

KG
11366
v. 784

Five Stars 1874
New Series

Charles W. Sever, University Bookstore, Cambridge.

Dec. 6/1873

Sta. α Pegasi γ b r p h e i @ Piscium α Androm

Wint	22 58	334	23 34 10	28 52	855	0	1 56.5
2		357	106	576			592
3		379	192	596			1.7
4		401	283	17			4.0
5		422	376	37			6.3
7		37.86	79.34	59.62			16.0
7+x		37.84	79.28	59.60			1.58
A R		28.05	9.50	49.80			51.84
T-R		+9.79	+9.78	+9.80			+9.74

$$n = +100$$

$$m = 46 - 11 = 35$$

$$0 = +9.79 + .26 + .08 \quad 9.79$$

$$9.80 + .02 + .00 \quad 9.80$$

$$9.74 + .54 + .00 \quad 9.74$$

$$\underline{9.78}$$

$$dT_m = -9.78$$

$$m = +.35$$

$$dT = -10.13$$

$$0 = +9.78 + .80$$

$$0 = +13.78 + 4.09$$

$$0 = +4.00 - 3.29$$

$$n = +12$$

Dec. 7 1873 W. R.holes.

2 Pöccim Polaris & Arctis & Cass.

0 56 288	1 9 54	2 0 87	0 23 228
310	11 209	11,1	267
330	12 506	133	287
350	14 147	156	303
372	15 390	178	340
33.00	12 4986	1330	376
32.98	12 4923	1328	30.25
23.92	46.05	4.23	25.37
9.06	3.18	9.05	8.88

$$0 = +8.88 + 1.47 + 2.1 + 9.09$$

$$+ 9.06 + 13 + 0.2 \quad 9.08$$

$$+ 9.05 \quad 00 + 0.1 \quad 9.05$$

$$+ 9.07$$

$$h = +8.5$$

$$m = +46 - 13 = 33$$

$$0 = + 9.00 + 0.5$$

$$0 = +3.18 + 41.6$$

$$0 = +5.82 - 41.1$$

$$m = +14$$

$$dT + m = -9.07$$

$$m = 33$$

$$dT = -9.40$$

$$ddT = +.80$$

Dec. 9 1873 N.H. Poles.

Polaris n. Piscium o. Piscium & Arctis

1 9 52.1	24 47.9	1 38 48.0	2 0 4.5
11 19.7	50.1	50.1	9.8
12 48.0	52.2	52.1	12.1
14 12.1	54.3	54.2	14.2
15 <u>42.0</u>	<u>56.4</u>	<u>56.3</u>	<u>16.5</u>
12 46.78	52.18	52.14	12.01
12 46.15	52.16	52.12	11.99
44.41	44.26	44.30	4.22
+1.73	+7.95	+7.82	+7.77

$$o = +7.90 + .26 + .04 \quad n = +15 \quad 7.94$$

$$7.82 - .06 - .01 \quad .75$$

$$7.77 + .02 + .00 \quad \frac{.77}{7.84}$$

$$o = +7.86 + .1$$

$$o = +1.73 + 41.6$$

$$o = 6.13 - 41.5$$

$$n = +15$$

$$dT + m = -7.84$$

$$m = +.33$$

$$dT = -8.17$$

$$d \, dT = +6.2$$

Dec. 10 1873 N.A.R. obs.

Polaris & Arcturus & Betel.

1 9 46.6 2 0 6.8 2 36 49.7

11 94.5 9.2 57.7

12 42.9 11.5 53.8

14 7.7 13.7 58.9

15 35.8 14.9 57.9

12 41.50 11.42 53.80

12 40.87 11.40 53.78

43.59 4.22 46.07

-2.72 +7.18 +7.27

 $n = +2.3$

$$0 = +7.18 + 0.0 + 0.0 + 7.18$$

$$+ 7.27 + 0.2 + 0.0 + 7.27$$

7.23

$$0 = -2.72 + 42.19$$

$$0 = +7.23 + .01$$

$$0 = +9.95 - 42.18$$

$$n = +2.3$$

$$\Delta T + m = -7.23$$

$$m = 33$$

$$\Delta T = -9.56$$

$$\Delta \Delta T = +6.0$$

Dec 15/1873

 ϵ Pictoris Polaris

0 56 250 1 9 416

271 11 97

292 12 879

313 17 0.3

335 15 29.3

2922 11 35.76

2920 11 36.13

2386 3984

+ 5.34 - 4.71

$$0 = +5.34 + .13 + .03 + 6.37$$

$$- 4.71 + 4.18$$

$$v = 10.05 - 4.05$$

$$m = +24$$

$$dT + m = -5.37$$

$$m = 24$$

$$dT = -5.61$$

$$ddT = +36$$

Dec. 16 1873 NAR. obs.

 α Cass. & Piccium Polaris

0 3 3 183 0 56 240 1 9 418

220 268 11 104

257 288 12 379

294 308 14 33

331 329 15 290

35.70 28.74 3648

2068 28.72 35.85

21.07 23.86 29.17

+4.61 +4.86 -3.32

$$n = +20$$

$$0 = +4.61 + 1.47 + 2.9 + 4.90$$

$$+ 4.86 + .18 + .03 + 4.89$$

$$0 = +4.73 + .50$$

$$dT + m = -4.90$$

$$0 = -3.32 + 4.218$$

$$m = +.30$$

$$0 = +8.05 - 4.138$$

$$dT = -5.20$$

$$n = +20$$

$$ddT = +.41$$

Dec. 17 1873 NAR, Des.
 ε Piscium Polaris

0 56 238 / 9 448

260 122

280 86.5

301 08

321 291

2800 36.68

27.98 36.05

23.85 38.48

+4.13 -2.43

$$0 = +4.13 + 13 + 0.2 + 4.15$$

$$0 = -2.43 + 42.18$$

$$0 = -6.56 + 4.05$$

$$m = +.16$$

$$dT + m = -4.15$$

$$m = +.30$$

$$dT = -4.45$$

$$ddd = +.15$$

Dec. 11 1873 W. L. R. obs.

Polaris	α Piscium	δ Piscium	α Ceti	α Persei
$h \approx 5$				
1 9 42.6	1 2 4 43.5	1 38 43.6	2 55 41.1	8 15 17.3
11 8.8	45.7	45.8	43.2	20.5
12 34.9	47.8	47.8	45.2	23.7
14 1.8	50.0	49.9	47.3	26.8
15 30.2	52.0	51.9	49.4	30.0
11 35.62	47.80	47.80	45.24	23.66
11 34.99	47.78	47.78	45.22	23.64
11 37.77	44.20	44.22	41.80	20.31
-2.78	+8.58	3.56	3.42	3.33

 $n = +10$ compute

$$0 = +3.58 + 26 + .04 \quad 35.54 + 00 \quad 3.54$$

$$3.56 - .05 - .01 \quad 55 + .01 \quad .56$$

$$3.42 - .06 - .01 \quad 41 + .05 \quad .46$$

$$3.33 + 1.17 + .17$$

$$\begin{array}{r} 50 + .05 \quad .55 \\ 200 \quad 211 \\ \hline 3.50 \quad 3.53 \end{array}$$

$$dT + m \quad d-1 \quad h \approx 24 = -3.53$$

$$m = +30$$

$$0 = -2.78 + 42.18$$

$$dT + m = -3.50$$

$$dT = -3.83$$

$$0 = +3.47 + 33$$

$$m = +30$$

$$0 = +6.25 - 41.85$$

$$dT = -3.80$$

$$n = +15$$

$$dT = +6.0$$

Dec. 21 1873 W.R. Ches.

