

KG
11366
v. 751

Amie Dr R

1075 B1

Charles W. Sever, University Bookstore, Cambridge.



Jan. 11 1875 W. J. R.

d	m	s	h	m	s	d	m	s	h	m	s
4	12	11.1	4	28	46.7	4	48	21.0	4	57	49.8
					88			23			56.7
		13.1			10.9			23.5			4.6
											12.9
		15.2			28.6			25.7			20.0
					30.3						27.6
		17.3			32.4			28.4			36.0
											43.1
		19.6						30.7			50.9
		15.26			19.52			35.86			20.18
12	11.24		28	19.511		48	25.84		58	20.05	
12	41.51		28	45.67		48	52.17		58	49.04	
-	26.27		-	26.17		-	26.33		-	23.99	

$$\begin{aligned}
 0 &= -26.27 + 2.7 + .68 + .19 \\
 &- 26.16 + 2.9 + .08 + .08 \\
 &- 26.33 + .65 + .19 + .14 \\
 0 &= -23.99 - 7.32 \\
 0 &= -26.25 + .40 \\
 0 &= +2.26 - 7.72 \\
 n &= +.29
 \end{aligned}$$

$$dT + m = +26.14$$

$$m = +.64$$

$$dT = +25.50 \text{ at } 4^h 29^m$$

$$ddT = +.84$$

Jan 12 1875

W A R.

h m s

h m s

117

143

168

196

220

249

273

300

19.18

18 19.16

18 46.56

- 27.41

207

228

249

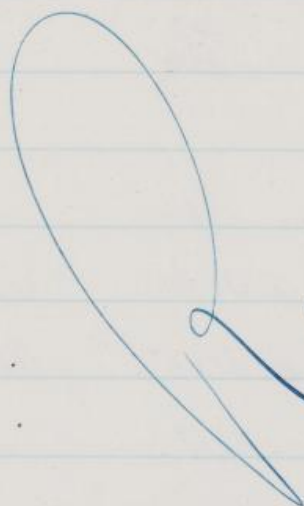
268

22.76

22.74

49.6

- 26.91



Received
Jan 14

$$0 = -26.91 + 0.5 + 0.1 - 26.90$$

$$- 27.41 + 2.33$$

$$0 = +.50 - 2.28$$

$$m = +2.2$$

$$dT + m = +26.90$$

$$m = + 64$$

$$dT = +26.26$$

$$ddt = +.83$$

Jan 14 1875 N R R

h	m	s	h	m	s	h	m	s	h	m	s
4	48	18.3	4	57	45.8	5	6	53.7	5	7	59.1
					54.0						1.9
		20.8			1.9			56.7			4.0
					8.2						
		23.3			15.5			59.6			6.0
					24.0						
		25.7			31.3			2.7			8.2
					38.9						
		28.2			47.6			5.6			2
		23.26			16.46		6	59.66		8	3.98
48		23.24		58	16.33		6	59.64		8	3.96
		32.15			44.47			28.96		8	32.80
		- 28.91			- 28.14			- 28.92			- 28.84

$$\begin{aligned}
 0 &= -28.91 + .65 + .06 - 28.85 & 0 &= -28.14 - 7.32 \\
 &- 28.92 + .03 + .10 - 28.82 & 0 &= -28.89 + .57 \\
 &- 28.84 - .14 - .01 - 28.85 & 0 &= + .75 - 7.83 \\
 && n &= +10
 \end{aligned}$$

$$b = +3.3$$

$$dT + m = +28.84$$

$$m = +.35$$

$$dT = +28.49 \text{ at } 5^h 1^m$$

$$(dT = +.91)$$

(From 2690 Jan 12 and 2884 Jan 14)

$$m = \log \sec \varphi - n \tan \varphi$$

$$m = +.44 - .09$$

$$m = +.35$$

Jan. 16 1875 W A R.

h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
4	20	49.7	4	28	10.6	4	48	16.4	4	58	5	5	6	57.8	5	7	57.9
		46.9			12.7			14.9			6.7			54.8			0.0
		49.0			14.9			21.5			15.4			57.7			2.1
		51.2			17.0			23.8			23.6			0.8			4.2
		53.5			19.2			26.3						3.8			6.3
		30.75 49.06			14.88			21.38						57.18			2.10
20	49.03		28	14.86		48	21.36				15.23			57.76			2.08
21	19.81		28	4.564		48	52.15			58	15.10			21.55			32.60
-	30.77		-	30.78		-	30.79			58	44.69			-30.77			-30.72
											-29.59						

$$0 = -30.77 + 34 + 0.5 - 30.72$$

$$30.78 + 2.9 + 0.4 \quad .74$$

$$30.79 + 6.5 + 10 \quad .69$$

$$30.79 + 1.03 + 15 \quad .64$$

$$30.72 + 1.4 - 0.2 \quad .70$$

$$0 = -29.59 - 7.32$$

$$-30.77 + .43$$

$$0 = +1.18 - 7.77$$

$$n = +15$$

$$dt + m = +30.70$$

$$m = +.34$$

$$dt = +30.36$$

$$ddt = +0.94$$

Jan. 17 1875 W. R. R.

