1874phas..proj..1579R

KG
11366
v.575

Zone Observations & Reductions

C 13

From December 29, 1871 to March 11, 1872

Charles W. Sever, University Bookstore, Cambridge.

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

1874phae.proj.1570R

C13

Dec 20 1871 to March 11 1872

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

1871phae.proj.1579R

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

1871phae.proj.1579R

((δ) -

((δ) -

((δ) -

((δ) -

((δ) -

((δ) -

((δ) -

((δ) -

((δ) -

((δ) -

((δ) -

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											

Constant i for 1871 (from Aug.) and 1872.

For Zenith-distances

From July 20 1871 to Jan 24 1872 $i = +5\ 6$

log 15 tan i = 0.12669

From Jan 25 1872 to May 29 1872 $i = -5\ 0$

log 15 tan i = 0.11804$_n$

From May 30 1872 to Sept 24 1872 $i = -4\ 58\ 24$

log 15 tan i = 0.11571$_n$

From Sept 25 1872 to Oct 29 1872 $i = +4\ 43\ 17$

log 15 tan i = 0.09302

From Oct. 30 1872 to Dec 31 1873 $i' = -4\ 58\ 24$

log 15 tan i = 0.11571$_n$

For Declinations.

Fr July 20 1871 to Jan 24 1872 $i = -5\ 6$

log 15 tan i = .12669$_n$

Fr. Jan 25 1872 to May 29 1872 $i = +5\ 0$

log 15 tan i = .11804

Fr. May 30 1872 to Sept 24 1872 $i = +4\ 58\ 24$

log 15 tan i = 0.11571

Fr. Sept 25 1872 to Oct 29 1872 $i = -4\ 43\ 17$

log 15 tan i = 0.09302$_n$

Fr. Oct 30 1872 to Dec 31 1873 $i' = +4\ 58\ 24$

log 15 tan i = 0.11571

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

1871phae.proj.1579R

Date$_1$ = 1871, Aug. 11. Observer A. M. Recorder A. M. n = −.58

Done Continued from C. 125 Aug. 17 Date$_2$ = Observer A.M. Recorder n_2 = −.52

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
17	59 03	59 09	9.0	59	2.0 11.7	14.9	18.3	21.6	24.7	9 12 −1467	18.24	59	18.24
	58 32.8	57 1.7	8.9		8.6							−	13.93
	K				5.0							−	72
					10.6							−	2
	((δ) − D) $\frac{\kappa'}{100}$				3.5							59	3.57
												−	1.83
	α_1 Aug. 11.											59	1.74
18	27 27	58 01	9.1	27	27.4	36.1	39.2	42.4	45.6	49.0	21 23 −1464	42.46	27 42.46
	27. 41	50 41	8.7		24.5							−	13.93
	K 1.2	1.8			56.6							−	69
					28.3							−	2
	((δ) − D) $\frac{\kappa'}{100}$											27	27.82
												−	1.94
	α_2 Aug. 11.											27	25.83
18	39 50	61 24	9.0	59	1.6	33.7	37.0	40.3	43.4	46.8	20 12 −1468	40.24	59 40.24
	57 27.6	51 22.8	8.2		19.7							−	13.93
	K				22.0							−	73
					43.3							−	2
	((δ) − D) $\frac{\kappa'}{100}$				14.4							59	25.36
												−	2.18
	α_1 Aug. 17											59	23.38
17	46 0	50 50	7.0	45	54.6	46 10.8	14.1	17.4	20.6	23.7	8 6 6 −16.12	17.32	46 17.32
	45 37.1	50 50.5	5.0		56.1							−	15.46
	K				59.2							−	64
					169.9							−	2
	((δ) − D) $\frac{\kappa'}{100}$				56.6							46	1.20
												−	1.58
	α_2 Aug. 27											~~46~~ 45	~~53.62~~ 59.62
18	24	27 −37.42	9.5										
	K				lost								
	((δ) − D) $\frac{\kappa'}{100}$												
	α_1 Aug. 17												
18	51 09	50 25	9.2	50	58.9	17.6	21.2	24.6	27.7	31.0	12 21 −16.13	24.42	51 24.42
	50 46.9	50 24.1	8.8		58.2							−	15.48
	50 47.0	50 24.3	8.8		54.5							−	63
	K 46.9	(follows first)										57	8.29 − 200
	((δ) − D) $\frac{\kappa'}{100}$			51	11.0	23.0	26.2	29.2	32.5	35.8	14 6 7 −16.13	29.34	51 29.34 51 6.29
					12.2							−	15.48
	α_2 Aug. 17				13.6							−	63
												51	13.21 − 200
19	7 48	61 09	8.8	~~59~~ 57	58.1	59.2	2.5	5.7	9.2	12.6	3 2 9 2 −16.15	65.84	~~58.84~~ 51 11.21
	7 24.7	51 7.3	8.0		58.1							−	15.49
	K											−	64
												−	2
	((δ) − D) $\frac{\kappa'}{100}$											57	49.69
												−	2.11
	α_1 Aug. 17											57	47.58
19	11 12	51 11	9.0	10	53.2	11.5	16	8.8	11.9	15.4	18.6	6 03 −16.15	12.06	11 12.06
	10 29.7	51 9.0	8.8		54.9							−	15.49
	K				56.1							−	64
					164.2							−	2
	((δ) − D) $\frac{\kappa'}{100}$				54.7							10	55.91
												−	2.13
	α_2 Aug. 17											10	53.78
19	13 46	51 60	8.8	13	36.8	58.7	2.0	5.2	8.6	12.0	3 2 9 5 −16.18	65.30	14 [illegible]
	13 22.9	51 58.5	8.8		38.4							−	15.49
	K				39.9							−	67
					115.1							−	2
	((δ) − D) $\frac{\kappa'}{100}$				38.4							13	49.12
												−	2.17
	α_1 Aug. 17											13	46.95
19	23 23	51 10	8.9	23	27.3	36.6	40.0	43.3	46.6	49.9	21 64 −16.15	43.28	23 43.28
	22 57.6	57 8.0	8.0		25.5							−	15.49
	K				30.4							−	64
					86.2							−	2
	((δ) − D) $\frac{\kappa'}{100}$				28.7							23	27.13
												−	2.20
	α_2											23	24.93

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

1871phaeproj.15798

Aug 11. Reg. +0 44.58 M +.26
Runs 17 +0 45.36 M. +.26

$\varphi = 42^\circ\ 22'\ 48.''35$

3

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+14.7	3 2.9	2.9	13 5.8	13 2.90	9 45.45			10′	51° 10′ 17.69	
	1.16732					51 10 30.03				− .6	+9.84
d	9.79731					−12.34				+ .78	
	1.09132									+ 8.67	
((δ) − D) $\frac{d'}{100}$										+ .35	
										− 14.75	
+5.64 δ_1		54 7.38		10 12.4						10 12.68	
−0 0.32											
	+14.2	0 47.2	46.3	93.5	20 46.75	2 1.60			20	50 2 33.97	
	1.15229					50 2 46.18				− .5	+7.99
d	9.80762					−12.21				+ .21	
	1.08660									+ 7.53	
((δ) − D) $\frac{d'}{100}$										+ .30	
										− 13.70	
+5.96 δ_2		27 31.79		2 37.9						2 28.26	
+0 9.60											
	Et 15	2 37.0	37.1	74.1	52 37.05	30 11.30			50		
						51 30 55.88					
d	9.79399									+ .68	
((δ) − D) $\frac{d'}{100}$										8	
										−2.90	
δ_1											
	+20.7	4 23.9	24.2	48.1	34 24.05	48 24.30			30	50 48 52.15	
	1.31397					50 49 9.66				− .12	+9.68
d	9.80058					−17.51				+ 1.14	
	1.24324									+ 8.31	
((δ) − D) $\frac{d'}{100}$										+ .35	
										− 15.60	
+5.74 δ_2		46 5.36		48 41.4						48 46.23	
−0 4.84											
		0 59.0	70.8	129.8	6 4.90	16 43.45			5		
						17 28.81					
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
	+26.2	2 56.7	57.1	113.8	57 56.90	24 57.45			55	50 25 14.47	25 22.31
	1.41830					50 25 36.81				− 18	+8.83 − 8 +8.90
d	9.80412					−22.34				+ .75	+ .75
	1.34911									+ 7.96	+ 7.93
((δ) − D) $\frac{d'}{100}$	311 +17.0									+ .30	+ .30
	123045									− 14.50	− 14.50
+5.98 δ_2	9.80412	51 12.27		25 26.6	386					25 8.80	25 16.71
+0 17.80	1.16126	51 12.27			226					24.95	4.39
	+8.2	1 01.2	50.9	102.1	11 51.05	10 57.30			10	51 11 36.78	
	0.91381					51 11 42.66				− 2	+9.55
d	9.79699					− 6.88				+ .49	
	0.83749									+ 8.78	
((δ) − D) $\frac{d'}{100}$										+ .35	
										− 14.10	
δ_1										11 36.53	
	+17.4	3 2.3	2.4	4.7	13 2.35	9 46.00			10	51 10 17.09	
	1.24055					51 10 31.36				− .8	+9.76
d	9.79731					−14.27				+ .78	
	1.16455									+ 8.71	
((δ) − D) $\frac{d'}{100}$										+ .35	
										− 14.00	
+5.96 δ_2		10 59.74		10 37.3						10 12.85	
+0 24.44											
	+26.9	2 56.5	56.8	113.3	22 56.65	59 51.70			20	52 0 14.90	
	1.42975					52 0 37.06				− 19	+10.59
d	9.78918					−22.16				+ .75	
	1.34562									+ 9.58	
((δ) − D) $\frac{d'}{100}$										+ .45	
										− 14.00	
+5.79 δ_1		13 52.74		0 36.9						0 11.49	
+0.2540											
	+14.6	3 44.4	45.0	89.4	13 44.70	9 3.65			10	51 9 36.76	
	1.16435					51 9 48.01				− 6	+9.99
d	9.79734					−12.25				+ .99	
	1.08835									+ 8.71	
((δ) − D) $\frac{d'}{100}$										+ .35	
										− 13.70	
+6.08 δ_2		23 31.01		10 1.6						9 33.05	
+0 28.60											

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

1871phae.proj.1579R

Date$_1$ = 1871 Aug. 17. Observer A. M. Recorder A. M. Date$_2$ = Aug. 11 Observer Recorder 4

n = −52

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
17h	33m 59s	52° 01′	8.0	33m	34m 10.8s	14.3	17.6	20.9	24.3	5.79	17.55	34m	17.55
	23 24.9	51 58.5	7.9	57.9						−16.18		−	15.49
κ				59.1								−	.67
((δ) − D) $\frac{\kappa'}{100}$				61.2								−	.2
				178.2								34	1.40
				59.4								−	2.27
α_1												33	59.13
Aug. 17													+6.0
													+0.3
19	38 42	51 43	9.0	38	40.3	57.0	0.4	3.8	7.1	10.4	31.85	63.74	39 3.74
38	+6.0 =	51 40.7	9.2		41.9						−16.19		− 15.50
κ	20.1	.8			44.6								− .67
((δ) − D) $\frac{\kappa'}{100}$					126.8								− .2
					42.3								38 47.55
α_2													− 2.29
Aug. 11													38 45.26
													+6.1
													+0.3
19				21	6.3	9.1	12.5	15.7	18.9	22.6	7.56	15.72	21 18.72
κ					6.9								− 13.94
((δ) − D) $\frac{\kappa'}{100}$					13.2								
					6.6								
α_1													
Aug. 17													
18				5	47.0	6 5.5	9.0	11.6	15.2	18.8	6 01	12.02	6 12.02
κ					48.1								− 15.46
((δ) − D) $\frac{\kappa'}{100}$					60.7								
					145.8								
					48.6								
α_2													
Aug. 17													
18				34	34.3	58.2	53.5	0.9	2.1	6.6	30 03	60.06	35 0.06
κ					35.7								− 15.48
((δ) − D) $\frac{\kappa'}{100}$					38.0								
					108.0								
α_1					36.0								
κ													
((δ) − D) $\frac{\kappa'}{100}$													
α_2													
κ													
((δ) − D) $\frac{\kappa'}{100}$													
α_1													
κ													
((δ) − D) $\frac{\kappa'}{100}$													
α_2													
κ													
((δ) − D) $\frac{\kappa'}{100}$													
α_1													
κ													
((δ) − D) $\frac{\kappa'}{100}$													
α_2													

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

1871phaeproj.15798

Aug 17 +0 45.36 M Rey +26 Runs

5.

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+18.2	2′ 48.8	49.7	98.5	22′ 49.23	59 59.10			20′	52 0 29.47	
	1.26007					52 0 44.46				− 9	+10.65
d	9.78918					− 14.99				+ 73	
	1.17594 m									+ 9.56	
((δ) − D) $\frac{d'}{100}$										+ 45	
										− 13.35	
+6.01		34 5.14		0 58.77						0 26.77	
+0 32.00 δ_1											
	+21.4	1 25.3	26.4	51.7	40 25.85	41 22.50			40	51 42 50.10	
	1.33041					51 42 7.86				− 12	+9.93
d	9.79224					− 17.76				+ 36	
	1.24934 m									+ 9.24	
((δ) − D) $\frac{d'}{100}$										+ 45	
										− 13.20	
+6.13		38 51.39		43 (20. ~~19.3~~)						42 46.83	
+0 33.48 δ_2											
	+9.1										
	0.95904										
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
	+23.4										
	1.36922										
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
	+24.1										
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											

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

1871phae.proj.1579R

146

Date$_1$ = 1871, Dec. 20. Observer W. A. R.
n = +.39 c = −.06 Recorder W. A. R.

147

Date$_2$ = 1871, Dec. 27. Observer W. A. R.
n = √+.36 Recorder W. A. R.

6

Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′		m	s	s	s	s	s		s	m	s
	32 59	51 16	9.0	32	28.6	39.8	43.1	46.3	49.6	53.0	2318	46.36	32	46.36
	31 56.2	51 11.0	9.1		29.6						+12.93			+ 12.56
					30.5									+ .48
					29.0									− 9
					29.7									− 2
													32	59.29
														− 3.18
													32	56.11
			9.0	32	58.2	33.6	36.9	40.1	43.4	46.7	20 07	40.14	32	40.14
					59.0						+19.09			+ 18.67
					61.8									+ .44
					179.6									− 2
					59.9								32	59.23
														− 3.04
													32	56.19
1	35 45	49 58	8.3	34	56.6	35 28.0	31.0	34.8	37.6	40.6	17 15	34.30	35	34.30
	34 44.7	49 52.9	7.8		57.2						+12.91			+ 12.56
					61.0									+ .46
					176.8									− 9
					58.9									− 2
													35	47.21
														− 8.17
													35	44.04
			8.2	35	1.9	21.6	24.7	28.0	31.3	34.3	13 99	27.98	35	27.98
					4.0						+19.08			+ 18.67
					4.0									+ .43
					11.9									− 2
					2.4								35	47.86
					4.0									− 3.04
													35	44.02
1	39 21	50 0.6	8.4	38	52.8	39 5.0	8.3	11.4	14.6	17.9	5 72	11.44	39	11.44
	38 21.2	50 1.4	8.2		54.6						+12.91			+ 12.56
					56.7									+ 46
					164.1									− 9
					54.7									− 2
													39	24.35
														− 3.22
													39	21.13
			8.5	38	45.6	58.8	1.9	5.1	8.3	11.6	32 57	65.14	39	5.14
					46.8						+19.08			+ 18.67
					48.3									+ .43
					140.7									− 2
					46.9								39	24.22
														− 3.09
													39	21.13
1	42 15	51 2.0	9.3	41	33.0	57.2	0.6	3.7	7.0	10.4	31 89	63.78	42	3.78
	41 12.9	51 14.5	9.0		35.0						+12.93			+ 12.56
					37.7									+ .49
					105.7									− .10
					35.2									− 2
													42	16.71
														− 3.30
													42	13.41
			9.2	41	22.7	50.9	54.1	57.5	0.8	4.1	28 74	57.48	41	57.48
					24.5						+19.10			+ 18.67
					26.4									+ .45
					73.6									− 2
					24.5								42	16.58
														− 3.16
													42	13.42
1	43 58	50 0.9	8.4	43	30.2	43 11.7	15.0	18.4					43	18.25
	42 57.9	50 4.7	6.4		31.8						+12.91			+ 12.56
					33.6									+ .46
					95.6									− 9
					31.9									− 2
													43	31.16
														− 3.27
													43	27.89
	42 57.9	50 4.7	6.4	43	13.0	35.3	38.6	41.8	45.0	48.2	20 89	41.78	43	41.78
					13.0						+19.08			+ 18.67
					16.6									+ .43
					44.6									− 2
					14.9								44	0.86
														− 3.14
													43	57.72

