

KG
11365
354

022



X6-1136 5. (354)

Sec. 76.

	1	+ 12.442	1.09489
C	2	+ 9.887	.99506
	3	+ 7.462	.87286
	4	+ 4.883	.68886

Sum of distances from D
of wires in tally b 34.676
mean of the four 8.669

D 0

	1	- 4.972	.69653
E	2	- 7.467	.87315
	3	- 9.766	.98972
	4	- 12.386	1.09293

Sum of distances from
D of wires in tally E 34.591
Mean 8.648

Mean of C.D.E between C and D
reduction to D = .0094

KG 11365.334.

6	1	0	
	2		
	3		
	4	18	29
2	0		94
	1		142
	2		191
	3		220
	4		243
	5		267

Blyrae

1846	11.6
	14.4
	14.5
	23.5
	24.4
	22.4
	35.3
	38.0

3 Aprilal
1900 1908
22.6
24.9
27.5
32.5
37.6
40.2
42.8
45.1

F. Aquilae
1940: 388
~~42~~
3.9
6.4
11.4
16.9
19.0
21.5
24.0

19 v 32.55



May 26.

$$C = -14.00$$

$$-25 + 103 \quad -20 102$$

$$20 27 00 \quad 20 38 08$$

$$-140 10' \quad -11 35'$$

Mis. Min.	a Lyrae	β Lyrae	γ Lyrae	δ Lyrae	ϵ Lyrae
18 12	4.4 224 18 33 29.5	46 105	18 58	40.4	20 27 00
13	4.0 2.462 33.2	185	19	43.3	20 38 08
14	2.2 2.053 32.5	162		46.3	
16	09.84 226 32.4	194		48.6	
17	57.3 - 236 33.7	250		51.0	
18	37.8 205.1 32.7	309		55.9	
19	19.0 246.8 32.2	340		61.0	
20	2.8 228.9 32.2	368		64.4	
		39.9		68.3	
				72.3	
				76.3	
				80.3	
				84.3	
				88.3	
				92.3	
				96.3	
				100.3	
				104.3	
				108.3	
				112.3	
				116.3	
				120.3	
				124.3	
				128.3	
				132.3	
				136.3	
				140.3	
				144.3	
				148.3	
				152.3	
				156.3	
				160.3	
				164.3	
				168.3	
				172.3	
				176.3	
				180.3	
				184.3	
				188.3	
				192.3	
				196.3	
				200.3	
				204.3	
				208.3	
				212.3	
				216.3	
				220.3	
				224.3	
				228.3	
				232.3	
				236.3	
				240.3	
				244.3	
				248.3	
				252.3	
				256.3	
				260.3	
				264.3	
				268.3	
				272.3	
				276.3	
				280.3	
				284.3	
				288.3	
				292.3	
				296.3	
				300.3	
				304.3	
				308.3	
				312.3	
				316.3	
				320.3	
				324.3	
				328.3	
				332.3	
				336.3	
				340.3	
				344.3	
				348.3	
				352.3	
				356.3	
				360.3	
				364.3	
				368.3	
				372.3	
				376.3	
				380.3	
				384.3	
				388.3	
				392.3	
				396.3	
				400.3	
				404.3	
				408.3	
				412.3	
				416.3	
				420.3	
				424.3	
				428.3	
				432.3	
				436.3	
				440.3	
				444.3	
				448.3	
				452.3	
				456.3	
				460.3	
				464.3	
				468.3	
				472.3	
				476.3	
				480.3	
				484.3	
				488.3	
				492.3	
				496.3	
				500.3	
				504.3	
				508.3	
				512.3	
				516.3	
				520.3	
				524.3	
				528.3	
				532.3	
				536.3	
				540.3	
				544.3	
				548.3	
				552.3	
				556.3	
				560.3	
				564.3	
				568.3	
				572.3	
				576.3	
				580.3	
				584.3	
				588.3	
				592.3	
				596.3	
				600.3	
				604.3	
				608.3	
				612.3	
				616.3	
				620.3	
				624.3	
				628.3	
				632.3	
				636.3	
				640.3	
				644.3	
				648.3	
				652.3	
				656.3	
				660.3	
				664.3	
				668.3	
				672.3	
				676.3	
				680.3	
				684.3	
				688.3	
				692.3	
				696.3	
				700.3	
				704.3	
				708.3	
				712.3	
				716.3	
				720.3	
				724.3	
				728.3	
				732.3	
				736.3	
				740.3	
				744.3	
				748.3	
				752.3	
				756.3	
				760.3	
				764.3	
				768.3	
				772.3	
				776.3	
				780.3	
				784.3	
				788.3	
				792.3	
				796.3	
				800.3	
				804.3	
				808.3	
				812.3	
				816.3	
				820.3	
				824.3	
				828.3	
				832.3	
				836.3	
				840.3	
				844.3	
				848.3	
				852.3	
				856.3	
				860.3	
				864.3	
				868.3	
				872.3	
				876.3	
				880.3	
				884.3	
				888.3	
				892.3	
				896.3	
				900.3	
				904.3	
				908.3	
				912.3	
				916.3	
				920.3	
				924.3	
				928.3	
				932.3	
				936.3	
				940.3	
				944.3	
				948.3	
				952.3	
				956.3	
				960.3	
				964.3	
				968.3	
				972.3	
				976.3	
				980.3	
				984.3	
				988.3	
				992.3	
				996.3	
				1000.3	

a Lyrae	0 = +1 06.60 +80 +128 -25 00 16.35	18 33
β Lyrae	0 = 6.58 65 1.19 -20 00 38	18 45
γ Lyrae	0 = 6.54 12 1.01 -04 00 50	19 58
δ Lyrae	0 = 6.51 38 1.24 -24 00 58	21 01
Mis. Min.	0 = 1 11.68 +16.88 +16.91	98 07
	0 = 1 6.63 .59 1.19	19 32
	0 = +5.05 +16.29 +15.72	
	0 = +.31 + .2 + .97	
	0 = +.31 - .05 + .2	
	m = -.31	

$$4d7m = -1 06.45 \text{ at } 19^h 32^m$$

$$4d7m = +85$$

$$-035$$

2

ε Aurigae 19 09 33

Polaris 7671

1	19 0	225	19 09	214	341	58.9	441	39	440	19	45	507	19 54	—
2		251		303		527	358	241	426			532		—
3		276		330		463	249	205	452			557		548
4		303		356	19 18	399	178	135	473			583		571
0		350		409			180	137	525			630		22
1		403		462			269	205	575			83		77
2		430		489		19	448	359	66			109		88
3		455		526		258	150	419	273			189		122
4		481		540		258	169	341	52			159		146
						262	174	3						
		3174		3689					2936			2692		
									180			4736		
19 0	3527	19 09	4099	19 18	2582	19 34	5062	19	45	324				
18 59	2786	-1	729	19 17	1933		731							
1	741				649									

C = -0.5

ε Aurigae	0 = +1	741	+24	+102	-07	-05	-12	+1729	18 59
T "	0 =	731	+12	+101	-04	-05	-9	22	19 58
α Capricorni	0 =	741	-23	+103	+07	-05	+02	43	20 11
								731	59 08
									19 40

P. 17 67 SP.	0 = +1	649	-257	-276	0. Max. Maj. SP	0 = +1	0639	-243	-263
		737	+04	+102		0 =	737	+04	+102
	0 =	-88	-261	-378		0 =	-98	-247	-365
	0 =	-34	-m	-104		0 =	-37	-m	-104
	0 =	-34	+05	-m		0 =	-37	-m	+05
	m =	-29				m =	-32		

Assume m = -30

$$dM+m = -7.31 \text{ at } 19^h 40^m$$

$$dM+m = -8.8$$

$$-0.35$$

Nigricae *a* *Copriami* *a* *Cop.*

-25 +1.03

-24 1.03

-19 1.02

20 27 10
214 1020 35 30
-13 3320 44 45
10 455.10.10
S.P.)

