1879phae..proj..1399R

KG
11366
v.395

Fundamental Stars.
Circle Readings

A1 1879

Charles W. Sever, University Bookstore, Cambridge.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1979phae.proj..139R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

A20

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

2

1879 Feb. 15

ε Orionis Mizar

16h 58m

+82 14 +97 46

	m	m	m	m	m	m
40	3 53.8	29.9	18.1	6.8	2 55.8	52.4
	3.1	30.6	18.4	6.6	55.4	51.4
	55.9	33.8	21.7	9.4	57.7	54.7
	56.4	33.7	21.4	9.2	58.1	58.1
	2292	1280	796	320	270	166
43	~~57.30~~	~~32.00~~	~~19.90~~	~~8.00~~	~~42 56.75~~	~~54.15~~
43	57.30	32.00	19.90	8.00	42 56.75	54.15

1 stroke for 1st & last ⊙

ζ Orionis

5h 18m 38s

+6° 14′

		M,,,	M,,,	R,,,	R,,,
10	2′	30.7	49.2	49.8	49.5
		37.1	56.2	56.2	56.1
		44.9	2.3	1.2	1.8
		38.7	54.2	58.3	58.8
		151.4	2249	2255	2262
12	37.85		56.22	56.38	56.55

~~+15~~ 43

~~56.38~~ .41

β Orionis

5h 8m 43s

−8° 20′

		M	M	R	R
45	2′	41.1	1.4	11.5	12.2
		45.6	16.6	15.9	16.1
		57.7	27.5	25.7	26.2
		58.1	20.1	20.6	20.8
		1945	756	737	753
47		48.62	18.90	18.42	18.82

124

~~18.71~~ 62

δ Orionis

5h 25m 49s

−0° 24′

		m,,,	m,,,	R,,,	R,,,
50	0	4.9	11.9	12.3	12.4
		10.3	18.3	18.0	18.2
		20.6	27.7	26.6	26.9
		18.3	20.9	21.4	21.8
		491	788	783	793
50	12.27		51 19.70	19.57	19.82

139

~~19.70~~ 69

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ζ Orionis & Columbae

~~5 34 27~~ 5 35 16
~~7 1~~ −34 8

	M$_{11}$	M$_{11}$	R	R
1 1			11	
30 2	3.7	2 56.3	56.2	56.2
	10.8	4.0	3.8	3.9
	18.0	11.0	~~9.8~~	10.2
	12.0	4.8	4.8	5.2
	44 5	2561	2546	2555
32	11.12	4.02	3.65	3.87

~~11 57~~ 192
~~38 5~~
.76

ν Orionis

5 4 48 37
7 23

	M$_{11}$	M$_{11}$	R	R$_1$
0 1			11	
3	52.1	4 59.7	59.2	58.8
	58.6	6.1	5.8	6.0
	49	12.2	11.7	11.0
	59.9	7.3	7.2	7.1
	2355	2153	2639	2629
3	58.87	4 6.32	5.97	~~3.22~~ 5.72

X69
6.80
.35

ν Columbae K Orionis

~~5 30 16~~
~~−34 8~~
5 42 1
−9 43

	M$_{11}$	M$_{11}$	R	R
1 1			11	
5 4	8.2	0 18.4	18.0	17.8
	13.6	28.2	23.7	23.6
	25.1	35.6	34.2	34.7
	16.0	26.4	26.7	26.3
	629	1036	1026	1024
9	15.72	10 25.90	25.65	25.60

275
25.72
.62

Bloemhier

50	0	~~39.8~~	1 2.6	16.1
		38.1	59.3	13
		~~44.5~~	~~5.2~~	
		42.2	5.4	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

4

Feb. 16 1879

γ Virginis

13 55 29

+2 8

	M	M	R	R
15 4	11.1	0 14.4	14.8	13.8
	17.4	20.1	20.2	20.0
	23.1	26.8	26.2	26.2
	17.1	22.1	21.8	21.8
	68.7	83.4	83.0	81.8
9	17.17	10 20.85	20.75	20.45

20.60

ε Draconis

14 0

+64 59

	M	M	M
30 1	33.2	2 14.6	8 2.3
	30.9	12.4	29.1
	36.4	17.3	34.8
	36.5	18.3	35.1
	170	22.6	131.3
31	34.25	32 15.65	32.82

Ch. f.?

β Librae

15 10

−8 56

	m	m	R	R
20 2	44.4	3 39.4	39.2	39.7
	48.1	43.1	43.9	44.0
	58.2	53.9	53.0	52.7
	49.4	45.9	44.7	44.3
	240.1	182.0	180.8	180.7
22	50.02	23 45.50	45.20	45.17

45.18

γ² Coronæ Borealis

15 21

+72 16

	m	m	m	m
10 2	6.9	3 39.8	4 5.5	19.1
	4.3	36.8	2.9	16.5
	10.8	43.4	8.4	22.5
	8.6	41.3	8.1	22.4
	30.6	161.3	24.9	80.5
12	−7.65	40.32	14 6.22	20.12

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ν Bootis
14 10 +
+19 49

β Cor. Bor.
14 51
+74 39

50	0 39.8	1	2.8	16.1
	38.1		59.3	18.8
	44.5		5.2	19.7
	42.7		5.4	18.6
	1646		2527	284
50	41.15	51	3.17	17.10

Perhaps last last slope for 1st ✓

α Serpentis
15 38
+6 48

35	3 42.6	4	48.0	43.0	42.6
	49.4		49.4	49.0	49.1
	55.7		54.9	54.8	54.8
	48.1		48.4	48.2	48.7
	1958		1957	1950	1952
38	48.95	39	48.92	48.75	48.80

48.77

ζ Cor. Bor.
15 48
+78 10

15	3 59.5	4	15.9	40.5	56.2	20.0 15.4
	57.4		14.6	39.2	54.7	13.4
	0.4		18.1	42.9	56.7	16
	3.9		19.7	44.3	59.6	18.6
	2612		283	69	272	240
19	0.30	19	17.07	41.72	56.80	20 16.50

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

6

1879. Feb. 15

δ Scorpii

15 53

−22 17

m	m	R	R
40 2 34.8	3 16.3	16.0	15.8
41.4	23.9	24.1	23.5
60.8	(?31 22.1)	? 30.0	30.9
40.7	22.4	22.2	23.2
16.74	47	923	934
42 41.85	43 21.17	23.07	23.35
		~~759~~ 4.2	
		~~22.53~~ 23.21	

Lost A +1

β Scorpii

15 58

−19 28

m	m	R	R
50 4 12.6	55 ~~0~~	2.3	2.6
20.7	24	9.9	9.9
27.6	10.2	16.8	17.6
19.6	17.9	9.7	9.6
8.05	9.0 345	387	397
54 20.12	55 9.87	9.67	9.92
		~~24.6~~ 15.4	
		~~9.82~~ .79	

ζ Ophiuchi

16 30

−10 19

m	m	R	R
45 0 40.8	1 41.4	40.8	41.0
44.3	44.6	44.9	45.0
54.6	65.1	54.2	54.5
44.1	46.4	46.1	47.3
18.40	18.75	1860	1878
45 46.80	46 46.87	46.50	46.95
		~~1.45~~	
		46.7 ½	

ε Ophiuchi

16 58

+82 14

m	m
15 0 35.8	55.2
34.4	51.8
36.4	54.8
38.6	56.9
25.2	
15 36.30	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Ophiuchi

16 8

−3 23

	m	m	R	R
45 4	46.8	50 0 58.1	57.4	57.6
	58.1	3.2	3.2	3.8
	0.0	12.1	9.8	11.7
	5.2	3.9	4.7	5.0
	21.1	25.3	25.1	25.1
49	52.78	51 4.32	3.78	4.52
			~~62~~ 150	30
			4.27 .65	4.15

η Draconis

16 22

+61 47

	m	m	m
40 1	14.6	32.6	2 20.0
	12.1	29.1	16.8
	18.6	35.9	23.7
	16.8	33.2	22.7
	22.1	1308	8.27
41	15.52	32.70	~~43~~ 42 20.67

α Ophiuchi

17 29

+12 39

	m	m	R	R
45 4	1.5	40.8	41.1	40.9
	6.6	46.2	44.9	44.0
	11.4	57.6	50.5	50.8
	6.4	45.1	46.2	45.0
	24.9	18.37	18.27	18.07
49	6.22	45.92	45.67	45.18
			~~177~~ 85	
			~~45.59~~ 45.42	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

8

~~Sun~~ 1879 Feb. 16

~~21 58 Sun~~

~~12 23 Sun~~

Sun

21 58

12 23

M		M	
+55 4	46.3	25 2	47.6
	53.2		55.4
	1.4		4.1
	52.0		55.1
	21 29		22 22
59	53.22	27	55.55

Lower limb: 1st $L = A_{+1} + A_{-1}$

Upper limb 2nd $L = A_{+89} - A_{-1}$

48, 46. Capri L. L.

3 5 1

+02 43

M		M	M	M
45 3	1.1	2	42.7	25.2	11.5
	1.7		42.3	25.7	11.7
	3.8		45.7	27.3	14.1
	5.2		46.8	29.4	15.1
	11 3		175	276	124
48	2.82	47	44.37	26.90	13.10

Intuke for Lat. &

Feb. 16

β Orionis

5 8 43

−8 21

M		M		R.	R.
45	58.1	3	13.7	3	14.5	14.4
	33		27.4		19.9	20.1
	15.1		30.3		29.9	29.1
	6.1		28.2		23.2	23.8
26	26		876		875	874
47	5.65	46	21.90		21.87	21.85

272

21.87

γ Leonis, Rm

15 20 56

+72.16

M		M		M	M
10 2	50.1	3	10.1	46.8	4	4.7
	50.3		9.1	44.9		3.1
	55.5		15.6	51.7		8.8
	55.9		15.1	51.8		8.9
	11 8		499	1952		255
12	52.95	13	12.48	48.80	14	6.37

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Orionis

5 18 38
+6 14

M	M	R	R
10 2 37.2	10 3 39.6	39.3	39.2
44.9	47.6	47.2	46.8
51.9	53.2	53.2	53.5
45.6	48.6	49.8	48.7
17.6	18.0	18.5	18.2
12 44.90	13 47.25	47.37	47.05
		~~47~~ 42	
		47.22	

δ Orionis

5 25 50
−0 24

m.	m	R	R,
50 0 2.1	1 13.2	13.0	12.7
9.0	19.1	19.6	19.8
18.1	28.7	27.9	27.7
12.0	21.9	22.5	23.0
41.2	8.29	8.30	8.32
50 ~~8.21~~ 10.30	51 20.72	20.75	20.80
		~~22.7~~ 15.5	
		20.78	

G2.716 L.C.

3 31 40
+117 11

m	m	m
20 2 21.6	1 46.62	18.8
22.1	46.3	14.1
22.9	48.6	15.9
21.1	45.5	12.9
77	270	167
22 21.92	21 46.75	14.17

L Serpentis

15 38 18
+6 48

m	m	R	R
353 46.7	4 51.6	52.3	52.2
58.9	59.2	58.9	59.0
59.8	4.2	4.1	4.1
52.6	59.9	0.0	59.5
21 47	23 48	23 53	23 48
38 53.67	39 58.70	58.82	58.70
		~~15~~ 22.2	
		58.74	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1899 Feb. 18

γ Virg. Sun C=46.767

15h 48m 24s

+78° 10'

		m	m	M	M				
15	4	12.6	33.6	54.1	20	0	10.2		
		11.8	33.4	52.1			8.6		
		14.1	35.7	54.6			13.8		
		17.3	38.9	58.3			15.2		
		158	216	191			478		
19		13.95	35.40	54.77	20		11.95		

β¹ Scorpii

15 58 24

−19 28

		'	'	"	'			R	R
50	4	9.5	55.0					16.2	15.8
		19.0	16.8					24.8	24.7
		24.8	24.3					80.9	31.3
		17.3	31.8					22.9	23.2
		706	23.1					948	950
54		17.65	23.67					23.70	23.75

145

23.72

α Scorpii

16 21 59

−26 10

		m	m	R	R				
30	4	43.6	02.1	52.5	52.3				
		50.4	59.8	0.5	0.2				
		57.3	6.4	6.4	6.7				
		5.9	0.8	59.7	0.0				
		32	2391	2391	2392				
		50.80	59.77	59.77	59.80				

~~234~~

157

5978

ζ Ophiuchi C=46.767

16 30 30

−10 19

		m	m	R	R				
45	0	43.7	1	44.6	44.2	44.3			
		47.6		49.9	49.0	49.1			
		57.2		58.3	57.8	56.8			
		49.6		50.7	50.7	50.0			
		1981		2015	2014	2002			
		49.52		50.37	50.42	50.05			

~~54~~

47

50.28

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Ophiuchi 16

16 8 0

−3 27

M	m	R	R
50,0	25.1	57,2	56.8	56.8
	8 1,4	2,8	3.8	3.7
	39,5	10,8	10.3	11.0
	30,8	5,2	5.2	5,0
	68	2557	2561	2565
50	31.70	51 3,92	4,02	4.12

04

4,07

W 6789 A −1

19 hours, 7 min

16 14 0

+76 11

M	M	M	M
15 3	10.4	26.3	56,8	16 1
	8.3	23,9	54,5	13,6
	13,0	27,8	59,0	18,5
	14,8	30.1	1.2	19,5
	65	10 81	2315	277
18	11.62	27,02	57.87	16.92

Sun. C = 46.76

22 7 17 − 11 / 35

20 3		55 2
~~23~~	43.0 ~~38~~	3.1
	47.3	8.9
	59.1	19.9
	50.8	11.4
	2002	433
23	50.05	57 10.82

Brit Chron in R A

Lost A 1, 2, 3 of 2d limb

+1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

12

1879. Feb. 21

Sun. C = 46.758

22 18

−10 30

	m		m
x 40 0	41.2	10 3	54.7
	46.1		59.9
	57.2		10.6
	48.1		1.2
	19 26		24 64
40	48.15	14	1.60

Both limbs in R.A. + δ

seeing bad

α Arietis

2 0 22

+22 54

	m	m	R	R
30 3	51.6	4 47.7	~~49.8~~ ~~53.8~~	49.0
	55.1	57.1	51.8	52.0
	58.9	63.4	55.7	54.7
	58.1	56.1	56.1	57.4
	23 7	21 03	21 26	21.31
33	55.92	34 52.57	53.15	53.27

~~699~~
42
~~300~~
53.21

γ Eridani

3 52 23

−13 51

	m	m	R	R.
15 2	28.1	3 32.1	32.2	32.0
	34.9	39.5	39.9	39.7
	42.9	47.7	46.3	46.2
	34.7	38.1	37.5	39.4
	14 06	15 74	15 59	15 73
17	35.15	18 39.35	38.97	39.32

29
39.24

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Ceti

2 55 57
+3 37

m	s	m	s	R	R
45	4 52.5	50	0 57.0	57.0	57.2
	59.3		4.2	4.3	4.2
	2.3		8.5	8.8	7.8
	0.3		3.9	5.7	5.0
	2344		2536	2558	2542
49	58.60	51	3.40	3.95	3.55

190

3.63
.75

δ Eridani

3 37
−10 11

m	s	m	s	R	R
35	2 10.9	2	54.2	53.4	53.9
	14.5		58.4	58.0	57.7
	25.4		7.6	7.0	6.7
	15.2		59.7	59.8	59.0
	660		2399	2382	2373
37	16.50		5997	59.55	59.32

184
87
59.61
43

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

14

1879. Feb. 22

γ Virginis C = 46.738

13 55 29

+2° 8' 0"

15 4 10.9

17.5

22.8

18.1

6 9 3

17.32

α Draco

14 1 7

+64 57

m	m	m
30 1 11.8	35.9	2 29.1
9.1	33.9	27.6
16.0	39.7	32.8
15.7	40.1	33.6
5 2 6	14 9 6	12 3 1
13.15	37.40	30.77

Reg. A_1

β Ursae Min.

14 51 4

+74 39

m	m	m	m
5 0 0 10.8	33.8	51.11	6.9
9.1	32.4	48.6	5.1
15.4	38.9	55.8	10.8
13.5	37.8	54.9	9.8
4 8 8	2 2 9	2 1 0 4	3 2 6
12.20	35.72	52.60	8.15

β Librae

15 10 30

-8 56

u	u	R	R
20 2 49.1	3 46.9	47.0	46.6
54.6	52.2	51.9	51.7
4.2	2.4	0.9	1.0
55.8	53.9	54.0	53.7
22.37	21.54	21.38	21.30
55.92	53.85	53.45	53.25
		~~155~~	
		70	
		~~5352~~	
	53.85	53.35	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ζ Bootis

14 10 8
+19 49

		m	m	R	R
35	3	58.6	40 0.36	2.3	2.5
		2.2	8.2	7.8	8.0
		9.9	1.59	14.9	15.7
		4.7	9.4	9.2	8.8
		25 54	371	242	350
		3.85	9.27	855	8.75

~~2.57~~
~~130~~
~~8.86~~
9.27 8.65

ζ Cor. L 6.0

+12 h 19 m 7 s
13 9

		m	m	δ
20	3	6.2	2 37.1	
		5.1	36.2	
		5.4	38.1	
		2.9	35.8	
		19 6	272	
		4.90	36.80	

Groom 716

3 h 31 m 40 s
+117° 11'

		m	m	m
20	2	32.2	3.1	1 20.0
		32.0	3.8	196
		32.6	3.6	20.2
		29.5	1.2	16.8
		63	1 1 7	766
		3157	2.92	19.15

ζ Serpentis

15 38 18
+6 48

		m	m	R	R
35	3	44.8	4 53.8	55.7	55.8
		51.4	3.0	2.8	2.3
		57.6	7.4	7.4	7.8
		51.1	12.	2.2	1.8
		49	7.4	81	7.7
		51.22	1.85	2.02	1.92

~~5.79~~
~~3.94~~
~~1.93~~
1.85 1.97

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Feb. 22

ζ Scorpii

15 53 11

−22° 17′

		m	m	R	R
40	2	11.3	8 20.4	20.7	20.6
		19.4	28.8	29.2	28.8
		27.8	36.1	35.9	35.8
		18.1	26.8	27.2	27.3
		7.66	11.41	11.30	11.25
		19.15	28.53 (3) .27	28.25	28.12
				64	
				28.21	

β¹ Scorpii

15 58 24

−19 28

		′	″	m	m	R	R
50	4	13.6	55 0	22.7		22.9	22.9
		22.4		31.9		32.2	31.9
		29.1		39.4		38.4	38.3
		21.2		29.8		31.1	30.5
		63		1238		1246	1236
		21.57		30.95		31.15	30.90
						300	
						31.00	

ζ Ophiuchi

16. 30 30

−10 19

		m	m	R	R
45	0	43.1	1 46.6	46.1	46.0
		48.0	51.8	51.5	51.3
		58.3	1.1	0.7	0.2
		47.7	51.8	52.0	51.2
		19.71	21.08	21.03	20.87
		49.27	52.70	52.57	52.17
				144	
				52.48	

9 Camel.

4 42 2

+113 52

		m	m	m	m
40	0	16.6	2.2	35 4	19.1
		15.9	2.4		19.3
		16.5	2.9		20.8
		13.8	59.9		17.2
		2.28	74		7.64
		15.70	1.85		19.10

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Ophiuchi

16 8 0

−3 23

m	m	R	R
45 0 30.5	0 5 49	54.8	55.0
27.2	1.8	1.4	2.0
46.3	9.9	6.8	9.5
37.4	2.1	1.8	2.0
15.4	.87	.68	.85
37.85	2.17	1.70	2.12
		599	
		19.97	

α Scorpii

16 21 59

−26 10

μ	μ	R	R
30 4 53.9	35 1 33.	2.8	2.7
2.5	11.9	11.0	10.9
8.5	18.8	18.0	18.1
2.9	4.3	10.2	10.2
.78	4.33	4.20	4.19
1.95	10.82	10.50	10.47
		179	
		10.60	

α Ophiuchi

10 Camel. L.C.

4 52 40

+119 44

m	m	m
45 4 2.9	3 44.8	7.54
2.4	44.8	1.51
0.9	45.4	1.50
59.3	41.5	12.2
55	165	177
1.37	4.41	14.42

ε Herc. Minn.

16 58 25

+82 14

m	m	m	m	m	m
150 14.9	26.9	38.0	52.8	1 4.7	14.9
14.5	26.6	37.2	51.5	3.3	14.4
17.3	28.2	39.3	55.2	4.9	16.4
18.8	31.8	39.8	57.8	8.6	19.9
25.5	11.55	34.3	17.3	21.5	25.6
16.37	28.87	38.57	54.32	5.37	16.40
	3 .37				

Lal-A 1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

18

1879. Feb. 22

α ~~Serpentis~~ Ophiuchi

7 29 19

+12 39

	'	"	"	R	R
45	3	22.7	4 22.7	22.7	22.2
		28.4	28.8	27.8	27.9
		34.4	34.2	33.1	32.8
		28.1	28.8	29.0	28.8
		11 36	1125	1126	1117
48		28.40	28.12	28.15	27.92

19

28.06

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879, Feb. 23

Sun

22 26 26

− 9 46

	m		m
ε	55.1	50 0	0.0
	~~55.1~~ 59.4		
I.	5.5		7.2
9	16.1		18.5
11	6.3		8.3
	2673		343
	68		
	~~6.82~~ 6.8		8.57 ✓

α Arietis

2 0 22

+22 54

m	m
30 3 42.8	4 48.4
47.5	52.9
53.4	~~58.2~~ 58.8
53.7	58.9
1974	~~198.4~~ 21
4935	~~4960~~ 54.60

Both limbs in R.A. & δ

Seeing pretty fair

β Orionis

5− 8 43

−8 21

R	R
4 5− 2 18	16
8.2	7.5
19.2	19.2
14.6	14.7
438	430
109.5	10.75
170	
10.85	

γ Orionis

5− 18 38

+6 14

R	R
10 2 28.3	28.6
37.3	37.3
44.7	44.9
41.2	40.9
1515	1517
378	37.92
180	
37.90	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1999R

Tau. 29 10 Camel.

4 5 2 40
+ 60 16

R R 392

10 2 40.2 392
397 402
485 478
482 482
1766 1764
4416 4410
5 3.85
44.00

R A-1

ε Aurigae Mira

16 58 25
99 46

R

40 2 392
359
402
413
1517
37.92

A+1 Rej 1st V

σ Orionis

5 25 50
0 23

R R

50 0 32 27
99 101
205 209
163 159
499 496
1248 1240
88
1244

ε Orionis

5 30 4
1 17

R R

40 8 338 341
407 402
508 501
448 401
1701 1695
4252 4238
90
42.45

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

22 Rho 23 1879
Columbus

5 35
-35 3

2 Can Maj
6h 39 49
-16 33

R	R
55 4 10,8	10,6
19,8	20,2
28,2	28,2
22,2	22,4
81,0	81,4
20,25	20,35

60
20.30

β Scorpii
15 58 24
-19 28

M	M	R	R
50 4 43,5	35 0 28,6	28,6	28,8
28	38,3	38,6	39,0
0,0	46,8	47,7	46,8
53,9	38,8	38,8	39,2
22 2,02	152,5	153,7	153,8
5 1,505	38,12	38,42	38,45

99
38.33

δ Ophiuchi
16 8 0
-3 23

M	M	R	R
45 4 40.5	50 0 29,55,6	55.2	55.6
47,6	1,29	13.3	13.8
55,4	1,19	10.5	10,8
49,2	49	4.9	14,6
192,7	25 53	25 39	25,4
48.17	3.82	3.47	3.55

184
3.61

Lost 1st 2 wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε CMa Maj

6 53 52
−28 48

m.	m	R	R
10 3 23.5	4 20.6	20.9	20.7
33.3	30.8	30.8	31.2
41.1	36.9	37.0	36.0
34.5	31.6	33.4	32.5
132.4	119.9	21	04
33.18	29.97	30.52	30.~~46~~ 10

59

30.20

δ Can. Maj

7 3 28
−26 12

m	m	R	R
35 2 30.3	3 28.1	28.8	28.2
39.4	38.7	38.3	38.3
48.6	47.3	46.3	46.3
41.2	39.8	39.8	39.9
159.5	153.9	152.7	152.7
39.87	38.47	38.17	38.17

81

38.27

19 Hors. Mon

16 14 18
+76 11

m	m	m	m
15 3 25.9	45.3	4 4.3	18.2
26.4	45.4	4.3	18.3
31.5	51.2	8.8	22.8
32.8	52.1	11.4	25.7
1166	1940	288	850
29.15	48.50	7.20	21.25

λ Scorpii

16 21 59
−26 10

m	m	R	R
30 4 47.4	35 1.6	0.8	0.3
57.1	10.7	10.4	10.7
63.1	18.4	17.7	18.0
58.2	~~8.5~~ 8.6	10.9	10.8
2258	405	398	398
5645	10.12	9.95	9.95

02

10.01

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

24

1879. Feb. 23

ζ Ophiuchi

16 30 30

−10 19

m	m	R	R
45 0 38.0	1 49.5	48.6	48.8
44.8	54.2	54.6	54.9
54.8	40	3.6	3.9
46.8	56.4	56.9	57.0
1844	2241	2237	2246
46.10	56.02	55.92	56.15

09

56.03

ε Herc. Min.

