10.0	9.9
	51.9	15.4	15.3	15.8	14.9
	45.7	8.8	8.6	9.8	8.9
	17 88	27 23	27 21	27 34	27 18
	44.70	8.07	8.02	8.35	7.95
		8.01	8.18		

ε Pegasi

21 38 14

+9 19

	m	m	R	R	m
	5 3 33.2	4 56.7	56.4	56.3	56.2
	44.9	8.3	8.7	8.3	8.2
	49.5	11.0	11.1	11.4	11.6
	44.9	7.2	7.9	7.8	7.7
	17 25	23 2	24 1	23 8	23 7
	43.12	5.80	6.02	5.95	5.92
		5.86	5.98		

ζ Piscis Aust.

15 50 58

−30 36

	m	m	R	R	m
	40 1 19.2	2 34.1	37.0	36.8	37.0
	33.0	51.4	51.5	51.4	51.3
	34.9	53.2	53.1	53.9	53.1
	30.9	49.1	49.3	49.2	49.1
	1180	1908	1909	1911	1905
	29.50	47.70	47.72	47.78	47.62
		47.66	47.75		

ζ Pegasi

22 58 44

+14 33

	m	m	R	R	m
	50 4 30.1	5 0 59.9	59.8	59.7	01
	42.3	11.9	12.7	12.3	12.0
	46.1	15.9	16.0	16.1	16.1
	40.9	11.1	11.0	11.1	11.1
	1594	2788	2795	2792	2793
	39.85	9.70	9.87	9.80	9.82
		9.76	9.83		

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1879phae.proj.1402R

88

1879 Oct. 29

α Androm.

0 2 8

+28 25

m	m	R	R
0 2 49.7	4 8.4	9.1	8.9
56.8	17.1	17.3	18.0
57.1	17.7	17.9	17.9
58.4	19.1	18.5	18.4
22 20	6 0 3	628	632
55.50	15.07	15.70	15.80
	15.07	15.75	

γ Pegasi

0 7 0

+14 31

m	m	R	R	m
55 2 11.6	3 35.9	35.2	35.2	35.1
21.9	45.9	46.3	46.1	45.9
24.2	48.2	48.7	48.7	47.9
20.3	44.0	45.3	45.1	44.4
780	17 4 0	1755	1751	1733
19.50	43.50	43.88	43.78	43.33
	43.42	43.83		

α Leonis

10 1 56

+12 33

m	m	R	R	W
55 1 19.4	1 45.9	45.2	45.3	46.9
30.0	56.2	57.5	56.7	55.9
32.2	58.0	58.7	58.6	58.1
	57.1	56.4	56.9	56.8
	172	178	175	157
	54.30	54.45	54.38	53.92
	54.11	54.41		

A 4 fall

ζ Leonis

10 9 57

+24 1

m	m	R	R	W
25 2 46.2	4 6.0	5.7	5.2	5.2
55.9	15.1	15.9	16.0	15.1
55.5	14.9	15.1	14.9	15.1
56.1	16.0	16.6	16.7	16.2
137	520	533	526	516
53.42	13.00	13.32	13.15	12.90
	12.95	13.24		

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1879phae.proj.1402R

α Hydrae

9 21 38

− 8 8

M	m	R	R	M
35 0 55.6	2 16.8	16.8	16.3	16.5
5.1	27.0	26.9	27.1	26.9
10.0	32.0	32.0	32.1	31.9
14.9	26.9	26.8	27.0	27.0
26 56	1027	1025	1025	1023
6.40	25.67	25.62	25.62	25.58
	25.62	25.62		

ε Leonis

9 38 59

+24 20

M	M	R	R	M
5 4 5.2	10 02 6.1	26.0	26.1	26.5
14.9	34.3	34.9	34.8	34.9
14.9	35.4	35.5	35.9	35.0
14.1	36.3	36.3	36.7	37.0
49.1	1321	1327	1335	1334
12.27	33.02	33.17	33.38	33.35
	33.34	33.27		

ζ Leo.

11 7 40

+21 11

R	R	R
3.9	3.2	3.2
14.3	14.7	14.6
13.8	13.0	12.8
13.8	14.0	14.7
45 8	44 9	45 3
11.45	11.22	11.32
11.33		

Adjusted declinations

β Leonis c = 46.759

11 42 53

+15 15

M	M	R	R	M
10 3 49.0	15 0	14.4	14.2	14.7	14.9
59.8		23.4	24.4	25.0	23.9
1.9		27.1	27.5	27.6	27.8
58.9		24.4	24.9	25.0	24.2
22 9 6		93	910	923	908
57.40		22.32	22.75	23.07	22.70
		22.51	22.41		

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1879phae.proj.1402R

90

1879 Oct. 29

ζ Virginis

13 18 49

−10 32

m	m	R	R	m
0 0 10.9	1 5.2	5.7	5.2	5.9
20.9		16.1	16.7	16.2	15.9
27.6		23.0	23.3	23.2	22.9
22.7		16.8	17.9	17.7	17.1

Lost − 1st m.

η Bootis C = 46.791

13 48 55

+19 0

m	m	R	R	m
25 3 31.0	4 5 33	52.6	52.3	52.9
41.1	41	3.9	4.1	3.4
45.7	6.2	7.1	6.9	6.1
42.2	37.	4.0	4.0	3.8
00	168	76	73	62
40.00	1.70	1.90	1.82	1.55
	1.62	1.86		

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1879phae.proj.1402R

1879 Oct. 29–30

Sun c = 46.791

14 18 20

−13 5 0

m		m
0 1 28.2	30 4	20.9
42.2		34.6
48.1		39.9
41.9		32.5
04		79
40.10		31.98

A 1 only, ∫ 2nd limb.
+1

Oct. 30

β Aquarii

21 25 11

−6 6

m		m R R m
30 3 35.8	35 0	0.1 59.9 59.8 0.5
47.7		11.9 12.2 12.2 11.8
52.9		17.1 17.0 17.1 17.1
47.2		13.1 13.2 12.8 12.9
236		22 28 23 28 19 42 23
45.90		10.55 10.58 10.58 10.58
		10.57 10.53

η Pegasi

22 37 20

+29 35

m		m R R m
50 2 49.2	4	6.0 6.1 5.2 5.9
59.1		16.0 15.9 15.9 15.9
57.7		13.9 14.7 14.8 14.0
58.8		14.9 16.2 16.6 16.0
248		50 8 52 9 52 5 51 8
56.20		12.70 13.22 13.12 12.95
		12.83 13.17

α Piscis Aust.

22 50 58

−30 16

m		m R R m
40 1 16.9	2	35.7 35.3 35.6 35.1
30.9		49.1 49.3 50.0 49.8
30.7		49.0 49.6 49.0 48.5
29.1		46.9 48.2 47.9 47.1
1076		18 07 18 24 18 25 18 05
26.90		45.17 45.60 45.62 45.12
		45.15 45.61

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1879phae.proj.1402R

ε Pegasi

21 38 14

+ 9 19

m

5 3 41.4
53.4
55.9
53.1
38
52.95

Rej. obs.

Rej 2nd ✓

Ch. failed.

ζ Aquarii

21 59 34

− 0 54

	m	m	R	R	m
20 0	59.1	3 18.8	18.3	18.0	18.5
	12.1	30.3	31.2	31.1	30.2
	14.9	33.9	34.3	34.2	33.5
	11.1	31.0	31.8	31.3	30.2
27	12	11 40	11 56	11 46	11 24
	9.30	28.50	28.90	28.65	28.10
		28.30	28.77		

ζ Pegasi

22 58 44

+14 33

	m	~~m~~	m	R	R	m
50 4	34.4	55 0	59.0	59.3	59.0	59.9
	46.0		10.5	11.2	11.3	10.8
	46.9		12.1	11.8	11.8	12.0
	44.0		9.8	9.2	10.2	9.9
	17 13		27 14	27 15	27 23	27 26
	42.82		7.85	7.87	8.08	8.15
			8.00	7.97		

ζ Androm.

0 2 8

+28 25

	m	m	R	R	m
0 2	46.1	48.1	7.3	7.4	6.9
	53.6	16.1	16.8	16.3	16.3
	52.7	15.2	14.9	14.7	14.3
	53.1	15.0	16.2	16.7	16.1
	15 5	58.5 (6.4)	55 2	55 1	53 6
	51.38	~~13.62~~ 14.10	13.80	13.78	13.40
		13.51	13.79		

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1879phae.proj.1402R

1879 Oct. 30

ν Pegasi

0 7 0

+14 31

m	m	R	R	m
55 2 27.3	3 25	35.7	34.9	35.6
37.4	45.9	46.7	46.2	46.0
38.5	46.9	47.0	47.0	46.9
34.9	48.9	44.1	44.0	44.6
138.1	1722	1735	1721	1731
34.52	43.05	43.38	43.02	43.27
	43.16	43.20		

ζ Leonis

10 1 56

+12 33

m	m			m
55 0 9.7	1	30.9	30.3	30.2 31.0
19.4		39.6	40.3	40.2 40.0
19.9		40.9	41.1	41.0 40.7
19.0		39.1	39.2	39.1 39.0
580		1505	1509	1505 1507
14.50		37.62	37.72	37.62 37.67
		37.65	37.67	

β Leonis

11 42 53

+15 15

m	m	R	R	m
10 3 54.9	15 0	10.5	10.5	10.6 11.0
4.1		18.6	19.8	19.8 19.2
2.3		18.4	19.0	18.7 18.9
0.1		19.1	18.0	17.4 17.9
1.4		248	273	265 250
~~10.35~~ 0.35		16.20	16.82	16.62 16.25
		16.22	16.72	

ε Virginis

13 18 49

−10 32

m	m	R	R	m
55 4 43.9	0 1	1.1	59.9	0.2 0.0
52.9		9.1	9.2	9.3 9.1
56.0		12.9	12.8	12.3 12.9
51.6		8.2	8.7	8.6 7.9
44		313	306	302 299
51.10		7.82	7.65	7.55 7.48
		7.66	7.60	

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1879phae.proj.1402R

G Lewis
10 9 57
+24 1

		m	m	R	R	M
25	2	46.1	4	7.3	7.1	7.4	8.1
		54.9		16.1	16.5	16.8	16.2
		51.9		13.7	14.12	13.4	13.1
		54.2		15.1	15.7	15.2	15.1
		71		51.7	535	528	525
		51.78		12.92	13.38	13.20	13.12
					13.02	13.29	

S Leonis
11 7 40
+21 11

	R	R	R
15-4	7.2	6.2	6.4
	16.6	16.8	16.7
	11.9	11.8	11.9
	15.1	14.7	14.7
	508	495	497
	12.70	12.38	12.42
	12.50		

Rej 1st ✓

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1879phae.proj.1402R

1879. Oct. 30–31

Sun C = 46.791

14 22 14

−14 10

	m		m
5.	20 0 48.1	50 3	40.9
	1.0		53.9
	2.9		55.1
	57.9		48.9
	22 9 9		19 8 8
	57.48		49.70

Both limbs in R.A. + 8.

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1879phae.proj.1402R

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1879phae.proj.1402R

1879 Nov. 5

ζ Aquilae C=46.711

19 40 13

+10 19

	m		m	R
5 4	8.1	10 0	17.1	17.2
	11.1		24.7	25.0
	16.9		20.0	21.1
	16.2		21.3	21.6

Ch. failed

ζ Aquilae

19 44

	m		m	R
55	0 3.2	1	26.9	26.2
	10.6		33.7	
	6.6		29.8	
	5.8		28.8	

Ch. failed.