19 58 44.5 20 11 23.2
46.9 26.0
49.2 28.5
51.9 31.0
56.9 36.0
00.9
4.2
6.8
8.3
270.6

11 52.6 745 0.05 59.4
55.1 451 3.92 2.2
0.0 447 0.00 7.2
5.1 744 0.03 12.2
7.5 752 0.00 14.9
10.1 750 0.8 17.2
12.5 742 0.8 19.8

20 36 244
270
29.4
32.1
37.1
42.2
44.8
47.1
49.8

20 45 40.9 21.59 27.5
43.4 26.03 34.0
45.8 14.53
48.4 13.01
53.5 12.90 59.9
58.3 14.33 12.8
01.1 25.41 19.2
3.7 32.55 25.8
6.0 21.0 32.6

19 58 56.73
19 57 49.92
1 7.31

20 12 0.03
20 10 52.62
7.41

20 28 6.53
7.25
7.33
7.08
-0.05
7.30
20 36 59.89
9.5

20 36 33.40
37.11
7.07
7.33
-0.05
7.38
20 35 29.75
8.0

20 45 30.11
45.71 00.1
53.45 00.0
7.34 59.9
7.06 59.7
-0.05 59.9
7.38 59.9
20 44 46.102 00.0

21 59 59.9
58 53.54
6.35

Aug. 29

C = -03

abygni

uabygni

P.P.C. 1879

61 bygni

.23 1.03

-20 102

1	20 37	545	20 46	572	20 63	298	21 2	04	21 22	373	21 34	092
2		580		399		444		39		389		119
3		18		422		584		70		422		144
4		50		449		128		101		448		170
5		120		499		415		163		500		219
6		189		549		105		228		549		267
7		224		542		244		258		543		297
8		260		598		384		269		600		321
9		295		2.3	55	534		820		2.7		346
10		22706		388.3		3139		1472		3281		1975
11		120		6		60				120		
12		1078		4483		3739				4491		
13	20 38	1198	20 44	4315	20 54	4155	21 02	1635	21 22	4990		2194
14	37	243	20 45	4981	20 53	3060	21 1	694	-1	917	1	915
15	1	955	25	40.66		1095		941		+07		+03
16				9.15						-03		9.26
17									21 21	40.66	21 33	12.79
18										57		

abygni
uabygni
61 bygni
P.P.C. 1879

0 = +1 m.5

9.53 + 99 + 141 - 32 - 04 - 36 1 9.17 20 37
9.15 - 17 + 1.01 + 06 - 03 + 03 18 20 45
9.41 + 78 + 1.27 - 26 - 04 - 30 .11 21 01
10.34 - 34 + 1.05 62 23
10.90 + 86 + 1.32 9.15 20 48

1 10.95 + 5.71 + 5.79
1 9.36 + 53 1.63

1.53 + 5.18 + 4.56

+ .35 + n + .90

+ .35 + n - .03

n = -32

1 932 - 17 - 04
dV+m = -1 915 at -20 n 48 n

9(dV+m) + 90

-0.37

Aug. 30

 π Copricornis
 $\begin{array}{r} +5 \\ 100 \\ 20 \ 27 \ 10 \\ -1410 \end{array}$
 $\begin{array}{r} -28 \ 103 \\ 20 \ 31 \ 56 \\ 15 \ 25 \end{array}$
 $\begin{array}{r} -19 \\ 102 \\ 20 \ 44 \ 45 \\ 10 \ 48 \end{array}$
 ν Cygni

1	20 20 524	20 27 573	20 32 458	20 45 169	20 45 1260	20 53 166
2	549	570	452	158	1004	189
3	545	2.3	508	210	756 511	230
4	0.0	6.0	531	239	499 565	264
5	5.3	10.0	583	288	505 15	329
6	10.6	15.3	3.3		505 15	395
7	13.2	17.9	6.0		505 15	425
8	15.6	20.3	8.4		100 6.3	460
9	18.4	22.9	11.0		161 8.9	492
	2279	1510	2849		231	2963
	4479	60	240		38	
		91.0	524.9			
	20 21 532	20 28 1011	20 32 58.20		20 45 563824	53 3292
	20 19 54.98	1 1004	1 10.04		-1 1005	52 22.02
	1 10.34	+0.8	+0.8		+0.6	
		-0.3	-0.3		-0.3	1 10.90
	20 27 0000	-1 10.04	-1 10.04		1 1002	
	n = -32	C = +1.02 + 0.0	C = -50		20 44 46.36	

π C. pricornis +1 1034 -34 +1.05 +11 +0.4 +0.85 +1 10.42 49
 ν Cygni 1090 +56 +132 -29 +0.9 -3.25 10.53 60
 ν Cygni 10.77 +57 +115 -19 +0.4 -2.15 55 62

$dT+m = -1 \ 10.45$ at 20 34
 47

$A(dT+m) = -140$
 90

$dT+m = 1 \ 10.05$ at 20 47

$A(dT+m) = -90$
 -0.37

20 21 1045 +11 -52 -41
 20 52 61 -29 -66 95
 21 02 58 -19 -58 77
 20 36 47 1 10.55

993
 9.95
 1000
 9.96

Aug 30 1870

-24.103

3 Cygni

-24.17
-13.26

1	21 6	23.0	21 18	5.3
2		26.0		7.9
3		28.8		10.2
4		31.6		12.8
5		34.3		15.9
6		37.0		19.0
7		40.9		22.5
8		44.7		26.0
9		51.7		30.6

336.0

161.2
1.1

21 8	37.33	21 18	17.91
7	26.56	1	14.06
	10.77		+0.7
			-0.3
		1	10.02
21 17			2.87

Sept. 1

61 Cygni

-24

21 17 13-26

13 26

-24

21 22

-13 25

1	21	2	3.3	21	14	42.5	21	18	6.6	21	22	37.9
2			6.5			44.9			8.2			40.5
3			9.7			47.3			11.9			43.0
4			12.9			50.0			14.2			45.4
0			19.0			55.1			19.2			50.7
1			25.5			60.1			24.6			56.0
2			28.4			62.8			27.0			58.4
3			31.7			65.2			29.5			60.9
4			34.9			67.9			32.0			63.4
			172.2			255.7			174.2			330.6
						240						120
						495.7						450.5
	21	2	19.13	21	14	59.08	21	18	19.35	21	22	50.72
	21	1	6.93		1	11.93		1	11.93		1	11.93
			12.20						+0.7			+0.7
									-0.2			-0.2
									11.85			11.85
							21	17	7.47	21	21	38.84

1870 δ Sept. 5 $c = -0.8$ β Lyrae

-39

19 7 11
21 2619 10 07
-21 2419 15
21 1 κ Aquilae

-2

20 31.0
13 57

1	18 46	200	19 8	19 11	104	19 16	219	19 30	592	20 35	6.1
2		229			130		297		1.9	594	8.7
3		258			159		272			595	112
4		289			185		259			594	13.8
0		347			239		353				18.9
1		407			291		402			5.0	24.0
2		436	2503	330	297		430			748	26.6
3		465	.06	354	1062		459			997	29.0
4		495	-11	382	1331		483			1249	31.6
P_1	31 26			21 45		31 6.4		11.67		16.99	
								11.84			
								151			

18 46	3473	19 8	2500	19 11	23813	19 16	35.15	19 31	11.76	20 35	18.88
45	18.37	-1	16.09	1	16.09	1	16.09	19 29	55.75	1	16.15
1	16.36		+17		+17		+17		16.00		+11
			-03		-03		-03		-03		-03
		1	15.95	1	15.95	1	15.95			1	16.07
		19 7	9.05	19 10	7.88	19 15	39.20			20 34	2.81

β Lyrae	$c = +1$	16.36	+65	+119	-25	-03	-31	11605	18 46
κ Aquilae		16.00	-13	+101	+06	-03	+03	03	19 30
ω Cygni		16.21	-17	+1.01	+07	-03	+04	25	20.45
μ Mus Maj.		19.98	-243	-263				33	55.01
		18.19	+12	+1.07				11611	19 40

$$-1.20 - 255 - 350$$

$$-47 - m - 1.48$$

$$m = -43$$

$$d\tau_m = -1 \quad 16.11 \quad \text{at } 19.40$$

$$d(d\tau_m) = -1.06$$

$$-0.44$$

1870
Sept. 5

u Aquarii

-18
20 4955
-10 12

or Mrs. Maj.