16 58 25

+82 14

m	m	m	m
10 4 53.8	150 5.5	25.8	39.8	54.2
54.2	6.5	25.4	39.6	53.1
55.6	8.4	27.3	41.7	55.1
59.7	11.9	31.7	45.9	59.5
233	323	1102	1670	225
55.82	8.07	27.53	41.75	55.62

ζ Aquilae Feb. 23

19 40 30 +10 19

R	R
5 41.7	118
15.2	15.9
22.0	21.9
18.0	17.9
6.69	6.75
16.72	16.87

159

16.79

δ Aquilae

19 45 13

+8 23

R	R
60 4 8.6	8.6
13.0	13.8
18.7	18.7
13.3	13.5
5.36	5.46
13.40	13.65

105

13.52

Chf.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

η Ophiuchi

17 3

−15 34

m	m	R	R
0 0 35.7	45.2	44.9	45.1
47.1	54.9	54.2	54.3
52.5	0.9	0.0	59.5
45.1	54.2	54.8	54.1
18.4	21.50	21.39	21.30
45.10	53.75	53.47	53.25
		147	
		53.49	

α Ophiuchi

17 29 19

+12 39

m	m	R.	R
45 3 22.0	4 28.8	29.5	29.3
29.1	38.0	35.2	34.9
30.4	42.2	40.3	40.2
29.4	38.1	37.0	36.9
11.09	14.21 ✓	14.20	14.13 ✓
27.72	35.52 ✓	35.50 ✓	35.32 ✓
		134	
		35.45 ✓	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

26

1879 Feb. 24

Sum C = 46.800

22 30 14
−9 24

	m		m
+30 4	48.8	− 2	56.6
	54.6		3.2
	4.1		15.0
	56.2		2.6
	22 37		2574
	55.92		4.35

ζ Cetι

2 55 57
+3 37

	m	m	R	R
45 4	55.1	50 0493	48.9	48.6
	3.1	564	56.8	57.3
	7.9	22	2.0	2.0
	3.1	566	57.9	58.0
	92	2245	2256	2259
	2.30	56.12	56.40	56.47
			99	
			56.33	

Seeing pretty fair

19 Urs. Min.

18 14 18
100 49

	m	m	m	m	
40 0	59.8	44.0	20.1	35 4	0.5
	59.6	43.5	20.1		1.4
	3.1	47.4	23.1		1.4
	0.8	45.8	22.2		1.8
	33	207	55		51
	0.82	45.17	21.37		1.27

β Orionis

5 8 43
−8 21

	m	m	R	R
45	2 9.1	3 68	6.4	6.9
	13.7	137	13.2	12.4
	24.4	216	21.2	21.2
	14.3	127	13.2	13.3
	6 15	543	540	538
	15.37	13.57	13.50	13.45
			15.2	
			13.51	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Eridani

3 37 30

−10 11

	M	M	R	R
35	1 54.2	2 47.9	48.0	48.8
	58.4	53.5	53.7	53.7
	9.2	6.3	2.8	2.7
	59.7	53.8	54.2	54.0
	24.25	21.85	21.87	21.92
	6.038	5.462	5.468	5.480
			210	
			54.70	

γ Eridani

3 52 23

−13 51

	m	m	R	R
15	2 25.8	3 27.2	28.1	27.3
	35.1	36.1	36.8	36.2
	42.4	44.8	42.8	43.1
	31.7	33.6	34.6	35.7
	135.0	141.7	142.3	142.3
	33.75	35.42	35.57	35.57
			156	
			35.52	

γ Orionis

5 18 36

+6 14

	m	m	R	R
10	2 35.2	3 39.9	39.7	39.0
	41.3	46.5	46.3	46.3
	46.7	52.0	51.0	51.1
	40.4	45.4	45.1	45.0
	36	1838	1821	1814
	40.90	45.95	45.52	45.35
			182	
			45.61	

δ Orionis

5 25 50

−0 23

	m	m	R	R
50	0 9.7	1 24.1	23.7	23.9
	16.0	30.4	29.8	29.8
	24.7	38.5	37.0	37.3
	19.2	29.1	29.7	29.9
	6.76	1221	1202	1209
	16.90	30.52	30.05	30.25
			82	
			30.27	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

28

1879. Feb. 24

ε Orionis

5 30 4

−1 17

	m	m	R	R
40 3	29.3	4 40.9	41.2	40.9
	36.1	47.0	46.6	46.8
	43.1	53.4	53.6	53.8
	34.7	45.0	46.5	46.9
	14 32	18 63	18 79	18 84
	35.80	46.57	46.97	47.10
			206 4	
			46.88	

ζ Columbae

5 35 16

−34 8

	m	m	R	R
30 2	13.4	3 5.8	5.7	5.6
	21.4	13.3	13.3	12.5
	27.1	19.1	17.2	17.2
	18.5	10.7	11.3	11.5
	80.4	48.9	47.5	46.8
	20.10	12.22	11.88	11.71
			580	
			11.93	

δ Virginis

12 49 30

+4 3

	m	m	R	R
20 3	46.9	4 58.5	58.5	58.0
	55.1	59	7.2	6.6
	59.9	10.2	10.1	9.2
	52.1	3.1	4.7	3.6
	2140 ✓	2577 ✓	2605 ✓	2574 ✓
	53.50 ✓	6.442 4.42 ✓	5.12 ✓	4.35 ✓
			1389	
			463	
			46.30	

ε Virginis

12 56 9

+11 37

	m	m	R	R
50 0	42.8	1 54.6	54.9	55.2
	47.7	59.8	0.2	1.0
	56.5	6.4	6.3	6.2
	46.9	59.1	59.4	59.8
	19 39	23 99	24 08	24 22
	48.47	59.97	0.20	0.55
			72	
			0.24	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

κ Orionis
5 42 1
−9 43

M	m	R	R
5 4 13.9	100 195	18.9	18.9
19.1	243	24.5	24.3
28.9	348	33.4	33.3
18.9	239	25.0	24.0
80.8	1025	1018	1005
20.20	2562	25.45	25.12
		119	
		25.40	

λ Orionis
5 48 37
+7 23

M	m	R	R
0 3 53.1	50 60	6.3	6.2
58.5	12.2	12.9	13.2
4.4	197	19.4	19.7
56.2	108	12.2	12.0
2322	487	504	571
58.05	12.17	12.70	12.77
		164	
		12.55	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

30

1879. Feb. 25

9 mm.

22 34 0

−9 1

		m			m
+	40	4	48.5	10 3	25.1
			52.1		30.9
			1.1		40.3
			52.1		30.1
			2138		1264
			53.45		31.60

Second limb wires 1, 2, 3 + perhaps 4

Seeing good except for clouds

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Feb 26

Sun

2 37 47

+8 40

	m		m		R	R
50	0 11.6	20	3 23.9			
	16.4		30.2			
	28.2		39.9			
	18.5		31.8			
	74.7		125.8			
	1868		3140			

β Orionis

5 8 43

−8 21

	m		m		R	R
45	2.9	3	13.9		14.6	14.2
	8.2		19.1		20.0	19.9
	22.0		31.8		30.8	31.2
	15.1		26.9		26.2	27.1
	48.2		91.5		91.6	92.4
	1205		2285		2290	2310
					885	
					22.95	

Rej. A, 4 for 1st limb

Seeing moderately good.

ε Orionis

5 30 4

−1 17

	m		m		R	R
40	3 38.4	4	47.4		47.7	47.2
	44.3		54.4		54.8	54.4
	54.1		3.9		3.0	3.7
	49.8		58.5		59.9	59.9
	1866		2242		2254	2252
	4665		56.05		5635	56.30
					70	
					56.23	

Lost A, 2, 3 + 4

κ Orionis

5 42 1

−9 43

	m		m		R	R
5	4 18.6	10	0 18.8	#	17.0	15.4
	27.1		26.6		24.4	23.1
	38.3		39.8		36.0	36.0
	31.1		30.1		28.0	29.7
	1151		1155		1054	1042
	28.77		28.87		26.35	26.05

Instrument probably moved after this setting

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Orionis.

5 18 38

+6 14

m	m	R	R
10 2 36.3	3 40.9	41.7	41.2
45.8	48.5	49.1	49.1
54.1	57.1	56.9	56.3
48.6	53.4	53.4	53.9
18.48	19.99	20.11	20.05
46.20	49.97	50.27	50.12
		36	
		50.12	

δ Orionis

5 25 50

−0 23

m	m	R	R
50 0 21.6	1 25.2	25.9	25.5
26.8	33.2	33.0	33.2
36.9	43.5	43.0	43.2
31.3	37.7	38.0	37.9
11.66	13.96	13.99	13.98
29.15	34.90	34.97	34.95
		282	
		34.94	

Lost A 2 + c.

ε Orionis

5 48 37

+7 23

m	m	R	R
0 3 50.6	5 0 7.6	7.9	8.3
59.9	17.2	18.0	18.3
8.0	26.6	26.9	27.1
2.3	20.4	21.3	21.5
0.8	7.18	7.41	7.52
0.20	17.95	18.52	18.82
		2529	
		18.43	

ζ Aquilae

19 44 53

+8 33

m	m	R	R
50 4 18.4	55 0 20.1	20.0	20.3
26.6	28.1	27.9	27.5
33.2	36.6	36.9	36.6
29.2	31.9	31.3	31.3
10.74	11.67	11.61	11.57
26.85	29.17	29.02	28.92
		11	
		29.04	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Feb 27

Sun C = 46.819

22 41 34

− 8 17

	m		m
− 25 2	49.9	0 0	42.6
	58.4		50.5
	10.5		2.9
	0.1		54.9
	23 89		21 09
	59.72		52.72

ε Eridani

3 27 14

− 9 52

	m
15 3	27.6
	33.4
	43.6
	35.1
	13 97
	34.92

Both limbs in R.A. & δ

Seeing moderately good.

γ Eridani

3 52 23

− 13 51

	m
− 15 2	15.6
	25.2
	32.5
	23.2
	9 65
	24.12

ε Ursae Min. L.L.

16 58 25

+ 77 46

	m	m	m	m	m	m
40 3	45.9	33.2	20.0	6.9	55.2	47.9
	45.5	33.4	19.9	6.6	54.1	47.7
	48.1	35.2	21.9	8.3	55.8	50.3
	48.2	34.8	21.4	8.1	56.6	50.1
	2 77	166	32	2 99	2 17	1 462
	46.92	34.15	20.80	7.47	55.42	49.05

Clouds

1 stroke for last δ.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Eridani
3 37
−10 11

	m	m	R	R
35 1	50.2	2 59.6	59.6	58.8
	56.6	5.8	55.8	5.9
	7.7	16.8	15.2	14.8
	58.6	7.4	6.9	6.3
	23 31	26 96	26 75	26 58
	58.27	7.40	6.87	6.45
			207 2	
			6.91	

η Hydrae
8 46 50
+60 45

	m	m	m
40 2	33.1	47.7 3	36.2
	32.3	46.9	35.4
	39.2	54.2	42.2
	36.1	51.2	39.9
	207	2000	1537
	35.17	50.00	38.42

γ Orionis
5 18 38
+6 14

	m	m	R	R
10 2	26 3	3 45.7	45.6	45.9
	34.0	53.7	53.2	53.2
	39.3	58.6	57.2	57.2
	32.7	51.7	53.6	52.7
	132 3	209 7	96	90
	33.07	52.42	52.40	52.25
			107	
			52.36	

δ Orionis
5 25 50
−0 23

	m	m	R	R
50 0	10.9	1 25.4	24.7	24.4
	16.3	31.2	31.7	31.0
	24.2	38.8	38.9	37.0
	16.7	31.9	31.7	32.1
	681	15.3	1270	1245
	17.02	31.68	31.75	31.12
		.82		
			169	
			31.56	

Rej. A 1
+1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Feb. 27

ε Aurigae

5 30 4

−1 17

m	m	R	R
40 3 29.2	4 44.6	44.6	44.5
35.4	60.3	50.3	51.2
43.2	56.4	56.9	56.5
36.8	50.6	51.4	51.9
14.46	20.19	20.32	41
36.15	50.47	50.80	51.02
		229	
		50.76	

α Columbae

5 35 16

−34 8

m	m	R	R
30 2 21.4	3 4.9	4.9	4.5
28.9	12.4	12.7	12.0
34.6	18.6	16.3	16.8
27.2	11.6	12.0	11.2
11.21	4.77	4.59	4.45
28.02	11.92	11.47	11.12
		151	
		11.50	

ε Can. Maj

6 53 52

−28 48

m	m	R	R
40 4 7.1	35.7	35.6	35.7
14.9	44.1	44.7	44.6
18.5	48.9	49.0	49.1
12.1	40.8	42.1	41.9
5.26	16.95	17.14	17.13
13.15	42.37	42.85	42.82
		204	
		42.68	

δ Can. Maj

7 3 28

−26 12

m	m	R	R
35 2 10.2	3 26.6	26.4	26.2
19.4	35.4	35.4	35.3
24.7	41.6	40.6	40.7
16.3	33.8	34.2	33.9
7.06	13.74	13.66	13.61
17.65	34.35	34.15	34.02
		52	
		34.17	

A R C

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

2 Orionis

5 48 37

+7 23

	m		m		R	R
0 3	50.1	5′ 0	8.″2		9.5	8.0
	56.6		15.1		15.5	15.1
	2.4		21.3		21.0	21.2
	56.4		15.1		15.0	14.4
	225.5		59.7		61.0	58.7
	56.37		14.92		15.25	14.67
					1484	
					14.95	

2 Cam. Maj.

6 39 49

−16 33

	m		m	R	R
55 4	7.3	0 0	17.4	17.1	17.0
	15.8		25.5	25.8	26.0
	21.5		31.5	31.2	31.2
	14.2		23.6	25.0	25.2
	58.8		98.0	99.1	99.4
	14.70		24.50	24.77	24.85
				212	
				24.71	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 1

ζ Scorpii C = 46.819

16h 21m 5s
−26° 10′

	m	m	R	R
35 0	45.4	35 1 10.6	10.0	9.9
	54.6	19.2	19.2	19.2
	1.6	26.9	26.3	25.8
	54.8	19.7	20.6	20.0
	21.64	7.64	7.61	7.49
	54.10	19.10	19.02	18.72
			2684	
			18.95	

wires a little out of focus.
Lost A +1 or 2 wires in A. Rej. strokes for Sin A. +1 1 stroke for last δ

ζ Ophiuchi

16 30 30
−10 19

	m	m	R	R
45 1	1.3	58.2	57.7	57.9
	8.1	3.4	4.1	4.8
	18.7	14.5	14.2	14.0
	10.3	5.8	6.2	6.5
	38.4	26.19	26.22	26.32
	9.68	65.47	5.55	5.80
			182	
			5.61	

E Ebrs Min.

16 58 25
+82 14

	m	m	m	m
15 0	7.6	18.2	33.5	52.1
	6.2	18.9	34.5	51.4
	9.7	21.5	36.6	53.9
	14.5	26.3	40.2	58.2
	380	849	1448	156
	9.50	21.22	36.20	53.90

η Ophiuchi

17 3
−15 34

	m	m	R	R
0 0	29.0	1 38.2	38.4	37.9
	39.6	48.0	47.9	47.3
	46.6	55.2	54.9	54.8
	39.2	47.5	48.7	49.0
	15 44	1849	1899	1890
	38.60	47.47	47.47	47.25
		22		
			94	
			47.31	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

9. Camel. L.C.

4 42 2
+113 52

m	m	m
40 0 8.9	35 4 43.9	66
10.8	44.6	7.3
11.0	45.5	7.2
8.2	44.3	6.2
3.89	18.3	2.73
9.72	44.57	6.82

10 Camel. L.C.

4 52 40
+119 44

m	m	m
45 4 28.63	55.9	10.0
30.1	57.0	14.2
29.1	56.0	14.2
28.9	55.8	12.1
11.67	24.7	13.5
29.17	56.17	13.37

---

2 Ophiuchi

17 29 19
+12 39

m	m	R	R
45 3 21.84	37.2	37.9	37.6
28.2	43.3	43.2	43.8
35.5	50.3	49.7	49.0
30.2	45.5	45.8	46.0
11.57	17.63	17.66	17.64
28.92	44.07	44.15	44.10

32

44.11

35. Draconis, 69

17 54 52
+76 59

h	m	m	m	m
30 0 3.3	23.1	50.2	1 11.1	26.3
2.6	22.1	48.9	9.5	26.9
5.8	26.6	53.8	14.3	29.4
10.9	29.3	56.6	17.3	34.2
22.6	21.1	95	52.2	11.68
5.65	25.27	52.37	13.05	29.20

1 stroke for 3rd 8?

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

40 9324

1879. March 1

δ Vea. Min.

18 11 22

+86 36

		m	m	m	m	m	m
50	2	47.2	52.5	57.8	3 32.5	34.9	38.0
		45.2	51.1	57.1	32.1	34.5	37.4
		50.1	54.9	59.8	34.8	36.7	40.8
		50.8	56.8	56.9	36.3	38.5	42.9
		1933	153	316	157	246	1591
		48.32	53.82	57.90	33.92	36.15	39.77

η Serpentis

18 15 3

−2 56

		m	m	R	R
20	2 55.8	3 38.7		38.6	38.2
	3.2	40.2		44.9	44.7
	9.6	53.2		52.3	52.3
	4.3	47.2		46.8	47.0
	2529	1843		1826	1822
	3.22	46.07		45.65	45.55
				1727	
				4576	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Aquilae

1940 30

+10 19

R	R
5 2 54.7	54.7
.05	.10
6.3	6.4
3.7	3.9
24 52	60
1.30	1.50
80	
1.40	

ε Aquilae

1944 J3

+ 2 8

R	R
50 4 3.1	2.9
9.6	9.2
14.2	14.4
10.5.	10.9
377	374
9.42	9.35
77	
9.38	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

42 Mar 21 1879

(21) C_4 = 46.819

22 53 −7 9 Boedo.

15 − 4 47.2 —
54.0 —
17 —
55.3 —
21 82
54.55

Very bad.
Both Limbs in R.A.
1 Limb in Dec. Jupiter.
Joseph. Not on hand.

9 Camel.

4 42 2
+66 8

	m		m	m
15 4	39.8	20 0	6.7	49.4
	39.9		6.4	48.7
	44.9		13.1	55.7
	46.9		12.1	55.9
	11.5		383	97
	42.87		9.57	52.42

β Eridani

5 1 54
−5 15

	m	m	R	R
40 1	6.4	2 21.6	21.4	21.9
	12.3	29.9	28.2	28.1
	21.9	36.9	36.5	36.0
	15.7	31.6	32.8	32.6
	563	1180	1189	1186
	14.07	29.50	29.72	29.65
			187	
			29.62	

β Vironis

5 8 43
−8 21

	m	m	R	R
45 1	57.7	3 52.8	52.3	52.8
	4.2	59.4	59.3	59.5
	15.2	9.5	8.0	8.2
	8.1	3.1	4.4	4.0
	2652	48	40	45
	6.30	1.20	1.00	1.12
			32	
			1.11	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

10 Camel.

4 52 40

+60 16

	m	m	m
10 1	57.1	2 26.1	52.0
	56.1	26.1	51.1
	2.8	32.9	58.4
	1.2	31.4	56.9
	237	1165	184
	59.30	29.12	54.60

ε Aurigae Min. L.C.

16 58 25

+43 46

	m	m	m
40 3	33.6	19.6	3.1
	35.3	21.4	4.6
	37.8	24.8	6.6
	38.6	24.9	7.6
	253	907	219
	36.32	22.67	5.47

γ Orionis

5 18 38

+6 14

	m	m	R	R
10 2	28.3	8 32.1	31.2	30.9
	37.2	39.9	39.3	39.7
	43.1	45.7	46.2	46.0
	37.6	41.2	41.8	41.8
	1462	1589	1585	1584
	36.55	39.72	39.62	39.60
			194	
			39.65	

δ Orionis

5 25 50

−0 23

	m	m	R	R
50 0	2.1	1 14.9	13.8	14.4
	9.7	22.0	21.8	21.7
	16.6	30.4	30.1	30.0
	12.4	24.1	25.2	24.2
	431	914	909	903
	10.77	22.85	22.72	22.57
			214	
			22.71	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 2

ζ Orionis

5 30 4

−1 17

m	m	R	R
40 3 23.8	4 32.1	32.2	31.9
32.1	39.5	39.5	39.4
38.1	49.9	47.4	47.5
33.4	41.1	42.1	42.2
74	1606	12	10
31.85	40.15	40.30	40.25
		70	
		40.23	

κ Orionis

5 42 1

−9 43

m	m	R	R
5 4 10.2	10 0 25.1	24.5	24.3
17.1	32.2	31.8	31.8
27.8	43.6	42.9	42.9
20.1	34.6	35.5	35.4
752	1355	1347	1344
18.80	33.87	33.67	33.60
		214	
		33.71	

δ Ursæ Min. L. C.

18 11 22

+93 24

m	m	m	m	m	m
5 0 43.4	41.5	33.4	27.8	23.2	18.9
44.2	40.9	32.7	27.4	24.2	19.3
49.6	46.4	38.1	32.4	27.9	23.7
47.9	45.6	35.9	31.2	27.5	22.9
251	144	201	1188	228	848
46.27	43.60	35.02	29.70	25.70	21.20

δ Virginis

12 49 30

+4 3

m	m	R	R
20 3 43.6	45 0 6.1	6.0	6.2
51.9	14.4	14.2	15.0
57.1	19.9	19.8	19.7
53.6	15.2	16.2	16.0
62	556	562	569
51.55	13.90	14.05	14.22
		17	
		14.06	

Lost 1st & 2 wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

2

2 Orionis

5 4 8 37
+7 23

	m	m	R	R
0 3	49.1 4	50.4	50.8	50.5
	57.7	59.4	58.2	58.7
	1.4	6.4	3.8	3.2
	57.1	59.6	1.0	0.7
	22 1 3	23 4 8	23 3 8	23 3 1
	55.32	58.70	58.45	58.27
			14.2	
			58.47	

35 Aurigae, S.C.

17 54 52
+103 1

	m	m	m	m	m
25 3	45.0	30.6	13.3	2 55.3	36.3
	47.1	32.3	15.3	57.1	40.9
	50.8	35.3	18.4	59.9	44.1
	51.5	36.4	19.1	1.3	43.7
	19 4 4	14 6	26 1	23 3 6	7 0
	48.60	33.65	16.52	58.40	41.75

Rej. wires among the 1st 8's

ε Virginis

12 56 9
+11 37

	m	m	R	R
50 0	44.3 2	0.9	0.1	59.8
	49.9	6.4	6.7	7.2
	58.1	13.5	13.7	13.9
	53.5	9.4	9.2	9.0
	20 5 8	30 2	29 7	26 9 9
	51.45	7.55	7.42	7.47
			14 4	
			7.48	

2 Virginis

13 18 49
−10 32

	m	m	R	R
55 3	18.7 4	21.7	26.7	26.5
	26.1	33.2	33.8	33.8
	36.7	44.8	44.2	44.2
	28.2	36.6	36.8	36.4
	10 9 7	14 1 3	14 1 5	14 0 9
	27.42	35.32	35.37	35.22
			9 1	
			35.30	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

46

1879 March 2

P Hyrieae

19 40 30

+10 19

	R	R
5- 8	25	23
	82	79
	152	142
	114	112
	373	356
	9.32	8.90

1822

9.11

2 Hyrieae

19 44 53

+8 33

	R	R
50 4	23	28
	91	91
	142	148
	106	98
	362	365
	9.05	9.12

17

9.08

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

B Aquilae
19 49 22
+6 6

		R	R
20	I	46.1	46.1
		54.7	54.3
		59.2	59.0
		55.3	55.3
		21 53	21 47
		53.82	53.67

149
53.75

Rej A1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

48 1879 March 3

Sun.

22 56 32 C = 46.779

−6 46

	m	m
55 1	25.2	25 4 34.8
	36.2	42.6
	47.9	52.7
	38.2	44.8
	150 5	1749
	37.62	43.72

Seeing very bad indeed

Both limbs in δ and R.A.