h	m	s	h	m	s	h	m	s	h	m	s
4	12	55	15	47	41.6	3	45	40.5	3	40.27.5	
					46.2						
	7.8				51.4			43.0			29.8
					56.7						
	9.8				1.6			45.5			32.2
					6.4						
	12.0				11.7			47.8			34.3
					16.9						
	13.9				22.4			50.4			36.7
	9.80				25.44			45.44			32.10
					1.61						
	41.48				28.39			45.42			32.08
					1.55						
	31.68				31.93			17.12			3.80
	-31.70				-30.38			-31.70			-31.72

$$0 = -31.70 + 27 + 0.5 - 31.65 \quad 0 = -30.38 - 4.98$$

$$-31.70 + 61 + 12.58 \quad 0 = -31.71 + .44$$

$$-31.72 + 44 + 0.9.63 \quad 0 = +1.33 - 5.22$$

$$n = +.26$$

$$n = \frac{+.26 + .15}{2} = +.20$$

$$dT + m = +31.59$$

$$b = +33$$

$$m = +.26$$

$$m = +44 - 18 = +26$$

$$dT = +31.33 \text{ \& at } 3^h 5^m$$

$$ddT = +1.00$$

Note.

It is possible that the collimation was read wrong Jan 14-15. The south collimator may have been read 10 div. on the wrong side of the zero.

From 18 1875 W.D.R.

h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
17	50	180	3	5	398	3	14	45.4	3	33	23.1	3	20	10.3
		219			445									138
		259			488			484			26.1			169
		298			538									208
		338			584			51.3			29.2			238
		378			2.8									270
		415			7.8			54.8			32.3			306
		453			12.4									338
		490			17.4			58.0			35.5			375

50	33.67	(3)	52.57	17	25.74	33	29.24	20	23.84	39	30.96
			58.41		51.58						
50	33.72	(3)	52.52	17	25.76	33	29.22	20	23.82	39	30.94
			58.36		51.55						
51	5.50	(3)	32.06	15	24.54	34	2.19	20	58.85	40	37.9
	-31.98		-33.70		-32.99		-32.97		-32.03		-32.85

$$m = +2.3$$

$$0 = -32.99 + 1.17 - 27 - 32.92$$

$$-32.97 + 1.08 - 25 - 32.72$$

$$-32.85 + 44 - 10 - 32.75$$

$$0 = -32.94 + 90$$

$$0 = -31.78 - 365$$

$$-33.70 + 4.42$$

$$-32.03 - 3.13$$

$$0 = +1.16 - 455 \quad m = +2.5$$

$$+0.76 - 3.52 \quad m = +2.2$$

$$+0.91 - 4.03 \quad m = +2.3$$

$$+2.3$$

$$m = +44 - 21 = +2.3$$

$$dT + m = +32.73$$

$$m = +2.3$$

$$dT = +32.50$$

$$ddT = +1.18$$

Jan 19 1875

W. A. R.

h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
3	3	39.0	3	14	44.0	3	57	343	4	12	33	4	28	7.2
		42.7			45.6			364			55			9.5
		47.7			47.3			387			77			11.8
		52.3			48.8			409			88			14.0
-		56.9			50.5			431			119			16.0
		0.6			52.0									
		6.6			53.6									
		11.2			55.1									
		15.7			57.0									
		20.30			58.3			38.68			7.64			11.70
		56.97												
(3)		0.25	14		50.40	57		38.64	12		7.62	28		11.68
		56.91												
4		31.98	15		24.52	52		12.50	4		1.96			45.62
-		34.73	-		34.12	-		33.86	-		33.84	-		33.94
		35.07												

$$\begin{aligned}
 0 &= -34.12 + 11.7 + 29 - 38.83 & 0 &= -\frac{34.73}{35.07} + 44.2 \\
 33.86 - 2.5 - 0.6 - 38.80 & & & -33.94 + .37 \\
 33.84 + 2.7 + 0.7 & 38.77 & 0 &= +1.10 - 4.05 \\
 33.94 + 2.9 + 0.7 & 38.87 & n &= +2.8 \\
 & & n &= +\frac{2.8 + 2.3}{2} = +2.5
 \end{aligned}$$

