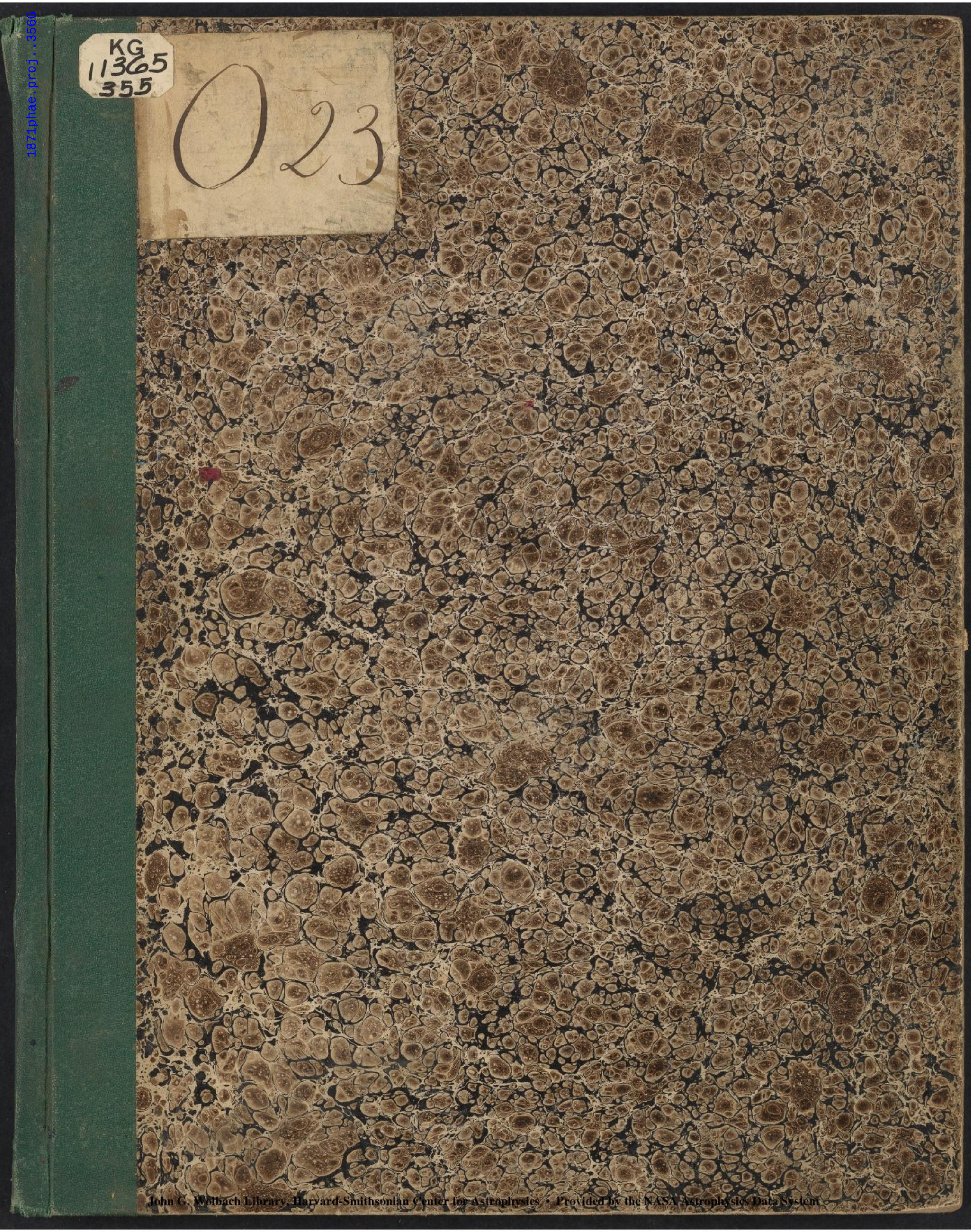

KG
11365
355

O 23

KG 11365. 355

Longitude-

Cambridge. {
Columbus- Ohio-
Cleveland- Ohio-
Allegheny- Penn-

1871-

Field Reductions of Observations at Cambridge-

Henry Gannett- obs. & computer-

KG11365.355

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Sept. 25 - 1871. North Clock - East Chronograph -

Star -		η Aquarii -		ζ Pegasi -		$\overset{6}{\theta}$ Cephei.		α Pis. Aus. -	α Urs. Maj. -
Circle		W		W		W		W	W.
δ	-0.46		10.9						
o									
1.		22 28 27.7	15.1	34 44.6		46 25.5		50 38.1	lost.
2		42.8	12.5	35 0.0		48.0		48.9	
wires 3 &c		55.3	9.1	12.6		47. 10.4		59.5	
		29 4.4	8.9	21.8		40.1		51 17.5	
		13.3	15.5	30.7		48 17.6		35.4	
		28.8	-16.0	46.8 -				46.3	
		44.8	9.1	2.7		1416		57.0	
		53.9 3.0	9.1	12.1		60		2027	
		30. 15.5	11.6	21.3		816		180	
mean		30.8	15.3	33.8		47. 16.32		1227	
		3003		49.7				17.53	
red. to mid. w.		29. 29.12		34. 46.92		47. 16.32		51. 17.53	
		-0.12		-.12		-1.28.01		-.06	
T		29. 29.00		35. 46.80		45 48.31		51 17.47	
α		24 45.93		35 3.96		45 8.95		50. 33.76	
α - T		43.07		42.84		39.36		43.71	
aA	.68	-1.77	.54	-1.40	-.95	+2.47	1.11	-2.89	
bB	.73	-.53	.86	-62	2.22	0	.35	0	
cC	1.00	-.97	1.02	-.99	2.41	-2.34	1.16	-1.12	
corr.		-3.27		-3.01		+.13		4.01	
δT		39.80		39.83		39.49		39.70	

c = -.97
a = -2.60

subtract 2 sec. (Error in ready. Chro. Sheets.)

α Pegasi.
W

lost -

ο Cephei -
E

−1.10
2.36
2.60

12 54.0
13 18.1
58.5 -
14 39.5
15 2.5

1726
120
292.6
58.52

13. 58.52
+.05

13. 58.57
~~68. 22.52~~
13 24.18

34.39

+2.86
+.19
+2.52

5.57

39.96

.60
.81
1.01

θ Piscium
E

21 6.4
22.0
34.3
43.8
53.0
22 8.8 -
24.6
33.4
42.7
55.1
23 10.2
22 8.57
+.12

22. 8.69
21 27.85

40.84

−1.56
+.06
+97

−.53

2.71
−2.12
−2.93

λ Draco -
E

25 15.9
43.4
26 10.2
47.0
27 32.0

1485
60
88.5
17.70

26.17.70
−1.47.00

24.30.70
23.41.08
49.62

−7.05
−.08
−2.84

−9.97

38.65

−2.50
2.64
4.42

γ Cephei.
E

31 14.0 3
32 9.7
32 49.6
33 31.2

1045

32.26.13
2 13 48

34.39.61

34.10.18

+.21

γ Cephei -
W.

35 55.7
36 39.6
37 17.9
38 12.2

1254
120
54

37. 1.38
2.13.48

34.47.87
39.61
8.26
4.42) 4.260 (97
3978
2820

Sept. 27. Insts. as before.

Star.		1 Draco. S.C.		β Cephei.		ε Pegasi.		11 Cephei.		μ Capric.
Circle		W.								W
δ										
wires	65321	21 19 6.3 20 58.0 23 7.0 24 34.7 25 21.4	6789 10 11	21 27 41.1 28 26.8 28 53.5 29 20.8 29 57.0 30 42.0	345678910	37 45.7 37 58.0 38 7.3 38 16.2 38 32.1 38 47.9 38 57.2 39 6.6 39 19.3	6789 10 11	21 40 43.3 41 30.5 41 58.6 42 26.3 43 4.0 43 50.8	8 9 10 11	22.7 32.1 44.8 60.9
mean		247.4		612		2903		935		1605
redn to mid.		22.49.48 3 42.28		29.10.20 1.28.97				42.15.58 1.32.14		40.13 43.02
T		19.7.28		27.41.23		38.32.26		40.43.44		46.57.11
α		18 27.14		1.95 30		−.06 38.32.20		4 52		17 98
α − T		40.50		39.28		37 53.13 39.07		38.92		39.13
aA	5.86	+.29	−1.35	−.11	.55	+.03	1.44	−07	.86	+.04
bB	−4.00	−.32	2.59	+.21	.85	+.17	2.67	+.67	.57	+.14
cC	−7.10	+.56	2.92	−.23	1.01	−.08	30.3	−.24	1.03	−08
corr.				−.13		+12		+36		+.10
δT				39.15		39.19		39.28		39.23

c = −.08

a = +.52

Subtract 2.sec. for incorrect reading of Chro. sheets.

α Aquarii   32 Urs Maj.   π Aquarii   ~~9 Draco~~

ε

11ʰ
58 48.8
59 4.2
16.5
25.5
35.0
21 59.50.4
22. 0. 6.2
15.2
24.5
36.8
52.0
55551
59.50.46
.11
59.50.57
11.67

38.90

.69   +.03
.73   +.18
1.00   +.08

+.31
39.21

11 10 9 8 7
1 48.0
2 24.1
2 54.0
3 16.5
3 37.2
1798
+60
2398
47.96 ~~3??0~~
1 2892
9 .19.04
8 37.58

47.96
1 28.92
16.88
37.58
39.30
~~41.46~~

2.31   +.18
− .76   −.19
− 2.43   −.19

−.20
39.10

11
18 20.7
36.1
48.5
57.7
19 6.9
22.5
38.4
47.0
56.4
20 8.7
23.6
3665 5
120
2465
19.22.41
11
19.22.52
43.59
38.93

.67   +03
.75   +.19
1.00   +.08

30
39.23

39.15	5	0025
19	1	1
28	8	64
23	3	9
21	1	1
10	10	100
23	3	9
139		209
39.20 δT		0.0035

.06
.04 prob error for all stars.

39.19	2	0004
23	2	4
21	0	0
23	2	4
6		0.0012
39.21		0004
2.00		
37.21		

.02
.013 prob error with time stars.

Sept. 28. Insts. as above.

Star.		11 Cephei.		μ Capricorni		79 Draconis		α Aquarii		32 Urs. Maj
Circle		W.								C.C.
	21	37.35.9		~~[illegible]~~		50 0.6		58 47.5		6 43.7
		38.21.7		46. 7.4		50 32.3		59 2.7		7 21.9
		38.59.1		20.2		51 2.4		14.8	11'-6	7 51.7
		39 27.2		29.6		51. 57.2		24.1		8 14.9
		39.53.8		38.7		52 49.5		32.9		8 37.4
Wires.		40.41.5 –	9m	46 55.1	7m	53 22.0	11'	59 48.8 –		9 15.8
	11'	41.28.5		47 11.0	do bad. very ft.	53 53.2		0 4.2		1854
		41.57.0		20.6		2172		13.6		180
		42.24.5	10	30.1		180		22.8		5.490
		43. 2.0		42.9		3972		35.0		8. 00.47
		43.49.0		2582		51 - 56.74		50.5		1 14.07
		4082		240				2969		
		4602		4952				240		
								536.9		
mean.		40. 41.84		46. 55.02		51. 56.74		59. 48.81		
redn. to mid.		–.33		–.06		–.17		–.11		
T		40. 41.51		46. 54.96		51. 56.57		59 48.70		9. 14.97
α		40 4.48		17.97		19.13		11.66		37.62
α – T		37.03		36.99		37.44		37.04		37.35
Aa	–1.44	+.03	.86	–.02	–1.76	+.03	.69	–.01	2.31	–05
Bb	2.67	+.25	.57	+.07	2.96	+.39	.73	+09	–.76	–.10
Cc.	3.03	–.12	1.03	–.04	3.44	–.14	1.00	–.04	–2.43	+10
corr.		+.16		+.01		+.28		+04	30.43	–.05
δT		37.19		37.00		37.72 Reject		37.08		37.30

a = –.02
C = –.04

	π Aquarii		9 Draconis - L C		η Aquarii		226 Cephei		ζ Pegasi		ι Cephei - ε
	~~19.5~~		21 , 21.8		28 21.5		31 43.5		35. 56.9		46 23.7
	18 34.4	10 – 6	22 14.8		37.0		32 21.2		36 6.3		46 44.9
	46.8		22 53.7		49.2	7 – 11	32 57.9	7 – 11	15.7	5 – 1	47 7.1
	56.0		23 33.5		58.5		33 47.4		28.2		47 37.0
9m	19 4.7		24. 39.5	11	29 7.2		34 49.6		44.0		48 13.6
	19 – 20.7		1633		29. 23.0 –		2196		911		2663
	36.2		120		38.5		180				
	45.6		2833		47.9		396				
	19 54.9				57.0						
	20 6.9				30 9.5						
	3062				24.8						
	120				3741						
	186.2				120						
					2541						
	19.20.69		22.56.66		29. 23.10		33. 7.92		36.18.22		47.13.26
	−.05		1.42.61		.11		2.26.45		37.25		1.27.54
	6										
	19.20 64		24. 39.27		29.2299		41.47		35 40.97		45.45.72
	43.58		1.59		.45.92		4.53		3.96		8.91
	37.06		37.68		37.07		36.94		37.01		36.81
67	−.01	3.72	−.07	68	−.01	−2.19	+.04	.54	−.01	−.95	+.02
75	+09	−2.04	−.23	73	+09	3.56	+46	.86	+.11	2.22	+~~28~~19
100	−04	−4.25	+.17	100	−04	4.01	−.16	1.02	−.04	2.41	+10
	+.04	24.16	−.13		+.04	3652	+33		+.06	36.28	+.31
	37.10		37.55		37.11		37.27		37.07		37.12

Star		α Pis. Aus.		α Urs Maj		α Pegasi		ο Cephei		θ Piscium
Circle	E			L.C.						
wires		50 30.9		54 8.3		57 55.6		11 19.9		21 3.0
		42.0	1-6	40.6		58 11.6		12 0.6		18.4
	7 mid	52.9		55 7.5		24.3		32.4		30.7
		51 11.0 -		27.7	11/	33.9		56.3		39.7
		29.3		47.6		43.4	11/	13 20.4	11/	49.5
		39.4		56 20.5		58 59.5		14 1.0 -		22 5.1
		50.2		1622		59 15.6		41.6		20.7
		2557		60		24.9		15 4.8		29.7
		180		x922		34.5		29.5	6	39.2
		757				47.3		16 1.1		51.3
		10				0 2.9		40.8		23 6.8
						3585		2487		2941
						300 6535		240 84		541
mean		51.10.81		55.15.37 6.38		58.59.41		14.0.76		22.4.92
redn to mid.		+.06		1. ~~[illegible]~~		+.11		+.29		+11
T		51 10.87		56.20.75		58.59.52		14.1.05		22.5.03
α		33.76		43.91		22.52		24.16		27.85
α-T		37.11		36.84		37.00		36.89		37.18
Aa	1.11	−.02	+2.09	−.04	.48	−.01	−1.10	+.02	.60	−.01
Bb	35	+.05	−.56	+.05	.91	+.08	2.36	+.20	.81	00
Cc	1.16	+05	−2.16	−.09	1.03	+.04	2.60	+.10	1.01	+04
corr.		+.06	30.69	.08		+11		.12		+03
δT		37.17		36.76		37.11		37.01		37.21

λ Draconis ι Piscium

L.C

	24 18.2		32 56.5
	25 2.8		33 12.0
6 – 1'	31.0		24.5
	57.8	1'/	33.5
	26 33.6		43.0
	27 19.0		33 58.6
	1624		34 14.6
	120		23.3
	2824		32.4
			45.0
			35 0.1
			6435
	25.47.07		33. 58.59
	1.29.19		+.11
	24.17.88		33.58.61
	41.12		21.43
	36.76		37.18
2.71	–.06	.61	–.01
–1.12	+.05	.80	–.04
–2.93	–.12	1.00	+.04
30.43	–.13		–.01
	36.63		37.17

Clock Comp.

N.C. 23 43. 0.0
S.C. 23. 42. 29.0
31 sec.

37.00	11	0121
.08.	3	9
.10	1	1
.11.	0	0
.07	4	16
.17.	6	36
.11	0	0
.21.	10	100.
.17	6	36
102		.0319.
37.11 δT		0.0040 (06

.04 prob. error.

Kt. ut. Sept. 29. 1871. South clock.

Star.		ζ Cygni.		ι Cephei		1 Pegasi		1 Draconis.		β Cephei.
Circle		E		E		E		E LC		E
δ.										
wires		21 6 23.5		13 26.2		15 39.0		18 31.7		24 52.5
		41.3		59.4		48.8		20 21.8		25 28.5
		55.4		14 25.5		58.6	678.	21 27.8	9 mid	25 55.6
	11 w	7 6.0	11-7	45.1	7 mid	16 15.0				26 22.6
		16.8		15 5.4		31.7				27 7.4
		34.7				41.2				27 54.6
		52.8				51.0				28 21.3
		8 2.8								28 47.8
		13.7								29 22.8
		27.8								
		45.1								
		3199		1616		2853		813		3123
		60		60		180		60		240
		3799		1016		1053		213		723
mean		7. 34.54		14. 20.32		16 15.04		20 7.10		27- 8.03
redn to mid		+13		+1.17.86		+.05		1 35.45		+18
T		7. 34.67		15.38.18		15.09		18 31.65		8.21
α		28.67		32.19		9.28		18. 27.48		1.86
α-T		6.00		5.99		5.81		4.17		6.38
Aa	25	+.06	-.72	-.16	.42	+09	5.86	+1.29	-1.35	-30
Bb	1.12.	-.03	2.01	-.06	.97	-.03	-4.00	+12	2.59	-.08
Cc	1.15	+ ✱ ~~.15~~	2.132	✱ ✱ ~~.39~~	1.06	✱ ✱ ~~.16~~	-7.097	✱ ~~1.06~~	2.92	+ ~~.44~~
corr.	+.09	06	-.11	+11	+11	05	+1.05	-.36	-23	.15
δT		6.09		5.88		5.92		5.22		6.12

c by elimination -.05

a +23.

rej 1 Pegasi	6.09.	.08	12	0169
	5.92	.25		
	6.22	5	0	0
	6.13	4	9	81
	6.30	13	8	64
	6.28	11	6	36
	6.28	11	6	36
	122			0386
	6.17 fast.			0077 (09
	130			.08 prob. error.
	6.22 fast.			

	ε Pegasi
	W
	36 57.3
	37 12.4
	25.2
11w	34.3
	43.3
	59.5 -
	38 14.8
	24.4
	33.9
	46.3
	39 2.0
	3534
	300
	6534
	37. 59.40
	11
	37. 59.29
	53.11
	6.18
.55	+ 12
.85	-.03
1.01	- ~~+.16~~
+.04	-05
	6.22

	11 Cephei -
	W
	40 11.6
	40 58.2
6-1'	41 27.0
	41 54.5
	42 32.1
	43 18.6
	2020
	60
	2620
	41. 43.67
	1.32.45
	11.22
	4.44
	6.78
-1.44	-.82
2.67	-.08
3.028	+ ~~.16~~
-.55	-.15
	6.23

	u Capricorni
	W
	45 20.9
	36.9
11w	49.3
	58.8
	46 8.0
	24.1
	40.0
	49.8
	59.1
	47 12.0
	28.0
	3849
	120
	2649
	46.24.08
	-.11
	46.23.97
	17.96
	6.01
.86	+.19
.57	-.02
1.63	-.05
	+.12
	6.13

	λ Aquarii
	W
	58 16.7
11w	31.6
	44.1
	53.1
	59 2.0
	18.0 -
	33.5
	42.7
	52.0
	0. 4.3
	19.8
	3178
	120
	1978
	59.17.98
	-.11
	59.17.87
	11.65
	6.22
69	+.15
73	-.02
1.00	-05
	+.08
	6.30

	32 Urs Maj
W	LC
	6 51.2
grind	7 20.5
	43.4
	8 6.5
	43.7 -
	9 21.8
	43.9
	10 6.0
	36.8
	2738
	120
	3938
	8. 43.76
	+.15
	8. 43 91
	37.70
	6.21
2.31	+ .51
-.76	+.02
-2.43	+.12

reject.
see notes.

	π Aquarii
	W
	17 48.5
11w	18 3.8
	15.9
	25.1
	34.0
	49.9 -
	19 5.3
	14.6
	23.9
	36.2
	51.6
	3088
	240
	5488
	18. 49.89
	-.11
	18 49.78
	43.58
	6.20
.67	+15
.75	-.02
1.00	-.05
	+.08
	6.28

Star	9 Draconis		9 Draconis.		η Aquarii.	
Circle	W	L.C.	E	LC	E	
δ	76°.23.					
wires		~~20 51.7~~		25 12.0		27 50.3
		21 42.6		25 51.9		28 5.6
	10987	22 22.3	789	26 31.0	11 w.	17.9
		23 2.0				27.0
						36.6
						52.1
						29 7.6
						16.5
						25.9
						38.1
						53.3
						8309
						240
	669	~~1176~~		949		
				1549 60		5709
Mean		22.22.30		25. 51.63		28 51.90
redn to mid		1 45.34		1 45.34		+.11
T		24 7.64		24. 6.29		28.52.01
α		6.29				45.91
α-T		1 35				6.10
Aa	+3.72	.67			.68	+.15
Bb	-2.04				.73	-.02
Cc	-4.247				1.00	+.05
corr		c = +.15				.18
δT						6.28

Comparison of north with South Clock.

	h	m	sec		
N.C.	1	0	0.0	} 1 0 31.05	
S.C.	23	59	28.95	} 1 0 0.0	
			+31.05	31.05	

Comparison of Columbus Clock with Cambridge clock.

	h	m	sec
Cam. Cl.	23	20	38.87
Col. Cl.	22	24	1.0
			56.38.87

Cam Cl	23 8.9
Col Cl	26 30.0
	56.38.90.

Cam Cl
Col. Cl

Time of arbitrary signals sent by Columbus to Cambridge.

55 ~~47.1~~
~~48.2~~
~~49.0~~
~~49.9~~
~~50.~~

55 47.1
47.8
48.5
49.3
49.9

56 2.1
2.9
3.7
4.4
5.0

56 12.7
13.6
14.5
15.4
16.3

56 25.9
26.7
27.5
28.4
29.2

Time of arbitrary signals sent by Cambridge to Columbus.

23 29 21.8
23.1
24.3
25.6
26.8

51 31.5
32.6
33.8
34.7
35.7
36.9
38.2

51 48.3
49.4
50.7
51.7
52.7

51 59.5
0.5
1.6
2.7
3.9

52 8.5
9.6
10.6
11.6
12.6

52 19.7
20.7
21.6
22.7
23.7

52 30.5
31.6
32.6
33.6
34.6

2nd Set. Sept. 29. 1871.

α Androm. γ Pegasi. κ Draconis. κ Draconis. α Cassiop 13 Ceti.