2 Piscium o Piscium & Arctis

1 24 42.7	1 38 42.6	1 59 18
44.7	44.7	4.3
46.8	46.7	6.5
49.0	48.8	8.8
57.0	50.8	11.0
46.84	46.72	6.48
46.82	46.70	6.46
44.17	44.28	4.16
+2.65	2.49	2.30

seeing horrible.

$$n = +20$$

$$0 + 2.65 + 7.26 + 0.5 + 2.70$$

$$+ 2.45 - 0.5 - 1 + 2.48$$

$$+ 2.30 + 4.2 + 9 + 2.39$$

$$2.52$$

$$dT + m = -2.52$$

$$m = 30$$

$$dT = -2.82$$

$$ddT = +30$$

Dec. 22 1873 W. H. B. obs. 1

α Piscium	δ Piscium	50 bars.	α bet.
1 24 41.9	1 38 42.1	1 52 30.8	2 55 39.6
440	441	342	417
461	463	440	437
482	484	505	458
503	505	572	478
4610	46.28	43.94	43.72
4608	46.26	43.89	43.70
44.15	44.20	42.49	41.78
+1.93	+2.06	+1.42	+1.92

$$0 = +1.93 + 2.6 + .04 \quad 1.97$$

$$+ 2.06 + .15 + .03 \quad 2.09$$

$$+ 1.92 + .06 + .01 \quad \frac{1.93}{2.00}$$

$$0 = +1.42 + 306$$

$$0 = +1.97 + 19$$

$$0 = +55 - 284$$

$$n = +19$$

$$dT + m = -2.00$$

$$m = +.23$$

$$dT = -2.33$$

$$d/dT = +.50$$

Dec. 28 1873 W.A.R. Poles.

Polaris on Piscium o Piscium & Arctis

1	9 26.8	1 24 39.5	1 38 39.7	1 59 59.1
10	52.8	41.8	41.8	1.4
12	20.4	43.8	43.9	3.7
13	48.4	45.9	45.9	5.9
15	15.1	48.0	48.0	8.1
12	20.68	43.80	43.86	3.64
12	20.05	43.78	43.84	3.62
12	29.06	44.09	44.14	4.09
	-9.01	-31	-30	-37

$$n = +21$$

$$0 = -31 + 26 + 0.5 - 26$$

$$-30 + 15 + 0.3 - 27$$

$$-37 + 42 + 0.8 - 29$$

$$-27$$

$$dT + m = +27$$

$$m = +33$$

$$0 = -33 + 28$$

$$dT = -06$$

$$0 = -90.1 + 42.18$$

$$ddT = +38$$

$$n = +21$$

Dec. 29 1873 W. K. P. obs.

α Arietis & Persei			S Persei			η Tauri		
3	4	34.6	3	15	130	3	33	50.7
		36.7			16.1			53.9
		38.9			19.4			56.9
		41.2			22.5			59.9
		43.4			25.7			63.0
		38.96			19.34			56.88
		38.94			19.32			56.86
		39.70			20.26			57.85
		-.76			-.94			-.99

$$m = +20$$

$$0 = -.76 + .37 + .07 - .69$$

$$-.94 + 1.17 + .23 - .71$$

$$-.99 + 1.09 + .22 - .77$$

$$-.89 + .43 + .09 - .80$$

$$-.74$$

$$dT + m = +0.74$$

$$m = +.33$$

$$dT = +0.41$$

$$ddT = +.43$$

Dec. 30 1873 N.H.R. obs.

o Piscum & Luitis

1 38 39.0 1 59 58.0

41.0 0.7

43.0 3.1

45.2 5.1

47.2 7.3

43.08 3.90

43.06 2.88

44.13 4.07

-1.07 1.19

$$n = +2.4$$

$$0 = -1.07 + 1.5 + 0.3 - 1.001$$

$$-1.19 + 4.2 + 0.9 - 1.10$$

$$m + dT = +1.07$$

$$m = +3.3$$

$$dT = +1.74$$

$$ddT = +3.2$$

Dec. 31 1973 N.A.R. obs.

2 686

2 55 36.0

38.1

40.1

42.9

44.4

40.20

40.18

41.73

- 1.55

$$m = +20$$

$$0 = +1.55 + 0.6 + 0.1 - 1.54$$

$$dT + m = +1.54$$

$$m = +.33$$

$$dT = +1.21$$

$$d/dT = +.45$$

Jan. 3.8/1874 W.R.
 v Deaconis v Boles

$$v = -417 + 214 + 36 - 3.81$$

$$v = -3.88 + 36 + 6 \quad \underline{3.82}$$

$$v = -.29 + 1.78$$

$$m = +17$$

$$dT + m = 3.82$$

$$m = +33$$

$$dT = +3.49$$

$$dT = +6.5$$

Jan. 8.4 *NSR* obs? Clouds.

u Gem.

6 15 0.9

3.7

6.1

(24.7)

28.7

26.4

28.6

6 15 14.83

14.81

21.06

6.25

$n = 20$

$$0 = +6.25 + 0.8 - 6.17$$

$$dT + m = +6.17$$

$$m = +3.3$$

$$dT = -5.84$$

$$dDT = +5.50$$

Law. 88 No. R.

 α Bootis & Draconis & Bootis

14944.3 14041.2 400

45.3 437 418

46.3 461 435

47.4 485 451

48.7 508 468

49.7 523 486

50.8 557 502

58.5 518

0.8

47.80 50.95 46.84

47.48 50.91 46.82

54.13 58.86 53.81

66.5 7.65 6.99

$$c = +58^s \quad m = +18$$

$$0 = -6.65 + 34 + 1.06 + .06 + 58 + 64 \quad 6.01$$

$$-6.99 + 1.30 + 1.62 + 23 + 89 + 1.02 \quad 5.97$$

$$0 = -7.65 + 2.14 + 2.37 + 39 + 130 + 1.69 \quad 5.96$$

$$\begin{array}{r} 1794 \\ 598 \end{array}$$

$$dT + m = +598$$

$$m = +33$$

$$dT = 565$$

$$dT + m = +48$$

Jan 10. N.R.
 γ Gem.

6 30 188

181

201

$n = +20$

124

$$0 = +6.58 + 29 + 05 - 46.63$$

246

20.20

$$dT + m = +6.53$$

20.18

$$m = 83$$

26.76

$$dT = +6.20$$

6.88

$$dDT = +40$$

Jan. 11 1873 N.R.

$$dT+m=+6.95$$

$$m=6.65$$

$$dT=+40$$

Jan. 12 1874

i Cass. of bol.

L 18 239 2 36 346

257

286

311

336

362

391

418

443

3370

3371

4150

7.79

369

388

410

429

3884

3882

46.27

7.45

$$n = +15$$

$$0 = +7.79 + 2.33 + 35 \quad 7.44$$

$$-7.45 + .04 - 1 \quad 7.44$$

$$dT + m = +7.44$$

$$m = +.33$$

$$dT = 7.11$$

$$ddT = +.46$$

Jan. 13 1894

Persei 2 Sami & Persei

3 32 43.1 34 47.3 3 46 0.1

46.5 497 26

496 521 50

526 544 7.3

554 568 9.7

49.62 52.06 4.94

49.60 52.04 4.92

57.59 59.91 13.03

7.99 7.87 -8.11

 $m = 16$

$$0 = -7.99 + .109 + .16 \quad 7.83$$

$$-7.87 + .44 + 7 \quad 7.80$$

$$-8.11 + .61 + 9 \quad 8.02$$

$$7.88$$

$$dT+m = +7.88$$

$$m = +23$$

$$dT = +7.55$$

$$ddT = +.44$$

Jan 15 1878 W. R. P. obs.
 & Lauri i Aurigae & Mus Mini.

$h - m - s$	$L - m - s$	$h - m - s$
4 28 33.55	48 39.40	58 31.21

33.53

39.38

31.24

44.89

47.89

51.27

- 8.36

- 8.51

- 19.93

 $n = +1.6$

$$0 = -8.36 + 29 + 0.5 - 8.31$$

$$0 = -8.51 + 6.5 + 10 - 8.41$$

$$(0 = -19.93 - 7.34)$$

$$0 = -8.43 + 3.4$$

$$(0 = -11.50 -$$

$$\Delta T + m = +8.35$$

$$m = +33$$

$$\Delta T = +8.02$$

$$\Delta \Delta T = +22$$

Jan. 17 1893

W.D.R.