~~Gc. 4408~~ 26 Ursa Maj. L.6.

8 20 12

+118 53

	m	m
40 0	57.6	15.6
	1.5	20.1
	49.9	8.1
	50.3	9.6
	219 3	173 4
	54.82	43.35

θ Cephei

20 27 33

+62 35

	m	m	m
50 3	40.6	24.1	58.1
	42.1	26.4	0.1
	36.3	20.3	53.4
	40.0	23.9	57.9
	1590	147	2295
	39.75	23.67	57.38

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1879phae.proj.1402R

		h	h	h	h	′	″
30	1	35.2	52.0	30.2	51.3	5	5.9
		35.6	52.4	30.9	52.1		5.9
		31.1	48.0	26.3	47.3		1.5
		36.0	52.9	30.1	51.0		5.7

Un. fouled.

K Cephei

20 12 56

+77 21

		m	m	m	m	′	″
5	3	30.6	49.1	13.2	30.0	47.0	5 9.5
		31.9	50.9	16.0	31.8	49.9	2.1
		24.2	42.9	7.8	23.9	42.2	5 3.1
		30.0	49.1	13.4	30.2	47.1	0.0
		11 69	320	504	11 57	262	23 4.7
		29.22	48.00	12.60	28.92	46.55	58.67

ν Cephei

20 42 50

+61 22

		m	m	′	″
5	1	50.5	2 43.1	3	9.9
		51.6	44.1		11.0
		45.5	39.1		4.6
		48.4	40.9		7.8
		19 60	16 72		3 33
		49.00	41.80		8.32

ρ Ursa. Maj. L. 6,

8 51 15

+111 53

		m	m	m	m	′	″
35	3	51.0	36.9	55.9	35.8		2.9
		53.1	38.4	58.1	37.4		2.1.9
		42.8	28.3	48.0	28.3		12.1
		43.6	29.0	48.2	~~29.0~~		12.9
		19 05	13 26	21 02	13 05		6 7.8
		47.62	33.15	52.55	32.62		16.95

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1879phae.proj.1402R

100

1879. Nov. 5

Gas Imag. L.G.

8 59 43

+112 23

m	m	m	m
10 0 8.1	5 4 55.2	11.1	3 53.9
14.4	57.9	13.4	55.9
4.9	46.5	2.4	45.2
5.1	46.2	2.1	44.9
32.5	58	29.0	19.59
8.12	51.45	7.25	48.98

ζ Cygni

21 7 47

+29 44

m	m	R	R	m
40 4 42.0	45 0 43.7	43.3	43.3	43.8
47.9	49.1	49.5	49.2	48.7
40.0	41.0	41.2	41.1	40.9
42.2	44.3	45.7	45.8	44.4
121	181	197	194	180
43.02	44.52	44.92	44.85	44.50

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1879phae.proj.1402R

α Cephei

21 15 41

+62 4

	m		m		m
20	4	33.2	25	0 5.1	1 0,1
		34.6		5.3	0,4
		28,1		59.9	53.9
		30.2		3.1	58.8
		61		134	2332
		31.52		3.35	58.30

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1879phae.proj.1402R

1879 Nov. 6 /

Sun.

4 49 50

−16 20

M		M	
.30	0	√9.3	0 3 √1.1
		9.0	1.6
		2.1	√4.3
		1.0	√3.8
		11 4	22 08
		2.85	55.20

Seeing bad

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1879phae.proj.1402R

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1879phae.proj.1402R

104

1879 Nov. 9

β Leonis C = 46.711

11 7 40

+21 11

m	m	R	R	m
15 2 46.8	4 21.0	21.0	20.6	20.9
53.2	28.5	29.1	28.7	28.8
54.9	30.3	30.2	29.8	
54.9	31.7	31.2	31.2	
98	1115	1115	1103	
52.45	27.87	27.87	27.58	
	27.87	27.72		

Rej 2nd & 3rd

β Leonis

11 42 B

~~15 0~~ +15 15

R	R
15 0 15.9	16.0
24.4	24.2
27.5	28.2
26.2	26.0
9.40	9.44
23.50	23.60
23.55	

Adjusted illumination of ☿

α Virginis

13 18 49

−10 32

m	m	R	R	m
55 4 46.7	0 0 59.1	58.9	59.0	59.4
56.1	8.2	9.0	8.9	8.6
4.2	18.1	17.7	17.4	17.1
58.9	13.0	12.5	12.8	12.3
2259	2784	2781	2781	2774
56.47	9.60	9.52	9.52	9.35
	9.47	9.52		

η Bootis

13 48 55

+19 0

m	m	R	R	m
25 3 34.8	4 50.0	50.8	50.9	51.1
42.9	59.8	0.3	0.5	59.9
48.9	3.9	4.4	4.7	4.5
41.8	2.1	2.8	2.3	2.0
1724	2368	2383	2384	2375
43.10	59.20	59.58	59.60	59.38
	59.29	59.59		

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1879phae.proj.1402R

δ Virginis

12 49 30

+4 3

	M	M	R	R	M
25 0	16.9	1 39.0	38.4	39.0	39.1
	26.8	49.1	50.0	49.9	50.0
	29.2	52.0	52.2	52.2	51.6
	28.8	50.9	51.5	51.4	50.9
	101.7	191.0	192.1	192.5	191.6
	25.42	47.75	48.02	48.12	47.90
		47.82	48.07		

ε Virginis

12 56 9

+11 37

	M	M	R
50 2	42	3 19.9	20.0
	14.9	28.9	29.1
	19.6	33.0	33.8
	17.8	31.5	31.6
	58.5	113.3	114.5
	14.62	28.32	28.62

ε Bootis

14 39 42

+27 35

	M	M	R	R.
50 3	55.0	55 0	12.9	12.7	12.2
	3.1		19.3	19.9	20.0
	6.6		23.9	24.0	24.0
	5.1		24.2	25.0	25.3
	104		80.3	81.6	81.5
	2.60		20.07	20.40	20.38
			20.07	20.39	

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1879phae.proj.1402R

1879. Nov. 9–10

Sun c=46.711

15 2 0

−17 12

		m
55	0	41.8
		54.8
		0.9
		56.8
	21	43
		53.58

2nd limb in R.A. Upper limb in δ

Nov. 10

K Cephei

20 12 56

+77 21

		m	m	m	m	m	m
5	3	20.1	38.6	4	9.0	22.6	35.9	52
		24.9	42.2		13.0	26.5	40.1	57
		26.9	45.0		14.5	28.9	42.5	586
		30.9	49.0		19.3	33.2	45.6	29
		1028	1748		558	1112	1641	2315
		25.70	43.70		13.95	27.80	41.02	57.88

73 Draconis

20 33 5

+74 32

		m	m	m	m	m
55	1	41.2	2 9.9	32.2	50.9	3 1.9
		45.0	13.1	35.3	55.0	6.2
		48.9	16.9	39.8	58.6	9.0
		51.2	19.1	41.9	1.2	13.0
		1863	590	1492	2257	301
		46.58	14.75	37.30	56.42	7.52

η Cephei

20 42 50

+61 22

		m	m	m	m
5	1	36.6	2 12.6	47.1	8.9
		41.0	18.8	51.3	13.0
		44.9	21.0	51.0	17.0
		45.8	21.3	55.9	17.6
		83	737	53	565
		42.07	18.42	51.32	14.12

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1879phae.proj.1402R

o Ursa Maj. L.C.

8 20 12

+118 53

40	1	7.7	0 8.9	35 4	43.9
		14.9	16.1		509
		12.6	14.1		48.2
		12.8	14.1		47.9
		4180	532		1909
		12.00	13.30		47.72

+ Cephei

20 27 33

+62 35

50	3	40.1	4 16.4	47.9	55 0 39
		44.9	21.1	51.9	81
		48.9	25.6	56	10.1
		50.1	26.1	57.8	14.1
		1840	92	2138	362
		46.00	22.30	53.45	9.05

p Ursa Maj. L.C.

8 51 15

+111 53

35	3	32.9	15.3	17.9	34
		38.8	21.1	23.0	98
		37.2	19.3	21.9	81
		36.6	18.9	20.1	69
		255	746	829	282
		36.38	18.65	20.72	7.05

σ^2 Ursa Maj. L.C.

8 59 43

+112 23

10	0	6.3	5 4 31.4	3 35.9
		12.1	37.1	41.5
		9.9	35.6	39.9
		9.5	33.2	37.8
		378	173	1551
		9.45	34.32	38.78

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1879phae.proj.1402R

1879 Nov. 10

77 Draconis

21 7 53

+77 38

	m	m	m	m	m
50	1 0.2	24.1	40.1	2 2.9	14.4
	5.1	29.0	44.0	7.2	18.9
	6.1	30.0	46.1	8.6	19.9
	11.1	35.4	51.4	13.1	24.9
	225	1185	1816	318	781
	5.62	29.62	45.40	7.95	19.52

α Cephei

21 15 41

+62 4

	m	m	m
20 4	28.9	25 0 2.6	492
	32.2	6.0	52.0
	36.1	9.1	55.9
	37.3	10.6	58.1
	1345	283	2152
	33.62	7.08	53.80

β Cephei

20 27 5

+70 2

	m	m
25 3	17.9	29.4
	22.2	33.9
	25.5	37.3
	26.9	39.8
	725	1404
	18.12	35.10

α Tauri

0 2 8 +28 25

R R

0 2	56.8	56.6
	56	55
	4.5	4.2
	6.5	6.1
	134	124
	3.35	3.10
	3.22	

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1979phae.proj.1402R

h Ursa Maj L.C.

9 21 58.

+116 25

	m	m	m
5 3	48.4	3 0.8	12.6
	54.2	6.9	18.6
	52.0	3.9	16.4
	51.9	4.2	16.9
	65	15.8	24.5
	51.62	3.95	16.12

β Aquarii

21 25 11

−6 6

	m	m
30 4	18.6	35.0 7.9
	30.1	18.9
	36.5	25.0
	30.9	21.1
	11.61	7.29
	29.02	18.22

Lost A

+1

γ Pegasi

0 7 0

+14 31

	m	m	R	R	m
55 2	39.8	3 36.8	36.6	36.0	3.69
	50.1	47.1	47.6	47.0	46.9
	52.0	48.9	48.7	48.8	48.8
	49.0	46.0	46.4	46.3	45.2
	19.09	17.88	17.93	17.81	17.78
	47.72	44.70	44.82	44.52	44.45
		44.57	44.67		

Lost A

+1

β Cephei L.C.