γ Leonis

5h 18m 38s

+6 14

	m	m	R	R
10 2	29.1	3 34.9	34.8	34.8
	37.8	43.6	43.9	43.8
	46.8	51.2	51.6	51.6
	41.3	47.1	47.7	52.8
	1550	1768	1780	1830
	38.75	44.20	44.50	45.75

1445

44.82

E Ursae Min L.6

16 58 25

+97 46

	m	m	m
40 3	34.9	20.9	6.1
	37.6	23.5	8.2
	42.1	27.3	12.7
	42.1	27.1	12.8
	1567	188	398
	39.17	24.70	9.95

1st stroke for 1st δ.

δ Leonis

5 25 50

−0 23

	m	m	R	R
50 0	2.9	1 18.5	18.7	18.1
	10.7	25.8	26.6	26.3
	21.9	36.6	36.8	36.3
	18.4	30.4	31.8	31.0
	50.9	1113	1139	1107
	12.72	27.82	28.47	27.92

2421

28.07

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Eridani

5 1 54
−5 15

	m	m	R	R
40 1	7.8	2 12.4	11.8	12.1
	14.6	18.7	18.3	18.7
	25.8	29.9	29.2	29.2
	20.6	24.9	25.3	25.8
	6 8 8	8 5 9	8 4 6	8 5 8
	17.20	21.47	21.15	21.45

10 7
21.36

β Leonis

5 8 43
−8 21

	m	m	R	R
45 1	59.6	3 8.4	8.3	8.3
	6.1	14.9	15.2	15.3
	19.0	27.5	27.0	26.9
	11.7	20.6	21.7	21.3
	27.64	7.14	7.22	7.18
	9.10	17.85	18.05	17.95

23 85
17.95

ε Orionis

5 30 4
−1 17

	m	m	R	R
40 4	13.8	40.1	40.1	40.2
	22.7	47.3	47.2	47.0
	3.16	5.68	5.6.8	5.6.2
	27.1	51.7	52.3	52.8
	9.47	19.59	19.64	19.60
	23.67	48.97	49.10	49.00

24 07
49.02

α Columbae

5 35 16
−34 8

	m	m	R	R
30 2	10.4	3 3.3	4.2	3.9
	19.8	12.5	13.3	12.7
	27.9	21.4	20.1	20.4
	21.6	15.1	16.3	16.9
	7.97	5.23	5.39	5.39
	19.92	13.07	13.47	13.47

101
13.34

Lost 1st 3 wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

50 1879. March 3

κ Orionis

5 42 1

−9 43

	m	m	R	R
5 4	8.4	7.6	7.2	7.4
	14.7	14.9	14.8	14.8
	27.2	27.7	27.3	27.1
	19.2	19.9	20.4	20.1
	695	701	697	694
	17.37	17.52	17.42	17.35

129

17.43

λ Orionis

5 48 37

+7 23

	m	m	R	R
0 3	49.8	50 7.0	7.0	6.7
	59.4	16.1	15.2	14.7
	5.9	24.1	23.9	24.2
	1.4	17.8	18.3	18.6
	2365	650	644	642
	59.12	16.25	16.10	16.05

40

16.13

ε Can. Maj.

6 53 52

−28 48

	m	m	R	R
10 3	15.6	4 15.9	15.4	16.0
	26.9	26.6	27.1	26.3
	32.5	32.2	32.0	32.3
	28.2	27.2	28.7	29.0
	1032	1019	1032	1036
	25.80	25.47	25.80	25.90

217

25.72

δ Can. Maj.

7 3 28

−26 12

	m	m	R	R
35 2	15.6	3 21.4	20.8	20.8
	25.9	30.8	31.2	30.7
	34.4	39.9	39.8	39.3
	28.7	33.4	33.8	33.9
	1046	1255	1256	1247
	26.15	31.37	31.40	31.17

94

31.31

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Hya. Mic L.C.

18 11

+93 24

	m	m	m
5 0	46.1	39.5	34.2
	46.4	40.6	34.4
	53.4	47.3	41.3
	51.6	45.1	39.6

α Can. Maj

6 39 49

−16 33

		m	m	R	R
55	4	4.90	0 0	14.4	14.0	13.6
		13.9	23.9	24.2	23.9
		28.4	33.0	32.7	32.6
		17.4	26.8	28.0	27.6
		59.6	98.1	98.4	97.7
		14.90	24.52	24.72	24.42

166

24.55

Lost 1st 2 wires

α Scopii

16 21 59

−26 10

		m	m	R	R
30	4	42.1	35 0	55.7	55.0	54.8
		52.6		4.9	4.9	4.8
		59.3		12.5	12.6	12.8
		52.9		6.1	6.2	6.2
		206.9		192	78.7	78.6
		51.72		4.80	4.68	4.65

213

4.71

ζ Ophiuchi

16 30 30

−10 19

		m		R	R
45	0	39.7	—	40.0	39.7
		46.2	—	46.1	46.4
		56.9	—	55.9	55.9
		48.4	—	49.1	49.3
		191.2		191.1	191.3
		47.80		47.77	47.82

159

47.80

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

52 March 3

9 Camel L.C.

4 42 2

+113 52

m	m	m
40 0 24.3	0.1	35 4 12.7
26.4	1.1	13.5
27.2	1.1	13.9
24.1	5.9	22.8
22.0	2.2	6.29
25.50	0.55	15.72

11.

10 Camel, L.C.

4 52 40

+119 44

m	m	m
45 4 10.3	43.2	3 19.3
11.2	43.3	19.8
9.4	44.3	19.6
9.6	42.4	18.6
40.5	13.2	37.3
10.12	43.30	19.32

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Ursae Min.
16 58 25
+82 14

	m	m	m	m
15 0	11.7	26.7	39.7	53.4
	12.4	27.3	39.6	53.3
	15.2	28.9	42.8	56.6
	20.2	33.9	46.2	59.1
	595	1168	1683	224
	14.87	29.20	42.07	55.60

η Ophiuchi
17 3 —
—15 34

	m	m	R	R
0 0	27.6	1 39.0	39.2	39.2
	37.6	48.2	49.0	49.7
	45.5	57.2	55.9	56.7
	37.3	50.2	49.8	50.0
	1480	1946	1939	1956
	37.00	48.65	48.47	48.90

202
48.67

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 March 4

Sun C = 46.792

R 23 0 15

D −6 23

		m		m
30	3	36.4	5	21.9
		44.1		29.1
		52.8		39.2
		47.1		30.6
		1804		08
		45.10		30.20

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

η Serpentis

18 15 3

−2 56

		m	m	R	R
20	2	29.8	8 46.6	45.8	45.8
		38.3	53.7	53.2	53.6
		49.2	2.0	1.8	1.6
		42.6	57.5	57.8	57.8
		15 9.9	2198	2186	2188
		59.97	54.95	54.65	54.70

230

54.77

β Aquilae

19 49 22

+6 6

		m	m	R	R
20	1	33.8	21 58.7	58.3	58.5
		42.6	7.6	7.4	7.2
		50.4	14.9	14.6	14.1
		44.9	10.6	11.4	10.3
		17 17	27 18	27 17	27 01
		42.92	67.95	7.92	7.52

239

7.80

θ Aquilae

20 5 4

−1 11

		m	m
35	2	34.3	—
		41.4	—
		51.8	—
		45.6	
		17 31	
		43.27	

A 5+c

+1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Aquilae

19 40 30

+10 1,9

	m	m	R	R
5 3	1.4	4 8,9	9.7	9.3
	8.4	16,2	15.8	15.6
	16.8	25,0	24.2	23.8
	13,2	21,3	21.2	21.2
	3'98	7'14	7'09	~~7'79~~ 69
	9.95	17,85	17.72	~~17.47~~ 17.47
			204	
			17.68	

α Aquilae

19 44 53

+8 33

	m	m	R	R
50 4	9.6	55 02,4	20,3	20.4
	17.3	25,6	28.4	28.1
	24.6	36,6	36.2	36.4
	26.6	31,4	32.0	32.0
	7'21	11'70	11'69	11'69
	18.02	29.25	29.22	29.22
			69	
			29.23	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 March 5

Sun C = 46.790

23 3 58

− 6° 0'

	m		m
10 0	27.4	40 3	28.1
	35.4		35.4
	47.9		47.7
	41.2		41.5
	151 9		152 7
	37.97		38.17

Seeing very good except for clouds.
Lost A1 R 1st limb. See Both limbs in R A+S
Rej. A1+2 R 2nd limb. Lost A-, 2, 3, 4, 5

α Arietis

2 0 22

+22 54

	m	m	R	R
30 3	47.6	4 46.5	47.4	46.9
	54.1	52.5	52.7	52.6
	0.5	58.9	58.8	58.8
	1.4	0.8	0.2	0.2
	2236	2187	2191	2185
	55.90	54.67	54.78	54.62
			207	
			54.69 ✓	

δ Eridani

3 37 30

− 10 11

	m	m	R	R
35 1	47.2	2 50.6	50.2	49.8
	55.1	57.9	57.3	57.2
	9.1	11.7	10.7	10.2
	0.8	3.1	2.9	2.8
	2322	2433	2411	2400
	58.05	0.82	0.27	0.00
			.109	
			0.36	

γ Eridani

3 52 23

− 13 51 QV

	R	m	R	R
15. 2	15.2	3 33.0	33.0	33.3
	25.7	42.6	43.3	42.9
	37.1	53.2	53.3	53.6
	28.9	46.0	47.8	47.3
	1069	1754	1774	1771
	26.72	43.85	44.35	44.27
			47	
			44.16	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Ceti

2 55 57
+3 37

m	m	R	R
45 4 49.6	50 14.1	4.2	3.9
59.3	13.8	14.2	14.3
6.5	22.8	22.5	22.9
3.2	11.8	19.7	19.2
2386	685	606	603
59.65	~~17.72~~ 15.12	15.15	15.07
		34	
		15.11	

ε Eridani

3 27 14
−9 52

m	m	R	R
15 3 26.4	4 36.2	37.0	37.0
34.4	43.2	43.3	43.2
47.5	57.7	56.6	56.2
39.6	50.2	50.3	50.5
1479	1873	1872	1869
36.97	46.82	4680	46.72
		234	
		46.78	

κ Orionis

5 42 1
−9 43

m	m	R	R
5 4 4.2	10 0 23.4	23.4	23.3
11.2	30.9	30.8	30.8
23.3	44.3	43.9	43.9
15.5	35.3	36.1	36.9
542	1334	1342	1349
13.55	33.47	33.55	38.72
		174	
		33.58	

λ Orionis

5 48 37
+7 23

m	m	R	R
0 3 47.8	5 0 6.6	6.3	6.0
56.3	14.4	14.2	14.4
3.2	23.2	23.0	22.9
58.4	18.4	18.0	18.3
2257	626	615	616
56.42	15.65	15.37	15.40
		142	
		15.47	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

58

1879 March 5

β Ursa. Min. L.b

18 11 22

+93 24

	m	m	m	m	m	m
5 0	57.1	53.2	47.5	42.4	36.9	33.8
	56.7	52.2	46.3	41.6	36.6	33.5
	2.4	58.9	52.8	48.4	42.7	39.2
	2.1	58.1	51.6	46.3	41.2	37.9
	2383	224	1482	187	1574	244
	59.57	58.60	49.55	44.67	39.35	36.10

α Can. Maj.

6 39 49

-16 33

	m	m	R	R
55 4	1.8	0 0	22.6	22.2
	12.4	29.6	33.0	33.6
	21.5	33.2	41.3	41.7
	14.5	42.2	36.3	36.8
	502	1330	1332	1343
	12.55	33.25	33.30	33.57

112

33.37

υ Corvi

12 23

-15 49

	R	R		
15 1	37.3	37.3	—	—
	48.8	48.1		
	55.2	55.0		
	49.6	49.5		
	1899	1899		
	47.47	47.47		

47.47

γ Virginis

12 35 32

-0 47

	m	m	R	R
10 4	3.8	15 0	20.3	20.7	20.1
	10.0		26.7	28.3	28.2
	18.9		36.4	35.8	35.7
	11.7		30.7	31.2	30.7
	444		1151	1160	1147
	11.10		28.77	29.00	28.67

2144

28.81

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Can. Maj.
6 53 58
−28 48

	m	m	R	R
10 3	11.0	4 17.1	17.2	17.2
	21.4	27.8	28.0	28.0
	27.9	33.5	33.5	33.2
	21.8	28.8	29.3	29.0
	82.1	107.2	108.0	107.4
	20.52	26.80	27.00	26.85
			20.65	
			26.88	

δ Can. Maj.
7 3 28
−26 12

	m	m	R	R
35 2	12.3	3 28.4	23.7	23.5
	21.9	33.9	33.1	33.7
	29.5	41.9	41.3	41.2
	23.2	85.4	36.2	36.0
	86.9	134.6	134.3	134.4
	21.72	33.65	33.57	33.60
			18.2	
			33.61	

δ Virginis
12 49 30
+4 3

	m	m	R	R
20 3	38.1	25 07.5	7.8	7.3
	45.6	15.2	15.2	15.0
	51.4	20.5	20.2	20.0
	47.1	16.4	16.1	16.2
	18.22	5.99	5.93	5.85
	45.55	14.97	14.82	14.62
			24.1	
			14.80	

ε Virginis
12 56 9
+1 37

	m	m	R	R
50 1	9.0	2 4.9	4.8	4.9
	15.8	11.3	10.8	10.7
	22.6	16.6	17.7	17.4
	18.2	13.2	12.7	12.8
	65.8	47.0	46.0	45.8
	16.45	11.75	11.50	11.45
			17.0	
			11.57	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

60 1879. March 7

Sun. C=46.790

22 1123

-5 13

		m		m
5	55	1	22.1	20 4 55.1
			28.9	3.2
			40.1	10.9
			33.1	5.2
			1242	2544
			31.05	3.60

Lost 1st limb in R.A.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

62 1879. March 8

γ Orionis

5 18 38 C=46.790

+6 14

		m	m	R	R
10	2	39.9	3 45.9	45.2	45.9
		41.4	53.1	53.2	53.3
		48.1	58.8	58.9	59.0
		44.5	56.8	56.5	56.5
		6.9	13.6	13.8	14.7
		41.72	53.40	53.45	53.67
				152	
				53.51	

δ Orionis

5 25 50

−0 23

	m	m
50	0 2.5	1 25.2
	8.7	31.4
	18.8	41.1
	12.0	34.9
	42.0	132.6
	10.50	33.15

κ Orionis

5 42 1

−9 43

		m	m	R	R
5	4	11.41	10 0.95	19.0	19.3
		20.4	26.4	26.1	26.2
		31.4	38.1	38.0	37.8
		24.2	30.4	31.0	31.1
		90.1	114.4	114.1	114.4
		22.52	28.60	28.52	28.60
				172	
				28.57	

λ Orionis

5 48 37

+7 23

		m	m	R	R
0	3	56.1	5 0 11.0	10.2	10.7
		3.7	19.2	18.9	19.6
		10.1	26.4	26.1	26.7
		6.0	20.5	21.8	21.7
		25.9	77.4	77.0	78.7
		63.97	19.35	19.25	19.67
				127	
				19.42	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Orionis

5 30 4

−1 17

m	m	R	R
40 3 46.2	4 49.4	49.8	49.7
56.5	56.6	56.8	56.7
3.4	4.2	4.0	4.0
56.6	59.7	0.3	0.2
22.57	22.99	23.09	23.06
56.42	57.47	57.72	57.65
		18.4	
		57.61	

Rej. 1st station + 1st wire

α Columbae

5 35 16

−34 8

m	m
30 2 5.6	5.5
7.1	6.9
14.9	14.1
8.6	9.1
26.92	26.86
7.30	7.15
4.5	
7.22	

A−1

β Leo. Min. L.c.

18 11

+93 24

m	m	m	m	m	m
5 1 12.5	10.2	2.7	0 2.89	2.44	1.98
12.8	9.9	2.2	2.96	2.43	2.01
18.8	15.4	7.5	3.48	2.97	2.53
17.5	14.1	6.9	3.34	2.97	2.82
21.6	19.6	14.3	12.67	2.81	8.84
15.40	12.40	4.82	31.67	27.02	22.10

α Can. Maj.

6 39 49

−16 33

m	m	R	R
55 4 7.4	0 19.2	18.9	18.8
17.3	29.5	29.6	29.2
24.9	37.6	36.6	36.9
19.2	31.8	32.3	32.2
6.88	11.81	11.74	11.71
17.20	29.52	29.35	29.27
		11.4	
		29.38	

25 wires in R.A.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 8

ε Can. Maj.

6 53 52

−28 48

m	m	R	R
10 3 22.2	4 28.2	28.3	28.8
33.1	38.6	38.8	38.2
38.5	44.8	44.2	44.7
33.9	38.7	40.0	40.0
77	150 5	157 3	151 7
31.92	37.62	37.82	37.92

236

37.79

δ Can. Maj.

7 3 28

−26 12

m	m	R	R
35 2 15.3	8 28.6	28.0	28.2
25.1	37.9	38.1	37.9
33.5	47.3	46.9	46.3
26.4	39.7	39.4	40.2
100 3	153 5	152 4	152 6
25.07	38.37	38.10	38.15

62

38.21

δ Virginis

12 49 30

+4 3

m	m	R	R
20 3 49.8	25 0 6.3	6.8	6.0
59.9	14.6	14.4	13.7
5.1	20.1	19.0	19.0
1.2	13.7	14.9	15.4
2360	547	551	541
59.00	13.67	13.77	13.52

196

13.65

ε Virginis

12 56 9

+11 37

m	m	R	R
50 0 51.7	1 1.3	0.0	0.0
57.5	7.1	6.9	6.4
4.8	13.9	13.3	13.3
0.2	9.0	9.4	8.3
2342	313	296	280
58.55	7.82	7.40	7.00

122

7.41

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Can. Min.

7 20 35

+8 32

	m	m	R	R
55 0	4.6	1 14.9	15.4	14.8
	11.3	20.6	21.9	21.9
	19.5	28.8	28.7	28.2
	12.7	23.8	24.2	23.9
	48.1	90.1	90.2	88.8
	120.2	225.2	225.5	222.0

127

22.42

α Can. Min.

7 32 58

+5 32

	m	m	R	R
50 4	47.8	55 1 13.2	12.8	12.7
	55.9	20.2	21.9	21.9
	1.1	27.5	26.8	26.9
	57.3	26.1	23.2	23.2
	222.1	86.0	84.7	84.7
	55.52	21.50	21.17	21.17

84

21.28

τ Virginis

13 55 29

+2 8

	m	m
20 0	6.4	
	13.6	
	21.3	
	17.0	
	58.3	
	14.57	

α Bootis

14 10 8

+19 49

3'	h	m	R	R
35 3	50.0	40 06.8	6.2	5.8
	57.1	12.1	11.7	11.7
	4.1	19.9	19.2	18.8
	0.1	15.2	13.3	14.5
	231.3	54.0	50.4	50.8
	57.82	13.50	12.60	12.70

880

1293

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 March 9

ν Orionis C = 46.791

5 18 38

+6 14

	m	m	R	R
10 2	31.4	3 37.1	37.0	36.8
	39.1	44.3	44.3	43.8
	45.6	51.3	50.2	50.5
	42.6	47.1	47.1	47.4
	158.7	179.8	178.6	178.5
	39.68	44.95	44.65	44.62

222

44.74

δ Orionis

5 25 50

−0 23

	m	m	R	R
50 0	9.0	1 25.9	26.4	26.1
	16.7	33.7	33.4	34.0
	25.7	43.2	42.7	42.8
	19.8	37.9	37.8	37.2
	71.2	140.7	140.3	140.1
	7.80	35.17	35.07	35.02

26

35.87

κ Orionis

5 42 1

−9 43

	m	m	R	R
5 4	24.6	10 0 26.4	26.4	26.8
	31.4	33.6	33.3	33.8
	42.5	45.7	45.2	45.0
	34.7	37.7	37.7	37.2
	133.2	143.4	142.6	142.8
	33.30	35.85	35.65	35.70

220

35.73

ℓ Orionis

5 48 37

+7 23

	m	m	R	R
0 3	50.7	5 0 12.1	11.3	11.2
	59.4	20.2	19.9	20.0
	5.2	27.0	26.9	26.7
	0.9	22.1	22.8	22.6
	23.62	81.4	80.9	80.5
	59.05	20.35	20.22	20.12

69

20.23

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Orionis

5 30 4

−1 17

	m	m	R	R
40 3	28.9	4 44.6	44.7	44.3
	36.2	51.4	51.3	51.3
	44.4	58.8	58.3	58.4
	38.3	53.9	54.8	55.1
	1478	2087	2091	91
	36.95	52.17	52.27	52.27
			71	
			52.34	

ζ Columbae

5 35 16

−34 8

	m	m	R	R
30 2	36.1	3 14.4	14.0	14.0
	44.5	23.1	23.1	22.9
	52.3	29.7	27.3	27.8
	46.4	23.7	25.9	25.0
	1793	909	903	897
	44.82	22.72	22.57	22.42
			171	
			22.57	

α Can. Maj.

6 39 49

−16 33

	m	m	R	R
55 4	12.6	5 0 27.7	27.7	27.0
	22.1	37.7	36.9	37.4
	29.3	45.9	44.4	44.4
	22.7	38.9	40.0	40.0
	867	1502	1495	1488
	21.67	37.55	37.37	37.20
			112	
			37.37	

ε Can. Maj.

6 53 52

−28 48

	m	m	R	R
10 3	22.4	4 25.2	35.7	35.3
	33.2	45.9	45.7	45.4
	38.1	57.1	51.3	50.8
	32.4	46.5	47.0	46.4
	61	1787	1797	1779
	31.52	44.67	44.92	44.47
			206	
			44.69	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 March 9

Cam. Maj.

3 28

−26 12

		m	m	R	R
35	2	18.9	3 31.4	31.6	32.1
		28.6	41.4	41.8	41.6
		36.4	49.9	49.7	49.2
		29.6	43.2	43.8	43.4
		11 35	59	69	63
		28.37	41.47	41.72	41.57
				176	
				41.59	

β Can. Min.

7 20 35

+8 32

		m	m	R	R
55	0	6.6	1 25.7	25.2	24.9
		14.1	32.9	32.8	32.5
		22.4	40.4	39.6	39.3
		16.1	33.6	34.3	34.1
		5.92	13.26	1319	1308
		14.80	33.15	32.97	32.70
				882	
				32.94	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Cam. Minn.

7 32 58

+5 32

	m	M	R	R'
50 4	57.1	55 16.6	6.1	6.3
	5.2	16.4	16.2	16.1
	10.4	22.4	21.6	21.1
	66	16.9	17.9	17.7
	25.3	6.3	6.8	6.2
	4.82	16.57	15.45	15.30
			13.2	
			15.44	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 10

Cam. C=46.791

2 22 26

-4 3

10	3	46.5	45	1	40.4
		54.4			48.8
		57.9			57.3
		58.2			53.1

α Aurigæ C=46.791

2 0 22

+22 54

		m	m	R	R
30	3	40.3	45.95	0.2	59.7
		45.8	4.5	4.2	3.9
		53.4	11.8	11.8	11.6
		55.1	13.2	14.1	13.2
		1946	290	303	284
		48.65	7.25	7.57	7.10
				92	
				7.31	

γ Eridani

3 8 52 23

-13 51

		m	m	R	R
15	2	19.3	3 41.3	42.2	41.8
		29.7	51.7	51.0	51.1
		42.7	2.8	3.0	3.2
		33.6	66.9	57.9	57.6
		1253	2122	2141	2137
		31.32	53.05	53.52	53.42
				99	
				53.33	

ε Can. Maj.

6 53 52

-28 48

		m	m	R	R
10	3	30.4	4 39.3	39.4	39.5
		40.1	49.1	48.8	48.2
		52.6	03	0.3	0.0
		47.2	56.9	57.0	57.9
		1703	2046	2055	2056
		42.57	51.15	51.37	51.40
				92	
				51.31	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

2 Ceti

2 55 57
+3 37

m	m	R	R
45 4 53.1	50 1 48	5.0	5.6
1.2	13 6	13.8	13.6
10.1	28 8	23.8	23.7
77	19 9	21.0	21.6
25 2 1	6 23	6.36	6.45
63.02	~~4 50~~ 57	15.90	16.12
	15.58	0	

δ Eridani

3 37 30
−10 11

m	m	R	R
35 1 53.7	3 06	0.6	0.3
06	7 3	7.3	6.2
16.6	22.7	22.3	22.2
8 8	15 6	15.7	15.3
19 7	46 2	45 9	44 0
4.92	11.55	11.47	11.00
		10 2	
		11.34	

Lost sense of the wires

β Can. Maj.