12	20 46	442	20 50	581	20 59	365
3		469		06		420
9		492		3.1		484
0		519		5.9		560
1		569		10.9		90
2		21		15.9		218
3		41		18.3		284
4		6.9		20.8		341
		9.3		23.4		40.3

	21.5		16.0		320.1
	2140		60		240
	511.5		94		807
20 46	55.83	20 50	1048	20 59	890
45	40.62		16.16	58	53.91
1	16.21		+ .08	1	1.99
			- .83		
			16.11		
		20 49	54.67		

1870
Sept. 6

C-054

50 Dracon. 3 Aquilae

$\begin{array}{r} - 39 \\ 19711 \\ \hline - 2126 \end{array}$

$\begin{array}{r} -39 \\ 19 \quad 9 \quad 33 \\ 21 \quad 18 \end{array}$

1
2
3
4
5
6
7
8
9
10

18 34 344 18 51 ~~536~~

369
398
424
498

536	
133	1959
232	2939
328	3845
427	4876

19	0	321
		348
		345
		399
5360		450
371		500
381		526
435		551
394		579

19	7	1328	19	8
		1059		
3497	270	797		
3506	298	526		
3490	349			
3477	907	633		
3483	427	797		
3478	454	162		
3490	482	1330		

2590	B14	259
2608	339	314
2593		339
2618		368
2590		392

1. 5. 6

19.91 404.9

3918

2998

18	50	53.88
18	50	35.00
	1	18.58

19	0	44.99
18	59	27.73
1		17.26

$$\begin{array}{r} 19734.89 \\ - 11705 \\ \hline + 18 \end{array}$$

19 82579
1 1705
218

1	16.93
19 6	17.98

1 1693
197 906

1870 Sept. 6

	19 10 7	Pi. 7(67)	x Cygnus	γ Cygnus	δ Cygnus	η Cygnus	π Cygnus
1	19 10 115	19 10 33	19 31	19 41	11.1	19 45	329
2	141	33			13.9		35.3
3	16.9	56.6	54		16.4		38.0
4	19.2	49.7	80		18.9		40.6
0	24.8 14.1	35.5	12.9		23.8		45.5
1	30.0 16.9	22.1	17.9		28.8	18 56	23.0
2	29.9 19.2	16.0			31.3		50.6
3	25.7 24.8	8.6	22.9		33.9		53.0
4	38.0 20.0	1.7	25.4		36.1		55.8
							58.1

223.1

203.6

44.2

409.8

223.1

120

323.6

19 11 24.79	19 18 35.95	19 41 23.80	19 45 45.53	19 56 23.0
49 14 3.65	17 19.70	19 40 6.63	19 54 28.34	19 54 46.93
-1 17.06	1 16.25	1 17.17	1 17.19	1 36.07
1 17.03				
19 10 7.76				

Star	T-Rd.	altg S	close S	ntang	osscd		
γ Cygnus	172.6	+2.43	1.029	-1.1	-0.6	-1.7	1 17.08
δ " "	171.7	+1.82	1.016	-0.8	-0.6	-1.4	1 17.03
η " "	171.9	+1.50	1.011	-0.7	-0.6	-1.3	1 17.06
50 Cygnus	18.88	+3.807	3.936				18
π Cygnus	36.07	+5.3123	+5.3182				1 17.06 = 47.4 m for 19 29 20
π Cygnus	16.25	-2.569	-2.757				
π Cygnus	15.84	-2.433	-2.630				

$$47.4 m = -96$$

$$-040$$

$$\begin{aligned} \pi \text{ Cygnus} & 0 = 172.6 + 198n + 1.019c \\ & 0 = 36.07 + 5.3123n + 5.3182c \\ & 0 = +1.8863 + 5.2925n + 5.2113c \\ & 0 = +3.564 + n + .99c \\ & n = -29.2 \end{aligned}$$

$$\begin{aligned} \pi \text{ Cygnus} & 0 = 172.6 + 198n + 1.019c \\ & 0 = 15.84 - 2.433n - 2.630c \\ & 0 = +1.887 + 2.631n + 3.649c \\ & 0 = -.52 + n + 1.39c \\ & n = -4.0 \end{aligned}$$

$$\begin{aligned} \pi \text{ Cygnus} & 0 = 172.6 + 198n + 1.019c \\ & 0 = 18.88 + 3.807n + 3.936c \\ & 0 = 1.67 + 2.609n + 2.917c \\ & 0 = +.52 + n + .81c \\ & n = -4.7 \end{aligned}$$

$$\begin{aligned} \pi \text{ Cygnus} & 0 = 172.6 + 198n + 1.019c \\ & 0 = 16.25 + 2.569n - 2.757c \\ & 0 = .35 + n + 1.07c \\ & n = -2.5 \end{aligned}$$

Assume $n = -4.5$

-28		-18		Oz. Nov. May	
20	3156	20	388	20	4955
-15	25	11	35	-10	12
20	33	20	39	20	50
65	130	591	376		
8.1	158	1.8	439		
11.8	183	4.1	508		
140	209	6.9	56.9		
183	259	11.8	10.2		
244	309	16.8	23.0		
280	332	19.2	29.5		
29.6	360	21.9	36.0		
32.0	386	24.2	42.4		
172.7	232.6	165.8	330.3		
		60	240		
		105.8	90.3		
20	33	20	39	20	50
17.19	2584	11.75	10.03		
1	17.10	1	17.11		
1	17.03	1	17.09		
20.32	2.16	20.38	8.77	20.49	54.66

Sept. 8 1870

 $n = -.43$ $c = -.06$ α Sagittarii $-25^{\circ} 34'$

70.80

1 18 48 19.1 1830

21 07 14.3

21 05 58.2

21 8 1.0

2 22.0

17.1

53.5

37

3 24.6

19.6

58.2

6.1

4 27.2

22.0

67

87

5 32.9

24.1

58

138

1 38.3

54.8

32.0

108

188

2 41.1

57.5

34.9

133

214

3 43.7

62

37.2

160

240

7 46.7

2.9

39.9

6 18.5

245

18 48 29.57

302

2441

232 0

1240

~~18 47 14.20~~

180

18 48 22.85

21 07 27.12

52.0

21 8 13.78

18 47 14.20

5.78

73

atay $\delta +1$ 18.65

+11

+11

essen -1.08

-06

-06

-118.93

1 1893

1 1888

1 1888

 $dT_m = -1 \frac{1}{1882} \text{ for } 18.48.30$

21 06 8.24

21 4 46.85

21 06 54.90

 $d(T_m) = .89$

Sept. 7/1870

 $C = -05^{\circ}0'$ α Argutae α Argutae α Cygnorum α Cygnorum -25 20 27 40
-14 10

1	19	45	340
2			365
3			390
4			415
0			440
1			465
2			490
3			515
4			540
			565
			590
			615

19	58	549
		575
		599
		621
		642
		662
		683
		703
		723
		743
		763
		783
		803
		823
		843
		863
		883
		903
		923
		943
		963
		983
		1003

20	33	075
		101
		126
		152
		177
		203
		229
		254
		280
		306
		330
		355
		380
		405
		430
		455
		480
		505
		530
		555
		580
		605
		630
		655
		680
		705
		730
		755
		780
		805
		830
		855
		880
		905
		930
		955
		980
		1005

20	12	
		10.7
		15.6
		18.7
		20.8
		23.2

20	27	11.3	12.70
		13.5	14.97
		16.2	16.66
		18.9	18.05
		24.9	
		24.06	
		23.673	
		3.86	
		3.95	
		4.00	

19	45	4650
19	44	2832
1		1817

19	58	730
19	57	4931
1		17.99

20	33	2027
-1		17.89
		+12
		-05
1		17.92
20	32	2.35

20	12	10.70
20	10	52.54
1		18.26

20	27	34.70
20	27	23.97
1		17.99
		+10
		-05
1		17.94
20	26	6.03

$$C = -0.60$$

	20	19	17.6.1879	3 Cygni	-24
	20 38 08	20 44 45			21 17
	11 35	10 48			18 26
1	20 39 14	20 45 51	20 53 38	21 08 30	21 18 12
2	16.8	54.0	53.8	33.3	15.3
3	19.2	56.6	57.1	36.1	17.5
4	21.8	59.0	22.9	39.1	20.3
5	26.8	64.0	50.4	44.8	25.3
6	31.9	9.0	18.9	50.6	30.3
7	34.3	9.0	33.0	53.3	35.0
8	36.8	11.6	47.9	56.2	38.0
9	39.4	13.9	56.2	59.9	40.3
10	241.0	16.3	2.8	40.3	22.84
		275.6	276.7		
		24.0	18.0		
		35.6	45.6		

20 39 26.78	20 46 39.5	20 54 50.15	21 08 44.85	21 18 25.38
18.05	1 15.05	20 53 29.53	21 07 26.50	-1 18.11
+0.8	+0.8	1 20.82	1 28.85	+10 19 58.13
-0.5	-0.5			-0.5 20 12.10
1 18.05	1 18.05			1 18.05
20 38 8.73	20 44 45.90			21 17 18.32
				21 09 30