-E
11 w.

h m
0 = 0 41.7
59.3
1. 13.3
23.6
34.2
52.2 -
2 9.9
19.8
30.5
44.5
3 1.6

3306
240
5706
1 51.87
+.12
1 51.99
45.96
6.03
+.06
-.09
+.06
+.03
6.09

.28
1.10
1.14

E
11 w

5 40.4
56.3
6. 9.0
18.6
28.2
44.1 -
7. 0.6
9.6
19.0
31.8
47.6

3052
180
4852
6. 44.11
+.11
6. 44.22
38.18
6.06
+.11
-.07
+.05
09
6.15

.48
.91
1.03

E
70.30
1-5

2.76
-1.17
-2.996

L.C.

24 57.1
25 42.8
26 19.2
26 47.0
27 13.4

1795
120
59.5
26 11.90
1 48.68
28.00.58
-09
50.

W
5-1

L.C.

28 49.0
29 15.6
29 43.1
30 19.8
31 4.3

1318
120
2518
29. 50.36
1 48.68
28 1 68
0.58
1.10
.55

c = +.18

W
2-9
-.41
1.73
1.78

32 ~~0.0~~
21.6
38.3
54.2
33 22.0 -
49.3
34 6.4
22.3

2141
60
1541
33. 22.01
-.08
21.93
15.48
6.45
-.09
-.14
-.08
.31
6.14

W
q nud -

.92
.51
1.06

36 27.0
39.8
49.6
59.0
37 15.4 -
31.8
42.0
51.6
38 24.5

3207
180
1407
37. 15.63
-.06
37. 15.57
9.30
6.27
+.20
-04
-05
+11
6.38

Sept. 20. 1871.

Star.		α² Capricorni.		κ Cephei.		π Capricorni.		ε Delphini.		α Delphini		α Cygni.
circle	W.		W		W		W		W	15.27		W.
wires		9 59.3		13 19.0		19 0.0		26 8.7		32 43.4		35. 43.9
		10 14.5		14 30.0	11w	15.9	11w	24.1	11w	58.9		36 5.1
	11w	27.2	6-10	15 12.0		28.8		36.8		12.0		22.3
		36.8		15 54.5		38.6		46.2		21.3	11w	35.4
		45.9		16 50.8		48.0		55.0		30.7		48.0
		2.2 -				4.2 -		11.0 -		- 47.0		37 10.0 -
		17.9				20.9		26.9		3.0		32.0
		27.4				30.8		36.2		12.7		45.0
		37.2				40.4		45.8		22.3		58.4
		49.6				53.5		58.4		35.3		38 15.5
		5.6				9.7		14.1		51.1		37.4
		323.6		1663		290.8		3632		3377		3530
		300		120		240		240		1801		240
		236		463		50.8		1232		5177		1130
mean		11. 2.15		15 9.26		20. 4.62		27. 11.20		33. 47.06		37 10.27
red. to mid.		-.12		-1 50.07		-.12		-.11		-.11		-.16
T		11 2.03		13.19.19		20. 4.50		27. 11.09		33.46.95		37. 10.11
α		10 55.58		12.67		58 08		4 70		40.54		3.73
α-T		6.45		6.52		6.42		6.39		6.41		6.28
Aa	.84	+.087	-2.61	-~~.08~~.22	.92	~~.931.03~~.08	.53	+.04	.47	+.04	-.06	00
Bb	.34	-.03	3.73	-.37	.57	~~.31~~.05	.87	-.09	.93	-.09	1.41	-.14
Cc	1.03	+.05	4.556	+.23	1.06	~~1.16~~ +.06	1.02	+.05	1.04	+.05	1.41	+.07
corr.		+ ~~+.05~~.09		~~-.32~~-.38		~~+.04~~.08		-.00	-.05			-.07
δT		~~6.50~~6.54		~~6.80~~6.12		~~6.46~~ 6.50		6.39		~~6.36~~ ~~6.36~~ 6.41		6.21

a = + ~~10.03 Circle W + .13 Circle E~~.
c = +.05 +.08

μ Aquarii E. | 61 Cygni E | ζ Cygni E | 1 Pegasi E | 1 Draconis E L.C. | 11 Cephei E.

81.54

μ Aquarii — 6-1
45 49.9
46 6.0
14.6 7 mid.
24.0
36.6
52.3

1234
46. 20.57
− 30.66
45 49.91

45.49.91
43 61
6.30
.80 | + ~~.10~~ 7.10
.63 | −.04 1.27
1.014 | −.08 1.27
−.04
6.26

61 Cygni — 11 w
0 30.7
42.3
54.6
14.0
34.0
45.4
57.3
add 1 sec.

2783
180
98.3
15.04
+.06
15.10
9.09
6.01
+.01 .25
−.12 1.12
−.06 1.15
−.17
5.84

ζ Cygni — 11 w
6 22.4
40.4
54.8
7 5.2
16.1
34.0
52.0
add 1 sec. 8 2.1
12.9
27.0
44.0

3109
60
3709
7. 34.72
+.13
7 34.85
28.65
6.20
+.03 .42
−.08 .97
−.06 1.06
−.12
6.08

1 Pegasi — 6-11
15 8.8
25.2
38.3
48.0
57.9
14.4
31.1
add 1 sec 40.4
50.3
3.2
19.3

3369
180
1569
15. 15.26
+.12
15. 15.38
9.26
6.12
+.29 5.86
−07 −4.00
−06 −7.097
−08 − ~~.16~~
6.07

1 Draconis L.C. — 11-7-
18 32.8
20 22.2
21 29.1
22 33.3
24 1.2
25 50.2

1688
240
4088
68.13
22. 8.13
− 3. 3596
18. 32.17
27.58
4.59
+ ~~.41~~ .50
+ ~~.28~~
+ .36
+.73
+1.46
6.05

Star	11 Cephei.		u Capricorni	
Circle	W.		W	
	7-11	40 57.5	6-11	46 24.3
		41 25.8		40.4
		41 54.0		50.0
		42 30.9		59.6
wires		43 18.2		47. 12.2
				28.2
		1864		2147
		-120		1201
		3064		3347
		6 1.28		
mean.		42. 1.28		46. 55.78
red to mid.		-1. 50.69		31.40
T		40.10.59		46 24.38
α		4.39		17.92
α - T		6.20		6.46
Aa	-1.44	+12 - .10	.86	+07 ~~.09~~ + ~~06~~
Bb	2.67	- .27	.57	-.06
Cc	3.038	+ 15	1.032	+05
corr		+00 - 07		+06 +.10
δT		-24 ~~6.23~~		~~.10~~ ~~6.56~~
		~~6.32~~		~~6.36~~
~~[illegible]~~		6.06		6.52

~~6.50~~
46.
36
37
54
29
84
09
08
320
6.36 δT =

6.54
6.50
6.39
41
21
26
584
608
607
652
242
6.28

Oct. 3. 1871.

Star.		τ Cygni	α Cephei	1 Pegasi	β Cephei	γ Aquarii	π Aquarii
Circle.		E	E	E	E	E	E
		37.30	62.2	19.15	70.0	-2.2	0.43
wires	10 - 1 7 lost	8 47.5 46.0 56.5 9 3.2 46.7 42.9 15.0 46.3 31.3 46.4 46.4 1 -6 6.1 46.3 19.8 17.3 46.3 31.9 28.8 46.2 42.6 44.6 46.4 58.2 3.7 46.6 17.1 26	13 26.0 37.8 2. 11.8 59.0 37.9 38.9 14 25.3 37.9 1 12.6 44.9 37.9 6 53.0 15 4.9 38.0 32.1 38.2 38.2 57	16 15.1 15.1 31.9 15.3 16.6 41.3 15.3 -3 26.0 51.1 15.8 8 35.8 4.0 15.1 6 lost 48.9 20.1 15.3 4.8 14	8 25. 55.1 7.7 12.6 7 26 22.7 8.0 -1 45.3 5 27. 53.9 7.90 7 lost 46.0 4 28. 19.9 8.1 3 11.6 ~~40.0~~ 38.9 37 .93	14 21.7 8.1 46.4 34.1 8.2 34.1 43.2 8.1 w 24.9 8.0 8.0 24.0 8.3 13.4 32.6 8.0 24.6 41.8 8.0 33.8 54.3 8.1 46.3 9.2 8.1 .97	17 48.0 18 3.2 15.7 24.9 34.0 49.8 19 5.5 14.4 23.8 36.0 51.0
T		46.29	37.95	15.23	7.93		3061
α	-	9 40.40	15.32.04	16. 9.23	27. 1.66	8.10	240
α-T	:	5.89	5.91	6.00	6.27	15. 1.83	5461
						6.29	49.65
Aa	.12	+02 -.72	-.09 .42	+05 -1.35	-.17 .70	+09 .67	.11
Bb	1.26	-.04 2.01	-.06 .97	-.02 2.59	-.05 .71	0 .75	18 49.76
Cc	1.26	+.06 2.13	+10 1.06	+07 2.92	+.12 1.00	+.07 1.00	43.55
corr		+.04	-05	+.07	0	+.13	6.21
δT	a = +12 C = -.07	5.93	5.86	6.07	6.27	6.40	+.08
							0
							+.07
							6.35

Star. Circle,	~~λ Pegasi~~	λ Pegasi W	ι Cephei W	α Pisc. Austr. W	α Pegasi W	o Cephei W
wires.	22 59.6	40 27.8 27.8 44.7 27.8 6 4.8 27.8 37.9 18.1 27.8 55.3 35.0 27.7 17.1 39 6 7 9 10 11 22.53 65.31	42 47.4 15.1 43 27.7 24.0 15.3 51.3 53.8 15.4 10 21.2 15.9 15.1 54.7 37.3 15.2 15.2 15.2 13	-30.19	14.30	67.24
wires				49 28.6 46.3 50 0.4 11.2 21.4 39.9 57.7 51 8.4 19.2 33.3 51.3 11 W	57 25.5 44.2 53.8 58 3.4 12.6 28.9 44.9 52.4 59 4.0 16.6 32.6	1 - 5 30.0 10 50.8 30.2 11 30.1 30.1 12 2.1 30.2 28.7 30.3 26.4 4 49.4 40.9 13.30.16
				3177 120 4377	3179 58 28.90 11	
mean redn to mid.				39.79 -.12	58. 28.79	
~~mean~~ T		40.27.78	15.22	50. 39.67	22.50	
α	~~40.21.~~	40.21.43	45. 8.80	33.73	6.29	
α - T		6.35	6.42	5.94		
Aa	36	+.05 -.95	-.12 1.11	1 +.64 .48	+.06	
Bb.	1.02	-.10 2.22	-.18 .35	-.01 .91	+.04	
Cc	1.09	-.04 2.41	-.10 1.16	-.05 1.03	-.04	2.60
Corr.		-.09	.40	+.08	+.06	
δT		6.26	6.02	6.02	6.33	

ο Cephei
E

14 10.4 29.5
40.9
34.0 30.1 - 5
3.9 1
58.0
38.0 30.0
30.0
9.5 29.9
9.5 30.3
39.2
48

13.29.96

5 - 1

20
10
-.04

λ Drac. Z.C.
E

70.5

20 47.9 47.2 - 1
2 54.6
21 32.0 47.25
15.2
22 8.3 47.4
39.1
55.1 47.1
23.6
23 1.6 47.6
46.0
15

23.47.30

22
.11
-.04

293

λ Drac. Z.C.
W

24 33.6 47.6
46.0
59.5
12.0 47.5
26.4 47.3 1 - 6
39.1
2.9 47.7
15.7
47.0 47.7
54.3
28

23.47.52

.61
.80
1.00

ι Piscium
W

4.55

32 26.2 27.6
1.4
41.3 27.6 1'
46.3
53.6 27.6
33.9
2.8 27.5
47.7
15.8 27.7
27.5 27.5
34

33.27.57
21.43
6.14

+08 -2.50
+.04 3.64
-.04 4.42
+08
6.22

γ Cephei
W

76.54

34 16.0 16.0
35 24.5 16.1
44.4
36 6.0 16.4 11 W
49.4
1 46.8 16.2
37 39.6
41.4 16.8
38 24.6
49.3 16.6
32.7 21

16.35
10.04
6.31

-.31 43
+18 .96
-.18 1.05
-.31
6.00

φ Pegasi
W

18.24

44 59.8
45 15.7
28.7
38.4
47.7
46 4.5
20.7
30.4
40.1
53.1
47 9.6
3487
300
487
46.4.43

45.58.10
6.33

+05
+07
-.04
+.05
6.38

593
607
6.42 09 0081
.35 2 4
.26 7 49
.33 0 0
.22 11 121
.38 5 25
196 280
6.25 0056 (07
05
196
6.33

1871 Oct. 4 2d set. (1st set read last.)

Star.		38 Cass.	η Piscium	ν Persei	ο Piscium	β Arietis	50 Cass.
Circle.		E	E	E	E	E	E
	69.36			45.0	8.30		71.47
wires.			23 40.3	28 42.3	38 59.8 48.9	46 34.4	52 49 23.5
		18 54.9 52.2	56.0	29 5.4	8.8 44.0	50.9	50 12.5
	11 to 8	19 38.6 51.6 11 wires	8.9 11 wires	24.0 5 to 1	18.2 44.6 11 wires	4.0 11 to 7	41.0 51.7
		20 14.0 51.7	18.4	37.8	30.7 44.1	13.7	40.5 51 21.5
		20 40.3 51.5	28.2	51.6	46.0 44.1	23.6	35 50.9
		30	44.1	30 15.0	1.9	40.3	49.6
			0.3	38.4		57.0	
			9.5	51.6		6.5	
			19.1	31 5.3		16.3	
			31.7	23.7		29.4	
			47.4	46.3		45.5	52 40.70
			3039	3414		3216	62
			180	180		120	08
			4839	1614		4416	04
Mean.			23 43.99	30 14.67		47 40.15	
redn to mid.			11	16		+.12	C = +.01
Mtc		21.51.75	23.44.10	~~30~~	38.44.02	47.40.27	
α		21 45.10	37.48	30 .14 83	37 58	33 63	
α − T		6.64	6.62	30 8.26 6.57	6.44	6.64	
Aa	−1.31	−.44 .48	+12	.56	+14 .40	+10	
Bb	+2.55	0 .92	−.02 .13	+03 .84	−.04 .99	−.06	
Cc	2.87	−.14 1.03	−.05 1.49	−.05 1.01	−.05 1.07	−.05 3.20	
corr.		.58	+05 1.49	−.07	+05	−01	
δT		6.06	6.67	−09 6.48	6.49	6.63	

c = +.05
a = +.25

50 Cass.	α Arietis	2 Drac. L.C.	o Ceti	ι Cass.	5 Urs. Min. L.C.
W	W	W	W	W	W

40.8
40.2
40.6
41.1
41.4

7 to 11

53 30.4
59.7
29.5
49.4
39.1
17.7

52.40.62

11 wires

58 57.1
13.4
26.9
37.0
46.4
3.8
20.6
30.4
40.7
54.0
10.9

34 12
300
41 2
0. 3.75
-.12
0 3.63
56.93
6.70

~~8.9~~
4.3

.36
1.02
1.08

+.09
-.20
+.05
-.06
6.64

2.26
-.71
-2.37

72.37

1 56.6 ~~03.5~~
2 18.20. ~~56.0~~
1 22 2

7 to 10

reject.

0. 51.88

.72
.69
1.00

-3.33

13 14.5
23.7
24.8
32.8
34.1
45.3
46.4

12.59.0
59.0
58.7
58.9
17
43

12 58.40
12. 52.22
6.68

+.18
-.14
+.05
+.09
6.77

-1.05
2.31
2.54

66.49

1 16 4.6
2 43.0
3 17 14.1
4 -37.6
6 18 40.2
7 49.8
8 ~~44.0~~
9 8.5
26.5

40.11
18.32.73
7.36

-.26
-.46
+.13
-.59
6.79

76.16

40.0 11 23
40.2 10 24
40.0 7 26
40.0
40.2 26
40.4
~~40.4~~
40.0

4.21

31.2
34.6
46.1
51.5
49.9
51.4
28
50.93
49 87
1 06

1.34
2.115

4.21) .530 (.12
421
1090

C = +.12

Star Circle	5 Urs. Min. L.C. E	γ Ceti E	β Urs. Min. L.C. E	β Urs. Min. L.C. W	α Ceti W	48 Cephei W
		2.41	74.41			77.15
wires	7 28 54.7 40.0	10 35 44.2 46.0	47 15.8 7.4	52 8.4 8.9	54 55.0	3 1 43.7
	8 29 34.7 38.4	9 36 11.9 46.0	48 13.1 7.8	41.3 8.3	7.3	4 2 26.8
	9 30 13.5	8 21.2 46.1	59.5 7.55 to 2	53 16.9 892 to 11	16.7	4 18.2
	23.4	7 30.6 461	49 33.0 80	80	25.6	~~4~~ 5 27.8
	28. 49.4	6 46.1 −46.1	50 9.0 8.5	54 3.0 8.3	41.3	16.3
	50.1	4 10.8 46.2	59.5 42	54.7 24	56.8	18.1
	50.1	3 20.1 46.3	83	8.60	6.0	17.8
	26	2 32.5 46.3	52 .7.83	52 8.60	15.4	18.2
	28 89.87	1 41.4 46.2		7.83	27.9	1
		1.2		.77	~~40.5~~	
		~~2648~~		3.8) 350 (9	2520	
		~~180~~		342	120	
		~~4448~~		c = +09	3720	18.03
T		46.13			55. 41.33	4. 10.02
α		36 39.46			34.60	8.01
α − T.		.64 6.67			.63 6.73	−2.59 −.65
		77			.78	3.72 −.53
Aa		1.000 +.16 3.80			1.00 +.16	4.53 +23
Bb.		−.08			−.11	−.95
Cc.		−.05			+.05	7.06
Corr.		+.03			+.11	
δT		6.70			6.84	

ζ Arietis W   α Persei W

20.34

2 6 49.4 ~~23.0~~38 13 43.6
~~4~~ 7 12.4 6.7
5 36.6 21.6 2.13.7 25.5
~~7~~ ~~16~~ 39.8 39.9
9 8 15.1 13.1 53.3
10. 28.2 17.7 -
38.7 41.1
38.8 55.4
38.4 31 10.0
38.8 62 28.8
38.7 52.6

17.69 37 46
17
3862 17. 52 180
31.87 1946
6.78 17.57
40 +.10 -.19 10.59
99 -.12 1.53 6.93
107 +05 1.54
+03 -.05
6.78 -.18
+.08
-15
6.78

6.67
48
49
63
64
77
70
84
78
78
678
6.68 dT

1871 Oct. 4 1st set.

Star Circle	α Cygni ~~E~~ W W	ε Cygni W	μ Aquarii W	12 Y.C. 1879 W	σ² Urs. Maj. Z.C. W	61¹ Cygni W
		33.29		80.4	67.40	38.7
Wires	2 to 10 36 4.9 22.1 35.3 47.7 37 9.9 - 31.6 45.0 58.0 38 15.3	11 wires 39 54.0 12.4 26.8 38.0 48.6 7.4 - 26.1 37.3 48.3 3.0 21.7	11 wires faint 44 48.0 3.0 15.6 25.0 34.0 49.9 - 5.5 15.0 24.4 37.0 52.6	2 to 7 49 4.2 27.5 28.7 50 12.8 28.8 51 16.0 7.0 29.4 51 22.4 38.6 29.7 6 53 31.6 29.6 29.0 54 58.8 28.9 (?) 55 24.9 10-6	57 5.6 7.6 2.0 38.2 7.8 29.6 2.4 7.8 5.4 26.8 7.6 40.8 8.1 8.1 39	18.6 59 57.8 15.6 0 16.4 10.9 32.0 -11.1 43.9 10.1 1 5.0 19.96 - 15.4 -11.8 35.0 -13.6 46.8 15.7 58.4 19.9 14.1 34.0
	2698	3233	3100			3434 3585
	180	240	240			180 180
	898	833	5500			16.34 1785 17 35
Mean	37. 9.98 9.90	40. 7.57	~~45~~, ~~5~~0.00			Reject.
red. to mid.	−1.83.63	+ 15	11			
T	37.9.96~~6.35~~	7.72	45. 49.89	29. 08	7.78	
α	3.636~~.49~~	41 1.53	43.55	53. 23.93	.59 1.13	1 9.02
α − T	6.27	6.19	6.34	5.15	6.65	
Aa	−.06	−+.01 .18 +.05 80	+.20 −3.54	−.89 +.~~25~~ 2.47	+.62 −.~~25~~	.10
Bb	+1.41	+.20 1.18 ±.20 63	+.12 +4.89	+.83 −.90	−.18	1.27
Cc	1.41	−.18 1.20 −.10 101	−.08 5.79	−.72 −2.63	+.33	1.27
		+.01 +.15	−.24	−.78 +.~~46~~	+.77 −.~~70~~	
		6.28 6.34	6.54	~~6.61~~ 4.37 !	~~6.65~~ 7.42	

a = +.25

C adopted −.12

+.20

0	+	+.01	+.04	−.18
+.20		+.20	+.12	+.83
+.21		+.18	+.15	+.87
+.41		.39	+.31	+ 1.58
6.68		6.58	6.61	6.67

−.18

By elim. C = +.15
a = +.05

ζ Cygni
W

6 24.2
41.8
56.0
6.5
16.8
34.8 -
52.8
3.4
14.1
28.3
46.0
3247
601
3847
7. 34.97
-13
7. 34.84
7 28.59
6.25

25 +.08
1.12 +.24
1.15 -.17
+ 66
6.47

+.24

τ Cygni
W

37.30

5 9 ~~27.8~~ 46.8
.6 46.6 46.6
5 to 11 7 6.1 46.57 middle wires
8 ~~28.56~~ 18.0 46.7
~~31.3~~
10 34.1 45.0 46.6
~~54.4~~ 32

9. 46.63
9.40.36
6.27

.11 +.03 -.72
1.26 +.32 2.01
1.27 -.16 2.13
+ 19
6.46

+.32

α Cephei
E

62.2

~~14 21.0~~ (?)
14 44.7
15 4.6 67.8
15 37.8 -
16 11.3
16 30.0
~~50.0~~
1284
60
1884
37.68
04
15 37.72

15 32.00
5.72

-+.18 +5.86
+.50 -4.00
+.27 -7.10
+59 ~~+.84~~
6.31 ~~6.56~~

+.50

δ Drac. T.C.
E

81.54

(?) { 18 33.8 -33.8
20 23.8 33.7
59.1
~~34.3~~
~~37.6~~ }
21 30.8 33.5
2 56.3 20

18 33.67
18.28.31
5.36

1.47
+.57 -1.35
-.80 2.59
-.90 2.92
-.23
5.13

-.80

β Cephei
E

70.00

25 27.6
34.6
54.9
12.4
22.1
45.4

7.2
7.5
7.5
7.40

β Cephei
W

27 53.7
45.4
21.0
12.6
47.9
39.6

8.3
8.4
8.3
8.33
7.40
93
460
242
c = -.16 1680

Star-circle

wires.