10 Orionis

$$\begin{matrix} 2^m & 16.5 \\ 5^s & 18.6 \end{matrix}$$

20.4

22.8

24.9

20.70

20.65

29.63

8.95

- 33

8.62

$$dT + m = 89.5$$

$$m = 1.33$$

$$dT = 86.2$$

$$d dT = + 30$$

Jan. 18/1874 *Per.*
 2 *Ms. Minib. x Aurigae Perionis*

$\begin{matrix} h & m & s \\ 4 & 58 & 13.1 \end{matrix}$ $\begin{matrix} h & m & s \\ 5 & 4 & 7.8 \end{matrix}$ $\begin{matrix} h & m & s \\ 5 & 8 & 15.5 \end{matrix}$

28.0 10.7 17.7

43.3 13.8 19.8

68.8 16.7 21.8

13.7 19.5 24.0

~~13.70~~ 13.70 19.76
 43.38

~~13.68~~ 13.68 19.74
 43.67

51.74 23.71 29.62

-8.23 -10.03 -9.88

$$0 = -10.03 + 1.03 + 2.3 - 9.80 \quad n = +2.2$$

$$0 = -9.88 - 1.4 - 0.3 - 9.91$$

$$0 = -8.23 - 7.85$$

$$0 = -9.96 + 4.4$$

$$0 = +1.73 - 7.79$$

$$n = +2.2$$

$$dT + m = +9.86$$

$$m = +2.3$$

$$dT = +9.53$$

$$dT = +9.0$$

Jan 20 1874 2.00 R

α Aurigae	β Orionis	δ Ursa Min
h m s	h m s	h m s
5 5.6	5 8 14.0	4 5.8 11.4
88	16.0	11.8
118	18.1	25.7
150	20.1	33.9
178	22.3	41.7
11.80	18.10	48.2
11.78	18.08	56.7
23.69	29.61	4.8
-11.91	-11.53	12.5
		41.63
		41.76
		57.91
		-10.15

$$0 = -11.91 + 1.03 + 21 - 11.70$$

$$-11.53 - .14 - 3 - 11.56$$

$$11.63$$

$$v = +0.15 - 7.35$$

$$v = -11.72 + .44$$

$$v = +1.57 - 7.79$$

$$n = +20$$

$$qT+m = +11.63$$

$$m = 33$$

$$qT = +11.30$$

$$ddT = +0.89$$

Jan 23 1872

$$dT = +13.30$$

Jan 25 1874 S. R. M. obs.

48 Cephei 3 Andromedae 2 Persei:
 $\begin{matrix} h & \sim & s \\ 3 & 4 & 4.90 \end{matrix}$
 $\begin{matrix} h & \sim & s \\ 3 & 7 & 20.0 \end{matrix}$
 $\begin{matrix} h & \sim & s \\ 3 & 15 & 58.3 \end{matrix}$

0.89	22.1	1.2
7.7	24.4	4.6
16.9	26.5	7.8
26.7	28.6	10.8
7.84	24.52	4.48
7.78	24.50	4.46
23.73	29.44	19.81
-15.95	14.94	15.35

$$\begin{aligned} 0 &= -14.94 + 3.08 + 14.86 \\ &- 10.35 + 1.17 + 26 \quad \underline{15.09} \\ &\quad \quad \quad 14.97 \end{aligned}$$

$$dT + m = +14.97$$

$$m = +33$$

$$dT = 14.64$$

$$ddT = +.67$$

$$\begin{aligned} 0 &= -15.95 + 4.92 \\ &- 15.14 + .77 \\ &\quad \quad \quad m = +22 \end{aligned}$$

Jan. 28 1874
in Aurigae

$$dT = +16.87$$

$$ddE = +.79$$

Feb. 1 1874 W. R. R. obs.

γ Lami ϵ Lami
 $\lambda \sim \delta$ $\lambda \sim \delta$
 4 12 12.9 4 28 16.9

15.0

18.9

17.2

21.2

19.2

23.4

21.3

25.7

17.12

21.22

17.10

21.20

37.58

41.74

20.48

20.64

 $n = +20$

$$0 = -20.48 + 34 + 0.7 - 20.27$$

$$0 = -20.54 + 29 + 6 - 20.44$$

 δ

$$dT + m = +20.44$$

$$dm = +33$$

 δ

$$dT = +20.11$$

 δ

$$ddT = +.78$$

Feb. 4 1874 P. R. L.

i Aurigae			Shy. min. of Gemini			morum.		
h	m	s	h	m	s	h	m	s
4	48	201	18	11	16.7	6	30	-0.2
					34.2			
	22.7				51.1		2.1	
					10.0			
	25.0				27.1		4.3	
					44.0			
	27.6				1.5		6.1	
					18.9			
	30.0				36.2		8.6	
	25.08				26.69		4.24	
	20.06				27.99		4.22	
	47.70				43.40		26.80	
	22.64				16.41		22.58	

$$0 = -22.68 + 6.5 + 2.3 - 22.41$$

$$-22.68 + 30 + 11 - 22.47$$

$$s = -16.41 - 16.88$$

$$s = 22.61 + 47$$

$$0 = 6.20 - 17.35$$

$$n = +26$$

$$dT + m = +22.44$$

$$m = +33$$

$$dT = +22.11$$

$$ddT = +.78$$

Feb. 5-10-74

x Jami

h m s
4 28 13.8

16.0

18.3

20.4

22.6

18.22

18.20

41.69

23.49

$$0 = -20.49 + .29 + .10 - 23.09$$

83

- 23.06

$$dT + m = +23.39$$

$$m = + .30$$

$$dT = +23.06$$

$$ddT = + .90$$

Feb. 10 1874 W. J. W. Oles.

Aurigae & Gemmarum Spus. mai S.P.

h m s	h m s	h m s
5 6 49.4	6 29 54.6	6 10 12.0

52.4	56.8	28.7
------	------	------

55.3	58.8	46.4
------	------	------

58.3	1.0	11.8
------	-----	------

61.2	3.2	21.7
------	-----	------

55.32	58.88	38.8
-------	-------	------

55.30	58.86	56.7
-------	-------	------

23.39	26.76	14.3
-------	-------	------

- 28.06	27.90	32.0
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21.71

21.97

34.76

- 22.79

$$0 = -28.06 + 1.03 + 31 - 27.75$$

$$- 27.90 + .32 + 10 - 27.80$$

$$0 = 27.98 - .67$$

$$0 = -22.79 + 16.88$$

$$0 = -5.19 + \frac{16.21}{1.555}$$

$$m = +.30$$

$$dT + m = +27.77$$

$$m = +.33$$

$$dT = +27.44$$

$$ddT = +.84$$

Feb. 11 1874 W. R. Poles.

2 Aurigae β Orionis γ Min SP.

h	m	s	h	m	s	h	m	s
5	6	48.7	5	7	56.8	6	12	~~40~~

57.8	58.9	4.0
------	------	-----

04.7	1.0	—
------	-----	---

57.6	3.1	28.1
------	-----	------

<u>0.6</u>	<u>5.1</u>	
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59.56	0.98	21.05
-------	------	-------

59.54	0.86	21.31
-------	------	-------

28.38	29.37	44.98
-------	-------	-------

<u>28.84</u>	<u>28.41</u>	<u>23.67</u>
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$$0 = -28.84 + 1.03 + 30 - 28.54 \quad 0 = -23.67 + 16.88$$

$$0 = -28.41 - 14 + 4 - 28.45 \quad 0 = 28.62 + 44$$

$$0 = +4.95 - 17.32$$

$$m = +2.9$$

$$dT + m = +28.50$$

$$m = +3.3$$

$$dT = +28.17$$

$$d\delta T = +.73$$

Feb. 12 1874 W. R. R. obs.

Aurigae B Orionis S Mus Mini.

k	m	s	k	m	s	k	m	s
5	6	47.8	7	5	56.0	6	11	11.3
		60.9			68.1			28.3
		53.7			02			45.3
		56.8			2.2			2.8
		59.8			4.3			21.3
		53.80			0.16			36.5
		53.78			0.14			55.0
		23.39			29.35			12.6
		-27.61			29.21			30.6

$$0 = -29.61 + 1.03 + 28 - 29.33$$

$$- 29.21 - .14 - 4 \quad .25$$

$$0 = -29.40 + 44$$

$$0 = -29.75 - 16.88$$

$$0 = -4.65 + 17.32$$

$$n = +27$$

$$dT + m = +29.28$$

$$m = +.33$$

$$dT = +28.95$$

$$ddT = +78$$

Feb. 14 1874 W. R. Os.