$$dT + m = +38.82$$

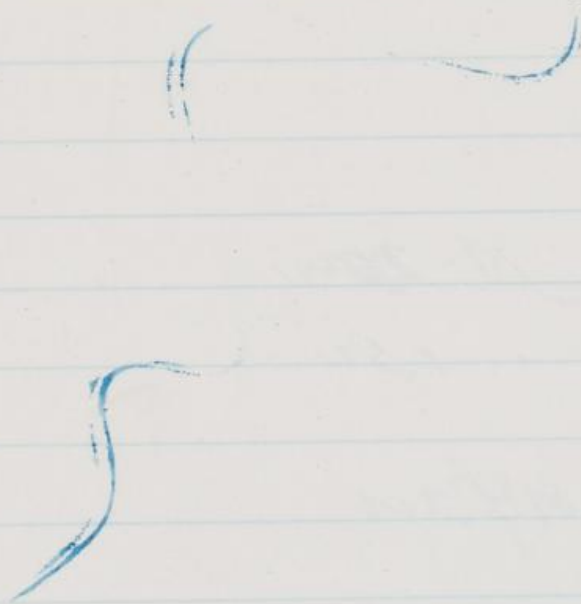
$$m = +2.3$$

$$dT = +38.55$$

$$dT = +7.09$$

Marlowe Delivered Oct 15 1875

1 2400	600
100 100	200
100 1000 2000	212
100 — $\frac{1}{4}$ 400	800
Millimils	300
100 1000 2000	250
100 — 1200	500
100 4500	800
100 1000	200
100 4500	800
100 4500	800
100 2400	600
100 10000	600
100 700 200 4000	300
100 100 200 400	300
100 2400	600
100 700 200 400	300
100 100	200
Left Note 10 20 30 40 50 60 100	10.00
100 40 60 80 100 120	1200



Oct-18/1875

Micrometers etc. with P H Markham.

	Gross Net-
3 at - 2.00	6.00
2 at - 2.50	5.00
3 at - 3.00	9.00
2 at - 5.00	10.00
3 at - 6.00	18.00
4 at - 8.00	32.00
1 Micrometer	3.00
3 Diamonds at - 2.00	6.00
1 " " " 1.50	1.50
	<hr/> 88.00
2 Silver at \$13.00	6.00
	<hr/> 49.80
	6.00
	<hr/> 60.90
2 Dupard Diamonds \$4.00 ^{net} each	8.00
	<hr/>

Greenwich Army

18	36	16	21	4703			3
37				47.96			7
38				48.84	.794		3
39				49.53			6
40				50.32	.795		12
41				51.11	.795	28° 7' 29"	10
42				51.74			9
43				42.56			10
44				53.40	.796		3
45				54.02			4
46				54.84			7
47				55.84			6
48				56.45			5
49				57.37	.820		14
50				58.15			6
51				58.85			2
52				59.72			11
53	22			0.50			5
54							
55				2.24	.821	28° 9' 25"	1

1856 λ_1	16 22 2.67	799		1
1856 λ_2	3.03		28 9 33	9
57	3.77	821		8
58	4.46			8
59	5.45			11
60	6.10		28 10 5-	2
61	6.76		28 10 15-	1
62	7.61			1
63	8.31			1
64	9.34			4
65	10.17		28 10 46	1
66	10.85			1
67 λ_2	11.72		28 11 324	3
67 λ_2 free	11.98		5.44	1
68	12.58			4
69	13.17			6
70				
71	14.65			1
72				

Mr. Bond.

we 1829 for 18300 $\alpha = 16\ 21\ 42.11\ (3)$ 1st Col - 72000
 we 1832 for 18320 $43.77\ (14)$

Harvard College.

Red to 18720

1873 22 16.50

15.69

~~1873~~ for 1872, 16.45 - 81 15.64

15.64

1872 14.87 + 81

15.68

21
 16 22 15.67

Work.

1845

46

5820 3

57 fu 1850.0 16 21 5822 2

5800 1

615118

1851

5819 2

1863

1860

22

582.1

1865

18700

14.15 1

1867 -80 cor to 2ph.

1848 fu 1850

57.83 1

1859 fu 1860

6.01 (2) 4

1860 " "

6.08 (1) 5

(Gen Col 1845-6) " "

6.07 (22)

1872

1870

New Gov. fu 1870. 16 22 14, 18 (9)

Gullis 1840

50.09 (22)

Camp.