7 3 28
−26 12

m	m	R	R
35 2 23.4	3 39 6	39.2	39.6
33.5	49 3	49.2	48.8
47.2	2.4	1.7	2.9
40 8	56 9	57.2	57.6
144 9	208 2	207 3	208 9
36.22	52.05	51.82	52.22
		60 9	
		52.03	

β Can. Min.

7 20 35
+8 32

m	m	R	R
55 0 3.4	1 22 8	22.2	22.7
12.1	31 4	30.7	30.6
26.5	45 6	44.4	44.7
20.1	37 6	36.2	37.7
62.1	137 4	135 5	135 7
15.52	34.35	33.87	33.92
		14	
		34.05	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

72

1879 March 10

2 Can. Min.

7 32 58

+5 32

		m		m	R	R
50	4	52.1	55	14.7	4.2	4.5
		13		14.5	14.4	14.2
		12.8		26.5	25.7	25.6
		7.7		20.5	21.2	21.1
		25.9		66.2	65.5	65.4
		3.3 2.2		16.55	16.37	16.35
		.47			127	
					16.42	

Lost A, 2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

74 1879 March 11

Ceti C=46.791

2 55 57
+3 37

	m	m	R	R
5 0 0	14.1	13.5	13.0	13.8
	19.8	20.1	20.3	19.8
	33.6	33.3	32.8	32.9
	32.2	32.6	32.7	32.6
x	997	995	988	991
	24.92	24.87	24.70	24.77
			234	
			24.78	

ε Eridani

3 27 14
−9 52

	m	m	R	R
15 4	6.2	4 42.9	43.7	44.1
	12.1	49.4	50.2	49.7
	30.8	8.7	7.8	7.7
	24.3	2.7	3.7	3.6
	734	2232	2254	2251
	18.35	55.80	56.35	56.27
			42	
			56.14	

Lost 1st wire and
Lost 2 wires Remember

δ Orionis

5 25 50
−0 23

	R	R
50 0	~~58~~ 583	583
	52	56
	21.1	21.2
	16.1	15.9
	28 07	28 10
	~~56.14~~	~~56.20~~
	10.17	10.25
		42
		10.21

ε Orionis

5 30 4
−1 17

	R	R
40 8	27.0	27.2
	33.6	34.6
	49.9	49.7
	45.3	44.7
	15 58	15 62
	38.95	39.05
		1800
		39.00

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Eridani
3 37 30
−10 11

	m	m	R	R
35 1	49.3	3 0.3	0.0	0.0
	56.1	7.1	6.8	6.6
	14.8	25.2	24.4	24.7
	6.9	17.7	17.9	18.0
	24.1	56.3	49.1	49.3
	1.77	12.57	12.27	12.32
			116	
			12.39	

γ Eridani
3 52 23
−13 51

	m	m	R	R
15 3	6.6	3 38.1	38.4	38.6
	15.6	47.5	47.8	47.8
	31.2	3.1	2.2	2.5
	22.4	54.7	57.0	56.7
	7.58	2034	2054	2056
	18.95	50.85	51.35	51.40
			60	
			51.20	

Lost 1st 2 wires

44 Columbae
5 35 16
−34 8

	m	m	R	R
30 2	59.2	3 24.6	24.8	25.0
	7.1	88.5	33.0	33.0
	20.4	47.8	46.1	46.9
	16.3	42.7	43.8	42.8
	28.30	14.86	14.77	14.77
	10.75	37.15	36.92	36.92
			2099	
			37.00	

κ Orionis
5 42 1
−9 43

	m	m	R	R
5 4	11.4	100 24.9	24.9	24.9
	18.3	31.9	32.2	32.0
	35.6	50.2	50.2	50.0
	27.9	42.3	42.2	42.5
	9.32	14.93	14.95	14.94
	23.30	37.32	37.37	37.35
			104	
			37.35	

$A_4 \propto e$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

76

1879 March 11

ζ Orionis

5 48 37

+7 23

m	m	R	R
0 3 50.8	5 0 8.6	8.0	8.4
0.8	16.4	16.5	17.8
14.0	31.0	31.0	30.9
8.6	25.3	25.7	25.7
25.42	8.13	8.12	8.28
3.55	20.32	20.30	20.70
		13 2	
		20.44	

ζ Can. Maj.

6 39 49

−16 33

m	m	R	R
5 5 4 12.1	5 0 22.8	23.2	23.1
20.8	32.9	33.3	32.6
34.5	47.3	46.9	47.0
27.2	41.3	41.3	41.2
9.46	14.43	14.47	14.39
23.65	36.07	36.17	35.97
		21	
		36.07	

δ Ophiuchi

16 8 0

−3 23

m	m
50 0 8.9	8.1
18.6	17.4
31.5	31.1
23.0	24.2
8.20	8.08
20.50	20.20
70	
20.35	

19. Vest. Min

16 14 18

+76 11

°	′	″	′	″
15 2 53.4	3 10.7	44.2	4	2.8
54.2	12.8	45.0		3.3
3.7	21.6	54.0		13.2
5.5	21.8	56.4		14.7
23.68	6.69	1.996		3.40
59.20	16.72	49.90		8.50

Lost A +1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1979phae.proj.1399R

ε Can. Maj.

6 53 52
−28 48

m	m	R	R
10 3 20.1	4 37.8	37.8	38.1
31.6	47.7	47.9	47.7
43.4	58.8	59.1	58.3
37.8	54.1	55.1	54.8
1329	1984	1999	1989
33.22	49.60	49.97	49.72

229
49.76

δ Can. Maj.

7 3 28
−26 12

m	m	R	R
35 2 18.0	3 43.4	44.0	43.3
29.0	53.5	53.0	53.2
41.9	6.7	6.3	6.2
35.7	0.6	1.1	1.7
1246	2242	2244	2244
31.15	56.05	56.10	56.10

25
56.08

ζ Scorpii

16 21 59
−26 10

m	m	R	R
30 4 48.4	35 1 5.0	5.1	4.7
59.4	15.2	15.0	14.4
8.8	26.8	25.9	26.1
3.4	19.7	20.2	20.1
2400	667	662	653
0.00	16.92	16.55	16.32

179
16.60

ζ Ophiuchi

16 30 30
−10 19

m	m	R	R
45 1 29.8	1 57.7	57.5	57.2
37.2	5.0	4.4	4.4
52.1	18.6	18.6	18.3
42.6	11.5	11.8	11.3
1617	2728	2725	2712
40.42	8.20	8.12	7.80

12
8.04

Lost A +1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

78

1879 March 11
2 Camel. L.C.
4 42 2
+113 52

m		m	m
40 0	25.4	35 4 39.7	8.4
	28.4	42.4	10.8
	32.9	46.8	15.7
	31.1	44.9	13.7
	117.8	173.8	48.6
	29.45	43.45	12.15

10 Camel. L.C.
4 52 40
+119 44

m		m	m
45 4	21.9	3 37.9	3 7.1
	25.1	40.4	8.9
	28.4	43.9	13.4
	26.8	42.6	11.4
	22.2	48	4.08
	25.55	41.20	10.20

17 Camel. L.C.
5 18 44
+117 2

m		m	m
30 0	21.7	1.2	20.4 21.9
	24.8	4.1	20.9
	27.9	6.8	21.9
	25.8	5.7	20.1
	200	178	193
	25.00	4.45	24.82

α Ophiuchi
17 29 19
+12 39

m		m	R	R
45 3	20.8	4 35.6	86.3	86.3
	28.6	43.4	42.7	43.3
	38.6	53.4	53.0	52.7
	34.5	48.2	48.6	46.8
	122.5	180.6	180.6	181.1
	30.62	45.15	45.15	45.27

57
45.19

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Ursae Minoris

16 58 25
+82 14

m	m	m	m
10 4553	15 07.5	28.6	42.4
56.6	9.6	30.3	43.9
2.0	16.2	36.4	50.4
5.4	19.7	39.4	54.3
2393	53 0	1347	1910
59.82	13.25	33.67	47.75

η Ophiuchi

17 3
−15 34

m	m	R	R
0 0 37.9	1 46.4	46.7	46.7
47.4	57.1	56.6	56.0
58.5	7.2	6.5	6.7
51.6	13	1.3	1.0
1954	2320	2311	2304
48.85	58.00	57.77	57.60
		237	
		57.79	

γ Aquilae

19 40 30
+10 19

m	m	R	R
5 2 55.2	4 7.4	7.1	6.9
1.4	18.3	14.0	13.7
9.9	2006	22.2	22.7
6.4	18.9	19.6	19.1
2529	622	629	624
3.22	15.55	15.72	15.60
		187	
		15.62	

α Aquilae C=46.791

19 44 53
+8 33

m	m	R	R
50 4 4.6	55 0 4.2	4.1	4.3
13.0	10.7	11.1	11.0
20.7	22.0	21.1	21.2
15.1	15.3	16.1	16.0
534	522	524	525
13.35	13.05	13.10	13.12
		27	
		13.09	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

80 1879 March 12

Sun. C = 46.802

23 29 48

−3 15

m	m
25 1 42.4	55 4 35.7
51.2	44.3
2.8	55.2
55.9	48.6
2123	1838
53.07	45.95

Remeasures in σ Lib.

Lost A_{-1} 4 second limb

ζ Columbae

5 35 16

−34 8

m	m	R	R
30 2 0.1	3 13.1	14.2	13.7
9.7	23.9	23.8	23.7
19.9	32.4	31.3	30.7
13.6	26.9	28.7	27.6
433	963	980	959
10.82	24.07	24.50	23.98
			55
			24.18

ζ Ceti

2 55 57

+3 37

m	m	R	R
45 4 55.4	50 1 6.4	7.2	7.3
5.2	1.6	16.2	16.2
13.1	2.6	25.2	25.0
10.1	2.6	22.3	22.2
2638	682	709	707
5.95	17.05	17.72	17.67
		144	
		17.48	

κ Orionis

5 42 1

−9 43

m	m	R	R
5 4 22.6	10 0 24.3	24.5	24.2
31.3	33.2	32.6	32.2
44.9	47.1	46.9	46.3
35.4	36.8	38.7	36.2
1342	1414	1427	1409
33.55	35.35	35.67	35.22
		124	
		35.41	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

17 Camel.

5 18 44

+62 58

m	m	m
25 4 58.8	30 0 34.2	1 16.2
59.5	35.7	18.7
8.2	45.5	27.6
8.3	44.2	27.9
2548	1596	904
3.70	39.90	22.60

δ Orionis

5 25 50

−0 23

m	m	R	R
50 0 7.8	1 29.1	29.7	29.3
16.6	37.8	37.8	37.2
28.6	50.4	49.6	49.7
22.3	44.0	43.2	43.7
753	1613	1603	1599
18.82	40.32	40.07	39.97
		36	
		40.12	

1 stroke for last δ

1 str for last δ

ζ Orionis

5 48 37

+7 23

m	m	R	R
0 3 47.3	50 11.9	11.9	11.6
56.6	21.1	21.0	20.9
5.8	31.2	30.3	31.2
0.2	24.8	25.2	26.3
2299	890	884	900
57.47	22.25	22.10	22.50
		85	
		22.28	

ζ Ophiuchi

16 30 30

−10 19

m	m
45 2 1.9	2.4
9.0	9.8
22.7	22.7
14.1	13.9
477	488
11.92	12.20
412	
12.06	

~~A 283~~

A 345

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

82

1879 March 12

γ Camel. L.C.

5 18 44

+117 2

	m	m	m	m
30 0	41.6	16.5	25 4	35.8
	41.9	18.1		37.3
	45.3	20.7		38.1
	43.9	18.4		36.7
	12.7	7.37		2.79
	43.17	18.42		36.98

α Ophiuchi

17 29 19

+12 39

	m	m	R	R
45 3	36.4	4 41.9	42.2	41.7
	43.8	49.1	49.1	48.8
	53.1	58.1	57.2	56.3
	46.9	52.3	53.9	53.2
	180.2	14	24	00
	45.05	50.35	50.60	50.00
			95	
			50.32	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

S Meas. Mirs,
18 11
+86 36

	m	m	m	m	m	m
50	2 22.5	27.5	40.6	43.4	50.4	56.9
	22.8	28.1	40.2	43.4	50.7	56.2
	28.4	33.1	46.6	49.3	56.3	0.9
	29.8	34.6	46.8	50.7	57.3	2.2
	23 5	33	142	1868	147	236 2
	2587	30.82	4355	4670	53.67	59.05

Rej. 2nd stroke of 2nd wire
3 strokes for middle wire

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

84

1879 March 13

Sun

23 33 28

−2 52

Following limb, in R.A. only

May 3

ε Orionis

5 18 87

+7 23

	R	R
+40	4 7.9	~~7.2~~
	15.2	15.5
	25.2	25.0
	21.7	21.7
	7.00	6.94
	17.50	17.35

85

17.42

β Can. Min.

7 8 20 35

+8 32 4

	m	m	R	R
55 0	4.7	15.9	16.2	16.6
	13.4	25.2	25.0	24.3
	24.1	34.8	34.7	34.3
	17.1	28.3	29.2	29.1
	5.43	10.42	10.59	10.43
	14.82	26.0.50	26.27	26.07

39

26.13

α Can. Min.

7 32 58

+5 32

	m	m	R	R
50 4	52.3	55.1	7.7	7.2
	1.9	8.4	17.9	18.0
	9.9	17.8	26.2	26.2
	16.6	21.4	21.7	21.2
	9.7	20.7 / 13.3	7.35	7.26
	2.42	18.32	18.37	18.15

84

18.28

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Ursæ Min. L.C

18 11 22

+93 24

	R	R	R
5 1	109	59.6	50.8
	12.2	0.6	51.1
	20.6	8.8	59.7
	18.9	7.4	58.2
	6.26	256.4	19.8
	15.65	4.10	54.95

ζ Can. Maj.

6 39 49.

−16 33

	m	m	R	R
55 4	12.5	0 0 22.4	22.8	22.3
	24.0	34.1	34.1	33.7
	33.2	45.4	44.8	43.7
	25.9	37.5	38.3	37.8
	9.56	1394	1400	1375
	23.90	34.85	35.00	34.38
			14 23	
			34.74	

Wires 9, 8, 7, 6, 5. Obs. in R.A. on account of clouds

ζ Argus

8 2 24

−23 57

	m	m	R	R
20 2	51.6	4 9.5	9.8	9.8
	1.7	20.4	20.2	19.8
	12.4	30.2	30.1	30.5
	4.8	23.8	25.2	24.9
	25.05	83.9	85.3	85.0
	2.62	20.98	21.32	21.25
			55	
			21.18	

δ Corvi

12 23 0

−15 49

	m	m	R	R
15 1	40.8	2 59.7	59.3	59.3
	5.3	9.8	10.2	10.4
	1.2	19.6	20.0	19.6
	54.3	12.7	14.2	14.7
	20.16	2818	2837	2840
	51.90	10.45	10.92	11.00
			237	
			10.79	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879, March 13

β Corvi

12 28 2

−22 44

m		m		R	R
5 4 23.6	10 0	31.4		31.0	31.0
34.2		41.2		40.9	40.8
45.6		52.2		52.7	53.0
37.6		45.1		46.0	45.7
1415	0	1709		1706	1705
35.37		42.72		42.65	42.62
.25					

199

42.66

γ Virginis

12 35 32

−0 47

m		m		R	R
10 4 1.4	15 0	27.2		27.3	27.7
8.6		36.5		36.1	35.8
20.1		48.4		47.3	47.2
13.9		41.2		42.2	41.7
446		1533		1589	1524
11.00		38.32		38.17	38.10
				.22	
				64	

38.21

α Virginis

13 18 49

−10 32

m		m		R	R
55 3 18.6	4	29.8		30.0	29.8
27.2		27.3		27.3	27.3
41.4		52.2		51.2	51.1
32.6		43.5		43.2	43.8
1198		1528		1517	1520
29.95		38.20		37.92	38.00

2412

38.04

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Virginis

12 49 30

+4 3

m	m	R	R
20 3 44.6	25 0 5.2	5.3	5.7
54.3	14.9	14.3	14.4
23	22.8	22.2	22.2
58.1	18.3	19.3	19.4
2193	612	611	617
54.82	15.30	15.27	15.42
		99	
		15.33	

ε Virginis

12 56 9

+11 37

m	m	R	R
50 0 42.9	2 9.9	9.6	9.3
50.3	16.2	16.8	16.8
1.1	26.9	26.7	26.3
56.4	22.1	22.0	22.0
2107	751	751	744
~~27.2~~ 52.67	18.77	18.77	18.60
		214	
		18.71	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 March 15

γ Aquilae

19 40 30

+10 19

	m	m	R	R
5 2 59.4	4 11.4		11.1	11.3
6.1	21.2		18.3	18.2
15.4	26.4		25.7	26.0
10.1	21.9		22.8	23.0
27 10	86.9		77.9	78.5
7.75	20.22		19.47	19.62
			5931	
			19.77	

α Aquilae

19 44 53

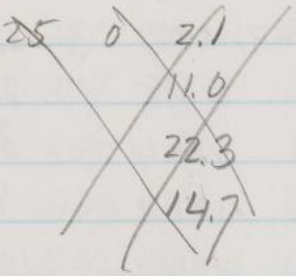
+8 30

	m	m	R	R
50	4 3.9			
	12.1			
	19.2			
	12.9			
	48.1			
	12.02			

Lost A_1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 March 16

ε Orionis

5 30 4

−1 17

	m	m	R	R
40 3	30.7	4 43.8	44.4	44.6
	38.6	51.6	52.0	52.0
	49.4	1.7	1.0	1.0
	44.9	57.5	57.6	57.9
	1636	2146	2150	2155
	40.90	53.65	53.75	53.87
			227	
			53.76	

α Columbae

5 35 16

−34 8

	m	m	R	R
30 2	0.7	3 15.1	15.0	15.1
	9.8	25.1	24.8	24.8
	19.4	33.2	32.2	32.1
	14.3	28.8	29.8	30.1
	442	1032	1018	1021
	11.05	25.80	25.45	25.52
			177	
			25.59	

β Ursae Min. L. C.

18 11 22

+93 24

	m	m	m	m	m	m
5 1	22.6	14.9	10.6	0 23.9	19.4	17.4
	25.1	17.1	12.9	25.5	21.2	19.6
	31.8	25.5	20.6	32.4	28.8	26.7
	29.4	23.0	17.8	29.8	25.7	24.5
	1089	805	619	1116	951	882
	27.22	20.12	15.47	27.90	23.77	22.05

α Can. Maj.

6 39 49

−16 33

	m	m	R	R
55 4	11.2	0 0 27.6	27.8	28.1
	21.1	39.1	38.7	38.9
	29.9	48.8	48.0	48.3
	24.7	41.6	42.0	43.0
	869	1571	1565	1583
	21.72	39.27	39.12	39.57
			96	
			39.32	

25 wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

κ Orionis

5 42 1
−9 43

	m	m	R	R
5 4	12.9	10 0 29.1	29.2	29.9
	19.4	37.4	37.2	37.1
	32.6	50.5	51.0	50.5
	25.1	42.3	43.0	43.0
	900	1596	1604	1600
	22.50	39.90	40.10	40.00
			00	
			4000	

λ Orionis

5 48 37
+7 32

	m	m	R	R
0 3	53.8	5 0 8.9	8.1	8.2
	2.4	17.5	16.3	17.1
	10.6	26.8	26.3	26.6
	5.9	19.9	21.2	21.2
	2527	731	719	731
	3.17	18.27	17.97	18.27
			51	
			18.17	

ε Can. Maj.

6 53 52
− 28 48

	m	m	R	R
10 4	29.1	29.1		
	89.8	40.4		
	48.1	47.8		
	42.4	42.1		
	1589	1594		
	39.72	39.85		
		157		
		39.78		

δ Can. Maj.

7 3 28
− 26 12

	m	m	R	R
35 2	22.2	3 30.9	31.2	31.0
	32.7	41.6	42.0	41.5
	42.3	51.2	51.0	51.1
	34.7	45.6	45.3	44.4
	1319	1693	1695	1680
	32.97	42.32	42.37	42.00
			69	
			42.23	

A−1 Rej. pr. wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

92

1879. March 17

Hour. Min

18 11. 22

+86 36

	m	m	m	m	m	m
50 2	55.7	3 0.1	11.6	36.0	38.7	39.9
	56.9	1.1	13.1	36.6	40.0	40.9
	1.5	6.0	17.9	42.4	45.1	46.2
	1.4	3.9	17.3	42.7	45.4	46.5
	2355	111	599	1537	1692	1735
	58.87	2.77	14.97	39.67	42.30	43.37
				.42		

η Serpentis

18 15 3

−2 56

	m	m	R	R
20 2	30.4	3 38.5	38.4	38.7
	38.9	46.4	46.0	46.2
	47.9	54.8	54.3	54.3
	40.6	49.8	48.2	49.1
	1578	1895	1869	1883
	39.45	47.37	46.97	47.07
			.72	
			47.05	

Lost 1st in Observation in RA ?

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

X Aquilae
18 59 50
−5 4

	m	m	R	R
30 0	28.4	1 39.7	40.1	40.4
	36.2	47.9	47.4	47.4
	46.2	56.0	54.9	54.8
	37.6	49.7	50.2	50.2
	14.84	19.33	19.26	19.28
	37.10	48.32	48.15	48.20
			67	
			48.22	

and ∫ ?

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

94

1879 March 18

Sun

23 51 44

−0 54

m		m
0 4* 44.8	35 2	39.0
52.3		46.1
59.0		54.7
53.9		48.8
2100		1886
52.50		47.15

R Orionis

5 42 1

−9 43

m		m	R	R
5 4 12.6	10 0	24.5	23.3	23.7
19.3		30.4	30.7	30.6
29.6		42.4	41.2	41.3
24		33.4	34.3	34.8
827		1307	1295	1304
20.67		32.67	32.37	32.60
			32.64	
			32.55	

Both limbs in R.A. & D. Seeing very fine indeed.

α Can. Maj.

6 39 49

−16 33

m	m
55 4 7.5	7.1
16.8	17.2
24.4	24.5
17.3	17.5
660	663
16.50	16.57
	107
	16.36

ε Can. Maj.

6 53 52

−28 48

m	m	R	R
10 3 20.0	4 34.1	34.3	34.2
30.2	44.1	44.2	44.9
35.5	49.8	49.3	49.9
29.6	44.4	44.9	45.2
1153	1724	1727	1742
28.82	43.10	43.17	43.55
		82	
		43.27	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Orionis

5 48 37
+7 23

m	m	R	R
0 3 54.8	4 55.2	54.7	55.3
2.4	2.6	2.7	2.2
8.1	7.9	6.8	6.8
2.9	3.4	4.0	3.9
2482	91	82	82
2.05	2.27	2.05	2.05
		37	
		2.12	

δ Ursæ. Min. L.C.

~~6~~8 11 22
+93 24

m	m	m	m	m	m
5 1 8.6	3.4	0 59.7	55.4	52.7	26.2
9.8	4.5	59.6	55.4	52.6	27.1
13.8	9.1	4.5	.08	58.2	32.2
12.4	7.2	1.9	58.6	56.1	28.9
448	242	57	2302	196	1144
11.20	6.05	1.42	57.55	54.90	28.60

δ Can. Maj.

7 3 28
−26 12

m	m	R	R
35 2 18.6	8 34.9	34.9	35.2
28.4	44.4	44.2	44.1
35.3	52.1	51.7	51.2
28.6	45.6	46.6	45.4
11.09	17.70	17.74	17.59
27.72	44.25	44.35	43.97
		57	
		44.19	

β Can Min

7 20 35
+8 32

m	m	R	R
55 0 8.4	1 21.1	21.2	21.3
15.3	28.4	28.4	28.7
20.6	35.0	34.2	34.7
16.1	27.7	28.2	29.5
6.24	11.22	11.20	11.42
15.60	28.05	28.00	28.55
		60	
		28.20	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 18

α Can. Min.