Star	$\delta =$	W-R.	ntang	osce					
a Cygnus	$0 = +1. 15.17$	+15.0	+10.11	-0.6	-0.6	-12	1 18.05	81 05 39	
"	$0 = 17.99$	+12.1	+1.007	-0.5	-0.6	-11	17.88	20 16 25	
a Cap.	$0 = 18.26$	-23.0	+1.026	+0.9	-0.6	+0.3	18.29		
3 Cygni	$0 = 18.35$	+57.1	+1.151	-2.4	-0.7	-3.1	18.04		
20.6.1879	$0 = 1 20.82$	+5.706	+5.793				32.26		
	$0 = 1 18.22$	+1.53	1.049				1 18.07	at 20 16 25	
	$0 = +2.60$	+5.553	+4.794						
	$0 = +4.7$	+2	+1.850				1 18.05		
	-0.5						17.88		
	$n = -42$						18.29		

$$1 17.59 \text{ at } 20 17 49$$

$$A(dT+on) = -50$$

$$\text{Newly AT from 18.1.18} = +0.037$$

$$" " " 18.6.79 = -0.038$$

Sept. 9 1470

C = -03

	β Lyrae	γ Aquilae	ϵ Draconis	τ Aquilae	δ Cygni	α Mus Maj s.p					
1	~~1846~~	1941	138	1949	229	1958	565	2053	~~44~~	2059	393
2			163		303		570				459
3			189		373		14				524
4			212		450		41				600
0	382		263		591		89			416	121
1	441		315		137		139			487	251
2	469		338		207		165			515	315
3	510		363		280		190			548	382
4	529		389		351		216			583	449
		2369		2921		2009					2885
		8		240		120					140
				5321		809					1085
		1941	2632	1949	5912	1959	899			2059	1217
		1940	659	1948	3848	1957	4929			2058	5409
		1	1943		2064	1	1870			1	1808

$$\gamma \text{ Aquilae } 0 = +1 \quad 1973 + 182 + 1.016 - 07 - 03 - 10 \quad 1962$$

$$\tau \text{ " " } 1970 + 121 + 1.027 - 05 - 03 - 08 \quad 1962$$

$$\epsilon \text{ Draconis } 2064 + 2.739 + 2.916$$

$$\text{S.P. } \alpha \text{ Mus Maj. } 0 = -1 \quad 1808 - 2.433 + 2.630$$

$$0 = 1972 + 151 + 1.011$$

$$0 = 1.36 + 2.584 + 3.641$$

$$0 = +.63 + n + 1.41$$

$$n = -.47$$

$$0 = 1 \quad 2064 + 2.739 + 2.916$$

$$0 = 1 \quad 1972 + 151 + 1.011$$

$$0 = 0.92 + 2.588 + 1.905$$

$$0 = .36 + n + .74$$

$$n = -.34$$

$$\text{Adopted } n = -.40$$

$$dT+n = -1 \quad 19625 \text{ at } 19^h 50^m$$

$$d(dT+n) = .77$$

1870 Sep. 7

1880

21 7 15.0

17.6

20.0

22.4

24.0

33.0

35.5

38.3

40.6

24 7.4

21 8

1276

1017

2.67

310

35.9

38.1

41.1

43.3

512

765

1020

1278

31.00

30.78

30.45

30.50

30.52

36.5

30.73

21 7 37.77

21 8 30.73

Δt 1.1
 Δt 0.3
 Δt 19.62
 Δt 0.5

+11

-03

-1 19.67

1 19.59

21 6 08.18

21 07 11.18

1870 Sept. 12

C = +011

1	21 5	564	21 7	179	21 8	44
2		590		244		40
3		14		230		94
4		40		257		120
0		93		305		140
1		144		359		221
2		169		386		249
3		193		410		272
4		210		433		300
		2027		2763		15440
		110				
		827	21 7	3070	8	1715
21 6		919				
ntag S		+11		+11		
esied		+01		+01		
dt+m		-12240		-12242		12228
AdT		-12228		+02		
21 4		4691	21 6	8.42		65487

<i>W. Capriani</i>		<i>W. Capriani</i>	
21 32 41	21 33 20		
35 07 70	35 09		
21 33 473	21 34	15321	48 241
52.6		1206	270
53.2		909	295
56.3		599	320
52.5			370
8.4		36.8	607 3073
11.7		397	707 63
14.5		424	1210 30
17.4		455	1576 39
			222
2622			33 4.2
240			
222			
21 34 247	21 34 3055	21 47	37.13
7.29		21 46	1477
7.01			12236
-1 22.41			
1 22.11		1 22.11	
21 32 4036	21 33 844		

Sept. 12 1870

α Aquarii

(π Aquarii)

γ Draconis

1	920	147	22	19	397	32	24	230
2		21.2			494			33.8
3		238			480			43.6
4		260			494			54.3
0		310			519			15.5
1		361						36.7
2		384						47.0
3		410						57.1
4		436				26		8.0

279.8

3190

18

138.0

22.25 14.55

23 54.79

20.81

23 0 31.09
21 59 868
1 22.91

α Capricorni
δ Aquarii
γ Draconis

$$0 = +1 \ 22.36 - 252 + 1.032 \quad +06 + 01 \quad +07 + 1 \ 22.43$$

$$22.41 - 017 + 1.000 \quad -01 + 01 \quad +00 \quad .41$$

$$0 = 1 \ 22.31 - 4.128 - 4.247$$

$$0 = 1 \ 22.40 - .139 + 1.016$$

$$0 = 1.59 + 3.984 - 5.263$$

$$0 = 40 + n + 1.31$$

$$n = -41$$

$$dT+m = -1 \ 22.42 \text{ of } 21 \ 53$$

$$4(T+m) = -91$$

1870 Sept. 13

$$c = +.03f$$

3 *Aquiline*

-37

x *Aquiline*8 *Aquiline*a *Aquiline*

1	19 00	382	~~49~~ 6	19 30	62	19 41	171	19 45	39.0
2		406			8.9		19.4		41.4
3		431			11.1		22.0		44.0
4		458			13.9		24.6		46.3
5		509			15.8		29.8		51.4
6		559			23.8		34.4		56.3
7		587			26.2		37.2		58.9
8		1.0			28.8		39.8		1.4
9		3.6			31.1		42.2		4.0
10									
		3278			44.10		267.2		342.7
		120			44.22				12.0
		4518			168.8				46.27

19 00	5087	19 6	44.16	19 31	18.75	19 41	296.9	19 45	51.41
15 59	2768	- 1	23.12	19 29	55.65	19 40	6.54	94	25.26
			+16						
			+04		23.10		23.15		23.15
			1 2292						
			19 5	21.24					

3 <i>Aquiline</i>	0 = H	23.19	+24	+103	-10	+04	-06	1 23.13	18.5-9
x " "		23.10	-13	+101	+05	+04	+09	19	19.30
8 " "		23.15	+18	+102	-07	+04	-03	12	19.40
a " "		23.15	+15	+101	-06	+04	-02	13	19.44
11 Capricorn		22.98	-34	+1.05	+14	+04	+18	16	20.20

1 23.11	+02	+102						1 23.16	
1 2964	+274	+292	T. X. 61878	0 =	1. 25.29	+5.71	+5.79		
					1 23.11	+02	+1.02		
					213	+5.68	+4.77		
					38	+n	+82		
					n =	-41			

$$dV+m = 123.14 \text{ at } 19^h 39^m$$

$$A(dV+m) = -.80$$

Sep. 13 1872

Drocomis

H. cap.

26

20 27 26

20 33 48

20 35 30

19 57

12 40

-13 33

1 19 49 264
 2 33.6
 3 40.8
 4 48.0
 5 27
 1 70
 2 24.0
 3 31.8
 4 38.9
 2632

20 21 21.8 13.05 20 28 48.0
 7.5 10.0 17.0
 10.0 7.6 12.65
 12.8 5.17 17.87
 17.9 17.80
 22.2 5.23
 28.6 28.3 17.77
 34.4 10.44
 31.0 13.08 11.52

48.0

20 35

20 37

49.8

48.4

48.9

55.0

59.9

30.2

50

7.6

596

17.85

49.54

55.04

23.18

7.11

7.04

23.03

32.01

15.5

18.3

21.0

23.3

5.2

14.1

31.0

19 50 291
 48 38.27
 24.64

20 21 17.85
 20 19 54.97
 1 22.98

20 28 55.04
 1 23.18
 1 7.11
 1 7.04
 1 23.03
 20 27 32.01

21 -14° 20'

21 6

21 8

21 10

21 33 48.1

21 34 31.15

42.58	47.7	512	36.5	31.38	23.0	18.10	31.0	31.00
35	50.0	76.8	37.3	65	28.6	17.88	37.2	6.7
36	52.5	10.20	41.7	50	28.2	17.95	40.3	4.9
82	55.6	12.78	44.3	52	30.8	18.00	43.2	12.10
205				52		18.02	46.4	15.16
51				20.5		18.2		28
				51		17.99		74