~~1844~~ 1844 2 Drums 16 21 52 28 75304 (J)
 2 Drums R 5247 (J)

1843 R 7 4331 3

R R 4350 3

" SD 4441 1

" 4253 1

1846 16 21 52 89 (4)

~~Primer~~ 1100

L 2 5

Brookley 1755 20 55 56.29

Pisani 1405

Basil 1816

Sturm 1824 16 21 37.57 (8) Doppl 222 5

Myeladen 1830 37.59 (S.D) (12) none 183

Pond 1830 42.15 (10) 2+05 57

Goyer 1837

Henderson 1841 2.1 51.18 (5)

Rod. 1850

Brunel 1856

Rod. 1858

Paris 1860

Sturm 1830 16 21 42.31 (253) 61 5-4 2

Lagnoli 1800 21 18.20 —

Almow 1840 21 49.87 (2)

Pulcom 1845 21 54.12 (48)

Taylor 1831 22 43.00 (3)

Runken 1836.0	16 21 47.02	(61)	61° 53' 15"
Gr 2346 Jan 10	16 21 26.20	15	28 8 1208
Pianini 1800 1800	21 17.80		1308
Strain 1815	21 30.12		ast-obs. page 66
Brunels 1863	22 8.63 (3)		
1862	7.79 (8)		
1861	6.86 (1)		
1860	6.33 (1)		
1856	3.04 (10)		
1849	21 57.45 (7)	61	51 25
1837	21 47.57 (7)		
1838	21 48.76 (6)		
1863	22 8.63 (3)		
1864	9.39 (1)		
1867			56.81
1867			57.69
1866	11.02 (2)		
Naach 1820	16 17 9.69	3.645	
Joan 1800	16 21 18.33	785	
Lal 1750	Fed.		
2779 May 4	21 11.32	61 59	408 (3)
2780 4.6	11.89		328 (2)
2781 3	12.44		4.2 (1)

Paris

1862 22 8.78 (2)
 1859 22 5.24 (1)
 1857 22 3.71 (1)
 1856 22 2.72 (6)

~~1860 June~~

Rodcliff

1869 22 13.17 (3)
 1871 14.98 (1)

~~1861~~

1867 11.73 (5)
 66 10.89 (5)
 72 15.51 (1)

~~60-62~~ 8.22 (1)

~~64-61~~ 6.75 (2)

5

58

4.30 (2)

64-6 full 6.00 6.36 (3)

51

58.91 (2)

49

57.25 (1)

45

46.48 (2)

40

50.24 (2)

cos Lix

+.42 -.91

-.42 -.91

-.42 -.91

-.42 -.91

—

ve

 $\sin 62^\circ = .88$ $\cos 62^\circ = .47$

h. 1840 (36641) 21 50.23 (41)	$A = +0.67 + 0.14 \cos x - 0.34 \sin x = +.07$
h. 1845 (42647) 21 54.19 (39)	$+0.19 + 0.07 \cos x - 0.25 \sin x +.03$
1850 (49553) 21 58.14 (43)	$-0.03 + 0.11 \cos x - 0.23 \sin x +.09$
1860 (54560) 22 6.23 (39)	$+0.14 + 0.14 \cos x - 0.12 \sin x +.01$
1864	$+0.33 + 0.10 \cos x - 0.10 \sin x +.03$

byrdli	<u>cos</u>		
De Noeh	$4 = +36 - 0.3 \frac{\sqrt{-10}}{10}$	$36 - 16 = 20$	$+ .20$
Piarni	$4 = +10 + 0.28 \frac{\sqrt{-10}}{10}$	$+10 + 14 = 24$	$+ .24$
Moskelym 005	$4 = +145 + 0.19 \cos x + 0.06 \sin x - 0.12 \frac{\sqrt{-10}}{10}$		$+ .03$
Ammer Loc.	$4 = -0.06 - 0.10 \cos x + 0.33 \sin x$		$+ .02$
Beisel 1870	$4 = -0.37 - 0.37 \cos x + 0.37 \sin x$		$- .02$
Beisel 1825	$4 = +0.20 - 0.06 \cos x + 0.10 \sin x$		$+ .04$
Strime 1825	$4 = -0.20 + 0.07 \cos x + 0.05 \sin x$		$- .03$
Gillis 1840	$4 = +0.32 \cos x - 0.28 \sin x$		$- .02$
Pond	$4 = -0.56 - 0.15 \sin x + 0.00 \cos x$		$- .05$
Ally Camb.	$4 = -0.24 - 0.18 \sin x$		$- .02$
Paylor	$4 = -0.47 + 0.23 \cos x + 0.01 \frac{\sqrt{-10}}{10}$		$- .06$
Amosh	$4 = +.02$		$+ .02$
Pulconu	$4 = +.02$		$+ .02$
Rod 1845	$4 = -0.19 + 0.39 \cos x - 0.20 \sin x$		$- .05$
Pond in J 1830	$= -.067 \times 18 + 0.2 \times 47 = -.06$		