Lurique			B. Orionis			Min. Min			51.62, 2.8		
h	m	s	h	m	s	h	m	s	h	m	s
5	6	44.0	5	7	54.3	6	11	6.0	6	38	2.8
		46.0						23.4			20.9
		52.2			56.2			40.4			40.3
		49.1						57.4			6.9
		55.0			58.3			45.8			28.9
		52.2						33.9			50.8
		58.1			0.4			50.6			28.1
		50.0						8.7			32.8
		1.7			2.4			24.6			0.8
		5.4									
		23			58.32			15.65			29.48
		52.20			58.30			15.91			29.17
		23.32			29.83			45.69			3.37
		-31.12			-31.02			-29.78			34.20

$$b = +5.7$$

$$m = +76 - 11 = +65$$

$$n = +13$$

$$0 = -31.12 + 10.3 + 13 - 30.59$$

$$dT + m = +31.04$$

$$-31.01 - 14 - 3 \quad 31.04$$

$$m = 65$$

$$dT = +30.39$$

$$ddT = +72$$

$$0 = -29.78 - 16.88$$

$$0 = -34.20 + 24.70$$

$$0 = -31.06 + 44$$

$$0 = -31.01 + 14$$

$$0 = +1.28 - 17.32$$

$$0 = -3.19 + 20.26$$

$$n = -8$$

$$n = +18$$

Feb. 16 1874 W.P.

α Orionis γ Geminarum β Cephei.

h	m	s	h	m	s	h	m	s
5	47	44.9	6	29	49.9	6	37	1.7

46.9

52.0

23.6

45.1

48.9

54.1

5.6

28.0

51.0

56.3

48.0

1.5

53.2

58.5

32.5

54.1

48.98

54.16

27.57

48.96

54.14

27.26

48 21.53

26.90

2.80

- 32.57

- 32.56

35.54

$$0 = -32.57 + 13 + 3 - 32.54$$

$$- 32.56 + 30 + 4 \quad 32.52$$

$$0 = -32.56 + 22$$

$$dT + m = +3.253$$

$$0 = -35.54 + 21.70$$

$$m = + 6.5$$

$$0 = + 2.98 - 21.48$$

$$dT = +31.88$$

$$n = +1.4$$

$$ddT = +.703$$

Feb. 17 1874 W. R. R. obs.
 & Aurigae *Coronis* *Mer. Min* *S. Cephei*.

δ°	h^m	$s.$	δ°	h^m	$s.$	δ°	h^m	$s.$	δ°	h^m	$s.$
6	6	43.8	5	7	52.1	6	11	50	6	38	59.8
		46.9			54.3			25.07			21.1
		49.9			56.3			42.7			41.6
		52.7			58.3			59.9			46
		53.8			0.4			16.8			24.8
		24.82			56.28			35.1			45.8
		49.80			56.26			52.4			48
		28.25			29.29			11.0			28.3
		23.43			33.03			27.7			50.0
								17.52			24.57
								15.18			24.56
								46.46			6
								28.28			62.86
											37.91
											38.30

$$0 = -33.43 + 1.01 + 27 - 33.16 \quad 0 = -28.28 - 16.88$$

$$-33.03 - 14 + 4 \quad 33.07 \quad 0 = -33.23 + 44$$

$$-38.80 + 20.70$$

$$0 = -33.23 + 44$$

$$0 =$$

$$0 = -49.5 + 17.32 \quad m = +.29$$

$$0 = -5.07 + 20.26 + 25$$

$$27$$

$$dT + m = +33.11 \quad m = +76 - 24 + 52$$

$$m = .52$$

$$dT = +32.59$$

$$dT = +.71$$

Feb. 18 1874 *W. R.* α Aurigae β Orionis

51 Cephæi

 $\begin{matrix} h & m & s \\ 5 & 7 & 31.7 \end{matrix}$ $\begin{matrix} h & m & s \\ 5 & 8 & 37.5 \end{matrix}$ $\begin{matrix} h & m & s \\ 6 & 37 & 57.7 \end{matrix}$

346

536

19.0

373

536
577

396

10

598

28

40

236

69

46.0

49.25

5368

80

7 49.22

8 55.62

30.0

7 23.23

8 29.28

50.0

24.08

20 24.39

41 2.41

+ 25.99

+ 26.34

+ 21.98

$$0 = +25.99 + 1.01 + 20$$

$$26.19$$

$$+ 26.34 - 1.41 - 3$$

$$26.31$$

5.0

$$26.25$$

$$0 = +21.98 + 24.40$$

$$0 = 26.18 + 4.41$$

$$0 = -4.20 + 21.26$$

$$n = +20$$

$$dT + m = 26.25$$

$$m = +52$$

$$dT = -26.78$$

$$ddT = +1.00$$

Sep. 16. forward 1 m.

Feb. 24 1874

W. R. L.

S. Geminorum

h m s
7 12 53.2

55.4

57.8

0.1

2.3

57.78

12 57.76

12 36.72

+ 21.04

 $n = +20$

$$0 = +21.04 + 41 + 8 + 20.96$$

$$dT + m = -20.96$$

$$m = +52$$

$$dT = -21.48$$

$$ddT = +.88$$

Feb. 26 1874 N. H. Poles.
 & Orionis & Geminae & Urs. Min.

h	m	s	h	m	s	h	m	s
5	48	36.8	6	30	41.8	6	12	31
	38.9			44.0				
	41.2			46.1				
	43.3			48.3				
	45.3			50.5				
	41.10			46.14				
	41.08			46.12				
	21.45			26.59				
	+19.63			19.53				

$\left. \begin{array}{l} 37.6 \\ 20.8 \\ 05.4 \end{array} \right\}$
 $\left. \begin{array}{l} 37.6 \\ 12.7 \\ 29.7 \end{array} \right\}$
 $\left. \begin{array}{l} 46.8 \\ 4.3 \\ 22.0 \end{array} \right\}$
 $\underline{12.52}$

13 12.78

12 49.21

23.57

$$0 = +19.63 + 1.3 + 3 + 19.66$$

$$+19.53 + 30 + 7 + 19.60$$

$$m = +76 - 21 = +55$$

$$0 = +19.58 + 21$$

$$0 = +23.57 - 16.88$$

$$0 = -3.99 + 17.09$$

$$n = +23$$

$$dT + m = -19.60$$

$$m = +55$$

$$dT = -20.15$$

$$ddT = +.70$$

Mar. 1 1874 W. R. P. Obs.				β Orionis			
L. Janni		E. M. Min.		L. Janni		E. M. Min.	
h	m s	h	m s	h	m s	h	m s
4	28 54.3	4	58 45.9	5	4 34.1	5	8 42.3
		52.8					
	56.6	1.9			37.1		44.4
		8.6					
	58.7	15.8			40.0		46.4
		28.6					
	0.8	31.8			43.1		48.6
		39.4					
	2.9	47.1			46.0		50.7
	38.66	16.38			40.06		46.48
	28 58.64	59 16.39			40.04		46.46
	41.32	57.58			22.88		29.09
	+17.32	+18.81			+17.06		+17.37

$$\begin{aligned}
 0 &= +17.32 + 29 + 7 + 17.39 \\
 &+ 17.06 + 11.03 + 24 \quad 30 \\
 &+ 17.37 - 14 - 3 \quad 34 \\
 &17.34
 \end{aligned}$$

$$0 = +18.81 - 7.29$$

$$0 = +17.25 - 39$$

$$+ 1.56 - 6.90$$

$$n = +23$$

$$dT + m = -17.34$$

$$m = +55$$

$$dT = -17.89$$

$$dT = +.45$$

May. 2 1874			W. H. R. obs.					
α^2 Gemminorum			β Gemminorum			Polaris		
h	m	s	h	m	s	h	m	s
7	26	46.0	7	37	48.9	6	12	15.2
		48.5			57.3			24.0
		51.0			53.6			52.6
		53.4			56.0			9.3
		55.8			58.3			26.6
		50.94			53.62			44.9
		50.64			53.60			0.0
		34.21			37.24			18.3
		+ 16.43			16.38			

$$0 = +16.43 + 6.3 + 13 + 16.56$$

$$+ 16.38 + 57 + 11 + 16.49$$

$$0 = +16.40 + 60$$

$$0 = +1876 - 16.88$$

$$0 = 2.36 - 17.48$$

$$n = +14$$

$$\text{Assume } n = +20$$

$$dT + m = +16.52$$

$$m = -55$$

$$dT = +17.07$$

$$dT = +76$$

Mar. 31/74 N.H. Ples.

2 Orionis

548 330

350

370

391

410

3702

37.00

21.32

1568

$15' \quad m = +20$

$$0 = +15.68 + 13 + 3 + 15.71$$

$15'$
 $dt + m = -15.71$

$m = 15$

$dt = -16.26$

$ddt = +.75$

Mar. 4 1874 J. R. S.