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

1871phae.proj.1579R

7

Runs 27 −14 +1 3.17 3.07 3.18 R −.10 −.10

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+16.6	2 38.7	17.7	564	2 28.20	+.07	+1361 −.25		5	4149	
d	+16.7				7 28.20	15 20.15				51 16 9.33	
	1.22272					51 16 23.38.2				− 8	+9.98
	9.79636					−1399				− 24	
622 ((δ) − D) $\frac{d'}{100}$	1.14577n									+ 9.75	
										+ 55	
+14.92 δ_1		33 11.03		17 6.3						−26.70	
+1 13.68										15 52.61	
	−19.8	3 7.9	49.5	1174	2 58.70	−.07	−1622 −.35		5	7 42.06	
d	−19.8				7 58.70	14 49.65 93				16 9.42	+9.71
	1.29667n					51 15 52.76				− .11	
	9.79636					+16.59				− .80	
((δ) − D) $\frac{d'}{100}$	1.21972									+ 9.57	
										+ 55	
+14.92 δ_2		33 11.11		17 5.6						−27.20	
+1 13.68										15 51.93	
	+35.6	0 31.0	7.7	38.7	0 19.35	−.33	+2983 −.03		25	25 4882	
d	+35.4				25 19.35	57 29.00				49 58 1.69	+8.44
	1.54900					49 58 32.47				− .33	
.32 ((δ) − D) $\frac{d'}{100}$	9.80837					−30.48				− .23	
	1.48406n									+ 8.35	
										+ 45	
+14.88 δ_1		35 58.92		58 57.1	+.10					−26.30	
+1 13.28										57 43.88 3	
	+24.0	0 36.3	18.6	54.9	0 27.45	−.17	+2157 −.06		25	25 4814	
d	+24.0				25 27.45	57 20.90				58 3.31	+8.46
	1.38021					49 58 24.08				− .15	
	9.80837					−20.67				− 4	
((δ) − D) $\frac{d'}{100}$	1.31527n									+ 8.20	
				58						+ 45	
+14.88 δ_2		35 58.90		58 58.2						−26.80	
+1 13.28										58 44.97	
	+16.7	2 14.3	51.9	126.2	3 03.10	−.08	+1304 −.31		15	18 1513	
d	+16.7				17 3.10	5 45.25				50 6 34.08	+8.64
	1.22272					50 6 48.42				− 8	
30 ((δ) − D) $\frac{d'}{100}$	9.80701					−14.34				− 20	
	1.15642n									+ 8.47	
										+ 45	
+14.98 δ_1		39 36.11		7 29.3						−26.20	
+1 12.76										6 16.52.91	
	+18.2	2 9.8	50.2	1200	3 0.00	−.09	+1530 −.42		15	6 35.54	
d	+18.2				17 0.00	5 48.35 53				− 9	+8.48
	1.26007					50 6 51.42				− 20	
	9.80701					−15.62				+ 8.32	
((δ) − D) $\frac{d'}{100}$	1.19377n									+ 45	
										−26.70	
+14.98 δ_2		39 36.11		7 30.4						6 17.69	
+1 12.76											
	+28.5	3 57.4	35.2	926	4 46.30	−.21	+2338 −.48		0	1900 2	
d	+28.0				13 46.30	18 19 2.05				51 19 41.29	
30	1.45637					51 19 5.22				19 22	
	9.79589					20 −23.93				− 48	9.68
((δ) − D) $\frac{d'}{100}$	1.37895n									+ 9.83	
										+ 55	
+15.18 δ_1		42 28.59		20 37.1						−26.20	
+1 12.32										19 24.77	
	+33.0	3 50.9	33.0	3 839	3 41.95	−.29	+2705 −.52		0	1900 2	
d	+33.0				3 41.95	19 6.40				19 41.98	+9.54
	1.51851					51 20 9.58				− 29	
	9.79589					−27.61				− 37	
((δ) − D) $\frac{d'}{100}$	1.44109n									+ 9.65	
										+ 55	
+15.18 δ_2		42 28.60		20 37.0						−26.80	
+1 12.32										19 24.71	
	−13.7	4 30.3	8.0		14 19.15	8 29.20			10	50 9 44.12	
d	−13.7					50 9 32.47				− 5	+8.51
	1.13672n					+11.75				− .43	
	9.80656									+ 8.54	
((δ) − D) $\frac{d'}{100}$	1.06997									+ 45	
										−25.90	
δ_1					−.13					50 9 26.73	
	+26.9	4 6.2	48.2	4 #44 3	57.20	8 51.15			10	9 31.54	
d	+26.9					50 9 54.68 53				− 20	+8.23
	1.42975					−23.12				− 40	
	9.80656									+ 8.38	
((δ) − D) $\frac{d'}{100}$	1.36400n									+ 45	
										−26.50	
+15.09 δ_2		44 12.81		10 25.2						9 13.87	
+1 12.16											

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

1871phae.proj.1579R

Date$_1$ = 1871 Dec. 20. 146 Observer W.A.R. Recorder W.A.R.

Date$_2$ = 1871. Dec. 27. 147 Observer W.A.R. Recorder W.A.R.

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	m s	° ′ ″		m s	s	s	s	s	s			m s	
	47 10	51 41	8.4	46 26.3	50.5	53.9	57.0	0.3	3.6	2853	57.06	46 57.06	
	46. 5.2	51 39.5	9.2	27.1						+12.94		+ 12.56	
	κ			29.1								+ .50	
				837								− .10	6.30
	((δ) − D) $\frac{\kappa'}{100}$			27.9								− 2	
												47 10.00	+15.
	a_1											− 3.37	+1 1
												47 6.63	
			9.2	46 45.8	44.2	47.6	50.7	54.0	57.3	2538	50.76	46 50.76	
				48.0						+19.12		+ 18.68	
	κ			49.3								+ .46	
				1431								− .2	
	((δ) − D) $\frac{\kappa'}{100}$			47.7								47 9.88	+15.
	a_2											− 3.24	+1
												47 6.64	
1	49 15	50 30.30	—	48 39.4	59.9	3.4	6.4	9.9	13.0	3326	66.52	49 6.52	
	48 14.9	50 25.2	9.0	41.6						+12.92		+ 12.56	
	κ			43.8								+ .47	
				1248								− .9	.32
	((δ) − D) $\frac{\kappa'}{100}$			41.6								− .2	
												49 19.44	+15.
	a_1											− 3.35	+1 1
												49 16.09	
			8.9	48 26.5	53.6	57.0	60.3	3.4	6.7	3010	60.20	49 0.20	
				28.1						+19.10		+ 18.68	
	κ	51 33		30.9								+ .44	
				855								− .2	
	((δ) − D) $\frac{\kappa'}{100}$			28.5								49 19.30	
												− 3.23	+15.
	a_2											49 16.07	+1
1	53 35	52 02	8.5	52 38.0	53 16.2	19.7	23.0	26.3	29.6	11 48	22.96	53 22.96	
	52 30.9	51 57.2	8.3	39.6						+12.94		+ 12.56	
	κ			41.5								+ .50	
				43.1								− .10	2.8
	((δ) − D) $\frac{\kappa'}{100}$			162.8								− .2	
				40.7								53 35.90	+15.
	a_1											− 3.47	+1 1
												53 32.43	
			8.4	52 50.8	53 1.0	13.4	16.7	20.0	23.3	8 34	16.68	53 16.68	
				53.7						+19.12		+ 18.68	
	κ			03.9								+ .46	
				1604								− .2	
	((δ) − D) $\frac{\kappa'}{100}$			53.5								53 35.80	
												− 8.34	+15.
	a_2											53 32.46	+1
1	55 56	51 04	8.5	55 11.2	40.3	43.6	46.9	50.0	53.5	2343	46.86	55 46.86	
	54 54.5	50 59.6	8.4	12.0						+12.93		+ 12.56	
	κ			14.8								+ .48	
				370								− .9	.26
	((δ) − D) $\frac{\kappa'}{100}$			12.3								− .2	
												55 59.79	+1
	a_1											− 3.47	+1
												55 56.32	
			8.5	55 11.7	34.1	37.3	40.6	43.8	47.2	2030	40.60	55 40.60	
				13.3						+19.10		+ 18.68	
	κ			15.1								+ .44	
				401								− .2	
	((δ) − D) $\frac{\kappa'}{100}$			13.4								55 59.70	
												− 3.34	
	a_2											55 56.36	+1
													+1
1	58 37	50 43	—	57 31.8	58 1.4	4.6	7.8	11.1	14.4	393	7.86	58 7.86	
	57 ~~55.0~~	50 38.~~6~~	9.4	32.0						+12.93		+ 12.56	
	κ 15.6	.0		33.8								+ .48	
				966								− .9	.38
	((δ) − D) $\frac{\kappa'}{100}$			32.2								− .2	
												58 20.79	+15
	a_1											− 3.47	+1
												58 17.32	
			8.4	57 49.5	55.0	58.3	61.6	4.6	7.9	3074	61.48	58 1.48	
				51.6						+19.10		+ 18.68	
	κ			53.9								+ .44	
				1550								− .2	
	((δ) − D) $\frac{\kappa'}{100}$			51.7								58 20.58	
												− 3.35	+1
	a_2											58 17.23	+1

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+ 2.92	4 5.1	42.1	10 8.2	3 54.10	−.22	+23.66	−.39	35	39 M15	
	+ 29.2				38 54.10	43 54.25				51 44 33.22	+10.26
d	1.46538					51 44 57.92				− .22	
	9.79176					−24.20				− .39	
((δ) − D) $\frac{d'}{100}$	1.38383 m									+ 10.27	
										+ .60	
+15.35 δ₁		47 21.98		45 29.04						− 26.00	
+1 11.56										44 17.48	
	+ 3.1	4 23.7	6.0	2 9.7	4 14.85	0	+2.43	−.59	35	39 16.9	
	+ 3.1				39 14.85	43 33.50				44 34.04	+10.33
d	0.49136					51 44 36.68				− .00	
	9.79176					−2.57				− .42	
((δ) − D) $\frac{d'}{100}$	0.40981 m									+ 10.10	
+15.35										+ .65	
δ₂		47 21.99		45 29.5						− 26.50	
+1 11.56										44 18.94	
	+ 24.9	3 22.8	0.4	2 32	3 11.60	17	20.87	−.32	50	53 31.98	
	+ 24.9				53 11.60	29 36.75				50 30 18.82	+8.87
d	1.39620					50 30 39.82				− .17	
	9.80336					−21.20				− .32	
((δ) − D) $\frac{d'}{100}$	1.32625 m									+ 8.91	
.32										+ .45	
+15.27 δ₁		49 31.36		31 13.1						− 25.70	
+1 11.24										30 18.99	
	+ 31.8	3 15.4	56.0	12 14	3 05.70	27	26.74	−.42	50	53 31.85	
	+ 31.7				53 5.70	29 42.65				30 18.75	+8.62
d	1.50106					50 30 45.78				− .28	
	9.80336					−26.98				− .31	
((δ) − D) $\frac{d'}{100}$	1.43111 m									+ 8.76	
+15.27										+ .45	
δ₂		49 31.34		31 12.5						− 26.20	
+1 11.24										30 1.27	
	+ 42.3	1 23.4	2.3	2 57	1 12.85	43	34.60	−.12	20	21 46.90	
	+ 42.3				21 12.85	1 35.50				52 2 38.85	+10.64
d	1.62634					52 2 38.57				− .47	
28	9.78886					−34.82				− .12	
((δ) − D) $\frac{d'}{100}$	1.54189 m									+ 10.63	
+15.55										+ .60	
δ₁		53 47.98		2 59.3						− 25.70	
+1 10.52										1 48.79	
	+ 23.2	1 36.0	18.3	5 43	1 27.15	05	18.74	−.20	20	45.64	
	+ 23.2				21 27.15	1 21.20				2 5.28	+10.82
d	1.36549					52 2 24.38				− .14	
	9.78886					−19.10				− .14	
((δ) − D) $\frac{d'}{100}$	1.28104 m									+ 10.44	
+15.55										+ .65	
δ₂		53 48.01		3 0.2						− 26.40	
+1 10.52										1 49.69	
	+ 34.6	4 31.4	37.5	9 89	3 49.45	31	28.54	−.38	15	19 11.30	
	+ 34.6				18 49.45	3 58.90				51 4 32.87	+9.38
d	1.53908					57 5 7.77				− .33	
	9.79809					−29.10				− .88	
((δ) − D) $\frac{d'}{100}$	1.46386 m									+ 9.54	
.26										+ .55	
+15.50 δ₁		56 11.82		5 27.1						− 25.40	
+1 10.12										4 16.95	
	+ 27.2	4 41.5	45.4	11 02	3 55.10	19	22.43	−.55	15	19 16.79	56
	+ 27.2				18 55.10	3 53.25				4 33.49	+9.35
d	1.43457					57 4 56.36				− .19	
	9.79809					−22.87				− .39	
((δ) − D) $\frac{d'}{100}$	1.35935 m									+ 9.38	
										+ .55	
+15.50 δ₂		56 11.86		5 26.9						− 26.40	81
+1 10.12										4 16.34	
	+ 35.6	0 40.8	17.8	5 86	0 29.30	32	29.59	−.05	40	40 58.52	
	+ 35.7				40 29.30	42 19.05				50 42 51.86	+9.31
d	1.55267					50 43 22.22				− .35	
38	9.80151					−30.26				− .5	
((δ) − D) $\frac{d'}{100}$	1.48087 m									+ 9.16	
										+ .55	
+15.52 δ₁		58 32.84		43 45.6						− 25.30	
+1 9.68										42 35.87	
	+ 9.9	1 0.6	41.9	10 25	0 51.25	02	8.24	−.11	40	40 59.35	
	+ 9.8				40 51.25	41 57.10				42 51.97	+9.42
d	0.99123					50 43 0.28				− .3	
	9.80151					−8.31				− .9	
((δ) − D) $\frac{d'}{100}$	0.91943 m									+ 8.99	
										+ .55	
+15.52 δ₂		58 32.75		43 45.2						− 25.30	
+1 9.68										42 35.49	

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

1871phae.proj.1579R

Date$_1$ = 1871, Dec. 20. (146) Observer W. A. R. Recorder W. A. R.

Date$_2$ = 1871, Dec. 27 (147) Observer W. A. R. Recorder W. A. R.

(10) Run

Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
1	00m 07s	51 40	9.3	59m 24.7	49.3	52.3	55.6	59.0	2.4	2786	55.72	59	55.72
	59 2.4	51 35.2	9.1	26.9						+12.94		+	12.56
	κ			29.2								+	50
				30.5								−	10
	((δ) − D) $\frac{\kappa'}{100}$			11.3								−	2
				27.8								00	8.66
	c_1											−	3.54
												0	~~3.12~~ 5.12
			9.3	59 34.8	42.9	46.1	49.5	52.6	55.9	2470	49.40	59	49.40
				36.9						+19.12		+	18.68
	κ			39.0								+	46
				11 0 7								−	12
	((δ) − D) $\frac{\kappa'}{100}$			~~35 6~~								00	8.52
				36.9								−	3.41
	α_2											0	5.11
2	2 02	51 11	9.0	1 29.7	47.8	50.8	54.2	57.4	0.7	2709	54.18	1	54.18
	1 0.1	51 6.7	8.9	31.8						−12.93		+	12.56
	κ			34.0								+	48
				9 5 5								−	9
	((δ) − D) $\frac{\kappa'}{100}$			31.8								−	2
												2	7.11
	α_1											−	3.54
												2	3.57
			8.9	1 25.7	41.3	44.5	47.9	51.1	54.4	2392	47.84	1	47.14
				27.6						+19.10		+	18.68
	κ			29.8								+	44
				8 3 1								−	2
	((δ) − D) $\frac{\kappa'}{100}$			27.7								2	694
												−	3.42
	α_2											2	3.52
2	5 27	51 38	8.9	4 34.2	5 14.1	17.3	20.6	24.0	27.4	1034	20.68	5	20.68
	4 26.2	51 33.9	8.8	56.2						+12.93		+	12.56
	κ			55.3								+	49
				16 8 7								−	10
	((δ) − D) $\frac{\kappa'}{100}$			56.2								−	2
												5	3361
	α_1											−	3.60
												5	30.01
			8.8	4 47.1	5 7.8	10.9	14.4	17.8	21.0	719	14.38	5	14.38
				49.0						+19.11		+	18.68
	κ			51.6								+	45
				47 7								−	2
	((δ) − D) $\frac{\kappa'}{100}$			49.2								5	3349
												−	3.47
	α_2											5	30.02
2	7 58	51 02	9.0	7 24.0	42.0	45.3	48.6	51.8	55.2	2429	48.58	7	48.58
	6 55.2	50 57.0	8.9	26.0						+12.93		+	12.56
	κ			28.0								+	48
				7 6 0								−	9
	((δ) − D) $\frac{\kappa'}{100}$			26.0								−	2
												8	151
	α_1											−	3.60
												7	57.91
			9.1	7 12.8	35.8	39.3	42.2	45.5	48.8	2116	42.32	7	42.32
				14.7						+19.10		+	18.68
	κ			16.6								+	44
				4 4 1								−	2
	((δ) − D) $\frac{\kappa'}{100}$			14.7								8	142
												−	3.48
	α_2											7	57.94
2	10 07	50 18	8.7	9 37.5	50.0	53.2	56.4	59.7	62.8	2821	56.42	9	56.42
	9 3.6	50 13.4	8.7	39.8						+12.91		+	12.56
	κ			41.3								+	46
				18 5 6								−	9
	((δ) − D) $\frac{\kappa'}{100}$			39.5								−	2
												10	9.33
	α_1											−	3.60
												10	5.73
		11	8.8 52	9 26.0	44.0	47.1	50.3	33.5	56.7	2516	50.32	9	50.32
				27.8						+19.09		4	1868
	κ			30.2								+	43
				8 4.0								−	2
	((δ) − D) $\frac{\kappa'}{100}$			28.0								10	9.41
												−	3.49
	α_2											10	5.92