Apparent Place of Hydrogen

	log α	μ	α	α	α	α
1750	126336	3.06855	16 ^h 20 ^m 46"	245° 11' 30"	62° 4' 32"	8394
55	126325	.06865	20 50	12 15	62 4 16	8396
90	126252	.06937	21 10	17 30	61 59 12	8408
1800	126231	.06958	21 18	19 30	61 55 52	8412
10	126210	.06978	21 26	21 30	61 56 32	8415
20	126189	.06999	21 37	23 30	61 55 12	8419
30	126168	.07020	21 42	25 30	61 53 52	8423
40	126147	.07040	21 50	27 30	61 52 32	8426
50	126126	.07061	22 56	29 30	61 51 12	8430
60	126105	.07081	22 06	31 30	61 49 52	8434
70	126084	.07102	22 14	33 30	61 48 32	8437
80	126063	.07122	22 22	35 30	61 47 12	8441

for 1872.0 assumed $16^h 22^m 18.6^s$ $\mu = 61^{\circ} 48' 16''$

Date	α	Date	α	Date	α	Date	α
1750	16 ^h 20 ^m 37.21	1824	16 ^h 21 ^m 35.21	1838	31 47.01	1852	21 58.80
1790	21 6.61	1825	21 36.06	1839	47.55	1853	21 59.65
1800	21 15.02	1826	21 36.90	1840	48.69	1854	22 0.50
1805	21 19.25	1827	21 37.74	1841	49.53	1855	22 1.34
1810	21 23.43	1828	21 38.58	1842	50.37	1856	22 2.18
1815	21 27.64	1829	21 39.43	1843	51.22	1857	22 3.02
1816	21 28.48	1830	21 40.27	1844	52.06	1858	22 3.87
1817	21 29.32	1831	21 41.11	1845	52.90	1859	22 4.71
1818	21 30.16	1832	21 41.95	1846	53.75	1860	22 5.55
1819	21 31.00	1833	21 42.79	1847	54.59	1861	22 6.39
1820	21 31.85	1834	21 43.64	1848	55.43	1862	22 7.23
1821	21 32.69	1835	21 44.48	1849	56.28	1863	22 8.08
1822	21 33.53	1836	21 45.32	1850	57.12	1864	22 8.92
1823	21 34.37	1837	21 46.17	1851	57.96	1865	22 9.77

Correct:

1790 7853

1800 + 7872

10 7891

20 7910

30 7928

40 7947

50 7966

60 7984

70 8002

80 8020

Red log = +0.2

Date

1866 22 1061

1867 1140

1868 1230

1869 1314

1870 1399

1871 1483

1872 1567

1873 1651

1874 1735

1875 1819

1790 16 21 10.61

1800

1805

10

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

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44

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46

47

48

49

50

51

52

53

1851

22.36

26.41

30.26

27.99 31.15

28.78 31.94

29.57 32.73

30.36 33.52

34.31

35.102

35.894

36.686

37.478

38.27

39.063

39.856

40.649

41.442

42.230

43.023

43.816

44.609

45.402

46.20

46.994

47.788

48.582

49.376

50.17

50.965

51.760

52.555

53.350

54.15

54.945

55.740

56.535

57.330

58.13

58.926

59.720

0.517

1854

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

1,013

2.12 2.12

2.92 2.92

3.71 3.71

4.51 4.51

5.30 5.30

6.10 6.10

6.897 6.897

7.694 7.694

8.491 8.491

9.288 9.288

10.09 10.09

10.888 10.888

11.686 11.686

12.484 12.484

13.282 13.282

14.09 14.09

14.89 14.89

15.69 15.69

16.49 16.49

16 22

μ Aumund = -0463

$$\frac{dx}{dt} + u \quad s$$

1755	+7931	.7933
1760	7933	.7945
1800	7945	.7949
1810	7949	.7952
1820	7952	.7956
1830	7956	.7960
1840	7960	.7963
1850	7963	.7967
1860	7967	.7971
1870	7971	.7974
1880	7974	.7978