T
α
α−T
Aa
Bb
Cc
corr of T

11 Cephei
E

70.43

37 2.8
7.2
49.2
30.4
27.0
43.1
55.0
15.7
23.6
47.0

10.0
9.6
10.1
10.5
10.6

10.16

3.03

3.03

11 Cephei
W

40 57.5
47.0
26.0
15.2
33.7
43.1
31.2
30.4
18.0
7.2

10.5
10.8
10.6
10.8
10.8
-

10.70
10.16
54
27
C = −.09

.86
.57
1.63

μ Capricorni
E

−14.10

45 19.4
13.7
36.4
47.6
49.0
34.3
58.4
25.6
46 8.2
14.0
24.1
40.5
16.2

23.1
24.2
23.3
24.0
24.2
−24.1
24.3
62
89

47 27.4

23.89
46 17.90
5.99
+.27
+.10
+.13
+.44
6.43

.69
.73
1.00

+.10

α Aquarii
E

58 16.0
31.4
43.9
53.1
2.4
18.0 -
33.4
42.7
51.8
3.9
19.3

31 59
59.120
19 59
57 17.82
11.62
6.30
+.07
+.12
+.12
+.47
~~6.36~~
~~6.77~~
6.71

.61
.80
1.01

+.12

δ Pegasi
ε
5.34

49.8 2
49.9
49.9
50.0
−49.9
49.8
50.0
50.0
73
49.91

4 12.1
3.3
46.6
18.1
34.2
25.0
38.3
32.2
−49.8
5.8
15.8
14.1
24.7

49.91
3 43.73
6.18
+.05
+.11
+.12
+.38
~~6.00~~
6.56

2.31
−.76
−2.43

+.11

2 to 7 (?)
Faint; observation poor

~~39.8~~
~~44.3~~
~~41.6~~
~~42.7~~
~~43.2~~
~~45.8~~

32 Urs. Maj. L.C.
ε

65.45

6 ~~44.9~~
51.6
58.3
22.7
29.3
44.0
57.6
3.9
38.8
−11.2
22.0
37.8
43.9
44.2 55
43.6 91
44.6
43.2
44.2
43.91
8 37.92
5.99
+.60
−.09
−.30
+.21
6.20

−.09

γ Aquarii -
ω

-2.1

14 6.3 8.1
1.8 8.2
21.1
~~5.6.4~~ 8.2
43.3 8.1
24.9
82.6 8.1
1.5 5
8.1 8.2
23.9
~~1.5.1~~ 8.3
42.1 8.1
~~33.6~~
84.3
4 6.3 8.2
9.4
1.2 15

8.17
15.1.80
6.37

.64 + .06
.77 +.08
1.00 +.12
+36
6.58

+.08

~~6.38~~ 1 ~~.0001~~
27 10 100
20 3 9
32 5 25
42 5 25
36 1 1
45 2 4
51 14 196
293
6.37

7)0361
0051 60 (072
49 24
14)26 .074 prob.-error.

6.28
834
54
41
46
43
.71
56
68
441
6.49 δT -

Oct. 5 1871

Star.		α Delphini		α Cygni		ε Cygni		ζ Cygni		τ Cygni		α Cephei
Circle		W		W		W		E		E		E
		15.27								37.30		62.2
wires.		32 43.3		35 44.0		39 54.3		6 23.4	7 to 1	9 26.8 46.4 19.6 46.7 46.7 6.4 46.6 19.8 17.7 46.8 30.9 29.1 46.5 42.7 44.6 46.4 58.7 3.6 46.5 17.1 39	11 to 7	13 26.1 2 11.8 51.8 38.9 37.9 25.5 12.6 38.1 45.2 58.0 38.1 3.1 38.2 33.1 38.2 15 38.3
		39.1		36 5.1		40 42.3		41.3				
		33. 12.0		22.4		27.1		55.7				
		21.4		35.4		38.0		7 6.1				
		30.7		47.8		48.8		17.0				
		47.0		37 10.2		41 7.1		34.9				
		34 3.0		31.9		26.2		53.0				
		12.8		45.2		37.4		8 3.0				
		22.2		58.2		48.3		13.7				
		35.0		38 15.5		42 3.3		28.0				
		51.1		37.4		22.0		45.5				
		3376		3531		3254		3216				
		180		240		240		60				
		517.6		1131		854		3816				
mean.		33.47.05		37 10.28		41, 7.76		34.69				
redn to mid.		-.12		-.16		-.13		.13				
T		33 46.93		37, 10.12		41, 7.63		7. 34.82		46.56		38.30
α		40.46		3.60		1.18		28.57		40.35		31.96
α-T		6.47		6.52		6.45		6.26		6.21		6.34
Aa	.47	+.12	-.06	-.02	.18	+.05	.25	+.06	.11	+.03	-.72	-.18
Bb	.93	+.12	1.41	+18	1.18	+15	1.12	+14	1.26	+16	2.01	+.25
Cc	1.04	-.05	1.41	-.06	1.20	-.08	1.15	+08	1.27	+06	2.13	+09
corr.		+.19		+.10		+.15		25		25		+16
δT		6.66		6.62		6.60		6.50		6.46		6.50

C = -.08
a = +.25

6.66	11	0121
6.62	7	49
6.60	5	25
6.50	5	25
6.46	9	81
6.50	5	25
6.52	3	09

7)386
6.55 = δT

0335
0056(074
49 25
144)700.05 Prob. Error -

	α Delphini	α Cygni	ε Cygni	ζ Cygni	τ Cygni	α Cephei
Aa	+.12	-.02	+.05	+06	+.03	-.18
Bb	+.12	+.18	+.15	+14	+.16	+.25
Cc	20	~~+.10~~	~~+.20~~	+ ~~20~~	~~+.19~~	
corr.	~~6.0~~24					
δT.	6.~~47~~ 6.70	6.68	6.65	6.45	6.40	6.41

From elimination. C = 0 a = +25

6.70
6.68
6.65
6.45
6.40
6.41
6.56
385
6.55

β Ceph.
E

11 to 9

70.0
24 7.0
52.7
15.4
{25 28.4(?)
{~~26 39.9~~(?)
~~45.4~~
7.7
8.3
8.0
8.00

8.00
1.56
6.44

−1.35
2.59
2.92

+.32
+.17

−.34
+.32
−.~~02~~
6.42

β Ceph.
W

7 to 11

27 53.8
28 45.4
21.0
17.6
48.0
39.6
24.0
15.6
9.3
~~6.7~~
8.4
8.6
8.4
8.4
8.6
24
8.48
8.00
.48
3) .24
C = −.08
corrected for diff. in level.
C = −.04
8.48
1.56
6.92

+.05
−.17

−.34
+.05
0
6.63

.55
.85
1.01

ε Pegasi
W

36 57.4
37 12.7
25.2
34.6
43.3
59.6
38 15.3
24.6
33.9
46.5
39 2.0
3551
300
6551
37. 59.56
−.11
37. 59.45
53.05
6.40

+.14
+.02
−.04
+.12
6.52

+.14
+.02
0
6.56

α Aquarii
E

lost.

Oct. 9. 1871.

65.31 67.24

Star	λ Pegasi.		ι Cephei.			α Pis. Aus.		α Pegasi.		ο Cephei			θ Cephei.		
Circle	W.	21.4	W	48.0	15.6	W	29.0	W	25.9	W	51.6	30.8	E	30.8	11.7
	22.54	38.0		24.3	15.6		46.3		41.4		31.3	31.4		30.9	34.8
		51.3	1-6	54.3	15.9		0.6		54.3	1-5	4.4	30.9	5-	31.0	57.0
		1.2		71.3	15.6		11.4		3.7		36.8	30.7		30.9	37.0
		11.0		58.0	15.9		21.6		12.7		50.4	31.3		31.3	10.5
wires.		28.0		16.0	16.0		39.9		29.0		40.9				34.2
		44.8			46		57.7		48.1			51		49	
		54.8					8.7		54.7						
		4.8					19.3		4.2						
		18.3					33.6		17.0						
		35.2					51.3		33.0						
mean		28.07					39.94		29.17						
redn to mid.		-.12		~~45. 8.66~~			~~33.69~~		-17						
T		27.95					6.13								
T				15.97			39.81		29.00		31.06			31.06	
α		21.36		45. 8.66			33.69		22.47		13.23.96			30.98	
α - T		6.59		7.11			6.12		6.63		7.10			.08	
														.04	
													c = -.01		
Aa	.36	+ .21	-.95	-.57	1.11		+ .67	+.19	+.12	-1.10	-.66			7.02	
Bb.	1.02	+.15	2.22	+.33	.35		+ .05	1.53	+.30	2.36	+.47		-66	+.47	
Cc.	1.09	-01	2.41	-02	1.16		-01	1.54	-02	2.60	-03			+.03	
corr.		+.35		-.26			+.71		+40		-.22				
dT.		6.94		6.85			6.83		6.93		6.88				

C = -.01
a = +.60

70.3

θ Piscium λ Draconis.

E 32.0 E L.C. 31.9 46.4
47.7 45.5
0.0 6.4. 59.3 46.5
9.4 12.8
18.7
34.2
50.1
59.0
8.4
20.8
36.0

34.21
+.11

34.31 46.45
27.84 23.40.84
6.47 5.61

.60 +.36 +2.71 +1.62
.81 +.16 −1.12 −.22
1.01 +.01 −2.93 −.03
+.53 +1.37
7.00 6.98

6.94
6.93
7.00

6.85
6.83
6.88
6.98

4841
6.91

Oct. 9. 1871.

				65.31								67.24				
Star	λ Pegasi.		ι Cephei.			α Pis. Aus.		α Pegasi.		o Cephei.			θ Cephei.			θ
Circle	W.	21.4	W	48.0	15.6	W	29.0	W	25.9	W	51.6	30.8	E	30.8	11.7	E
	22.54	38.0	1-6	27.6 24.3	15.6		46.3		41.4	1-5	34.2 31.3	31.4		30.9	40.6 34.8	
		51.3		51.3 54.3	15.9		0.6		54.3		4.4	30.9	5-	31.0	3.9 57.0	
		1.2		71.6 71.3	15.6		11.4		3.7		27.8 36.8	30.7		30.9	28.0 31.0	
wires.		11.0		38.0	15.9		21.6		12.7		3.9 52.4	31.3		31.3	8.1 10.5	
		28.0		37.9 16.0	16.0		39.9		29.0		40.9			49	37.2	
		44.8			46		57.7		45.7			51				
		54.8					8.7		54.7							
		4.8					19.3		4.2							
		18.3					33.6		17.0							
		35.2					57.3		33.0							
mean		28.07		~~45. 8.66~~			39.94		29.17							
redn to mid.		-.12					~~33.69~~		-17							
T		27.95					6.13									
T				15.97			39.81		29.00		31.06				31.06	
α		21.36	45.	8.66			33.69		22.47		13.23.96				30.98	
α-T		6.59		7.11			6.12		6.53		7.10				.08	
															.04	
														c=.01		
Aa	.36	+.21	-.95	-.57		1.11	+.67	+.19	+.12	-1.10	-.66				7.02	.6
Bb.	1.02	+.15	2.22	+.33		.35	+.05	1.53	+.30	2.36	+.47			-.66	+.47	.8
Cc.	1.09	-01	2.41	-02		1.16	-01	1.54	-02	2.60	-03				+.03	1.0
corr.		+.35		-.26			+.71		+40		-.22					
dT.		6.94		6.85			6.83		6.93		6.88					

c = -.01
a = +.60

70.3

θ Piscium λ Draconis.

ε 32.0
47.7
0.0
9.4
18.7
34.2
50.1
59.0
8.4
20.8
36.0

34.21
+.11

34.31
27.84
6.47

.60 +.36 +2.71
.81 +.16 −1.12
1.01 +.01 −2.93
+.53
7.00

ε L.C. 31.9 46.4
45.5
59.3 46.5
12.8
6.4.

46.45
23.40.84
5.61

+1.62
− .22
− .03
+1.37
6.98

6.94
6.93
7.00

6.85
6.83
6.88
6.98

48.41
6.91

Oct. 12. 1871.

Star.		τ Cygni.		α Cephei		ι Pegasi.		ι Draco. L.C.		d Urs Maj L.C.		β Cephei.
		37.30		62.2		19.15		81.53		70.23		70.0
Circle.	W 9 mid.	21 8 49.7	W	13 28.0	W	16 0.1	W	18 40.3	W	24 52.9	W mid.	~~27 8.3~~
wires.		5.3		18.6 8.4		16.9		20 32.6		28.7 29.7		52.9
		16.8		38.4 28.5		33.3		21 36.0 ~~51.3~~ 54.0		17.4 16.0		48.4 20.3
		28.0	1-6	12.1 46.0		16.4 43.0	6.5.4.3	22 41.9	3 2 1	2.3		13.8 47.2
		47.9		52.4	5-11	24.3		54.5		12.2	6-11	33.3
		7.3		5.1 33.5		53.0		40.3		12.3		15.6 8.4
		19.0		38.4		36.1 44.0		41.3		12.7		0.7
		30.8		38.5		22.2 5.5		42.0				
		46.4		38.8		16.7		42.4		12		~~27 8.3~~
				38.6		16.9				12.40		~~10.3~~
				38.4		16.9		60				27 ~~8.3~~
				38.6		16.7		41.50				7.5
		25 12		38.4		16.9						7.7
		1 8 0		33		16.9						7.7
		43 12		.55		16.7						7.6
mean		47.91				57						7.7
redn to mid.		−.08										7.7 32
T		9 47.83		15 38.55		16.81		18 41.50		23.12.40		7.64
α		9 40.21		15.31.70		15.9.09		18.29.40		23.2.44		27 1.19
α − T		7.62		6.85		7.72		12.10		9.96		6.45
Aa	.12	−.10	−.72	+.62	.42	−.36	5.66	−5.04	2.75	−2.37	−1.35	+1.16
Bb	1.26	+.06	2.01	+.10	.97	+.05	−4.00	−.20	−1.15	−.06	2.59	+.13
Cc.	1.26	−.12	2.13	−.19	1.06	−.10	−7.10	+.64	−2.98	+.27	2.92	−.26
corr.		−.16		+.53		−.41		−4.60		−2.16		+1.03
δT		7.46		7.38		7.31		7.50		7.80		7.48

	τ Cygni.	α Cephei	ι Pegasi.	ι Draco.	d Urs Maj	β Cephei.
Aa	−.09	+.54	−.32	−4.41	−2.07	+1.02
Bb.	+.06	+.10	+.05	−.20	−.06	+.13
Corr.	−.03	+.64	−.27	4.61	−2.13	1.15
δT	7.59	7.49	7.45	7.49	7.83	7.60

39.50   5354   12.30   5.34

74 Cygni – 13 H Cephei – μ Capricorni – 20 Pegasi ι Aquarii θ Pegasi

74 Cygni

W 31

3–11
lost 4

12.2
36.6
49.5
36.2
29.3
16.3
20.2
28.5
32.3
40.7
44.3
56.8
19.4
16.8
20.5

56.2
56.1
56.2
56.1
56.2
56.6
56.4
56.3
21
56.26
31. 48.58
7.68
−.06
+.07
−.12
−.11
7.57

.07
1.30
1.31

−.06
+.07
+.01
7.69

13 H Cephei

W 35

6–11

6.7
35.5
24.4
53.0
49.3
31.4
29.4
24.4
0.4
53.2

6.7
7.1
7.5
7.1
7.0
7.2
262
45
1½
7.10
34. 59.50
7.60
−.41
+.08
−.16
−.49
7.11

−.48
1.77
1.84

+.36
+.08
+.44
8.04
reject.

μ Capricorni

E .45

1–11
~~lost~~?

22.0
38.2
50.9
0.2
9.9
26.1
42.1
51.4
0.9
13.5
29.3
2845
25.86
.12
25.98

46 17.82
8.16
−.74
+.04
+.09
−.61
7.55

86
57
1.03

−.65
+.04
−.61
7.55

20 Pegasi

E 33

11 w

54.9
10.8
23.3
32.9
42.1
58.2
14.4
23.3
33.0 ~~13.8~~ 35.4
1.0
3393
300
6393
58.12
12

54 58.24
54. 50.34
7.90
−.45
+.04
+.00
−31
7.59

~~67~~ 52
~~73~~ 90
~~100~~ 104

−.39
+.04
−.35
7.55

ι Aquarii

E 58

11 w

17.9
33.2
45.7
55.0?
4.2
19.9
35.4
44.2
53.5
5.9
21.0
3359
120
2159
19.63
.11
19.74

59 11.53
8.21
−.59
+.03
+.09
−.47
7.74

.69
.73
100

−.51
+03
−.48
7.73

θ Pegasi

E 2

11 w
5 lost.

~~53.3~~
~~52.8~~
~~52.4~~
~~52.3~~
~~52~~
~~54.4~~
~~51.0~~
~~50.7~~
~~50.4~~
~~52.2~~

49.6
3.7
5.0
17.3
35.7
26.7
35.6
36.7
16.6
51.4
24.7
16.3
25.7
25.8
34.9
38.0
43.6
53.3
3.1

51.7
51.6
51.5
51.7
51.7
51.4
52.6
51.6
51.6
51.8
62

51.62
3.43.63
7.49
−.52
+.04
+09
−.39
7.60

61
80
101

−.46
+.04
−.42
7.57

65.31

Star. ι Cephei. ι Cephei. ~~omitted.~~ π Aquarii

Circle E W. E

wires 11-8 8-11 11 W.

ι Cephei, E:
1 46.2 29.2
1 23.6 51.4
2 53.3 33.2
2 13.7 59.4
38.0
37.4

15.4
15.5
15.5
15.6
15.4
24
15.48

c = -.09

ι Cephei, W:
3 53.0 39.4
4 16.0 58.9
4 58.7 32.2
5 8.0 56.9
5 45.1
29.2

15.6
16.1
15.9
16.1
15.9
46
15.92
15.48
44
.22

π Aquarii, E:
17 49.6
6.9
46.7
17.4
33.8
26.7
24.6
36.0
15.7
1.4
14.5
16.3
34.8
23.3
34.9
37.9
46.4

50.8
51.8
51.2
51.3
51.7
51.9
51.5
51.3
51.5
40
.44

T		15 48		15.92		18 51.44		
α		45 8.57		45. 8.57		18.43.47		
α - T		6.94		7.365		7.97		
Aa	-.95		~~.67~~		.67	-.58		
Bb	2.22	-.07	~~.75~~	-.07	.75	-~~x~~ .02		
Cc.	2.41	+.22	~~1.00~~	-~~1.11~~.22	1.00	+.09		
corr.						-.51		
δT						7.46		

Aa +.72 -.51
Bb. -.07 -.02
+.65
Corr. ~~.75~~ -.53
δT 7.56 7.44

7.46 2
60 12
74 26
59 15
55 7
~~41 37~~
57 9
31 17
38 10
46 2
477

7.48 δt

By elimination
a = -.75
c = 0.

Elim.
7.59
.49
.45
.69
.55
.55
.73
.57
.44
506
7.56 δT

Oct. 15 – 1871 –

		65.45		-2.2		76.23		14.31
Star –	32 Urs Maj'			γ Aquarii –		9 Draco. L.C.		α Pegasi –
Circle	W	L.C.		W		W		W.
wires.	10. 9.7	53.0 1. 28.2 22.6 2 7.5 37.8 .45.3 46.1 45.9 23 45.77	1234.6?	8.4 1.2 23.0 42.2 35.5 [illegible] 44.7 1 9.6 9.6. 9.2 9.3 9.5. 9.7 23 9.46	11765	47.9 32.9 4. 44 4.9 5. 6.8? 6 16.4 6.7 10.5 10.3 6.8 9.7 05 10.17 37 3 9.33	& 5–11	26.8 1. 13.3 [illegible] 30.0 46.9 55.8 2 [illegible] [illegible] 30.1 29.9 30.0. 30.1. 30.1 30.0 1 29.9 30.0
T		45.77		9.46		10.17		30.01
α		8 38.45		~~24. 2.81~~		24. 2.84		58. 22.43
α – T		7.32		1.70 7.76		7.36 6.52		7.58
Aa	2.31	+35	70	+.10	3.72	+56	.48	+.07
Bb	−.76	+.03	71	−~~+~~.03	−2.04	+.08	.91	+.03
Cc	−2.43	+.24	1.00	−.10	−4.25	+.43	1.03	−.10
Corr –		.62		−03		107		0
δT		7.94		7.79		7.59		7.58

C adopted −.10

b −.04

b = +.03

a = +.15

1871. Oct. 16.

Star.	ζ Cygni.		τ Cygni.		α Cephei.		1 Pegasi.		1 Draco. S.C.		B Cephei.	
Circle	W.	29.42	37.30	W	62.2	W	19.15	W	81.54	W	70.0	W
wires.	11 w	6.25.8	3 - 11	9.5.3	1 - 6	13 28.8	5 - 11	15.59.9	6543	18.16.6	11 w.	24.9.2
	36.2	42.8	47.9	16.9	39.3	14. 8.6	16.5	16. 16.6		22.0		53.6
	35.9	57.1	47.9	28.0	39.0	26.9	16.6	33.0		18.39.8		29.7
	36.0	7.8	47.8	47.9	39.0	46.7	16.6	42.9	18.39.8	19.47.0		56.3
	36.1	18.0	47.9	7.4	39.1	15. 5.8	16.6	52.7	39.6	54.5		22.4
	36.1	36.1	47.8	19.9	39.3	39.2	16.6	5.1	39.0	20. 30.9		- 8.5
	36.1	53.9	47.8	30.9	39.2		16.6	22.2	39.3	20 44.3		54.0
	36.0	4.8	48.0	46.3	9		16.7	5.5	17 43	51.1		21.3
	36.3	29.6	47.8	5.9	39.15					21. 15.5		47.8
	36.2	47.5	46.0	17.9						22.4		23.9
	36.2	71.2	79							21. 33.0	11	9.0
	11									21. 56.0	7	33 57
										22. 20	27.8.70	240
										22. 38.8	~~32~~	9.5.7
										59.5	.32	
T		7.36.11		9.47.88		15.39.15		16 16.60	18.39.43		8.34	~~21~~
α		7.28.40		9.40.12		15.31.53		16 8.98	30.10			~~9.25~~
α − T		7.71		7.76		7.62		7.62	9.53		27.	0.98
Aa	25	−.04	.12	−.02	−.72	+.12	.42	−.07	5.86	−.98		7.40
Bb	1.12	+.12	1.26	+.13	2.01	+22	97	+.10	−4.00	−.44	−1.35	−.23
Cc	1.15	+.02	1.26	+.02	213	+.04	106	+.02	−7.10	−.14	−2.59	+.28
corr.				+.13		38		+05		1.56	2.92	+06
δT	C assumed +.02			7.89		8.00		7.67		7.97		+11
	a −.17											7.51
		+10										
		7.81										