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+27.8 s	3 23.5	1.3	2 48	3 12.40	− 21	22.62 − 32	46		43 34 49 9	
	+ 27.9				43 12.40	39 35.95				51 40 15.85	+10.28
d	1.44560					51 40 39.12				− .21	
	9.79256					− 23.17				− .32	
6.32 ((δ) − D) $\frac{d'}{100}$	1.36485 m									+ 10.21	
										+ 60	
+15.68 δ_1		0 20.80		41 10.5						− 25.80	
+1 9.40										40 1.03.10	
	+ 12.6	3 33.2	15.2	4 8 4	3 24.20	04 10.25	− 48	40		43 33.93	
	+ 12.5				43 24.20	39 24.15				40 16.98	+10.30
d	1.09691					51 40 27.20				− 4	
	9.79256					− 10.38				− .34	
((δ) − D) $\frac{d'}{100}$	1.01616 m									+ 10.03	
										+ 65	
+15.68 δ_2		0 20.79		41 10.9						− 25.80	
+1 9.40										40 1.48	
	+ 22.4	3 9.8	47.4	11 7 2	2,58.60	12 18.42	− 30	10		13 16.60	
	+ 22.4				12 58.60	9 49.75				57 10 34.12	+9.78
d	1.35025					51 10 52.92				− 13	
.34	9.79715					− 18.80				− 30	
((δ) − D) $\frac{d'}{100}$	1.27409 m									+ 9.66	
										+ 55	
+15.67 δ_1		2 19.24		11 27.8						− 25.10	
+1 5.04										10 18.80	
	+20.7	3 8.4	48.7	11 7.1	2 58.55	11 16.61	− 42	10		13 14.63	
	+ 20.1				12 58.55	9 49.80				10 36.14	+9.62
d	1.30320					51 10 32.98				− 11	
	9.79715					− 16.87				− 30	
((δ) − D) $\frac{d'}{100}$	1.22704 m									+ 9.48	
										+ 55	
+15.67 δ_2		2 19.19		11 29.0						− 25.80	
+1 9.04										10 19.96	
	+24.4	0 20.1	57.5	13 7 6	1 58.55	19 19.86	− 01	45		45 28.45	
	+ 24.5				45 8.80	37 39.55				57 38 22.27	+10.61
d	1.38917					51 38 42.42				− 15	
30	9.79272					− 20.35				− 1	
((δ) − D) $\frac{d'}{100}$	1.30858 m									+ 10.17	
										+ 60	
+15.81 δ_1		5 45.82		39 16.5						− 24.90	
+1 8.44										38 8.08	
	+25.2	0 16.8	57.3	13 4 1	1 7.05	17 20.51	− 01	45	46	2 38.55	
	+ 25.2				45 7.05	37 41.30				38 23.78	+10.46
d	1.40140					51 38 44.48				− 17	
	9.79272					− 20.93				− 1	
((δ) − D) $\frac{d'}{100}$	1.32081 m									+ 9.99	
										+ 65	
+15.81 δ_2		5 45.83		39 16.8						− 25.70	
+1 8.44										38 8.31	
	+22.6	2 2.2	39.6	10 1 8	1 50.90	12 16.65	− 16	20	22	9.25 5	
	+ 22.6				21 50.90	0 57.45				51 1 41.89	+9.74
d	1.35411					51 2 0.52				− 14	
26	9.79856					− 19.03				− .18	
((δ) − D) $\frac{d'}{100}$	1.27936 m									+ 9.51	
										+ 55	
+15.80 δ_1		8 13.71		2 34.7						− 24.60	
+1 8.00										1 26.83	
	+27.5	1 53.9	36.6	8 9 5	1 44.75	20 22.70	− 24	20	22	7.01 54	
	+ 27.6				21 44.75	1 3.60				1 43.47	+9.50
d	1.44091					51 2 6.78				− 21	
	9.79856					− 23.24				− .18	
((δ) − D) $\frac{d'}{100}$	1.36616 m									+ 9.34	
										+ 55	
+15.80 δ_2		8 13.74		2 35.6						− 25.40	
+1 8.00										1 27.64	
	+16.4	1 7.1	40.4	10 7 5	0 53.75	08 14.16	− 09	5		6 7.74	
	+ 16.9				5 53.75	16 54.60				50 17 43.32	+8.97
d	1.22789					50 17 57.67				− 8	
	9.80534					− 14.45				− 9	
((δ) − D) $\frac{d'}{100}$	1.15792 m									+ 8.69	
										+ 45	
+15.76 δ_1		10 21.49		18 35.5						− 24.40	
+1 7.60										17 27.89	
	+22.3	1 0.0	40.2	10 0 2	0 50.10	12 18.68	− 11	5		6 8.55 36	
	+ 22.3				5 50.10	16 58.25				17 42.27	+8.78
d	1.34830					50 18 1.36 43				− 13	
	9.80534					− 19.07				− 8	
((δ) − D) $\frac{d'}{100}$	1.28033 m									+ 8.54	
										+ 45	
+15.76 δ_2		10 21.68		18 33.6						− 25.10	
+1 7.60										17 26.04	

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

1871phae.proj.1579R

146

Date$_1$ = 1871, Dec. 20. Observer W. A. R. Recorder W. A. R.

147

Date$_2$ = 1871. Dec. 27. Observer W. A. R. Recorder W. A. R.

12

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
2	m s 14 20 18 16.7	° ′ 51 58 51 53.2	8.4 8.5	m 13	s 41.0 42.7 44.6 1263 42.8	14 4.7	8.0	11.3	14.6	17.9	5 65 +12.94	11.30	m s 14 11.30 + 12.56 + .50 − .10 − 2 14 24.24 − 3.68 14 20.56	6.22 +16.0 +1 6
	κ ((δ) − D) $\frac{\kappa'}{100}$ α_1													
			8.5	13	37.0 39.0 41.2 1172 39.1	5 64	1.8	5.1	8.4	11.7	32 84 +19.112	6508	14 5.18 + 18.68 + .46 − .2 14 24.20 − 3.56 14 20.64	+160 +1 6
	κ ((δ) − D) $\frac{\kappa'}{100}$ α_2													
2	17 16 κ ((δ) − D) $\frac{\kappa'}{100}$ α_1	50 55 50 50.5	9.4 9.0	16	44.5 45.8 47.6 1379 45.9	17	8.7	7.3	10.5	13.7	360 +12.93	7.80	17 7.20 +12.56 + .48 − 9 − 2 17 20.13 − 3.71 17 16.42	.32 +160 +1 6
	κ ((δ) − D) $\frac{\kappa'}{100}$ α_2		9.0	16	50.7 55.0 57.6 1633 54.4	54.6	57.6	0.7	4.0	7.5	30 44 +19.111	6088	17 0.88 + 18.69 + .44 − 2 17 19.99 − 3.60 17 16.39	+160 +1 6
2	19 14 18 10.6 κ ((δ) − D) $\frac{\kappa'}{100}$ α_1	50 00 49 55.0	6.5 6.5	18	37.3 39.1 42.0 1184 39.5	57.9	1.0	4.1	7.3	10.5	3208 +12.91	64.16	19 4.16 + 12.56 + .46 − 9 − 2 19 17.07 − 3.70 19 13.37	.28 +15.9 +1 5
	κ ((δ) − D) $\frac{\kappa'}{100}$ α_2		6.8	18	29.2 32.1 32.6 949 31.6	58.5	54.7	57.8	1.1	4.3	28 84 +19.10	57.88	18 57.88 + 18.69 + .43 − 2 19 16.98 − 3.59 19 13.39	+15. +1 5
2	21 86 20 22.2 2 κ ((δ) − D) $\frac{\kappa'}{100}$ α_1	50 84 50 29.8	8.3 8.4	21	7.3 8.3 9.9 12.8 383 9.6	22.1	25.3	28.5	31.8	35.1	14 28 +12.92	28.56	21 28.56 + 12.56 + .47 − 9 − 2 21 41.48 − 3.75 21 37.73	.18 +16. +1 5
	κ ((δ) − D) $\frac{\kappa'}{100}$ α_2		8.5	20	48.8 50.5 52.6 1519 50.6	21 16.2	19.0	22.4	25.6	28.7	11 19 +19.11	22.38	21 22.38 + 18.69 + .44 − 2 21 41.49 − 3.64 21 37.85	+16.0 +1 5
2	24 29 23 24.3 κ ((δ) − D) $\frac{\kappa'}{100}$ α_1	51 44 51 39.7	8.0 6.5	23	59.0 61.0 63.3 1833 61.1	24 13.6	16.7	20.0	23.3	26.8	1004 +12.94	20.08	24 20.08 + 12.56 + .50 − .10 − 2 24 33.02 − 3.83 24 29.19	.20 +16.2 +1 4.
	κ ((δ) − D) $\frac{\kappa'}{100}$ α_2		7.0	23	44.0 45.8 47.5 1373 45.8	24 7.3	10.6	13.9	17.1	20.5	99 4 +19.13	19.88	24 13.88 + 18.69 + .46 − 2 24 33.01 − 3.72 24 29.29	+16.2 +1 4.

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+28.5	1 17.8	56.9	12 39	0 56.95	− 21	23.04	−10	25	26 19 31.06	
	+ 28.5				28 06.95	56 41.40				57 37 20.96	+9.65
d	1.45484					57 44.47				− 21	
	9.78967					−23.51				− .11	
6.22										+ 9.42	
((δ) − D) $\frac{d'}{100}$	1.37120 m									+ 55	
+16.08										−24.20	
δ_1 +16.76		14 36.64		58 13.3						57 6.51	
	+26.0	1 17.7	55.9	13 66	0 68.30	07	21.80	−25	25	26 18.98	
	+ 26.0				28 8.30	56 40.05				57 21.78	+9.51
d	1.41497					57 43.18	23			− 18	
	9.78967					−21.45				− 11	
										+ 9.25	
((δ) − D) $\frac{d'}{100}$	1.33133 m									+ 55	
+16.08										−25.00	
δ_2 +16.76		14 36.72		58 13.0						57 6.29	
	+21.4	3 24.0	1.3	2 53	3 12.65	12	17.70	−32	25	28 29.91	
	+ 21.3				28 12.15	54 35.70				50 55 20.89	+9.49
d .32	1.32838					55 38.87				− 12	
	9.79965					−17.98				− 32	
										+9.38	
((δ) − D) $\frac{d'}{100}$	1.25472 m									+ 55	
+16.00										−24.10	
δ_1 +16.20		17 32.42		56 12.5						55 6.28	
	+6.3	3 31.0	12.2	4 32	3 21.60	01	5.21	−46	25	28 26.34	49
	+ 6.5				28 21.60	54 26.75				50 55 24.37	+9.42
d	0.81291					55 29.86	93			− 1	
	9.79965					−5.49				− 34	
										+9.22	
((δ) − D) $\frac{d'}{100}$	0.73925 m									+ 55	
+16.00										−24.80	
δ_2 +16.20		17 32.39		56 15.3						55 9.06	
	+24.6	~~4~~ 59.0	36.2	9 52	4 47.60	15	20.73	−48	20	25 7.70	
	+ 24.7	3			24 47.60	58 9 0.75				49 58 42.67	Es min.
d .28	1.39270				3	59 3.92				− 17	+8.17
	9.80807					50 0 −21.25				− 48	
										+ 8.37	
((δ) − D) $\frac{d'}{100}$	1.32746 m									+ 45	
+15.93										−23.80	
δ_1 +15.80		19 29.30		0 32.8						58 ~~26.59~~ 27.04	
	+26.2	3 64.8	35.0	8 98	3 44.80	15	22.07	−52	20	24 6.27	44.00
	+ 26.3				23 44.80	59 3.45	63			Sw. 59 38.93	
d	1.41996					50 0 6.56				− 18	
	9.80807					−22.63				− 38	+8.11
										+8.22	
((δ) − D) $\frac{d'}{100}$	1.35472 m									+ 45	
+15.93										−24.50	
δ_2 +15.80		19 29.32		0 33.4						59 27.61	
	+18.9	4 15.3	57.1	12 64	3 63.20	10	16.74	−40	45	49 18.44	
	+ 19.0				49 3.20	33 45.15				50 34 32.17	+8.75
d .18	1.27875					50 34 48.32				− .10	.3
	9.80274					−16.15				− .40	
										+ 9.00	
((δ) − D) $\frac{d'}{100}$	1.20818 m									+ 45	
+16.06										−23.70	
δ_1 +15.36		21 59.79		35 22.8						34 17.42	
	+31.8	4 0.2	40.0	10 02	3 50.10	27	26.48	−53	45	49 15.76	40
	+ 31.8				48 50.10	38 58.25				34 34.33	+8.64
d	1.50243					50 35 1.76	43			− 28	
	9.80274					−27.03				− 38	
										+ 8.85	
((δ) − D) $\frac{d'}{100}$	1.43186 m									+ 45	
+16.06										−24.40	
δ_2 +15.36		21 53.91		35 24.0						34 18.64	
	+18.9	4 19.7	57.3	3 13 70	4 08.50	10	15.35	−41	35	39 23.37	
	+ 19.0				39 8.50	43 39.85				51 44 27.27	+10.38
d .20	1.27875					57 44 42.92				− .10	
	9.79176					−15.75				− 41	
										+ 10.29	
((δ) − D) $\frac{d'}{100}$	1.19720 m									+ 60	
+16.29										−23.70	
δ_1 +14.76		24 45.48		45 18.7						44 13.95	
	+28.1	4 8.7	50.5	11 92	3 59.60	21	23.34	−56	35	39 22.17	64
	+ 28.1				38 59.64	43 48.75				44 28.57	~~+9.76~~
d	1.44871					51 44 51.86	93			− .21	+10.16
	9.79176					−23.29				− 40	
										+ 10.12	
((δ) − D) $\frac{d'}{100}$	1.36716 m									+ 65	
+16.29										−24.50	
δ_2 +14.76		24 45.58		45 19.1						44 14.30	

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

1871phae.proj.1579R

Date$_1$ = 1871, Dec. 20. 146 Observer W. A. R. Recorder W. A. R.

Date$_2$ = 1871, Dec. 27. 147 Observer W. A. R. Recorder W. A. R.

14 Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
2	m s 27 07 26 2.4 κ	° ′ ″ 51 44 51 39.7	9.2 9.1	gn 26	s 31.7 34.5 35.6 10.8 33.9	s 52.6	s 56.0	s 59.2	s 2.5	s 5.1	2958 +12.94	s 59.16	m s 26 59.16 + 12.56 + .50 − .10 − 2 27 12.10 − 3.86 27 8.24 30
	((δ) − D) $\frac{\kappa'}{100}$ c_1												
	κ		9.4	26	26.9 28.7 32.3 5.9 29.3	46.4	49.8	53.0	56.2	59.6	2650 +19.13	53.00	26 53.00 + 18.69 + .46 − 2 27 12.13 − 3.75 27 8.38
	((δ) − D) $\frac{\kappa'}{100}$ c_2												
2	29 10 28 5.0 κ	51 08 51 3.7	9.5 9.0	28	41.6 44.0 45.6 13.2 43.7	54 54.2	57.1	60.7	3.9	7.3	3032 +12.93	60.64	29 0.64 + 12.56 + .48 − 9 − 2 29 13.57 − 3.86 29 9.71
	((δ) − D) $\frac{\kappa'}{100}$ a_1												
	κ		9.7	29	4.3 5.5 6.8 16.6 5.5	28 48.0	51.3	54.6	57.7	1.7	2723 +19.11	54.46	28 54.46 + 18.69 + .44 − 2 29 13.57 − 3.75 29 9.82
	((δ) − D) $\frac{\kappa'}{100}$ a_2												
2	31 34 30 29.0 κ	51 04 50 57.8 9	8.5 8.5 8.5	30	56.2 58.6 59.6 58.1	31 19.8	23.0	26.4	29.7 35.43 35.44	33.0	13.19 +12.93	26.38 26.18	31 26.38 + 12.56 + .48 − 9 31 39.31 − 3.88 9 35.42 + 12.56 + .48 − 9 31 47.77 − 3.88 1
	((δ) − D) $\frac{\kappa'}{100}$ 30 28.5 a_1	50 55.8		31	0.4 1.3 1.9 1.2	25.2	31.5	35.0	38.2	41.3	1742 +12.93	43.89 35.44 34.84	
	κ 30 29.0	50 59.9	8.6 8.7	30	56.8	31 13.6	17.0	20.1	23.3	26.6	1006 +19.11	20.12	31 39.23 − 3.88 1 35.42 + 18.69 + .44 − 2 31 47.63 − 3.78 33
	((δ) − D) $\frac{\kappa'}{100}$ 30 38.5 a_2	50 59.8		31	0.3	22.0	25.3	28.6	31.7 35.45	35.0	1426 +19.11	43.85 28.52	
2	33 52 32 47.2 κ	47 55 49 52.4	8.4 8.2	33	20.4 22.5 24.8 6.7 22.6	37.7	41.0	44.1	47.4	50.5	2207 +12.91	44.14	33 44.14 + 12.56 + .46 − 9 − 2 33 57.05 − 3.85 33 53.20
	((δ) − D) $\frac{\kappa'}{100}$ a_1												
	κ		8.5	33	12.0 13.6 15.8 4.9 13.8	31.8	34.9	38.0	41.1	44.3	1901 +19.10	38.02	33 38.02 + 18.69 + .43 − 2 33 57.12 − 3.75 33 53.37
	((δ) − D) $\frac{\kappa'}{100}$ a_2												
2	36 06 35 0.5 κ	50 11 50 6.4	8.2 8.4	35	24.6 25.7 27.0 7.3 25.8	50.7	54.0	57.3	0.6	3.6	2862 +12.91	57.24	35 57.24 + 12.56 + .46 − 9 − 2 36 10.15 − 3.89 36 6.26
	((δ) − D) $\frac{\kappa'}{100}$ a_1												
	κ		8.3	35	27.6 29.2 31.5 8.6.3 29.4	44.7	47.8	51.0	54.2	57.4	2551 +1910	51.02	35 51.02 + 18.69 + .43 − 2 36 10.12 − 3.79 36 6.33
	((δ) − D) $\frac{\kappa'}{100}$ a_2												