1755	h	m	s	1826	m	s	1842	m	s	1858	m	s
	16	20	42.63		21	39.046		22	57.282		22	57.282
1790		21	10.58	27		39.842	43		52.578	59		52.578
1800		21	18.36	28		40.638	44		53.374	60	22	61.2
1805		21	22.33	29		41.434	45		54.170	61		6.817
1810		21	26.32	30		42.23	46		54.966	62		7.714
1815		21	30.29	31		43.026	47		55.762	63		8.511
18		21	31.086	32		43.822	48		56.558	64		9.308
17		21	31.882	33		44.618	49		57.354	65		10.105
18		21	32.678	34		45.414	50		58.150	66		10.902
19		21	33.474	35		46.210	51		58.947	67		11.699
20		21	34.27	36		47.006	52		59.744	68		12.496
21		21	35.066	37		47.802	53		0.541	69		13.293
22		21	35.862	38		48.598	54		1.338	70		14.090
23		21	36.658	39		49.394	55		2.135	71	22	14.89
24		21	37.454	40		50.190	56		2.932	72	16	22.156
25		21	38.250	41		50.986	57		3.729	73	16	22.16.49

1755 Modley.

1790 Lal. R

(3)	(2)	(1)
11.32	11.89	12.44
+ .01	+ .01	+ .01
11.33	11.90	12.45
10.61	10.58	10.58
+ .75	+ .32	+ .87

2 (6)
4 (C-0)

Cagnoli 1800

Helmigae 75 29 03
2 Can Min 112 12 18
B Gem 113 15 47
2 Procy 211 38 61

1800 Cagnoli 18.20 Rami 17.80 Zach. 18.33

18.20	17.80	18.33
+ .24	+ .20	
18.44	18.04	18.56
18.51	18.51	18.51
+ .31	+ .47	+ .33
		+ .05

2 (6)

1805 Cacciatore

1810 Inoon 20.20 (15)

2 C
4 (20) 26.41

1815 Strumi 30.12

2 (6) 30.26
4 (20)

1816 Bessel

1120 Struve 37.58 (20)
 Σ - .09
 $\alpha(0)$ 37.58
 $\alpha(C)$ 37.48
 $Ad(0)$ - .09

μ
 - .0019

+ .0012

1130 Pond ~~4271~~ (3) ~~4271~~ Pond (1112) 42.15 (10) Struve 42.31
 Σ - .19 - .00 - .05
 $\alpha(0)$ 42.92 42.04 42.26
 $\alpha(C)$ 42.23 42.23
 $Ad(0)$ + .19 + .03

+ .0012

1131 Taylor 43.00 (3)
 Σ - .06
 $\alpha(0)$ 42.94
 $\alpha(C)$ 43.02
 $Ad(0)$ + .08

+ .0019

1132 P Pond 43.77 (14)
 Σ - .02
 $\alpha(0)$ Pond 43.77 (14) 43.75
 $\alpha(C)$ - .03 43.82
 $Ad(0)$ + .09

1136 Green 47.03 (3) Remmke (61) 47.02
 Σ + .07 + .07?
 $\alpha(0)$ 47.10 47.05
 $\alpha(C)$ 47.89 47.99
 $Ad(0)$ - .11 - .10

1137 Brummel 47.51 (7) Br. 47.96 (7)
 Σ + .07 + .07
 $\alpha(0)$ 47.58 48.03
 $\alpha(C)$ 47.80 47.89
 $Ad(0)$ + .22 - .28

1138 Brummel 48.76 (6) Br. 48.84 (3)
 Σ + .07 + .07
 $\alpha(0)$ 48.83 48.91
 $\alpha(C)$ 48.88 48.88
 $Ad(0)$ - .25 - .33

En. 1240 (6 to 41)

$$\begin{array}{r}
 52.23 \\
 + 50.30 \\
 \hline
 50.17 \\
 - 1.3 \\
 \hline
 \end{array}$$

En. 1241 (42-47)

$$\begin{array}{r}
 54.19 \\
 + .03 \\
 \hline
 54.22 \\
 54.15 \\
 \hline
 = .07
 \end{array}$$

En. 1250 (48-53)

$$\begin{array}{r}
 58.14 \\
 + .02 \\
 \hline
 58.14 \\
 58.13 \\
 \hline
 = .01
 \end{array}$$

En. 1260 (54-60)

$$\begin{array}{r}
 62.3 \\
 + .07 \\
 \hline
 62.4 \\
 61.0 \\
 \hline
 = 1.4
 \end{array}$$

1239 En. 4953 (6)

$$\begin{array}{r}
 + .07 \\
 49.60 \\
 \hline
 49.38 \\
 - 1.22 \\
 \hline
 \end{array}$$

1240 En. 5032 (12) Kreis 50.09 (22) Armagh 49.87 (12) Rodcliffe 50.24 (12)

$$\begin{array}{r}
 + .07 \\
 50.39 \\
 \hline
 50.17 \\
 - 1.18 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 + .02 \\
 50.07 \\
 \hline
 50.19 \\
 + 1.0 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 + .02 \\
 49.89 \\
 \hline
 50.19 \\
 + .28 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 - .05 \\
 50.19 \\
 \hline
 50.19 \\
 - .02 \\
 \hline
 \end{array}$$