7 32 58

+5 32

	m	m	R	R
55 0	0.0	1 9.1	8.9	8.7
	8.9	18.1	18.0	18.2
	15.2	23.1	23.0	22.9
	10.3	19.1	18.4	19.0
	34.4	694	683	688
	8.60	17.35	17.07	17.20
			62	
			17.21	

ι Argus

8 2 24

−23 57

	m	m	R	R
20 2	53.5	4 6.6	6.7	6.7
	2.7	16.4	15.8	16.0
	9.9	23.6	23.2	22.7
	2.6	16.3	17.3	17.1
	8.7	6.24	6.30	6.25
	2.17	15.72	15.75	15.62
			209	
			15.70	

δ Virginis

12 49 30

+4 3

	m	m	R	R
20 3	49.0	25 0 3.8	3.7	3.8
	58.6	12.1	11.8	11.7
	3.3	18.1	16.9	16.6
	58.2	12.8	12.9	12.4
	29.91	46.8	45.3	44.5
	57.27	11.70	11.32	11.12
			114	
			11.38	

ε Virginis

12 56 9

+11 37

	m	m	R	R
50 0	41.2	1 57.8	57.3	57.6
	47.1	3.9	4.0	3.6
	53.9	11.5	12.1	10.2
	49.9	5.2	5.8	5.7
	19.21	25.84	25.92	25.73
	4.802	4.60	4.80	4.32
			172	
			4.57	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Corvi

12 23

−15 49

m	m	R	R
15 1 38.4	2 48.2	47.3	47.8
47.8	56.9	57.1	56.5
55.4	3.7	1.9	2.2
48.6	57.8	58.4	58.2
1902	2266	2247	2247
47.55	56.65	56.17	56.17
		99	
		56.33	

γ Virginis

12 35 52

−0 47

m	m	R	R
10 4 3.6	15 0 25.9	25.1	24.3
10.3	33.2	32.8	32.8
18.6	41.4	39.9	39.9
11.4	35.1	35.2	35.8
439	1356	1330	1328
10.97	33.90	33.25	33.20
		135	
		32.45	

ζ Virginis

13 18 49

−10 32

m	m	R	R
55 3 15.9	4 20.1	30.8	30.9
22.1	36.9	36.8	36.3
32.9	48.3	47.0	46.9
24.1	39.0	39.8	39.8
950	1543	1544	1539
23.75	38.57	38.60	38.47
		164	
		38.55	

γ Aquilae

19 40 30

+10 19

m	m	R	R
5 2 57.7			
3.4			
10.4			
4.2			
2557			
3.92			

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

98 1879 March 18

2 Aquilae

19 44 53

+8 33

	m	m	R	R
50	4 4.0	55 0	20,9	20,3	20.2
	10.5		27.0	27.0	27.1
	15.9		34.4	33.1	33.3
	10.4		26.9	27.3	27.5
	40.8		109.2	107.7	108.1
	10,20		27.30	26.92	27.02
				24	
				27.08	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 19

Sun C=46.763

23 55 23

−0 3.0

	m
40 1	17.3
	23.5
	34.1
	28.2
	10 31
	25.77

α Leporis

5 27 24

−17 55

	m	m	R	R
20 1	12.8	1 52.8	52.9	53.2
	23.6	3.0	3.2	3.2
	32.7	12.8	11.9	11.8
	25.9	6.2	5.8	5.8
	950	2548	2538	2540
	23.75	3.70	3.45	3.50
			165	
			3.55	

First limb in R.A. Clouds
Upper limb in δ Obs. rather ?

α Orionis

5 48 37

+7 23

	m		m	R	R
0 3	48.9	5 0	0.7	1.2	1.2
	58.1		9.7	9.7	9.8
	4.0		18.3	18.0	18.7
	59.9		12.1	12.2	12.3
	23 09		408	411	420
	57.72		10.20	10.27	10.50
				97	
				10.32	

36 Camel.

6 0 40

+65 44

	m	m	m	m
40 3	23.5	47.1	4 22.7	47.6
	24.4	47.1	23.3	47.2
	30.1	543	29.8	55.0
	31.9	55.1	30.9	55.6
	1099	2036	1067	2054
	27.47	50.90	26.92	51.35

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Columbae
5 35 16
−34 8

	m	m	R	R
30 3	2.9	8 25.0	24.8	25.2
	12.2	34.6	35.0	34.4
	19.4	42.7	42.1	41.9
	14.1	37.6	38.3	37.9
	486	1399	1402	1394
	12.15	34.97	35.05	34.85
			1487	
			34.96	

κ Orionis
5 42 1
−9 43

	m	m	R	R
5 4	59.2	10 0 30.1	29.6	30.0
	5.0	37.2	37.7	37.8
	17.5	50.2	49.8	49.8
	9.5	41.4	42.7	42.0
	2712	1589	1660	1596
	7.80	39.72	40.00	39.90
			11962	
			39.87	

#9 A−1

22 h. Camel.
6 5 30
+69 21

	m	m	m	m
5 1	14.6	42.1	2 10.6	34.2
	14.9	42.3	11.1	35.0
	22.1	50.1	19.1	41.7
	22.4	49.9	18.4	41.9
	740	1844	592	1528
	18.50	46.10	14.80	38.20

Lost A+1

5 Obs. Min L.C.
18 11 22
+93 24

	m	m	m
5 0	40.4	35.4	26.7
	41.5	36.4	28.1
	47.5	42.2	33.4
	44.4	39.9	31.1
	138	1539	1193
	43.45	38.47	29.82

8 δ just for this wire
Lost 1st 2 wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 19

L Argus

8 2 24

−23 57

M	m	R	R
20 2 55.9	4 7.9	7.9	7.9
5.6	17.1	17.3	17.8
13.7	25.0	24.8	23.9
6.9	18.7	19.4	19.2
26.21	6.87	6.94	6.88
5.52	17.17	17.35	17.20
		72	
		17.24	

α Lyrae

10 15 6

+12 8 3

R	R
50 8 45.0	45.0
51.2	51.2
57.1	57.3
52.0	53.2
20.61	20.67
51.52	51.67
119	
51.40	

γ Virginis

12 35 52

−0 47

m	M.	R	R
10 4 8.7	15 0 2.64	26.0	25.9
15.2	33.0	33.1	33.1
23.4	40.9	40.0	40.8
15.9	32.9	34.7	35.2
63.2	133.2	133.8	135.0
15.80	33.30	33.45	33.75
		150	
		23.50	

δ Virginis

12 49 30

+4 3

M	M	R	R
20 3 52.0	25 0 7.6	8.1	8.7
0.2	15.2	15.4	15.3
4.9	21.6	20.3	19.7
1.0	14.9	15.9	15.5
23.81	59.3	59.7	59.2
59.52	14.82	14.92	14.80
		254	
		14.85	

15th mean component — in ✓

Mean R.A. 15 52,

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Corvi

12 23 —

−15 49

m	m	R	R
15 1 42.0	3 08	1.5	1.6
50.8	10.4	10.0	10.9
57.1	17.0	16.3	16.7
50.6	9.7	11.0	10.3
20 05	379	388	395
50.12	9.47	9.70	9.87
		204	
		9.68	

β Corvi

12 28 2

−22 44

m	m	R	R
5 4 22.5	10 0 19.8	19.5	19.3
31.4	29.2	28.1	28.7
38.5	37.7	36.7	36.2
31.1	28.0	29.7	29.3
1235	1147	1140	1135
30.87	28.67	28.50	28.37
		154	
		28.51	

ε Virginis

12 56 9

+11 37

m	m	R	R
50 0 40.9	1 58.4	58.5	58.9
46.4	46	4.3	4.8
54.3	11.6	10.9	10.2
48.2	14.8	6.0	5.2
18 98	25 97	25 97	25 91
47.45	64.92	4.92	4.77
		261	
		4.87	

ζ Virginis

13 18 4.9

−10 32

m	m	R	R
55 3 31.4	4 31.4	32.2	31.8
37.9	37.8	37.2	38.1
48.4	48.5	47.4	47.4
39.6	39.6	39.4	39.1
15 53	15 73	15 62	15 64
38.82	39.32	39.05	39.10
		47	
		39.16	

Perhaps 5 strokes for 1st S, take mean

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

104

Mar 19 1879

γ Aquilae

19 40 30

+10 19

	m	m	R	R
5 3	7.6	4 18.5	19.9	19.6
	14.4	26.5	26.0	25.8
	22.1	32.9	31.8	32.0
	16.4	26.9	29.0	28.0
	60.5	104.8	106.7	105.4
	15.12	26.20	26.67	26.35
			122	
			26.41	

α Aquilae

19 44 53

+8 33

	m	m	R	R
50 4	5.6	55 6	16.1	15.3	15.8
	13.1		22.4	22.1	22.7
	19.9		30.2	29.0	29.4
	12.2	2	23.8	23.2	23.8
	50.8		9.25	89.6	91.7
	12.70		23.12	22.15	22.92
				40	
				844	
				22.81	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

B Aquilae

19 49 22

+6 6

	m	m
20 0	43.9	44.1
	52.9	52.4
	58.9	58.0
	53.4	52.7
	9.1	7.7
	52.27	51.92
	41.9	
	52.09	

A H

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

106

1879. March 20

Sun C = 46,763

23 59 1

	m	m
50 1	20.7	5.5
	28.9	14.2
	38.5	24.3
	34.8	18.2
	12 29	622
	30.72	15.55

Both limb in D + R. A.
Seeing very fine indeed

B Eridani

5 1 54

−5 15

	m	m	R	R
40 1	9.4	2 28,8	29.4	29.6
	17.2	37.2	36.3	37.2
	28.8	48.6	47.2	48.2
	22,4	41,6	42.7	43.1
	778	1562	1556	1581
	19,45	39,05	38,90	39,52
			47	
			39.16	

α Leporis

5 27 24

−17 15

	m	m	R	R
20 0	32.8	1 40.5	40.6	40.7
	43.9	51.1	51.4	51.6
	54.2	0.9	0.7	0.8
	47.3	54.7	54.9	54.8
	1782	2072	2076	2079
	44.55	51.80	51.90	51.97
			267	
			51.89	

K Orionis

5 42 1

−9 43

	m	m	R	R
5 4	8,4	10 0 26,0	26.6	26.0
	16.8	34,2	35.0	34.8
	29.7	48.7	48.3	48.3
	20.9	39,2	39.0	38.5
	758	1481	1489	1479
	18,95	37,02	37.22	36.97
			21	
			37.07	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Orionis

5 8 43
−8 21

	m	m	R	R
45 1	54.3	3 20.5	20.5	20.7
	2.8	29.9	28.6	28.7
	14.9	40.5	39.2	39.4
	7.2	31.8	33.7	34.0
	25 92	12 07	12 20	12 28
	4.80	30.17	30.50	30.70
			137	
			30.46	

γ Orionis

5 18 38
+6 14

	m	m	R	R
10 2	59.1	3 40.0	40.4	40.2
	9.9	50.4	51.1	50.6
	18.4	58.5	57.9	58.2
	11.4	53.1	54.1	53.8
	27 88	20 20	20 35	20 28
	9.70	50.50	50.87	50.70
			207	
			50.69	

Lost 1st 1/2 2 wires

ζ Orionis

5 48 37
+7 23

	m	m	R	R
0 3	51.2	5 0 5.1	4.9	5.4
	1.4	15.2	15.3	15.3
	10.2	24.8	24.7	24.8
	4.2	18.2	18.3	18.0
	24 70	6 23	6 32	6 35
	1.75	15.57	15.80	15.87
			224	
			15.75	

35 Draconis L.6

17 54 52
+10 3 2

	m	m	m	m
25 3	13.6	2 55.0	39.7	33.1
	17.9	59.4	44.1	37.9
	24.1	5.8	49.9	44.3
	23.4	4.2	49.0	42.3
	78 90	44	18 27	15 76
	~~22.75~~	1.10	45.67	39.40
	19.75			

Rej wires among 2nd S's
1st for last S. (near 3rd N)

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

108 1879 March - 20

36 Camel.
6 0 40
+65 44

m	m	m	m
40 3 18.5	47.34	16.2	4 40.″2
22.1	48.9	18.4	41.7
30.1	58.6	27.9	50.8
29.9	58.6	27.8	51.0
10 06	21.34	9 03	18 37
25.15	53.35	22.57	45.92

22 H. Camel
6 5 30
+69 21

m	m	m	m
5 1			
5 1 16.2	30.6	2 6.5	22.2
8.0	33.3	8.4	24.9
18.1	42.9	18.8	33.6
16.4	41.6	17.2	32.8
4 87	1484	506	11.35
12.17	37.10	12.65	28.37

Gr. 26 40 L.b
18 35 50
+114 38

m	m	m
50 4 28.0	3 52.9	13.7
32.4	57.4	17.7
35.0	58.8	20.6
33.8	57.1	18.5
1292	262	705
32.30	57.55	17.62

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Ursae Min. L.C.

18 11 22

+93 24

5 0 31.1	27.4	23.6	21.4	17.4	12.2	10 1 03	0 32.5	17.9
33.3	30.8	27.4	24.5	20.3	15.3	3.9	37.1	21.6
41.2	38.2	34.6	31.6	28.2	28.8	9.3	42.2	27.4
37.9	35.6	32.2	28.8	25.2	19.9	7.4	40.8	25.9
1435	1320	1178	1068	911	712	209	1526	928
35.87	33.00	29.45	26.70	22.77	17.80	5.22	38.15	18.20 23.20

Lost 1st 3 wires

χ Draconis L.C.

18 23 14

+107 20

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 23

Sun C = 46.761

0 9 57

+1 5

	m		m
5 1	22.4	35 4	17.8
	31.4		27.2
	40.2		34.4
	34.8		32.8
	12 8 8		11 22
	32.20		28.05

Both limbs in δ + R.A. Lost 1st 3 wires of 2nd limb. 1st limb & both δ without tourmaline. 2nd limb with Seeing very good except for clouds

δ Corvi

12 23 –

–15 49

	m	m
15	25 7.7	6 8.3
	8.1	7.7
	16.6	17.1
	9.4	10.7
	27 18	27 38
	7.95	8.45

1640

8.20

A–1

Rej 1st δ

δ Virginis

12 49 30

+4 3

	m	m	R	R
20 3	50.8	25 0 1.6	0.9	1.2
	0.3	11.1	10.0	9.9
	5.8	17.6	16.9	16.8
	2.4	12.9	12.9	13.2
	23 93	32	07	411
	59.82	10.80	10.17	10.27

124

10.41

ε Virginis

12 56 9

+11 37

	m	m	R	R
50 0	44.1	2 2.2	1.4	2.1
	51.1	8.9	9.1	8.8
	0.7	18.2	17.2	17.7
	54.6	18.3	12.8	12.2
	21 05	426	405	408
	52.62	10.65	10.12	10.20

97

10.32

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1999R

β Corvi

12 28 2

−22 44

	m		m	R	R
5	4 19.3	10	0 32.9	32.1	32.2
	28.8		48.6	41.9	42.3
	37.8		52.1	51.9	52.2
	30.9		44.6	45.2	45.2
	11 68		17 12	17 11	17 19
	29.20		42.80	42.77	42.97
				254	
				42.85	

γ Virginis

12 35 32

−0 47

	m		m	R	R
10	4 3.2	15	0 24.9	24.7	24.3
	11 3		33.6	33.4	33.4
	20 9		43.8	42.3	42.2
	14 6		37.8	37.9	38.1
	5 00		14 01	13 83	13 80
	12.50		35.02	34.57	34.50
				1409	
				34.80	

Mean R.A.
1 cto each 5 2nd pr.

ε Virginis

13 18 49

−10 32

	m		m	R	R
55	3 14.4	4	29.4	29.5	29.8
	22.3		36.8	36.9	36.3
	33.9		49.7	49.1	48.8
	25.6		41.8	41.7	41.0
	96 2		15 77	15 72	15 59
	24.05		39.42	39.30	38.97
				69	
				39.23	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 24

Sun C = 46.761

0 13 35

+1 28

m

40 3 58.6

7.9

14.5

11.4

27 24

8.10

18 W Upper Limb A 1 1st limb
A4+C 2 4th limb. Seeing +1 good

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 25

Sun.

0 17 13

+1 52

	m		m
15 4	10.8	50 2	21.9
	19.8		31.1
	26.7		39.9
	24.1		35.1
	81 4		1280
	20.35		32.00

Seeing very good. Tourmaline partly ~~off~~ on + partly off on account of clouds

---

36 Camel.

6 0 40

+65 44

	m	m	m	m
40 3	25.5	52.8	4 25.9	38.8
	26.4	53.2	27.2	35.2
	36.5	4.2	37.1	50.0
	37.4	4.6	37.6	50.6
	1258	2348	1278	1786
	31.45	58.70	31.95	44.65

3 Observations for lost ☉

γ Orionis

5 18 38

+6 14

	m	m	R	R
10 2	39.1	3 55.7	55.1	55.4
	46.5	5.1	5.0	6.1
	57.8	149	14.6	14.2
	52.2	8.9	10.2	9.8
	1976	2646	2649	2645
	49.40	6.15	6.22	6.12
			49	
			6.16	

Lost A 5.6.7 + A 3.4 1 abstke for 2 = 9 ☉

Was. Min L.C

18 11 22

+93 24

	m	m	m	m	m	m
5 0	47.3	39.2	34.7	31.1	25.9	20.7
	48.6	40.4	36.9	33.3	27.4	22.4
	58.1	50.7	45.7	42.5	36.7	31.2
	55.9	47.7	43.1	39.9	34.2	29.2
	2099	1780	1604	1468	1242	1035
	52.47	44.50	40.10	36.70	31.05	25.87

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ψ Draconis L.C.

17 44 5
+107 48

	m	m	m
40 2	31.7	10.6	51.4
	34.8	13.9	55.1
	43.9	21.2	2.4
	42.1	19.8	1.3
	15 25	655	2302
	38.12	16.37	57.55

ζ Orionis

5 48 37
+7 23

	m	m	R	R
0 3	52.9	50 2.7	3.7	3.8
	1.5	12.3	12.3	12.1
	11.9	23.8	23.3	23.0
	6.2	16.9	18.2	18.0
	25 25	557	575	569
	3.12	13.92	14.37	14.22
			51	
			14.17	

χ Draconis L.C.

18 23 14
+107 20

	m	m	m	m
10 1	12.4	0 54.6	23.9	2.8
	15.5	56.4	26.6	5.2
	21.3	2.5	32.2	11.6
	20.7	2.1	32.9	11.8
	699	235.6	1156	314
	17.47	58.90	~~31.40~~ 28.90	7.85

γ Geminor

6 30 43
+16 30

	m	m	R	R
55 2	8.6	3 12.4	12.4	12.2
	14.6	18.3	18.2	18.8
	26.7	30.5	30.5	30.7
	21.6	25.8	26.2	26.8
	715	870	873	885
	17.87	21.75	21.82	22.12
			209	
			21.93	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. March 25

51 H Cephei

6 43. 16

+87. 14

		m	m	m		″	″	″
10	4	15.1	18.7	24.1	15	0.99	129	151
		16.9	20.5	26.6		114	139	162
		23.8	27.8	33.5		199	224	239
		24.9	28.7	35.2		19.4	23.2	25.0
		80	957	1194		606	724	882
		20.17	23.92	29.85		15.15	18.10	20.05

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 March 26

ν Geminor

6 15 38 +22 34

	m	m	R	R
50 2	45.2	3 52.4	53.2	53.2
	51.1	59.3	59.7	59.8
	59.4	7.1	6.3	6.2
	58.7	6.9	5.3	5.8
	21 3.9	4.7	4.5	5.0
	53.47	1.17	1.12	1.25
			54	
			1.18	

γ Geminor

6 30 43

+16 3.0

	m	m	R	R
55 1	59.4	3 11.9	11.8	12.2
	5.0	17.8	17.9	17.8
	16.7	29.9	29.3	29.5
	10.4	23.8	24.8	25.3
	271'5	83.4	838	848
	7.87	20.85	20.95	21.20
			00	
			21.00	

L Argus

8 2 23

−23 57

	m	m	R	R
20 2	49.3	4 7.1	7.0	6.6
	0.4	17.4	16.5	16.9
	9.6	26.7	26.7	26.2
	3.9	20.9	21.2	21.8
	2432	721	714	715
	080	1802	17.85	17.87
			274	
			17.91	

α Hydrae

9 21 38

−8 8

	m	m	R	R
30 4	43.4	3 50 5.1	5.8	5.8
	51.2	4.6	4.6	4.3
	1.1	16.9	15.9	16.2
	55.1	7.5	8.7	9.1
	2108	2661	2670	2674
	52.70	86.52	6.75	6.85
			212	
			6.71	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

51 H. Cephei
6 43 16
+87 14

Blsem
7 37 5
+28 19

	m	m	m	m	m	m		R	R
10 4	34.3	44.8	15 0	12.1	15.4	17.6	20.4	5 3	28.4	28.6
	36.7	46.8		13.6	17.1	18.8	21.1		32.1	32.8
	43.1	53.9		21.1	24.2	26.1	28.6		40.8	40.6
	43.5	53.5		21.4	25.3	27.1	29.6		40.1	40.6
	15 76	19 90		6 82	8 20	8 96	9 97		14 14	14 26
	39.40	49.75		17.05	20.50	22.40	24.92		35.35	35.65
									100	
									35.50	

Rej. 3rd stroke for δ

ε Leonis
9 38 59
+24 20

	m	m	R	R
5 2	36.3	3 44.6	47.8	47.6
	41.8	53.0	52.8	52.7
	49.4	59.5	58.9	58.9
	46.7	58.0	58.7	58.6
	17 42	21 87	21 82	21 80
	43.55	54.67	54.55	54.50
			172	
			54.57	

ζ Leonis
10 1 56
+12 33

	m	m	R	R
50 3	44.4	55 0	12	0.4	1.1
	51.5		8.6	8.3	8.2
	59.6		18.4	17.6	17.7
	55.6		12.0	13.7	13.2
	21 11		4 02	4 00	4 02
	52.77		10.05	10.00	10.05
				10	
				10.33	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

120

1879. March 26

ζ Leonis

10 9 57

+24 1

		m	m	R	R
25	1	10.9	2 27.6		
		17.2	33.7		
		24.1	41.1		
		22.7	38.1		
		7.49	14 05		
		18.72	35.12		

γ' Leonis

10 13 18

+20 27

		m	m	R	R
0	0	11.6	1 23.4	23.6	23.0
		18.2	30.8	30.5	30.6
		26.2	38.1	36.7	36.8
		22.9	34.9	34.6	35.2
		7.89	12.72	1254	1258
		19.72	31.80	31.35	31.45

160

31.53

Ra, ✱

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

2)
3.0
.8
.8
.2
58
1.45

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

Mar 30 1879

Sun C = 46.758

δ 3 5 2 5

+3 4 9

m m

β Corvi

12 28 2

−22 4 4

		m	m	R	R
5	4	58.6	10 0 4 8.6	49.1	49.1
		7.8	58.6	58.1	58.3
		19.7	11.4	10.3	10.1
		12.4	2.8	3.6	3.6
		27.85	24 1.4	24 1.1	24 1.1
		69.62	0.35	0.27	0.27

89

0.30

ε Virginis

12 56 9

+11 37

		m	m	R	R
2	50	0 49.4	1 59.6	58.9	59.5
		56.6	6.3	6.9	6.7
		7.3	17.9	17.2	16.9
		2.7	1.6	12.0	12.6
		23 6.0	27 5.4	27 5.0	27 5.7
		59.00	8.85	8.75	8.92

252

8.40

ζ Virginis

13 18 49

−10 32

		m	m	R	R
55	3	19.0	4 35.9	36.4	35.9
		27.2	43.6	43.8	43.2
		42.1	58.3	57.9	57.2
		33.1	49.6	50.0	51.2
		12 1.4	18 7.4	18 8.1	18 7.5
		30.35	46.85	47.02	46.87

274

46.91

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Virginis

12 35 32

− 0 47

	m	m	R	R
10 4 54.5	15 0 25.2		25.9	25.9
	1.8	34.7	35.9	34.7
	13.5	47.2	46.2	45.6
	7.9	39.3	40.0	40.2
	177	1464	1480	1464
	4.42	36.60	37.00	36.60
			220	
			36.73	

lost d w
2nd ✓ m. 1 st ✓ each ✓

δ Virginis

12 49 30

+4 3

	m	m	R	R
20 3 52.4	25 0 2.8		2.8	2.4
	2.1	11.9	11.7	11.7
	9.9	20.8	20.6	20.1
	5.6	15.4	15.5	15.6
	100	509	506	498
	2.50	12.72	12.65	12.45
			182	
			12.67	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

124
1879. April

~~0 4 2 4~~ Sun. C=46.743

0 42 41
+4 36

m m

A +1 + part of A. in R.A. 1st limb

β Can. Min.
7 20 35
+8 32

	m	m	R	R
55 0	5.6	19.1	19.2	18.8
	12.2	27.2	26.9	27.2
	22.7	35.8	35.2	35.3
	14.8	30.2	30.8	30.1
	55.3	11.23	11.21	11.14
	13.82	28.07	28.02	27.85

2394
27.98

β Geminor.
7 37 55
+28 19

	m	m	R	R
5 3	17.1	4 28.2	28.4	28.6
	21.3	33.1	33.2	33.2
	28.3	39.9	39.1	39.1
	28.0	38.8	39.5	39.7
	947	1400	1402	1406
	23.67	35.00	35.05	35.15

20
35.07

λ Ursæ Min. L. C.
19 45 14
+91 6

	m	m	m	m	m	m
25 0	24.7	23.9	21.4	21.9	20.2	18.9
	26.9	25.5	23.3	22.9	21.3	20.4
	32.4	31.4	29.7	29.5	27.1	26.7
	31.0	29.6	28.3	28.4	25.9	25.4
	1150	1104	1027	1027	945	914
	28.75	27.60	25.67	25.67	23.87	22.85

62

5 5 5 4 4
2 1 0 2 1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ζ Geminor

7 26 52
+32 9

	m	m	R	R
15 3	11.4	4 23.7	22.7	22.8
	16.4	27.1	27.8	28.1
	25.1	36.2	34.9	34.8
	23.4	35.0	35.3	34.9
	76 3	1215	1207	1206
	19.07	30.37	30.17	30.15
			69	
			30.23	

ζ Can. Min.