21 27 5

+109 58

	m	m	m
35 0	14.0	30 4 34.1	3 54.7
	17.1	37.5	58.1
	12.0	33.1	53.3
	15.5	35.0	55.6
	18.6	19.7	21.7
	14.65	34.92	55.42

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1879phae.proj.1402R

1879 Nov. 10
Gr. 1564
9 31 51
+69 47

	m	m	m	m
5 40	2 47.1	3 4.9	4 0.2	23.6
	49.1	17.5	3.1	25.9
	49.3	7.6	2.1	25.4
	52.9	11.9	6.4	30.1
	19 84	31 9	11 8	10 50
	49.60	7.98	2.95	26.25

91 Cephei L. C.
21 40 9
+109 15

	m	m	m	m
15 3	52.3	23.1	2 41.0	18.6
	55.6	27.0	44.1	22.0
	51.1	21.9	38.9	17.1
	54.1	25.0	42.2	20.2
	131	170	62	779
	53.27	24.25	41.55	19.48

η Bootis C=46.775
13 48 55
+19 0

	m	m	R	R	W
2 25 3	45.2	30 0	4.9	5.0	4.3	5.2
	53.1		12.4	12.9	13.5	12.2
	53.1		12.8	12.9	12.8	12.4
	51.3		12.1	11.4	11.8	12.9
	27		22	22	24	27
	50.68		10.55	10.55	10.60	10.68
			10.61.	10.57		

ε Bootis
14 39 42
+27 35

	m
50 3	56.1
	2.9
	1.5
	2.8
	3.3
	0.82

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1879phae.proj.1402R

Gr. 1586
9 47 32
+73 27

	m	m	m	m	m
0 2	57.2	3 17.2	54.0	4 15.6	29.1
	58.5	18.9	55.9	17.6	29.9
	57.3	17.9	54.7	16.1	29.8
	2.0	22.1	58.9	20.6	33.1
	23 50	7 61	2 35	6 99	12 19
	58.75	19.02	55.88	17.48	30.48

ℊ Leonis c=46.711
10 9 57
+24. 1

	m	m	R	R	R
25 2	53.5	4 10.9	10.3	9.9	10.9
	1.0	18.9	18.9	19.0	18.1
	58.1	15.2	16.0	16.4	15.9
	59.8	17.9	17.9	17.7	17.6
	2324	22 9	23 1	6 30	22 5
	58.10	15.72	15.78	15.75	15.62
		15.67	15.77		

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1879phae.proj.1402R

112

1879. Nov. 10 – 11

Sun. ☾ = 46.775

15 6 2

– 17 28

	m		m
35	4 26.1	10	2 19.1
	39.3		31.3
	40.0		32.6
	36.8		28.2
	14 22		11 12
	85.55		27.80

Seeing pretty bad, hazy
Lost 1st limb in R.A.

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1879phae.proj.1402R

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1879phae.proj.1402R

1879 Nov. 15

β Cephei C=46.775

20 27 5
+70 2

	m	m	m
25 2	48.2	3 8.5	29.1
	49.9	10.7	30.5
	55.9	16.1	36.7
	57.9	18.1	38.7
21 19		53 4	135 0
52 98		13.35	33.75

Md. w. & fol.

Gr. 1564 L.b.

9 31 51
+110 13

	m	m
15 4	8.0	3 25.6
	12.0	28.7
	12.5	30.3
	14.3	32.1
	468	1167
	11.70	29.18

A −1 342

ζ Pegasi

22 58 44
+14 33

	m
50 4	39.3
	47.7
	54.2
	50.1
	1913
	47.82

A +1 142

δ Ursa Maj.

9 21 58
+63 35

	m	m	m
5 3	30.1	56.2	4 28.8
	32.1	58.2	29.9
	36.8	2.3	35.0
	40.1	6.1	38.1
	1391	28	1318
	24.78	0.70	22.95

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1879phae.proj.14102R

11 Cephei

21 40 9
+70 45

	m	m
40 3	40,0	4 17,1
	41,2	18.9
	47.2	24,1
	49.9	26.1
	183	862
	44.58	21.55

ζ Aquarii

21 59 34
−0 54

	m	m
20 2	1.9	3 17,2
	10.9	25,0
	19.3	34,6
	15,2	307
	473	1075
	11,82	26,88

ζ Cephei L.C.

20 27 33
+117 25

	m	m	m
4	42.7	9.4	42.6
	45.1	12.1	45.1
	45.9	12.9	46.0
	48.1	14.1	47.9

Ch failed

Gr. 1564

9 31 51
+69 47

	m	m	m	m
40 2	51.1	3 18.8	53.8	4 8.6
	52.1	19.9	55.1	10,1
	57.1	24,5	59.9	14,9
	0.4	28.6	3.7	18.5

Ch failed

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1879phae.proj.1402R

1879 Nov. 15

11 Cephei L.b

21 40 8

+109 15.

	m	m	m	m
15. 3	14,9	2 43.9	23.3	4.1
	18.1	47.0	26,6	7.1
	17.9	47.1	26.8	7.2
	20.2	50.2	30.0	11.1
	711	1882	1067	295
	17.78	47.05	26,68	7.38

Gr. 1586

9 47 32

+73 27

	m	m	m	m
0 2	52.1	3 6.4	43.9	4 15.9
	53.4	7.2	43.5	16.1
	57.3	12.0	48.9	21.6
	2.0	16.0	53.1	25.1
	2248	416	1894	887
	56.20	10,40	47.35	22,18

ζ Leonis

10 9 57

+24.1

	m	m	R	R
25 3	55,6	4 6.3	8.9	8.0
	3.1	16.1	16,8	17.0
	6.6	19.1	19.7	19.9
	8.2	21.2	21.0	20.6
	427	647	664	655
	3.18	16,18	16,60	16,38
		16,18	16.49	

30 H. Camel.

10 16 11

+83 10

	m	m	m	m	m	m
20 0	27.9	44.0	54.1	4.2	9.1	18.6
	31.3	47.0	57.0	7.0	12.4	22.4
	32.0	48.6	58.8	8.6	13.9	23.1
	38.2	54.2	5.7	15.3	20.0	29.1
	94	338	2363	353	554	930
	32.35	48.45	59.0	8.82	13.85	23.3

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1879phae.proj.1402P

20 Cephei L.C.
22 1 20
+117 48

	m	w
45 1	32.0	0 25.1
	36.1	29.1
	34.1	27.2
	36.1	28.9
	18.3	30.3
	34.58	27.58

24 Cephei L.C
22 7 28
+108 15

	m	m	m
15 2	31.8	10.2	14.2
	04.8	12.9	47.0
	35.0	13.8	48.3
	38.9	16.1	52.0
	19.5	13.0	33.5
	34.88	13.25	48.38

9 H. Draco.
10 24 46
+76 20

	w	m	m m	w w
10 0	9.5	29.8	57.2 1	9.1 31.1 38.1
	11.9	31.2	59.7	11.9 33.1 40.1
	15.1	35.8	3.5	15.5 36.9 44.1
	20.0	40.8	8.8	20.4 42.0 49.1
	56.8	13.76	92	5.69 23.1 11.4
	14.20	34.40	2.30	14.22 35.78 42.85

35 H. Urs. Maj i
10 34 23
+69 42

	m	m	m	m
45 2	30.6	57.9	29.9	59.6
	36.5	58.8	31.7	1.0
	41.1	8.4	36.3	5.6
	45.9	7.2	39.9	9.4
	15.94	73	13.78	153
	39.85	1.82	34.45	3.82

False stroke in A_{+1} & probably A_{-1}

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1879phae.proj.1402R

118 1879. Nov. 15

ι Cephei L.C

22 45 22

+114 26

m	m	m
5.2	363	9.1	1	309
	41.5	14.0		35.2
	38.9	12.0		34.0
	40.2	12.9		35.0
	1569	480		151
	39.22	12.00		33.78

α Urs. Maj.

10 56 15

+62 24

m	m	m	m	m
5	0	42.9	0.5	325	56.4	15.2
		44.9	2	341	57.9	17.0
		48.1	7.0	388	2.5	21.6
		50.9	89	401	4.9	22.1
		1878	185	1455	17	759
		46.95	4.62	3638	0.42	18.98

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1879phae.proj.1402R

δ Leonis c = 46.775

11 7 40

+21 11

	m	m	R	R	m
15 2	45.1	3 56.7	56.7	56.0	56.5
	53.7	49	5.0	5.3	4.1
	58.7	7.0	6.9	7.2	6.8
	58.1	8.2	9.1	8.9	8.8
	2126	178	177	174	165
	53.15	4.45	4.42	4.35	4.12
		4.28	4.38		

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1879phae.proj.1402R

Nov 15-16

C=46.775

Sun

M. Roberts

A. Rowe

Brit Circles

Nov 16

~~2 Kus Dug~~ Cephei

21 15 41

+62 4

	m	m	m
20 4	25.4	54.6	25 0 31.9
	29.0	57.9	35.1
	33.1	1.9	39.0
	32.7	2.2	40.2
	120/2	2366	1462
	30.05	59.15	36.55

Gr. 1564 L.6.

9 31 51

+110 13

	m	m	m	m
15 4	24.9	4 5.2	3 22.9	2 56.1
	29.2	10.8	27.5	1.5
	28.9	9.0	26.9	0.6
	28.6	8.8	26.5	0.1
	316	338	238	2383
	27.90	8.45	25.95	59.58

11 Cephei

21 40 8

+70 45

	m	m	m	m
40 3	34.8	53.9	4 27.0	54.7
	38.1	57.2	30.2	58.8
	41.6	0.8	33.2	1.6
	42.6	1.6	35.1	3.2
	1571	2335	55	2383
	39.28	58.38	31.38	59.58

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1879phae.proj.1402R

δ Ursae Maj. L.C

9 23 45
+109 38

	m	m	m
50 3	1.6	41.6	239
	6.3	46.4	288
	5.6	45.2	263
	6.7	45.9	281
	202	191	291
	5.05	44.78	27.28

Lost A (1st group)

β Cephei.

21 27 5
+70 2

	m	m	m
25 2	43.2	3 2.9	27.9
	46.9	7.0	31.1
	50.1	10.0	34.9
	51.1	10.9	35.9
	1913	308	98
	47.82	7.70	32.45

Lost A1

Gr. 1586 L.C.

9 47 32
+73 27

	m	m	m	m
53 4	2.0	3 47.9	19.1	2 34.9
	8.1	54.1	25.1	40.8
	6.4	51.9	23.1	38.9
	7.1	53.2	24.8	40.4
	236	2171	921	1550
	5.90	54.28	23.02	38.78

α Aquarii

21 59 34
−0 54

	m
20 1	58.8
	10.0
	14.6
	9.3
	2727
	8.18

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1879phae.proj.1402R

1879 Nov. 16

20 Cephei

22 1 20

+62 12

	m	m	m	m
15 2	1.8	42.0	3	26.2
	4.9	44.9		28.7
	8.1	48.8		32.8
	8.9	50.8		33.2
	237	1865		1209
	5.92	46.62		30.22

24 Cephei

21 7 28

+71 45

	m	m	m	m
40 4	13.0	28.2	56.9	45 0 27.1
	16.1	32.1	0.1	29.9
	18.7	34.1	3.0	33.1
	20.1	35.9	3.9	34.8
	679	1303	39	1249
	16.98	32.58	0.98	31.22

ζ Cephei

22 45 22

+62 57

	m	m	m	m
55 0	17.0	31.8	1 0.2	24.9
	19.0	33.2	2.2	26.4
	21.8	36.5	4.2	29.2
	24.1	39.7	7.1	31.5
	819	212	137	1723
	20.48	35.30	3.42	28.08

ζ Piscis Aust.