	ζ Cygni	τ Cygni	α Cephei	1 Pegasi	1 Draco	B Cephei
Aa	−.02	−.01	+.09	−.03	−.49	+.11
Bb	+.12	+13	+22	+.10	−.44	+.28
Cc.	+04	+05	+.08	+.04	−.28	+.12
Corr.	+.14	+.17	+39	+11	1.21	+29
δT	7.85	7.93	8.01	7.72	8.32	7.91

c by Elimination = +.04
a do −.08

74
9m
0
13
13

74 Cygni. W 39.50

9 mid 30.56.0
12.1
24.3
35.6
56.1 -
16.4
28.6
40.7
56.2
32 60
180
5060
31. 56.22
-.09
56.13
31. 48.30
7.83
-.01
+.20
+03
+22
8.05

07
130
131

-.01
+.20
+.05
+.24
8.07

13 H Cephei - W 56.54

7 mid. 34 5.3
22.1
38.2
7.1
35.6
52.6
9.4
1703
120
50.3
35. 7.19
-.08
35 7.11
34. 59.36
7.75
+.08
+.20
+04
.42
8.17

-.48
1.77
1.84

+.04
+.30
+.07
+.41
8.169

11 Cephei. E 70.43

4321
10.5
10.8
10.8
11.2
33
10 83

34 5.3
22.1
38.2
41 24.9
19.4
53.2
42.4
30.5
19.7
16.5
5.3
~~39~~ 40, 10.83
40 3.57
7.26
+24
+.53
-06
+.71
7.97

-1.44
2.67
3.03

+.12
+.53
-.12
+.53
7.79

α Aquarii -0.57 E

11 w 58 17.4
33 45.1
54.3
3.4
19.2 -
34.9
48.8
53.1
5.5
20.4
3301 4
120
2101
59 19.21
59 11.49
7.72
-.12
+14
-02
0
7.72

69
73
100

61
80
101

-.06
+.14
-.04
+.04
7.76

θ Pegasi. E 5.34

11 w 2 49.1
4.7
16.9
26.3
35.7
51.1 -
6.9
15.9
25.1
37.6
52.8
3221
240
5621
3. 51.10
.11
3 51.21
3. 43.58
7.63
10
+16
-02
+.04
7.67

~~46.0~~
~~45.4~~
~~44.9~~

2.31
.76
2.43

-.05
+.16
-.04
+.07
7.70

32 Urs Maj. Lc E 65.45

3467891011 7 23.1
32
46.0
59.8
8 44.9
23.8
37.8
46.2
5
8.7
22.9
38.4
52.9
16.7
30.5

45.4
45.8
44.9
46.0
45.7
45.8
45.5
45.6
47
45.59

8. 45.59
8 37.22
8.37
-35
-.08
+.05
-.42
7.95

-.20
-.08
+.10
-.18
8.19

Star - γ Aquarii - 9 Draco - L.C. 9 Draco - L.C. ζ Pegasi - ι Cephei - ι Cephei -

Circle Q -2.2 E 76.23 W. E - 10.10 E 65.31 W -

Wires

11 W 14 7.6 1 - 5.
23.1
35.3
44.6
54.1
9.5 -
25.1
34.0
43.5
55.7
11.0
15.9.41 343 5
11 240
103 5

T 15. 9.52
α 15 1.69
α - T 7.83
Aa 70 1.12 -.06
Bb 71 +.05 +.05
Cc 100 -.02 -.04
Corr. -.09 -.05
δT 7.74 7.78

19 49.7 14.9
20 54.1 16.0
21 46.2 23.6
22 25.7 44.3
23 5.4 6.7
9.6
10.1
9.8
10.0
10.1
46
9.92

5 - 1
lost 4

c = +.13

25 17.5 6.7
26 34.7 23.6
27 27.4 56.6
28 30.8
14.9
10.8
11.1
11.4
10.9
2
11.05
9.92
1.13
4¼ .57 1 261
425/57 (13 35.1 1.46
425-13 .12
1460 .35 11. 58

11 W ~~32 25.8~~
34 8.9
24.5
37.1
46.1
55.7
11.4 -
27.7
36.5
45.8
58.5
13.9
366 1
240
35. 11. 58
35 3.82
7.75
54 -.09
86 +.06
102 -.02
-.05
7.70

11 - T 42 46.9 59.2
43 23.9
51.9
53.5
22.2
16.0
59.9
38.5
37.4
16.1
15.8
15.7
15.9
15.9
94
15.88

T - 11 45 53.3
37.4
16.2
59.9
38.5
22.7
8.4
56.9
45.6
29.2
15.9
16.3
16.3
16.5
16.4
19
16.38
15.88
50
2.4) .25
24
-.10

7.81	3	3	9
7.89	5	4	16
8.00	16	7	49
7.67	17	16	256
7.97	13	2	4
7.51	33	11	121
8.05	21	16	256
8.17	33	18	324
7.97	13	04	16
7.72	12	12	144
7.67	17	17	289
7.95	11	5	25
7.74	10	10	100
770	14	14	196

14) 1182 (84
1122
62
56
6
7.84

13) 1805
0140 (11
1 .08 prob. Error.
40

-.05
+.06
-.04
-.03
7.72

7.85	7	6
7.98	1	1
8.01	9	4
7.72	20	19
8.32	40	5
7.91	1	0
8.07	15	11
8.16	24	12
7.79	13	4
7.76	16	16
7.70	22	22
8.19	27	11
7.78	14	14
7.72	20	20

14) 1291 (92
126
31
7.92 = δT.

a
β
C

+ ~~05~~

Elim.

7.85	0
7.93	8
7.72	13
8.07	22
8.16	31
7.76	9
7.70	15
7.78	7
7.72	13.

769
7.85 δT from time stars.

53.3
37.4
16.2
54.9
38.5
22.2
8.9
56.9
45.6
29.2

Oct. 17. 1871.

T.Y.C 1879.
W.
1
80.4

7 - 11
55 1.5
39.9
33.7
24.0
56 47.6
17.4
57 ~~46.9~~
~~52.6~~
58.8
24.8
59 30.0
58.0
31.6
29.7
30.2
30.0
31.7
32

30 .64
53. 22.31
8.33

-3.54
4.59
5.79

- ~~.3435~~
0
+ ~~17~~
- ~~.30~~

C ~~assumed~~ + ~~.05~~ -02
- ~~.22~~
a = + ~~.17~~ ~~10~~.10
~~6.03~~
~~8.10~~
-.35
0
-.12
.47
7.86

aA
βb
Cc

σ² Urs Maj.
W 67.39 LC

1 + 2
~~59~~
1
~~30.0~~
11.1
1.3
50.5
40.9
9.8
9.6

2.47
-.90
-2.63

59. 9.70
59 1.94
7.76
+ ~~.1~~.25
0
+.~~10~~5
~~.11~~.20
~~6.07~~
~~7.96~~
8.06

ζ Cygni.
W 29.42

11 w
6
25.9
43.1
57.3
8.0
18.2
36.2
54.0
5.0
15.3
29.6
47.3
33 99

3399
60
3999
6.36.35
.13

7. 36.22
7. 28.44
7.78
+ ~~.04~~3
0
- ~~+.06~~02
~~.10~~
~~7.86~~
+01
7.79

25
1.12
1.15

τ Cygni.
W 37.80

6 - 11 9
48.1
48.0
48.0
47.9
47.8
48.0
58
47.97

48.1
7.6
1.6
19.3
31.3
30.8
42.9
46.3
54.5
5.9
17.9

.12
1.26
1.26

9 47.97
9. 40.10
7.87
+ ~~.02~~1
+.06
+ ~~.06~~ -.02
+.05
~~8.01~~
7.92

.42
.97
1.06

1 Pegasi.
W 19.15

6 - 11 16
17.0
14.7
16.7
16.8
16.9
16.8
49
82

17.0
33.1
16.4
43.0
26.3
52.9
34.1
6.0
49.1
22.3
5.5

16 16.82
16. 8.96
7.86
+ ~~+.07~~04
+.05
- ~~+.05~~02
.07
~~8.03~~
7.93

d Urs. Maj.
W 70.24 LC

11 - 7 20
11.1
10.7
11.0
11.3
11.4
5
11.10
10.06
1.64
298) 52
C = + .18

6.8
4.3
52.5
18.2
29.5
41.5
57.2
14.1
25.2
46.2

Star	α Urs. Maj.			β. Cephei.			13 H. Cephei.			ε Pegasi.			11 Cephei			μ Capricorni		
Circle	E		L.C		70.0	E		56.54	E		9.17	E		70.43	E		−14.10	E
wires.	11. 7	23 9.8 9.9 9.8 10.5 10.3 30 10.06	56.0 46.2 24.0 14.1 51.3 41.3 28.7 18.2 14.6 4.3	5 - 1	27 8.5 8.7 8.5 8.9 8.7 33 8 66	54.4 45.4 20.5 11.8 47.4 38.4 23.8 14.9 7.7 59.0	7 - 1	34 7.3 7.3 6.9 7.3 7.1 7.2 7.1 12 17	38.9 38.4 23 35.7 38.8 32.3 45.0 9.0 1.9 31.7 24.9 59.1 52.0	8 - 1	37 0.6 0.7 0.7 0.6 0.5 0.6 0.8 0.7 52 0.65	35.4 25.2 45.0 18.7 16.5 55.9 25.4 34.9 34.3 41.5 42.7	5. 1	40 12.0 11.4 11.3 11.7 24	58.9 26.4 14.4 53.8 42.4 31.0 12.7 17.0 5.3	8 - 1	4.5. 25.5 25.6 25.3 25.3 25.7 25.6 25.4 25.4 38 43	59.9 35.6 9.6 16.8 25.3 41.5 46 51.0 25.3 0.5 34.9 33.0 47.6 28.5 31
T						8.66		35.	7.17		38	0.65		~~40~~ 40	11.60		46	25.43
α						0.92		34	59.33		37	52.86		40	3,51		46	17.76
α−T						7.74			7.84			7.79			8.09			7.67
Aa				−1.35		− ~~+.23~~14	−.48		−.05	.55		+.06	−1.44		−.14	.86		+.04
Bb				2.59		+.16	1.77		+.10	.85		0	2.67		−.10	.57		−.04
Cc				2.92		+.05	1.84		+.04	1.01		+.02	3.03		+.06	1.08		+.02
corr.						+.35			+.09			+.08			−.18			+11
δT						7.81			7.93			7.87			7.91			7.78

α Aquarii.
−0.57 Σ

8 - 1 58 54.4
19.2
19.3
19.4
19.4
19.4
19.4
19.5
19.5
31
39

24.2
8.8
18.6
19.4
35.1
98.4
44.0
24.6
53.2
33.3
46.2
20.7
1.2

59 19.39
59 11.48
7.91
+.07
−.04
+.02
+.05
7.96

.69
.73
1.08

δ Pegasi.
5.34 Σ

11 w 2 49.4
4.9
17.3
26.4
35.8
51.3 −
7.3
18.2
28.5
38.0
53.1

3252
240
5652
3. 51.35
11

3252
3. 51.35
3. 51.46
3. 43.57
7.89
+.06
−.05
+.02
+03
7.92

.61
.80
1.01

γ Aquarii
−2.2 Σ

11 w 6 ~~15.2~~
14 7.7
23.1
35.6
44.7
54.1
9.5
25.3
34.2
43.6
55.7
11.2

15.4
12.5
9.1
9.4
15.4
15.6
8.9
9.4
12.1
15.5

3447
240
1047
9.52

3447
15 9.57
15 9.63
15 1.68
7.95
+.07
−.04
+.02
+.05
8.00

.70
.71
1.00

9 Draco. L.C.
Σ.
76.23

1 − 5
19 49.9
19.4
20 54.6
16.0
21 47.0
23.6
22 25.7
44.3
23 3.0
6.7
9.8
10.6
10.6
10.0
9.7
6
10.12

9 Draco.
W. LC,

5 − 1.
25 17.4
6.7
25 ~~5.7~~
23.6
26 34.0
23.6
27 25.5
16.0
28 30.4
19.9
10.7
~~12.1~~
10.5
10.5
10.4
21
10.52
10.12
40
425)2000(.4

C = +.04

ζ Pegasi.
W 10.10

11 w. 34 9.4
24.9
37.5
46.8
55.7
11.8 −
27.6
37.0
46.3
58.8
14.7
3705
35. 11.86

1345
11.86
11

35. 11.75
35 3.82
7.93
+.05
−.04
−.02
−.01
7.92

.54
.86
1.02

Star λ Pegasi.
circle W.

$2^{r}.5^{3}$

11 w.		39 22.9	7.86	4	1	0001
		39.0	8.06	14	6	36
		52.6	7.79	11	9	81
		2.7	7.92	2	2	4
		12.1	7.93	3	3	9
wires.		29.3	7.81	9	3	9
		46.1	7.93	3	2	4
		56.1	7.87	3	3	9
		6.1	7.91	1	0	0
		19.7	7.78	12	12	144
		36.2	7.96	6	6	36
		3228	7.92	2	2	4
mean		40. 29.35	8.00	10	10	100
redn to mid.		13	7.92	2	2	4
T		40 29 22	7.91	1	1	1
α		40. 21.28	15) 1357 (90			15) 442
α − T		7.94	135 6			0.0030 (.055
Aa	.36	+ 04				25 / .4
Bb	1.02	−.05	7.90 = δT			10) 500.036
Cc	1.09	−.02				Prob error ± .036.
corr.		−.03				
δT.		7.91				

7·

~~Sept~~ Oct. 20, 1871.

Star		κ Draco L.C.		α Cassiop.		β Ceti.		ζ Androm.		32 Camelop. fol. L.C.		u Androm
Circle	W.	70.31	W	55.50	W		W		W	84.7	W	37.48
wires		28 4.3		32 22.2		36 12.6	16.0	39 50.3		42 37.3		49 46.6
		51.7		40.0		28.6	13.0	3.6		44 4.7		7.0
	65421	17.0	3 - 11	54.6	11 w	41.6	9 mid.	14.0	9.8.7.6.	45 33.9	6 - 11	18.4
		13.6		23.3		51.1	9.5	23.8		31.3		31.4
		22.2		51.0		0.3	9.2 16.6	41.0 -		~~47~~ ~~16.0~~		29.9
		14.3		7.9		−16.9	−16.6	57.9		~~48~~ (~~7.0~~)		43.1
		7.3		23.6		33.5	9.7	8.1		(~~9.9~~)		45.4
		3.5		~~45.8~~		43.2	9.9	17.9		48. 8.0		54.1
		4.3		~~13.1~~		53.1	13.0	32.0		5.5		3.7
		4.6		222.6		6.1	16.8	248.6		7.0		14.2
		3.4		80		22.9		120		7.2		46.6
		3.9		162.6		309.9		368.6		8.0		47.4
		3.8		27.23		126		40.96		31.7		47.0
		.0		− 09		189.9		06		7.93		46.8
						17.72						46.7
												46.9
												54
												2 90
T		4.00		23.14		37 17.14		40 40.90		48 7.93		46.90
α		27.55.77		33.15.51		37 9.37		40.32.92		48. 1.51		49.38.73
α−T		8.23		7.63		7.77		7.98		6.42		8.17
Aa	2.76	+.08	−.41	±.01	.92	+.03	.35	+.01	7.85	+.24	.09	0
Bb	−1.17	−.02	1.73	+.03	.51	+.01	1.02	+.01	−5.81	.0	1.27	−.02
Cc	−3.00	+.18	1.78	−.11	1.06	−.06	1.08	−.07	−7.76	+60	1.27	−08
Corr		+.24		−.09		−.02		−05		84		−.10
δT		~~6.54~~ 8.47		7.54		7.75		7.93		7.26		8.07

a = +.03
c = −.06

Star		ε Piscium		β Androm		τ Piscium.		ν Piscium.		δ Cassiop		38 Cassiop	
Circle	W		W		W		E		E		E		
						29.24		26.35				69.36	
wires.	55	23.9.	1	27.2	4	44.2	12	33.6	15	33.7	7	21	41.9
		38.9		45.4		2.7		50.9		3.6		6	8.7
	11w.	51.1	11w	0.4	6-11	13.4	6-1	0.0	11w	28.5	7-2	5	53.9
		1.0		11.8		28.5		11.6		46.1		38.6	(37.9)
		.94		22.7		23.4		34.4		4.6		53.2 45.1	(39.3)
		25.8 -		41.8.		37.9		25.1		35.3 -		53.2	4.5
		41.2		0.5		55.6		42.0		6.8		5 53.9	30.2
		50.6		12.1		11.0		4.4		24.2		53.5	6.2
		59.9		23.6		44.2		33.6		42.4		54.0	12.7
		12.8		38.4		44.5		33.3		6.8		53.2	
		27.6		57.4		44.7		~~33.5~~		36.4		53.5	
		3422		2813		44.3		33.8		268.4		35	
		60		180		44.9		33.5		120		53.50	
		2822		461.3		44.9		33.6		388.4			
mean		25.66		41.94		35		28		35.80			
red to mid		11		-.14		58		56		.21			
T	56	25.55		41.90		4. 44.58		12. 33.56		35.52			53.50
α	56.	17.58	2.	33.73		4. 36.50		12.25.61		17. 27.85		21.	45.30
α - T		7.97		8.17		8.08		7.95		7.67			8.20
Aa	58	+.02	.15	0	.26	+.01	.31	+.06	-.57	-.02	-1.31		-.04
Bb	82	-.02	1.20	-.03	1.13	.00	1.07	-.00	1.86	-.06	2.55		-.10
Cc	101	-.06	1.21	-.07	1.15	-.07	1.11	+.06	1.94	+.12	2.87		+.18
corr.		-.06		-.10		-.06		+.04		+.04			+.04
δT		7.91		8.07		8.02		7.99		7.71			8.24

η Piscium ν Persei – ν Piscium ο Piscium α Trianguli 50 Cassiop.

E 14.41 E E E E E W.

71.48.

5 – 1

25
1.3
16.2
~~10.4~~
28.3 11 w
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33.0
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48.6
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45.3
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24 45. 26
24. 37. 61
7.65
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28
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.68
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33
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19.4 11 w
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279
3.20

5 – 11
24.2 53
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14.0
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46.9
48.4
51.0
53.5
48.9
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18.6
22.1
19.5
40.2
43.4
51.8
49.6

41.95
33.97
7.98

41.9
42.3
42.4
41.6
41.4
46
41.95

C = –.16

–05
–.28
+.19
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7.84

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41.8
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149
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4195
163
32).520(.16
32
203

8.47 ! T
7.54 !
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~~7.67~~
7.99
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7.93
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12
7.91 δT.

Oct. 21. 1871. 1st. Set —

Star.		20 Pegasi.		α Aquarii.		θ Pegasi.		32 Urs Maj. L.C.		γ Aquarii.		9 Draco. S.C.
Circle	W.	12.30	W.		W.		W. —	65.45	W	-2.2	W.	76.23
∴ wires.		54.42.2		58 17.9		2.49.7		6.14.8		14.53.6		19.49.0
		58.2		33.0		4.7		52.9		9.2		20.54.9
		14.0		45.3		17.4		7.28.4		24.9		21.47.3
		29.5		54.5		26.3		8.46.0		34.3		22.25.9
		34.4		3.3		35.5	11—12	9.24.1		43.3		23.48.5
	5—11	45.5	11W	19.1	-11W	51.1	- lost 8+7	46.3	5—11	55.6	11—7	5.9
		1.6		34.7		6.9	very faint	10.58.3		11.3		11.6
				44.0		16.3		38.3		1.4		11.9
		58.3		53.2		25.7		11.15.0		9.3		11.9
		58.2		5.3		37.8		45.3		9.2		11.4
		58.1		21.0		53.3		45.8		9.4		11.8
		58.1		33 1 3		3 2 4 4		46.0		9.2		36
		57.9		1 2 0		2 4 0		46.0		9.2		11 72
		58.0		21 1 3		56 4 4		46.6		9.2		10 04
		58.3		19.21		51.31		46.0		9.6		1.68
		9 13		11		.11		46.0		20		4.25) .840 (.19
								46.5		29		425
								46.4				4150
								6 07				
T T		58.13										
α T		54. 50.22		57 19.20		3 51.20		46.07	15	9 29		11.72
~~α – T~~ α		~~42 3.45~~		59 11.43		3. 43.53		8. 38.78	15	1. 63		24. 3.36
α – T		7.91		7.67		7.67		7.29		7. 66		8.36
Aa	.52	+.03	69	+ 03	61	+ 03	2.31	+12	.70	+ 03	3.72	+.19
Bb	.90	0	73	+ 01	80	+.02	-.76	-.03	.71	+ 05	-2.04	-.14
Cc.	1.04	+ 02	100	+ 02	101	+ 02	-2.43	-.05	1.00	+ 02	-4.25	-09
Corr.		+ 05		+.05		+ 07		+ 04		+ 10		-.04
δT	c = +.02 a = +.05	7.96		7.72		7.74		7.33		7.76		8.32

7.72	02	0004
7.74	0	0
7.76	2	4
7.75	1	1
7.78	4	16
7.71	3	9
26		34
7.743		0.00068 (26
		4
7.96		46) 280
2		
52		
7.77 δT		
7.76		

.026
.018 Prob. Error.

7.77 δT

9 D
E

7–

o.L.C.		9 Draco-L.C.		η Aquarii.		226 Cephei.		ζ Pegasi.		λ Pegasi.		ι Cephei.		ι Cephei.
		E.		E -0.47		E. 75.33		E 10.10		E.		E 65.31.		W.
0 9 9 3 2 4 2	7-11	25.16.4 53.6 26.34.3 27.27.7 28.32.4 22.6	5-1	29 8.9 18.1 ~~24.8~~ 27.2 32.8 54.6 1.2	5-1	31.13.2 49.3 32.26.4 33. ~~15.7~~ 34.15.9 5.7	6-1	35.11.6 27.6 36.5 26.4 58.4 13.9 2.2	11 w	39 21.7 38.4 52.0 2.0 12.2 28.9	11-7	42.46.4 47.35 469 29.2 43.23.8 53.8 44.16.7 38.7 37.2	~~11-7~~ 7-11	45.53.3 46.15.8 38.0 8.0 47.45.2 29.2
.19		9.8 10.1 9.7 10.7 10.5 2 10.04		53.2 53.5 53.4 53.6 53.4 21 42		10.2 10.9 10.9 10.7 27 10.67		11.6 11.6 11.0 11.7 11.5 11.7 31 52		46.0 55.6 5.5 19.1 35.3 3167 28.79 + 12		~~15.6.72~~ 16.1 ~~16.4~~ 15.7 16.0 16.2 16.1 11 16.22 1594 2.4)140(.06 = c -		15.9 15.9 15.8 16.1 16.0 47 94
2 6 6 9 4 9 4 2	24.	10.04 3.36 6.68 + 19 -.08 +.09 +21 ~~6.70~~ 6.88	.68 .73 1.00 28	53.42 28 45.71 7.71 +03 +03 - 02 +.04 7.75	-2.19 3.36 4.01 30.	10.67 3.27 7.40 -10 + 14 -.08 -.04 7.36	.54 .86 1.02 35	11 52 3.78 7.74 +.03 +03 -02 +04 7.78	36 1.02 1.09 40	28.91 21.24 7.67 +.02 +.04 - 02 + 04 7.71	-.95 2.22 2.41 45	16.22 8.30 7.92 -05 +.09 -.05 -01 7.91		15.94 8.30 7.44 -.05 +.09 +05 +09 7.53

O.