7 32 58
+5 32

	m	m	R	R
50 4	56.9	55 1 3.1	3.2	3.2
	5.2	13.1	12.7	13.0
	12.2	20.0	19.8	19.5
	9.4	15.1	15.3	15.7
	26 37	5 13	5 10	5 14
	5.92	12.82	12.75	12.85
			24 2	
			12.81	

ζ Argus

8 2 23
−23 57

	m	m	R	R
20 3	0.4	4 17.6	17.7	18.1
	10.1	27.9	28.7	28.4
	20.1	37.1	36.7	36.9
	14.6	31.9	32.3	32.4
	4 52	11 45	1154	11 58
	11.30	28.62	28.85	28.95
			24 2	
			28.81	

Saffords star.

20 16 42
+88 46 = +91 14

	m	m	m	m	m	m
15 0	10.6	7.9	5.8	10 44.7	40.0	38.4
	11.7	9.3	7.4	42.9	40.2	39.3
	18.9	18.8	13.8	48.2	46.7	44.9
	18.1	15.1	13.6	47.1	46.1	44.6
	193	481	406	199	130	72
	14.82	12.02	10.15	44.97	43.25	41.80

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

126

1879 Apr. 1

α Hydrae

9 21 38

−8 8

		m	m	R	R
30	4	43.9	35 0 55.4	55.1	55.2
		51.4	1.7	1.8	2.2
		2.1	15.1	14.0	14.8
		56.9	59	7.4	7.4
		21 43	25 8 1	25 8 3	25 9 6
		53.57	4.52	4.57	4.90
				199	
				46.6	

ε Leonis

9 38 59

+24 20

		m	m	R	R
5	2	41.2	3 50.6	50.6	50.7
		46.9	55.9	55.8	55.8
		53.9	2.9	2.0	2.1
		52.2	0.9	2.2	2.4
		19 42	23 03	23 06	23 10
		48.55	57.57	57.65	57.75
				197	
				57.66	

γ' Leonis

10 13 18

+20 27

		m	m	R	R
6	0	15.1	1 25.1	25.4	25.6
		22.6	33.4	33.0	32.8
		29.9	39.9	39.0	39.8
		26.2	36.8	37.3	36.8
		9 38	13 52	13 47	13 50
		23.45	33.80	33.67	33.75
				222	
				33.74	

δ Leonis

11 7 40

+21 11

		m	m	R	R
15	1	15.8	2 33.2	33.9	33.7
		21.6	40.4	40.0	39.3
		28.9	47.3	46.5	46.6
		27.2	48.7	46.1	45.9
		9 35	16 46	16 65	16 55
		23.37	41.15	41.62	41.37
				114	
				41.38	

Pz. #

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Leonis

10 1 56

+12 33

m	m	R	R
50 3 54.4	55 0 0.6	0.4	0.0
2.2	8.1	7.6	7.3
10.8	18.8	17.2	17.3
6.1	11.6	12.2	11.9
25.35	38.1	37.4	36.5
3.37	9.52	9.35	9.12
		99	
		9.33	

γ Leonis

10 9 57

+24 1

m	m	R	R
25 1 12.9	2 33.6	33.7	33.8
19.2	39.4	39.6	39.9
25.7	45.2	46.8	46.2
23.2	45.2	45.2	45.3
8.10	16.54	16.53	16.52
20.25	41.35	41.32	41.30
		97	
		41.32	

β Leonis

11 42 53

+15 15

m	m	R	R
10 2 30.2	3 45.6	45.8	45.6
37.6	52.4	52.7	52.7
47.4	0.7	0.7	1.1
40.7	55.3	56.6	56.8
15.59	2140	2158	2162
38.97	53.50	53.95	54.05
		255	
		53.85	

ε Corvi

12 3 54

−21 57

m	m	R	R
20 2 39.7	3 56.4	56.3	56.1
49.6	5.8	5.6	5.9
59.9	16.4	15.2	15.8
51.6	8.1	9.0	8.1
20.08	26.67	26.61	26.59
50.20	6.67	6.52	6.47
		26	
		6.55	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

 1879, Apr. 1

δ Corvi

12 23 37
−15 50

	m	m	R	R
15 1	55.8	2 5.5	59.7	59.1
	6.9	9.7	9.9	9.8
	15.1	18.4	17.4	18.9
	8.5	11.4	13.0	12.8
	26.3	27.0	28.0	27.6
	6.57	9.75	10.00	9.90
			265	
			9.88	

β Corvi

12 28 2
−22 44

	m	m	R	R
5 4	24.0	10 0	37.3	37.1	37.2
	34.2		47.2	46.7	46.4
	43.3		57.6	56.8	56.3
	36.2		49.5	49.9	50.2
	1377		1916	1905	1901
	34.42		47.90	47.62	47.52
				204	
				47.68	

ε Virginis

12 56. 9
+11 37

	m	m	R	R
50 0	44.7	1 5.8	58.4	58.8
	52.2	6.9	5.8	5.9
	1.1	14.7	14.0	14.2
	55.8	9.4	9.4	9.5
	2138	2687	2676	2684
	53.45	7.17	6.90	7.10
			17	
			7.01	

α Virginis

13 18 49
−10 32

	m	m	R	R
55 3	20.5	4 3.5	35.1	35.1
	28.1	42.2	42.2	42.3
	40.5	54.8	54.2	54.1
	31.9	47.1	47.3	47.8
	1210	1799	1788	1793
	30.25	44.97	44.70	44.82
			249	
			44.83	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Virginis

12 35 32

− 0 47

m	m	R	R
10 4 29.1	15 0 27.1	26.8	26.8
38.1	36.0	35.8	35.7
47.4	46.6	45.1	44.8
41.2	40.1	40.6	40.7
155.8	149.8	148.3	148.0
38.95	37.45	37.07	37.00
		52	
		37.17	

δ Virginis

12 49 30

+ 4 3

m	m	R	R
20 3 46.4	25 0 54	6.1	5.8
55.6	14.1	14.8	14.9
1.9	20.2	21.0	21.2
58.3	19.7	17.8	17.4
222.2	594	597	593
55.55	14.35	14.92	14.82
	.87	261	
		14.87	

Ø Aquilae

20 5 4

− 1

R'	R
35 3 48.3	42.7
50.6	50.8
59.4	59.7
55.7	55.8
93	90
52.32	52.25
57	
29	
52.17	

Rij 15

ε 2 Capricorni

20 11 20

− 12 55

R	R
20 2 7.0	7.2
15.8	16.1
76.4	25.9
20.8	20.0
7.00	6.92
17.50	17.30
80	
17.40	

A & C

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 April

β Aquarii

21 25 11 – 6 6

~~30 2 37~~

	R	R
~~30~~ 2	37,8	37,3
	45,3	40,6
	54,4	54,9
	51,4	51,6
	1889	1894
	47.22	47.35

57

47.28

ε Pegasi C = 46.743

21 38 14

+9 19

	R	R
5	2 43,8	43,8
	51,6	52,1
	58,8	58,7
	56,0	56,0
	2102	2106
	52.55	52.65

120

52.60

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

15 1 23.1
24.1
30.4
31.4

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Apr. 2

Sun C = 46.762

0 46 20

+4 59

	m	m
10 3	19.5	
	29.4	
	36.7	
	33.4	
	11 93	
	29.82	

β Eridani

5 1 54

−5 15

	m	m	R	R
40 1	9.6	2 22.4	23.6	22.9
	17.2	30.7	30.2	30.2
	30.2	42.8	41.9	42.2
	24.4	37.8	37.0	37.8
	81'4.	1337	1327	1331
	20.35	33.42	33.17	33.27
			86	
			33.29	

Lost A. 1 first limb, A. 2 44 2nd limb

1 δ probably upper limb −1

δ Orionis

5 25 50

−0 23

	m
450 0	1.1
	9.9
	21.5
	16.2
	48.7
	12.17

α Leporis

5 27 24

−17 55

	m	m	R	R
20 0	42.9	1 48.3		
	53.6	59.1		
	3.7	9.5		
	57.9	3.8		
	2181	2407		
	54.52	0.17		

Lost A 2, 3, 4, 5 clouds

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Orionis
5 8 43
−8 21

	m	m	R	R
45 1	58.4	3 13.6	13.8	13.7
	5.5	20.7	20.9	21.4
	19.5	34.1	33.0	32.7
	12.2	28.2	29.1	29.0
	27.56	9.66	9.68	9.68
	8.90	24.15	24.20	24.20
			55	
			24.18	

γ Orionis
5 18 39
+6 14

	m	m	R	R
10 2	34.2	3 51.8	51.8	51.4
	44.2	1.1	1.1	1.2
	53.3	10.2	9.1	9.2
	48.1	56	6.4	6.1
	17.98	24.87	84	79
	44.95	2.17	2.10	1.97
			124	
			2.41	

Lost A 5 1st 2nd
−1

ζ Orionis
5 29 31
−5 59

	m	m	R	R
26 1	25.5	2 8.6	8.7	8.9
	34.5	16.3	17.0	15.6
	47.5	28.2	27.6	27.9
	40.1	22.2	22.2	22.5
	14.76	7.53	7.55	7.49
	36.90	18.82	18.87	18.72
			24.1	
			18.80	

κ Orionis
5 42 1
−9 43

	m	m	R	R
5 4	13.2	10 0 14.7	14.3	14.6
	19.9	22.9	22.7	22.7
	33.8	36.5	36.2	36.3
	26.9	29.9	29.8	29.9
	9.38	10.30	10.30	10.35
	23.45	25.75	25.75	25.87
			23 7	
			25.79	

Lost 1st 3 wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Apr. 2

ζ Orionis

5 48 37
+7 23

m	m	R	R
0 3 49.0	50 47	7.1	6.9
57.6	15.9	16.1	16.2
6.2	26.2	26.2	25.9
2.6	21.1	21.2	21.5
23 54	709	706	705
58.65	17.72	17.65	17.62
		19	
		17.66	

μ Geminor

6 15 38
+22 34

m	m	R	R
50 2 43.9	3 59.4	59.5	59.3
51.3	6.4	56.4	5.6
58.5	13.3	13.2	13.5
57.9	12.8	13.0	13.7
2116	2719	2721	2721
52.90	7.97	8.02	8.02
		01	
		8.00	

β Geminor

7 37 55
+28 19

m	m	R	R
5 3 17.8	4 37.2	37.2	36.8
23.1	41.8	41.7	41.1
29.9	49.2	48.1	48.2
30.2	48.6	49.3	49.2
1010	1768	1763	1753
25.25	44.20	44.07	43.82
		09	
		44.03	

L Argus

8 2 23
−23 57

m	m	R	R
20 3 1.5	4 9.6	9.2	9.5
11.7	19.8	20.2	19.8
21.4	28.3	28.5	28.7
15.4	23.9	24.7	24.1
500	816	826	821
12.50	20.40	20.65	20.52
		157	
		20.52	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Can. Min.

7 20 35

+8 32

	m	m	R	R
55 0	4.6	1 16.2	16.6	17.3
	12.4	25.2	25.1	24.7
	21.9	34.1	33.1	32.9
	16.6	28.9	30.4	29.8
	55'5	104'4	1052	1047
	13.37 .87	26.10	26.30	26.17
			57	
			26.19	

α Can. Min.

7 32 58

+5 32

	m	m	R	R
50 4	49.8	55 1 1 23	12.6	12.8
	59.2	23.1	22.9	23.2
	5.2	29.7	28.9	29.1
	32	26.2	26.9	27.3
	23'4	91'3	91'3	92'4
	59.35	22.82	22.82	23.10
			2 1'4	
			91	
			22.58	

ψ Draconis

17 44 30

+72 12

	m	m	m
15 1	23.1	2 5.3	20.1
	24.1	5.7	21.4
	30.4	12.2	27.7
	31.4	14.6	30.8
	1090	378	1000
	27.25	9.45	25.00

35 Draconis

17 54 52

+76 58

	m	m	m	m	m
30 0	5.1	21.4	47.6	1 4.9	21.4
	6.4	22.2	47.8	5.6	22.8
	12.5	27.6	53.7	10.6	27.9
	15.6	31.5	58.6	15.2	31.2
	396	1027	2077	363	1033
	9.90	25.67	51.92	9.07	25.82

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

136

1879 Apr. 2

22 h. Banach, L.C.

6 5 30

+11 0 39

	m	m	m
5 0 2	58.5	38.5	46
	0,3	40.4	11.1
	2.1	43.1	14.1
	1.9	42.9	12.6
	28	49	464
	0.70	41.22	11.60

δ Geo. Min.

6

N 14 22

+86 36

	m	m	m	m
50 2	49.7	54.6	58.0	3 4.6
	49.6	54.8	54.4	5.2
	55.0	59.1	2.1	10.1
	57.9	2.4	4.1	12.6
	2122	2309	2386	325
	53.05	57.72	59.65	8.12

Lost last 2 wires

51 Cephei L.C.

6 43 16

+92 47

	m	m	m	m	m	m	m	m
40 4	50.6	44.1	30.4	19.2	15.9	43.2	38.2	32.1
	50.4	45.2	31.6	20.2	16.6	43.9	39.2	33.6
	54.1	49.6	35.6	24.1	20.7	47.8	42.9	36.8
	53.8	48.3	34.9	22.9	20.5	46.8	42.2	35.6
	89	272	125	64	737	217	25	181
	52.22	46.80	33.12	21.60	18.42	45.42	40.62	34.52

Long rattle pr. A -1 A 454

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

η Serpentis

18 15 3
− 2 56

	m	m	R	R
20 2	27.8	3 40.0	39.4	39.7
	36.2	47.8	47.0	47.8
	45.8	56.2	55.3	55.4
	39.2	50.8	51.8	51.3
	14 90	19 48	19 35	19 42
	37.25	48.70	48.37	48.55
			16.2	
			48.54	

Ø Draconis

18 22 30
+71 16

	m	m	m
10 2	31.2	49.4	3 14.8
	31.3	49.1	14.9
	37.8	56.0	21.6
	39.4	57.5	23.4
	198 7/2	2120	747
	34.95	53.00	18.67

σ Sagittarii

18 47 46
− 26 27

	m	m	R	R
50 1	44.8	3 0.3	0.9	0.5
	55.2	10.4	10.6	10.1
	2.4	18.9	18.3	18.1
	56.9	12.1	12.2	11.8
	2193	417	420	405
	5482	10.42	10.50	10.12
			10.4	
			10.35	

λ Aquilae

18 59 50
− 5 4

	m	m	R	R
30 0	21.6	1 33.6	34.5	34.0
	28.8	41.9	42.0	41.4
	37.8	51.2	49.8	49.1
	33.4	40.3	46.2	46.4
	1216	1720	1725	1709
	30.40	43.00	43.12	42.72
			88.4	
			42.95	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 2

δ Draconis

19 12 31

+67 27

	m	m	m	m
0	1 37.9	56.1	2 30.0	54.6
	37.2	57.1	31.2	55.1
	42.4	1.4	35.4	0.1
	44.9	4.5	38.7	2.6
	24 2391		153	23 21
	40.60	59.77	33.82	58.02

τ Draconis

19 17 52

+73 8

	m	m	m	m
20	0 47.9	1 7.2	40.1	56.9
	47.9	5.9	39.6	57.1
	54.7	13.8	46.9	2.9
	55.2	14.2	47.4	1.8
	2037	411	1740	2587
	50.92	10.27	43.50	~~63.17~~
	1.42			2.94

β Aquilae

19 49 22

+6 6

	m	m	R	R
20	0 49.7	1 57.1	56.9	56.4
	58.3	6.0	5.8	5.2
	4.2	11.7	9.9	10.2
	0.7	47.9	7.9	8.2
	23 29	2627	2605	2600
	58.22	5.67	5.12	5.00
			79	
			5.26	

α² Capricorni

20 11 20

−12 55

	m	m	R	R
20	1 22.1			
	31.4			
	40.2			
	33.6			
	1273			
	31.82			

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Aquilae

19 40 30
+10 19

m	m	R	R
5 2 58.6	4 10.6	11.0	10.6
5,4	16.7	17.2	16.8
12,3	24.2	23.4	23,7
9.7	21.4	23.2	21.4
26.0	7.29	7.48	7.25
6.50	18.22	18.70	18,12
		10.4	
		18,35	

ζ Aquilae

19 44 53
+8 33

m	m	R	R
50 4 5.2	55 0 18.6	18,3	18.6
12,1	25.6	25,2	25.2
19.1	32.6	31.9	31.5
13.6	27.9	27.9	28.0
5.00	10.49	10.33	10.33
12,50	26,22	25,82	25.82
		28.4	
Ch. failed		25.95	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 3

Sun C=46.744

0 49 59

+5 22

		m			m
45	4	39.1	20	2	18.6
		49.2			29.3
		55.9			34.7
		52.8			32.1
		1870			1147
		~~47.25~~ 4.25			28.67

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

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

142

1879 Apr. 6

Sun C = 46.744

1 0 55

+6 30

	m		m
40 1	27.4	10 4	9.7
	36.6		18.7
	45.4		25.9
	39.9		21.1
	1493		754
	37.32		18.85

δ Orionis

5 25 50

−0 23

	m		m
50 0	8.9	1	15.1
	16.1		22.8
	28.1		34.0
	24.8		30.2
	779		1021
	19.47		25.52

Both limbs in & R.A. Seeing pretty unsteady.

α Orionis

5 48 37

+7 23

	m		m	R	R
0 3	51.7	5 0	10.1	9.7	9.4
	0.5		19.1	19.3	19.4
	9.2		28.8	28.3	28.8
	5.6		24.0	24.8	24.3
	70		820	821	819
	1.75		20.50	20.52	20.47

149

20.58

δ Ursæ Min. L.L.

18 11 21

+93 24

	m	m	m	m	m	m
5 0	55.3	51.4	46.1	31.2	28.0	25.7
	58.9	53.9	48.7	33.8	31.3	28.6
	6.3	2.2	57.1	42.2	39.2	36.7
	5.2	1.1	56.1	40.0	37.4	35.1
	57	2286	80	1472	1359	61
	1.42	57.15	52.00	36.80	33.97	31.52

2nd wire about 2s late

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ζ Orionis

5 34 39

− 2 0

	m	m	R	R
25 2	11.1	3 19.1	18.6	18.8
	18.8	28.1	27.2	26.8
	30.5	38.0	38.0	38.0
	25.7	34.5	33.7	33.7
	86.1	119.7	117.5	117.3
	21.52	29.92	29.37	29.32

161

29.54

κ Orionis

5 42 1

−9 43

	m	m	R	R
5 4	10.8	10 0 29.1	28.3	28.7
	17.2	36.0	35.9	36.2
	31.4	50.4	50.0	50.2
	25.8	44.1	44.4	43.3
	85.2	159.6	158.6	158.8 4
	21.30	39.90	39.65	39.7 60

215

39.72

μ Geminor

6 15 38

+22 34

	m	m	R	R
50 2	44.6	4 1.0	1.0	1.2
	51.4	9.0	8.2	8.4
	58.3	16.4	15.8	15.2
	59.4	16.5	15.9	16.2
	213.7	42.9	40.9	41.0
	53.42	10.72	10.22	10.25

119

10.40

γ Geminor

6 30 43

+16 30

	m	m	R	R
55 2	6.3	3 9.8	9.7	9.3
	13.1	16.3	16.3	15.7
	25.4	28.1	27.2	27.5
	19.2	23.2	24.6	24.1
	64.0	77.4	77.8	76.6
	16.00	19.35	19.45	19.15

95

19.32

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 6

β Can. Min.

7 20 35

+8 32

	m	m	R	R
55	0 2.5	1 19.1	19.8	19.2
	11.2	27.3	27.9	27.7
	21.5	37.6	37.0	37.0
	15.2	32.2	32.8	32.9
	5.04	11.72	11.75	11.68
	12.60	29.30	29.37	29.20
			87	
			29.29	

α Geminor

7 26 52

+32 9

	m	m	R	R
15	3 14.6	4 22.8	22.3	22.2
	19.9	26.4	27.9	27.8
	29.7	37.7	36.6	36.3
	28.2	36.7	37.5	37.2
	9.24	12.56	12.43	12.35
	23.10	31.40	31.07	30.87
			34	
			31.11	

α Argus

8 2 23

−23 57

	m	m	R	R
20	2 57.8	4 12.0	11.9	12.1
	8.6	22.5	22.3	22.3
	18.6	32.0	31.9	31.7
	14.2	27.7	28.1	28.2
	27.92	9.42	9.42	9.43
	9.80	23.55	23.55	23.57
			167	
			23.56	

Safford's Star

20 16 42 L.C.