2 Croni 2 Can. Min. 5 Mus. Min.

h	m	s	h	m	s	h	m	s
5	48	32.2	7	32	54.0	6	11	57.4
		34.3			58.0			15.6
		36.5			58.2			32.8
		38.6			0.2			49.7
		40.6			2.3			6.6
		~~15.15~~			58.14			24.8
		36.44						40.9
		~~15.13~~			58.12			1.0
		36.42						16.3
		21.29			43.07			57.23
		15.15			15.07			7.49
								57.22
								16.27

$$0 = +15.15 + 10 + 1 + 15.16$$

$$+ 15.07 + .13 + 1 + 15.8$$

$$n = +10$$

$$b =$$

$$m = +76 - 9 = +67$$

$$0 = +16.27 - 16.88$$

$$0 = +15.11 + 12$$

$$0 = +1.16 - 1700$$

$$n = +.07$$

$$\text{For } 22 \text{ Camel } n = +.13$$

$$dT + m = +15.12$$

$$m = +67$$

$$dT = -15.79$$

$$ddT = +.60$$

Mar. 5 - 1874 W. R. Poles.
 2 Can. Min. P. Rem. 2 Pers. Min.

7^h 32^m 53.2 7^h 37^m 46.8 7^h 49^m 3

53.3 49.1

57.4 51.5

59.5 53.9 87.0

1.6 56.3

57.40 51.52 87.0

3 204.38 37 51.50 49 87.8

43.07 37.21 49 20.6

+14.31 +14.29 + 17.2

$$n = +.06$$

$$0 = +14.31 + .10 + 1 + 14.32$$

$$+ 14.29 + .54 + 3 + 14.32$$

$$m = +76 - 5 = +71$$

$$0 = +17.20 - 53.10$$

$$0 = +14.30 + 32$$

$$0 = +2.90 - 53.4$$

$$n = +.06$$

$$dT + m = +14.32$$

$$m = 71$$

$$dT = -15.03$$

$$q dT = +.76$$

Mar. 8 1874 N.H.R. obs.

~ Can. Min. & Lem. 2 hrs. Min.

$\begin{matrix} s' & m & s' \\ 7 & 32 & 57.0 \end{matrix}$ $\begin{matrix} s' & m & s' \\ 7 & 37 & 44.7 \end{matrix}$

53.1 47.0

53.2 49.3

57.2 51.8

59.3 54.0

55.16 49.36 7 49 42.3

32 55.14 37 49.34 7 49 43.1

43.03 37.16 23.3

+12.11 +12.18 +19.8

$$0 = +12.81^{s'} + 10 + 1 + 12.12^{s'}$$

$$+ 12.18 + 54 + 7 + 12.25$$

$$0 = +19.80^{s'} - 53.10$$

$$m = +76 - 10 = +66$$

$$0 = +12.15 + 32$$

$$0 = -7.65 + 53.4$$

$$n = +14$$

$$dT + m = -12.18^{s'}$$

$$m = +66$$

$$dT = +12.83$$

$$ddT = +.73$$

Mar 12 1874 W.S.L.

 γ Gemini. α Can. Min. β Lania.

 $6^h 30^m 31.9^s$ $7^h 32^m 48.7^s$ $7^h 37^m 42.0^s$
 340 507 443
 362 528 468
 383 549 492
 404 569 515
 36.164 5278 46764
 26.37 42.97 37.10
 9.77 9.81 9.64

$$0 = +9.77 + 30 + 4 \quad n = +10 \quad 9.81$$

$$+9.81 + 10 + 1 \quad 9.82$$

$$+9.64 + 54 + 8 \quad 9.82$$

$$235$$

$$9.78$$

$$dT+m = -9.78$$

$$m = +66$$

$$dT = 10.44$$

$$ddt = +60$$

Mar. 14 1894

$$dT + m = -8.29^s$$

$$m = +6.6$$

$$dT = -8.95$$

Mar. 16 1874 W. R. L. des.
 Can. Min Pleim.

$7^h 32^m 45.0^s$ $7^h 37^m 38.5^s$

47.1 40.9

49.1 43.1

51.2 45.6

53.2 48.0

49.12 43.26

49.10 43.24

42.92 37.04

6.18 6.20

$n = +10$

$$0 = -6.18 + 10 + 1 - 6.19$$

$$- 6.20 + 54 + 5 - 6.25$$

$$6.21$$

$$\Delta T + m = -6.21^{\cdot 5}$$

$$m = 6.6$$

$$\Delta T = -6.87$$

$$\Delta \alpha = +.87$$

Mar 22 1874 W.R.

x Caphei ε Hydrie j² W. Maj

h m s	h m s	h m s
8 12 45.0	8 40 49	8 59 11.0
49.7	70	13.8
54.6	9.1	16.7
59.0	11.3	19.0
4.1	13.3	21.9
8.6		24.6
13.3		27.2
17.9		29.8
22.7		32.6

3.88 40 9.12 59 21.84

3.95 9.10 21.80

1.38 7.01 19.86

2.57 2.09 1.94

$$0 = +2.09 + .12 + 1 + 2.10$$

$$0 = +2.57 - 4.44$$

$$+ 1.94 + 2.43$$

$$0 = +.48 - 4.56 \quad n = +.10$$

$$0 = +.15 - 2.31 \quad n = +.8$$

+ .09

$$dT + m = -2.10$$

$$m = +.66$$

$$dT = -2.76$$

$$ddT = +.69$$

Mar. 28 1874
 E. Hydrar 02 Mar. May.
 sh 40^m 4.2 sh 59^m 10.2

6.3	12.8
8.5	15.7
10.5	18.3
12.7	20.9
8.44	23.7
8.42	26.4
7.00	28.9
	31.8
	20.97
8.42	20.93
7.00	19.82
+1.12	+1.11

$$n = 0$$

$$dT + m = -1.12$$

$$m = +.76$$

$$dT = -1.88$$

$$dT = +.88$$

Mar 24 1874

2 Cam. Min

7^h 32^m 39.^s2

413

436

457

478

43.52

43.50

4280

+70

$$dT + m = -0.70$$

$$m = +76$$

$$dT = +1.46$$

$$dT = +.68$$

Mar. 25 1874

α Can. Min. β Gem. α Caphei γ Urs. Min.
 $\begin{matrix} h & m & s \\ 7 & 32 & 38.5 \end{matrix}$
 $\begin{matrix} h & m & s \\ 7 & 37 & 32.0 \end{matrix}$
 $\begin{matrix} h & m & s \\ 8 & 12 & 43.9 \end{matrix}$

407	340	53.2 48.6		
427	368	58.3 2.8		
447	390	72 11.8		
468	419	16.6 22.1		
4268	3672	2.73	h m s 19 49 51.0	
4266	3670	2.79	19 49 51.8	
4278	3686	1.65	39.9	
-12	-16	+1.14	+11.9	

$$\begin{aligned}
 & \begin{matrix} s \\ 0 = -12 + 10 + .02 - 10 \\ -16 + .54 + 112 - .04 \end{matrix} \quad n = +2.5
 \end{aligned}$$

$$\begin{matrix} s \\ 0 = -14 + 32 \end{matrix}$$

$$0 = +14 - 4.34$$

$$0 = +1.28 - 4.66$$

$$n = +2.7$$

$$\begin{matrix} s \\ 0 = -14 + 32 \end{matrix}$$

$$+ 1.99 - 53.10$$

$$1204 - 53.42$$

$$n = +2.3$$

$$dT+m = +.07$$

$$m = +66$$

$$dT = -5.9$$

$$dT = +6.5$$

Mar. 30 1874 W. R. Sles.

5 Sem.

~ Cam. Min.

h m s
7 12 27.9

h m s
7 32 39.7

30.2

26.8

32.3

28.8

39.6

40.9

36.8

42.9

32.36

38.80

32.34

38.78

36.21

42.70

- 3.87

- 3.92

$n = +10$

$$0 = -3.87 + .41 + .04 - 3.83$$

$$- 3.92 + .10 + 0.1 \quad 3.91$$

$$\Delta T + m = + 3.87$$

$$m = + 66$$

$$\Delta T = + 321$$

$$\Delta T = + 76$$

Apr. 1 1874 W. R. L. Des.