Date. Oct. 21. 1871. Second Set.

70.31

Star.	K Draco. L.C.	K Draco. L.C	α Cassiop.	ζ Androm.	32 Camelop. Reg. L.C	μ Androm
Circle	W.	E	E	E	E.	E.
	70.31		55.50	23.34	8.47	
wires.	11–7 24 58.9 25 45.3 19.8 26 22.4 50.0 27 17.6 46.5 4.2 4.3 4.5 45 4.1 16 28, 4.32 2.83 1.49 .75 .25	7–11 27 49.4 29 17.4 45.0 30 21.7 31 8.1 5.3 2.8 2.7 2.9 2.9 2.9 42 28. 2.83	7 mid. 32 9 38.6 8 55.5 6 22.9 5 51.1 4 6.8 3 23.4 0.2 23.2 23.1 23.1 22.9 22.8 51 23.02	7 mid — 34.5 13.6 23.8 40.8 58.0 7.6 41 17.7 143.8 00 203.8 40.76 05	~~45~~ ~~45.0~~ 9 mid 42 38.5 44 9.2 45 35.6 33.3 8.3 8.8 4.9 20 8.67	48 48.0 3.5 15.1 27.0 -46.5 6.5 17.7 29.5 45.1 238.9 180 41 89 46.54
meter-redn to mid.				40.76 +.05		46.54 +.07
T		28 2.83	23.02	40. 40.81	8.67	46.61
α		27 55.79	33. 15.50	40 32.92	48. 1.55	49. 34.74
α−T		7.04	7.52	7.89	7.12	7.87
Aa	2.76	+.28 −.41	−.04 .35	+.04 7.85	+.79 .09	+.04
Bb	−1.17	+.02 +.02 1.73	−.05 1.02	−.02 −5.81	+.12 1.27	−.03
Cc.	−3.00	0 1.78	0 1.08	0 −9.76	0 1.27	0
corr.		+.30	−.09	+.02	+.91	−.02
δT.		7.34	7.43	7.91	8.03	7.85

C = 0
a = +.10

7.43
7.91
7.85
7.87
7.84
7.65
7.79
7.55
7.90
7.85
7.72
7.72
68
7.78

ε Piscium.		β Androm.		τ Piscium		ν Piscium		δ Cassiop		38 Cassiop.	
ε	7.12	W.	34.56	W	44.24	W	26.35	W		W.	
11w	55 23.0	6-11	52 41.8	4-11	54 16.0	5-11	12 15.9	11w	15 34.6	7 mid	20 16.9
	38.7		0.5 1.8		26.1		33.5		4.3		43.0
	51.0		12.0		44.2		50.9		28.9		8.0
	0.5		23.3		2.0		1.1		47.2		53.4 -
	9.8		38.2		17.7 28.8		11.5		4.4		37.9
	25.4 -		56.6 57.2		23.2		25.1		35.8 —		4.8
	41.2		15.4		34.1 37.4 58.4		51.8 42.5		6.2		31.1
	50.3		41.8		55.3		1. 9.1		24.5		19.51
	59.5		41.6		1.11.0				42.9		160
	12.0		41.7				33.4		7.1		43.51
	27.2		41.8		44.3		.3		37.7		37.51
	3386		41.6		44.2		.4		2746		53.59
	60		41.8		44.1		.3		1/20		
	2786		43		44.2		.6		3946		
					44.2		.5				
			41.72		44.2		.5				
							30				
							33.43				
	25.33								17. 35.87		21 53.59
	+.11								-.22		-.32
	25.44		2.41.72		4.44.20		12.33.43		17.35.65		21 53.27
	56.17.58		2.33.84		4 36.52		12 25.62		17 27.86		21. 45.32
	7.86		7.88		7.68		7.81		7.71		7.95
58	+.06	.15	+02	.26	+03	31	+.03	-.57	-.06	-1.31	-.13
82	-.05	1.20	-.06	113	-.06	107	-.05	1.86	-.10	255	-.05
101	0	1.21	0	115	0	111	0	1.94	0	287	0
	+.01		-.04		-.03		-.02		-16		-18
	7.87		7.84		7.65		7.79		7.55		7.77

Date.

Star.	40 Cassiop			40 Cassiop			v Piscium			o Piscium			α Trianguli			β Arietis		
Circle	W.		72.23	E			E		4.50.	E			W			W.		70.11
	1-5	25	59	5-1	29	21.0	4-1	35	18.0	9 mid	37	58.6	11 w	44	44.7	6-11	47	41.6
			56.6			50.1			27.6			11.1			1.9			58.1
			37.0			20.9			40.0			20.3			15.9			8.0
			8.0			1.9			55.2			30.0			26.4			17.7
			37.3			31.6			.3			45.7 -			36.7			31.0
wires.			51.9			22.2			53.4			1.4			54.6 -			47.4
			~~[illegible]~~			29.1			53.7			10.4			12.3			5.9
			29.0			28.9			53.7			19.8			23.0			41.6
			24.7			29.2			53.9			32.3			33.4			41.6
			29.2			29.5			27			2296			47.6			41.5
			29.2			294			.68			180			5.2			41.4
			'			11						4096			3017 6			41.6
			29.03			29.22									300			41.5
						29.03									6017			32
						19									54.70			.53
						10									-.42			
mean						C. = +04						45.51			54.58			
redn to mid.												+.05						
T									53.68			45.56			54.58		47.	41.53
α								34.	45.82		38.	37.74		45.	46.86		47.	33.82
α − T									7.86			7.82			7.72			7.71
Aa	-1.66						60		+.06	56		+06	.36		+03	.40		+04
Bb	2.88		-.06				80		-.02	84		-.03	1.10		-03	.99		-.03
Cc	2.33						100		0	101		0	1.13		0	1.07 6		0
corr.									+04			+.03			0			+01
δT.									7.90			7.85			7.72			7.72

Oct. 27. 1871.

λ Pegasi.		ι Cephei.		α Pis. Aus.		α Urs Maj Lb.		α Pegasi.	
W.		W		W		W	62.27	W	
2-9&11	39. ~~29.7~~	9 mid	43.254	11 w	49. 31.0	11-6	53.48.4 8.6	11 w	57. 27.6
	53.2		55.1		48.7		13.7 40.2		43.4
	3.3		17.3		2.9		40.3 13.6		56.0
	12.8		38.9		13.5		0.2 53.7		5.6
	29.9		16.7		23.9		20.4		14.6
	46.7		54.0		41.9		23.5 53.9		31.0
	56.8		17.1		0.0				46.8
	16.4		39.0		10.9		54.0		56.7
	~~37.0~~ 7		8.9		21.4		54.0		6.1
					35.9		53.9		19.0
	209.5		2724		58.7		53.9		35.0
	29.93		120		2838		53.9		3418
			1524		180		53.9		31.07
			16.93		463.8				
							56		
							93		
	40.29.93		45 16.93		42.16				58. 31.07
	−.06		.13		13				−.11
	40. 29.87		45. 16.80		50 42.03		53.93		58. 30.96
	40 21.18		45 8 08		50. 33.51		55.44.96 ~~53.93~~		58. 22.35
	8.69		8.76		8.52		8.97		8.61
.36	+.04	−.95	−.10	1.11	+.11	2.09	+.21	.48	+.05
1.02	+.07	2.22	+.20	.35	+.03	−.56	−.08	.91	+.16
1.09	0	2.41	0	1.16	0	−2.17	0	1.03	0
	+.11		+10		+.14		+13		+.21
	8.80		8.86		8.66		9.10		8.82

8.80
8.86
8.82

8.83

Date. Oct. 28. 1871.

Star.	κ Cassiop		α Cassiop.		β Ceti.		ζ Androm.		ε Piscium		β Androm
circle	W	62.15.	W.		W.	−18.42	W		W		W
	1−6	23.39.4	9 mid.	32.0.0	1−6	36.12.5	11 W	39.34.0	11 W	55.~~23.4~~	11 W 1.26.6
		11.5		~~27~~ 21.5		28.4		50.0		~~34.9~~	45.0
		38.4		38.4		47.4		3.4		51.4	0.2
		57.9		54.4		57.1		14.0		0.7	11.0
		17.4		22.0 −		0.3		23.3		9.9	22.2
wires.		50.9		49.7		17.1		40.6 −		25.5 −	41.2 −
				6.3				57.6		41.3	0.3
		50.7		22.6		17.1		6.0		50.5	11.7
		50.5		44.3		17.1		17.9		59.9	23.2
		50.9				17.1		31.1			38.0
		50.6		2592		17.0		48.1		~~27.8~~	57.1
		51.1		60		16.9		3280		2392	2765
		50.9		1992		17.1		120		60	180
		47						4480		1792	4565
		50 78									41.50
mean.				22.13				40.73		25.60 ~~26.29~~	41.50
redn to mid.				−.19				.12		.11	.13
T		25.50.78		21.94		37 17.05		40.61		25.49	41.37
α		25 44.81		33. 15.44		37. 9.37		40 32.93		56 17.58	2 33.87
α−T.		5.97		6.50		7.68		7.68		7.91	7.50
Aa	−.73	−.04	−.41	−.02	.92	+.05	.35	+02	58	+.03	.15 +01
Bb	200	+.18	1.73	+.16	.51	+.05	1.02	+05	82	+04	1.20 +04
Cc	2.17	+ ~~3.04~~ 304	1.78	+2.49	1.06	+1.48	1.08	+1.56	101	+1.42	1.21 +1.69
Corr.		+3.48		2.63		+1.58		+1.58		+1.49	+1.74
δT		9.45		9.13		9.26		9.26		9.40	9.21

a = +.05
C = + 1.40

τ Piscium		ν Piscium		δ Cassiop		η Piscium		ν Persei		ν Piscium		ο Piscium	
W	39.24	E	26.35	E		E		E		E		E	
4-11	4.16.0	3 2.1	13.14.0	11 w	15.37.8	9 mid.	24.0.2	11 w	28.47.2	11 w	33.54.5	9 mid	38.15
	26.0		37.8 27.6		8.1		13.4		10.7		10.0		13.9
	44.0 -		44.8		32.5		22.7		29.0		22.4		23.3
	1.8		8.4		50.2		32.4		42.9		31.4		32.8
	12.5				9.2		48.7 -		56.6		41.0		48.4 -
	23.0		36.2		40.0 -		4.2		19.8 -		56.5 -		4.2
	34.4		36.0		11.0		14.0		43.8		12.3		13.2
	55.5		36.4		28.3		23.3		56.5		21.2		22.7
	11.0				46.5		36.3		10.5		30.6		35.0
	44.0				11.1		19 57		28.8		43.0		1950
	44.0				41.0		240		51.1		58.2		240
	44.0				31 57		4357		3969		38 11		4350
	43.9				120		4		180		240		
	44.2				43 57				2169		6211		
	44.5												
	6												
					39.61		48.41		19.72		56.46		48.33
					+.22		+.05		+.17		+.11		+.05
	44.10		36.20		39.83		48.46		19.89		56.57		48.38
	4. 36.55	12	25.65		17.27.90		24.37.67	30	8.47	34	45.86	38	37.85
	7.55		18.55		11.93		10.79		11.42		10.71	5	10.53
26	+01	31	+ ~~57~~.02	-.57	-.03	.48	+02	13	+01	60	+03	.56	+.03
113	0	107	~~1.86~~ 0	1.86	0	.92	0	1.49	0	80	0	.84	0
115	+1.61	111	- ~~1.94~~ 1.50	1.94	-2.71	1.03	-1.44	1.49	-2.09	100	-1.40	1.01	-1.41
	+1.62		-1.59		-3.74		- ~~11~~ 1.42		-2.08		-1.37		-1.38
	9.17		8.98		9.19		9.37		9.34		9.34		9.15

Date Oct 28. 1871.

Star	α Trianguli		β Arietis.		50 Cassiop.		α Draconis.	
Circle	E		E	20.11	E.		E.	L b
								65.0
	11 w	44.47.0	7-1	47.28.1	11 w	49.30.5	1,2,	58 31.9
		4.7		44.6		19.6		7.9
		18.9		1.4		59.4		
		29.4		10.9		28.8 9		57.0
		40.0		20.7		58.2		57.1
wires		57.8 –		33.7		48.0 –		
		16.0		50.8		38.8		
		26.1		~~20.0~~		6.1		
		36.3				36.2		
		50.5		44.6		15.9 12		
		7.7		44.6		4.4		
		3344		44.7		345.9		
		300		44.7		180		
		6344		44.7		5259		
				44.5		47.81		
				44.8				
mean		57.67		46		47.81		
redn to mid.		+.13		.68		+.35		
T		57.80		44.66		48.16		0 57.05
α		45.46.92		47.33.85		52 34.07		0. 51.75
α-T		10.88		10.81		14.09		5.30
Aa	26	+.01	40	+.02	-1.57	-.08	2.26	+.11
Bb	110	0	99	0	2.79	0	-.71	0
Cc	113	-1.58	107	-1.50	3.20	-4.48	-2.37	+3.32
corr.		1.57		-1.48		-4.56		3.43
δT		9.31		9.33		9.53		8.73

9.13	14	0196
9.26	1	1
40	13	169
21	6	36
17	10	100
19	8	64
37	10	100
34	7	49
34	7	49
15	12	144
31	4	16
33	6	36
320		960
9.27 δT		0.0087 (.093

81

18)600 .062 prob. error.

Oct. 29. 1871.

γ Aquilae		α Aquilae		ε Draconis		χ Cygni		τ Aquilae		3 Urs Maj.	
W	10.18	W		W	69.56.	W	52.6	W		W	L.C. 68.51
4-11	39.53.0	11w	43.38.0	4-11	47.32.6	6-11	52 27.3	11w	56 59.1	6-1	20 0 10.0
	7.8		53.4		58.7		52.5		14.5		53.5
	16.0						7.8				
	18.1		5.8		44.1		40.4		26.8		17.9
	34.0		15.0		29.3		22.9		36.2		44.0
	43.4		24.0		56.3		42.9		45.0		~~17.6~~
	52.7		40.0 -		23.5		8.1		1.0 -		59.0
	5.2		55.7		57.6		40.6		16.6		49.6
	21.0		4.9		44.4		27.3		26.0		10.0
	2.8		14.3		0.1		27.2		35.1		10.0
	18.0		26.9		44.2		27.4		47.8		9.8
	17.8		42.5		44.0		27.5		3.2		10.3
	18.1		320 5		44.1		27.2		31 13		9.9
	18.2		120		44.1		27.5		300		
	18.1		4405		43.9		21		11 3		
	18.1		40.05		44.8		.35		1.03		
	18.1				44.4						
	18.2		40.05		44.3				1.03		
	6		-.11		18				-.11		
					23						
	18.08		39.94						0.92		10.00
40	8.57		44.30.39		44.23		27.35		57.51.41	0	0.09
	9.49		9.45		48 34.87		52.17.92		9.51		9.91
54	-.09	56	-.09	-1.35	+24 9.36	-27	+049 9.43	58	-.10	2.58	-.46
86	-.03	84	-.03	2.58	-.08	1.60	-.05	82	-.01	-1.00	+.01
102	-.09	101	-.09	2.92	-.26	1.62	-.14	101	-.09	-2.77	+.24
	-.21		-.21		-.10		-.13		-.20		-.21
	9.28		9.24		9.26		9.30		9.31		9.70

Date. Oct. 29. 1871.

Star	κ Cephei.			γ Cygni.			π Capricorni			ε Delphini.			Groom 3241			α Delphini		
Circle	E.		77.19	E.		39.50	E.		−18.38	E.			E.			E		15.28
wires.	6−1	13 14 15 16 17	17.9 29.7 10.7 31.8 48.6 57.0 34.7 17.9 18.1 18.2 17.8 18.5 18.3	2.1 −	18	46.0 5.5 19.7 45.4 45.9	7−1	19	51.0 7.7 23.9 33.0 43.0 56.2 12.0 4.6 07.4 7.1 7.3 7.1 7.3 7.3 7.4 19 27	11w	26	10.6 26.3 39.0 48.3 57.8 13.7 − 29.7 38.7 48.0 0.6 16.1 3288 180 1488	8−4	29 29 30 31 32	20.0 50.9 41.2 − 32.2 1.1 145.4 60 2054 41.08	8−1 49.3 49.3 49.3 49.4 49.4 49.5 49.2 49.5	32 34	~~19.9~~ ~~7.7~~ ~~0.6~~ ~~16.5~~ 23.5 33.2 49.3 5.7 14.9 24.6 37.1 53.0 ~~49~~
mean												13.53			41.08			
redn to mid.												+.11			+.06			
T		18	13			45.85			7.27			13.64			41.14			49.36
α		13.	9.62		17.	36.77		19.	57.62		27.	4.23		30	32.41		29 33	40.07
α − T			8.51			9.08			9.65			9.41			8.73		36	9.29
Aa	−2.61	−?	+.47	.06		−.01	.92		−.17	53		−.09	−1.61		+.29	.47		−~~.11~~.08
Bb	3.73		0	1.30		0	.51		0	87		−.01	2.83		−.05	.93		−.02
Cc	4.56		+.41	1.31		+.12	1.06		+.09	162		+.09	3.25		+.29	1.04		+.09
Corr			.88			+11			−08			−.01			+53			~~+.05~~
δT.			9.39			9.19			9.57			9.40			9.26			~~9.44~~ 9.28

c = −09
a = −.18

α Cygni –

ε

11 W	35	45.0	9.28	01	0001
		6.5	24	3	9
		24.0	30	3	9
		36.9	31	4	16
		50.2	19	8	64
		12.0	40	13	169
		34.2	28	1	1
		46.7	13	14	196
		59.7	213		7)465
		16.8	9.27		0066
		38.3			
		37 0 3			080
		240			27
		1303			2
		11.85			.054 prob error.

		11.85
		.16
		12.01
	37.	2.97
		9.04
-.06	–	+.01
1.41		–.05
1.41		+ 13
		.09
		9.13

Date. Nov 1 – 1871

Star.	9 Draco L.C.			η Aquarii		226 Cephei –		ζ Pegasi –		λ Pegasi –		ν Pegasi –
Circle	E			E		E		E		E		W –
						75.33						
			11 w		5-1		9-1		11 w		11w	
wires. 1-9		(22 19 54.1		27 53.3		31 14.2 3.0		34 38.7		39 23.2		23.0 18 2.1
		20 58.5		8.8		49.1 38.4		47.9		39.9		18.4
		21 50.4		21.0		32 26.3 15.5		57.4		53.4		31.9
		22 30.7		30.5		33 13.7 4.9		13.1 -		3.5		41.8
		23 7.4		39.7		34 17.0 5.2		29.0		13.8		51.3
		24 14.0 -	6	55.1 -				38.0		30.3 -		8.3 -
		25 20.0	2	10.9		11.2		47.0		47.4		25.1
		25 59.8	3	19.9		10.7		0.1		57.2		35.2
		26 38.4		29.0		10.8		15.3		7.1		45.3
				41.6	5	10.8				20.7		58.7
		2807		56.6		11.8		2716		37.0		15.3
		120		3464		53		180		3385		3334
		1007		240		11.06		916		30.37		240
		14.39		6064				13.09		+12		934
		21		55.13				+05				8.49
mean		14.18		+.11								12
redn to mid.												
T	24.14.18			55.24		11.06		13.14		30 44		8.37
α	24.4.30 ~~28.45.60~~			28.45.60		30 2.51		35 3.65		40. 21.11		18.58.82
α – T		9.88		9.64		9.55		9.49		9.33		9.45
Aa	3.72	–.18	68	–.03	–2.19	+.10	.54	–03	36	–02	37	–.02
Bb	–2.04	–.20	73	+.07	3.36	+.20	.86	+04	102	+04	1.01	0
Cc	–4.25	+04	100	–.01	4.01	±.04	1.02	–.01	109	–.01	1.08	+01
corr.		–.34		+03		+26		0		+01		–.01
δT.		9.54		9.67		9.81		9.49		9.34		9.44

c = +.01

a = –05

λ Draco. Lb. 72 Pegasi. λ Androm. ι Piscium. γ Cephei. 41 H Cephei. φ Pegasi.

W. W 30.37 W 45.45 W 4.56 W 76.55 W W

7 mid. 1–6 1–6 1–11 lost 6+7 7–11 2–9 11 w

22 12.8
39.9
23 7.3
52.8 -
24 38.5
25 4.6
31.6
187.5
188
367.5
52.50
-.15

52.35
23 ~~42.50~~
9.85
2.71 ~~2.71~~ -.13 24
-1.12 ~~-1.12~~ 0 113
-2.93 ~~-2.93~~ -.03 115
-.16
9.69

26 34.9
17.1
54.7
53.6
6.0
39.3
16.9
24.5
27.0
18.3
43.3

45.1
.3
.3
.4
3
3
.28

45.28
27. 35.58
9.70
-.02 -.07
-.01 1.44
+.01 1.44
-.02
9.68

29 59.6
27.7
21.1
4.1
38.9
44.4
52.2
35.2
4.9
22.5
7.4

27.3
27.2
.3
.4
.4
.4
33

27.33
31. 17.95
9.38 9.54
0 .61
-.03 80
+01 100
-02
9.36

32 29.4
1.4
44.5
4.3
56.5
37.9
6.1
24.4
15.6
1.8
55.9
24.9
3.0
34.2
17.5
46.6
33.0
2.1

30.8
30.9
30.8
30.9
30.8
30.8
76 30.8
31.0
30.8
30.84
33. 31.30
~~33. 31.30~~ 9.65
-03 -2.50
-.02 3.64
+01 4.42
-04
9.50

35 26.9
8.9
36 8.3
49.8
4.5
30.4
37 4.7
24.6
38 52.5
33.1

18.4
18.5
18.1
17.9
19.4
23
46

18.46
34. 8.81
~~34 8.81~~
+.13 -1.08
-.11 2.32
+04 2.56
+06
9.71

40 0.0
31.7
55.1
41. 18.1
58.2 -
42. 38.0
43. 2.4
26.0

229.5
186
409.5
58.50
-.13

58.37
41 48.76
9.61
+.05 43
-.09 96
+03 105
-01
9.60

45 3.0
18.9
32.0
41.7
50.9
-7.7
23.8
33.8
43.3
56.6
12.9
324.6
240
84.6
7.69
-.11

7.58
45.58.01
9.57
-02
-.05
+01
-.06
9.51

Date, Nov. 1. 1871

Star–	ρ Cassiop–		ω Piscium–		α Androm		γ Pegasi–		ι Ceti–		κ Draco. L.C.	
Circle	W		W		E		E		E		E	70.31
		56.47										
	5–11		11 w		11 w		11 w		11 w		1–5	
wires.		47 41.0 28.7 9.4 37.9 28.8 54.9 45.3 11.8 22 34.0 24.6 2.1 52.4 9.7 9.4 9.6 9.6 9.6 9.4 9.3		51 51.7 6.8 19.1 28.6 37.3 53.3 – 8.8 18.3 27.4 39.9 55.4 3466 240 5866 53.33		0 44.7 2.5 16.5 27.0 37.8 55.2 – 13.0 23.3 33.7 47.9 5.0 3066 300 6066 55.15		5 43.8 59.6 12.4 22.0 34.5 47.7 – 4.0 13.0 22.5 35.3 51.0 3428 180 5228 47.53		12 0.6 16.1 28.9 38.1 47.6 3.3 – 19.4 28.3 37.6 50.1 51.4 2754 240 354 3.22	28.59 6.1 5.7 6.0 6.0 47 5.94	25 2.4 3.5 47.8 14.3 24.3 41.4 52.3 13.4 18.9 47.1
mean		36		11		+.13		+11		11		
redn to mid.		.51										
T		9.51		53.22		55.28		47.64		3.33		5.94
α		47. 59.80		52 43.66		1 45.90		6 38.16		12.53.76		27. 56.13
α–T		9.71		9.56		9.38		9.48		9.57		9.81
Aa	–.44	+.02	60	–.03	28	–.01	48	–.02	.80	–.04	2.76	–.14
Bb	1.78	–.07	81	–.03	1.10	–.04	91	–.04	.63	–.02	–1.17	–.05
Cc	1.84	+.02	101	+.01	1.14	–.01	103	–.01	1.02	+.01	–3.08	–.03
corr		–.03		–.05		–.06		–.07		–.05		–.22
dT.		9.68		9.51		9.32		9.41		9.52		9.59

L.b.