21 6 42.51
 -1 23.14
 -0.5
 +1.1
 +0.4
 1 23.04

21 7 31.51
 -1 23.14
 -0.5
 +1.1
 +0.4
 1 23.04

21 10 17.99
 -1 23.14
 -0.5
 +1.1
 +0.4
 1 23.04

21 34 31.15
 -1 23.14
 -0.5
 +1.1
 +0.4
 1 23.04

21 34 31.15
 -1 23.14
 -0.5
 +1.1
 +0.4
 1 23.04

21 5 19.47

21 6 8.47

21 8 54.95

21 32 48.1

21 32 8.29

40.31

T36
1179

to Newbury

20 53 438	21 1 592	21 6	21 7	36.5	21 8
54.5	10.9			39.2	
11.4	22.9			41.7	
25.2	34.1			44.2	
54.3	56.3	42.58 47.7 51.2		36.5 31.5	18.1 18.10
23.4	3 19.9	35 500 765		39.2 55	23.0 17.88
37.3	30.9	20 52.4 1620		41.7 50	25.4 18.05
56 52.0	42.9	72 55.5 1278		44.2 42	28.1 19.90
6.2	54.3	185		185	30.9 18.11
312.1	330.9	46		46	40.09
180.	1.8				18.1
492.1	480.9				
5	50.77				
20 54 5468	21 2 5774	21 6 4246	21 7 3146	21 8 1801	
53 29.44	58 59.28	+ .11	+ .11	+ .11	
		704	+ .04	704	
25.24	[23.77]	- 1 23.20	1 23.20	- 1 23.20	
		1 23.05	1 23.05	1 23.05	
		21 5 19.41	21 6 8.41	21 8 54.96	

Sept. 19 1870 $c = +0.5$ γ Aquina γ Draconis γ Aquina α Capricorni α Cor. π Capricorni $-15^{\circ} 24'$

19^h 41 221
 248
 272
 295
 349
 398
 423
 449
 473

19 49 310
 387
 453
 505
 72
 214
 290
 360
 437

20 11 439
 465
 490
 517
 567
 224
 249
 274
 298

20 12 79
 1047
 130
 157
 207
 258
 282
 308
 332

20 21 99
 127
 150
 177
 229
 280
 306
 333
 362

20 21 99
 127
 150
 177
 229
 280
 306
 333
 362

20 33 174
 201
 225
 253
 304
 303
 33
 40
 134
 37

31 32

305.0

290

65.1

19 49 720

19 48 3791

1 25.31

19 41 3420
 19 40 645
 1 28.35

20 12 2068
 20 10 5239
 1 28.24

20 21 2292
 20 19 5477
 23.15

20 33 3037
 -1 28.35
 -0.2
 +.11
 +.05
 1 28.21

γ Aquina
 α Capricorni
 π " "

$0 = +1$ 28.35 + 18 + 102
 28.24 - 23 + 1.03
 28.15 - 39 + 1.05

 $n = 40$

- 07 + 05 - 02 + 1 28.33
 + 09 + 05 + 14
 + 14 + 05 + 19

19 40
 20 10
 20 30
 15
 60 10

 ϵ_2 Mus Maj.

27.67 - 243 - 2.63

1 28.25

20 03

1 28.25 - 13 + 1.03
 - 0.66 - 230 - 3.66
 - 29 - n - 1.6
 - 29 - n - 0.8
 $n = -37$

 ϵ Draconis

1 29.31 + 274 + 2.92
 1 28.25 - 13 + 1.03
 + 1.06 + 287 + 1.89
 + 27 + n + 7
 + 37 + n + .03
 $n = 40$

1 28.25 + 05 + .05
 $d \gamma_{\text{tan}} = -1$ 28.35
 $d(\gamma_{\text{tan}}) = -7.87$
 - .037

01 20 03

	-15.24 .28	-11.05 21	-10.48 19	-10.12 18	0.42 May	-10.42 19	-10.42 15	
20 33	1283	20 39 243	20 46 19	20 51 101	20 59 500	21 11 11		
3023	1023	267	42	128	561	21 11 11		
23	770	262	66	157	029	74 9.7 1008		
50	508	318	92	178	9.2	86 7.4 956		
35						89 9.9 999		
40	470	420	110	227	22.1	18.0 15.0		
154	520 515	4685	163	285	35.1	359	505	330
37	547 469	47.01	218	302	44.5	90	756	315
	572 1026	46.54	243	328	47.8		1004	37.9
	598 1288	47.05	265	353	54.7		1261	40.7
		3485						109
		4697	1143	2046	3195			394
		331.7			120			27985
					129.5			
20 33 4897	20 39 3685	20 46 1381	20 51 2273	20 59 2317	21 11 1490	21 11 2798		
- 1 2835	- 1 2835	- 1 2835	- 1 2835	58 54.58	- 1 2835	- 1 2835		
- 02	- 02	- 03	- 03	1 28.69	+ 08	- 03		
+ 11	+ 08	+ 05	+ 07		+ 08	+ 05		
+ 05	+ 05	+ 05	+ 05		+ 05	+ 05		
1 2821	1 2824	1 2825	1 2826		1 2825	1 2825		
20 32 1896	20 38 861	20 44 4556	20 49 5449		21 9 4665	21 9 55.70		

Sept. 19

 $-13^{\circ} 09'$
23

 $-13^{\circ} 34'$
24

 $-11^{\circ} 25'$
20

 $-7^{\circ} 18'$
13

21 22	56.3	21 29	44.5	21 34	28.5	21 42	47.1
	58.8		47.0		30.8		49.8
	1.3		49.6		33.4		52.0
	9.1		52.2		36.0		54.6
	9.0		54.1		41.1		59.7
	14.0		02.2		46.0		4.4
	16.7		4.8		48.8		7.0
	18.9		7.5		51.0		9.4
	21.5		10.2		53.8		12.1
	200.7		275.1		369.3		326.1
	120		240				240
	80.7		515.1				536.1
21 23	89.7	21 29	57.23	21 34	41.03	21 43	59.56
-1	28.35	-1	28.35	-1	28.35	-1	28.35
	-0.08		-0.08		-0.08		-0.08
	+0.09		+0.10		+0.08		+0.05
	+0.5		+0.5		+0.5		+0.5
1	28.26	1	28.25	1	28.25	1	28.80
31 31	40.71	21 28	28.56	21 33	12.78	21 47	31.26

Sept. 20 1870

C = +01

Capricorn	-14 59 27	-12 40 23	-11 35 20	-10 12 18	Mr. May	Alaphin
20 21 111	20 28 489	20 35 48	20 39 256	20 57 12.1	20 59 516	21 16 443
139	513	72	281	16.6	58.4	338
165	540	98	307	18.0	5.0	448
192	564	123	332	20.0	11.0	503
245	15	174	383	25.2	24.5	568
297	68	224	433	31.6	37.3	113
323	91	249	458	34.3	43.7	167
348	118	275	483	36.9	50.2	220
373	143	300	509		57.0	273
2193	2541	1563	3442	218.3	3387	2470
2	240				128	240
	141				2187	70
20 21 2437	20 28 3823	20 35 1737	20 39 3824	20 57 2426	20 59 2430	21 16 078
19 5477	1.57				58 54.62	15 3139
1 29.60					1 32.68	3944

v Cephei. $\circ = +12.944 + 1.88 + 2.13 + 0.4 + 0.2 + 0.3 + 1.2950$
 w Capricorn $29.60 - 34 + 106 - 01 + 01 + 01$
 z Cygnus $29.58 - 15 + 107 - 00 + 01 + 01$
 e Pegasi $29.53 + 16 + 101 + 00 + 01 + 01$
 w Capricorn $29.59 - 25 + 103 - 01 + 01 + 01$

1 29.52 + 329 + 344
 29.57 - 14 + 103
 - .05 + 2.43 + 2.41
 - .02 + m + .7
 m = +0.1
 1 29.68 - 243 - 263
 1 29.57 - 14 + 103
 + 11 - 228 - 366
 + .05 - m - 1.6
 .02
 m = +0.3
 m = +0.2
 dTm = 1 29.58 at 21 18
 d(dTm) = -1.23
 .050

Mr. May.