+91 14

	m	m	m
15	0 9.4	9.0 4 42.4	42.4
	11.6	~~11.8~~ 43.3	43.3
	19.2	50.1	49.7
	18.6	51.1	51.2
	5.88	18.64	18.66
	14.70	46.72	46.65
		127	
		~~46.68~~	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Can. Min

7 32 58

+5 32

m	m	R	R
50 4 52.9	55 4.7	9.2	9.8
2.3	2.04	2.00	19.9
9.4	2.79	28.2	28.0
6.9	24.2	24.9	24.8
25 15	822	823	825
2.87	20.55	20.57	20.62
		174	
		20.58	

β Geminor

7 37 55

+28 19

m	m	R	R
5 3 15.0	4 32.6	32.9	33.4
20.5	38.5	38.2	38.1
28.2	46.5	46.1	46.3
28.1	45.9	45.7	46.2
918	1635	1629	1640
22.95	40.87	40.72	41.00
		259	
		40.86	

m	m	m
416	404	40.1
421	416	41.2
48.9	48.2	48.0
49.2	48.4	47.8
218	186	171
45.45	44.65	44.27

ε Corvi

12 3 54

−21 57

m	m	R	R
20 2 35.0	3 49.7	49.6	49.8
45.2	59.4	59.2	59.1
55.1	8.9	8.2	8.1
46.9	1.5	2.7	3.2
1822	2395	2397	2402
45.55	59.87	59.92	60.05
		17984	
		59.95	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Apr. 6

δ Corvi

12 23 37

−15 50

	m	m	R	R
15 1	46.4	3 2.2	2.7	2.2
	57.6	13.5	12.3	12.9
	4.3	20.3	20.0	19.9
	59.1	15.0	16.3	16.5
	22.74	5.10	5.13	5.15
	56.85	12.75	12.82	12.87
			244	
			12.81	

β Corvi

12 28 2

−22 44

	m	m	R	R
5 4	25.9	10 0	32.3	32.2	32.2
	35.8		41.8	41.8	41.7
	45.2		52.3	52.0	51.3
	38.4		44.8	45.3	45.2
	145 3		1712	1713	1704
	36.32		42.80	42.82	42.60
				222	
				42.74	

ε Virginis

12 56 9

+11 37

	m	m	R	R
50 1	11.3	5 5.4	5 5.7	5 5.3
	19.0	3.1	2.8	2.8
	26.1	10.6	10.0	10.2
	22.7	6.9	7.3	7.1
	7.91	25.60	25.58	25.54
	19.77	4.00	3.95	3.85
			1180	
			8.93	

α Virginis

13 18 49

−10 32

	m	m	R	R
55 3	21.6	4	34.1	33.9	33.9
	28.8		41.7	42.2	41.2
	41.4		53.7	51.4	52.3
	33.3		46.4	46.8	46.8
	12.51		17.59	17.43	17.42
	31.27		43.97	43.57	43.55
				209	
				48.70	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Virginis

12 35 32

− 0 47

	m	m	R	R
10 4	36.3	15' 0' 23.9	23.2	23.7
	44.2	32.9	32.3	32.2
	52.6	41.5	40.9	40.3
	48.4	36.8	36.4	36.8
	1815	1351	1328	1330
	45.37	33.77	33.20	33.25
			12 2	
			33.41	

δ Virginis

12 49 30

+ 4 3

	m	m	R	R
20 3	41.8	4 59.9	59.2	59.1
	51.8	9.3	9.7	9.0
	58.2	14.7	14.9	14.2
	53.4	13.2	12.9	13.0
	2072	2771	2767	2753
	.51.80	9.27	9.17	8.82
			26	
			9.09	

fol # Rej 15 writes by X

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Apr. 7

Sun. = C = 46.740

1 4 34

+6 53

m m

Apr 7

β Orionis C = 46.740

5 8 43

−8 21

	m	m	R	R
45 2	3.7	3 13.4	12.9	13.2
	9.9	19.3	20.1	19.8
	23.6	33.9	32.6	32.8
	16.5	28.9	30.1	29.7
	55.7	95.5	95.7	95.5
	13.92	23.87	23.92	23.87
			26 6	
			23.89	

α Leporis

5 27 24

−17 55

	m	m	R	R
20 0	31.4	1 50.1	50.1	50.3
	42.3	06	0.2	0.1
	53.4	11.8	11.6	11.5
	48.4	6.3	7.2	7.6
	17.55	88	91	95
	43.87	2.20	2.27	2.37
			84	
			2.28	

ζ Orionis

5 34 39

−2 0

	m	m	R	R
25 2	10.3	3 23.4	24.3	24.5
	19.6	23.6	34.0	34.1
	31.7	46.6	45.9	46.2
	25.7	40.1	40.5	40.7
	87.3	1437	1447	1455
	21.82	35.92	36.17	36.37
			46	
			36.15	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Tauri

5 18 39
+28 30

	m	m	R	R
55 2 0.2	3 11,1	11.5	11.5
	6.6	176	18.1	17.3
	15.9	261	26.1	25.9
	13.1	249	26.0	26.0
	358	797	817	807
	8.95	19.92	20.42	20.17
			151	
			20.50	

δ Orionis

5 25 50
-0 23

	m
50 0	7.6
	16.1
	28.1
	229
	747
	18.67

κ Orionis

5 42 1
-9 43

	m	m	R	R
5 4 13.6	10 0 30.1	29.9	30.2
	21.9	376	37.8	37.3
	34.8	533	53.2	53.2
	28.2	46.6	45.9	45.8
	985	1676	1668	1665
	24.62	41.90	41.70	41.62
			222	
			41.74	

α Orionis

5 48 37
+7 23

	m	m	R	R
0 3 53.2	5 0 6.5	6.3	5.8
	3.4	16.3	16.2	16.2
	13.6	268	27.0	27.2
	7.5	211	21.5	21.7
	177	707	710	709
	4.42	17.67	17.75	17.72
			214	
			17.71	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 7

δ Geo. Min L.C

18 11 21

+93 24

m	m	m	m	m
5 0 36.6	28.8	23.4	6' 1.9"	0 4 59.2
40.7	31.9	26.7	5.6	1.8
51.4	42.3	36.7	11.6	10.9
49.1	39.6	34.5	13.0	9.6
1778	1426	1213	321	215
44.45	35.65	30.32	8.02	5.37

Lost 1st wire. Lost wires 9 + 3 after 4 seen

μ Geminor

6 15 38

+22 34

m	m	R	R
50 2 42.1 4	4.3	3.9	4.2
50.4	11.3	11.6	11.9
57.9	20.8	19.9	20.2
58.2	21.1	20.9	20.7
86	570	563	570
52.15	14.25	14.07	14.25
		57	
		1419	

Groom. 2640

18 35 50

+65 23

m	m	m
5 0 39.2	1 30.3	46.6
39.9	31.3	46.7
48.7	39.7	54.9
50.4	40.8	57.5
1782	1421	2057
44.55	35.52	51.42

51 H. Cephei L.C.

6 43 16

+92 49

m	m	m	m	m
40 3 52.5	46.6	41.8	36.5	30.9
54.1	48.4	43.4	37.4	32.4
59.7	54.9	49.7	43.9	37.9
58.8	54.0	49.5	42.8	36.9
251	2039	244	1686	181
56.27	50.97	46.10	40.65	34.52
			.15	

Lost Lost wire

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Geminor
6 30 43
+16 30

	m	m	R	R
55 2	24	3 14.6	14.1	14.3
	8.6	21.8	20.9	20.9
	22.5	33.9	33.1	33.4
	17.9	29.4	30.3	30.8
	5.4	9.2	9.8	9.9
	12.85	24.80	24.60	24.85
			22.5	
			24.75	

Lalande's star
20 16 42 L.C.
+91 14

	m	m	m	m	m	m
10 4	42.4	41.5	39.2	38.8	38.2	37.8
	44.1	42.9	40.8	40.3	39.1	39.1
	51.9	50.5	48.2	47.8	46.7	46.4
	52.5	50.7	48.3	48.3	47.7	46.3
	19.2	18.56	17.65	17.52	17.17	16.96
	47.80	46.40	44.12	43.80	42.92	42.40

Lost 1st 3 + last 3 wires

σ Sagittarii
18 47 46
−26 27

	m	m	R	R
50 1	49.9	2 56.4	56.0	56.0
	2.1	8.2	7.1	7.0
	10.2	16.0	15.9	15.9
	4.1	10.6	10.2	11.2
	63	2706	2692	2701
	1.57	7.65	7.30	7.52
			147	
			7.49	

ν Draconis
18 55 52
+71 8

	m	m	m
20 0	25.5	45.8	1 16.5
	26.6	46.9	17.3
	35.3	55.2	26.5
	36.6	57.2	27.6
	1240	51	879
	31.00	51.27	21.97

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 7

ζ Aquilae

18 59 51

+13 41

	m	m	R	R
45 1	16.2	2 26.9	26.7	26.9
	25.6	36.6	35.8	35.7
	34.7	45.1	44.3	44.2
	29.7	39.9	40.2	40.3
	1062	1485	1470	1471
	26.55	37.12	36.75	36.77
			264	
			36.88	

End of Second Book - 1

δ Draconis

19 12 31

+67 27

	m	m	m	m
0 1	35.3	49.7	2 24.9	50.6
	37.4	50.9	26.6	51.6
	44.6	57.3	32.9	57.9
	46.1	0.6	35.4	13
	1634	2185	1198	2214
	4085	54.62	29.95	55.35

ζ Aquilae

19 44 53

+8 33

	m	m
50 4	7.4	55 0 13.9
	16.3	22.3
	23.5	31.5
	17.9	25.7
	651	934
	~~19.37~~	23.35
	16.27	

ε Draconis

19 48 34

+69 58

	m	m	m	m	m
30 0	56.1	1 10.8	44.6	2 3.1	18.7
	57.3	11.4	45.4	4.2	20.1
	55	19.6	54.0	12.1	29.6
	7.6	20.7	54.9	12.9	27.8
	65	625	1989	323	942
	1.62	15.62	49.72	8.07	23.55

Perhaps [illegible] Arranged Ns 1st Lot

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Cygni

19 25 50

+27 42

	m	m	R	R
45 0	12.5	1 84.2	34.9	34.9
	18.5	39.9	40.9	39.5
	25.8	47.9	47.1	47.1
	24.9	46.0	46.9	46.3
	85.7	1680	1698	1678
	21.42	42.00	42.45	41.95
			40	
			42.13	

γ Aquilae

19 40 30

+10 19

	m	m	R	R
5 3	25	4 118	12.3	12.1
	10.6	19.9	20.0	19.8
	19.4	27.7	27.3	27.3
	14.4	23.7	24.6	24.8
	469	831	842	840
	11.72	20.77	21.05	21.00
			6282	
			20.94	

θ Aquilae

20 6 4

−1 11

	m	m	R	R
35 2	25.6	3 42.6	43.0	43.2
	33.5	51.3	51.0	50.8
	43.1	0.1	0.2	0.2
	37.4	54.8	55.1	56.0
	1396	2090	2093	2102
	34.90	52.25	52.32	52.55
			112	
			52.37	

α² Capricorni

20 11 20

−12 55

	m
20 1	16.2
	25.6
	35.8
	30.2
	1078
	26.95

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

154

1879 Apr. 7

θ Cephei

20 27 33

+62 35

	m	m	m	m		R	R
50	2 59.3	3 38.8	59.7	4 15.0	30 8	49.9	50.2
	58.9	39.3	0.9	15.2		57.1	57.8
	6.1	47.7	7.7	22.1		58	58
	6.9	47.2	8.8	23.6		38	38
	25 1.2	1730	2571	759		2366	2376
	2.80	43.25	4.27	18.97		59.15	59.40

β Aquarii

2 25 11

-6 6

55

59.27

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Pegasi
21 35 14
+9 19

	R	R
δ − 41	5.4	5.4
	12.7	12.9
	19.9	20.2
	17.5	17.7
	555	562
	13.87	14.05

2792
13.96

Rej 1st

ζ Pegasi
22 58 44
+14 33

	m	m	R	R
50 3	49.6	55 0 11.9	11.8	11.9
	56.7	20.1	20.3	20.3
	5.1	28.9	28.8	29.0
	1.6	24.5	24.7	25.0
	2330	854	856	862
	58.25	21.35	21.40	21.55

180
21.43

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

156

1879. Apr. 8

Sun C = 46.755

1 8 13

+7 15

	m		m
55 1	21.2	25 3	59.6
	30.2		8.1
	39.5		17.6
	36.2		14.1
	127.1		279.4
	31.77		9.85

Both limbs in Dec. R. A.

α Arietis

2 0 21

+22 53

	m	m	R	R
30 3	51.0	4 57.7	57.8	58.3
	2.2	~~8.0~~	8.7	7.8
	2.4	~~7.1~~	5.8	5.4
	~~5.9~~	10.5	9.8	9.0
	15	2633	2621	2605
	0.37	5.82	5.52	5.12
			146	
			5.49	

α Leporis

5 27 24

−17 55

	m	m	R	R
20 0	42.4	1 51.6	51.1	51.2
	53.9	2.1	2.4	2.2
	4.6	12.5	12.2	12.2
	58.8	6.0	6.8	7.1
	2197	2522	2525	2527
	54.92	3.05	3.12	3.17
			34	
			3.11	

ζ Orionis

5 34 39

−2 0

	m	m	R	R
25 2	4.0	3 20.8	20.9	21.6
	12.1	30.9	30.8	30.4
	24.3	42.1	41.4	41.8
	17.4	35.1	36.3	36.2
	578	1295	1294	1300
	14.45	32.37	32.35	32.50
			122	
			32.41	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Orionis

5 18 39
+6 14

m	m	R	R
10 2 28.2	3 43.0	43.4	43.3
37.9	52.0	52.3	51.8
48.1	0.5	1.0	0.3
42.1	58.0	58.4	58.7
15 63	21 35	21 51	21 41
39.07	53.37	53.77	53.52
		166	
		53.55	

δ Orionis

5 25 50
−0 23

m
50 0 1.4
9.5
21.4
16.4
487
12.17

κ Orionis

5 42 1
−9 43

m	m	R	R
5 4 13.5	10 0 28.0	27.8	27.6
20.6	35.4	36.1	36.1
34.9	50.6	50.2	50.6
27.6	43.2	42.7	43.0
966	1572	1568	1573
24.15	39.30	39.20	39.32
		82	
		39.27	

α Orionis

5 48 37
+7 23

m	m	R	R
0 3 53.9	5 0 4.6	4.7	4.8
2.7	14.1	14.9	14.9
13.2	24.9	24.8	24.7
8.1	19.1	19.8	19.7
2579	627	642	641
4.47	15.67	16.05	16.02
		1774	
		15.91	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

158

1879 Apr. 8

δ Draconis L.b

19 12 31

+112 33

m	m	m	m
55 3 5.9	2 40.6	12.1	1 51.3
9.4	45.1	15.6	55.1
14.6	50.2	21.0	0.2
12.6	46.5	13.7	57.1
42.5	182.4	62.4	223.7
10.62	45.60	15.60	55.92

1 stroke for last δ.

β Cam. Min.

7 20 35

+8 32

m	m	R	R
55 0 2.6	1 19.9	19.8	19.5
11.5	28.0	28.2	28.1
22.1	38.7	38.6	38.2
15.9	32.7	33.7	33.8
52.1	119.3	120.3	119.6
13.02	29.82	30.07	29.90
		89.79	
		29.93	

β Geminor

7 37 55

+28 19

m	m	R	R
5 3 20.4	4 30.4	28.9	29.8
26.2	35.0	34.7	35.1
34.4	43.6	43.8	43.7
33.3	43.2	43.2	43.2
114.3	152.2	150.6	151.8
28.57	38.05	37.65	37.95
		265	
		37.88	

ε Draconis L.b.

19 48 34

110 2

m	m	m	m	m
25 3 43.0	22	5.8	2 46.4	22.1
45.3	25	8.4	48.7	25.4
51.6	30	14.5	54.6	30.4
52.1	29	13.9	54.6	29.5
192.0	107.4	42.6	204.3	107.4
48.00	26.85	10.65	51.07	26.85

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Geminor

7 26 52

+32 9

m	m	R	R
15 3 9.4	4 29.2	28.8	29.0
14.4	33.7	34.0	33.8
25.2	44.9	44.2	43.8
23.6	43.1	43.3	43.6
726	1509	1503	1502
18.15	37.72	37.57	37.55
		184	
		37.61	

α Can. Min.

7 32 58

+5 32

m	m	R	R
50 4 54.6	55 1 7.2	7.2	6.8
4.1	17.2	17.2	17.1
12.6	26.2	25.7	25.8
9.6	32.4	22.2	22.2
2609	730	723	719
5.22	18.25	18.07	17.97
		29	
		18.10	

α Argus

8 2 23

-23 57

m	m	R	R
20 3 7.3	4 9.7	9.9	9.7
17.4	20.4	20.1	20.1
28.3	30.7	30.8	31.0
22.2	25.9	25.9	26.1
752	867	867	869
18.80	21.67	21.67	21.72
		206	
		21.69	

Saffold's star

20 16 42 L.C.

+91 14

m	m	m	m	m	m
15 0 12.4	11.0	8.1	10 45 22	43.6	42.5
14.1	12.1	9.4	53.2	44.6	43.6
22.4	19.9	18.2	59.4	52.1	50.5
22.3	20.2	17.7	59.7	51.4	51.4
712	632	534	245	1917	1880
17.80	15.80	13.35	56.12	47.92	47.00

Lost all the wires after the 3rd.

5 4

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics - Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 8

θ Cephei L.C.

20 27 33

+117 25

	m	m	m	m
5 2	34.1	5.3	1 40.9	14.3
	36.6	8.4	43.6	17.3
	40.5	13.0	47.5	21.8
	38.2	12.0	45.7	19.9
	14 94	387	177	~~533~~
	37.35	9.67	44.42	~~15.82~~ 18.32

α Hydrae

9 21 38

−8 8

	m	m	R	R
30 4	39.2	35 0	58.4	~~58.7~~ 58.6
	47.4		6.4	7.2 6.9
	59.7		20.9	20.7 20.3
	54.7		12.9	13.0 13.1
	20 10		27 86	27 96 27 89
	50.25		9.65	9.90 9.72
				227
				9.76

ε Corvi

12 3 54

−21 57

	m	m	R	R
20 2	40.9	3	50.5	50.7 50.6
	51.2		0.5	0.7 0.8
	3.1		11.6	10.9 11.1
	55.2		4.2	5.0 5.4
	21 04		68	73 79
	52.60		1.70	1.82 1.97
				249
				1.83

δ Corvi

12 23 37

−15 50

	m	m	R	R
15 1	49.8	3	4.9	3.9 4.1
	0.4		15.1	15.1 15.3
	10.4		24.2	24.0 24.2
	4.0		19.3	19.8 19.3
	46		635	628 629
	1.15		15.87	15.70 15.72
				229
				15.76

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Leonis

9 38 59

+24 20

m	m	R	R
5 2 36.1			
42.8			
51.8			
49.1			
17 98			
44.95			

Rej. 2nd 8

α Leonis

10 1 56

+12 33

m	m	R	R
50 3 44.3	4 57.6	57.7	57.7
50.9	5.1	5.4	5.4
1.1	15.2	15.1	15.2
56.6	10.7	10.9	11.8
21 29	26 86	26 91	27 01
53.22	7.15	7.27	7.52
		104	
		7.35	

β Corvi

12 28 2

−22 44

m	m	R	R
5 4 23.6	10 0 37.7	36.9	37.2
33.7	47.1	47.3	47.2
45.1	59.0	58.9	58.6
36.8	5.9	52.9	52.3
13 92	19 57	1960	195.3
34.80	48.92	49.00	48.82
		274	
		48.91	

γ Virginis

12 35 32

−0 47

m	m	R	R
10 4 5.6	15 0 18.4	18.0	18.2
14.8	27.6	27.8	27.2
24.7	38.7	38.0	37.4
19.8	32.4	32.9	33.6
6 49	11 71	1167	1164
17.22	29.27	29.17	29.10
6		54	
		29.18	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 8

ζ Virginis

12 49 30

+4 3

	m	m	R	R
20	3 44.3	4 5.6	58.2	58.7
	54.1	9.1	8.8	8.0
	1.9	16.4	15.9	15.9
	57.8	12.5	13.7	13.1
	2181	2766	2766	2757
	54.52	9.15	9.15	8.92
			22	
			9.07	

ε Virginis

12 56 9

+11 37

	m	m	R	R
50	0 43.4	1 5.4.8	54.7	55.0
	51.7	3.8	2.8	2.9
	1.4	13.1	12.7	12.8
	57.3	8.4	8.7	8.8
	2138	2601	2588	2595
	53.45	5.02	4.72	4.87
			1461	
			4.87	

α Aquilae

19 44 53

+8 33

	m	m	R	R
50	4 5.1	5 5.0	19.1	
	13.2	29.2		
	21.1	36.7		
	16.6	29.9		
	560	1129		
	14.00	28.22		

ε Deaconis

19 48 34

+69 58

	m	m	m	m
30	0 54.8	1 24.7	4 9.6	2 8.6
	56.2	26.1	49.1	9.5
	3.7	33.7	56.9	18.1
	5.8	34.7	59.2	18.9
	05	1142	2148	559
	0.12	29.80	5.37.0	13.77

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Virginis

13 18 49
−10 32

	m	m	R	R
5 5 3	16.6	4 26.3	26.8	26.3
	25.1	35.1	34.6	34.3
	38.9	48.7	48.2	47.7
	31.1	40.3	40.8	40.2
	11 17	15 04	15 04	14 85
	27.92	37.60	37.60	37.12

132
37.44

γ Aquilae

19 40 30
+10 19

	m	m	R	R
5 2	57.1	4 16.1	16.2	16.2
	4.5	24.9	23.7	23.8
	13.7	32.5	32.0	32.2
	9.6	29.4	29.5	29.5
	26 49	10 29	10 14	10 17
	6.22	25.72	25.35	25.42

149
25.50

δ Aquilae

20 5 4
−1 11

	m	m	R	R
17.2	35 2 27.6	3 49.6	49.5	49.4
18.6	37.2	57.9	57.4	57.4
26.4	47.2	6.8	6.7	7.0
28.5	41.2	2.3	2.8	3.0
90.7	15 32	23 66	23 64	23 68
22.67	38.30	59.15	59.10	59.20

45
59.15

α² Capricorni

20 11 20
−12 55

	m	m	R	R
20 1	57.7	2 34.8	35.1	34.6
	9.3	44.2	44.0	44.1
	18.7	55.5	55.3	55.6
	13.9	49.8	49.2	49.0
	27 6	18 40	18 36	18 33
	9.40	46.07	45.90	45.82

279
45.93

Lost 1st 2 wires

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

164

1879 Apr 9

Sun C = 46.755

11 53

+7 37

	m		m
30 4	7.1	5 1	32.7
	14.7		41.1
	24.5		52.9
	21.4		46.9
	677		1736
	16.92		43.40

Both limbs in D + R.A.

β Can. Min.

7 20 35

+8 32

	m	m	R	R
55 0	6.0	1 23.6	23.3	22.9
	13.2	31.4	31.3	31.0
	27.9	45.8	45.2	46.2
	20.0	38.7	38.8	38.5
	671	1395	1386	1386
	16.77	34.87	34.65	34.65

217

34.72

β Geminor.

7 37 55

+28 19

	m	m	R	R
5 3	18.6	4 31.4	31.2	31.3
	25.1	36.6	36.9	37.0
	35.9	48.4	48.7	48.7
	32.9	45.1	46.6	46.3
	1125	1615	1634	1633
	28.12	40.37	40.85	40.82

204

40.68

ε Draconis L. L.

19 48 34

+110 2

	m	m	m	m	m
25 3	33.2	12.4	2 58.6	28.7	7.9
	38.5	16.9	3.5	3.8	R.2
	48.9	26.3	13.4	42.9	22.1
	44.9	23.2	9.8	39.2	18.8
	1655	788	2653	1436	610
	41.37	19.70	6.32	35.90	15.25

A 321 A +1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Geminor

7 26 52

+32 9

m	m	R	R
15 3 12.4	4 25.1	25.5	25.3
18.2	30.9	31.1	30.6
32.3	45.4	44.4	44.0
27.6	40.7	41.2	40.7
905	1421	1422	1406
22.62	35.52	35.55	35.15
		12 2	
		35.41	

α Can. Min

7 32 58

+5 32

m	m	R	R
50 4 58.5	55 1 10.3	10.1	9.7
7.2	19.6	20.1	20.0
18.9	31.6	31.2	31.6
13.1	27.2	26.7	25.2
2747	887	881	865
~~8.67~~ 9.42	22.17	22.02	21.62
		581	
		21.94	

ι Argus

8 2 23

−23 57

m	m	R	R
20 3 1.5	4 20.4	20.4	20.9
10.4	30.8	30.2	30.9
25.8	45.8	45.2	45.4
19.2	39.1	40.0	39.4
564	1361	1358	1366
14.22	34.02	33.95	34.15
		12	
		34.04	

κ Aphei L.6.

20 12 56

+102 39

m	m	m	m	m	m	m	m
50 1 11.2	53.6	0	~~53.8~~	39.0	22.9	9.3	45 4 48.6
14.3	57.1		57.1	42.1	26.4	12.7	51.3
26.6	8.3			~~54.8~~	37.7	~~24.3~~	2.2
23.4	6.9			52.3	35.1	21.3	59.9
755	59			1782	1221	676	2220
18.87	1.47			~~44.55~~ 7.05	30.52	16.90	55.50
							45 4 41.6
							44.9
							57.1
							53.8
							1974
							49.35

181-last

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Apr. 9

θ Cephei L.C.