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

1871phaeproj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+25.3	4′ 51.6	30.2	81 8	4′ 40.90	−17	20.57	−47	35′	40 0.83	
	+ 25.3				39 40.90	43 7.45				51 43 49.54	+10.26
d	1.40312					51 44 10.52				− 17	
	9.79192					−20.98				− 47	
1.16 ((δ) − D) $\frac{d'}{100}$	1.32173 m									+ 10.30	
										+ 60	
+16.35 δ_1		27 24.65		44 40.6						− 23.50	
+1 4.20										43 36.40	
	+ 23.7	4 51.0	32.3	833	4 41.65	14	19.27	−66	35	40 0 12.23	15
	+ 23.7				39 41.65	43 6.70				43 50.16	+10.39 ✓
d	1.37475					51 44 9.88				− 15	
	9.79192					−19.65				− 47	
((δ) − D) $\frac{d'}{100}$	1.29336 m									+ 10.12	
										+ 65	
+16.35 δ_2		27 24.73		44 40.3						− 24.30	
+1 4.20										43 36.08	
	+ 17.0	0 60.7	26.8	775	0 38.75	08	14.29	−06	15	15 52.90 5	
	+ 16.9				15 38.75	4 9.60				51 7 58.67	+10.15
.18 d	1.22789					57 8 12.67				− 8	
	9.79762					−14.20				− 6	
((δ) − D) $\frac{d'}{100}$	1.15220 m									+ 9.64	
										+ 55	
+16.31 δ_1		29 26.02		8 49.2						− 23.20	
+1 3.76										7 45.42	
	+ ~~49.1~~	1 13.5	53.6	1271	0 63.55	04	−9.16	−16	15	15 54.17 22	
	−10.9				16 3.55	6 44.80				7 57.15	+9.99
d	−11.0					51 7 47.98				− 3	
	1.04139 n					+9.24				− 1	
((δ) − D) $\frac{d'}{100}$	9.79762									+ 9.48	
	0.96570									+ 55	
+16.31 δ_2		29 26.13		8 47.0						− 24.00	
+1 3.76										7 43.21	
	+ 28.3	4 23.7	0.6	243	4 12.15	21	23.34	−42	15	19 34.86 5	
	+ 28.3				19 12.15	3 36.20				51 4 15.47	+9.48 4 11.81 +9.38
+16.36 d	1.45179					51 4 39.27				− 21	− 31
+1 3.24	9.79809					−23.80				− 42	− 42
	1.37657 m									+ 9.56	+ 9.56
((δ) − D) $\frac{d'}{100}$	+ 33.8	4 23.7	0.6	243	4 12.15	31	27.87	−42		19 34.86 5	+ 55
	+ 33.6				19 12.15	3 36.20				4 55	− 2300
+16.36 δ_1	1.52634	31 51.79		5 5.3		4 39.27				− 2300	, − 2300
+1 3.24	9.79809			0.7		−28.26				4 2.05	3 57.49
	1.45112 m	32 0.25									
	+ 23.3	4 25.7	5.7	314	4 15.70	13	19.22	−59	15	19 34.20 24	11
+16.36	+ 23.3				19 15.70	3 32.65 83				51 4 16.47	+9.38 4 12.04 +9.31
+1 3.24 d	1.36736					51 4 35.76				− 14	− 21
+1 32	9.79809					−19 59				− 43	− 43
	1.24214 m									+ 9.40	+ 9.40
((δ) − D) $\frac{d'}{100}$	+ 28.3	4 25.7	5.7	314	4 15.70	21	23.34	−59		19 38.27	+ 55
	+ 28.2				19 15.70	3 32.65 83				4 − 23.90	− 23.90
+16.36 δ_2	1.45025	31 51.81		5 5.0		4 35.76				5 1.72	3 57.52 ✓
+1 3.24	9.79809			0.8		−28.72					
	1.37503 m	32 0.21									
	+ 21.5	3 82.4	29.6	820	3 41.00	03	17.70	−37	25	28 34.70 8	
	+ 21.5				28 41.00	54 7.35				49 54 51.89	+8.34
d	1.33244					49 55 10.52				− 12	
12	9.80882					−18.53				− 37	
((δ) − D) $\frac{d'}{100}$	1.26795 m									+ 8.38	
										+ 45	
+16.25 δ_1		34 9.45		55 40.4						− 22.70	
+1 2.76										54 37.63	
	+ 24.2	3 47.3	27.3	750	3 37.50	15	20.43	−50	25	28 39.28 7	
	+ 24.2				28 37.50	54 11.05				54 53.36	+8.16
d	1.38382					49 55 14.16 23				− 15	
	9.80882					−20.86				− 36	
((δ) − D) $\frac{d'}{100}$	1.31933 m									+ 8.22	
										+ 45	
+16.25 δ_2		34 9.62		55 40.8						− 23.50	
+1 2.76										54 38.03	
	+ 31.5	2 39.4	17.0	564	2 28.20	12 26.44		−24	10	12 54.28 4	
	+ 31.4				12 28.20	10 20.15				50 10 56.80	+8.57 3 ✓
d	1.49693					50 11 23.32				− 26	
22	9.80641					−26.92				− 25	
((δ) − D) $\frac{d'}{100}$	1.43003 m									+ 8.59	
										+ 45	
+16.33 δ_1		36 22.59		11 44.6						− 22.60	
+1 2.28									10	42 56.33	
	+ 21.6	2 44.7	25.0	697	2 34.85	12	18.13	−36	10	12 52.50 16	
	+ 21.6				12 34.85	10 13.50				10 58.64	+8.48
d	1.33445					50 11 16.68				− 13	
	9.80641					−18.52				− 26	
((δ) − D) $\frac{d'}{100}$	1.26755 m									+ 8.42	
										+ 45	
+16.33 δ_2		36 22.66		11 45.5						− 23.40	
+1 2.28										10 43.24	

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

1871phae.prj.1579R

146

Date$_1$ = 1871, Dec. 20. Observer W.A.R. Recorder W.A.R.

147

Date$_2$ = 1871, Dec. 27. Observer W.A.R. Recorder W.A.R.

16

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
2	39 09	50 31	9.3	38	33.5	53.2	66.6	59.8	3.1	4.3	29 9 0	59.80	38 59.80
	38 3.1	50 26.4	9.2		34.3						+12.92		+ 12.56
	κ				35.2								+ .47
					10 3 0								− 9
	((δ) − D) $\frac{\kappa'}{100}$				34.3								− 2
													39 12.72
	c_1												− 3.94
													39 8.78
			9.4	38	26.7	47.3	60.3	53.6	56.9	67.7	26 80	53.60	38 53.60
					28.6						+19.11		+ 18.69
	κ				30.1								+ .44
					5 5 4								− 2
	((δ) − D) $\frac{\kappa'}{100}$				28.5								39 12.71
	c_2												− 3.84
													39 8.87
2	41 30	51 18	9.2	41	2.0	14.8	18.0	21.4	24.7	27.9	10 6 8	21.36	41 21.36
	40 23.0	51 13.7	9.1		3.4						+12.93		+ 12.56
	κ				5.4								+ .48
					2.7								− 9
	((δ) − D) $\frac{\kappa'}{100}$												− 2
													41 34.29
	a_1												− 4.00
													41 30.29
			9.3	40	43.5	41 8.6	11.7	15.1	18.4	21.6	7 54	15.08	41 15.08
					45.0						+19.11		+ 18.69
	κ				46.0								+ .44
					13 4 5								− 2
	((δ) − D) $\frac{\kappa'}{100}$				4 4.8								41 34.19
	a_2												− 3.91
													41 30.28
2	44 18	50 30	8.0	43	46.6	44 4.9	8.0	11.3	14.5	17.6	5 6 3	11.26	44 11.26
	43 13.9	50 26.2 .0	9.3		48.5						+12.92		+ 12.56
	κ				50.9								+ .47
					14 6 0								− 9
	((δ) − D) $\frac{\kappa'}{100}$				48.7								− 2
													44 24.18
	a_1												− 3.99
													44 20.19
	48 18.1	50 26.0 .3	9.4	43	48.0	53.7	57.0	60.2	3.2	6.5	3 0 0 6	60.12	44 0.12
	8.6		8.3		50.7						+19.11		+ 18.69
	κ.				53.1								+ .44
					50.6				4				− 2
	((δ) − D) $\frac{\kappa'}{100}$			43	50.4	58.5	1.7	4 1.9	15.33 8.1	11.4	44 20.13		44 19.23
	#4 13.9	50 26.0			31.9						3 2 4 6 6 4 1.9 2		− 3.98
	43 a_2				38.7						+19.11		44 15.25
					32.0								+ 18.69
													44 33.94
													− 3.96
													44 29.98
2	46 51	51 10	8.4	46	21.6	36.9	40.1	45.3	46.6	50.0	21 69	43.38	46 43.38
	45 45.2	51 5.9	8.7		23.1						+12.93		+ 12.56
	κ				24.7								+ .48
					6 9 4								− 9
	((δ) − D) $\frac{\kappa'}{100}$				23.1								− 2
													46 56.31
	a_1												− 4.06
													46 52.25
			8.5	46	9.1	30.7	34.0	37.2	40.4	43.7	18 6 0	37.20	46 37.20
					11.0						+19.11		+ 18.69
	κ				13.5								+ .44
					3 3 6								− 2
	((δ) − D) $\frac{\kappa'}{100}$				11.2								46 56.31
	a_2												− 3.96
													46 52.35
2	49 04	50 27	9.3	48	29.6	54.4	53.7	56.9	0.8	3.3	28 4 6	36.92	48 56.92
	47 58.5	50 22.7	9.8		31.6						+12.92		+ 12.56
	κ		3		33.5								+ .47
					9 4 7								− 9
	((δ) − D) $\frac{\kappa'}{100}$				31.6								− 2
													49 9.84
	a_1												− 4.03
													49 5.81
			9.7	48	31.2	44.3	47.8	50.8	54.0	57.3	25 4 2	50.84	48 50.84
					33.2						+19.11		+ 18.69
	κ				36.3								+ .44
					10 0 7								− 2
	((δ) − D) $\frac{\kappa'}{100}$				33.6								49 9.95
	a_2												− 3.95
													49 6.00

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

1871phaeproj.15795

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+ 25.5	2′ 53.5	29.7	8 32	2 41.60	− 17	21.27	−27	50′	53 2.43	
	+ 25.5				52 41.60	30 6.75				50 30 48.21	+8.98
d	1.40654					50 31 9.82				− .17	
	9.80336					−21.71				− .27	
20 ((δ) − D) $\frac{d'}{100}$	1.33659 m									+ 8.99	
										+ 45	
+16.45 δ_1		39 25.23		31 36.8						− 22.40	
+1 1.56										30 34.49	
	+ 25.1	2 50.4	31.1	8 15	2 40.75	17	20.93	−36	50	53 1.18 41	
	+ 25.1				52 40.75	30 7.60				30 49.84	+8.80
d	1.39967					50 31 10.78				− .17	
	9.80336					−21.37				− .27	
((δ) − D) $\frac{d'}{100}$	1.32972 m									+ 8.79	
										+ 45	
+16.45 δ_2		39 25.32		31 36.6						− 23.20	
+1 1.56										30 35.01	
	+ 18.7	0 47.7	26.0	7 37	0 36.85	10	15.33	−06	5	5 52 02 59.02	
	+ 18.7				5 36.85	17 11.50				51 17 58.92	+10.22
d	1.27184					51 18 14.57				− .10	
28	9.79605					−15.65				− 6	
((δ) − D) $\frac{d'}{100}$	1.19458 m									+9.83	
										+ 55	
+16.62 δ_1		41 46.91		18 48.0						− 22.30	
+1 1.04										17 46.94	
	+ 30.3	0 83.8	18.8	4 78	0 23.80	25	24.87	− 16	5	5 48.36 32	
	+ 30.3				5 23.80	17 24.50				18 2.25	+9.92
d	1.48144					51 18 27.68				− .24	
	9.79605					− 25.36				− 4	
((δ) − D) $\frac{d'}{100}$	1.40418 m			18						+9.65	
+16.62										+ 55	
δ_2		41 46.90		9 50.1						17 −23.20	
+1 1.04										8 49.04	✓
	+ 22.6	3 32.5	9.2	4 17	3 20.85	13	18.85	−33	50	53 39.24	
	+ 22.6				53 20.85	29 27.50				50 30 11.33	+8.93
d	1.35411					50 30 30.37				− .14	
	9.80336					− 19.24				− .33	
((δ) − D) $\frac{d'}{100}$	1.28416 m			58.8						+ 8.95	
+16.56										+ 45	
δ_1		44 36.75		30 9.3						− 22.00	
+1 0.44										29 58.36	
	+ 9.6	3 18.3	58.9	13 72	3 8.60	0 3	8.01	−43	50	54 15.91 84	
	+ 9.5				53 8.60	29 39.75 93				30 34.77	+8.89
34 d	0.97772					50 30 42.86				− 3	
+16.56	9.80336					− 8.09				− 31	
+1 0.44 ((δ) − D) $\frac{d'}{100}$	0.99777 m									+ 8.78	
	+ 32.9	3 16.3	58.9	13 72	3 8.60	29	27.46	−43	50	54 35.41	
	+ 32.9				53 8.60	29 39.75 93				+ 45	
+16.56 δ_2	1.51720	44 31.89		31 21.4		30 42.86				− 22.80	
+1 0.44	9.80336			1.2		− 28.01				30 20.93	
	1.44725 m	36.69									
	+ 20.2	2 46.8	23.9	7 07	2 35.35	11	16.62	−26	10	12 51.60	
	+ 20.3				12 35.35	10 13.00				51 10 59.83	+9.89
d	1.30750					51 11 16.87				− .11	
18	9.79715					−17.04				− .26	
((δ) − D) $\frac{d'}{100}$	1.23134 m									+ 9.71	
+16.71										+ 55	
δ_1		47 8.96		11 46.9						− 21.90	
+0 59.80										10 47.12	✓
	+ 26.0	2 37.0	17.9	5 49	2 27.45	18	21.38	−34	10	12 46.31 26	
	+ 26.0				12 27.45	10 20.90				11 2.19	+9.66
d	1.41497					51 11 24.08				− .18	
	9.79715					−21.82				− .24	
((δ) − D) $\frac{d'}{100}$	1.33881 m									+ 9.53	
+16.71										+ 55	
δ_2		47 9.06		11 48.9						−22.80	
+0 59.80										10 49.12	
	+ 25.3	2 51.2	27.6	7 88	2 39.40	17	21.11	−27	55	58 0.07 5	
	+ 25.3				58 39.40	25 6 8.95				50 25 50.45	Examin
d	1.40312				6	50 28 7 12.82				6 .17	
08	9.80412					−21.57				− .26	+8.92
((δ) − D) $\frac{d'}{100}$	1.33393 m									+ 8.90	
+16.65										+ 45	
δ_2		49 22.46		27 37.2						− 21.50	
+0 59.28										26 37.97	
	+ 17.2	1 55.1	35.7	9 08	1 45.40	0 8	14.36	−24	55	56 59.44 46	
	+ 17.2				56 45.40	26 2.95				50 26 51.39	
d	1.23553					50 27 6.06 13				− 8	
	9.80412					−14.67				− 18	+8.99
((δ) − D) $\frac{d'}{100}$	1.16634 m									+ 8.72	
+16.65										+ 45	
δ_2		49 22.65		27 37.2						− 22.50	
+0 59.28										26 37.84	

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

1871phae.proj.1579R

146

Date$_1$ = 1871, Dec. 20. Observer W. A. R. Recorder W. D. R.

147

Date$_2$ = 1871, Dec. 27. Observer W. A. R. Recorder W. D. R.

18

Run

Star.	α	δ	Mag.		T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	54 51	50 27	8.4	54	14.1	36.9	40.1	43.3	46.4	49.7	21 6 4	43.28	54	43.28
	52 44.5	50 22.9	8.7		13.7						+12.92		+	12.56
	κ				16.9								+	.47
	((δ) — D) $\frac{\kappa'}{100}$				467								—	9
					15.6								—	2
	c_1												54	56.20
													—	4.09
													54	52.11
			8.5	54	8.1	30.5	33.8	36.8	40.2	43.5	18 4 8	36.96	54	36.96
					9.6						+19.11		+	18.69
	κ				12.5								+	.44
	((δ) — D) $\frac{\kappa'}{100}$				302								—	.2
					10.1								54	56.07
	c_2												—	4.01
#													54	52.06
2	57 06	50 36	9.0	56	28.1	48.6	50.2	54.3	57.6	61.0	27 11	54.22	56	54.22
	55 59.0	50 32.1	9.0		30.2						+12.92		+	12.56
	κ				32.5								+	.47
	((δ) — D) $\frac{\kappa'}{100}$				906								—	9
					30.3								—	.2
	a_1												57	7.14
													—	4.12
													57	3.02
			9.2	56	23.8	~~45.7~~	~~46.6~~	~~46.7~~	~~51.6~~	~~54.7~~	Reject:	illegible	on	sheet.
					25.7									
	κ				27.9									
	((δ) — D) $\frac{\kappa'}{100}$				774									
					25.6									
	a_2													
2	56 48	51 43	6.5	58	16.8	33.6	36.7	40.2	43.6	46.8	20 09	40.18	58	40.18
	57 41.2	51 38.7	6.8		19.0						+12.94		+	12.56
	κ				20.8								+	.50
	((δ) — D) $\frac{\kappa'}{100}$				566								—	.10
					189								—	.2
	a_1												58	53.12
													—	4.20
													58	48.92
	57 23.7	51 37.6	7.3	58	8.1	9.4	12.8	16.0	19.3	22.7	8 02	16.04	58	16.04
					9.9						+19.14		+	18.70
	κ				~~7.0~~								+	.46
	((δ) — D) $\frac{\kappa'}{100}$				180								—	.2
					9.0								58	35.18
	a_2												—	4.12
													58	31.06
3'	01 27	50 59	8.6	0	47.7	1 12.9	16.2	19.5	22.7	26.0	9 7 3	19.46	1	19.46
	1 19.8	50 54.9	8.7		49.6						+12.93		+	12.56
	κ				508								+	.48
	((δ) — D) $\frac{\kappa'}{100}$				~~+499~~								—	9
					~~493~~								—	.2
	a_1				148.1								1	32.39
					49.4								—	4.19
													1	28.20
			8.8	0	54.7	1 6.8	9.9	13.1	16.3	19.8	6 59	13.18	1	13.18
					56.1						+19.12		+	18.70
	κ				58.0								+	.44
	((δ) — D) $\frac{\kappa'}{100}$				1688								—	.2
					56.3								1	32.30
	a_2												—	4.12
													1	28.18
3	3 17	51 20	9.3	2	47.3	3 1.1	4.5	7.8	11.0	14.4	3 8 8	7.76	3	7.76
	2 9.2	51 16.5	9.4		49.3						+12.93		+	12.56
	κ				57.6								+	.49
	((δ) — D) $\frac{\kappa'}{100}$				1482								—	.10
					494								—	.2
	a_1												3	20.69
													—	4.23
													3	16.46
			8.9	2	40.6	55.0	58.1	1.5	4.6	7.9	30 7 1	61.42	3	1.42
					42.0						+19.13		+	18.70
	κ				44.2								+	.45
	((δ) — D) $\frac{\kappa'}{100}$				1268								—	.2
					42.3								3	20.55
	a_2												—	4.15
													3	16.40