20 28 157	20 35 1737	20 39 3824	20 57 2426
1 29.58	1 29.58	1 29.58	1 29.58
+ .09	+ .04	.08	.02
.02	.04	.01	.01
.01	.01	.01	.01
1 29.53	1 29.53	1 29.54	1 29.55
20 26 3204	20 33 4784	20 38 870	20 49 5471

Sept. 20 1870

β Aquarii	γ Aquarii	ϵ Pegasi	μ Capricorni	γ Draconis
21 26	21 32 90	21 39 08.7	47 31.5	21 52 6.1
	11.7	9.9 26	36.2	10.9
	14.0	12.2 23	36.7	28.3
	16.7	14.8 24	35.2	31.7
	21.7	19.8 50	44.3	49.0
	26.8	24.8 50	49.4	5.7
22.1	28.0	29.4 26	52.0	19.3
29.6	31.5	30.0 26	54.9	23.0
27.0	34.1	32.3 27	57.0	31.7
	194.5	178.5	399.0	192.7
				2.4
				439.7
21 32 21.61	21 39 19.63	21 47 44.33	21 52 48.85	
30 52.03	37 50.30	46 19.74	21 51 19.33	
38.53	25.33	28.59	1 28.52	

γ Aquarii 0.5 + 1 28.58
 ϵ Pegasi 2
 μ Capricorni
 γ Draconis

Sept. 21 1870

C = -02

θ Mrs May $-11^{\circ} 2' 2''$
 S.P. $-11^{\circ} 2' 2''$

11 Leoheim

11 Leoheim

a Cygnus

32 Mrs May $-2^{\circ} 55'$
 $-2^{\circ} 55'$

21 25 21	3680 21 35	284	21 40	572	21 47	323	22 0	264	22 9	329	22 16	389
1640	2842	310		47		349		291		382		412
1274	2317	332		11.9		373		315		452		437
84	1962	358		20.0		400		341		510		464
390	390	410		243		450		389		32		511
3891 809 470	1410	461		395		502		439		419		560
8.99 12.12 511	22.14	449		530		527		465		213		587
3504 106	352	571		47		552		489		270		69
3.532075 577	3696	537		128		575		574		332		37
	3690	2513				405.4		3507		2679		340.6
		+60								240		4606
		3413 3113								279		4606
21 25 3898	21 35 4100	20 40 4000	21 47 4504	22 0 3897	22 9 310	22 16 389						
24 8.64	-1 30.28	21 40 4438	42 14.73	21 59 865	22 8 3258	2						
1 30.34	+01	1 4444	1 3031	1 30.32	1 30.52							
	-02	1 30.24										
	1 30.30											
	21 34 10.70											

11 Capricorni $0 = +1$ 3031 - 25 + 103
 a Cygnus 3032 - 02 + 100

32 Mrs May

1 3052 - 20 - 243
 1 3031 - 12 + 102
 +.23 - 218 - 395
 +.10 - n - 1.6
 +.10 - n + 03
 n = +13

1 3031 - 01 - 02

Assume n = +10

 $d^{\circ} + m = -1$ 30.98 at 21 h 53 m

 $d(d(14m)) = -70$
 -0.29

θ Mrs May
 1 3034 - 129 - 1.59
 1 3031 - 12 + 1.02
 +.03 - 117 - 2.61
 +.03 - n - 2.1
 +.03 - n + .04
 n = +07

Sept. 21 1870

- 2^o. 17. 9 Droons?

2 18 10.6 32 24

Be

15.6

18.2

230

179

30.6

329

3.

450

550

02

51

100

1

2071

22 18 2301

- 1. 30'28

101

22

12

1 3031

22 16 5270

Sept. 22

C-102

d Mus Maj

3 Aquarii

- 18'

79 Draconis

a Cygni

8 Aquarii

21 23 499	21 32 106	21 42 489	21 52 75	22 00 272	22 11 191
577	130	524	139	298	218
50	154	548	246	323	243
118	180	573	329	348	268
271	231	23	508	388	318
420	280	72	585	448	368
488	304	98	153	493	393
561	330	123	240	487	418
25 37	355	148	327	532	443
3021	3070	2608	2112	3579	2960
60		248	24		
2421		208	4512		3178
21 23 2690	21 32 2300	21 42 2318	21 52 5013	22 00 3977	22 11 3222
22 5836	30 5202	1 31.04	51 1924	21 59 8615	22 00 6069
1 31.54	20.98	+ 01	1 30.89	31.12	31.09
		- 02			
		1 31.07			
		21 41 3124			

3 Aquarii 0 =	1 30.88 - 15 + 1.01	21 32
a " "	31.12 - 02 + 1.00	22 01
b " "	31.09 - 15 + 1.01	22 11
c " "	31.11 - 07 + 1.02	22 31

d Mus Maj

$$\begin{aligned}
 &1 \cdot 31.54 + 281 - 298 \\
 &1 \cdot 31.07 - 08 + 1.00 \\
 &+ 47 - 2.73 - 3.98 \\
 &+ 17 + n - 1.5 \\
 &+ 17 - n + .03
 \end{aligned}$$

$$n = +.20$$

79 Draconis

$$\begin{aligned}
 &1 \cdot 30.89 + 329 + 3.44 \\
 &1 \cdot 31.07 - 08 + 1.02 \\
 &- .18 + 337 + 244 \\
 &- .06 + n + .88 \\
 &- .06 + n + .02 \\
 &n = +.08
 \end{aligned}$$

$$\text{Assume } n = +.14$$

$$1 \cdot 31.07 - 01 - 02$$

$$d\mu + m = -1 \cdot 31.04 \quad c/ \cdot 22 \cdot 02$$

$$\begin{aligned}
 d(d\mu + m) &= -.76 \\
 &= -.021
 \end{aligned}$$

Sept 29

20 53		- 20 57		N. Ag. Main	
- .04		- .14			
22 16	39.3	22 18	11.1	22 34	18
	42.0		13.9		41
	44.9		16.0		67
	46.9		18.8		80
	52.0		23.6		140
	54.7		26.7		188
	59.3		31.2		213
	1.8		33.7		238
	4.4		36.0		26.9
	74.68		2139		125.7
	12				
	446.8				
22 16	57.88	22 18	2371	22 34	1899
1	31.04	1	31.04	28	42.88
	- .01		- .01	1	31.11
	02		02		
	- .02		- .02		
1	31.07	1	31.07		
22 15	20.81	22 16	52.64		
1	31.04	1	31.04		
	02		02		
	02		02		
	- .02		- .02		
1	31.06	1	31.06		
22 13	48.75	22 15	21.58		

Oct. 8 10 1170

$$C = +05 \quad n = +13$$

	$-15^{\circ} 24'$ 1.8	$-14^{\circ} 27'$ 2.6	$-14^{\circ} 27'$ (~~2.6~~)	$-10^{\circ} 40'$ 19	α Cephei	δ Mus Maj.
20 33	12.32 11.23 7.70 5.58	1 32.7 35.0 37.7 40.1 43.1	2 2 59.2 1.8 9.3 6.9 12.2	2 11 33.2 35.8 38.3 40.8 43.9	2 16 50.4 53.3 55.8 6.1 16.8	2 24 6.6 14.0 21.6 28.8 43.3
	53.5 5.75 56.2 7.69 58.5 10.26 1.2 12.85	48.35 8.57 2.24 35	50.3 52.9 55.4 58.1	50.9 53.6 56.0 58.5	27.1 32.2 37.5 43.1	45.3 51.3 57.5 20.2
	145	140.3	168.4 6.1 108.4	413.0	269.3 1.2 149.3	231.2 1.6 391.2
20 33 48.36		21 01 45.25	21 02 12.04	21 11 45.89	21 16 16.59	21 24 48.37
- 46.34 + .05 - .03 + .05	1 46.34 + .04 - .03 + .05	1 46.34 + .04 - .03 + .05	1 46.34 + .04 - .03 + .05	1 46.34 + .04 - .03 + .05	1 45.94	1 47.02
1 46.27	1 46.28	1 46.28	1 46.28	1 46.28		
20 32 02.09	20 59 58.97	21 00 25.76	21 9 59.61			

Oct. 10
10

C = +0.5

γ Leporis	γ^0 18	α Cygnus	β Cygnus	-2° 55'	-2° 57'
21 34 287		22 0 424	22 11 345	22 16 547	22 18 264
369	21 43 50	481	380	581	290
340	44	485	385	585	314
369	59	489	419	60	335
417	154	549	490	70	359
468	176	549	520	122	438
495	224	549	542	154	463
520	248	549	568	168	487
547	273	549	584	184	512
375.2	300	549	584	184	512

21 34 41.69

22 0 424	22 11 345	22 16 547	22 18 264
481	380	581	290
485	385	585	314
489	419	60	335
549	490	70	359
549	520	122	438
549	542	154	463
549	568	168	487
549	584	184	512

α Cygnus 0 = 1 45.98 + 158 + 213 + 28 + 11 38 - 1 46.39

β Cygnus 46.20 - 01 + 100 02 + 05 + 05 1 46.30

γ Cygnus 46.37 - 15 + 1.01 - 02 + 05 + 03 46.40

δ Cygnus 1 4702 - 281 - 298 1 4702 - 281 - 298

1 46.17 + 57 + 138 46.28 - 18 + 101

+ 581 - 289 - 298

+ 28 - n - 140

407

n = +18

Assume = n = +13 (same as 00172)

+ 1 46.28 + 01 + 05

δ Cygnus = - 1 46.34 at 22.06

1 45.57 + 158 + 213

1 46.28 - 15 + 101

- 31 + 206 + 102

- 15 + n + 581

+ 03

n = +12

Oct. 12 $c = +.04$

79 Decans

Wynain

Wynain

 $-2^{\circ} 55'$ $-2^{\circ} 57'$ $-1^{\circ} 57'$

21 52	23 1231	22 0	441	22 11	361	22 16	560	22 18	240	22 22	27
	320 320		467		387		541		387		52
	403 403		491		410		73		330		76
	38 488		516		437		38		355		91
	60		565		467		58		404		150
	278		15		536		139		454		199
	315		29		560		163		480		224
	397		64		585		177		504		249
	483		88		10		210		529		274