$9^h 23^m 5^s$	$9^h 27^m 5^s$	$9^h 38^m 5^s$
6.4	4.1	3.2
9.7	4.8	3.4
12.7	4.5	3.7
16.1	5.8	4.0
19.0	5.7	—
22.0	5.7	—
25.5	7.6	—
28.4	4.9	—
15.98	52.75	39.44
15.92	52.81	39.42
21.85	58.22	43.04
-5.98	-5.41	-5.62

$$n = +.08$$

$$0 = -5.62 + 45 + .03 - 5.59$$

$$-5.93 + 2.79 \quad n = +.08$$

$$-5.41 + 2.75 \quad +.07$$

$$dT + m = +5.59$$

$$m = +.70$$

$$dT = +4.89$$

$$adt = +.80$$

Apr. 21/74 W.R. Sas.

Leonis			Leonis			B Ceph. Ib.		
d	m	s	d	m	s	d	m	s
9	38	31.9	10	18	30.0	9	26	39.7
		34.3			20.3			43.0
					32.2			45.9
		36.6			22.4			49.1
					34.4			51.9
		38.9			24.5			54.9
					36.5			58.1
		41.1			26.6			1.0
					38.6			4.1
		36.56			22.38			51.97
					34.34			
		36.54			22.36			52.03
					34.32			
		43.02			40.77			58.32
		- 6.48			- 6.45			- 6.29

$$0 = +6.48 + 4.5 + 0.3 - 6.45$$

$$\rightarrow 6.45 + 2.2 + 0.2 - 6.43$$

$$0 = 6.29 - 2.70$$

$$- 6.47 + 3.3$$

$$0 = +18 - 3.08$$

$$n = +0.6$$

$$dT_m = +6.44$$

$$m = +1.0$$

$$dT = +5.74$$

$$ddT = +.80$$

Apr. 4 1874 MVR.

α Leonis	δ Mus Maj.	β Cephei
10 ^h 1 ^m 2 ^s 6	9 ^h 23 ^m 10 ^s	9 ^h 26 ^m 39 ^s
	42	220
30.7	42	45.0
	101	481
32.9	13.5	57.1
	16.3	540
34.9	19.5	571
	22.6	602
37.0	25.8	633
32.82	18.36	57.11
32.80	18.30	57.18
40.76	87.98	0885
	21.73	
7.96	8.88	- 7.23

$$\begin{aligned}
 & \delta \quad n = +22 \\
 & 0 = -7.96 + .22 + .05 - 7.91 \\
 & 0 = -8.48 + 2.79 \\
 & 0 = -7.23 - 2.75 \\
 & 0 = -.52 + 2.07 \quad n = +20 \\
 & \quad - 7.8 + 2.99 = +24
 \end{aligned}$$

$$d\Gamma + m = +7.91$$

$$m = +.40$$

$$dd\Gamma = +1.00$$

$$d\Gamma = 7.21$$

Apr. 6 1874 N.R. Ds.

β Cephei	ϵ Leonis	α Leonis
9 ^h 27 ^m 36.9 ^s	9 ^h 38 ^m 29.7 ^s	10 ^h 1 ^m 26.9 ^s
35.8	32.1	29.0
42.7	34.3	31.0
45.8	36.5	32.1
48.8	38.8	35.2
51.8		
54.9	34.30	31.08
58.0	34.28	31.02
60.9	42.98	40.74
48.84	8.70	9.72
48.90		
58.48		
9.58		

$$\begin{aligned}
 & 0 = -9.70 + 45 + 1 - 9.69 \\
 & -9.702 + 22 + 1 - 9.71
 \end{aligned}$$

$$\begin{aligned}
 0 &= -9.58 - 2.75 \\
 &-9.71 + .33 \\
 &+ 13 - 30.8 \\
 n &= +03
 \end{aligned}$$

$$\begin{aligned}
 dT + m &= +9.70 \\
 m &= +.70 \\
 dT &= +9.00 \\
 dT &= +8.00
 \end{aligned}$$

Apr. 13 1874 W. R. * obs.

α Leonis
h m s
10 1 20.0

22.1

24.3

26.3

28.5

24.24

24.22

40.66

-16.44

γ Leonis
h m s
10 12 41.8

44.0

46.1

48.4

50.6

46.16

46.14

2.65

-16.49

$n = +10$

$$0 = -16.49 + 2.2 + 2 - 16.47$$

$$-16.49 + 37 + 4 - 16.45$$

$$dT + m = +16.46$$

$$m = +70$$

$$dT = +15.76$$

$$ddT = +.97$$

Apr. 15-1874 W.D. D. S.

2 Leonis & 6 Cephei & 12 Ursa. Maj.

11 30 78 11 33 30.0 11 47 47.9

9.9 34.5 51.3

11.9 39.3 55.0

13.9 43.7 58.6

16.0 48.1 62.1

11.90 52.5 65.8

11.88 57.1

The zero of collimation
was set morning

are
66.6

48.21

30 11.88 48.21 54.96

30 31.12 41.88 14.44

- 19.24 - 16.61 19.48

$$0 = -19.24 - .01 - 0$$

$$- 19.48 + 14.0 -$$

$$dT + m = +19.24$$

$$m = +70$$

$$dT = +18.54$$

$$ddT = +1.04$$

$$0 = -16.61 - 39.8$$

$$- 19.36 + .70$$

$$0 = +2.75 - 4.68$$

$$m = +0.60$$

new observations

Apr. 16 1874

18 Draconis & Hydrus d'Neuilly - Leonis

h m s	h m s	h m s	h m s
9 18 15.8	9 21 0.8	9 22 49.7	10 42 15.4
220		526	
299	29	557	177
378		588	
447	50	18	198
516		49	
593	70	82	218
66		111	
150	91	141	239
4472	496	1.88	19.72
44.65	4.94	1.82	18.70
336	24.39	21.16	39.19
18.77	19.45	19.34	19.49

$$\begin{aligned}
 n &= -.05 \\
 0 &= -19.45 - 14 + 1 - 19.44 \quad 0 = -18.77 + 7.03 \\
 -19.45 + 20 - 1 & 19.46 \quad 0 = -19.45 + 2.79 \\
 0 &= -19.45 + .03
 \end{aligned}$$

$$\begin{aligned}
 0 &= -0.74 - 7.00 \quad m = -10 \\
 0 &= .00 - 2.76 \quad = +0
 \end{aligned}$$

$$\begin{aligned}
 dT + m &= +19.45 \\
 m &= +70 \\
 dT &= 18.75 \\
 ddt &= +.75
 \end{aligned}$$

Apr. 21 1874 N.H.R. obs.

of Mr. Maj. J. N. Draconis & Hydrae.

h m s	h m s	h m s
8 58 54.0	9 18 88	9 20 55.3
56.7	166	57.5
	23.7	59.6
	31.2	1.7
55.5	38.7	3.8
	45.7	
22	53.1	
	00	
48	7.8	
55.64	38.40	59.58
53.96	1.82	1.56
18.62	62.71	24.32
24.66	24.39	24.76

$$0 = 24.76 - 24.47 - 1 = 24.75$$

$$0 = 24.66 + 2.43$$

$$0 = 24.39 + 7.03$$

$$0 = +.10 + 2.57 \quad n = .04$$

$$0 = +.37 + 7.17 \quad n = .05$$

$$dT_n = +24.75$$

$$m = +70$$

$$dT = +24.05$$

$$ddT = +1.06$$

Apr 22 1874 J. H. R.

2nd Mrs. May h 1 Draconid (6)

h	m	s	h	m	s	h	m	s	h	m	s
8	58	42.1	9	18	86	10	42	9.1	10	55	24.3
	447			154							
	476			237			112			288	
	503			298			133			385	
	530			378							
	558			446			155			378	
	583			519							
	10			595			175			422	
	4.0			6.9							
	5298			37.57			1332			3332	
	5293			37.43			1330			33.29	
	18.59			2.58			39.11			59.06	
	-25.66			-25.15			-25.81			-25.77	

$$\begin{aligned} 0 &= -25.66 + 24.3 \\ 0 &= -25.81 + 20 \\ &= -25.15 + 7.03 \end{aligned}$$

$$0 = +.15 + 22.3 \quad n = -.07$$

$$0 = +.66 + 6.83 \quad n = -.09$$

$$n = -.08$$

$$0 = -25.81 + 20 - .02 - 25.83$$

$$0 = -25.77 + 19.1 - 15 - 25.92$$

$$dT + m = +25.87$$

$$m = +40 \quad 26.44$$

$$dT = 25.17$$

$$ddT = +1.08$$

✓

2 Jm. 27 1874 npx,

α Leonis			γ Leonis			γ No Draconis		
h	m	s	h	m	s	h	m	s
10	1	5.7	10	12	27.7	10	2	3
	79			298				36.8
								41.0
								45.4
								49.8
100				320				53.9
								58.4
120				342				6.7
								6.9
142				363				11.6
9.96				3200				54.06
9.94				31.98				54.00
40.55				2.49				24.42
- 30.57				30.54				30.42

$$0 = -30.57 + 22 - 1 - 30.58$$

$$-30.54 + 37 - 1 - 30.52$$

$$- 30.55$$

$$dT + m = +30.55$$

$$m = + \overset{43}{70} \quad 3012$$

$$0 = -30.42 + 4.10$$

$$dT = +29.85$$

$$0 = -30.54 + .30$$

$$ddT = +.93$$

$$0 = +.12 + 8.80$$

$$n = -.03$$

Aug 30 1874 J. L. R.