22 50 58

−30 16

	m	m	R	R	m
40 1	36.4	2 36.2	36.6	36.8	
	49.4	49.2	49.8	48.4	
	50.8	52.1	52.0	51.7	
	48.2	48.0	48.5	48.8	
	1848	1855	1869	1857	
	46.20	46.38	46.72	46.42	

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1879phae.proj.1402R

9 N. Draco, L.C.
10 24 46
+103 40

m	m	m	m
50 1 27.1	5.0	0 43.2	15.1
31.2	10.1	47.9	19.8
31.1	8.9	47.1	19.1
32.9	10.0	48.9	21.0
1223	340	271	751
30.58	8.50	46.78	18.78

35 N. Ursa Maj. L.C.
10 34 23
+110 18

m	m	m
10 4 28.7	3 53.7	15.9
34.1	57.9	21.2
32.1	55.6	19.6
21.1	56.0	19.4
1160	232	761
29.00	55.80	19.02

α Pegasi
22 58 44
+14 33

R	R
40 4 40.2	40.1
50.6	50.7
53.4	53.8
50.2	49.8
1944	1944
48.60	48.60
48.60	

α Androm.
0 2 8
+28 25

m	m	R	R
0 2 42.1	4 99	10.0	9.8
50.3	17.4	18.3	18.1
50.0	17.9	17.2	17.8
49.2	17.3	17.8	17.7
1916	625	233	634
47.90	15.62	15.82	15.85
	15.62	15.83	

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1879phae.proj.1402R

1879, Nov. 16

γ Pegasi

0 7 0

+14 31

m	m	R	R	M
55 2 15.9	3 45.1	45.1	45.0	44.5
25.4	57	54.9	55.0	54.4
25.0	56.9	57.2	57.7	57.2
23.2	53.1	53.2	53.2	52.8
92.5	2102	2104	2109	2089
23.12	52.55	52.60	52.72	52.22
	52.38	52.66		

B Leonis

11 42 53

+15 15

R	R
15 0 3.7	3.2
11.2	11.2
13.4	13.6
11.0	11.2
39.3	39.2
9.82	9.80
9.81	

δ Virginis

12 49 30

+4 3

m	m	m
25 0 15.1	1 29.1	28.5
25.6	38.3	38.6
25.3	38.0	37.3
23.4	36.8	36.2
94	1422	1406
22.35	35.55	35.15
	35.35	

ε Virginis

12 56 9

+11 37

m	m	m
50 2 8.7	3 29.1	28.9
17.3	38.1	37.6
17.6	38.4	38.9
15.3	36.1	36.7
589	1417	1421
14.72	35.42	35.52
	35.47	

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1879phae.proj.1402R

δ Cowi

12 · 23 37
−15 50

m	m	R	R	m
15 3 4.1	4 28.0	27.9	29.7	28.2
16.1	40.1	40.1	40.0	39.5
18.0	41.9	41.0	41.0	40.9
12.4	36.8	37.5	37.5	37.1
5 06	14 68	14 65	14 62	14 57
12.65	36.70	36.62	36.55	36.42
	36.56	36.58		

γ Virginis

12 35 32
−0 47

m	m	m
15 0 50.9	1 5.8	5.5
59.0	9.0	8.5
1.9	11.9	11.3
58.9	8.3	8.2
23 07	26 90	26 81
57.67	7.25	7.02
	7.13	

$P_{2,}$ ⊣

α Virginis

13 18 49
−10 32

m	m	m
55 4 36.7	0 1 4.9	4.9
45.9	12.8	13.1
49.8	19.0	18.1
44.9	13.2	12.1
1763	99	82
44.08	12.48	12.05
	12.26	

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1879phae.proj.1402R

1879 Nov. 16–17

Sun. c = ~~46.775~~ c = 46.765

15 30 14

−19 2

m

10 2 54.9
7.9
11.1
4.9
25 8 8
4.70

m

4 5 1 2.1
14.1
18.4
12.2
1 8
10.45

α Androm.

0 2 8

+28 25

m m m

0 2 49.9 4 11.3 11.1
58.9 10.3 10.4
58.5 10.8 10.8
58.3 10.2 10.9
2256 266 262
56.40 16.65 16.55
16.60

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1879phae.proj.1402R

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1879phae.proj.1402R

1879. Nov. 23–24

Sun c = 46.765

16 0 0

–20 36

		m		m
45	1	38.9	15 4	46.3
		46.4		57.9
		40.1		50.9
		38.7		46.8
		1641		2039
		41.02		50.98

Seeing very bad.

Gr. 1564 L.b. 46.710

9 31 51

+110 13

m	m	m	m
15 4 42.1	20.1	3 49.0	22.5
42.0	19.8	48.9	21.3
30.9	8.6	37.2	9.9
33.2	12.1	41.6	13.6
1482	606	1767	673
37.05	15.15	44.18	16.82

α Aquarii

21 59 34

–0 8 4

	m	m
20	2 54.9	3 35.9
	0.8	41.2
	54.9	35.1
	52.9	33.9
	2235	261
	5588	36.52

Lost 1st m.

20 Cephei

22 1 20

+62 12

	m	m
15	2 5.3	3 35.8
	3.2	34.6
	56.9	27.1
	58.9	30.0
	43	79
	1.08	31.98

A 6 v c

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1879phae.proj.1402R

11 Cephei

21 40 8

+70 45

m	m	m	m	′ ″
40 3 48.6	4 9.8	39.6	45 0	8.6
47.1	8.4	38.5		6.1
39.9	0.8	30.7		59.0
45.2	6.1	35.7		4.1
1808	251	245		178
45.20	6.28	36.12		4.45

Gr. 1586 L.b.

9 47 32

+106 33

m	m	m	m	m
55 4 22.1	1.1	3 37.0	7.9	2 50.3
23.1	1.8	37.4	7.6	50.1
10.4	49.5	26.0	55.3	38.7
16.9	54.2	30.3	1.0	47.1
725	2266	1307	108	1832
18.12	56.65	32.68	2.70	45.80

24 Cephei

22 7 28

+71 45

m	m	m	m
40 4 26.3	40.0	45 0 5.0	41.3
25.0	38.8	2.6	38.1
16.1	30.9	54.7	30.2
21.1	34.9	0.0	86.9
85	246	23	265
22.12	36.15	0.58	36.62

38 Hrs. Maj. L.b.

10 15 23

+113 49

m	m	m
40 3 30.9	10.9	2 21.1
31.9	11.9	20.4
18.4	58.1	7.2
20.1	0.0	9.8
1013	2.09	585
25.32	5.22	14.62

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1879phae.proj.1402R

1879 Nov. 24

α Androm. c = 46.710

0 2 8

+28 25

m	M	R	R	M
0 2 54.1	4 4.0	3.3	3.6	3.6
56.2	6.4	6.5	6.4	5.8
46.1	55.3	55.2	55.2	55.1
49.6	58.9	59.3	59.3	58.5
60	46	43	45	30
51.50	1.15	1.06	1.12	0.75
	0.95	1.10		

γ Pegasi

0 7 0

+14 31

m	m	R	R	M
55 2 26.9	3 43.6	43.5	43.7	43.6
30.9	48.4	48.2	48.1	47.2
22.9	40.9	40.3	40.7	40.8
21.8	39.1	39.3	39.2	39.2
10 25	17 20	17 13	17 17	17 08
25.62	43.00	42.82	42.92	42.70
	42.85	42.87		

Gr. 1564

9 31 51

+69 47

m	m	m
40 3 6.4	40.0	26.1
3.3	36.4	22.7
53.9	27.4	12.9
59.4	33.1	18.8
30	1369	805
0.75	34.22	20.12

11 Cephei L.C.

21 40 8

+109 15

m	m	m	M
15 4 3.6	3 11 8.9	2 43.7	24.1
2.4	7.1	4.9	22.1
47.7	53.3	28.3	8.0
52.1	57.1	32.7	12.9
2258	64	1466	671
56.45	1.60	36.65	16.78

1st for last

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1879phae.proj.1402R

α Hydrae

9 21 38
−8 8

m	m
35 1 16.1	2 40.9
19.1	44.7
14.6	39.9
12.1	37.0
219	25
15,48	40.62

β Cephei L.G.

21 27 .5
+109 58

m	m
30 4 21.9	4 5,3
21,0	4,5
7,5	50.2
11.7	54.3
62/1	234 3
15,52	58,58

Gr. 1586

9 47 32
+73 27

m	m	m	m
0 3 22.0	34.6	4 10.1	41309
18.0	30.0	6.1	27.0
8.2	21.0	56.6	17.1
14.1	27.1	0.3	22.9
623	1127	41	979
15,58	28,18	1,02	2448

20 Cephei L.G.

22 1 20
+117 48

m	m
45 1 31.1	0 43.5
30.1	41.9
15.9	26.1
17.9	29.0
950	1405
23,75	35,12

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1879phae.proj.1402R

132 1879. Nov. 24

24 Cephei L.C.

22. 7 28

+10 8 15

	m	m	m	m
15 3	17.9	3.9	2 21.1	15 3.1
	15.2	2.0	18.1	508
	2.6	49.1	6.3	38.6
	6.4	52.5	10.0	42.1
	42.1	22.75	55.5	18.46
	10.52	56.88	13.88	46.15

38 Urs. Maj.

10 15 23

+66 11

	m		m	m
15 4	38.9	20 0	24.0	57.6
	34.9		19.1	53.2
	24.3		10.1	~~43.4~~ 53.4
	30.2		16.1	50.1
	1283		693	2043
	32.08		17.32	51.07

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1879phae.proj.1402R

9 Ho. Draco.

10 24 46
+76 20

	m	m	m	m
10	1 6.0	26.0	41.9	57.4
	2.4	22.8	38.1	52.9
	53.0	12.2	27.9	43.2
	59.4	19.9	34.8	49.1
	0 8	8 09	14 27	20 06
	0.20	20.22	35.68	50.15

A 3 Aqr

31 Cephei L.C.

22 32 47
+106 59

	m	m	m
30	4 25.1	3 42.0	8.1
	22.9	39.1	7.0
	9.9	26.3	53.3
	14.1	30.3	58.0
	7 20	13 74	64
	18.00	34.35	1.60

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1879phae.proj.1402R

1879 Nov. 25

B Cephei C=46.710

21 27 5

+70 2

	m	m	m	m
25 2	20.1	55.9	3 29.4	42.4
	18.8	54.0	27.2	40.5
	12.1	47.4	20.8	34.1
	16.4	53.1	25.9	39.7
	6 74	21 04	2 33	15 70
	16.85	52.60	25.83	39.25

Gr 1564 L.C.

9 31 51

+110 13

	m	m	m	m
15 4	25.9	3 52.1	29.6	7.1
	26.0	53.1	29.9	7.1
	14.1	40.9	18.9	55.1
	18.9	45.1	23.1	0.1
	8 49	19 12	10 35	94
	21.22	47.80	25.88	2.35

α Aquarii

21 59 34

−0 54

	m
20 2	10.9
	17.1
	11.9
	11.2
	11.1
	12.78

20 Cephei

22 1 20

+62 12

	m	m	m
15 2	11.6	3 12.4	28.3
	10.1	10.1	25.2
	3.9	3.5	19.9
	8.1	8.3	25.1
	337	343	985
	8.42	8.58	24.62

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1879phae.proj.1402R

11 Cephei

21 40 8
+70 45

	m	m	m	m
40 4	1.8	22.6	45 0 1.0	19.1
	0.3	21.1	58.1	17.0
	52.9	13.6	51.4	9.2
	58.3	19.9	57.8	16.2
	23 3 3	7 7 2	2 2 8 3	6 1 5
	58.32	19.30	57.08	15.38

Gr. 1586 L.C.