292.5

2686

3773

148.9

364.4

134.81

21 53	5633	22 0	5651	22 11	4859	22 17	5877	22 18	4049	22 22	1498
51	1822	21 55	547	19	4514	-1	4809	-1	4809	-1	4809
1	48.41	1	48.04	1	48.05		80		80		81

Wynain
21 11

$$0 = 1 \ 4804 - 01 + 100 - 01 + 04 + 04 \ 1 \ 4805$$

$$48.05 - 14 + 101 - 02 + 04 + 02 \ 48.07$$

79 Decans

$$1 \ 4741 + 329 + 344$$

$$1 \ 48.04 - 97 + 1.01$$

$$1 \ 48.04 + 01 + 04$$

$$0 = -0.63 + 3.36 + 2.93$$

$$0 = -16 + n + .72$$

$$n = +13$$

$$dV+m = -1 \ 48.09 \ d-2206$$

$$q(dV+m) = -87$$

$$-036$$

Oct. 13 1870 $c = +.04$ o. Jno. Maj. $-10^{\circ}42'$
19P. Aquarii $-11^{\circ}25'$ $-11^{\circ}22'$

~~21 11 185~~ 21 11 185 1258 150 259 322 458 585 52 114 178	21 11 35.34 35.34 16 60 70 30 168 34	229 1258 21 26 21.3 253 1004 27.6 756 301 499 357 505 755 1006 1261	21 26 21.3 235 264 289 339 389 412 437 463	21 34 488 514 542 565 576 63 89 116 142	21 35 465 12.61 5941 484 10.07 518 756 543 503 33 70 508 84 718 122 12.09 12.64	5941 47 37 33 42 35 56 293 42
--	---	---	--	---	--	---

2290 150 4080 21 0 45.44 21 58 53 88 3601 1 48.48	21 11 35.34 -1 48.92 + .01 - .03 + .04 1 48.90 21 09 46.44	3034 21 26 83.71 21 24 44.51 1 48.90	2585 135 21 35 15.0 -1 48.92 100 - .04 + .04 + .04 1 48.92	21 35 59.42 1 48.92 100 - .04 + .04 1 48.92 10.50 21 34 10.50
--	--	---	--	--

P. Aquarii $c = 1 48.90 - 11 + 10.1$
 o. Jno. Maj. $1 48.48 - 243 - 263$
 $- 53 + 232 + 364$
 $- 23 + n + 1.59$
 $+ 6$
 $n = +.17$

 $1 48.90 - .02 + .04$ $d + m = -1 48.92$ at $21 27^h$

Oct. 18

$-14^{\circ}20'$ 26	$-14^{\circ}22'$ 26	$-14^{\circ}19'$ 26	$-13^{\circ}53'$ 25	$-14^{\circ}1'$ 25	$-21^{\circ}46'$ 40	$-13^{\circ}31'$ 24
21 1 342	21 6 1	21 3 574	21 11	21 12	21 21 345	21 30 95
41.6	89	597	1.56	514	371	117
44.7	113	2.0	.56	539	388	141
45.0	139	4.2	.55	565	424	169
52.1	190	98	.70	57	438	220
57.2	241	147	237	511	530	280
57.5	267	143	.59	565	588	298
2.2	292	200		10.9	585	322
4.8	319	225		12.7	63	347
24508	1711	2076			308	370.1
12		120			.62	6
4688		876				420.1
21 01 3209	21 3 1901	21 7 973	21 12 159	21 42 2062	21 21 21 4668	21 30 21 99
-1 5325	-1 5325	-1 5325	-1 5325	-1 5325	-1 1 5325	-1 5325
+05	+05	+01	+04	+04	+04	+05
-03	-03	-03	-03	-03	-05	-03
00	00	00	00	00	00	00
1 5323	1 5323	1 5323	1 5324	1 5324	1 5324	1 5325
20 59 5886	21 7 2576	21 2 1650	21 10 835	21 10 2738	21 15 5342	21 28 2874

$$C \approx 0$$

Coprinus 792 nocu

a. Ayyuain 32nd May

de Rezani

-2 39

[illegible]

A. Aquaria $\phi = 1.58, 25 - 0.2 + 1.00$
792 records $52.84 + 3.29 + 3.40$
 $- .41 + 3.31 + 2.44$
 $- 12 + n + .78$
 $n = 12$

$$0 = +1 \quad 53.25 = 0 + 0$$

at 74 m - 155.25 at 22 22

$$A(dT + m) = \begin{matrix} 86 \\ -036 \end{matrix}$$

Oct. 20 1870

Earthquake of 23 26 00 Mean time clock
Continued from 8^h to 12^h by Rogers 10^h to 15^h by Austin & McConnell.
The room clock pendulum which was at rest, was started with a motion from East to West.
So also the pendulum of the Chronograph. Chadwick and Rogers observed a motion from North to South.
Lusk and Dr. White observed the motion as East to West. Mr. Austin was leaning upon
a desk and felt the motion of the desk East to West. Dr. Corcoran had both hands in the window
see running E and W. Mr. McConnell was manipulating the Chronograph and observed a
motion from E. to W. Mr. White was standing on the floor of the basement, facing the wall between and
observed the motion from E to W. Mrs. McLeod raised the window curtain move

$2 \frac{1}{43}$

22 18

12.388
 98.4
 7.44
 4.91

095
 119
 143
 167

496
 243
 689
 1290

4.54
 1.48
 91
 30
 172
 93

22 18 4.43

1 53.25

22 16 11.18

air
 m
)
 v
 2

c = .06

Oct. 22 NYC

for readings see Transit Record Book.

a Cyphus 0 = 1 56.57 + 1.58 + 2.13
 u Capricorn 56.99 - .25 + 1.03
 a Cyphus 56.91 - .02 + 1.02
 d " " 56.89 - .15 + 1.07

γ Draconis 56.49 3.29 2.44
 1 56.24 + 1.13 + 1.25
 56.83 - .14 + 1.01
 - 0.69 + 5.48 2.34
 - .17 + n + .5

λ Draconis 1 57.78 - 2.75 - 2.93
 1 56.93 - .14 + 1.01
 + .55 - 2.61 - 3.94
 + .38 - n - 1.5

$\frac{1}{10} + n + .05$ $n = +.11$
 $\frac{1}{10} + n + .05$ $n = +.15$

$+ .38 - n - .09$ $n = +.24$

+ 1 56.83 - .02 + .06

(a + m) = - 1 56.97

(d + m) = - .55
 - .023

Assume n = +.20

- 11° 24
 - .20

- 11° 21

- 2° 38

- 2° 38

- 2° 42

+ 1° 35

+ 1° 35

21 33 56.6	34 54.5	22 16 28.1	22 17	23 30 30.3	23 30 35.1
59.7	57.0	31.5		32.8	32.7
1.9	58.7	34.0		33.8	30.0
4.2	2.1	26.5		37.8	42.6
9.4	7.2	41.5		42.1	47.7
14.5	12.2	46.9	8.10 8.1	47.8	52.3
18.0	14.9	49.1	7.74 12.7 4.4	52.1	54.9
19.5	15.3	51.5	8.07 15.8 5.0	52.6	57.6
22.0	19.9	53.4	7.91 17.8 5.9	53.0	60.0
		59.4	7.80 20.2 12.40		
		37.35	39.62	39.3	
20.48	74.48			51.7	38.45
18.0	16.0			4.2	36.76
54.8	64.8				42.6
21 34 09.42	21 35 7.20	22 16 41.50	22 17 07.92	22 17 39.30	23 30 42.72
- 1 56.97	- 1 56.97	- 1 56.97	- 1 56.97	- 1 56.97	- 1 56.97
+ .02	+ .02	+ .02	+ .02	+ .02	+ .02
- .04	- .04	- .01	- .01	- .01	- .01
+ .06	+ .06	+ .06	+ .06	+ .06	+ .06
1 56.93	1 56.93	1 56.92	- 1 56.92	1 56.92	- 1 56.94
21 32 12.49	21 33 10.37	22 14 44.58	22 15 11.00	22 15 42.38	23 28 45.78
					23 31 40.57

Runs

A B C D
 301.2 300.7 301.1 299.6
 - 1.2
 - 0.7
 - 1.1
 + 0.4
 - 1.5
 - 1.3" for rock &

Bar. 30.28
 Alt. Ther. 63.4
 Ext. Ther. 50.2

Cor B. 00992
 Cor T. 00125
 Cor P. 01117
 Cor S. 00000
 Cor B. 01117
 Cor D. 00000
 Cor X. 00723
 Cor Y. 00123
 Cor Z. 00123
 Cor A. 1.76149
 Cor B. 1.76149
 Cor C. 1.76149
 Cor D. 1.76149
 Cor E. 1.76149
 Cor F. 1.76149
 Cor G. 1.76149
 Cor H. 1.76149
 Cor I. 1.76149
 Cor J. 1.76149
 Cor K. 1.76149
 Cor L. 1.76149
 Cor M. 1.76149
 Cor N. 1.76149
 Cor O. 1.76149
 Cor P. 1.76149
 Cor Q. 1.76149
 Cor R. 1.76149
 Cor S. 1.76149
 Cor T. 1.76149
 Cor U. 1.76149
 Cor V. 1.76149
 Cor W. 1.76149
 Cor X. 1.76149
 Cor Y. 1.76149
 Cor Z. 1.76149

Star Star Star A B C D Mean Micros. Micros. x Mean of Micros. Cor. for Micros. Red to Prime
 Mean from
 Red to Prime
 Cor. for Micros.