& Leonis 32 hrs. May J. Leonis

10 ^h 1 ^m 5 ^s 8.2	10 ^h 8 ^m 11.1	10 ^h 12 ^m 25.0
5.3	13.8	27.2
9.5	16.3	29.5
9.6	18.8	31.7
11.7	21.3	33.8
7.46	23.7	28.44
7.44	26.2	29.42
40.47	28.6	2.45
- 33.03	30.0	33.03
	21.09	
	21.05	
	54.13	
	33.08	

$$0 = -33.03 + 2.22 + 0 - 33.03$$

$$0 = -33.03 + 3.7 + 1 - 33.02$$

$$0 = -33.08 + 2.22$$

$$0 = -33.03 + 3.0$$

$$0 = -33.05 + 2.92$$

$$m = +.02$$

$$dT + m = -33.02$$

$$m = +.70$$

$$dT = -32.32$$

$$ddT = +.82$$

May 5 1874 W.H.P.

1 Leonis 2 Urs. maj. 3 Leonis 4 Capher

$h^m s$	$h^m s$	$h^m s$	$h^m s$
10 ^h 41 ^m 57 ^s	10 ^h 55 ^m 12 ^s	11 ^h 29 ^m 45 ^s	11 ^h 33 ^m 28 ^s
	15.1		14.3
59.6	17.3	57.8	19.0
	19.6		23.1
1.8	21.8	53.8	27.7
	24.1		32.8
3.8	26.6	55.8	37.3
	28.8		41.7
6.0	30.8	57.9	47.0
1.04	21.80	53.78	28.08
1.72	21.77	53.76	28.42
38.04	58.67	31.00	6.33
- 37.32	- 36.70	37.24	38.19

$$0 = -37.32 + 20 - 4 - 37.36$$

$$0 = -36.70 + 1.91 - 42 - 37.32$$

$$0 = -37.24 + .00 - 0 \quad \underline{37.24}$$

$$- 37.31$$

$$0 = -38.19 - 3.78$$

$$0 = -37.28 + 10$$

$$0 = -.91 - 34.08$$

$$n = -22$$

$$dT_m = +37.31$$

$$m = +70 \quad 36.88$$

$$dT_- = +36.61$$

$$d\delta T_- = +.86$$

May 7 1874 *W.S.*

<i>Obs. May</i>			4 Deaconi (No.) in Virginis		
<i>h</i>	<i>m</i>	<i>s.</i>	<i>h</i>	<i>m</i>	<i>s.</i>
10	55	11.0	12	5	35.2
		132	12	12	46.0
		15.6			40.0
		178			45.0
		200			50.1
		222			52.2
		246			54.3
		267			55.7
		288			57.7
		19.99			59.14
		19.96			59.12
		58.61			58.93
		-38.65			-38.81
		-38.65			-38.30

$$\begin{aligned}
 0 &= -38.65 + 1.91 - 21.3886 & 0 &= -38.30 + 4.83 & 6 &= +2.5 \\
 0 &= -38.81 + & 0 &= -38.73 + 8.5 & m &= +33 + 10 = +43 \\
 0 &= & 0 &= +.43 + 3.98
 \end{aligned}$$

$$m = -11$$

$$dT+m = +38.83$$

$$m = +43$$

$$dT = +38.40$$

$$ddT = +.80$$

May 10 1874 W.H.R.

α Virginis	δ Draconis	γ Leonis	δ Cephei
12 ^h 12 ^m 43.2	12 5 22.1	10 18 16.6	11 6 39.6
	27.6	10.7	10.6
45.3	32.8	21.0	15.0
47.3	37.9		19.8
	43.2		23.8
49.4	48.0	23.1	28.7
	53.7		32.9
	58.6		37.9
57.5	8.8	25.4	42.6
47.34	43.08	20.96	41.04
47.32	43.02	20.94	44.02
28.91	23.16	2.52	25.55
- 41.59	- 40.14	41.38	41.53

$$n = -28$$

$$0 = -41.59 + 0 - 0 - 41.59 \quad 0 = -40.14 + 4.83$$

$$- 41.38 + 37 - 10 - 41.48 \quad - 42.58 - 3.58$$

$$- 41.53 + 39 - 11 - 41.64 \quad 0 = -41.50 + 2.9$$

$$41.57 \quad 0 = +1.36 + 4.54 \quad n = -30$$

$$0 = -1.08 - 4.27 \quad n = -26$$

$$-28$$

$$dT+m = +41.57$$

$$m = +60$$

$$dT = +40.97$$

$$ddT = +.86$$

$$b = +3.8 + 2.7 = +6.5$$

May 11 1874 W.S.L.

δ Leonis	2 nd Maj.	δ Leonis
$h^m s$	$h^m s$	$h^m s$
10 41 52.3	10 55 43.5	11 6 38.7
	2.6	
524	188	410
	14.1	
566	160	431
	187	
587	208	453
	229	
08	251	476
86.56	16.28	40.94
86.54	16.25	42.92
3898	58.48	25.04
-4244	42.23	42.62

$$\begin{aligned}
 & \delta \quad n = -25 \\
 & 0 = -42.44 + 20 - 5 - 42.49 \\
 & -42.23 + 1.91 - 48 \quad 71 \\
 & -42.62 + 39 - 10 \quad 72 \\
 & \quad \quad \quad 42.64
 \end{aligned}$$

$$\begin{aligned}
 & \delta \\
 & dT + m = +42.64 \\
 & m = +60 \\
 & dT = +42.04 \\
 & d dT = +1.07
 \end{aligned}$$

May 12 1272 No. 12

2 Mrs. May 8 Leonis 2 Leonis

h m s	h m s	h m s
10 55 64	11 6 37.6	11 29 43.2

86

10.7

12.9

15.2

17.3

19.8

21.9

24.2

15.22

15.19

58.45

43.26

39.8

42.0

44.1

46.4

41.98

25.03

43.55

43.57

45.3

47.3

49.5

51.6

47.38

47.36

80.94

43.58

s'

n = -20

$$0 = -43.26 + 1.91 + 58 - 48.64$$

$$43.57 + 39 + 8 \quad .65$$

$$43.58 + 0 - 0 \quad .58$$

$$43.62$$

$$d\Gamma + m = +43.62$$

$$m = +60$$

$$d\Gamma = +43.02$$

$$dd1 = +.98$$

May 13 1874 W.P.

α Virginis	α Virginis	H (K.) Deaconis.
11 ^h 58 ^m 00 ^s	12 ^h 12 ^m 40 ^s	12 ^h 5 ^m 12 ^s
20	42.2	23.9
41	44.2	29.0
62	46.3	34.1
83	48.3	39.1
4.12	44.22	44.3
4.10	44.20	49.6
48.71	28.89	54.6
44.61	44.69	59.2

$$\begin{aligned}
 0 &= -44.61 + 1.9 + 3 - 44.64 + 0 = -43.83 + 4.83 \\
 &- 44.69 + 0 - 0 \quad .69 \quad -44.65 + .8 \\
 0 &= +0.82 + 4.75 \\
 m &= -1.9
 \end{aligned}$$

$$dT + m = +44.66$$

$$m = +60$$

$$dT = +44.06$$

$$\alpha dT = +1.09$$

May 14 1874 W. A. R.