9 47 32
+101 33

	m	m	m	m
55 4	6.9	3 50.3	5.0	2 45.9
	8.7	51.7	6.1	46.2
	53.5	39.1	53.9	31.1
	3.1	45.8	0.0	40.1
	1 4 2	1 8 6 9	5 0	1 6 7 3
	3.55	46.72	1.25	41.82

24 Cephei

22 7 28
+71 45

	m	m	m	m	m
40 4	17.0	34.2	59.9	45 0 25.0	49.2
	16.9	33.4	59.0	22.1	47.0
	8.9	25.9	51.2	15.0	40.0
	14.9	30.9	57.0	21.6	46.6
	5 7 7	0 1 4 4	2 7 1	3 7 2 8	
	14.42	31.10	56.78	20.92	45.70

38 Ursae Maj. L.C.

10 15 23
+113 49

	m	m	m
40 3	33.1	2 40.3	14.7
	34.2	42.0	15.9
	21.1	29.0	2.5
	24.1	31.0	5.9
	1 1 2 5	1 4 2 3	3 9 0
	28.12	35.58	9.75

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1879phae.proj.1402R

1879 Nov. 25

γ. N. Draco. Lb.

10 24 46

+103 40

	m	m	m
50 1	43.0	16.1	0 44.0
	43.9	16.2	44.3
	33.5	5.1	34.3
	37.9	11.4	40.1
	15 83	88	27
	39.58	12.20	40.68

31 Cephei

22 32 47

+73 1

	m	m	m	m
25 3	4.9	19.1	35.1	4 9.9
	3.5	17.4	33.3	8.6
	55.7	10.1	26.0	1.1
	1.1	15.1	31.1	6.1
	52	217	55	257
	1.30	15.42	31.38	6.42

ε Corvi

12 3 54

−21 57

	m	m	R
20 4	4.4	25 0 23.6	232
	12.9	29.9	308
	7.1	26.2	259
	3.9	23.6	232
	28 3	233	1031
	7.08	25.82	25.78

δ Corvi

12 23 37

−15 50

	R	R
10 4	25.1	250
	34.0	343
	25.5	258
	26.1	26.3
	337	339
	28.42	28.48
	28.45	

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1879phae.proj.1402R

ε Andromedae

0 2 8
+28 25

	R	R
0 3	20	23
	6,2	6,3
	5,79	5,78
	1,3	1,3
	79	77
	1,98	1,92
	1,95	

β Regulus

10 7 0
+14 38

	R	R
55 2	239	239
	30,1	34,3
	24,9	25,2
	24,4	24,1
	1033	1035
	25,82	25,88
	25,85	

β Virginis

12 45 32
−04 7

	R	R
15−1	32,3	32,2
	39,0	38,8
	33,9	33,8
	32,8	32,7
	180	175
	34,50	34,36
	34,44	

ε Virginis

12 56 9
+11 37

	m	m	R
50 2	21,1	3 43,1	42,4
	26,9	48,1	48,0
	20,0	41,1	41,7
	20,9	41,1	41,0
	89	134	131
	22,22	43,35	43,28

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1879phae.proj.1402R

138

1879 Nov. 25

α Virginis

13 18 49

−10 32

m	m	R	R	M
0 0 21.9	1 14.9	14.0	13.3	13.9
27.1	19.8	19.7	19.6	19.3
25.2	17.1	16.9	17.6	16.9
20.4	14.5	14.2	14.0	13.9
15.1	26.3	24.8	24.5	24.0
23.78	16.58	16.20	16.12	16.00
	16.58	16.16		

Lon. − 15.3 m

η Bootis

13 48 55

+19 0

m	m	R	R	M
25 3 40.1	30 0 9.5	9.2	9.0	9.6
47.1	15.1	16.0	15.9	15.4
39.9	8.8	9.2	8.7	8.1
39.2	10.1	10.0	9.8	9.0
63	43.5	44.4	43.4	42.1
41.58	10.88	11.10	10.85	10.52
	10.70	10.97		

α Serpentis

15 38 18

+6 48

m	m	R	R	M
40 0 11.6	1 30.9	30.3	30.2	30.2
17.8	36.4	37.2	37.1	38.8
10.9	30.9	30.4	30.3	30.7
12.3	30.6	31.0	31.8	30.5
12.6	88	89	94	82
13.15	32.20	32.22	32.35	32.05
	32.13	32.28		

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1879phae.proj.1402R

ι Virginis
13 55 29
+2 8

	m	m	R	R	m
	20 0 46.3	1 58.1	58.0	57.7	58.0
	53.9	5.3	6.2	6.2	5.3
	46.6	57.4	57.3	57.9	57.8
	468	58.1	58.7	59.1	58.5
	1936	2389	2402	2409	2396
	48.40	59.72	0.05	0.22	59.90
		59.81	0.13		

Lost A

ε Bootis
14 39 42
+27 35

	m	m	R	R	m
	50 4 3.0	55 0 22.1	22.0	21.3	22.2
	6.8	24.8	25.0	25.0	23.7
	58.1	17.1	17.0	17.0	18.9
	0.1	20.9	21.0	21.2	20.9
	80	49	50	45	61
	2.00	21.22	21.25	21.12	21.52
		21.32	21.18		

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1879phae.proj.1402R

1879. Nov. 25 – 26

Sun C = 46.710

16 8 30

– 20 59

	m	m
10 0	3.4	40 3 14.9
	12.9	23.9
	7.7	19.0
	6.1	16.1
	30 1	739
	7.52	18,48

Seeing very bad indeed
Lost 1st wire of 2nd limb.

24 Cephei

22 7 28

+71 7 45

	m	m	m
45 0	14.9	35.9	49.9
	14.6	35.4	48.9
	8.9	29.8	43.9
	14.8	35.8	50.2
	532	1369	1929
	13.30	34.22	48.22

31 Cephei

22 32 47

+73 1

	m	m
25 3	43.9	3 59.1
	43.6	58.9
	37.8	53.2
	43.9	59.8
	92	310
	42,30	57.75

Lost A +1

η Pegasi

22 37 20

+29 35

	m	m	R	R	M
50 2	54.8	4 15.0	14.2	13.9	14.2
	0.1	20.1	20.2	20.1	20.2
	53.7	12.9	13.4	13.4	12.9
	58.0	17.3	17.8	17.7	17.1
	22 66	653	656	651	644
	56,65	16,32	16,40	16,28	16,10
		16.21	16.34		

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1879phae.proj.1402R

38 Hev. Maj. Lc.

10 15 23

+113 49

m		m	m
40 3 20.9		2 18.3	84
23.8	Rej	20.7	10.9
12.8		10.1	0.1
15.8		12.9	8.2
7.33		6.20	2.26
18.32		15.50	5.65

9 Hc. Draco

10 24 46

+103 40

m	m	m	m
50 1 51.1	34.2	5.0	35.2
52.3	35.1	5.8	36.1
43.9	27.1	5.72	27.6
50.4	32.9	3.2	34.6
19.77	9.3	1.12	13.35
49.43	32.32	2.80	33.38

ζ Cephei

22 45 22

+65 34

m	m	m
55 0 7.6	34.8	1 7.0
7.9	33.5	6.1
1.1	27.6	0.1
6.9	33.9	5.1
2.35	9.8	1.83
5.88	32.45	4.58

α Piscis Aust.

22 50 58

− 30 16

m	m	R
40 1 41.9	2 43.9	43.6
51.1	54.0	54.1
45.7	48.1	48.0
46.6	49.1	42.3
18.53	19.51	2.80
46.32	48.78	47.00

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1879phae.proj.1402R

142 1879 Nov. 26

α Ursæ Maj. L.C.

10 56 15

+117 36

m	m
55 2 48.2	23.4
50.8	25.9
39.9	14.1
44.0	18.4
1829	818
45.72	20.45

α Pegasi

22 58 44

+14 33

m	M	R	R	M
50 4 39.1	~~56.1~~ 9.0	9.0	8.7	8.9
46.4	1.5.4	16.0	15.9	15.2
41.9	10.9	11.3	11.3	11.4
41.1	11.8	11.4	11.2	11.1
85	71	77	71	66
42.12	11.78	11.93	11.78	11.65
	11.72	11.85		

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1979phae.proj.1402R

γ Pegasi

0 7 0

+14 31

	m	m	m
55 2	19.1	8 37.9	37.1
	25.9	41	44.1
	20.9	39.5	39.3
	25.3	38.4	38.9
	6.2	15 99	15 94
	21.55	39.98	39.85
		39.91	

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1879phae.proj.1402R

Nov 24 1879

Sun
16 12 46
−21 10

A.R. only

Sun's N. pole-limb.

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1879phae.proj.1402R

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1879phae.proj.1402R

Nov 29 1879

2 Androm. C = 46,710

0 2 8

+28 25

	m	m	R	R	m
5 0 2	55.8	4 3,9	3.7	3.0	3.1
	1,0	9,2	9.7	9.7	9,8
	57.2	4.9	4.3	4.8	5.0
	4,9	9,0	9.9	9.8	9.2
	2389	270	276	273	271
	59.72	6.75	6.90	6.82	6.78
		6.76	6,86		

γ Pegasi

0 7 0

+14 31

	m	m	R	R	m
55 2	51.6	3 41,9	41.9	41.7	41,9
	59.4	49,9	49.8	49.8	49.5
	57,0	47,8	48.0	48.0	47,5
	56,9	48,0	47.8	48.2	47,9
	249	276	275	277	268
	5622	46.90	46.88	46.92	46.70
		46.80	46.90		

γ² Virginis

12 35 32

−0 47

	m	m	R	R	m
15 0	44.6	2 4,5	3.7	3.3	4,7
	49.7	9,1	9.4	9,2	9,2
	43.1	1,9	2.0	2.1	1,6
	41.1	0,0	0.1	0.3	0,9
	185	155	152	149	164
	44.62	3.88	3.80	3.72	4.10
		3,99	3,76		

δ Virginis

12 49 30

+4 3

	m	m	R	R	m
25 0	26.2	1 48,0	47.0	47.0	47,9
	31.1	54,0	54.0	53.9	53,0
	21.1	42,9	42.7	42.5	48,0
	22.9	43,9	44.0	43.0	44.0
	213	288	277	264	279
	35.32	47.20	46.92	46.60	46.98
		47,09	46,76		

foll. ✻

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1879phae.proj.1402R

ε Corvi

12 3 54
−21 57

m	m	R	R	W
20 3 58.6	25 0 22.0	21.5	21.5	21.6
5.6	27.1	27.9	27.8	26.5
57.9	21.1	21.3	21.2	20.9
56.1	19.0	20.6	20.5	20.4
23 8.2	9.2	11.3	11.0	9.4
59.55	22.30	22.82	22.75	22.35
	22.33	22.78		

β Corvi

12 28 2
−22 44

m	m	R	R	m
10 0 45.0	2 7.9	7.4	7.4	7.9
52.1	14.8	15.0	15.0	14.1
44.8	7.9	7.3	6.9	7.1
43.6	5.0	5.5	5.5	5.1
25.5	35.6	35.2	34.8	34.2
46.38	8.90	8.80	8.70	8.55
	8.73	8.75		

ε Virginis

12 56 9
+11 37

m	m
50 2 26.0	3 41.1
29.5	45.9
20.2	37.2
21.1	36.9
16.8	1.1
24.20	40.28

ζ Virginis

13 18 49
−10 32

m	m	R	R	m
0 0 0.8	1 15.0	14.4	14.9	14.9
4.0	18.4	18.9	18.7	18.1
59.2	13.2	13.8	13.3	13.3
54.9	10.1	10.0	10.6	10.2
23 8.9	16.7	17.1	17.5	16.5
59.72	14.18	14.28	14.38	14.12
	14.15	14.33		