Oct. 23 1870

 $c = +0.6$

-10.42	-10.42	-21.46	-13.30	-13.30	-11.21
21 11 31.1	21 11 31.1	21 21 39.7	21 28 24.1	21 29 12.7	21 34 57.1
340	340	412	270	10.14	598
367	367	440	291	764	23
389	389	465	320	5.09	49
439	439	520	371	15.80	9.8
486	486	573	420	16.00	14.9
539	539	599	448	16.27	18.0
585	585	623	471	15.93	20.0
589	589	649	500	15.76	23.4
126/3107	126/3107	396	3332	249	2198
		347.8			170
		46.78			898
21 11 43.88	21 11 56.79	21 21 51.98	21 28 37.02	21 29 15.87	21 34 99.8
-1 57.52	-1 57.52	-1 57.52	-1 57.52	-1 57.52	-1 57.52
+03	+03	+02	+02	+02	+03
-03	-03	-06	-03	-03	-03
+04	+04	+06	+06	+06	+06
1 57.46	1 57.46	1 57.50	1 57.47	1 57.47	1 57.48
21 09 46.42	21 9 59.33	21 19 54.48	21 26 39.55	21 29 18.40	21 32 12.50

2 Regani 0 = $157.36 + 16 + 101$
 u Capricorni $59 = 25 + 103$
 @ Cygnus $46 = 02 + 100$
 2 "

79 Draconis

$156.85 + 328.341$
 $157.45 + 17.101$
 $-60 + 328 + 240$
 $-19 + n + 8$

 $-19 + n + 15 \quad n = +14$ $157.45 + 01 + 06 = 157.52$

32 Mus Maj: $158.98 - 2.22 - 243$
 $157.45 + 04 + 107$
 $1.03 - 2.18 - 342$
 $47 - n - 1.7 + 47 - n - 10 \quad n = +37$

 $dT + m = -157.52$ $d(dT + m) = -55$ -026 $Assume = 44$

Ref.

Oct. 23 1870

0'
-157

11' 31"

+1' 31"

22 22 21.8	23 30 30.8	23 88 36.0
14.3	33.5	35.8
167	33.9	40.8
192	38.3	43.0
244	43.9	33 38.9 46.1
290	48.1	40.8 50.2
316	51.6	46.9 53.7
342	53.2	49.1 56.1
367	55.8	53.2 58
2179	389.6	37.2 47
17 21 24.21	23 30 43.29	43.37
1 57.52	-1 57.62	33 48.19
	+0.3	1 57.52
	+0.2	-0.3
	+0.2	+0.2
1 57.49	1 57.49	+0.6
22 21 26.72	23 28 45.80	1 57.49
		31 40.70

Reduction of Observations for Oct. 22 in S

Star	α Lyrae	μ Cass.	79 Deneb	Algol
α	2.402			
β	3.86			
γ	4.03			
δ	3.50			
Mean	2.3878			
Dec. Micro	16.319			
Micro. - μ	6.319			
Red. to arc.	+3	5450		
Micro. - μ arc	+2	5488		
Cor. in Dec.		-3.38		
Red. to merid.		.00		
Sum	+6	3384		
Point in	340 26	244		
App. β	340 26	244		
Indep. Cor.		-5 54		
App. β cor.	340 20	39		
$\log \beta$		.00992		
$\log \beta$		.00125		
$\log \beta$		.01117		
$\log \beta$		1.00000		
$\log \beta$		.00123		
$\log \beta$		1.00		
$\log \beta$		.01117		
$\log \beta$		.00123		
$\log \beta$		1.76149		
Indep. Cor.		1.75009		
$\log \beta$		4.47112		
$\log \beta$		2.79721		
$\log \beta$		15798		
$\log \beta$		-5.37982		
$\log \beta$		340 26	1374	
$\log \beta$		42 22	4860	
$\log \beta$		61 56	3546	
$\log \beta$		62 02	3344	
Cor. indep. Cor.		5 57.89		

1.75009

2.55529

1.30538

Sept. 13 20 27 32.07 - 14 54
30 32.04

Sept. 19 20 32 2.16 - 15 25

Sept. 19 20 32 18.76

Sept. 19 21 9 46.65 - 10 42
Oct. 13 23 46.44
" 23 46.92

Sept. 19 21 9 57.73 - 10 41
Oct. 10 59.61
" 23 59.33

Sept. 19 21 28 28.98 - 13 31
Oct. 18 28.74

Oct. 23 21 27 13.40

Oct. 23 21 26 39.55

Sept. 19 21 42 31.26 - 7 18

Sept. 20 20 38 47.84 - 12 40

Sept. 21 21 34 10.70 - 11 22
Oct. 13 10.50
" 22 10.27

Oct. 22 22 15 42.38

Oct. 22 23 28 45.78
23 45.30

Oct. 22 23 31 50.87
23 50.70

Sept. 21 22 16 52.70
22 52.64
Oct. 10 52.42
12 52.44

Sept. 21 22 15 20.51 - 2 55
Oct. 10 20.77
12 20.72

Sept. 22 21 41 31.29

Oct. 18 22 16 11.18 - 2 39

Oct. 22 22 14 44.58

Oct. 22 22 15 11.00

Sept. 22 22 13 49.75

Sept. 22 22 15 21.58 - 2 55
Oct. 18 19.47

Oct. 10 20 59 58.97
18 58.86

Oct. 10 21 0 25.76
18 25.78

Oct. 12 22 20 26.92 - 1 57
23 26.72

Oct. 18 21 02 16.50 - 19 19

Oct. 18 21 10 27.38

Oct. 18 21 19 53.92
23 54.98

Oct. 18 21 10 8.35

Comparison of Results.

Aug 26 20 26 57.75 - 14' 10"
 27 54.87 95
 30 60.12

Aug 26 20 38 88.8 - 11' 35"
 Sept 6 8.77
 8.73
 8.61
 8.70

Aug 26 20 99 54.74 - 10' 12"
 Sept 11 54.87
 54.67
 54.66
 54.97
 54.71

Aug 27 20 35 29.78 - 13' 33"

Aug 27 20 44 46.12 - 10' 48"
 30 46.36
 Sept 7 45.90
 19 45.56

Aug 29 21 33 12.79 - 11' 25"
 Sept 19 12.78
 Oct 13 12.58
 22 82 12.49
 22 12.50

Aug 29 21 21 40.77 - 13' 09"
 Sept 19 40.71

Aug 30 20 31 48.33

Aug 30 21 17 7.89 - 13' 26"
 Sept 7 7.47
 7.32

Sept 1 21 21 38.84

Sept 5 20 34 28.1 - 13' 57"

Sept 5 19 07 9.05 - 21' 26"
 6 9.06

Sept 5 19 10 7.88 - 21' 24"
 6 7.76

Sept 5 19 15 19.20 - 21' 01"

Sept 6 19 6 17.96

Sept 6 20 32 21.6 - 15' 25"
 7 2.35
 Oct 10 2.09

Sept 8 21 04 46.85 - 19'
 12 4.91

Sept 8 21 6 8.24 - 10' 14"
 9 8.18
 12 8.92
 13 8.91
 13 8.87

Sept 8 21 6 54.90 - 21' 27"
 12 54.87 - 14'
 54.96
 5

Sept 7 20 26 6.03

Sept 12 21 33 8.44 - 35' 09"
 13 8.29 - 25' 49"
 11' 25"

Sept 9 21 07 11.18 - 21' 26"

Sept 12 21 32 40.36 - 35' 07"
 13 40.31

Sept 13 21 05 18.41

+
+
+
+
-
-
-
-

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