α Mus. Maj.	δ Leonis	α Draconis	δ Leonis
10 ^h 55 ^m 48 ^s	11 6 30.8	11 23 0.8	11 29 41.4
70	380	39	435
9.2	40.3	70	
11.5	42.5	10.0	45.6
13.8	44.7	13.0	
15.9		16.0	47.7
18.0		19.0	
20.4		22.1	49.7
22.6		25.0	
55 136.8	40.26	12.98	45.58
13.66	40.261	12.98	45.56
58.38	20.51	57.57	30.93
44.72	45.29	44.64	45.37

$$\begin{aligned}
 & n = -31 \\
 & 0 = -45.27 + 39 - 12 - 45.39 \quad 0 = -44.72 + 1.91 \\
 & \quad - 40.37 + 0 - 0 \quad 45.37 \quad - 44.64 + 2.75 \\
 & \quad 0 = -45.32 + 20
 \end{aligned}$$

$$dT + m = +45.38$$

$$m = +60$$

$$dT = +44.78$$

$$dTd = +.72$$

$$0 = +.60 + 1.71 \quad n = -35$$

$$+.68 + 2.05 \quad n = -27$$

$$n = -21$$

May 19 1874 W.R.

δ Virginis	α Virginis	Polaris S.P.
$13^h 2^m 34.8^s$	$13^h 17^m 42.6^s$	$13^h 9^m 14.8^s$
36.9	44.7	9. 58.9
32.0	46.8	10 40.5
41.1	48.8	11 22.1
43.2	57.0	12 57.0
38.98	~~46.76~~	10 39.92
27.10	34.88	10 40.50
— 48.12	— 48.12	11 43.38
		— 62.88

$$0 = -48.12 - 0.9 + 3 - 40.90 = -62.88 - 42.10$$

$$-48.12 - 1.9 + 7 - 40.5 - 48.12 - 1.9$$

$$0 = -14.76 - 41.96$$

$$m = -35$$

$$dT+m = +48.07$$

$$m = +60$$

$$dT = +47.47$$

$$d\delta T = +52/$$

May 24 1874 2nd R.

Polaris	α Ursae	ϵ Ursae
13 ^h 9 ^m 13.6 ^s	13 ^h 2 ^m 32.4 ^s	13 ^h 17 ^m 40.0 ^s
54.4	84.5	42.2
41.3	36.6	44.3
25.7	38.7	46.5
10.1	40.7	48.6
41.62	36.58	44.32
42.20	36.56	44.30
46.09	27.08	34.87
-63.84	-50.52	50.54

$$0 = -50.52 - .04 + 3 - 50.49$$

$$- 50.57 - 19 + 6 - 50.51$$

$$0 = -63.84 - 42.10$$

$$0 = 50.54 - .10$$

$$0 = -13.30 - 42.00$$

$$m = -3.2$$

$$dT + m = +50.50$$

$$m = +.60$$

$$dT = +49.90$$

$$dT = +.49$$

May 26 1874 W. R.

θ Virginis	Polaris	ϵ Virginis
13 ^h 2 ^m 31 ^s .6	13 ^h 9 ^m 14 ^s .6	13 ^h 17 ^m 39 ^s .3
33.6	38.7	41.4
30.6	43.7	48.6
37.7	25.7	45.7
39.8	11.0	47.8
35.66	42.74	43.56
2 35.64	43.87	43.54
3 27.08	46.58	34.87
51.48	63.21	57.33

$$0 = -51.48 - 09 + 3 - 51.40 \quad 0 = -63.21 - 42.10$$

$$-51.33 - 19 + 5 - 51.28 \quad 0 = -51.33 - 10$$

$$0 = -11.88 - 42.00$$

$$n = -28$$

$$dT+m = +51.34$$

$$m = +60$$

$$dT = +50.74$$

$$d\delta T = +42$$

Nov 27 1874 N.H.

2 hrs. Maj. 2 Bores

$13^h 41^m 39^s$

$13^h 47^m 46^s$

42.3

48.0

45.8

51.3

48.8

53.4

52.0

55.6

45.56

51.24

45.54

51.22

36.95

42.92

-51.41

51.70

$n = -26$

$0 = -51.41 + 118 - 29 \quad 57.69$

$-51.70 + 34 - 8 \quad 57.78$

57.73

$dT + m = +57.73$

$dT = +6.0$

$dT = +51.13$

$ddT = +3.8$

May 28/1974 U.S.R.

416. Draconis			n Mus. Maj.			n Bootis.		
^h	^m	^s	^h	^m	^s	^h	^m	^s
12	5	10.8	13	41	38.9	13	48	46.5
		16.1						
		20.8			42.0			45.7
		26.3						
		31.0			45.2			50.0
		36.5						
		40.4			48.4			53.1
		46.7						
		51.8			51.6			52.2
		51.16			52.22			52.94
		31.11			45.20			50.92
		21.71			36.94			42.93
		50.60			51.74			52.01

$$0 = -51.74 + 11.8 - 3.3 - 52.07 \quad 0 = -50.60 + 4.83$$

$$52.01 + 34 - 9 - 52.10 \quad 51.87 + .76$$

$$0 = +1.17 + 4.07$$

$$m = -2.87$$

$$dT+m = +52.08$$

$$m = +60$$

$$dT = +51.48$$

$$dT = +35$$

June 1 1874
 13^h 41^m 87.5^s

W.K.
 13^h 42^m 45.0^s

406	471
438	493
469	516
501	538
43.78	49.36
43.76	49.34
36.90	42.89
53.14	53.55

$$n = +38$$

$$0 = -53.14 + 118 - 38 - 53.49 - 41 - 53.55 \\ - 53.55 + 34 - 18 \quad .65 - 12 \quad .67$$

$$dT + m = +53.61^s$$

$$m = +60$$

$$dT = +53.01$$

$$ddT = +.38$$

June 2 1874 W.R.

2 Bortis d m. s. 14 8 58.3

2 Bortis d m. s. 14 19 56.8

0.6

59.6

2.8

3.0

4.9

6.3

7.1

10.8

2.74

13.30

2.72

3.28

16.71

57.28

-53.99

-54.00

$n = +8 \text{ } \overline{+30}$

$$\Delta 0 = -53.99 + 36 + 19 - 54.10$$

$$(-54.00 + 1.30 - 39 \quad 54.35)$$

$$\Delta T + m = +54.10$$

$$m = +60$$

$$\Delta T = +53.50$$

$$\Delta \Delta T = +.48$$

June 8 1894 J. W. R.

n New Maj. n Doolis

13^h 41^m 34.3^s 13^h 48^m 42.1^s

37.3

44.3

40.7

46.4

44.0

48.6

47.0

50.9

41 40.66

46.46

40.64

46.44

36.77

42.86

56.13

56.42

$$n = -3.0$$

$$0 = -56.13 + 11.8 - 35 - 56.48$$

$$56.42 + 34 - 10 - 56.52$$

$$dT + m = +56.50$$

$$m = +.60$$

$$dT = 55.90$$

$$ddT = +.40$$

June 9 1874 W.R. d. s.

α Bootis δ Bootis
 $14^h 9^m 55^s$ $14^h 20^m 54^s$

58.2

57.8

0.4

1.0

2.6

4.4

4.8

7.9

0.38

1.08

10 0.36

21 1.06

9 56.68

20 57.00

+3.68

4.06

 $n = -.30$

$$0 = +3.68 + 36 - 11 + 3.57$$

$$+4.06 + 130 - 39 \quad 3.67$$

$$dT + m = -3.62$$

$$m = +.60$$

$$dT = -4.22$$

$$ddT = +.12$$

June 10 1874 W.R. Daw.

Polaris γ & Virginis

$$13^h 18^m 34.1^s = 13 \quad 8 \quad 43.0$$

$$9 \quad 28.9$$

$$36.2 \quad 10 \quad 11.4$$

$$38.3 \quad 10 \quad 54.8$$

$$11 \quad 43.9$$

$$40.3 \quad 12 \quad 21.6$$

$$13 \quad 6.0$$

$$42.4 \quad 13 \quad 50.0$$

$$14 \quad 32.0$$

$$38.26 \quad 42.96$$

$$38.24 \quad 43.29$$

$$34.79 \quad 39.50$$

$$+3.45 \quad +16.21$$

$$\theta = +3.45 - 19 + 06 + 3.51$$

$$0 = +16.21 - 42.10$$

$$0 = -12.96 + 41.91$$

$$m = -.30$$

$$d\Gamma + m = -3.51^s$$

$$m = +60$$

$$d\Gamma = -4.11$$

$$dd\Gamma = +.11$$