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
+27.7	27.7	1 26.0	1.9	269	1 13.45	20	23.15	−12	5 5	56 36.28	
	+ 27.7				56 13.45	26 34.90				50 27 14.87	+9.02
d	1.44248					50 27 37.37				− .21	
	9.80382					−23.60				− .12	
6.32 ((δ) − D) $\frac{d'}{100}$	1.37299$_n$									+ 8.90	
										+ 45	
+16.77 δ_1		55 8.88		28 0.3						− 21.10	
+0 57.93										27 2.39	
+26.7	26.7	1 22.8	3.2	260	1 13.00	19	22.27	−17	55	56 34.91	
	+ 26.9				56 13.00	26 35.35				27 15.54	+8.83
d	1.42975					50 27 38.53				− .20	
	9.80382					−22.92				− .12	
((δ) − D) $\frac{d'}{100}$	1.36026$_n$									+ 8.70	
										+ 45	
+16.77 δ_2		55 8.83		28 0.3						− 22.10	
+0 57.93										27 2.34	
+24.0	24.0	2 27.2	2.8	300	2 15.00	14	9.98	−23	45	47 34.61	
	+ 23.9				47 15.00	35 33.35				50 36 16.21	+9.24
d	1.37840					50 36 36.42				− .15	
	9.80259					−20.31				− .23	
((δ) − D) $\frac{d'}{100}$	1.30768$_n$									+ 9.07	
										+ 55	
+16.84 δ_1		57 19.86		37 1.8						− 21.00	
+0 57.36										36 4.45	
20.9	20.7	2 24.7	3.8	285	2 14.25	11	17.44	−31	45	47 21.24	
					47 14.25	35 34.10					
d						50 36 37.21					
((δ) − D) $\frac{d'}{100}$											
δ_2											
	21.3	0 44.7	22.1	668	0 33.40	12	17.33	−05	40	40 50.56	
	+ 21.3				40 33.40	42 14.95				50 51 43.05	+10.74
d	1.32838					51 43 18.02				− .12	
	9.79208					−17.67				− 6	
((δ) − D) $\frac{d'}{100}$	1.24715$_n$									+10.32	
		5.98								+ 60	
+17.06 δ_1		59 [illegible]		43 47.2						− 21.00	
+0 56.96										42 50.19	
	+7.0	2 42.2	22.4	646	2 32.30	01	5.70	−35	40	42 37.64	
	+ 7.0				42 32.30	40 16.05				50 41 13.55	+10.46
d	0.84510					51 41 19.78				− 2	
	9.79208					−5.81				− 25	
((δ) − D) $\frac{d'}{100}$	0.76387$_n$									+10.08	
										+ 65	
+17.05 δ_2		58 48.11		41 58.8						−22.00	
+0 56.96										41 1.88	
	30.2	4 43.0	20.6	636	4 31.80	24	24.94	−45	20	24 56.05	
	+30.1				24 31.80	58 16.55				50 58 54.85	+9.36
d	1.47857					50 59 19.42				− .24	
28	9.79903					−25.37				− .45	
((δ) − D) $\frac{d'}{100}$	1.40429$_n$									+9.50	
										+ 55	
+16.99 δ_1		1 45.19		59 39.4						−20.60	
+0 56.28										58 43.11	
	16.8	4 51.0	30.3	823	4 41.15	19	13.87	−66	20	25 54.17	
	+16.9				24 41.10	58 7.20				58 56.07	+9.31
d	1.22789					50 59 10.38				− .8	
	9.79903					−14.24				− 47	
((δ) − D) $\frac{d'}{100}$	1.15361$_n$									+9.31	
										+ 55	
+16.99 δ_2		1 45.17		59 40.1						−21.60	
+0 56.28										58 43.86	
	18.4	3 10.7	50.5	1272	3 00.60	21	15.18	−13	0	3 16.44	
	+18.4				3 0.60	19 47.75				51 20 35.44	+10.06
34 d	1.26482					51 20 50.82				− .9	
	9.79558					−15.38				− 30	
((δ) − D) $\frac{d'}{100}$	1.18709$_n$									+9.90	
										+ 55	
+17.09 δ_1		3 33.55		21 20.9						−20.50	
+0 55.84										20 25.10	
	19.2	3 8.8	49.3	1181	2 56.05	10	15.75	−41	0	3 13.29	57
	+19.1				2 [illegible]	19 49.30				20 36.44	9.85
d	1.28103					51 20 52.48				− .10	
	9.79558					−15.97				− 30	
((δ) − D) $\frac{d'}{100}$	1.20330$_n$	3 33.49								+ 9.40	
		4 12.24								+ 55	
+17.09 δ_2				21 20.7						−21.50	
+0 55.84										20 24.86	

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

1871phae.proj.1579R

Single Observations.

Date$_1$ = Dec. 20, 1871 Observer W. A. R. Recorder W. A. R.

Date$_2$ = Observer Recorder

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
1	3 1 11	51 38	9.2	30	36.7	51.8	50.1	58.4	1.8	5.0	29 21	58.42	30 58.42
	2 0 8.2	51 33.9	9.2		38.5						+12.93		+ 12.56
	κ				40.0								+ .49
	((δ) — D) $\frac{\kappa'}{100}$				11.52								— .10
					38.4								— .02
	a_1												31 11.35
	Dec. 20.												— 3.16
													31 8.19
1	3 7 37	51 57	10.0	37	15.1	—	22.2	25.3	28.6	32.0			37 28.30
	3 6 34.0	51 51.6	9.5		16.8						+12.94		+ 12.56
	κ				17.9								+ .50
	((δ) — D) $\frac{\kappa'}{100}$				49.8								— .10
					16.6								— .02
	a_2												37 38.29
	Dec. 27. Observed 51^m												— 3.26
													37 35.03
1	5 1 33	50 45	8.9	50	33.2	56.4	59.6	2.8	6.2	9.3	31 43	62.86	51 2.86
	5 8 31.7	50 40.5	8.8		34.6						+19.12		+ 18.70
	1 κ				36.8								+ .44
	((δ) — D) $\frac{\kappa'}{100}$				10.46								— .02
					34.9								51 21.98
	a_1												— 3.26
	Dec. 27												51 18.72
2	11 52	50 58	8.9	11	9.0	30.1	33.3	36.6	39.8	43.0	18 28	36.56	11 36.56
	10 49.2	50 53.4	9.0		11.1						+19.12		+ 18.70
	κ				14.8								+ .44
	((δ) — D) $\frac{\kappa'}{100}$				34.9								— .02
					11.6								11 55.68
	a_2												— 3.53
													11 ~~55.59~~ 52.15
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	a_1												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	a_2												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	a_1												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	a_2												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	a_1												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	a_2												

$\Delta(\Delta T + n) = 6.25 (\pm 0.48) \frac{\Delta n}{12} - \frac{p}{12} = 6.01$ (6.01)

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

1871phaeproj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
d	+ 20.0	0′ 38.2	14.6	5 28	0′ 26.40	−11	16.29	−05	45	45 42.53	
	+ 20.0				40 26.40	37 21.95				51 38 8.40	+10.61
	1.30103					51 38 25.82				− .11	
	9.79288					−16.62				− 4	
((δ) − D) $\frac{d'}{100}$	1.22060 n									+ 10.16	
										+ 60	
+14.91 δ_1		31 23.10		39 6.2						− 26.80	
+1 13.92										37 52.31	
d	+ 8.7	2 12.3	50.2	12 25	1 6.25	02	6.98	−29	25	27 7.93	
	+ 8.8				27 1.25	55 47.10				51 56 42.71	+10.89
	0.94448					57 56 50.27				− 3	
	9.78983					−7.26				− 20	
((δ) − D) $\frac{d'}{100}$	0.86100 n									+ 10.52	
										+ 60	
+15.12 δ_2		37 50.15		57 40.3						26.60	
+1 13.04										56 27.30	
d	+ 27.9	3 41.3	21.8	6 3 1	3 31.55	21	23.18	−35	40	43 34.17	
	+ 28.0				43 31.55	49 16.80				50 39 56.75	+8.93
	1.44716					50 40 19.98				− .21	
	9.50197					−23.76				− 35	
((δ) − D) $\frac{d'}{100}$	1.37582 n									+ 8.94	
										+ 50	
+15.35 δ_1		51 34.07		40 49.6						− 26.20	
+1 10.68										39 38.95	
d	+ 25.0	0 25.6	6.7	3 2 3	0 16.15	17	20.66	−04	25	25 36.60	
	+ 25.0				25 16.15	57 32.20				50 58 14.53	+9.62
	1.39794					50 58 35.38				− .17	
	9.79918					−21.08				− 3	
((δ) − D) $\frac{d'}{100}$	1.32381 n									+ 9.29	
										+ 55	
+15.88 δ_2		12 8.03		59 6.0						− 25.20	
+1 7.24										57 58.72	
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											

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

1871phae.proj.1579R

148

Date$_1$ = 1872. Jan. 2 — Observer W.A.R. — Recorder W.A.R.
n = +46

149

Date$_2$ = 1872, Jan. 8 — Observer W.A.R. — Recorder W.A.R.
n = +46

22

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
1	m s 44 54 43 57.6 κ ((δ) — D) $\frac{\kappa'}{100}$ a_1	° ′ ″ 51 56 51 51.0	9.6 9.3	m s 44 24.8 25.5 5 0 3 25.2	s	s 28.1	s 31.6	s 34.7	s 38.1	+24.92	s	m s 44 21.46 + 24.35 + .59 − 2 44 56.38 + .74 44 57.12	472 +11.4 +0 3
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2	42 46	10.0	44 11.6 13.6 16.0 4 1 2 13.7	20.2	23.4	26.7	30.0	33.4	13 37 +29.48	26.74	44 26.74 + 28.91 + .59 − 2 44 56.22 + .88 44 57.10	+11. +0
1	46 52 45 42.0 κ ((δ) — D) $\frac{\kappa'}{100}$ a_1	51 36 51 31.4	8.6 8.7	46 2.4 3.4 4.6 1 0 4 3.5	19.4	22.8	26.0	29.8	32.6	13 01 +24.91	26.02	46 26.02 +24.35 + .58 − 2 46 50.93 + .73 46 51.66	60 +11. +0 3
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		8.6	45 58.9 60.6 62.7 1 8 2.2 60.7	46 14.9	18.1	21.5	24.6	28.0	10 71 +29.48	21.42	46 21.42 + 28.92 + .58 − 2 46 50.90 + .87 46 51.77	+11. +0
1	48 34 47 29.1 κ ((δ) — D) $\frac{\kappa'}{100}$ a_1	51 52 51 46.5	8.0 7.7	47 49.3 51.4 53.4 1 5 4 1 51.4	48 2.5	5.7	9.0	12.4	15.6	4 5 2 +24.92	9.04	48 9.04 +24.35 + .59 − 2 48 33.96 + .72 48 34.68	74 +11. +0 5
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		8.0	47 44.6 46.3 48.7 1 3 9.6 46.5	57.6	1.1	4.3	7.6	11.0	32 16 +29.49	64.32	48 4.32 + 28.92 + .59 − 2 48 33.81 + .86 48 34.67	+11. +0
1	52 15 51 10.6 κ ((δ) — D) $\frac{\kappa'}{100}$ a_1	51 58 51 52.2	— 9.0	51 49.4 50.0 9 9 4 49.7 +2.7 49.7	43.7	47.1	50.6	53.8	57.0	25 42 +24.92	50.84	✓ 51 50.44 + 24.35 + .59 − 2 52 15.36 + .69 52 16.05	50 +11. +0
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		8.6	51 19.0 20.2 22.2 6 1 4 20.5	39.1	42.2	45.6	49.0	52.3	22 82 +29.49	45.64	51 45.64 + 28.92 + .59 − 2 52 15.13 + .82 52 15.95	+11. +0
1	55 10 54 5.9 κ ((δ) — D) $\frac{\kappa'}{100}$ a_1	51 06 51 0.8	9.4 9.1	54 22.0	40.4	43.7	47.2	50.3	53.6	23 52 +24.90	47.04	54 47.04 +24.35 + .57 − 2 55 11.94 + .67 55 12.61	64 +11. +0 5
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		9.5	54 12.6 14.3 16.8 4 3 2 14.4	35.8	39.0	42.6	45.7	48.9	21 20 +29.47	42.40	54 42.40 + 28.92 + .57 − 2 55 11.89 + .80 55 12.67	+11. +0

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

1871phaeproj-15798

Runs +.04 +.04

Jan. 2 — Req. +1 359 R −.09; Rest. +1 464 R −.10; 8

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+ 6.4	2′ 50.2	29.5	79.7	2′ 39.85	+ π	5.19	+10	25	27 45.23	
	+ 6.3				27 39.85	0 55	8.50			51 56 6.89	+10.88
d	0.79934					− 01 56	12.09			− 1	
	9.78999						− 5.20			− 23	
472 ((δ) − D) $\frac{d'}{100}$	0.71602									+ 10.62	
										+ .50	
+11.48 δ_1		45 8.60		57 2.6						− 9.10	
+0 53.94										56 8.64	
	+ 13.0	2 45.2	23.0	68.0	2 34.90	70	10.52	10	25	27 44.5	
	+ 13.0				27 34.90	0 55	14.25			56 8.16	+10.70
d	1.11394					0 51 56	18.89			− 5	
	9.78999						− 10.73			− 26	
((δ) − D) $\frac{d'}{100}$	1.03062									+ 10.46	
										+ .55	
+11.48 δ_2		45 8.58		57 3.5						− 9.30	
+0 53.94										56 9.56	
	+ 22.5	1 54.0	32.6	86.6	1 43.30	07	18.34	7	45	47 1.59	
	+ 22.5				46 43.30	12 36	5.05			51 36 49.94	+10.43
d	1.35218					51 37	8.64			− .13	
	9.79304						− 18.70			− 15	
60 ((δ) − D) $\frac{d'}{100}$	1.27191									+ 10.26	
										+ .45	
+11.50 δ_1		47 3.16		37 45.1						− 9.00	
+0 53.73										36 51.37	
	+ 20.8	1 57.9	35.0	92.9	1 46.45	7	16.96	7	45	47 3.36	
	+ 20.7				46 46.45	12 36	1.90			36 49.33	+10.31
d	1.31597					51 37	6.54			− .12	
	9.79304						− 17.21			− .18	
((δ) − D) $\frac{d'}{100}$	1.23570									+ 10.11	
										+ .50	
+11.50 δ_2		47 3.27		37 44.1						6 − 9.30	
+0 53.73										37 50.34	
	+ 17.6	2 9.8	47.1	116.9	1 58.45	8	14.26	8	30	32 12.80	
	+ 17.6				31 58.45	9 50	4.90			51 51 38.94	+10.77
d	1.24551					51 51	53.49			− 9	
	9.79063						− 14.55			− 18	
74 ((δ) − D) $\frac{d'}{100}$	1.16283									+ 10.54	
										+ .50	
+11.55 δ_1		48 46.23		52 34.1						− 9.10	
+0 53.52										51 40.61	
	+ 17.8	2 9.1	47.3	116.4	1 58.20	8	14.42	8	30	32 12.61	
	+ 17.8				31 58.20	.09 50	5.15			51 40.08	+10.64
d	1.25042					51 51	54.79			− 9	
	9.79063						− 14.71			− 20	
((δ) − D) $\frac{d'}{100}$	1.16774									+ 10.38	
										+ .55	
+11.55 δ_2		48 46.22		52 34.8						− 9.40	
+0 53.52										51 41.32	
	+ 1.9	0 29.0	7.0	36.0	0 18.00	7	6.38	1	25	51 58 33.36	
	+ 0.7				17.00	0 57	30.35			− 0	+11.12
d	9.84510				2	51 58	33.94			− 3	
	9.78967						− 0.58			+ 10.65	
sw ((δ) − D) $\frac{d'}{100}$	9.76146									+ .50	
+1.63 δ_1		52 27.68		59 28.4						− 9.10	
+0 53.07										58 35.38	
	+ 25.1	0 9.1	47.0	116.1	0 58.05	4	20.35	4	25	26 14.28	
	+ 25.1				29 58.05	.10 57	50.30			58 34.24	+10.88
d	1.39967					51 58	54.94			− .17	
	9.78967						− 20.70			− 0	
((δ) − D) $\frac{d'}{100}$	1.31603									+ 10.57	
										+ .55	
+1.63 δ_2		52 27.58		59 28.8						− 9.40	
+0 53.07										58 35.62	
	+ 25.2	2 39.0	17.0	56.0	2 28.00	10	20.77	10	15	17 48.71	
	+ 25.0				17 28.00	16 5	20.35			51 6 2.92	+9.72
d	1.39794					51 6	23.94			− .17	
	9.79793						− 21.02			− 23	
64 ((δ) − D) $\frac{d'}{100}$	1.32256									+ 9.67	
										+ .45	
+11.61 δ_1		55 24.22		6 56.4						− 8.90	
+0 52.71										6 3.74	
	+ 28.5	2 35.0	15.2	53.8	2 26.90	10	23.48	10	15	17 50.2	
	+ 28.0				17 26.90	.24 5	21.45			6 2.95	+9.58
d	1.44716					51 6	26.09			− 21	
	9.79793						− 23.54			− 23	
((δ) − D) $\frac{d'}{100}$	1.37178									+ 9.53	
										+ .50	
+11.61 δ_2		55 24.28		6 55.6						− 9.20	
+0 52.71										6 2.93	

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

1871phae.proj.1579R

148

Date$_1$ = 1872. Jan. 2. Observer W. A. R. Recorder W. A. R.

149

Date$_2$ = 1872. Jan. 8. Observer W. A. R. Recorder W. A. R.