2.4
3.5
47.8
19.3
24.3
41.4
52.3
13.4
18.9
47.1

.94
.13
.81
.14
-.05
.03
22
59

K Draco L.b.
W

5-1

28 53.0
47.1
19.9
13.7
47.6
41.4
24.4
18.8
9.8
3.5

28. 6.3
6.1
6.2
6.2
5.9
7
6.14
5.94
.20
10
C = + 03

21 Cassiop.
W 74.17

1-5.

33 39.0
45.9
35.1
50.3
20.2
4.8
54.6
30.7
26.8
54.3

24.9
25.4
25.0
25.3
25.1
7
25.14
25.04
10
5
-.01
+.01

-1.95
3.13
3.69

21 Cassiop.
E

5-1

38 23.3
54.3
35.8
30.7
29.9
4.8
15.1
50.3
11.1
45.9

25.2
24.8
25.1
25.0
25.1
2
25.04

9.54 -	1	0001
67	12	144
81 -	26	676
49	6	36
34	21	441
44	11	121
69 -	14	196
68	13	169
36	19	361
50	5	25
71 -	16	256
60 -	5	25
51	4	16
68	13	169
51	4	16
32	23	529
41	14	196
52	3	9
59 -	4	16

14) 1037 (55
95
87

18) 3402 (189
09
160
144
162

19 (4.3
16
8) 30
0.0189 (.14
1
24) 89
96

.14
47
2
4.3) .094 (.022
86
80

.094 prob. Error
.022 do do of mean

9.67	+ 17	0289
49	- 1	1
34	- 16	256
44	- 6	36
68	+ 18	324
36	- 14	196
50	0	0
51	+ 1	1
68	+ 18	324
51	+ 1	1
32	- 18	324
41	- 9	81
52	+ 2	4

13) 643 (50
52
123

9.50 δT

12) 1837
0.0153 (.12
1
53 .08 prob. Error.

Nov. 2. 1871.

Star.	α Aquarii	θ Pegasi -	32 Urs. Maj.	γ Aquarii.	π Aquarii	g Draco.
Circle	E	E	E L.C.	E	E	E L.C.
wires	58.19.0	2.50.8	6.20.0 22	14. 9.1	17.51.0	7 mid. 21.50.4
	34.4	6.3	~~43.0~~	24.6	18. 6.4	22.29.8
	46.8	18.5	56.9 14.5	36.8	18.7	23. 7.4
	56.1	27.9	7. 27.0 8	46.2	28.0	-24.13.8
	5.4	37.4	46.7	55.6	37.4	6 25.19.7
	20.7-	52.9-	8. 10.9	15.11.0 -	52.8 -	25.59.8
	36.7	8.4	49.3 -	~~27.0~~	8.6	26.38.4
	45.4	17.4	9. 27.1	35.5	17.3	21 9.1
	54.6	26.9	9. 50.0 10 12.2 8 6	44.8	26.7	120
	7.0	39.3	42.3 4	57.3	39.0	99 1
	22.0	54.4	11 19.7 5	12.4	54.3	14.16
	348 1	340.5	~~357.7~~ 365 1	360 3	340.2	-.21
	120	240	180	240	240	
	2281	5805	485 1	1203	5802	
	20.74	52.77	5451	10.94	52.75	
	~~.44~~			+.11	1	
mean	20.75	52.77	49.55	1094	52.75	14.16
redn to mid	+.11	+11	-.27	+.11	+.11	-.21
T	57.20.85	52.88 ~~43.38~~	49.28	11.05	52.86	13.95
α	11.27	43.38	39.45	1.49	43.24	4.40
α-T	9.58	9.50	9.83	9.56	9.62	9.55
Aa	-.17	-.15	-.57	-.13	-.12	-.86
Bb	+.09	+09	-.08	+06	+05	-.10
Cc	-.02	-.02	+05	-.02	-.02	+09
corr.	-.10	-.08	-.60	-09	-09	-.87
δT	9.48	9.42	9.23	9.47	9.63	! 8.68

12 11 10 8 7 5

c = +.02

a = -.23

η Aquarii	226 Cephei -	ζ Pegasi -	λ Pegasi -	ι Cephei -	ι Cephei -	α Pis. Aus -
E	E.	E	E	E.	W.	W
	5-1	7-1	9 mid.	11-7	7-11	
27. 53.3 8.8 21.2 30.3 39.6 55.2- 11.0 20.0 29.1 41.4 56.5 3664 240 6064 55.13	31. 13.8 49.0 32 26.4 33 16.0 34. 10.7 10.8 10.6 10.9 11.1 11.1 57 11.02	34. 57.3 13.2 29.1 38.2 47.8 4.0 15.4 2.2 13.2 13.1 13.4 13.1 13.2 10 20	39. 40.2 53.6 3.4 13.6 30.6- 47.6 54.0 7.2 20.6 2738 30.42	42. 48.0 43. 24.9 54.6 44. 17.3 39.6 51.4 17.2 16.8 16.8 17.2 17.0 17.00	45. 54.8 46 17.5 39.0 47. 4.3 46.8 59.2 17.4 17.6 17.3 17.4 17.6 23 17.46 17.00 46 2.4) 230 (.09 226 C = -.09	49. 32.0 49.5 3.7 14.5 24.8 42.3- 1.0 11.8 22.3 36.8 54.8 294.5 180 474.5
55.13 +.11 55.24 45.60 9.64 -.16 +03 -+02 -.15 9.49	11.02 30.2.43 8.59 +.50 +.07 -.08 +49 9.08	13.20 3.64 9.56 -.13 0 -02 -15 9.41	30.42 +.07 30.49 21.10 9.39 -09 -.02 -.02 13 9.26	45. 7.86 9.14 +22 -06 -05 +.11 9.25	17.46 7.86 ~~17.46~~ 9.60 ~~9.14~~ +22 -06 +05 +.21 9.81	43.14 .13 43.01 33.43 9.58 -.26 0 +.02 24 9.34
4	2	0	-2	-03	0	0

Nov. 2. 1871.

Star.	α Pegasi.	π Cephei.	Br. 3077.	γ Piscium.	o Cephei.	ν Pegasi
Circle	W	W.	W	W	W	W
		9 mid.	6-11		4-11	
	57. 28.7	1. 5.3	7. 17.1	9. 39.4	12.28.5	18.1.9
	44.2	52.3	7. 45.0 58.16	54.1	51.6	18.3
	57.0	2. 27.0 9	8. 1.6	10 6.7	13. 32.1-	31.7
	6.4	3. 0.5	44.44 18.2	16.0	14. 12.6	41.6
	15.5	4 0.4-	40.7	24.7	37.2	51.2
wires	32.0-	4. 58.7	23.16 9. 8.9	40.6-	15. 1.2	8.3-
	47.8	5. 34.5 5.34.5	51.?	56.0	33.2	25.1
	57.4	6. 7.6		11. 5.5	16.13.2	35.4
	7.1	6 56.0		14.5		45.4
	19.8			27.0		58.6
	35.8			42.5		15.4
	3517 31.97 -.11	2443 240 4.3	17.1 16.9 16.7 16.8 16.8 16.9	4470 40.64	1620 32.40	3329 240 929
mean	~~31.86~~ 31.97	0.48	52	3270 ~~+264~~ 40.64	32.40	8.45
redn to mid	-.11	-.19		-.11	.05	-.12
T	31.86	0.29	16.87	40.53	32.35	8.33
α	22.27	51.35	7.40	30.90	23.25	58.82
α-T	9.59	8.94	9.47	9.63	8.90	9.51
Aa ~~Mean~~	-.12	+.47	+.11	-.15	+.26	-.09
Bb	0	+.03	+.04	+02	+09	+05
Cc	+02	+08	+.04	+02	+05	+02
corr	-.10	+58	+19	-11	+40	-02
ΔT	9.49	9.52	9.66	9.53	9.30	9.49

0 +1 2 3 4 5

θ Piscium W

9 mid 20. 51.2
3.2
12.6
21.5
37.2 -
53.0
2.5
11.4
23.8
216.4
120 -
336.4
37.38
-.11
37.27
27.68
9.59
-.14
+.05
+02
-.07
9.52

6

λ Draco L.C. W

7-1

53.2
52.8
52.6
52.7
53.0
52.9
53.2
64
91

23. 7.7
52.8
24. 38.6
25. 4.7
32.1
26 8.1
52.5
57.3

53.91
42.46
10.45
-.62
-.08
-.06
-.76
9.69

7

72 Pegasi W

4-11 27. 16.5
26.9
45.2 -
3.0
14.2
24.8
39.1
57.1
1058
120
225.8
45.16
-.02
45.14
35.58
9.56
-.06
+.09
+02
+05
9.61

8

γ Cephei W

1-5 29. 47.4
30. 53.7
31. 48.4
32. 29.2
33. 8.1
9.4
17.7
17.5
17.8
17.7
17.5
32
17.64
8.76
+ 56
+ 33
+ 09
+ .98
9.74

9

γ Cephei E.

5-1 35. 27.5
36 6.2
46.9
37. 40.6
38 48.3
30.3
18.0
17.0
17.5
17.7
18.1
33
17.66
c = 0.

9

9.48
42
23 —
47
63
8.68 —
9.49
.08 —
.41
.26
25 —
81 —
34
49
52 —
66
53
30 —
49
52
.69 —
61
74 —

9.48	1	0001
42	7	49
47	2	4
63	14	196
49	0	0
41	8	64
26	23	529
34	15	225
49	0	0
66	17	289
53	4	16
49	0	0
52	3	9
61	12	144

14) 680 (49
56
120

6) 500

δT = 9.49

3.8

18) 1526 (0117 (10
13
2) 224
13
96
) 067 (18
3.8
290

17 ±.067 Prob. error of 1 obs.

±.018 Prob. error of mean

Nov. 3, 1871

Star.	γ Aquarii.	π Aquarii.	9 Draco. L.6.	η Aquarii.	226 Cephei.	ζ Pegasi.
Circle	E.	E.	E.	E.	E.	E
	6 − 1	11w	2 − 9	11w	5 − 1	8 − 1
wires	15.10.9 26.7 32.7 34.2 44.6 39.8 54.0 56.2 12.0 1.2 10.9 11.0 10.5 10.8 10.8 10.8 48 80	17 50.7 6.0 18.4 27.6 37.2 52.7 8.3 17.4 26.5 38.9 53.9 3376 240 5776 18.52.51 11	20.56.7 21 48.8 22 28.3 23 5.7 6 24 12.0 − 25 17.8 25 57.2 4 26 36.9 204.7 120 84.7 12.10 −.21	27 52.9 8.4 20.9 30.0 39.7 54.9 − 10.8 19.7 28.7 44.0 56.3 5 6 3633 240 6033 56.58 54.85 +.11	31 15.7 56.4 32 23.3 33 15.9 34 18.4 5.2 12.7 12.0 11.8 13.0 12.9 24 48	34 48.0 57.2 −13.0 29.1 38.1 47.5 0.0 15.4 ~~9324~~ 185.4 120 654 13.08 .02 13.10
mean redn. to mid. T	10.80	18.52.62	12.89	54.96	12.48	13.10
α	15. 1.48	18.43.23	24. 4.50	28. 45.58	30. 2.35	35. 3.62
α−T	9.32	9.39	8.39	9.38	10.13	9.48
Aa.	+.28	+.22	+1.24	+.23	−.73	+.18
Bb.	+.03	+.02	+02	−.02	−.17	−.05
Cc.	+.09	+.09	−.38	+.09	+.36	+09
Corr.	+.33	+.33	+.88	+30	−.54	+22
δT	9.67	9.72	9.27	9.68	9.59	9.70
	+04	+.02	−.01	−.03	−.05	−07

c = −.07
a = .33

λ Pegasi.	ι Cephei.	α Pis Aus.	α Pegasi.	π Cephei.	Br. 3077.	γ Piscium
E.	E.	E.	W.	W.	W.	W.
					6 33.1	
39 40.1 7 mid.	43 55.0. 11 w.	49 31.0 11w	57 28.4 1-9	0 10.0 4-11	6 48.8 11w	9 39.1
50.3	18.0 4	48.9	44.0	1 7.2	7 17.7	54.0
53.6	40.7	3.2	57.0	53.9	7 45.3	6.7
37.0	17.7 -	14.0	6.4	2 29.4 6	8 2.3	15.8
Win 1 41 37.0	55.6	24.9	15.4	3 2.2	19.0	24.5
	16.9	42.7 -	31.7 -	4 2.2	41.4	- 40.6
30.4	39.7	1.0	47.9	5 0.8	9.1	55.9
306	2436	11.3	57.6	36.6 4		5.3
	120	21.7	7.0	6 11.0	1467	14.3
	1236	36.1	19.6	1361	60	26.7
	17.66	53.9	35.9 7	120	~~2067~~	42.4
	+.12	2887	3509	16.2	4	3253
		180	31.90	2.31	86.7	120
		4687	-.11	19	17.34	4453
		42.61		2.40	.04	40.48
		+13				-.11
30.50	17.78	42.74	31.79	2.40	17.38	40.37
40. 21.09	45. 7.82	50. 33.42	58. 22.25	3. 51. 31.	7 7.36	10. 30.86
9.41	9.96	9.32	9.54	11.09	10.02	9.51
+.12	-.32	+37	+16	-.68	-.14	+.21
-09	-.27	-.04	-.09	-.33	-.17	-.08
+10	+.22	+.10	-.09	-.34	-.16	-.09
+.13	-.37	.43	-02	1.35	-.47	+04
9.54	7.45	9.75	9.52	9.64	9.55	9.55
-.09	-12	-12	-10	-10	-10	-10

Nov. 3. 1871.

Star -	ο Cephei.	ν Pegasi.	θ Piscium.	41 H. Cephei.	41 H Cephei.	Groom 4163
Circle	W.	W	W	W	E.	E
	7 mid. 12 5.7	11 w. 18 2.0.	11 w 20 35.4	1-5 38 11.3	6-1 41 58.7	11-7 45 8.7
wires	29.6 52.6 33.3 - 14.0 38.3 2.1 1757 60 2357 33.66 - .13	18.4 31.7 41.8 51.5 8.4 - 25.2 35.5 45.3 58.9 15.4 33 41 240 941 8.55 -.12	circuit broken 50.8 3.1 12.5 21.3 37.0 - 52.7 2.0 11.4 1400 120 260.0 37.14 -.11	37.1 44.7 50.8 18.6 26.4 41.2 4.0 48.4 47.2	38.9 49.8 7.9 3.1 26.0 26.4 51.5 58.5 36.2 37.1 59.1 59.0 59.2 58.4 58.7 58.6 54 57.90	49.3 46 44.4 45.2 46 48.2 47 20.9 28.5 54.4 55.3 49.7 49.4 49.5 49.6 49.0 22 49.44
mean redn to mid.						
T	33.53	8.43	37.03		58.90	
α	13.23.21	18.58.79	21 27.67	41.48.70	41 48.70	
α-T	10.32	9.64	9.36		10.20	
Aa	-.37	+.12	+20			
Bb.	-.23	-.10	-.08			
Cc	-23	-.10	-09			
corr	-.83	-08	+.03			
δT	9.49	9.56	9.39			
	-10	-10	-10			

Groom 4163

m

7-11 49 45.0
55.3
18.7
38.5
51.6
1.3
35.3
45.2
30.4
40.3

49.7
50.2
50.3
50.1
50.1
40
50.08
49.44
64
3.56) .3200 (.09
2848

c = -.09

53
26
-.07 = c ,, Corrected for level-

9.67	08	0064
9.72	13	0169
9.68	9	81
9.70	11	121
.54	5	25
.52	7	49
55	4	16
55	4	16
56	3	9
39	20	400
588		9) 950
9.59		0106 (10

.067 prob Error -

Nov. 4. 1871

Star	ο Piscium.	ε Cassiop	β Arietis.	50 Cassiop.	γ Androm.	α Arietis.
Circle	E.	E.	E	E	E	E
	11-1 37 44.5	11-6 43. 6.3	46 37.3	10-3 50 15.6	9 mid 55 10.1	59 59.6
	last 10	40.6	53.9	50 55.0	26.3	0 16.3
	12.5	7.5	7.0	51 25.1	38.8	30.0
	21.5	27.9	16.9	51 54.7	51.8	39.5
	31.4	48.1	26.8	52 44.6 -	12.7 -	49.9
wires	47.0 -	23.1	43.1 -	53 34.5	33.1	1. 6.6
	2.8		0.0	54 3.3	45.3	23.9
	12.0		9.6	54 33.8	57.5	33.6
	21.3		19.5		14.0	43.6
	34.0		32.4	2510		57.0
	48.8		48.7	60	2896	2. 13.2
			29 5½	3100	180	37 32
	1485		180		1096	300
	180		4752		12.18	732
	3285				+.07	
mean	46.93		43.20	44.43	12,18	6,65
redn to mid	+ 05		+.12	+.16	+.07	+.12
T	46.98		43.32	44.59	12.25	6.77
α	37.80		33.90	34.10	56. 2.62	57.26
α - T	9.18		9.42	10.49	9.63	9.51
Aa	+27		+22	-.71	+.02	+.17
Bb	-.06		- 09	-.28	-.15	-.12
Cc	+.03		+.03	+.10	+.04	+.03
Corr.	+24		+.14	-.89	-.09	+.08
δT	9.42		9.56	9.60	9.54	9.59

c = -03
a = +45.

9.18		9.42	10.49	9.63	9.51
+28		+20	-.79	+.02	+18
-.06		-09	-.28	-.15	-.12
+.06		+06	+.20	+.08	+.06
+28		+.17	-.87	-.05	+.12
9.46		9.69	9.62	9.58	9.68

a = +.50
C = -.06

55 Cassiop. 3 Ceti. ι Cassiop. ι Cassiop. 5 Urs Min. 5 Urs Min. θ Persei
E E. W E. E. Lb. W Lb W.

765 4 0.4
38.3
17.1

9-1 5 47.7
57.1
6.6
22.1.
38.0
47.0
56.1
8.8
24.2

2746
180
~~946~~
1546
22.09
05
22.09
+05
22.14
12.61
9.53
+.26
-.12
+.03
+17
9.70

9.53
+28
-.12
+.06
+22
9.75

1-5 16 8.6
35.4
47.2
57.3
18.4
25.4
42.0
7.4
4.2
39.4

44.0
.4
.3
.4
.1
12
44.28
44.03
25
254) .1200 (05

c = -.05.

44.28
33.40
10.88
-.47
-.35
-.08
-.90
9.98

10.88
-.53
-.35
-.16
-1.04
9.84

5-1. 19 23.1
27.9
46.3
2.4
10.0
25.9
41.0
57.2
19.7
35.4

43.9
44.1
43.8
44.3
1
44.03

1-5 23 34.0
58.1
37.7
14.2
29.4
22.6
8.2
43.6
45.5
6.3

52.1
52.3
52.0
51.8
51.8
100
52.10

6-1
lost 4

c = 0

27 52.4
58.2
6.3
15.0
22.4
6.6
14.8
9.9
14.1

52.4
51.9
52.4
52.0
51.8
10.5
52.10

52.10
44.33
7.77
+1.67
+.26
+.13
2.06
9.83

7.77
+1.85
+.26
+.26
2.37
10.14

5-11 35 14.1
38.0
1.3
15.4
29.0
48.4
11.5

Star	η Persei	τ Persei	β Urs Min	α Ceti	β Persei	48 Cephei
Circle	W	W	W Lc	W	W	W
	9 mid.	11-3			5 mid.	
Wires	39 45.0 11.3 33.1 49.4 4.8 33.0 - 59.9 16.0 33.0 54.1 21.4 3610	44 6.2 26.4 41.8 56.0 22.0 - 46.9 2.3 17.2 37.4 2562 +60 196.2 21.80 .17	47 15.9 14.5 0.8 - 35.5 10.9 12.0} 11.5 9.8 - 9.5 42.9 17.6 1276 60 67.6 9.66 +.19	54 43.1 58.4 10.5 19.9 29.0 44.6 - 0.3 9.6 18.7 31.2 46.8 3121 180 4921	56 39.9 0.0 16.2 28.4 39.8 0.4 - 20.5 33.2 45.1 1.3 21.8 2462 240 62	2 33.0 12.8 - 24.2 33.1 16.0 1191 23.82
Mean	32.73	21.80	9.66	44.74	0.56	23.82
Red'n to mid.	-.19	-.17	+.19	-.11	-.15	-.09
T	32.54	21.63	9.85	44.63	0.41	23.73
α	41. 22.37	45 11.43	1.53	35 06		11.75
α-T	10.17	10.20	8.32	9.57		11.98
Aa	-.18	-.13	+1.52	+.24		1.17
Bb	-.24	-.22	+.27	-.12		-.60
Cc	-.05	-.05	+.11	-.03		-.14
Corr.	-.47	-.40	1.90	+.13		1.91
δT	9.70	9.80	10.22 !	9.70		10.07
	10.17	10.20	8.32	9.57		11.98
	-.28	-.14	+1.68	+32		-1.30
	-.24	-.22	+.27	-.12		-.60
	-.10	-.10	+.22	-.03		-.28
	-.54	-.46	2.17	+17		2.18
	9.63	9.74	10.47	9.74		9.70

C = -06
a = +.50

ζ Arietis-

W

:33.0	quid. 6 52.8			
12.8	6.2			
24.2	15.9			
33.1	25.3			
16.0	42.0.			
191	58.9			
23.82	8.8			
	18.4			
	31.5			

2598
120
3798
42.20
-.06

42.20
-.06
42.14
32.41
9.73
+18
-.17
-.03
-.02
9.71

9.42	9.42	0022	0484
9.56	56	8	64
9.60 —	54	10	100
9.54	59	5	25
9.59	70	6	36
9.70	.70	6	36
9.98 —	.80	16	256
9.83 —	.70	6	36
9.70	.71	7	.49
9.80			
10.22 —	572		1086
9.70	9.64		0136 (:12
10.07 —			
9.71			

1
2) 36 .08 Prob. Error of 1 obs-
.027 do do of mean-

9.46
59
58
63
75
63
74
74
70

42
9.65

9.73
+.20
-.67
-.06
-.03
9.70

Nov. 5. 1871. 1st set.