1241 En. 51.11 (10) Edinb. 51.13 (5)

$$\begin{array}{r}
 + .07 \\
 51.18 \\
 \hline
 50.97 \\
 - .21 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 + .04 \\
 51.17 \\
 \hline
 50.99 \\
 - .20 \\
 \hline
 \end{array}$$

1242 En. 51.74 (9)

$$\begin{array}{r}
 + .03 \\
 51.77 \\
 \hline
 51.76 \\
 + .01 \\
 \hline
 \end{array}$$

1243 En. 52.56 (10) Pulcorw 54.12 (48)

$$\begin{array}{r}
 + .03 \\
 52.59 \\
 \hline
 52.56 \\
 - .03 \\
 \hline
 \end{array}$$

~~1244~~

1244 En. 53.40 (3)

$$\begin{array}{r}
 + .03 \\
 53.43 \\
 \hline
 53.35 \\
 + .08 \\
 \hline
 \end{array}$$

1245 En. 54.02 (4) Pulcorw 54.12 (48) Rodcliffe 46

$$\begin{array}{r}
 + .03 \\
 54.05 \\
 \hline
 54.15 \\
 + 1.0 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 + .02 \\
 54.14 \\
 \hline
 54.15 \\
 + .01 \\
 \hline
 \end{array}$$

+ 2

$$\begin{array}{r}
 1846 \quad \ln. 5484(7) \quad \text{Comb. } 5499(6) \\
 \begin{array}{r}
 73 \\
 54.87 \\
 54.95 \\
 +.8 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 - .02 \\
 54.97 \\
 54.95 \\
 - .02 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1847 \quad \ln. 5584(6) \\
 \begin{array}{r}
 .03 \\
 55.80 \\
 55.74 \\
 - .19 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1848 \quad \ln. 5645(5) \\
 \begin{array}{r}
 .02 \\
 56.47 \\
 56.54 \\
 +.07 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1849 \quad \ln. 57.37(4) \quad \text{Comp } 57.45(7) \quad \text{Op } 57.25(1) \\
 \begin{array}{r}
 0 \\
 57.37 \\
 57.35 \\
 - .04 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 +.02 \\
 57.47 \\
 57.38 \\
 - .12 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 - .05 \\
 57.20 \\
 57.33 \\
 +.13 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1850 \quad \ln. 58.15(6) \\
 \begin{array}{r}
 .00 \\
 58.15 \\
 58.13 \\
 - .02 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1851 \quad \ln. 58.85(2) \quad \text{Op } 58.91(2) \\
 \begin{array}{r}
 .0 \\
 58.85 \\
 58.93 \\
 +.08 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 .0 \\
 58.91 \\
 58.93 \\
 +.02 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1852 \quad \ln. 0.50(5) \\
 \begin{array}{r}
 .0 \\
 0.50 \\
 0.52 \\
 +.02 \\
 \hline
 \end{array}
 \end{array}$$

145-4

$$\begin{array}{r}
 1155 \quad h. 224 (1) \\
 \quad \quad \quad \begin{array}{r} \cdot 3 \\ 2.27 \\ \hline 2.12 \\ +15 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1156 \quad h. 303 (9) \quad \text{Bmp. } 304 (10) \quad \text{Paris } 282 (6) \\
 \quad \quad \quad \begin{array}{r} \cdot 3 \\ 3.06 \\ \hline 2.92 \\ -14 \end{array} \quad \begin{array}{r} +6 \\ 3.10 \\ \hline 2.92 \\ -18 \end{array} \quad \begin{array}{r} \cdot 4 \\ 2.76 \\ \hline 2.92 \\ +16 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1157 \quad h. 377 (8) \quad \text{Paris } 371 (11) \\
 \quad \quad \quad \begin{array}{r} \cdot 3 \\ 3.80 \\ \hline 3.71 \\ -09 \end{array} \quad \begin{array}{r} \cdot 4 \\ 3.75 \\ \hline 3.71 \\ -04 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1158 \quad h. 446 (8) \quad \text{Op. } 435 (2) \\
 \quad \quad \quad \begin{array}{r} +03 \\ 4.49 \\ \hline 4.51 \\ +02 \end{array} \quad \begin{array}{r} +3 \\ 4.38 \\ \hline 4.51 \\ +13 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1159 \quad h. 540 (11) \quad \text{Paris } 524 (11) \\
 \quad \quad \quad \begin{array}{r} +3 \\ 5.48 \\ \hline 5.30 \\ -18 \end{array} \quad \begin{array}{r} +9 \\ 5.28 \\ \hline 5.30 \\ +07 \end{array}
 \end{array}$$