24

Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′		m	s	s	s	s	s			m	s
	58 03	51 50	8.7	57	17.7	31.0	34.4	37.8	41.0	44.3	1485	37.70	57	37.70
	56 58.3	51 44.4	8.7		20.0						+2492		+	24.35
	κ				22.6								+	59
					603								−	2
	((δ) — D) $\frac{\kappa'}{100}$				20.1								58	2.62
													+	65
	α_1												58	3.27
			8.5	57	0.2	26.4	29.8	33.2	36.4	39.8	1656	33.12	57	33.12
					1.9						+2950		+	28.93
	κ				3.6								+	59
					5.4								−	2
	((δ) — D) $\frac{\kappa'}{100}$				1.8								58	2.62
													+	.78
	α_2												58	3.40
2	0 07	51 40	9.2	59	23.6	36.7	39.9	43.5	46.6	51.1	2168	43.36	59	43.36
1	59 2.4	51 35.2	9.1		25.3						+2492		+	24.35
	κ				27.7								+	59
					766								−	2
	((δ) — D) $\frac{\kappa'}{100}$				25.5								00	8.28
													+	63
	α_1												00	8.91
			9.4	59	6.2	32.1	35.4	38.7	42.0	45.3	1935	38.70	59	38.70
					8.2						+2950		+	28.93
	κ				11.3								+	59
					257								−	2
	((δ) — D) $\frac{\kappa'}{100}$				8.6								00	8.20
													+	.76
	α_2												00	8.96
2	2 41	51 32	—	1	52.8	2 14.7	18.2	21.4	24.6	28.0	1069	21.38	2	21.38
1	37.2	51 27.3	9.0		52.6						+2491		+	24.35
	κ				54.2								+	.58
					1576								−	2
	((δ) — D) $\frac{\kappa'}{100}$				52.5								2	46.29
													+	.61
	α_1												2	46.90
			8.8	1	46.3	2 10.0	13.4	16.6	20.0	23.2	832	16.64	2	16.64
					48.2						+2949		+	28.93
	κ				51.7								+	.58
					1482								−	2
	((δ) — D) $\frac{\kappa'}{100}$				48.7								2	46.13
													+	.74
	α_2												2	46.87
2	5 51	51 43	8.8	5	3.3	23.7	27.0	30.4	33.7	37.0	1518	30.36	5	30.36
4	48.4	51 38.2	8.6		5.0						+2492		+	24.35
	κ				7.6								+	59
					1591								−	2
	((δ) — D) $\frac{\kappa'}{100}$				513								5	55.28
													+	.59
	α_1												5	55.87
			8.7	4	56.3	5 19.0	22.3	25.6	28.9	32.2	1280	25.60	5	25.60
					57.7						+2951		+	28.94
	κ				60.0								+	59
					1740								−	2
	((δ) — D) $\frac{\kappa'}{100}$				58.0								5	55.11
													+	.72
	α_2												5	55.83
2	7 44	51 58	8.4	6	57.0	7 15.0	18.3	21.6	25.0	28.3	1082	21.64	7	21.64
6	41.8	51 53.2	8.5		58.7						+2492		+	24.35
	κ				62.2								+	59
					1779								−	2
	((δ) — D) $\frac{\kappa'}{100}$				59.3								7	46.56
													+	.58
	α_1												7	47.14
			8.4	6	53.7	7 10.3	13.7	17.0	20.3	23.6	849	16.98	7	16.98
					55.6						+2951		+	28.94
	κ				57.6								+	59
					1669								−	2
	((δ) — D) $\frac{\kappa'}{100}$				55.63								7	46.49
													+	.71
	α_2												7	47.20

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

1871phaeproj.15792

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+ 17.7 s + 17.6 1.24551 9.79111 d ((δ) — D) $\frac{d'}{100}$ 1.16331 m +11.73 δ_1 +0 52.32	4 35.8 58 15.00	15.3	5 11 2 5.55 34 25.55 50 5.5	09 48 22.80 51 49 26.39 −14.57	14.39	+18	30′	34 4003 51 49 11.82 − 9 − 40 + 10.48 + 50 − 9.10 49 13.21	+10.49
	+ 31.4 + 31.3 1.49554 9.79111 d ((δ) — D) $\frac{d'}{100}$ 1.41334 m +11.73 δ_2 +0 52.32	4 24.9 58 15.13	3.0	279 50 6.3	4 13.95 34 13.95 48 34.40 51 49 39.04 −25.90	26 25.47	17	30	34 39.53 49 13.14 − 25 − 42 + 10.33 + 55 − 9.40 49 13.95	+10.21
	+ 18.0 + 17.9 1.25285 9.79256 d ((δ) — D) $\frac{d'}{100}$ 1.17210 m .66 +11.76 δ_1 +0 52.05	3 31.4 0 20.67	9.5	409 41 10.1	3 20.45 43 20.45 39 27.90 51 40 31.49 −14.86	09 14.65	14	40	43 3511 51 40 16.63 − 9 − 80 + 10.31 + 50 − 9.00 40 18.05	+10.42
	+ 30.1 + 30.1 1.47857 9.79256 d ((δ) — D) $\frac{d'}{100}$ 1.39782 m +11.76 δ_2 +0 52.05	3 21.3 0 20.72	59.1	1404 41 10.4	3 20.20 43 20.20 39 38.75 51 40 42.79 −24.99	24 24.51	13	40	43 3460 40 17.80 − 24 − 32 + 10.16 + 55 − 9.30 40 18.65	+10.15
	+ 28.9 + 28.9 1.46090 9.79399 d ((δ) — D) $\frac{d'}{100}$ 1.38158 m 74 +11.80 δ_1 +0 51.72	2 37.2 2 58.70	16.4	536 31 53.9	2 26.80 52 26.80 30 21.55 51 31 25.14 −24.07	22 23.61	10	50	52 5029 51 31 1.07 − 22 − 22 + 10.14 + 45 − 9.00 31 2.22	+10.15
	+ 27.9 + 27.9 1.44560 9.79399 d ((δ) — D) $\frac{d'}{100}$ 1.36628 m +11.80 δ_2 +0 51.72	2 40.6 2 58.67	17.8	584 31 53.0	2 29.20 52 29.20 30 19.15 51 31 23.79 −23.24	19 22.80	10	50	52 5191 31 0.55 − 21 − 25 + 10.00 + 50 − 9.30 31 1.29	+10.04
	+ 25.1 + 25.1 1.39967 9.79208 d ((δ) — D) $\frac{d'}{100}$ 1.31844 m 76 +11.87 δ_1 +0 51.80	0 43.8 6 7.74	21.8	656 43 51.3	0 32.80 40 32.80 42 15.55 57 43 19.14 −20.82	16 20.43	2	40	40 6309 57 42 58.32 − 17 − 5 + 10.37 + 50 − 9.00 42 59.97	+10.65
	+ 27.6 + 27.6 1.44091 9.79208 d ((δ) — D) $\frac{d'}{100}$ 1.35968 m +11.87 +0 51.30 δ_2	0 42.1 6 7.70	20.0	621 43 51.6	0 31.05 40 31.05 42 17.30 51 43 21.94 −22.89	20 22.46	2	40	40 5323 42 59.85 − 21 − 5 + 10.22 + 55 − 9.30 43 00.26	+10.51
	+22.3 + 22.3 1.34830 9.78967 d ((δ) — D) $\frac{d'}{100}$ 1.26466 m 66 +11.93 +0 51.03 δ_1	1 3.0 7 59.07	41.1	1041 58 34.4	0 52.05 25 52.05 56 56.30 51 57 59.89 −18.39	12 18.04	4	25	26 1001 57 41.50 − 13 − 8 + 10.65 + 50 − 9.10 57 43.34	+10.94
	+21.4 + 21.4 1.33041 9.78967 d ((δ) — D) $\frac{d'}{100}$ 1.24647 m +11.93 +0 51.03 δ_2	1 4.8 7 59.13	42.1	1069 58 34.3	0 53.45 25 53.45 56 54.90 51 57 59.54 −17.65	12 17.31	4	25	26 1068 57 41.89 − 12 − 9 + 10.49 + 55 − 9.40 57 43.32	+10.83

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

1871phae.proj.1579R

148

Date$_1$ = 1872. Jan. 2, Observer W. A. R. Recorder W. A. R.

149

Date$_2$ = 1872, Jan. 8. Observer W. A. R. Recorder W. A. R.

26

Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
2	m s 9 57 8 54.0	° ′ ″ 51 38 51 33.8	9.3 8.2	m s 9 9.9 11.9 12.7 3 5 5 11.8	30.1	33.3	36.4	40.0	43.2	182 9 +24.91	36.58	m 9 + + — 10 + 10	s 36.58 60 24.35 .58 .2 1.49 .56 2.05 07
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_1													
			9.1	9 18.7 20.1 21.3 6 0 1 20.0	25.1	28.3	31.8	36.8	38.3	158 3 +29.50	31.66	9 + + — 10 + 10	31.66 72 28.94 .58 .2 1.16 .69 1.85 91
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_2													
2	12 28 11 24.7	51 52 51 47.6	8.7 8.8	11 42.9 45.0 47.6 1 3 5 5 45.2	12 0.9	4.3	7.3	10.8	14.2	3 7 5 +24.92	7.50	12 + + — 12 + 12	7.50 24.35 .59 .2 32.42 .54 32.96
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_1													
			8.6	11 44.6 46.6 47.6 1 3 7 8 45.9	56.0	59.4	2.6	6.0	9.4	31 3 4 +29.51	62.68	12 + + — 12 + 12	2.68 28.94 .59 .2 32.19 .67 32.86
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_2													
2	14 39 13 35.3	51 30 51 25.4	6.6 6.5	13 48.2 49.6 52.0 1 4 9 8 49.9	4 10.5	13.6	16.9	20.2	23.6	8 4 8 +24.91	16.96	14 + + — 14 + 14	16.96 24.35 .58 .2 41.87 .52 42.39
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_1													
			6.8	13 52.0 53.7 55.8 1 6 1 5 53.8	14 5.6	8.8	12.2	15.4	18.7	6 0 7 +29.50	12.14	14 + + — 14 + 14	12.14 28.94 .58 .2 41.64 .65 42.29
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_2													
2	16 25 15 21.8	51 48 51 43.7	9.0 9.0 8.8	15 44.0	56.7	0.2	3.2 3.4	6.4 7	10.4 2	3 1 7 0 +24.92	63.40	16 + + — 16 + 16	3.40 16 24.35 .59 .2 28.32 .64 30.00
κ													
$((\delta) - D)\frac{\kappa'}{100}$				15 54.6	58.3 6	1.7 8	16 28.83 9 5.0 8.4 0		11.8	16 32 5 4 +24.92	30.57 65.08	16 + + — 16	5.47 51 24.35 .59 .2 16 30.06
a_1													
			9.3 9.0	15 54.7	5 2.1	55.4	58.9	2.0	5.6	29 4 0 +29.52	58.80	15 + + — 16 + 16	58.80 + 51 28.95 .59 .2 28.32 .64 29.92
κ													
$((\delta) - D)\frac{\kappa'}{100}$				16 4.6	15 53.8	57.0	16 28.96 0.3	3.8	7.1	16 30 2 0 +29.52	59.56 30.56 60 4 0	16 + + — 16 + 16	0.40 28.95 .59 .2 29.92 .64
a_2													
2	19 01 17 56.7	51 17 51 12.9	9.5 9.4	18 15.9 18.0 20.3 5 4 2 18.1	33.0	36.4	39.5	42.7	46.2	19 7 6 +24.90	39.56	18 + + — 19 + 19	39.56 24.35 .57 .2 44.6 .50 44.96
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_1													
			9.3	18 20.5 22.4 24.7 6 7 6 2 2.5	28.3	31.6	34.9	38.3	41.4	17 4 5 +29.50	34.90	18 + + — 19 + 19	34.90 28.95 .57 .2 44.0 .62 45.02
κ													
$((\delta) - D)\frac{\kappa'}{100}$													
a_2													

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

1871phaeproj.15792

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+24.9	0′ 7.8	45.2	11 30	0′ 56.50	15	20.34	+ 0	45	45 1665	
	+24.8				45 56.50	.36	51.85			51 37 34.83	+10.51
d	1.39445					51 37	55.44			− .17	
	9.79288						−20.61			− 9	
452 ((δ) − D) $\frac{d'}{100}$	1.31402 m									+ 10.27	
										+ 50	
+11.94 δ₁		10 14.01		38 27.0						− 9.00	
+0 50.70										37 36.34	
	+11.6	0 20.0	57.0	1370	1 58.50	04	9.46	4	45	46 17.96	
	+11.7				46 8.50	36	39.85			37 34.77	+10.61
d	1.06819				46	51 37	44.49			− 4	
	9.79288						−9.72			− 1	
((δ) − D) $\frac{d'}{100}$	0.98776 m									+ 10.11	
										+ 55	
+11.94 δ₂		10 13.85		38 26.8						−9.30	
+0 50.70										37 36.08	
	+22.1	2 56.2	33.8	900	2 45.00	12	17.99	11	30	33 2.98	
	+22.3				32 45.00	50	3.35			51 50 48.50	
d	1.34830					51 51	6.94			− .13	+10.64
	9.79079						−18.44			− 25	
82 ((δ) − D) $\frac{d'}{100}$	1.26578 m									+ 10.52	
										+ 50	
+12.01 δ₁		12 44.97		51 40.5						− 9.00	
+0 50.37										50 50.14	
	+16.7	2 2.2	39.4	10 161	50.80	8	13.52	7	30	0 4.35	
	+16.8				5x 50.80	56 49	57.55			57x. 50 48.30	
d	1.22531				2	51 52	2.19			− 8	+10.67
	9.79063						−13.89			− 18	
((δ) − D) $\frac{d'}{100}$	1.14263 m									+ 10.38	
										+ 55	
+12.01 δ₂		12 44.87		51 39.9						− 9.40	
+0 50.37										50 49.57	
	+27.0	3 48.3	26.0	743	3 37.15	19	22.00	14	50	53 5.10	
	+27.1				53 37.15	29	11.20			51 29 52.21	+10.06
d	1.43297					51 30	14.79			− .19	
	9.79415						−22.58			− 33	
82 ((δ) − D) $\frac{d'}{100}$	1.35381 m									+ 10.13	
										+ 45	
+12.01 δ₁		14 54.40		30 43.4						− 8.90	
+0 50.04										29 53.37	
	+18.4	3 57.7	34.2	919	3 45.95	09	15.03	15	50	54 10.9	
	+18.3				53 45.95	29	2.40			29 51.79	+10.01
d	1.26245					51 30	7.04			− 9	
	9.79415						−15.25			− 38	
((δ) − D) $\frac{d'}{100}$	1.18329 m									+ 9.98	
										+ 50	
+12.01 δ₂		14 54.30		30 42.5						−9.30 50	
+0 50.04										29 52.55	
	+19.4	0 34.3	12.7	410	0 23.50	11	15.74	2	35	35 39.85	
60 +1208	+19.4				35 23.50	47	24.85			51 48 12.38	+10.82 48 19.75 +10.89
+0 49.77 d	1.28780					51 48	28.44			− .10	− 3
	9.79128						−16.06			− 4	− 4
((δ) − D) $\frac{d'}{100}$	1.20577 m									+ 10.46	+ 10.46
	+10.4				0 23.50	23	8.46	2		35 37.77	
	+10.5				35 23.50	47	24.85			+ 50	+ 50
68 +1208 δ₁	1.02119	16 40.97		49 4.0		51 48	28.44			− 9.00	− 9.00
+0 49.77	9.79128	42.65		11.4			−8.69			48 14.20	48 21.64
000	0.93916 m										
51	+14.2	47.8	25.2	730	0 36.50	0.0	3.40	2	35	35 39.92	
	+4.1				35 36.50	47	11.85			48 13.10	+10.79 48 19.97 +10.79
+1208 d	0.61278					51 48	16.49			− 1	− 6
+0 49.77	9.79128						−3.39			− 6	+ 10.31
((δ) − D) $\frac{d'}{100}$	0.53073 m				0 36.50	00	3.48	2		+ 10.31	+ 55
	−4.3				35 36.50	47	11.85			+ 55	− 9.40
	−4.2					51 48	16.49			35 − 9.40	
9.92 +1208 δ₂	0.62325 m	16 41.04		49 4.3			+3.48			48 14.49	48 21.36
64 +0 49.77	9.79178	42.64		11.1							
	0.54172										
	+21.4	1 11.1	49.1	1202	0 60.10	12	17.56	4	5	6 17.58	
	+21.5				6 0.10	16	48.25			51 17 33.84	+10.13
d	1.33244					51 17	31.84			− .12	
66	9.79621						−18.00			− 9	
((δ) − D) $\frac{d'}{100}$	1.25534 m									+ 9.89	
										+ 45	
+12.07 δ₁		19 17.03		18 24.4						− 8.90	
+0 49.38										17 53.29 35.07	
	+12.4	1 21.2	58.0	1392	0 59.60	04	10.16	4	5	6 19.74	
	+12.4				6 59.60	16	38.75			17 32.77	+10.79
d	1.09842					51 17	43.38			− 4	
	9.79621						−10.62			− 1	
((δ) − D) $\frac{d'}{100}$	1.01632 m									+ 9.74	
										+ 50	
+12.07 δ₂		19 17.09		18 23.0						− 9.30	
+0 49.38										17 33.66	

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

1871phae.proj.1579R

148 — 149 — 28

Date$_1$ = 1872. jan. 2. Observer W. A. R. Recorder W. A. R.

Date$_2$ = 1872, Jan. 8. Observer W. A. R. Recorder W. A. R.