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1879phae.proj.1402R

Nov. 29.3d

Lun

A. R. Mly.

Nov. 30

Gr. 1588 L.C. = 46.696

9 47 32

+106 33

	m	m	m	m
55 4	33.1	11.6	3 33.9	2 55.1
	34.0	12.4	34.9	55.9
	20.7	59.1	20.8	42.4
	27.9	5.7	28.1	4.9.9
	115 7	2688	1177	33
	28.92	7.20	29.42	6082

38 Ursæ Maj. L.C.

10 15 23

+113 49

	m	m	m
40 3	42.0	2 55.1	183
	43.1	56.1	18.9
	27.9	42.0	4.0
	31.0	44.2	6.9
	14 4 0	197 4	48 1
	36.00	49.35	12.02

9 H. Draco. L.C.

10 24 46

+10 3 40

	m	m	m	m
50 1	53.0	23.7	0 57.9	36.2
	52.8	23.1	57.3	35.7
	40.3	9.8	44.4	21.9
	45.1	15.9	50.1	28.6
	19 1 2	7 25	97	25
	47.80	18.12	52.42	30.62

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1879phae.proj.1402R

20 Cephei

22 1 20
+62 12

m	m	m
15 2 21.2	51.9	8 33.3
20.0	49.7	31.1
11.0	41.0	23.2
15.9	46.4	27.3
8 8.1	2 9.0	11 49
22.02	47.25	28.72

24 Cephei

22 7 28
+71 45

m	m	m	m
40 4 26.2	44.0	45 0 10.9	43.9
25.1	42.1	7.9	41.2
15.2	32.9	58.3	32.8
20.9	37.0	4.9	3 9.1
7 4	15 6.0	22.0	15 7.0
21.85	39.00	5.50	39.25

31 Cephei

22 32 47
+73 1

m	m	m	m
25 3 22.5	51.4	4 12.1	40.1
20.1	48.9	10.1	38.2
9.9	38.5	59.9	27.4
15.0	44.1	5.1	32.2
6 7.5	22.9	26 7.2	16.9
16.88	45.72	6.80	34.22

η Pegasi

22 37 20
+29 35

m	m	R	R	M
50 3 26.1	4 20.9	20.7	20.4	21.1
28.5	24.1	24.0	24.2	23.7
17.0	12.0	12.6	12.6	11.2
21.1	15.9	16.3	16.2	15.3
9 2.7	7 2.9	7 3.6	7 3.4	7 1.3
23.18	18.22	18.40	18.35	17.82
	18.02	18.37		

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1879phae.proj.1402R

1879 Nov. 30

ζ Cephei

22 45 22

+65 34

	m	m	m
55 0	10.7	44.1	1 32.1
	7.2	39.7	28.6
	56.9	29.5	18.0
	3.2	37.1	25.0
	18.0	150.4	103.7
	4.50	37.60	25.92

α Piscis Aust.

22 50 58

−30 16

	m	m	R	R
40 1	23.0	2 48.0	42.2	42.1
	28.7	50.1	50.9	50.8
	18.2	39.0	38.8	39.2
	18.9	39.0	40.2	39.6
	88.8	171.1	172.1	171.7
	22.20	42.78	43.02	42.93
		42.78	42.97	

γ Pegasi

0 7 0

+14 31

	m	m	R	R	m
55 2	36.9	3 42.9	42.4	42.6	42.4
	41.1	49.1	48.0	47.8	47.1
	32.1	39.0	38.3	38.2	38.2
	30.9	36.9	36.8	37.0	37.0
	21.0	59	55	56	47
	35.25	41.48	41.38	41.40	41.18
		41.28	41.39		

Gr. 1586

9 47 32

+73 27

	m	m	m	m
0 3	18.0	59.1	4 26.3	46.1
	14.2	56.1	22.1	42.9
	4.4	45.9	12.0	32.8
	10.1	51.7	18.1	38.1
	67	228	785	1599
	11.68	53.70	19.62	39.98

Seeing very good

this A.M.

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1879phae.proj.1402R

α Mus. Maj. L.C.

10 56 45
+117 36

	m		m
55 3	7.6	2	29.7
	7.9		29.3
	52.1		14.0
	56.1		17.0
	37		900
	0.92		22.50

α Pegasi

22 58 44
+14 33

	m	m	R	R
40 4	49.7	55-1	14.6	14.0 14.0
	55.4		15.9	19.0 19.0
	46.9		9.1	10.0 10.3
	44.0		9.0	9.4 9.3
	19.60		5.16	5.24 5.26
	49.00		12.90	13.10 13.15

20 Cephei L.C.

22 1 20
+117 48

	m		m	m
45 1	50.6	0	48.8	31.0
	48.4		46.8	28.1
	33.1		30.4	12.6
	35.1		33.0	15.9
	16.72		15.90	8.76
	41.80		39.75	21.90

24 Cephei L.C.

22 7 28
+108 15

	m		m	m
15 3	27.9	2	37.7	01 [illegible]
	25.4		34.9	58 [illegible]
	11.9		21.2	[illegible]
	16.9		27.1	49.0
	8.21		12.09	70
	20.52		30.22	1.75

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1879phae.proj.1402R

152

1879 Nov. 30

38 Ucrs. Maj.

10 15 23

+66 11

	m	m	m	m
15	4 42.5	20 0 17.9	1 40	
	38.9	13.4	59.2	
	27.5	3.4	48.7	
	34.6	10.1	56.9	
	1435	448	2288	
	35.88	11.20	57.20	

9 Ucrs. Draco

10 24 46

+76 20

	m	m	m	m
10	0 32.1	49.8	1 30.3	543
	28.6	45.2	27.1	50.9
	17.3	34.1	15.8	400
	24.8	41.7	23.9	475
	1028	1708	971	1927
	25.70	42.70	24.28	48.18

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1879phae.proj.1402R

End of B 7

31 Cephei L.C.

22 32 47

+106 59

		m	m	m
30	4 29.9	8.1	3 41.4	6.0
	27.4	7.0	39.1	3.8
	12.7	52.1	25.0	49.1
	17.1	56.8	29.9	54.9
	8 7.1	4.0	13 5.4	23 3.8
	21.78	1.00	33.85	58.45

δ Leonis

11 7 40

+21 11

		m	m	R	R	m
15	1 59.9	4	23.1	22.8	22.1	22.9
	2.1		25.1	25.7	25.5	25.0
	51.2		14.4	14.2	14.0	14.1
	55.9		18.1	17.8	17.9	17.9
	22 9.1		8.07	8.05	8.95	7.99
	57.28		20.18	20.12	22.38	19.98

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1879phae.proj.1402R

1879 Nov. 30 – Dec. 1

Sun C = 46.696

16 29 57

– 21 51

	m		m
0 1	28.2	30 4	26.9
	34.1		34.1
	26.5		26.3
	25.1		26.0
	11 39		11 33
	28.48		28.32

β Arietis

1 47 57

+ 20 13

m	R	R	R
15	20.9	21.1	21.2
	26.8	26.2	26.7
	18.0	17.2	18.3
	20.8	21.2	20.8
	65	867	870
	21.62	21.68	21.75
	21.68		

4 & 2 C

25

α Ceti

2 55 57

+ 3. 37

m	m	R	R	dk
50 1	1.8	2.61	27.2	27.3	27.1
	9.0	34.9	35.3	35.0	34.4
	0.7	25.5	25.9	25.4	25.1
	0.2	27.4	27.9	27.8	27.6
	11.7	35.9	36.3	35.5	34.2
	29.2	28.98	29.08	28.86	28.55
		28.76	28.98		

β Corvi

12 28 2

– 22 44

m	m	R	R	m
10 1	4.2	2.1.6	6.6	6.9	7.1
	11.6	14.8	15.5	15.8	14.7
	6.6	4.9	8.8	8.4	8.1
	4.9	7.1	7.8	7.3	7.9
	27.3	38.4	38.7	38.4	37.8
	6.82	9.60	9.68	9.60	9.45
		9.53	9.64		

y

15

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1879phae.proj.1402R

67 Crt

2h 10m

−7° 0′

	m	m	R	R	m
25 2	10.1	38.4	38.0	37.7	37.9
	16.1	43.3	44.3	44.6	43.9
	10.6	38.7	39.9	39.2	38.9
	9.1	38.1	38.0	37.9	38.3
	59	1585	1602	1694	1590
	11.48	39.62	40.05	39.85	39.75
		39.68	39.95		

47 Crt

47 ~~Crt~~ 0.D ~~B Aur~~

2 50 4

+78 58

	m	m	m
30 3	54.1	4 10.3	23.9
	54.1	11.1	23.9
	41.6	58.3	12.2
	51.7	8.1	22.1
	15	26 78	21
	5 −0.38	6.95	20.52

A5 ∝ e

γ Virginis

12 35 32

−0 47

	m	m	R	R	m
15 0	33.9	1 06.9	56.8	56.2	56.8
	39.8	2.6	3.1	3.2	2.7
	33.9	56.2	56.8	56.3	56.4
	33.7	57.2	56.7	56.9	57.0
	21 3	2329	2334	2326	2329
	35.32	58.22	58.35	58.15	58.22

δ Virginis

12 49 30

+4 3

	m	m	R	R	m
25 0	37.9	1 43.9	43.9	43.8	44.4
	44.4	50.4	51.6	51.3	50.1
	34.0	41.0	41.1	40.8	41.0
	37.4	43.8	44.0	44.1	44.3
	33.7	1794	1806	1800	1798
	38.42	44.85	45.15	45.00	44.95
		44.90	45.07		

Pe. #

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1879phae.proj.1402R

156 1879. Dec. 1

Virginis

12 56 9

+11 37

	m	m	R
50 2	20.5	3 39,9	39.5
	25,6	4,5,5	45.6
	17,4	3,71	37.4
	19,7	3,92	38,8
~~3~~	~~33~~2	16 17	16 13
	20.82	40,42	40,32

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1879phae.proj.1402R

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1879phae.proj.1402R

1879 Dec 1 – 2

Sun. C = 46.696

16 34 16

– 22 0

m		m
10 0 34.9	35	10 0 39.4
43.5	4.9	48.2
38.9	39.1	46.9
39.1		43.9
15 64		184
39.10		44.60

Seeing very good.