$$\begin{array}{r}
 1160 \quad h. 610 (2) \quad \text{Work } 605 (5) \quad \text{Work } 1045-671-607 (22) \quad \text{Bmp. } 633 (11) \quad \text{Op. } 636 (3) \\
 \quad \quad \quad \begin{array}{r} +03 \\ 6.13 \\ \hline 6.10 \\ -03 \end{array} \quad \begin{array}{r} +06 \\ 6.11 \\ \hline 6.10 \\ +01 \end{array} \quad \begin{array}{r} +6 \\ 6.39 \\ \hline 6.10 \\ -29 \end{array} \quad \begin{array}{r} \cdot 3 \\ 6.39 \\ \hline 6.10 \\ -29 \end{array}
 \end{array}$$

1161

ln. 676 (1)	Op. 675 (2)
$\begin{array}{r} 3 \\ 6.79 \\ 6.92 \\ +1.3 \end{array}$	$\begin{array}{r} 3 \\ 6.78 \\ 6.92 \\ +1.4 \end{array}$

1162

ln. 7.61 (1)	7.9 Bump 7.99 (3)	Pair 8.78 (2)	Op 8.22 (1)
$\begin{array}{r} 3 \\ 7.64 \\ 7.71 \\ +0.7 \end{array}$	$\begin{array}{r} 1.06 \\ 7.85 \\ 7.71 \\ -1.4 \end{array}$	$\begin{array}{r} +4 \\ 8.82 \\ 7.71 \end{array}$	$\begin{array}{r} +1.03 \\ 8.25 \\ 7.71 \end{array}$

1163

ln. 831 (1)	Bump 8.63 (8)
$\begin{array}{r} +3 \\ 8.34 \\ 8.51 \\ +1.7 \end{array}$	$\begin{array}{r} +6 \\ 8.69 \\ 8.51 \\ -1.8 \end{array}$

1164

ln. 934 (4)	Bump 939 (1)
$\begin{array}{r} 3 \\ 9.37 \\ 9.31 \\ -0.6 \end{array}$	$\begin{array}{r} +6 \\ 945 \\ 9.31 \\ -1.4 \end{array}$

1165

ln. 1017 (1)
$\begin{array}{r} +3 \\ 10.20 \\ 10.10 \\ -10 \end{array}$

1166

ln. 10.85 (1)	Bump 11.02 (2)	Op. 10.89 (5)
$\begin{array}{r} +3 \\ 10.88 \\ 10.90 \\ +0.2 \end{array}$	$\begin{array}{r} +6 \\ 11.08 \\ 10.90 \\ -1.8 \end{array}$	$\begin{array}{r} +3 \\ 10.92 \\ 10.80 \\ -0.2 \end{array}$

1167

ln. 11.72 (3)	Op. 11.73 (5)
$\begin{array}{r} 11.58 \\ +3 \\ 11.75-12.01 \\ 11.70 \\ -0.5-31 \end{array}$	$\begin{array}{r} +3 \\ 11.76 \\ 11.70 \\ -0.6 \end{array}$

$$\begin{array}{r}
 1168 \quad L_n. 12.58 (4) \\
 + .03 \\
 \hline
 12.61 \\
 \\
 12.50 \\
 - .11 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1169 \quad L_n 13.17 (6) \quad Op. 13.17 (3) \\
 + .03 \quad .03 \\
 \hline
 13.20 \quad 13.20 \\
 \\
 13.29 \quad 13.29 \\
 + .09 \quad + .09 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1170 \quad Newcomb Work 14.15 (9) \\
 - .02 \\
 \hline
 14.16 \\
 \\
 14.09 \\
 - .07 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1171 \quad L_n. 14.65 (1) \quad N.P.O. 14.87 \quad Op. 14.98 (1) \\
 + .02 \quad + .03 \\
 \hline
 14.68 \quad 14.89 \quad 15.01 \\
 14.89 \quad 14.89 \quad 14.89 \\
 + .24 \quad - .00 \quad - .12 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1172 \quad N.P.O. 15.64 \quad Op. 15.71 (1) \\
 + .02 \\
 \hline
 15.66 \\
 15.69 \\
 + .03 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1173 \quad N.P.O. 16.50 \\
 + .02 \\
 \hline
 16.52 \\
 16.49 \\
 - .03 \\
 \hline
 \end{array}$$

Oct-22-1874

2, 40 41 52 18.83 60 24
175

8.6 60 573
 608
 639