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′	m	s	m s	s	s	s	s		s	m s	
	22 29	51 58	9.2	21 57.1	22 2.0	5.5	8.6	12.0	15.2	4 33	8.66	22 8.66	
	21 24.7	51 45.6	8.0	54.1						+24.92		+ 24.35	
	κ			61.0								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			1872								— 2	470
				224								22 33.58	
				59.7								+ .47	
	α_1											22 34.05	+12.1
													+0 4
			9.0	21 42.6	57.3	0.6	4.0	7.3	10.6	31 98	63.96	22 8.96	
				44.5						+29.52		+ 28.95	
	κ			46.9								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			1340								— 2	
				44.7								22 33.48	
												+ .60	
	α_2											22 34.08	+12
													+0 4
2	24 29	51 44	6.9	23 53.1	24 1.3	4.7	7.9	11.1	14.6	3 96	7.92	24 7.92	
	23 24.3	51 39.7	6.5	54.7						+24.92		+ 24.35	
	κ			56.5								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			1643								— 2	84
				548								24 32.84	
												+ .46	
	α_1											24 33.30	+12
													+0 4
			7.2	23 36.4	56.4	59.7	3.2	6.4	9.7	31 54	63.08	24 3.08	
				38.0						+29.52		+ 28.95	
	κ			41.0								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			1154								— 2	
				35.5								24 32.60	
												+ .58	
	α_2											24 33.18	+12
													+0 4
2	27 17	51 55	7.9	26 30.4	48.7	52.1	55.5	58.8	2.0	27 71	55.42	26 55.42	
	26 12.3	51 50.9	8.5	31.8						+24.92		+ 24.35	
	κ			34.1								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			963								— 2	72
				321								27 20.34	
												+ .44	
	α_1											27 20.78	+12.
													+0 4
			8.2	26 27.2	44.1	47.4	50.6	54.0	57.4	253	50.70	26 50.70	
				28.7						+29.52		+ 28.95	
	κ			31.0								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			669								— 2	
				289								27 20.22	
												+ .56	
	α_2											27 20.78	+12
													+0 4
2	29 37	51 31	9.1	28 59.3	29 10.9	14.0	17.3	20.6	24.0	8 68	17.36	29 17.36	
	28 32.7	51 26.4	8.8	61.0						+24.91		+ 24.35	
	κ			63.1								+ .58	
	((δ) — D) $\frac{\kappa'}{100}$			1833								— 2	82
				61.1								29 42.27	
												+ .42	
	α_1											29 ~~42.69~~ 42.69	+12
													+0 4
			8.9	28 44.6	29 5.9	9.2	12.6	15.8	19.2	6 27	12.54	29 12.54	
				46.6						+29.52		+28.96	
	κ			49.0								+ .58	
	((δ) — D) $\frac{\kappa'}{100}$			1402								— 2	
				46.7								29 42.06	
												+ .54	
	α_2											29 42.60	+1
													+0 4
2	33 21	51 53	8.9	32 42.6	53.7	57.1	0.4	3.7	7.0	30 19	60.38	33 0.38	
	32 15.8	51 48.6	9.0	44.0						+24.92		+ 24.35	
	κ			46.4								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			1330								— 2	66
				44.3								33 25.30	
												+ .39	
	α_1											33 25.69	+12
													+0 4
			8.7	32 28.6	49.1	52.5	55.6	59.0	2.4	27 86	55.72	32 55.72	
				30.2						+29.53		+28.96	
	κ			32.0								+ .59	
	((δ) — D) $\frac{\kappa'}{100}$			908								— 2	
				30.3								33 25.26	
												+ .52	
	α_2											33 25.77	+12
													+0 4

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+ 462 5.5	0′ 2.8	39.1	1018	1 5090	02	7.72	+1	35	34 5868	
					34 50.50	47 57.45				51 48 53.10	+10.56
d	+ 9.6					51 49 1.04				− 3	
	0.98227					−7.94				− 43	
4.70 ((δ) − D) d′/100	9.79111									+ 10.52	
	0.90007 m									+ .50	
+12.19 δ1		22 46.24		49 43.6						− 8.90	
+0 48.84		30 4 55.6 30								48 54.76	
	+ 19.3	0 − 4.4	4323		1 4395	10	15.68	1	35	34 5852	
	+ 19.3				34 43.95	48 4.40				48 53.07	+10.31
d	1.28556					51 49 9.04				− .10	
	9.79111					−15.97				− .47	
((δ) − D) d′/100	1.20336 m									+ 10.33	
										+ .55	
+12.19 δ2		22 46.27		49 42.9						− 9.30	
+0 48.84										48 54.08	
	+ 13.1	4 22.3	0.9	232	4 11.60	05	10.64	17	35	39 2236	
	+ 13.1				39 11.60	43 36.75				51 44 29.48	+10.47
d	1.11727					51 44 40.34				− 5	
	9.79176					−10.86				− 38	
84 ((δ) − D) d′/100	1.03572 m									+ 10.40	
				.6						+ .50	
+12.22 δ1		24 45.52		45 19.8						− 8.90	
+0 48.57										44 31.05	
	+ 24.7	4 14.0	51.8	1258	3 12.90	15	20.10	16	35	39 2301	
	+ 24.6				39 2.50	43 45.45				44 29.70	+10.21
d	1.39094					51 44 54.09				− 17	
	9.79176					−20.39				− 40	
((δ) − D) d′/100	1.30939 m									+ 12.23	
										+ .55	
+12.22 δ2		24 45.40		45 19.2						− 9.30	
+0 48.57										44 30.61	
	+ 23.4	3 16.2	52.0	1282	3 14.10	13	18.14	12	25	28 2223	
	+ 23.3				28 4.10	54 44.25				51 55 28.60	+10.70
d	1.36736					51 55 47.84				− 14	
	9.78999					−19.24				− 27	
72 ((δ) − D) d′/100	1.28404 m									+ 10.61	
										+ .50	
+12.23 δ1		27 33.07		56 18.5						− 8.90	
+0 48.12										55 30.40	
	+ 21.7	3 16.1	54.0	1201 8	5.05	12	17.59	12	25	28 2264	
	+ 21.8				28 5.05	54 43.30				55 29.95	+ 10.56
d	1.33846					51 55 47.94				− .13	
	9.78999					−17.99				− 31	
((δ) − D) d′/100	1.25514 m									+ 10.45	
										+ .55	
+12.29 δ2		27 33.07		56 19.3						− 9.30	
+0 48.12										55 31.21	
	+ 16.2	3 36.7	15.0	517	3 25.85	7	13.23	14	50	53 3915	
	+ 16.3				32 25.85	29 22.50				51 30 12.51	+ 10.22 m
d	1.21219					51 30 26.09				− 7	
82	9.79415					−13.58				− 31	
((δ) − D) d′/100	1.13303 m			32						+ 10.15	
										+ .45	
+12.28 δ1		29 54.97		31 1.7						− 8.80	
+0 47.73										30 13.93	
	+ 25.9	2 29.6	7.2	3682	2 18.40	18	21.16	9	50	2 3965	
	+ 25.8				52 18.40	30 29.95				31 13.09	+ 10.09
d	1.41162					51 31 34.59				− 18	
	9.79415					−21.50				− .23	
((δ) − D) d′/100	1.33246 m									+ 10.00	
										+ .50	
+12.28 δ2		29 54.88		32 1.7						− 9.20	
+0 47.73										31 13.98	
	+ 16.1	0 48.7	26.1	748	0 37.40	7	13.02	2	30	30 5037	
	+ 16.1				30 37.40	52 10.95				51 53 1.24	+10.94
d	1.20683					51 53 14.54				− 7	
66	9.79047					−13.30				− 5	
((δ) − D) d′/100	1.12399 m									+ 10.56	
										+ .50	
+12.39 δ1		33 38.08		53 50.4						− 8.90	
+0 47.13										53 3.28	
	+ 25.3	0 42.0	18.7	607	0 30.35	17	20.49	2	30	30 5069	
	+ 25.4				30 30.35	52 18.00				53 1.65	+10.73
d	1.40483					51 53 22.64				− 17	
	9.79047					−20.99				− 5	
((δ) − D) d′/100	1.32199 m									+ 10.40	
										+ .55	
+12.39 δ2		33 38.16		53 50.2						− 9.30	
+0 47.13										54 3.08	

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

1871phae.proj.1579R

148

Date$_1$ = 1872, Jan. 2. Observer W. A. R. Recorder W. A. R.

149

Date$_2$ = 1872, Jan. 8. Observer W. A. R. Recorder W. A. R.

30

Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
1	m s 35 42 34 36.9 κ	° ′ 51 45 51 40.6	8.6 8.5	m 34	s 56.7 35 14.9 57.7 59.0 60.1 23 3 6 58.4	s 18.1	s 21.5	s 24.8	s 28.0	10 73 +24.92	21.46	m 35	s 21.46 + 24.35 + 59 − 2 35 46.38 + 38 35 46.76
	((δ) — D) $\frac{\kappa'}{100}$ a_1												4.78 +12. +0 4
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		8.5	34	55.2 35 9.8 56.8 59.2 1 7 1 2 57.1	13.3	16.8	20.0	23.5	8 34 +29.53	16.68	35	16.68 + 28.96 + .59 − 2 35 46.21 + 50 35 46.71 +12 +0 4
2	37 51 36 45.8 κ	51 40 51 36.2	9.2 9.0	37	0.1 2.0 4.7 6 6 2.3	25.1	28.6	31.9	35.1	38.4	15 91 +24.92	31.82	37 31.82 + 24.35 + 59 − 2 37 56.74 + .36 3837 3.10 57.10 +12. +0 4
	((δ) — D) $\frac{\kappa'}{100}$ a_1												.84
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		8.9	37	0.6 2.6 5.3 6.5 2.8	20.4	23.7	27.0	30.3	33.5	13 49 +29.53	26.98	37 26.98 + 28.96 + 59 − 2 37 56.51 + .48 37 56.99 +12. +0 4
2	40 24 39 17.8 κ	51 26 51 22.4	9.0 9.0	39	44.2 46.3 48.1 1 3 8 6 46.2	56.3	59.5	2.9	6.3	9.4	31 44 +24.91	62.88	40 2.88 + 24.35 + .58 − 2 40 27.79 + 35 40 28.14 +12. +0 4
	((δ) — D) $\frac{\kappa'}{100}$ 58 31 a_1											✓	.74
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		9.0	39	42.7 44.4 47.1 1 3 4 2 44.7	51.6	54.9	58.2	1.3	4.7	29 07 +29.53	58.14	39 58.14 + 28.97 + .08 − 2 40 27.67 + .46 40 28.13 +12 +0
3	0 1 0 9.4 κ	18 50 26 50 22.5	9.3 9.2 9.0	0	32.4 33.4 34.9 1 0 0 7 33.6	49.0	52.0	55.5	58.6	61.6	27 67 +24.89	55.34	0 55.34 + 24.35 + .56 − 2 1 20.23 + .22 1 20.45 .74 +12 +0 4
	((δ) — D) $\frac{\kappa'}{100}$ a_1												
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		9.1	0	37.6 39.6 42.4 1 1 9 6 39.9	44.3	47.4	50.6	53.8	56.9	25 30 +29.53	50.60	0 50.60 + 28.99 + .56 − 2 1 20.13 + .32 1 20.45 +12 +0 4
3	3 32 2 24.6 κ	51 31 51 27.3	8.5 8.3	2	45.0 46.9 48.9 1 4 0 8 46.9	3 5.6	9.0	12.1	15.5	18.7	6 09 +24.91	12.18	3 12.18 + 24.35 + .58 − 2 3 37.09 + .19 3 ~~34.28~~ 37.28 .84 +12 +0 4
	((δ) — D) $\frac{\kappa'}{100}$ a_1												
	κ ((δ) — D) $\frac{\kappa'}{100}$ a_2		8.1	2	28.8 30.6 32.8 9 2 2 30.7	3 0.6	4.1	7.3	10.7	14.0	3 67 +29.55	7.34	3 7.34 + 28.99 + .58 − 2 3 36.89 + .30 3 37.19 +12. +0 4

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+ 2 3,1	3 3.9	41.7	10 56	2 52.80	-13	18,80	+ 12	35	38 11.64	
	+ 23.1				37 52.80	44 55.55				51 45 4000	+ 10.53
d	1.36361					51 45 59.14				− .14	
	9.79160					− 19.14				− .26	
4.78 ((δ) − D) $\frac{d'}{100}$	1.28190 m									+ 10.43	
										+ .50	
+12.42 δ_1		35 59.18		46 28.5						− 8.82	
+0 46.77										45 41.73	
	+19,7	3 7.0	44.2	11 12	2 55.60	11	15.96	+12	35	38 11.57	
	+ 19.6				37 55.60	44 52.75				45 41.15	+ 10.42
d	1.29226					51 45 57.39				− .11	
	9.79160					− 16.24				− .29	
((δ) − D) $\frac{d'}{100}$	1.21055 m									+ 10.27	
+1242										+ .55	
+0 46.77 δ_2		35 59.13		46 29.0						− 9.30	
										45 42.24	
	+29,6	3 47.3	24.2	7 15	3 35.75	24	24.09	14	40	43 59.74	
	+ 29.5				43 35.75	39 12.60				51 39 51.70	+ 10.22
d	1.46982					51 40 16.19				− .22	
	9.79256					− 24.49				− .32	
84 ((δ) − D) $\frac{d'}{100}$	1.38907 m									+ 10.31	
										+ .45	
+12.44 δ_1		38 9.54		40 39.5						− 8.80	
10 +0 46.88										39 53.12	
	+24,2	3 52.7	29.3	8 20	3 41.00	14	20.70	15	40	44 1.71	
	+ 24.2				43 41.00	39 7.35				39 51.90	+ 10.14
d	1.38382					51 40 11.99				− .15	
	9.79256					− 20.09				− .37	
((δ) − D) $\frac{d'}{100}$	1.30307 m									+ 10.16	
+1244										+ .50	
+0 46.38 δ_2		38 9.43		40 39.1						− 9.30	
										39 52.74	
	+16,7	1 44.5	23.0	6 75	1 33.75	14	13.67	6	55	56 47.40	
	+ 16.7				56 33.75	26 14.60				51 27 4.26	+ 10.31
d	1.22272					51 27 18.19				− .8	
	9.79463					− 13.93				− .14	
74 ((δ) − D) $\frac{d'}{100}$	1.14404 m									+ 10.08	
										+ .45	
+12.46 δ_1		40 40.60		27 51.8						− 8.70	
+0 45.96										27 5.87	
	+13,5	1 50.5	26.9	7 74	1 38.70	05	11.05	6	55	56 49.76	
	+ 13.4				56 38.70	26 9.65				27 3.11	+ 10.21
d	1.12710					51 27 14.29				− .5	
	9.79463					− 11.18				− .16	
((δ) − D) $\frac{d'}{100}$	1.04842 m									+ 9.92	
										+ .50	
+12.46 δ_2		40 40.59		27 50.1						− 9.20	
+0 45.96										27 4.12	
	+21,9	2 18.2	55.4	13 36	2 06.80	12	18.30	8	55	57 25.06	
	+ 21.7				57 6.80	25 41.55				50 26 26.64	+ 8.96
d	1.33646					50 26 45.14				− .13	
	9.80397					− 18.50				− .19	
74 ((δ) − D) $\frac{d'}{100}$	1.26712 m									+ 8.93	
										+ .35	
+12.47 δ_1		1 33.12		27 9.7						− 8.20	
+0 42.27										26 27.40	
	+10,7	2 27.8	3.0	3 08	2 15.40	03	8.95	9	55	57 24.45	
	+ 10.7				57 15.40	25 32.95				26 28.47	+ 8.99
d	1.02938					50 26 37.59				− .3	
	9.80397					− 9.12				− .22	
((δ) − D) $\frac{d'}{100}$	0.96004 m									+ 8.79	
+12.47 δ_2		1 33.12		27 10.9						+ .45	
+0 42.27										− 8.80	
										26 28.66	
	+25,2	1 23.9	2.2	2 61	1 13.05	16	20.59	5	50	51 33.53	
	+ 25.3				01 13.05	31 35.80				51 32 17.83	+ 10.35
d	1.40312					51 32 38.89				− .17	
	9.79367					− 21.06				− .11	
84 ((δ) − D) $\frac{d'}{100}$	1.32348 m									+ 10.18	
										+ .45	
28 +12.84 δ_1		3 50.12		33 1.7						− 8.30	
+0 41.82										32 19.88	
	+36,6	1 15.7	53.1	12 86	1 04.40	34	28.90	8	50	51 34.04	
	+ 36.6				51 4.40	31 43.95				32 18.12	+ 10.05
d	1.56348					51 32 48.59				− .37	
	9.79367					− 30.47				− .11	
((δ) − D) $\frac{d'}{100}$	1.48384 m									+ 10.03	
										+ .50	
+12.84 δ_2		3 50.03		33 1.0						− 9.60	
+0 41.82										32 19.17	

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

1871phae.proj.1579R

Date$_1$ = 1872, Jan. 2. 148 Observer W. A. R. Recorder W. A. R.

Date$_2$ = 1872. Jan. 8. 149 Observer W. A. R. Recorder W. A. R.