20 27 33
+117 25

5 2 24.3	2 58.5	1 35.2	5.6
27.1	0.8	37.9	6.5
34.7	9.3	47.2	15.6
3.8	4.7	41.3	12.1
11.9	25.3	16.6	4.01
29.47	3.32	40.40	10.02

α Hydrae

9 21 38
−8° 8′

30. 4 46.0	35 0 59.9	1 0.0	0.1
52.2	6.6	6.8	6.6
8.6	24.4	24.2	24.2
1.6	14.1	15.3	15.2
22.84	28.50	4.63	4.61
57.10	11.25	11.57	11.52

13.4
10.7
11.45
11.55

ζ Leonis

10 9 57
+24 1

25 1 13.3	2 26.3	
18.9	32.2	
32.2	46.1	
27.2	40.7	
9.16	14.53	
22.90	36.32	

γ¹ Leonis

10 13 18
+20 27

0 0 13.1	1 3.1.2	30.8	30.8
20.6	37.8	38.1	38.2
33.8	51.8	51.1	50.8
26.9	45.4	45.6	45.9
9.44	16.62	16.56	16.57
23.60	41.55	41.40	41.42

13.7
8.2
41.46
41.41

Faint star in 2nd ✓
Pz, star

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ε Leonis

9 38 59
+24 20

	m	m	R	R
5 2	33.7	3 47.6	47.2	47.3
	40.3	53.7	53.2	53.0
	53.6	6.1	~~55.8~~	6.0
	48.4	2.8	2.9	2.9
	17 60	23 02	22 91	22 92
	44.00	57.55	57.27	57.30

~~#2~~ 37
57.~~37~~ .28

α Leonis

10 1 56
+12 33

	m	m	R	R
50 3	50.2	4 58.4	58.5	58.8
	57.4	5.7	5.8	5.7
	11.9	19.8	19.9	19.8
	4.3	12.9	13.7	13.2
	24 38	27 68	27 79	27 75
	0.95	9.20	9.47	9.37

84
9.42

δ Leonis

11 7 40
+21 11

	m	m	R	R
15 1	16.5	2 22.2	22.2	22.7
	23.4	29.3	29.2	29.9
	35.3	41.4	40.5	40.3
	31.2	36.6	37.9	37.5
	10 64	12 95	12 98	13 04
	26.60	32.37	32.45	32.60

~~14 2~~ 105
~~32.47~~
32.52

β Leonis

11 42 53
+15 15

	m	m	R	R
10 2	34.7	3 41.7	41.9	41.6
	41.2	49.1	48.7	48.7
	56.3	2.6	2.8	2.4
	48.1	54.8	56.0	53.5
	18 03	20 82	20 94	20 82
	45.07	52.05	52.35	52.05

40
52.20

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

168

1879 Apr. 12

g 3 Cygni C=46.797

21 4 47

−+29 44

		R	R
5.40	8	58.3	57.7
		3.7	4.0
		9.6	9.2
		9.4	8.7
		26 1 0	25 9 6
		65.15	4.90
		2	
		10 10	
		5.05	

β Aquarii

21 25 11

−6 6

		m	m	R	R
30	2	47.6	3 50.6	50.8	51.5
		55.4	38.6	59.0	59.0
		4.4	8.2	7.4	7.9
		59.7	3.1	4.0	4.0
		22 7 1	0 5	12	2 4
		56.77	0.12	0.30	0.35 .60
				10 2 90	
				0.34	
				0.45	

α Virginis

3 18 49

−10 32

		m	m	R	R
55	3	16.6	4 30.7		
		24.6	38.5		
		41.6	54.5		
		32.1	45.1		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1979phae.proj.1399R

ε Pegasi

21 38 14

+9 19

	m	m	R	R
5 2	49.2	54.6	54.7	54.6
	58.3	2.8	2.7	3.0
	4.6	10.2	9.8	10.2
	0.4	6.1	6.0	5.9
	23 25	25 37	25 32	25 37
	58.12	3.42	3.30	3.42
			~~14~~ 72	
			~~2.36~~ 3.36	

ζ Aquarii

21 59 34

−0 54

	m	m	R	R
20 1	10.6	20.3	20.2	19.7
2	18.9	28.7	28.6	28.9
	29.1	38.2	38.1	37.8
	22.9	33.2	33.3	33.0
	8 15	12 04	12 02	11 94
	20.37	30.10	30.05	29.85
			5990	
			~~3000~~ 29.95	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

170

1879. Apr. 13

Sun. C = 46.797

1 26 35

+9 5

m

5 2 6.1

13.3

24.0

18.9

6.3

15.37

.58

1st limbs in R.A.

A A 1,2,3,8,9? A 4,5.

26 pairs limbs in S. Obs.?

γ Virginis

12 35 32

− 0 47

m	m	R	R
10 4 58.0	150 28.7	28.4	28.1
6.3	38.1	37.8	38.0
17.9	51.5	50.5	50.2
11.8	43.1	44.1	44.8
27.40	16 14	16.08	16.11
8.50	40 35	40.20	40.27

82
47
40.27
40.23

Lost ☌ +1 P 2.# 3 stroke for lost ☌

α Virginis

13 18 49

− 10 32

m	m	R	R
55 3 16.6	4 30.7	30.9	30.8
24.6	38.5	38.2	38.1
41.6	54.5	54.1	54.1
32.1	45.1	46.1	46.4
11 49	16 88	16 93	16 94
28.72	42.20	42.32	42.35

87
42.29

α Pegasi

22 58 44

+14 33

R	R
50 3 55.4	58.8
4.1	4.0
15.2	15.4
9.8	9.1
26 45	26 43
6.12	6.07

19
6.09

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Virginis
12 49 30
+4° 3'

	m	m	R	R
20 3	42.4	4 58.2	57.6	57.5
	51.8	8.1	7.6	7.7
	1.7	17.3	17.7	17.3
	55.6	12.8	14.0	13.0
	21.35	27.64	27.69	27.55
	53.87	9.10	9.22	8.87
			9.9	
			9.06	

ε Virginis
12 56 9
+11 37

	m	m	R	R.
50 0	41.2	1 56.6	55.8	55.8
	48.3	4.2	4.1	3.9
	1.1	16.4	16.3	16.3
	55.1	10.8	10.5	10.6
	20.57	26.80	26.67	26.66
	51.42	7.00	6.67	6.65
			20.32	
			6.77	
			6.76	

ζ Androm.
0 2 8
+28 25

	m
0 2	6.6
	12.1
	21.2
	18.6
	5.85
	14.62

γ Pegasi C=46.797
0 7 0
+14 31

	m	m	R	R
55 1	49.8			
	58.2			
	9.3			
	3.8			
	24.11			
	0.27			

Lost last 3 wires

A +1 A 1.2.3.4 A -1 (4,5?) δ?

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

172

1879. Apr. 14

Sun C = 46.758

1 30 15

+9 27

m	m
40 4 28.7	15 2 ~~15.2~~
36.2	58.2
50.0	4.6
46.1	18.8
	13.2
1610	2748
40.25	8.70

Both limbs in δ + R.A.

Seeing moderately good.

ζ Orionis

5 29 31

−5 59

m	m	R	R
25 1 26.5			
33.2			
50.6			
42.1			
1524			
38.10			

Rej. 2 or 3 of the end wires of A.

λ Arietis

2 0 21

+22 58

m	m	R	R
30 3 50.2			
56.6			
6.5			
7.3			
06			
0.15			

ζ Orionis

5 34 39

−2 0

m	m	R	R
25 2 9.8	3 24.2	24.6	24.7
16.0	33.3	33.2	33.0
32.3	48.7	49.0	48.9
23.1	40.7	40.9	40.7
792	1469	1477	1473
19.80	36.72	36.92	36.82
		~~24.6~~ 17.4	
		~~36.82~~ .87	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1970phae.proj.1099R

β Tauri

5 18 39
+28 30

m	m	R	R
55 2 6.0	8 14.1	13.7	13.8
10.8	18.5	19.0	18.2
23.4	31.4	31.1	31.3
19.8	27.4	28.9	28.6
6 0 0	9 1 4	9 2 7	9 1 9
15.00	22.85	23.17	22.97

~~2 9 9~~ 14.1
~~23.00~~
23.07

δ Orionis

5 25 50
− 0 23

m
50 0 2.1
9.1
25.5
18.1
5 4 8
13.70

κ Orionis

5 42 1
−9 43

m	m	R	R
5 4 19.7	10 0 30.9	31.3	31.2
26.2	37.9	38.7	38.0
45.4	57.1	57.9	57.4
35.9	47.6	47.8	47.4
12 7 2	17 3 5	17 5 7	17 4 0
31.80	43.37	43.92	43.50

~~7 7 9~~ 14.2
~~43.60~~ .71

λ Orionis

5 48 37
+7 23

m	m	R	R
0 3 5~~6~~.4	5 0 6.2	6.0	6.1
5.2	15.2	14.7	15.1
19.4	30.4	30.2	30.0
11.5	21.8	22.1	22.0
27 2 5	7 3 6	7 3 0	7 3 2
8.12	18.40	18.25	18.30

~~5~~ 5
27
~~18.82~~

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

174

1879 Apr. 14

μ Geminor.

6 15 38

+22 34

	m		m	R	R
50	2 42.6	4	1,0	1,2	1,1
	48.4		7.1	7.3	6.8
	1.0		20,0	19.7	19.8
	58.3		16.5	16.6	16.8
	2103		446	448	445
	52.57		11.15	11.20	11.12
				47	
				11.16	

γ Geminor

6 30 43

+16 30

	m		m	R	R
55	2 3.4	3	18,3	18.8	18,8
	8.4		24.9	24.0	24.2
	25.9		41.5	41.4	41.0
	16.8		333	34.4	34.7
	545		1180	1186	1184
	13.63		29.50	29.65	29.67
				182	
				29.61	

α Can. Min.

7 32 58

+5 32

	m		m	R	R
50	4 52.8	55	1 13.3	13.4	13.3
	1.4		23.4	23.2	23.0
	14.4		36.1	35.9	35.9
	7.8		28,6	29.7	29,5
	2564		1014	1022	1017
	4.10		25,35	25.55	25.42
				132	
				25.44	

β Geminor

7 37 55

+28 19

	m		m	R	R
5	3 19.1	4	~~21.1~~		
	24.2				
	37.3				
	32.3				
	1129				
	28,22				

A Ch. failed

+1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1870phae.proj.12000

β Can. Min

7 20 35

+8 32

m	m	R	R
55 0 3.7	1 22.6	22.8	23.3
11.7	30.4	30.1	30.2
27.3	46.2	45.9	45.9
17.9	36.4	37.4	37.0
6 06	13 56	13 62	13 64
15.15	33.90	34.05	34.10
		05	
		34.02	

α Geminor.

7 26 52

+32 9

m	m	R	R
15 3 16.1	4 24.6	24.6	24.8
20.8	29.4	29.2	29.2
35.3	45.1	44.1	44.0
30.5	39.4	40.1	39.9
10 27	13 85	13 80	13 79
25.67	34.62	34.50	34.47
		159	
		34.53	

L Argus

8 2 23

−23 57

m	m	R	R
20 2 59.5	4 14.1	14.3	14.2
10.3	24.9	24.0	24.2
24.4	39.3	38.2	38.2
16.6	30.7	32.1	31.8
2 9 08	10 90	10 86	10 84
7.70	27.25	27.15	27.10
12.70		40	
		27.13	

α Leonis

10 1 56

+12 33

m	m	R	R
50 3 43.4	4 58.8	58.9	59.1
50.7	6.2	6.2	5.8
4.7	19.9	19.3	19.9
58.5	13.6	13.4	13.8
2173	2785	2778	2786
54.32	9.62	9.45	9.65
		172	
		9.57	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

176
1879 Apr. 14
ζ Leonis
10h 9m 5s
+24° 1'

	m	m	R	R
25	1 13.4	2 30.1	30.0	
	19.4	37.1	36.9	
	31.6	49.6	49.0	
	26.9	44.7	44.7	
	9.13	16.15	16.06	
	22,82	40.37	40.15	

52
40.17

γ Leonis b2
10 13 18
+20 27

	m	m	R	R
0	0 17.0	1 22.1	21.9	22.5
	25.3	30.2	30.4	30.5
	37.6	43.2	42.8	42.1
	31.2	37.4	37.4	37.4
	11.11	13.29	13.25	13.25
	27.77	33.22	33.12	33.12

46
33.15

ε Corvi
12 3 54
−21 57

	m	m	R	R
20	2 45.6	3 54.4	55.2	55.0
	56.2	56	5.2	4.9
	11.2	19.7	19.0	19.7
	0.8	10.2	11.2	11.2
	3 2.38	27.02	27.06	27.08
	55.95	7.55	7.65	7.70
	58.45			

190
7.63

δ Corvi
12 23 37
−15 50

	m	m	R	R
15	1 51.9	3 0.4	0.9	0.8
	3.1	11.7	11.8	11.7
	16.2	24.7	24.3	24.4
	8.2	17.2	17.9	17.9
	2.59.4	5.40	5.49	5.48
	4.85	13.50	13.72	13.70

192
13.64

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

δ Leonis

11 7 40

+21 11

	m	m	R	R
15 1	13.4	2 31.1	30.2	30.5
	19.6	37.9	37.2	37.8
	31.5	49.8	48.8	49.0
	27.2	44.9	46.2	45.9
	91.7	163.7	162.4	163.2
	22.92	40.92	40.60	40.80
			23 2	
			40.77	

β Leonis

11 42 53

+15 15

	m	m	R	R
10 2	30.1	3 41.1	41.9	41.9
	37.9	49.1	48.9	48.2
	52.1	2.1	1.7	1.8
	44.2	55.4	55.8	55.6
	1643	2077	2083	2075
	41.07	51.92	52.07	51.87
			586	
			51.95	

β Corvi

12 28 2

−22 44

	m	m	R	R
5				
5 4	32.0	10 0 38.2	38.6	38.6
	42.8	49.3	48.9	48.3
	56.5	3.6	2.7	2.8
	47.2	54.3	54.9	54.2
	1785	2054	2051	2039
	44.62	51.35	51.27	50.97
			59	
			51.20	

γ Virginis foll.

12 35 32

−0 47

	m	m	R	R
10 4	11.1	15 0 21.2	21.0	20.9
	20.7	30.8	30.8	30.1
	33.9	45.3	44.2	44.0
	25.4	36.5	37.8	37.4
	911	1338	1338	1324
	22.77	33.45	33.45	33.10
			100	
			33.33	

Fld. #

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

178
1879 Apr. 14
δ Virginis
12 49 30
+4 3

	m	m	R	R
20 3 42.9	4 56.1	55.9	56.2
53.2	7.4	6.6	6.4
3.5	18.4	17.2	16.2
58.2	12.1	13.4	13.0
21 7.8	27 40	27 31	27 18
54.45	8.50	8.27	7.95
		7.2	
		8.24	

ε Virginis
12 56 9
+11 37

	m	m	R	R
50 0 44.4	1 56.4	56.2	56.1
52.4	4.6	4.2	4.1
5.5	18.3	17.0	17.0
58.3	9.9	10.8	10.7
22 1.6	26 92	26 82	26 79
55.40	7.30	7.05	6.97
		3.2	
		7.11	

ε Pegasi
21 38 14
+9 19

	R	R
5	3 89	88
	169	172
	208	218
	230	238
	2	
	766	776
	19.15	19.40
		55
		19.27

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ζ Virginis

13 18 49

−10 32

	m	m	R	R
55 3	24.6	4 27.8	27.7	27.7
	33.0	36.0	35.3	35.4
	50.6	52.4	51.6	51.4
	39.3	42.2	43.2	43.2
	147.5	158.4	157.8	157.7
	36.87	39.60	39.45	39.42
			147	
			39.49	

β Cygni

21 30 47

+27 44

	R	R
40 8	47.4	47.6
	37	37
	2.4	2.4
	0.9	1.3
	2244	2250
	56.10	56.25
	35	
	56.12	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 15

2 Androm. C = 46.743

0 2 8

+28 25

	m	m	R	R
0 2	5.5	3 12.2	11.2	11.0
	10.4	17.2	16.8	16.4
	21.7	25.7	25.2	25.3
	18.8	24.7	25.7	25.3
	5.64	7.98	7.89	7.80
	14.10	19.95	19.72	19.50
			21.7	
			19.72	

γ Pegasi

0 7 0

+14 31

	m
55	1 28.2
	36.4
	48.9
	41.6
	15 51
	38.77

lost A_{+1} 3 + A849 trouble with clouds

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

182

1879. Apr. 16

Sun. C = 46.743

1 37 39

+10 10

	m		m		R	R
.0 1	35.3	30 4	3.7			
	43.3		12.1			
	56.6		23.3			
	52.2		19.9			
	1874		590			
	46.85		14.75			

Seeing good. Both limbs in δ & R.A.

β Orionis

5 8 43

−8 21

	m		m		R	R
45 2	1.8	3	11.2		11.6	10.9
	8.4		18.2		18.3	18.6
	25.9		34.2		33.5	33.6
	16.3		26.2		27.1	27.2
	524		898		905	903
	13.10		22.45		22.62	22.57
					164	
					22.55	

κ Orionis

5 42 14

−9 43

	m		m		R	R
5 4	28.7	10 0	29.9		30.2	29.8
	34.2		37.6		37.6	38.0
	53.6		55.2		55.9	55.2
	44.6		45.9		46.0	46.0
	1631		1686		1697	1690
	40.77		42.15		42.42	42.25
					82	
					42.27	

λ Orionis

5 48 37

+7 23

	m		m		R	R
0 3	58.7	5 0	7.8		7.3	7.2
	8.1		17.2		17.3	17.0
	21.8		31.4		30.5	30.2
	14.1		28.8		23.9	23.0
	2827		792		790	774
	10.67		19.80		19.75	19.35
					190	
					19.33	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

β Tauri

5 18 39

+28 30

m	m	R	R
55 0 58.2	3 11.7	12.0	12.0
4.1	18.2	18.1	17.4
16.9	29.7	29.7	29.7
12.1	25.3	26.4	26.9
27.3	84.9	86.2	86.0
7.82	21.22	21.55	21.50
		127	
		21.42	

ζ Orionis

5 34 39

−2 03

m	m	R	R
25 2 12.4	3 27.9	27.7	27.8
21.4	36.2	36.4	36.6
36.4	51.0	51.4	51.1
27.0	44.2	43.7	43.8
9.72	159.3	159.2	159.3
24.30	39.82	39.80	39.82
		4	
		39.81	

μ Geminor

6 15 38

+22 34

m	m	R	R
50 2 43.9	3 55.8	55.9	55.5
51.4	3.7	2.7	2.8
2.0	14.5	13.9	13.9
58.2	10.7	10.9	10.9
21 55	26 47	26 34	26 31
53.87	6.17	5.85	5.78
		280	
		5.93	

γ Geminor

6 30 43

+16 30

m	m	R	R
55 2 0.1	3 17.6	17.0	17.2
7.2	24.1	24.3	24.1
22.7	39.7	39.3	38.8
14.9	32.1	32.8	32.6
44.9	11.35	11.34	11.27
11.22	28.37	28.35	28.17
		89	
		28.30	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

184
1879 Apr. 16
β Can. Min.
7 20 35
+8 32

m	m	R	R
55 0 6.7	1 27.2	27.5	27.2
13.6	34.4	34.4	34.3
27.6	49.2	48.7	48.6
20.2	41.3	41.8	41.9
6 81	1521	1524	1511
17.02	38.02	38.10	37.77
		2389	
		37.96	

2 Geminor. foll.
7 26 52
+32 9

m	m	R	R
15 3 13.6	4 24.2	23.6	23.0
18.5	29.0	28.8	28.6
31.8	42.9	41.4	41.3
29.1	38.7	39.2	39.0
930	1348	1330	1319
23.25	33.70	33.25	32.97
		92	
		33.81	

foll. *

2 Hydrae
9 21 38
−8 8

m
35 1 2.2
9.1
26.4
16.2
539
13.47

ε Leonis
9 38 59
+24 20

m	m	R	R
5 2 35.1	3 49.6	49.4	49.3
41.2	55.2	54.8	55.3
53.7	6.7	6.8	7.0
49.8	4.2	4.1	3.9
1798	2357	2351	2355
44.95	58.92	58.77	58.87
		256	
		58.85	

A −1, 2, 3, 4, 5

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

α Can. Min.

7 32 58
+5 32

m		m	R	R
50 4 53.8	55.1	8.9	9.0	8.8
2.4		18.1	18.3	18.2
15.0		30.6	30.2	29.9
9.6		24.8	24.9	25.0
26.08		8.25	8.24	8.19
5.20		20.62	20.60	20.47
			169	
			20.56	

β Geminor.

7 37 55
+28 19

m		m	R	R
5 3 17.9	4	40.3	40.2	39.9
23.2		45.2	44.6	44.7
35.4		56.8	56.7	56.8
31.7		53.9	54.3	54.7
10.82		19.62	19.58	19.61
27.05		49.05	48.95	49.02
			02	
			49.01	

α Leonis

10 1 56
+12 33

m		m	R	R
50 3 46.5	4	58.6	58.8	58.2
53.5		6.2	6.1	5.8
7.3		19.5	19.4	19.8
1.2		13.0	13.2	13.7
22.85		27.73	27.75	27.75
57.12		9.32	9.37	9.37
			16	
			9.35	

ζ Leonis

10 9 57
+24 1

m		m	R	R
25 1 14.6	2	25.2	25.3	
20.5		31.5	31.8	
32.8		44.2	43.6	
30.1		39.6	40.2	
9.80		14.05	14.09	
24.50		35.12	35.22	
		34		
		35.17		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879 Apr. 16

γ Leonis pr.

10 13 18

+20 27

m		m		R	R
0	0 15.1	1	22.9	22,2	22,2
	22.4		30.3	30.1	30.1
	35.2		43.1	42.8	42.8
	29.9		37.4	38.2	38.4
	10 26		13 37	1333	1335
	25.65		33.42	33.32	33.37
				111	
				33.87	

Pr. ∗

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

188
1879 Apr. 19

δ Corvi C = 46.743
12 23 37
−15 50

m	m	R	R
15 1 51.4	3 6.5	6.8	7.2
2.6	17.4	18.4	17.9
12.2	26.6	26.3	26.1
6.2	21.4	21.9	22.2
25 24	7 19	7 34	7 34
3.10	17.97	18.35	18.35
		67	
		18.22	

β Corvi
12 28 2
−22 44

m	m	R	R
5 4 28.8	10 0.364	36.7	36.2
38.4	46.1	46.1	45.7
48.7	56.6	56.8	57.0
41.9	49.8	50.0	50.6
15 7 8	18 8 9	18 9 6	18 9 5
39.45	47.22	47.40	47.37
		99	
		47.33	

ε Virginis
12 56.9
+11 37

m	m	R	R
50 0 47.9	1 54.1	54.0	54.2
55.3	2.1	1.8	1.6
4.4	11.1	9.9	10.2
1.1	6.4	6.6	6.0
22 8 7	25 3 7	25 2 3	25 2 0
57.17	3.42	3.07	3.00
		49	
		3.16	

α Virginis
13 18 49
−10 32

m	m	R	R
55 3 19.9	4 33.6	33.0	33.2
26.8	41.4	41.1	40.6
39.9	52.8	52.5	53.2
32.0	46.4	46.8	46.8
11 8 6	17 4 2	17 3 4	17 3 8
29.65	43.55	43.35	43.45
		13 5	
		43.45	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

γ Virginis fold.
12 35 32
−0 47

M	m	R	R
10 4 14.5			
22.5			
31.5			
27.8			
9 6 3			
24.07			

Rij 25 mrt √

δ Virginis
12 49 30
+4 3

M	m	R	R
20 3 47.6	4 56.5	58.4	58.2
57.2	8.7	8.2	8.5
3.3	15.4	15.0	14.7
0.9	12.6	12.4	12.3
22 9 0	27 5 2	27 4 0	27 3 7
57.25	8.80	8.50	8.42

17 2
8.57

γ Aquilae
19 40 30
+10 19

M	m	R	R
5 2 57.9	4 14.8	15.7	15.4
4.9	23.2	22.8	22.9
13.9	30.5	30.8	31.0
9.7	27.6	28.7	28.2
26 6 4	9 6 1	9 8 0	9 7 5
6.60	24.02	24.50	24.37

89
24.30

δ Aquilae
19 44 53
+8 33

M	m	R	R
50 4 3.8	55 0 20.3	20.8	20.7
12.1	28.4	28.4	28.5
19.7	37.4	37.1	37.0
15.3	31.6	32.4	32.7
5 0 9	11 7 7	11 8 7	11 8 9
12.72	29.42	29.67	29.72

181
29.60

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

1879. Apr. 19

ϑ Aquilae

20 5 44

−1 11

	m	m	R	R
35 2	35.3	3 55.4	56.3	55.6
	43.2	3.4	3.6	3.8
	53.4	13.8	13.2	13.9
	47.6	8.4	8.0	7.2
	17 95	2610	2611	2605
	44.88	5.25	5.27	5.12
			4	
			5.21	

2 chronometers

α Cephei

20 27 33

+62 35

	m	m	m	m
50 3	1.4	16.7	4 1.5	− 18.4
	2.9	18.3	1.2	19.3
	10.1	26.3	9.2	26.4
	10.2	27.7	10.6	27.2
	246	890	225	913
	6.65	22.25	5.62	22.82

ε Pegasi

21 38 14

+9 19

	m	m	R	R
5 2	42.5	4 1.8	1.9	1.8
	50.3	10.2	10.0	10.0
	58.1	18.2	17.7	17.5
	53.6	13.9	13.6	12.9
	20 45	441		
	51.12	11.02		

Ch. failed

α Aquarii

21 5 04

−0 57

	R	R
20 1	11.3	11.8
	19.8	19.8
	28.8	28.8
	21.52	24.7
	8 51	8 51
	21.28	21.28
		56
		21.28

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

ζ Cygni

21 7 47
+29 44

	M	m	R	R
40 3	40.8	45.4	57.8	57.8
	45.9	3.5	3.0	3.0
	52.8	9.8	8.8	8.7
	50.8	7.9	8.3	8.4
	1903	186	179	179
	47.58	4.65	4.48	4.48
			161	
			4.54	

β Aquarii

21 25 11
−6 6

	M	m	R	R
30 2	58.4	59.5	59.8	59.5
	5.9	7.4	7.3	7.4
	15.8	17.8	16.0	16.1
	9.8	11.8	12.7	12.9
	2699	2765	2758	2759
	7.47	9.12	8.95	8.98
			05	
			9.02	

The ~~separate~~ means of the separate microscopes in this book have all been checked.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1879phae.proj.1399R

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1979phae.proj..193B

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System