Star.		λ Draco L.6		72 Pegasi.		λ Androm		ι Piscium		γ Cephei.		φ Pegasi.
Circle	W		W		W		W		W		E.	
Wires	321	25.30.7 29.4 26 1.3 15.2 26.51.0 59.3 51.6 52.1 51.7 24	5-11	27.27.0 18.2 45.0 3.6 18.6 14.3 28.9 32.4 39.6 39.6 39.2 53.9 57.3 18.8 45.2 45.0 45.1 .4 .3 .3 .5 18 26	1-6	29.59.7 27.7 30.21.4 6.1 39.2 52.5 48.5 15.0 35.2 23.5 27.5 22.8 27.4 .5 .7 .7 .5 .5 33 .55	11w	32.29.3 44.5 56.7 5.9 16.0 30.6 46.3 55.7 5.0 5 17.4 32.7 59 33 9 1 56 30.83 11	7-11	35.28.3 8.8 9.2 44.6 58.3 30.6 43.4 24.4 53.4 32.7 19.9 19.6 19.7 18.8 20.7 37 74	11w	45.2.1 18.3 31.4 41.0 51.1 7.3 23.9 33.4 42.9 55.8 10.7 31 7 9 24 0 7 7 9 7.08 +12
mean redn to mid.												
T		51.80		45.26		27.55		30.72		19.74		7.20
α		23 42.74		27. 35.50		17.87		33.21.26		34 8.49		57.97
α-T		9.06		9.73		9.68		9.46		11.25		9.27
Aa		+1.22		+.71		-.03		+.27		-1.12		+19
Bb		+.11		-.11		-.14		-.08		-.36		-.10
Cc		+.15		-.06		-.07		-.05		-.22		+05
corr.				-.06		-24		+14		1.70		+14
δT				9.67		9.44		9.60		9.55		9.41

C = -.05
a = +45

ρ Cassiop Groom 4163 ω Piscium

Ɛ. Ɛ- Ɛ

5-1 48.38.5 24.7
54.7
44.8
11.0
11.7
33.8
34.2
1.2
51.7
~~6.2~~
~~6.8~~
9.8
9.9
9.3
9.6
9.5
31
62

50.50.00.5
3 2 1 51.34.4
52.27.0
318.0
49.5
50.0
49.0

6-1 52.52.9 ~~58~~
8.6 15.8
17.6
27.0 39.3 464
54.5
1.6
52.9
.9
.9
53.0
52.9
.9

9.67	12	0144
44	11	121
60	5	25
41	14	196
65	10	100
53	2	4

330
9.55

599
0.118 (10
18
.067 Prob Error-

9.62
59.70
9.92
-.19
-.18
+.10
-.27
9.65

49.50
48.39.06
10.44
-.83
-.30
+18
-.95
9.49

52 92
52.43.63
9.29
+27
-08
+05
+24
9.53

Nov. 5 - 1871 - 2nd Set -

Star -	δ Cassiop. -		38 Cassiop. -		η Piscium		40 Cassiop. -		ν Persei -		ν Piscium -	
Circle	E		E		E		E		E		E	
	110	15.35.3	7 mid.	20.17.9	9 mid	23.59.0	10 - 6	~~24.3.2~~	10 - 1	~~50.0~~ ~~28.3.2~~	11 W	33.53.0
		16 6.0		44.6		11.8		~~12.6~~	lost 8	29. 8.7		8.5
		30.1		21. 11.3		21.3		~~22.0~~		4.2 27.2		20.8
		48.4		56.0 -		31.0		~~24.7~~		54.9 50.9		30.1
		17 6.7		22 40.9		46.9 -		~~24. 56.0~~		30. 17.3		39.6
wires		37.5 -		23 6.5		3.2	25.	58.3		46.6		55.1 -
		18 8.8		32.6		12.5		33.2 39.6		28.5 54.7		11.0
		~~20.0~~?				22.0		52.5 10.0	18.0	36.7 - 8.5 50.5		19.8
		26.0		2098		34.7		22.8 49.6	18.1	27.0		29.1
		44.4		180				51.9 32.9	18.0	48.9 49.4		41.4
		19 8.8		389.8		2424	31.5	~~47.3~~?	18.1	31.4		56.7
		38.8		55.70		180	321		18.0			3651
		2908				4224	32.1		18.2			240
		120					31.8		18.1			6051
		4108					32.9		18.3			55.01
		37.25					4 08		18.1	4		+11
mean		+.22		55.70		46.93						
Redn to mid.				+.15		+05						
T		37.47		55.85		46.98		32.08		18.10		55.12
α		27.85		21 45.28		24. 37.66		28. 21.20		8.48		45.88
α - T		9.62		10.57		9.32		10.88		9.62		9.24
Aa		-.28		-.65		+24		-.83		-.07		+.30
Bb		-.31		-.42		-.15		-.48		- 25		-16
Cc		+10		+.15		+05		+.17		+08		+05
corr		-.59		-.92		+.14		-1.14		-.26		+19
δT				9.65		9.46		9.74		9.36		9.43

c = -.05

a = +.50

δ Piscium
E.

11w 37.44.4
0.1
12.5
22.0
31.5
47.1
2.8
12.0
21.0
33.8
49.0
2762
240
5162
46.93
.11

47.04
38.37.81
9.23
+.28
−.17
+05
+16
9.39

α Trianguli
E.

11w 44.45.7
3.4
17.4
28.0
38.7
56.2
14.4
24.5
35.0
49.0
6.4
318.7
300
618.7
56.25
+12

56.37
46.95
9.42
+13
−.22
+06
−03
9.39

50 Cassiop
E

11-7 49.26.7
17.16
50.16.5
29.4
56.4
51 48.3
23.3
44.5 19.5
54.6
49.6
43.8
44.8
45.3
44.8
44.3
20
44.60

44.60
52.34.11
10.49
−.79
−.56
+16
1.19
9.30

50 Cassiop
W.

6-11 52.44.7
53.35.4
49.6
54 4.9
19.8
34.4
48.9
55.13.2
24.2
56.3.3
17.1
44.7
45.8
45.4
45.5
44.9
46.2
25
45.46

45.46
52.34.11
11.35
−.79
−.56
−16
−1.51 ~~+07~~
9.84

α Arietis
W

11w 58. ~~9.9~~
0.5
16.7
29.9
40.2
49.7
7.0
23.4
33.9
43.5
57.0
14.0
3158
240
75.8
6.89
−.12

6.77
59.57.27
9.50
+18
−.20
−05
−07
9.43

α Draconis
W L.l.

5-1 1.36.6
37.1 ~~44.7~~
58.4
58.1
2.20.5
20.8
49.3
49.7
3.25.0
25.1
59.9
60.1
59.5
60.3
60.5
3

0.06
0.51.82
8.24
+1.13
+14
−.12
+1.15
9.39

ζ' Ceti
W

3-11 cast 4. 5.48.1
34.2
6.2
18.9
22.3
37.8
47.7
28.1
56.3
37.4
46.6
24.5
.2.5
22.3
22.1
22.3
22.1
21.9
21.9
22.3
22.0
29

22 11
6.12.62
9.49
+28
−.17
−.08
+06
9.55

Star	4 Urs Min		ι Cassiop.		ξ² Ceti.		5 Urs Min.		5 Urs Min.		
Circle	W	L.C.	W		W		W	L.C	E.	L.C.	
	765	8.8.5	1-9	16 8.6	9 mid	20 43.8	11-6	23.31.4	7-11	28.56.6	
		9.24.7		47.1		56.2		24.35.8		29.36.0	548
		10.40.8		18.2		5.4		25.15.3		30.14.6	23.6
		740		41.8		14.6		23.6		31.17.0	15.6
				4.6		30.4-		~~54.8~~		32.12.1	20.7
wires		24.67		44.5-		46.0	6 —	51.3		20.1	
		-.27		24.3		55.3		52.1		51.4	
				49.3		4.7		51.4		51.2	
				10.6		17.1		51.9		~~51.2~~-	
						7		52.0		51.0	
								51.3		51.4	
				19 3 3		27 35		37		51.4	
				.120		30.39		51.74		18	
				3.133		.05		51.28		51.28	
				44.90				46 +			
				-.13				4.21) 230 (05			

Mean red'n to mid.				
T	24.40	44.77	30.34	51.74
α	9.17.59	18.33.42	21.20.90	27.44.33.
α-T	6.81	11.35	9.44	7.41
A a	+2.10	-.53	+.29	+1.85
B b	+.41	-.40	-.14	+.34
C c	-.24	-.13	-.05	-.21
corr.	+2.27	1.06	+.10	+1.98
Δ T	9.08	10.29	9.54	9.39

9.46	0002	0004
36	8	16
43	1	1
39	5	25
39	5	25
43	1	1
55	11	121
54	10	100
355		293
9.44		.0042 (065

36
12) 600 .044 prob-error.

Nov. 6. 1871 -

1 Draco Lb.	α Aquarii.	θ Pegasi -	24 Cephei -	γ Aquarii	π Aquarii	9 Draco
W	W	W	W	W	W	W Lb
4-1 .545 38.0	7-11 59 36.3	2 51.3	3-11 5 43.2	14 9.5	17 51.3	10-2 20 57.1
43.4	45.6	6.4	6 12.3	24.8	6.4	21 49.0
10.0	54.9	18.8	40.2	37.0	18.7	22 28.5
57.6	7.0	28.0	7 30.6 -	46.2	28.0	23 8.0
	22.6	37.0	8 20.0	55.0	37.0	-24 13.8
		52.7 -	49.4	10.9 -	52.8 - 10 7	25 20.7
43.0	20.8	8.4	9 19.1	26.3	8.1	57.6
43.4	8	17.7	58.1	35.7	17.4	26 37.6
42.5	9	26.9	47.6	45.0	26.6	27 29.8
43.1	6	39.4		57.3	39.0	3001
	8	55.0	214.8	12.7	54.5	180
0	39	341.6	30.69	360.4	339.8	1201
43.00		240		240	240	13.35
		581.6		120.4	579.8	+.21
				10.95	52.71	
				- 11	- 11	
		52.87	30.69			
		11	-.15 ~~20.84~~			
43.00	20.78	52.76	30.57	10.84	52.60	13.56
33.76	11.22	43.33 - .77	20.84	1.44	43.19	4.80
9.24	9.56	9.43	9.70	9.40	9.41	8.76
+12	+01	+01	- 03	+.02	+02	+.08
+.40	-.09	-.10	-.35	-.09	-09	+23
+.21	-.03	-03	-.09	-.03	-03	+13
+.73	-.11	-.12	-.47	-.10	-.10	+.44
9.97 c = -.03	9.45	9.31	9.23	9.30	9.31	9.20
a = +02						
9.24 ~~9.64~~	9.56 ~~9.47~~	9.43	9.70	9.40	9.41	8.76
Δa ~~cc.~~ +.40	-.09	-.10	-.35	-.09	-.09	+.23
cc +.57	-.08	-08	-.26	-.08	-.08	+.34
+97	-.17	-.18	-61	-17	-.17	-.57
10.21	9.39	9.25	9.09	9.23	9.24	9.17
c = -.58						
a = .0						

Nov 6 1871

Star	η Aquarii -	226 Cephei -	ζ Pegasi -	λ Pegasi -	μ Pegasi	ι Cephei
Circle.	W	W.	W.	W	W	W
Wires.	27 53.7 6−11 8.9 21.0 30.1 39.1 55.0 - 10.4 19.7 29.0 41.3 56.8	30 11.3 3−11 14.0 2.2 51.4 39.4 28.0 18.1 5.4 20.0 7.7 11.3 11.8 11.8 11.5 12.3 12.3	34 38.8 48.0 57.1 13.0 - 28.7 38.3 47.6 0.0 15.9	39 24.0 40.5 53.9 3.8 13.4 30.5 - 47.4 57.5 7.6 20.7 37.7	42 57.1 7−11 7.5 21.0 31.0 40.9 58.0 - 15.0 25.0 35.3 49.0 5.7	45 55.0 37.4 17.7 22.2 39.4 9.5 51.9 46.5 27.2
	3650 240 6050 55.00 −11	50 083	2715 ~~38.79~~ 180 915 13.07 −.11 12.	3370 30.64 −.12	3395 300 6395 58.14 + −.12	17.6 17.8 17.2 17.6 17.3 25
Mean, redn to mid.	~~54.89~~					
T	54.89	11.83	12.96	30.52	58.02	17.50
α	45.55	2.12	3.59	21.05	48.70	7.70
α−T	9.34	9.71	9.37	9.47	9.32	9.80
Aa	+01	−.04	+.01	+01	+01	−02
Bb	−.08	−.34	−09	−10	−11	−22
Cc	−.03	−.12	−.03	−03	−03	−.07
corr.	−.10	−.60	−.11	−.12	−.13	31
δT	9.24	9.21	9.26	9.35	9.19	9.49
	9.34	9.71	9.37	9.47	9.32	9.80
	−.08	−.34	−.09	−10	−.11	−.22
	−.08	−.32	−.08	−09	−.09	−.19
	−.16	−.66	−.17	−.19	−.20	−.41
	9.18	9.05	9.20	9.28	9.12	9.39

2

55.0
17.7
39.4
9.5
46.5

ι Piscium
W

49 31.6
49.2
3.2
14.0
24.2
42.5 -
0.4
11.3
22.0
36.3
54.0
2887
180
4687
42.61
-.13
42.48
33.38
9.10
+02
-.04
-03
-05
9.05

9.10
-.04
-.09
-.13
8.97 !

o Androm
W

54 49.0
9.1
25.6
37.9
49.9
11.0 -
31.9
44.2
56.4
13.0
34.0
3620
240
~~6020~~
1220
11.09
-.15
10.94
1.43
9.51
0
-.13
-04
-.17
9.34

9.51
0
-13
-.11
-.24
9.27

π Cephei
W

1-5 0 6.8
5.9
53.0
27.6
7.9
54.5
0.4
0.6
1.0
.0.6
1.4
40
0.80
0.53
27
3.8) .140.04
0.80
51.11 C = -.04
9.69
-+04
-.32
-.10
-.46
9.23

9.69
-.32
-.30
-.62
9.07

π Cephei
E

5-1 4 0.3
0.2
33.3
8.4
55.6
52.2
51.6
0.6
0.9
0.4
0.3
0.7
0.3
32
0.53
51.11
9.42
-04
-32
+.10
-.18
9.06

9.42
-.32
+.30
-.02
9.40

γ Piscium
E

9 mid 9. 33.5
6.0
15.2
24.3
40.0 -
55.9
4.6
13.8
26.2
2395
120
3595
39.94
+.05
39.99
30.83
9.16
+01
-08
+03
-04
9.12

9.16
-.08
+08
0
9.16

o Cephei
E

8-1 12.27.6
52.0
13-32.3
14.13.3
36.4
0.4
32.7
41.8
39.2
1616
32.32
-.05
32.39

32.6
32.6
32.3
32.50
32.27
77
32.39

23.09 ~~8.49~~
9.30 ~~9.18~~
-02
-24
+08
-.18
9.12

9.12
-.24
+.21
-.03
9.09

ν Pegasi
E

18.0.7
17.6
31.0
41.0
51.0
8.0 -
24.9
34.5
44.6
58.0
14.4
3257
2401
857
7.79
+.12
7.91
58.77
9.14
+01
-.09
+03
-.05
9.09

9.14
+03
+.09
+.12
9.26

Nov 6-1871.

Star	θ Piscium	λ Draco.		72 Pegasi	λ Androm	‡ Piscium	γ Cephei	41
Circle	E	E	Lb	E	E	E	E	E
wires	20.34.7 50.2 2.7 17.9 21.2 36.9 - 52.7 1.6 10.8 23.2 38.3 2842 120 4042 3	5-10	23. 5.3 57.7 36.6 4.2 30.5 39.8 6.7 15.9 51.4 51.7 51.2 51.4 50.7 510 14 23	26.33.0 57.0 5.2 15.8 26.8 44.6 - 3.1 13.3 24.1 38.3 56.1 311.3 180 491 3	11-2 29.58.3 20.3 38.4 51.3 4.8 27.0 - 49.6 2.0 15.3 33.1 241 8 26.87 +.13	7 mid 32.56.2 6.5 14.9 30.6 - 46.3 55.0 4.4 21 2.9 30.41 +.11	5-1 35.27.6 6.8 42.4 42.41 48.7 30.3 18.2 .3 .0 .3 .4 12 24	5m
mean	36.75			44.66				
redn to mid.	+11			+.13				
T	36.86		51.23	44.79	27.00	30.52	18.24	
α	27.64		42.80	35.53	17.87	21.26	8.49	
α−T	9.22		8.43	9.26	9.13	9.26	9.75	
Aa	+01		+06	0	0	+01	−05	
Bb	−.07		+.12	−.13	−.15	−09	−.52	
Cc	+03		−.09	+03	+04	+.03	+13	
corr.	−03		.09	−10	−.11	−.05	−.44	
δT	9.19		8.52	9.16	9.02	9.21	9.31	
	9.22		8.43	9.26	9.13 0	9.26	9.75	
	−07		+.12	−.13	−15	−09	−.52	
	+.08		−.23	+.10	+.13	+.08	+.37	
	+01		−.11	−.03	−.02	−.01	−.15	
	9.23		8.32	9.23	9.11	9.25	9.60	

9.39	~~00~~.16	0256
25	2	4
23	0	0
24	1	1
24	1	1
26	3	9
35	12	144
19	4	16
34	11	121
12	11	121
09	14	196
23	0	0
23	0	0
11	12	144
25	2	4
16	7	49
22	1	1
16	7	49
406		17)1116(066
9.23		102
		96
		85

.044 Prob-Error.

41 H Cephei - φ Pegasi - ρ Cassiop. ω Piscium Groom 29 Groom 29 -

E. E E E E W

5 mid 40. 54.5
41. 18.0
57.9 -
42 38.3
43 1.2
169.9
120
2899
57.98
-.05

45. 2.0
18.3
31.2
41.0
50.9
46 7.2 -
23.7
33.1 43.0
55.8
47. 11.7
3179
240
779
7.48
+12

7-1 47. 40.6 ~~50.7~~
9.0
38.9
~~23.7~~
34.1
10.9
33.2
0.8
51.7
8.9
9.0
9.3
8.9
9.2
9.0
9.1
4

9 mid. 52.6.2
18.6
27.8
37.2
52.7 -
8.5
17.6
26.8
39.3
2347
240
4747
52.74
+.11

11-7 4. 51.8
5. 56.8
6. 48.4
7. 27.0
8 6.3
11.5
11.7
11.5
11.4
11.1
22
11 44

7-11 10. 17.9
56.7
11. 35.7
12. 27.3
13. 32.0
19.7
12.3
12.4
12.6
12.3
12.7
23
12.46
11.44
1.02
) .51
c = -.12

57.93
48.59
9.34
-.02
-40
+.08
-.34
9.00

9.34
-.40
+21
-.19
9.15

7.20
57.96
9.24
+01
-.16
+03
-12
9.12

9.24
-.16
+.08
-.08
9.16

9.06
59.70
9.36
-.01
-.30
+.06
-.25
9.11

9.36
~~-30~~
-30 ~~+.16~~
+16
-.14
9.22

52.85
43.63
9.22
+01
-.14
+03
-.10
9.12

9.22
-.14
+.08
-.06
9.16

11.44
2.02
9.42

9.97 -
9.45
31
23 —
30
31
20 -
24
21 -
26
35
19
49 -
⊥ Pis Aus 05 -
34
23 —
06 -
12
12 -
09
19
852 —
9.16
02
21
31 —
00 —
12
11
12

18
18
.41

9.45
31
30
31
24
26
35
19
34
12
09
19
16
02
21
12
11
12
18) 389 (22
36
29

9.22 δT

23
9
8
9
2
4
13
3
12
10
13
3
6
20
1
10
11
10

0529
81
64
81
4
16
169
9
144
100
169
9
36
400
1
100
121
100
17) 2133 (0125 (.11
17
43
34
93
85

1
4.1) .073 Prob Error -
41 (.18 prob error of mean -
320

Nov. 9. 1871

Star	9 Draconis	η Aquarii	226 Cephei	ζ Pegasi	η Pegasi	λ Pegasi	μ
Circle	W. L.b.	W.	W.	W.	W	W.	W
wires	9 mid. 22. 20.56.0 21.49.4 22.27.2 23. 7.7 24.13.3 25.20.0 25.57.5 26.37.5 27.29.1	~~9 mid~~ 27.53.2 8.2 20.6 29.8 38.5 54.3 9.8 19.1 28.1 40.8 56.0	7-11 31.12.5 2.2 49.9 34.6 27.0 16.5 17.0 15.0 19.0 7.7 10.3 10.3 10.5 11.2 11.3	4-11 34.47.4 56.3 12.3 28.0 37.7 46.8 59.4 15.0	7 mid ~~36.~~ 39.7 49.9 7.9 25.5 36.4 47.0 1.1	39.23.1 39.6 53.0 2.8 12.3 29.8 46.5 56.5 6.6 19.9 38.8	
	29 77 180 1177 13.08 +21	35 84 240 59 84 54.40 .11	36 10.72	18 17 120 61.7 12.34 -.02	~~20 75~~ ~~120~~ 875 15 94 120 37.4 7.88 -.02	326 9 29.72 -.12	
Mean redn to mid.							
T	13.29	54.29	10.72	12.32	7.86	29.60	
α	24. 5.10	45.51	1.89	3.55	-59.27 ~~7.58~~	20.98	
α-T	8.19	8.78	8.83	8.77	8.59	8.62	
Aa							
Bb	0	+.01	+.10	+.03	+.05	+06	
Cc	+.30	-.07	-.28	-.07	-08	-.08	
Corr.	+30	-.06	-18	-.04	-03	-.02	
dT.	8.49	8.72	8.65	8.73	8.56	8.60	

c = -07
a = 0.