Dec. 2

γ Virginis

12 35 32

– 0 47

m	m	R	R	M	M	
15 0 44.1	2 5.3	4.8	5.2	18.1	5.4	25
51.0	12.1	13.8	13.0	9.8	13.1	
48.4	10.1	9.0	9.4		9.8	
48.9	9.9	9.7	9.6		9.9	
32.4	8.74	8.73	8.72		8.82	
48.10	9.35	9.32	9.30		9.55	
	9.45	9.31				

Foll. #

2 Virginis

13 18 49

– 10 32

m	m	R
0 0 7.0	1 14.0	13.4
11.9	19.9	20.0
11.1	19.1	19.5
10.2	18.2	17.7
02	51 2	706
10.05	17.80	17.65

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1879phae.proj.1402R

δ Virginis

12 49 30

+4 3

	m	m	R	R	W
25 1	23.1	57.6	53.7	53.3	57.1
	31.6	31.0	31.2	38	28
	29.0	56.4	56.1	56.0	56.3
	27.3	58.1	58.0	58.8	58.9
	27.2	23 21	23 10	23 19	23 21
	26 80	58.02	57.75	57.98	58.02
		58.02	57.81		

Stephens

ε Virginis

12 56 9

+11 37

	m	m
50 2	34.4	38.9
	40.9	45.3
	36.4	40.9
	37.3	42.1
	290	72
	37.25	41.80

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1879phae.proj.1402R

160 1879 Dec-2-3

Sun c=46.696

16 38 37

−22 8

A. R. only.

Seeing very good.

h
16.0 to 17.0

Adjusted focus
4 times
Read each
Quadrant

ε Virginis

12 56 9

+11 37

m	M	R
50 2 27.0	3 23.1	23.2
32.1	29.4	29.6
29.1	25.9	25.9
30.0	26.6	26.5
11 8.2	25.0	25.2
29.55	26.25	26.30

ζ Virginis

13 18 49

−10 32

m	m	l	R	R	M
55 4 47.9	0	1 7.1	7.8	7.8	8.0
54.8		13.9	13.8	14.0	14.0
54.0		14.1	14.2	14.1	14.4
52.0		11.5	11.8	11.8	12.1
87		66	76	77	85
52.18		11.65	11.90	11.92	12.12
		11.88	11.91		

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1879phae.proj.1402R

Removed
micrometer A
Placed 15° arc
in position

δ Virginis C=46.715

12 49 30
+4 3

	m	M	R	R	m
25 0	22.9	1469	46.1	46.2	46.1
	30.5	54.9	54.8	55.0	54.9
	24.9	48.4	48.2	48.6	48.9
	26.9	50.2	51.0	51.0	50.8
	25.2	04	2001	2008	2007
	26 30	50.10	50.12	50.20	50.18
		50.14	50.16		

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1879phae.proj.1402R

1879 Dec. 3-4

Sun C = 46715

16 42 57

-2 2 16

A. R only.

Put on glass

Conv at -17°

Adjusted mc 202 cap 3

in North Collimator

Seeing moderately good.

ε Eridani

3 27 14

-9 52

m	m	R	R	m
15 4 33.1	20 0 55.9	55.1	54.9	55.1
41.5	3.5	4.2	4.2	3.9
57.3	18.1	18.7	18.8	18.6
43.6	6.4	6.4	6.1	6.2
17 55	239	244	240	238
43.88	5.98	6.10	6.00	5.95
	5.97	6.05		

δ Eridani

3 37 30

-10 11

m	m	R
35 2 50.8	4 19.1	18.2
8.1	27.2	28.2
14.1	41.6	41.9
1.6	29.0	29.0
66	1169	1173
1.65	29.22	29.32

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1879phae.proj.1402R

β Arietis

1 47 57
+20 13

	m	m	R	R	m
15 0	54.1	1 36.1	36.2	36.0	36.0
	1.4	43.9	44.2	43.8	43.4
	12.9	54.6	55.0	55.0	54.6
	4.3	46.1	45.6	46.3	46.0
	1 27	1807	1810	1811	1800
	3.18	45.18	45.25	45.28	45.00
		45.09	45.27		

Sol - β +1

α Arietis

2 0 21
+22 53

	m	m	"	R	R	m
30 4	49.0	35	1.89	8.7	8.5	8.6
	58.9		16.3	17.2	17.0	16.5
	5.0		24.2	24.6	24.8	24.5
	57.9		19.3	18.7	19.0	19.1
	22 8 8		28.7	6 9 2	293	287
	57.20		17.18	17.30	17.32	17.18
			17.18	17.31		

η Tauri

3 40 18
+23 44

	m	m	R	R	m
45 0	18.6	1 9.3	9.3	9.0	9.0
	26.0	17.3	17.9	17.8	16.9
	34.9	25.5	24.8	24.8	25.3
	26.4	18.9	19.0	19.1	19.1
	10 7 9	710	710	707	703
	26.98	17.75	17.75	17.67	17.58
		17.66	17.71		

ζ Persei

3 46 32
+31 31

	m	m	R	R	m
55 2	7.0	3 19.9	20.0	19.9	19.5
	14.2	27.7	28.0	28.1	27.8
	22.4	35.9	36.3	36.9	36.2
	17.1	30.2	30.0	29.8	30.0
	607	1137	1143	1147	1135
	15.18	28.42	28.58	28.68	28.38
		28.40	28.63		

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1879phae.proj.1402R

Dec 4 1879

ι Comæ

12 3 54

−21 57

R	R
2h 3 5.94	5.94
11.3	11.6
2.53	2.01
8.8	8.9
27.98	28.03
9.95	10.08

δ Corvi

12 23 37

−15 50

m	m	R	R
15 3 9.5	4 34.1	34.3	
21.1	45.6	46.4	
20.1	54.9	53.4	
10.1	42.5	42.8	
79.8	177.1	176.9	
19.95	44.28	44.22	

α Virginis

13 18 49

−10 32

m	m
55 44.69	0 12.45
55.4	32.2
6.2	44.6
54.0	32.9
22.25	13.42
55.62	33.55

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1879phae.proj.1402R

γ Virginis

12 35 32

−0 47

	m	m	R	R	m
15 0	37.4	2′ 4.9	5.0	4.9	5.1
	46.1	14.1	14.4	14.9	14.1
	54.9	23.9	24.0	24.1	22.9
	44.9	13.3	13.7	13.1	13.2
	18.33	562	571	570	553
	45.82	14.05	14.28	14.25	13.82
		13.92	14.27		

δ Virginis

12 49 30

+4 3

	m	m	R	R	m
25 0	17.9	1 44.4	43.7	44.9	43.9
	28.5	54.5	55.0	55.2	54.9
	33.9	59.4	59.2	58.9	59.4
	26.1	52.8	52.5	52.8	52.1
	10.64	2111	2104	2118	2103
	26.60	52.78	52.60	52.95	52.58
		52.68	52.77		

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1879phae.proj.1402R

166

1879 Dec. 4–5

Sun. = 46.723

6 47 18

−22 24

350 11.2

21.1

Seeing moderately good.

1st limb in A. R. only

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1879phae.proj.1402R

168

1879, Dec. 6

ζ Virginis

13 18 49

−10 32

m	m
55 4 52.1	0 0 19.2
0.0	26.2
14.9	42.9
4.1	31.9
1.1.1	12 0 2
2.78	30.05

η Bootis

13 48 55

+19 0

m	m	m	R	R	m
25 3 45.0	30 0	1.5	9.9	10.7	10.5
53.2		17.9	18.0	18.3	17.9
3.4		29.9	29.2	29.1	28.6
56.1		21.9	22.2	22.2	22.1
21 7.7		12	7.93	8.03	7.93
54.42		20.30	19.82	20.08	19.85
		20.06	19.95		

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1879phae.proj.1402R

Dec. 6-7 1879

C=46.723

Sun

16 56 3°

−22° 30'

R.

22 0 55.5

3.2

16.8

8.1

26 3.1

5.78

1st Limb A in AR

2nd " A " "

Upper limb in ν

31 Cephei

22 32 47

+78 1

	m	m	m	m
25	3 10.1	30.9	46.9	4 17.0
	15.0	35.2	51.5	21.0
	26.7	47.7	4.6	33.4
	20.1	41.3	57.9	25.0
	7 19	15 51	22 09	9 84
	17.98	38.78	55.22	24.60

2 Piscis Aust.

22 50 58

−30 16

	m	m	R
40	1 26.7	2 55.2	55.0
	37.9	80	8.2
	51.9	189	19.7
	41.9	108	11.0
	15 84	27 29	27 39
	39.60	8.22	8.48

Comparison Clear

Sun

2 Mus. Maj. L. C.

10 56 15

+117 36

	m	m
55	2 36.4	1 45.1
	44.1	52.0
	52.1	58.9
	43.2	51.4
	17 58	74
	43.95	51.85

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1879phae.proj.1402R

η Pegasi

22 37 20
+29 35

m	m	R
50 2 56.2	4 6.3	5.9
4.1	14.6	15.0
15.8	24.9	24.9
8.4	17.8	18.7
26 45	6 36	645
6.12	15.90	16.12

ζ Cephei

22 45 22
+65 34

m	m	m
50 4 56.0	55 0 31.5	1 8.1
1.1	34.1	11.1
10.8	45.5	23.0
5.1	42.1	18.8
130	1532	6 10
3.25	38.30	15.25

ζ Pegasi

22 58 44
+14 33

m	m	R	R
50 4 41.1	55 0 10.3	10.1	10.6
52.2	20.0	20.3	20.9
4.3	33.9	33.9	34.2
54.0	23.1	23.2	22.9
21 46	8 73	8 75	886
52.90	21.82	21.88	22.15
	21.82	22.01	

Π Cephei

23 4 3
+74 44

m	m	m	m
45 0 5.9	31.5	57.2	1 2.1
10.3	35.4	0.9	2.5.1
21.6	46.9	12.2	36.1
17.0	42.9	7.1	31.9
548	1567	174	1142
13.70	39.18	4.35	28.55

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1879phae.proj.1402R

1879, Dec. 7
G 2.177 L 6.
1 15 39
+115 0

	m	m	m
30 2	23.1	0.6	1 13.2
	27.1	5.8	19.1
	32.9	12.1	25.7
	26.8	4.9	18.2
	10 99	23 4	7 62
	27.48	5.85	19.05

4 Cass.
23 19 28
+61 37

	m	m	m
50 1	32.8	2 5.2	55.1
	36.2	8.6	58.9
	49.1	19.2	10.1
	43.2	14.9	4.5
	16 13	4 79	86
	40.32	11.98	2.15

2 Aurig
2 0 21
+22 53

	m	m	R	R	m
30 4	56.1	35 1	12.8	12.4	12.6 12.1
	3.3		21.1	21.3	21.4 20.8
	11.6		29.9	30.3	30.2 30.2
	6.9		25.1	25.3	25.3 25.0
	17.9		89	893	895 881
	4.48		22.22	22.32	22.38 22.02
			22.12	22.35	

2 Cygni
2 55
+33 7

	R	R
50 0	59.3	59.2
	11.7	11.6
	21.2	21.1
	14.1	13.8
	463	457
	11.58	11.42
	11.50	

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1879phae.proj.1402R

λ Draco. L-6.

11 24 12

+110 0

m	m	m
30 1 50.1	21.2 0	42.5
55.9	26.1	46.9
2.6	34.1	55.2
57.1	29.5	48.8
22 57	11 09	19 34
56.42	27.72	48.35

β Aurigæ

1 47 57

+20 13

m	m	R	R	m
15 0 9.8	1 33 1	33.5	33.2	33.2
18.0	41.3	42.7	42.1	42.1
29.9	53.4	53.6	53.8	53.3
22.0	46.5	45.9	46.2	45.5
7 9 7	17 43	17 57	17 53	17 41
19.92	43.58	43.92	43.82	43.52
	43.55	43.87		

~~ζ~~ ~~Ursæ~~ S Cassiopeiæ

3 40 1+ 3 37 20

~~+23~~ 14 −10 11

R

35 3 53 30

41

18.7

7.8

32.8

8.20

η Cassiopeiæ

3 40 1+

~~+23~~ 44

R

40 4 35.2

45.2

53.0

47.6

18.10

45.25

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1879phae.proj.1402R

Grey 1879

γ Persei

3 46 02

+31 31

R

55 3 22.0

31.9

41.3

35.6

13 08

32.70

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1879phae.proj.1402R

Dec 8 1879

B Louis
11 42 53
+15 15

R	R
15 0 24,6	24,1
32,8	33,1
43,3	42,4
34,4	34,9
13 5 1	13 45
33.78	33.62
33.70	

Discovered that Microscope No 1 Rev Dec 1 wrong (since the adjustment Dec 2-3)

After the observation of B Louis set it forward on the Circle 1'

Before setting
2 reads 0 0 0,1

After setting
2 reads 0 0 2,8

V Comas
12 23 57
−15 50

R	R
15 3 10,7	10,4
21,9	22,1
30,8	31,0
18,4	18,0
8 18	8 15
20.45	20.38
20.41	

B Comas
12 2 52
−2 24

R	R
10 2 5,3	5,1
16,7	16,5
26,4	26,3
13,3	13,4
6 17	6 13
15.42	15.32
15.37	

15

A −1 2 3 4

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1879phae.proj.1402R

Looks out by a change of 2.7" in Dec for this star.