μ Pegasi. ι Cephei. λ Pis Aus o Androm π Cephei. π Cephei. γ Piscium

W W W ~~44.~~ W W E E

μ Pegasi W

42.50.3
6.8
20.1
30.3
39.8
57.3 -
14.1
24.3
34.3
48.0
4.9
3302
300
6302
57.29
-.12

57.17
48.64
8.53

+07
-.08
-01
8.52

ι Cephei W

7-11 45.53.6
37.4
16.1
59.4
38.0
28.2
8.1
5.3
45.6
29.2
16.2
16.2
16.3
16.2
16.4
13
16.26

16.26
7.58
8.68

+.15
-.17
-.02
8.66

λ Pis Aus W

49.30.9
48.3
2.6
13.1
23.9
41.8 -
59.9
10.6
21.3
35.7
53.5
3416
120
4610
41.91
-.13

41.78
33.34
8.44

+.03
-.09
-06
8.38

o Androm W

54.47.8
8.0
24.4
37.0
48.9
10.0 -
20.8
43.0
55.5
11.9
32.8
3501
240
1101
10.01
-.15

9.86
1.34
8.52

+.13
-.09
+.04
8.56

π Cephei W

1-4 0.7.6
51.6
1.4.8
54.7
51.0
48.0
26.0
33.8
43.6
46.7)
~~13.2~~
59.2
59.5
59.0
59.0
7
59.18
58.62
56
38).280 (.07 = C
266
14

59.18
50.91
8.27

+.33
=.26
+.07
8.34

π Cephei E

5-1-4.57.8
~~59.5~~
10.8
~~14.7~~
14.4)
31.9
33.03
~~6.0~~
~~53.0~~
53.1
54.7
50.8
51.6
~~59.8~~
~~58.8~~
~~3.4~~
~~5.5~~
59.2
58.4
58.3
58.9
58.3
31
58.62
C = -07

58.62
50.91
7.71

+.40
+26
+.66
+8.37

γ Piscium E

7-1 10.23.7
38.5
39.1
54.9
1.54
3.8
58.0
18.0
25.2
40.3
39.2
39.1
39.2
39.2
39.2
39.1
39.1
11
39.16

39.16
30.78
8.38

+.08
+.07
+.15
8.53

Nov. 9-

Star	ο Cephei-	ν Pegasi-	θ Piscium	λ Draconis	72 Pegasi	λ Androm	c
Circle	E	E.	E	E Ll	E.	E	E
	8-1 12.25.7	9 mid 18.16.6	7 mid 21.1.8	4-11 22 39.1	8-1 27.14.9	29.57.0	7-
wires	50.4 13 31.0 - 14 11.9 34.6 ~~58.7 -~~ 15 31.0 16 10.2	30.0 39.9 50.0 7.1 23.9 33.6 43.7 56.9	14.0 20.3 35.9 - 51.8 0.6 10.0	51.3 51.2 5.0 51.7 - ~~4.0~~ 31.1 ~~7.1~~ 52.3	25.9 43.5 1.9 12.2 23.0 37.4 54.8 11.8	19.4 37.2 50.3 3.6 - 48.3 1.1 14.2 32.1 537	
	31.0 30.9 30.6 30.7 31.0 42 .84 ~~1464~~ 1536 30.72 +.05 30.77 30.84 161 30.81	3037 * 240 637 7.08 +.06	1314 120 2514 35.91 05	1368 120 2568 51.36 −.15	44.1 43.5 43.9 43.3 43.5 43.4 43.0 87 53	3429 60 2829 25.72 +.16	
mean redn to mid.							
T	30.81	7.14	35.96	51.21	43.53	25.88	
α	23.97	58.71	27.61	23. 42.96	35.47	17.79	
α−T	7.84	8.47	8.35	8.25	8.06	8.09	
Aa							
Bb	+.23	+.09	+.06	−.09	+08	+09	
Cc	+.18	+08	+07	−.21	+08	+10	
Corr.	+.41	+17	+.13		+.16	+.19	
δT	8.25	8.60	8.48	−30 7.95	8.22	8.28	

ι Piscium γ Cephei – 41 H Cephei – Groom 4163 Groom 4163

E E E E– W

7–1 33.13.9
29.4
45.3
54.1
~~3.4~~
3.4
16.0
31.0
.4
29.40
29.5
29.4
29.5
29.7
29.6
31
52

29.52
21.24
8.28

+05
+07
+.12
8.40

5–1 35.~~20.1~~
~~27.4~~ 47.8
9.4 46.0
46.5 48.2
29.4 46.7
28.8
20.3
~~47.7~~
~~16.7~~
16.3
16.6
16.4
16.4
17
43

16.43
8.29
8.14

+18
+31
+49
8.63

5° mid. 40.53.0
16.8
56.9
37.0
59.6
~~24.0~~
~~24.73~~
22 33
60
28 33
56.66
+05

56.71
48.44
8.27

+12
+18
+30
8.57

11–7 45.7.0
46.1 <2.0 45.2
48.9
39.8
43.3) microm
52.6 (52.0)
53.3 (53.1)
~~48.4~~
~~49.4~~
47.3
47.2
47.4
47.4
47.9
22
47.44

47.44
38.92
8.52

+15
+08
+23
8.75

6–11 49.45.3
48.4
52.2)
55.3
16.3
48.8
33.6
28.0
40.3
47.7
48.4
47.5
47.8
48.0
48.4
.58
47.97
47.44
53

356) .2600 (.07
2492

C = –.07

8.72	18	324
73	19	361
56	2	4
60	6	36
52	2	4
56	2	4
53	1	1
60	6	36
48	6	36
28	26	676
46	14	196
598		1678
8.54 δT		01,68 (.13
		68 .087 prob. error.

Nov. 11. 1871

Star.	ι Pegasi.		π Cephei.		Br. 3077.		y Piscium	ο Cephei.		υ Pegasi	λ
Circle	~~H~~ W		W		W		W	W		W	W
\-	6-11	58.30.7	1-8.	0.7.3	4-11	6.31.1	9.38.0	3-11	12. 3.5	18.0.6	11-7
		46.5	lost.4	1. 4.6		47.3	53.0 5.2		27.1	17.1	20 4
		56.3		1.51.8		7 15.6 -	14.4		50.3	30.5	21 3
		~~59~~ .7		3 0.1		43.6	23.3		13 31.1 -	40.4	22 1
		5.9		3.59.3		8 0.4	39.0 -		14 11.6	49.9	22 {
wires	6-11	18.3 25.2		4.58.4		17.1	54.7		35.9	7.0 -	23
		34.4		5 33.2		39.8	3.9		15 0.1	23.9	
		3.9		6. 8.9		7.7	13.1		32.0	34.0	
		30.7					25.6		13.4	48.9	
		30.5		~~1599~~		13 8.0	41.0			57.3	
		30.6	58.9	~~60~~		60			1596	14.0	
		30.7 30	59.3	~~2199~~		780	3112		60	3186	
		~~31.2~~	59.8	~~43.98~~		15.60	120		2196	240	
		30.5	59.6	−.~~08~~		−.04	4312			786	
			59.3								
			19 38								
mean							39-20		31.37	7.15	
redn to mid							−.11		13	12	+
T		58. 30.60		59.38 ~~43.90~~		15.56	39.09		31.24	7.03	5
α		22.15		50.77		7.15	30.78		22.87	58.71	4
Iα−T		8.45		8.61		8.41	8.31		8.37	8.32	
Aa		0		0		0	0		0	0	
Bb		−.01		−03		−.01	0		0	0	
Cc.		−.07		−26		−.12	−.07		−.18	−.07	
Corr.		−.08		−29		−.13	−.[illegible]		−.18	−.07	
δT.		8.37		8.32		8.28	8.24		8.19	8.25	

C assumed −.07

Circle W. a = 0 } Inst. probably disturbed in reversal.
Circle E a = +.41 }

λ Draco-Lb ξ2 Pegasi λ Androm ι Piscium - γ Cephei - 41 H Cephei φ Pegasi
W E- E- E E E E E

11-7 contd
20 49.9
21 35.9
22 11.0
22 {35.0 39.8 58.0}
23 6.0
45.5
~~5.7~~
~~5.2~~
51.3
50.8
51.5
36
51.20
50 65
55
28
+ .09
51 20
43.09
8.14

7-11
24 35.9 45.5
25 13.8 12.8
30.1
26 6.8 39.8
15.9
52.3
50.4
51.0
50.3
50.9
2 6
50.65
50.65
43.09
7.56

7-1
27 25.7 18.2
43.8
1.6
18.3
12.3
28.9
22.9
39.6
37.0
53.9
55.0
11.8
~~43.9~~
43.3
43.3
43.4
43.3
43.1
43.2
16
27
43.27
35.47
7.80
+.10
-.02
+08
+17
7.97

11-3 29 57.0? 9 mid
30 19.0
36.9
50.0
3.6
25.9-
48.3
1.0
14.2
17 99
25.70
+08
25.78
17.79
7.99
-.03
-.03
+10
+04
8.03

32 42.6
55.0
4.1
13.7
29.1-
45.0
53.9
3.0
15.6
26 20
29.11
+05
29.16
21.22
7.84
+25
-.03
+07
+29
8.13

5-1
35 26.6
9.4 5.8
48.5 46.8
29.4 40.9
23.8 47.0
20.3
17.2
17.3
17.4
17.1
16.7
7
17.14
8.13 ~~9.80~~
8.01 ~~7.34~~
1.03
-18
+.31
-.83
8.18

11 w
39 ~~17.7~~
39 37.6
40 29.3
40 53.1
41 17.0
4 41 56.9-
42 37.6
43 0.0
43 24.0
43 55.3
? ~~40.0~~
33 08
180
51 08
56.64
13
56.77
48 44
8.33
-.45
-07
+18
-.44
7.89

6-1
46 32.5 46.5
31.9
25.9 41.6
35.6 54.7
44.6 10.4
4.5
5.9
6.0
60.
6.1
5.9
9
6.00
57.93
8.07
+18
-04
+07
+.21
8.28

8.37	19
28	10
24	6
25	7
7.97	21
8.03	15
13	5
28	10
06	12

161
8.18 δT

Nov. 11, 1871.

Star. ρ Cassiop
Circle E.

6-1.

43	7.7
	36.4
	52.7
	32.9
	44.8
	9.3
wires	1.4
	32.0
	24.0
	59.4
	51 .7
	7.7
	7.7
	8.1
	7.6
	8.0
	7.7
	48
mean	80
redn to mid.	
T	7.80
α	59.60
α − T	8.20
Aa	−18
Bb	−09
Cc	+.13
Corr.	−14
δT.	8.06

Nov 12. 1871

λ Androm. W

9 mic 30.19.4
37.5
50.6
3.2
25.8 -
45.0
1.2
14.6
32.3
~~4.5~~
~~13.3~~
2326
25.84
-.07

c Piscium W

7 mic 32.55.2
~~29~~
7
4.5
13.3
29.1 -
44.5
54.0
3.3
203.9
29.13
-.05

γ Cephei W

6-11 34.17.4
35.24.8
36 5.3
36.58.4
37.41.5
38.00.2
33.1
17.4
16.5
15.6
16.1
16.7
17.1
28
38
16.63

41 H Cephei W

11 w 39.19.7
~~40~~ 58.0
40 30.0
53.4
41 16.3
56.8 - 6
42 36.6 10
43 0.3
24.2
55.7 4
44 35.4
3864
240
6264
56.95
-.28

φ Pegasi W

1.4
11 w 45.17.0
30.1
40.0
49.3
6.0 -
22.3
32.1
41.9
55.0
11.1
3062
240
662
6.02
-11

ρ Cassiop W

4-11 47.23.0
39.1
7.8
36.0
53.0
10.0
32.0
1.0
52.8
7.8
7.8
7.7
7.7
7.8
7.7
~~4.2~~
45
75

ω Piscium W

11 w 57.50.1
5.1
17.6
26.7
35.6
51.5 -
7.0
16.4
25.9
38.2
53.9
3380
240
5680
51.64
-11

25.77	29.08	16.63	56.67	5.91	7.75	51.53
31.17.78	21.16	7.98	48.41	57.92	57.58	43.53
7.99	7.92	8.65	8.26	7.99	8.17	8.00
+.01	+.09	-.38	-.16	+.07	-.07	+.09
+.05	+02	+11	+.07	+.03	+.05	+02
-.16	-11	-.49	-.28	-.12	-.20	-.11
-12	0	-.76	-.37	-.02	-.22	0
7.87	7.92	7.89	7.49	7.97	7.95	8.00

a = +.15
c = -.11

7.87	07	0049
7.92	2	4
7.97	3	9
7.95	1	1
8.00	6	36
7.94	0	0
8.04	10	100
7.95	1	1
7.83	11	121
847		321
7.94 δT		004010 (063

36
12) 410 .032 Prob error -

Nov. 12, 1871.

Star -	Groom 1852 -		γ Pegasi -	ι Ceti -	χ Cassiop -	π Androm	α Cassiop -	B
Circle	W	S.C. E-	E.	E.	E.	E-	E	E
	10-7	6-11						
	55. 8.3	58 44.5 11 w	5 41.9 11 w	11 58.5 7 mid	24 39.4 11 w	28 56.4 9 mid	32 0.4	11
	36.5 56. 6.4	59 57.8	57.9	14.4.	59.0	14.6 last th.	22.6	
	39.0 56 29.5	11.5 0 41.0	10.6	27.0	25 19.2	29.6	7 55.5	
	55.2 57 32.5	55.2 1 24.7	20.2	36.3.	52.3 -	40.6	u - 23.1	
	12.4	34.0 2 21.5	29.9	45.9	26 26.3.	51.9	51.0	
wires	44.8	36.5 3 33.4	45.8.	1.6 -	44.9.	10.1 -	7.0	
	45.4	44.6	2.1	17.5	27 4.9.	29.0	23.2	
	44.7	44.5	11.3	26.4	2460	39.6	45.3	
	44.9	45.4	20.9	35.8	120	50.3	2281	
	38	45.8	33.3	48.3	3660	5.1	267.1	
	95	45.1	48.9	3.6	52.29	23.3	60	
		45.0	3228	3153	+.11	3506	2071	
	44.95	44.8	~~7~~80	300		240	23.01	
		6	5028	153		1105	+09	
		45.10	45.71	1.39		10.05		
		44.95	+11	+11		+.14		
Mean		15						
redn to mid.		.08						
T		C = -.02	45.82	1.50	.52.40	10.19	23.10	
α			38.07	53.69	44.55	2.31	15.26	
α - T			7.75	7.81	7.85	7.88	7.84	
Aa			+.07	+.12	-.11	+03	-.06	
Bb			+.01	0	-.10	-06	-.15	
Cc			+.11	+.11	+.24	+.13	+.20	
corr -			+19	+.23	+.03	+07	-.01	
δT -			7.94	8.04	7.88	7.95	7.83	

B Ceti. 21 Cassiop. 32 Camelop pre- L.C. 32 Camelops fol- L.C.

B Ceti. E

11w 36 11.9
28.0
41.1
50.7
0.7
17.3 -
33.7
43.0
53.0
5.9
21.9
3072
120
1872
17.02
+12

17.14
9.31
7.84
4.14
-.05
+.11
+.20
8.04

21 Cassiop. E.

4 - 1 38 ~~30.1~~ 54.4 42
28.7 44
4.4 14.0 45
50.3 10.2 48
45.9 ~~4.6~~
~~25.5~~
23.7
23.9
23.7
24.3
36
23.90

23.90
15.39
8.51
-.29
-.31
+.40
-.20
8.31

32 Camelop pre- E 3 - 6

30.9 50
2.4 51
28.9 53
7.0 55
57
0.7
2.0
2.2
1.0
5.9
1.48
0.84
64
32

C = -.03

W L.C. 5 - 1

33.9 42
59.0 44
30.7 45
31.4 48
59.1
57.0
0.6
57.4
0.9
1.0
2.1
42
0.84

32 Camelops fol- E 3 - 6

39.7 50
9.6 52
37.9 53
9.2 55
58
9.5
49.2
~~11.2~~
9.2
~~9.0~~
~~6.2~~
~~1.0~~
.50
~~C = -.35~~
31
9.78
7.98
1.80
.90
C = -09

W L.C. 5 - 1

41.9
6.2
38.2
38.0
3.4
57.0
8.6
~~6.6~~
8.4
7.9
8.4
~~33.8~~
~~8.0~~
39.7
7.98

Nov 29. 1871

Star		22 Andr.		γ Pegasi		4 Drac.		ι Ceti		γ Cass.		π Andr.
Circle		E.		E		E		E		E		E
	7-1	3 19.2	9-mid.	5 52.1	8,9,10,11	8 11.9		11 52.9		23 33.0		28 50.3
		41.4		4.5		3.10 5 6.5		8.7		24 6.1		8.6
		3.9		14.1	8.9	4.46 9 58.0		21.1		32.9		23.2
		16.3		23.8	7.9	44.6 11 14.5		30.3		52.2		34.3
		29.8		39.7 -	8.4	6.1		39.8		12.3		45.6
wires		47.2		56.0	8.4			55.6 -		46.0 -		39-
		8.7		5.3	8.40			11.5		19.6		22.7
				14.9				20.4		38.7		33.2
				27.5				29.9		58.4		44.2
		64.5						42.3		24.9		59.0
		60		237.9				57.8		57.4		17.2
		1243		120								
				357.9				3703		381.5		3422
								240		120		200
								6103		5015		422
mean		3. 41.43		6. 39.77				12. 55.48		45.59		3.84
red^n to mid		-.09		+05				+.11		+24		+.13
T		3. 41 .34		6. 39.82		8/40		12. 55. 59		25. 45. 84		30. 3.97
α		39. 79		37.92		7.15		53 55		44.11		2.16
α - T		1.55		1.90		1.25		2.04		1.73		1.81
Aa	07	+.01	48	+05	4.25	+.~~56~~43	80	+08	-.73	-.08	19	+08
Bb	141	-.19	91	-.11	-2.53	+.32	63	-.06	200	-.20	119	-.10
Cc	141	+20	103	+.14	-4.95	-.69	102	+.14	217	+.30	121	+17
Corr		+02		+08		+~~27~~08		+ ~~26~~18		+08		+07
δT		1.57		2.08		1.~~76~~33		2.~~30~~22		1.78		1.90

c = -.14

a = ~~+20~~ 10

dr.
50.3
.8.6
23.2
3.4.3
45.6
39-
22.9
33.2
44.2
59.0
17.2
22
0
22
.84
-.13
.97
.16
.81
08
10
.17
18
90

11-6
−1.95
3.13
3.69

21 Cass.
E
33 28.3
48.2
35 10.4
5.7
44.8
18.3
36 19.2
57.3
37 16.8
16.8
16.5
16.5
16.1
16.5
24
16.48

7-11
17.0
18.3
17.3
17.8
17.8
32
17.64
16.48
1.16
3.7) 58 (.16 = −c
37
210
222
12

21 Cass.
W
38 14.3
57.3
50.0
31.7
23.0
5.7
9.0
51.2
6.0
48.2

9876
4.1
6.0
6.5
5.9
22.5
5.63
7.85
−5.81
−9.76

32 Cam. foll.
L.C.
W
42 31.9
32.2
44 3.7
2.3
45 35.2
31.8
48 5.9
48. 5.63
6.04
−0.41
+ ~~1.57~~ .78 09
+ .58 1.27
+1.36 1.27
2.80
2.39

μ Andr.
W
48 23.5
42.4
58.0
9.8
21.0
40.9
0.1
12.3
23.8
39.8
59.1
33 0.7
120
4507
40.97
−.14
40.83
38.54
2.29
+01
−.10
−.18
−.27
2.02

4-11
58
82
101

ε Pisc.
W
55 54.9
3.8
19.5
35.0
44.6
53.9
6.2
21.9
1578
60
978
19.56
−.05
19.51
17.47
2.04
+06 15
−.04 120
−.14 121
−.12
1.92

β Andr.
W
1 21.1
39.7
54.6
.6.0
16.5
35.8
54.7
.6.1
17.2
32.3
51.1
3351
60
3951
35.92
−.13
35.79
33.72
2.17
+02
−06
−.17
−.21
1.96

Nov. 29. 1871.

Star.		τ Pisc.		~~[illegible]~~ v Pisc.		δ Cass.		38 Cass.		40 Cass.		40 Cass.
Circle										W		E.
	4-11	4 10.4	9 mid	11 36.1		15 29.1.	7 mid	20 11.2	1-5	25 1.4 22.2 51.6 32.4 32.2 51.7 – 2.3 21.4 31.6 51.9	5-1	29 14.9 51.3 44.0 21.2 14.9 51.4 55.9 32.9 45.0 22.2
		20.4		50.0		58.9.		37.3				
		38.4		0.3		23.0.		2.9	23.6		23.0	
		56.3.		10.0.		41.4.		47.8 •	24.0		22.8	
		7.0.		27.8. -		59.0		32.2	23.9		23.2	
Wires.		17.6		44.9		30.0 -		58.8	23.7		22.6	
		31.7		55.4		0.4.		25.6	23.5		22.8	
		49.4		5.6		18.9			37		44	
				19.5		37.0.		21 58	2	23.74	22.88	
		13 25				1.7.		~~60~~		22.88		
		60		249.6		32.0.		~~15 58~~		86		
		19 25						1 20		333).430(.13		
		3				33 14		33 5.6		333		
								2		100		
										C = -.13		
mean		38.50		27.73		30.13	47.97	~~22.26~~				
redn to mid.		-.05		-.05		-.21	-.15					
T		38.45		27.68		29.92		47.82				
α		36.41		25.55		27.68		44.80				
α-T		2.14		2.13		2.34		3.02				
Aa	26	+03	31	+03	-57	-.06	-1.31	-.13	-1.66			
Bb	113	-.06	107	-.06	186	-.15	2.58	-.21	2.88			
Cc	115	-.16	111	-.15	194	-.27	2.87	-.40	333			
Corr.		-.19		-.18		-.48		-.74				
δT		1.95		1.95		1.82		1.28				

	v Pisc.		o Pisc.			
	ε		ε			
	34 1.2		37 37.0	2.08	11	0121
	13.6		52.8	2.22	25	625
	22.7		5.1	1.90	7	49
	32.0		14.4	2.02	5	25
	3.3		23.8	1.92	5	25
lost 6-	12.3		39.7	1.96	1	1
	21.8		55.4	1.95	2	4
	34.0		64.4	1.95	2	4
	~~49.0~~		13.7	1.82	13	169
			26.2	1.90	7	49
			41.4	1.90	7	49
	1409			2162		1121
	240			1.97		
	3809		3139			
			120			
			4339			
	47.61		39.45			
	+05		+.11			
	47.66		39.56			
	45.88		37.78			
	1.78		1.78			
60	+.06	56	+.06			
80	−.08	84	−.08			
100	+14	101	+14			
	+.12		+.12			
	1.90		1.90			

.011210(.105
1 35
20)1210 .070 prob Error of 1 obs.

.21 prob Error of mean -