2 Corvi
12 3 54
−21 57

	R	R
25 0	158	153
	263	263
	370	371
	240	240
	1031	1027
	25.78	25.68

Ry 1 ST
25.73

γ Virginis
12 35 32
−0 47

	m	m
15 0	39.9	1081
	49.1	71
	59.9	176
	465	41
	1954	2671
	48.60	6.78

δ Virginis
12 49 30
+4 3

	m	m	R	R	W
25 0	33.0	47.9	48.0	47.9	47.9
	44.1	58.6	59.0	58.9	58.2
	49.1	4.0	4.0	4.4	4.2
	39.8	54.1	54.8	54.3	54.2
	60	2246	2258	2256	2245
	41.50	56.15	56.45	56.40	56.12
		56.14	56.42		

Hall #

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1879phae.proj.1402R

178

1879 Dec. 8

ε Virginis

12 56 9

+11 37

m m

50.2 19.8 8 41.5

28.4 50.9

36.3 58.0

25.1 46.9

10.6 19.3

27.40 49.32

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1879phae.proj.1402R

1879 Dec. 8–9

Sun C=46723

17 4 49

−22 51

m		m
0 1 49.5	30 4	59.1
59.3		10.2
8.9		20.0
56.3		6.0
2290		2753
57.25		8.62

Seeing pretty bad.

Dec. 9

B Aurigæ

1 47 57

+20 13

m	m	R	R M	
15 0 12.9	1 33.9	34.1	34.0	33.8	30
21.2	41.1	42.0	41.8	41.6	
29.1	49.1	49.1	48.8	48.4	
18.9	39.0	39.0	39.1	39.2	
821	1631	42	37	32	
20.52	40.78	41.05	40.92	40.80	
	40.79	40.98			

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1879phae.proj.1402R

ζ Arietis

2 0 21

+22 53

m		m	R	R	m
30 4 51.1	35	1 13.6	14.2	14.0	14.1
59.1		22.0	22.2	22.1	22.1
2.4		26.6	27.0	26.8	26.9
55.1		19.1	19.1	18.8	20.0
22.1		8.3	25	17	29
56.92		20.32	20.62	20.42	20.72
		20.52	20.52		

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1879phae.proj.1402R

1879. Dec. 11–12

Sun C = 46.723

7 18 1C

– 23 6

.15	12.9	50 0	22.9
	24.9		35.2
	36.0		46.1
	22.1		32.7
	959		1369
	2398		3422

Seeing pretty fair.

Dec. 12

2 Androm.

0 2 8

+28 25

m

0	4	19.0
		27.0
		32.3
		24.9
		1032
		25.80

5 strokes for δ f. F. m. sl2.

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1879phae.proj.1402R

γ Pegasi

0 7 0

+14 31

		m	m
55	3	52.9	53.1
		4.0	3.5
		12.0	11.9
		59.1	59.0
		80	75
		2.00	1.88
		1.94	

3 strokes for δ J. F. M. obs

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1879phae.proj.1402R

1879 Dec. 15

β Arietis c=46.723

1 47 57

+20 13

m	m	R	R	m
15 0 27.4	1 25.2	25.0	24.8	24.9
33.9	31.9	32.2	32.2	31.4
40.1	38.1	38.8	38.9	38.1
31.9	28.9	28.7	28.7	29.1
233	41	47	46	35
35.82	31.02	31.18	31.15	30.86
	30.95	31.17		

α Arietis

2 0 21

+22 53

m	m	R	R	m
35 0 14.7	1 17.8	17.1	17.6	17.2
21.2	24.2	24.4	24.8	24.2
24.9	27.6	28.6	28.7	27.9
18.0	21.3	21.1	21.6	21.8
788	969	912	927	911
19.70	22.72	22.80	23.18	22.78
	22.75	22.99		

δ Eridani

3 37 30

− 10 11

d	m
35 2 54.6	4 25.7
3.1	33.9
13.0	43.1
59.1	29.1
98	1318
2.45	32.95

η Tauri

3 40 18

+23 44

m	m	R	R	m
40 4 36.4	45 0 59.1	58.6	58.2	58.3
44.9	5.1	5.8	5.6	5.0
48.0	8.5	9.0	8.9	8.8
40.0	2.1	2.1	2.0	2.0
93	151	155	149	141
42.32	3.78	3.88	3.72	3.52
	3.65	3.80		

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1879phae.proj.14028

ζ Ceti

2 55 57
+3 37

m	m	R	R	m
50 18.6	2 31.2	31.2	30.9	30.9
18.8	40.9	41.8	41.7	41.4
22.8	45.4	45.9	45.4	44.9
13.9	35.9	36.2	36.2	36.2
64.1	153.4	155.1	154.2	153.4
16.02	38.35	38.78	38.55	38.35
	38.35	38.66		

ε Eridani

3 27 14
−9 52

m	m	R	R	m
15 4 52.5	20 05.6	57.9	58.1	57.9
1.2	5.9	6.1	5.9	6.0
10.8	15.8	16.6	16.6	16.1
57.1	30	2.7	3.2	3.1
16	262.3	2633	2638	2631
0.40	5.58	5.82	5.95	5.78
	5.68	5.88		

ζ Persei

3 46 32
+31 31

m	m	R	R	m
55 2 13.3	3 30.9	30.7	29.9	30.4
19.1	37.1	37.0	37.5	37.7
24.3	41.8	41.8	42.4	41.1
16.9	33.9	33.9	34.1	33.8
73.6	23.7	23.4	14.39	23.8
16.40	35.92	35.85	35.98	35.75
	35.83	35.91		

Gr. 1582

11 58 48
+76 36

m	m	m	m
55 0 46.3	9.9	37.2	57.0
48.4	12.8	39.7	0.0
50.9	13.8	41.6	2.5
48.1	12.1	38.7	58.9

Ch failed

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1879phae.proj.1402R

ε Corvi

2 2 3 54

−2 1 57

	m	m		R
20 4	5.0	25	0 26.1	25.6
	16.9		36.0	36.1
	23.3		43.9	44.1
	9.5		30.1	31.0

Ch. failed

G_2. 29 L.B

0 9 7

+103 45

	m	m	
45 4	28.2	9.1	37.1
	32.1	13.0	40.2
	32.9	12.5	41.5
	26.1	8.1	33.0

Ch failed

γ Virginis pr.

12 35 32

− 0 47

	m	m	m
15 0	37.0	1 54.3	53.9
	46.1	2.1	2.1
	52.1	8.1	8.1
	40.2	56.9	56.9
	1.754	1.4	1.0
	43.85	0.85	0.25
		0.30	

pr. #

δ Virginis

12 49 30

+4 3

	m	m	R	R	
25 0	23.9	1 43.0	42.3	42.8	42.4
	33.1	52.7	52.8	53.0	52.9
	36.2	55.1	55.6	55.5	
	26.9	45.9	45.4	45.8	
	1201	1967	1961	1971	
	30.02	49.18	49.02	49.28	
		49.18	49.15		

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1879phae.proj.1402R

δ Corvi

12 23 37

−15 50

m	m	R	R
15 3 19.9	4 37.3	36.7	36.2
30.2	48.2	48.5	48.8
36.6	53.9	53.8	54.2
23.1	41.9	41.2	41.1
10 9.8	18 1.3	18 0.2	18 0.3
27.45	45.32	45.05	45.07
	45.32	45.06	

β Corvi

12 28 2

−22 44

m	m	R	R	m
10 0 54.0	2 16.9	16.5	16.3	16.9
5.0	27.0	27.4	27.8	27.4
11.4	33.9	34.0	33.8	34.0
54.9	21.5	21.0	21.0	21.2
10.3	9.93	9.89	9.89	9.95
2.58	24.82	24.72	24.72	24.88
	24.85	24.72		

ε Virginis

12 56 9

+11 37

m	m
15 0 25.9	3 49.6
5.9	5.8
9.1	2.4
59.0	51.5
10.9	22.3
2.72	55.32

ζ Virginis

13 18 49

−10 32

m	m
55 4 51.1	0 14.1 #
0.2	21.1
8.1	8.1
54.1	17.0
23.5	8.3
58.38	20.82

E Thompson

Perhaps first-class

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1879phae.proj.1402R

188

(105 20)

1879 Dec. 15

B Theo. Mean.

14 51 5

+74 40

	m	m	m	m	m	m	m
50	1 20.2	40.6	57.9	2 15.7	27.8	38.1	49.9
	21.7	42.0	0.0	17.6	29.7	39.6	51.9
	24.9	45.9	2.5	19.4	32.2	43.0	55.1
	19.9	40.1	57.1	14.0	27.1	37.7	49.9
	67	86	2575	267	368	384	68
	21.68	42.15	59.38	16.68	29.20	39.60	51.70

α Scorpii

16 21 59

−26 10

	m	m	R	R	m
35	1 26.9	2 53.9	53.4	53.5	53.7
	39.2	6.6	6.7	6.7	6.9
	45.5	11.9	11.8	11.9	11.8
	32.3	58.2	58.7	59.0	59.1
	1439	2506	2506	2511	2515
	35.98	2.65	2.65	2.78	2.88
		2.76	2.71		

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1879phae.proj.1402R

β Librae

15 10 30
−8 56

	m	m	R	R	m
20 4	18.1	25 0	38.1	37.8	37.4	38.3
	26.6		~~46.9~~	46.1	45.9	46.0
	35.9		~~58.2~~	54.4	54.4	54.1
	21.0		~~41.9~~	42.0	42.1	42.1
	10 16		18 21	18 03	17 98	18 05
	25.40		45.52	~~43.08~~	44.95	45.12
			45.32	45.01		

ζ Serpentis

15 38 18
+6 48

	m	m	R	R	m
40 0	17.9	1	44.4	44.2	44.2	44.1
	26.4		54.1	54.7	54.7	53.9
	30.4		58.0	58.2	58.5	58.4
	20.7		47.2	47.0	47.0	46.9
	9 54		42	41	44	3'3
	23.85		51.05	51.02	51.10	50.82
			50.93	51.06		

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1879phae.proj.1402R

1879. Dec. 15–16

Sun, c=46.723

17 35 44

−23 20

m		m
30 1 12.1	0 4	20.8
23.1		32.5
30.1		39.9
15.9		24.9
8 1 2		11 8 1
20.30		29.52

Seeing pretty fair.

Dec. 16

2 Ariet.

2 0 21

+22 53

m	m	R	R	m
30 4 51.2	35 1 20.0	20.3	20.0	20.1
58.9	24.1	27.9	27.9	27.1
1.4	30.9	30.9	30.0	30.0
53.9	23.8	23.2	23.3	24.1
22 5 4	10 1 8	10 2 3	10 1 5	10 1 6
56.35	25.45	25.58	25.38	25.40
	25.43	25.48		

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1879phae.proj.1402R

Dec. 16–17

See next book (A 5)

3	30	3	38.9	ν 1	46.4
			50.0		58.0
			56.3		4.8
			43.0		52.0

A6 & C. ~~not A.R. for 1st limb~~ in A.R.

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