32

Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	m s	° ′		m	m s	s	s	s	s			m s	m s
	5 30	51 06	8.7	4	41.3	5 3.4	6.5	10.0	13.2	16.5	49 6	9.92	5 9.92
	4 22.4	51 2.3	8.6		42.9	6.5					+24.89		+ 24.34
	κ				46.0								+ .57
					130 2								− 2
	((δ) − D) $\frac{\kappa'}{100}$				43.4								5 34.81 4.70
													+ .19 +12.
	α_1												5 35.00 +0 4
			8.6	4	38.0	4 58.6	2.0	5.1	8.6	11.8	32 6	65.22	5 5.22
					39.7						+29.54		+ 28.99
	κ				41.6								+ .57
					119 3								− 2
	((δ) − D) $\frac{\kappa'}{100}$				39.8								5 34.76
													+ .28 +12
	α_2												5 35.04 +0 4
3	8 26	51 24	8.3	7	40.2	59.6	3.0	6.5	9.6	12.9	33 16	66.32	8 6.32
	7 18.2	51 20.7	8.3		41.8						+24.90		+ 24.34
	κ				43.7								+ 58
					125 7								− 2
	((δ) − D) $\frac{\kappa'}{100}$				41.9								8 31.22 4.80
													+ .17
	α_1												8 31.39 +12. +0 4
			8.4	7	33.4	54.9	58.2	1.6	4.8	8.1	30 7 6	61.52	8 1.52
					34.9						+29.56		+ 29.00
	κ				37.2								+ .58
					~~135~~								− 2
	((δ) − D) $\frac{\kappa'}{100}$				~~40.2~~								8 31.08
					105.5								+ .27
	α_2				35.2								8 31.35 +12. +0 4
3	10 48	51 36	8.6	10	2.0	22.5	25.6	29.0	32.4	35.7	14 5 2	29.04	10 29.04
	9 38.2	51 32.2	8.6		4.0						+24.90		+ 24.34
	κ				7.0								+ 58
					130								− 2
	((δ) − D) $\frac{\kappa'}{100}$				4.3								10 53.94 .72
													+ .15
	α_1												10 54.09 +12. +0 4
			8.5	9	56.0	10 17.6	21.1	24.3	27.6	31.0	12 1 6	24.32	10 24.32
					57.5						+29.56		+ 29.00
	κ				59.7								+ 58
					173 2								− 2
	((δ) − D) $\frac{\kappa'}{100}$				57.7								10 53.88
													+ .24
	α_2												10 54.12 +12 +0 4
3	13 05	51 14	9.0	12	18.6	38.3	41.5	44.7	48.2	51.3	22 4 0	44.80	12 44.80
	11 56.6	51 8.3	8.8		20.6						+24.89		+ 24.34
	κ				22.4								+ .57
					6 1 6								− 2
	((δ) − D) $\frac{\kappa'}{100}$				20.5								13 9.69 .88
													+ .14
	α_1												13 9.83 +12 +0 8
			8.6	12	20.0	33.4	36.6	39.9	43.2	46.5	9 9 6	39.92	12 39.92
		16	12		21.7						+29.55		+ 29.00
	κ	17	58		24.3								+ .57
					6 6 0								− 2
	((δ) − D) $\frac{\kappa'}{100}$				22.0								13 ~~9.47~~
													+ .22
	α_2				26.6								13 9.69 +12 +0 8
3	22 57	51 37	—	22	30.6	30.2	33.6	36.9	40.1	43.7	18 4 4	36.88	22 ~~36.88~~ 36.82
	21 49.3	51 34.0	8.4		8 5 6						+24.96		+ 24.34
	κ				26.5								+ .58
													− 2
	((δ) − D) $\frac{\kappa'}{100}$												23 1.78 .66
													+ .07
	α_1												23 ~~1.85~~ 1.89 +13. +0 3
			8.5	22	4.0	25.7	28.8	32.2	35.6	38.8	16 11	32.22	22 32.22
		23	24		5.3						+29.57		+29.11
	κ				7.7								+ .58
					170								− 2
	((δ) − D) $\frac{\kappa'}{100}$				5.7								23 1.79
													+ .16
	α_2												23 1.95 +13.1 +0 3

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+ 26.6 s	2′ 11.0	48.0	11 80	1′ 59.00	19	21.92	8	~~20~~ 17	20.81	
	+ 26.5				16 59.50	5 48.85			15	51 6 30.17	+9.77
d	1.42325					51 6 52.44				− 18	
	9.79778					− 22.27				− 18	
4.70 ((δ) − D) $\frac{d'}{100}$	1.34772 m									+ 9.68	
+12.82										+ 45	
+0 41.46 δ_1		5 47.82		7 13.2						− 8.20	
										6 31.74	
	+ 25.3	2 12.6	49.3	12 19	2 00.95	16	20.84	8	15	21.21	
	+ 25.4				17 0.95	5 47.40				51 6 30.69	+9.68
d	1.40483					51 6 52.04				− 17	
	9.79778					− 21.35				− 20	
((δ) − D) $\frac{d'}{100}$	1.32930 m									+ 9.55	
+12.82										+ 50	
+0 41.46 δ_2		5 47.86		7 12.9						− 8.90	
										6 31.47	
	+ 24.6	3 10.5	47.3	11 78	2 58.90	15	20.15	12	55	58 19.02	
	+ 24.4				57 58.90	24 49.45				51 25 32.68	+10.10
d	1.38739					51 25 53.04				− 15	
	9.79478					− 20.36				− 26	
4.80 ((δ) − D) $\frac{d'}{100}$	1.30886 m									+ 10.06	
+12.90										+ 45	
+0 40.89 δ_1		8 44.29		26 15.4						− 8.30	
										25 34.48	
	+ 26.4	3 8.2	45.8	11 40	2 57.00	07	21.62	12	55	57 18.67	
	+ 26.3				57 57.00	24 51.35				25 34.54	+9.93
d	1.41996					51 25 53.99				− 18	
	9.79478					− 21.45				− 30	
((δ) − D) $\frac{d'}{100}$	1.33143 m									+ 9.91	
+12.90										+ 50	
+0 40.89 δ_2		8 44.25		26 16.5						− 8.90	
										25 35.57	
	+ 24.7	2 44.8	21.3	6 61	2 33.05	15	20.15	10	45	47 53.15	
	+ 24.7				47 33.05	35 15.30				51 35 58.35	+10.32
d	1.39240					51 36 18.89				− 17	
	9.79319					− 20.54				− 23	
7.2 ((δ) − D) $\frac{d'}{100}$	1.31258 m									+ 10.27	
				36 40.8						+ 45	
+12.96 δ_1		11 7.05		~~51 16.8~~						− 8.30	
+0 40.41										36 ~~80.37~~ 00.37	
	+ 26.6	2 45.0	20.2	6 52	2 32.60	19	21.70	10	45	47 54.21	
	+ 26.6				47 32.60	35 15.75				35 58.27	+10.17
d	1.42488					51 36 20.39				− 19	
	9.79319					− 22.12				− 25	
((δ) − D) $\frac{d'}{100}$	1.34476 m									+ 10.11	
+12.96 δ_2		11 7.08		36 40.0						+ 50	
+0 40.41										− 8.90	
										35 59.54	
	+ 24.2	1 50.4	27.1	7 75	1 38.75	14	20.90	6	10	11 59.57	
	+ 24.3				11 38.75	11 9.60				51 11 52.81	+9.97
d	1.38561					51 12 13.19				− 15	
8.8	9.79699					− 20.38				− 15	
((δ) − D) $\frac{d'}{100}$	1.30929 m									+ 9.82	
+12.94 δ_1		13 22.77		12 34.7						+ 45	
+0 39.99										− 8.10	
										11 54.68	
	+ 17.9	1 57.3	32.3	8 96	1 44.80	0.9	14.72	7	10	11 54.50	
	+ 17.6				11 44.80	11 3.55				11 53.17	+9.90
d	1.25285					51 12 8.19				− 9	
	9.79699					− 15.02				− 17	
((δ) − D) $\frac{d'}{100}$	1.17653 m									+ 9.66	
+12.94 δ_2		13 22.63		12 34.3						+ 50	
+0 39.99										− 8.80	
										11 54.27	
	+ 8.3	1 21.3	−0.7	2 56	1 10.30	02	6.78	5	45	46 ~~13.66~~ 34.66	
	+ 8.4				46 1.20	36 ~~47.32~~ 47.32				51 37 ~~40.98~~ 40.98	+10.70
d	0.92428					51 37 ~~56.91~~ 14.64				− 2	
6.6	9.79288					− 6.98				− 9	
((δ) − D) $\frac{d'}{100}$	0.84385 m									+ 10.31	
+13.14 δ_1		23 15.03		38 15.4						+ 50	
+0 38.01										− 8.00	
										37 ~~46.63~~ 37.36	
	+ 26.5	1 8.0	44.1	11 21	0 56.05	19	21.60	4	45	46 17.50	
	+ 26.5				45 56.05	36 52.30				37 34.92	+10.42
d	1.42325					51 37 56.94				− 18	
	9.79288					− 22.02				− 9	
((δ) − D) $\frac{d'}{100}$	1.34278 m									+ 10.14	
+13.14 δ_2		23 15.09		38 14.6						+ 55	
+0 38.01										− 8.80	
										37 36.54	

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

1871phae.proj.1579R

148

Date$_1$ = 1872. Jan. 2. Observer W. A. R. Recorder W. A. R.

149

Date$_2$ = 1872. Jan. 8. Observer W. A. R. Recorder W. A. R.

34

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
3	30 58	51 36	8.9	30 11.2	33.9	37.0	40.2	43.4	47.0	20 15	40.30	30	40.30
	29 47.8	51 33.2	8.8	12.8						+24.90			+ 24.34
	K	3		14.5									+ 58
				38 5									− 2
	((δ) − D) $\frac{\kappa'}{100}$			12.8								31	5.20
	α_1												+ .02
												31	5.22
			9.0	30 18.2	28.8	32.2	35.5	38.9	42.1	17 75	35.50	30	35.50
				20.3						+29.57			+29.01
	K			22.1									+ .58
				6 0.6									− 2
	((δ) − D) $\frac{\kappa'}{100}$			20.2								31	5.07
	α_2												+ .10
												31	5.17
3	36 19	51 21	9.2	35 50.7	53.8	56.2	59.4	2.8	66.8	29 74	59.48	35	59.48
	35 8.6	51 18.1	9.1	53.0						+24.90			+ 24.34
	K			54.6									+ .58
				157 3									− 2
	((δ) − D) $\frac{\kappa'}{100}$			52.4								36	24.38
	α_1												− .01
												36	24.37
			9.2	35 20.6	48.3	51.5	54.9	58.1	61.5	27 43	54.86	35	54.86
				22.8						+2958			+ 29.02
	K			25.5									+ .58
				68.9									− 2
	((δ) − D) $\frac{\kappa'}{100}$			22.9								36	24.44
#	α_2												+ .07
												36	24.51
3	38 43	51 38	8.6	37 54.6	28 17.3	20.5	24.0	27.2	30.4	11 94	23.88	38	23.88
	37 32.4	51 35.3	8.3	56.2						+24.90			+ 24.34
	K			58.4									+ .58
				169 2									− 2
	((δ) − D) $\frac{\kappa'}{100}$			56.4								38	48.78
	α_1												− .03
												38	48.75
			8.5	37 43.3	28 12.5	15.8	19.0	22.3	25.7	9 53	19.06	38	19.06
				45.3						+2958			+ 29.02
	K			47.7									+ .58
				136 3									− 2
	((δ) − D) $\frac{\kappa'}{100}$			45.4								38	48.64
	α_2												+ .05
												38	48.69

Single Observations.

Jan. 2.

2	58 31	51 41	8.5	37 40.2	58 3.5	6.8	10.1	12.4	16.6	4 84	9.68	58	10.08
	57 23.7	51 37.6	8.4	42.0						+2491			+ 24.34
	K			44.8									+ .57
				127 0									− 2
	((δ) − D) $\frac{\kappa'}{100}$			42.3								58	34.99
	α_1												+ .22
												58	35.21

Jan. 8.

1	42 46	51 18	6.0	41 44.9	42 9.1	12.5	15.7	19.0	22.4	7 87	15.74	42	15.74
	41 43.5	51 12.6	6.3	46.6						+29.52 46			+ 28.98 1
	K			48.3									+ 57
				139 8									− 2
	((δ) − D) $\frac{\kappa'}{100}$			46.6								42	45.26
	α_2												+ .89
												42	46.09

Jan. 8.

3	16 12	51 34	9.5	15 13.9	41.4	44.7	48.0	51.3	54.6	24 00	48.00	15	48.00
	15 3.2	51 30.2	9.3	15.6						+29.56			+ 29.00
	K			17.4									+ .58
				469									− 2
	((δ) − D) $\frac{\kappa'}{100}$			151 6								16	17.56
	α_1												+ .21
												16	17.77

Jan. 8

3	17 58	51 43	8.8	17 8.6	27.3	30.7	34.1	37.5	40.7	17 03	34.06	17	34.06
	16 49.4	51 39.2	8.8	9.8						+29.56			+ 29.00
	Jan. 8.			13.0									+ .58
2	22 57	51 37	8.5	31 4									− 2
	((δ) − D) $\frac{\kappa'}{100}$			10.5								18	3.62
	Jan. 8.												+ .19
3	25 24	50 17	10.0	24 46.0	52.7	55.8	59.2	2.5	5.8	29 60	59.20	24	59.20
	24 15.0	50 14.0	9.9	48.0						+29.54			+ 29.01
				50.7									+ .55
				165									− 2
												25	28.74

Add'l +473 +0.5

Reject

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

1871phaeproj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	s + 27.4	′ ″ 3 17.1	″ 54.8	13 19	′ ″ 3 [illegible]	−20	22.35	+ 12	′ 45	48 28.12	
	+ 27.5	48 5.95			48 5.95	.34	42.40			51 35 23.12	+10.24
d	1.43933					51 35 45.99				− .19	
	9.79319					−22.87				− .27	
$((\delta) - D)\ \frac{d'}{100}$	1.35921 m									+ 10.25	
										+ .45	
+13.25 δ_1		31 18.47		36 1.8						− 7.90	
+0 36.36										35 25.46	
	+ 15.2	3 29.7	6.3	0 350	3 17.50	01	1240	13	45	48 30.02	
	+ 15.3				48 17.50	34 30.85				35 22.77	+10.21
d	1.18469					51 35 35.49				− 6	
	9.79319					−12.72				− 33	
$((\delta) - D)\ \frac{d'}{100}$	1.10457 m									+ 1010	
										+ .50	
+13.25 δ_2		31 18.42		36 0.7						− 8.60	
+0 36.36										35 24.38	
	+ 7.0	2 35.9	13.5	494	2 24.70	01	574	10	0	2 30.52	
	+ 7.1				2 24.70	20 23.65				51 21 21.31	+10.20
d	0.85126					51 21 27.24				− 2	
	9.79542					−5.93				− 22	
$((\delta) - D)\ \frac{d'}{100}$	0.77337 m									+ 9.99	
										+ .45	
+13.28 δ_1		36 37.73		21 59.0						− 7.70	
+0 35.22										21 23.81	
	+ 32.0	2 15.3	52.0	1273	2 [illegible]	27	2622	8	0	2 29.68	
	+ 32.0				2 3.60	20 44.76				21 22.59	+ 9.86
d	1.50515					51 21 49.34				− .27	
	9.79542					− 26.75				− 20	
$((\delta) - D)\ \frac{d'}{100}$	1.42726 m									+ 9.83	
										+ .50	
+13.28 δ_2		36 37.79		21 59.2						− 8.50	
+0 35.22										21 23.95	
	+ 27.6	0 15.2	53.2	1284	0 42.0	20	22.48	3	45	45 26.51	
	+ 27.5				45 4.20	37 44.15				51 38 24.90	+10.59
d	1.43933					51 38 47.74				− .19	
	9.79272					−22.84				− 1	
$((\delta) - D)\ \frac{d'}{100}$	1.35874 m									+ 10.29	
										+ .50	
+13.35 δ_1		39 2.10		39 2.5						− 7.70	
+0 34.71										38 27.79	
	+ 33.6	0 11.6	47.2	1.2	0 −0.60	30	2746	0	45	45 26.58	
	+ 33.7				44 5.40	37 48.95				38 25.60	+10.38
d	1.52763					51 38 53.59				− .31	
	9.79272					−27.99				− .0	
$((\delta) - D)\ \frac{d'}{100}$	1.44704 m									+ 10.14	
										+ .55	
+13.35 δ_2		39 2.04		39 2.2						− 8.50	
+0 34.71										38 27.48	
	+ 27.8	2 27.0	3.7	307	2 15.35	21	22.61	9	40	42 3.784	
	+ 27.8				42 1.35	40 33.00				51 41 13.52	+10.45
d	1.44404					51 41 36.59				− 21	
	9.79224					−23.07				− 20	
$((\delta) - D)\ \frac{d'}{100}$	1.36297 m									+ 1036	
+12.79										+ .50	
+42.75 δ_1		58 48.00		41 58.2						− 8.50	
+0 29.52										41 15.47	
	+ 29.1	0 37.0	14.9	519	0 25.95	22	2387	2	5	5 49.62	
	+ 29.1				5 2.59	17 22.40				51 18 2.68	+10.04
d	1.46389					51 18 27.04				− 22	
	9.79605					− 24.36				− 4	
$((\delta) - D)\ \frac{d'}{100}$	1.38663 m									+ 9.75	
+11.39										+ .55	
+0 54.18 δ_2		42 57.48		18. 57.7						− 9.20	
										18 3.52	
	+ 32.4	4 44.0	20.0	640	4 32.00	27	2642	18	45	49 58.33	
	+ 32.4				49 3.20	33 16.35				51 33 54.03	+ 9.89
d	1.51055					51 34 20.99				− 28	
	9.79351					−26.96				− .45	
$((\delta) - D)\ \frac{d'}{100}$	1.43075 m									+ 10.07	
+13.04										+ .55	
+0 39.36 δ_1		16 30.81		34 34.4						− 8.90	
										33 55.02	
	+ 23.6	0 28.9	5.1	340	0 17.00	14	1920	1	40	40 32.07	
	+ 23.6				40 17.00	42 31.35				51 43 16.42	+10.59
+13.09 d	1.37291					51 43 35.99				− 35	
+0 39.00	9.79192	1 [illegible]	44.1			−19.57			45	− 3	
3.81 $((\delta) - D)\ \frac{d'}{100}$	1.29152 m	18 16.90		43 57.1						+ 10.22	
										+ 55	
δ_2	+ 11.0	1 50.5	27.7	782	1 39.10	02	9.02	6	5	6 [illegible]	
	+ 11.0				6 3.40	18 9.25				− 8.90	
	1.04139	1 18 16.90				50 17 13.89				43 18.11	
28.89	9.80550					− 9.41					

Jan. 8.

50 17 4.48
− 3 + 8.99
− 16
+ 8.63
+ 55
− 8.40
17 5.07

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

1871phae.proj.1579R

Date$_1$ = 1872 Jan. 10. 150 | Observer W.A.R. | Recorder W.A.R. | n = +.44 C = −.04

Date$_2$ = 1872 Jan. 12. 151 | Observer A.M. | Recorder A.M. | n = +.42 | 36

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f'	T_g	T_h	Sum	Mean	Red. to T_m	T
2	m 6 / 5	′ 17 / 4.0	52 17 / 52 12.8	8.4 / 8.0	m 87.0 / 38.1 / 75.1 / 37.5	m s 5 41.0	44.0	47.5	50.8	54.0	23 73 / +31,19	47.46	m s 47.46 / + 30.71 / + .56 / − 6 / − 2 / 6 18.65 / + 31 / 6 18.96	27.86 / +12.9 / +0 41
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			8.1	5 / 89.0 / 61.2 / 63.6 / 18 38 / 61.3	6 8.5	12.0	15.3	18.7	22.1	7 66 / +3,20	15.32	6 / 15.32 / + 2.68 / + .54 / − 2 / 6 18.52 / + .35 / 6 18.87	+12.9 / +0 41
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
3	12 / 11	23 / 10.0	58 01 / 52 57.2	8.5 / 8.5	11 / 39.6 / 41.4 / 44.6 / 12 56 / 41.9	46.9	50.2	53.6	56.8	0.4	26 79 / +31,21	53.58	11 / 53.58 / + 30.72 / + .58 / − 7 / − 2 / 12 24.79 / + .26 / 12 ~~24.95~~ 25.05	94 / +13.1 / +0 41
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			8.5	12 / 7.5 / 9.6 / 11.6 / 28 7 / 9.6	14.7	18.0	21.6	25.0	28.3	10 76 / +3,23	21.52	12 / 21.52 / + 2.69 / + .56 / − 2 / 12 24.75 / + .30 / 12 25.05	+13.1 / +0 41
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
3	15 / 14	14 / 1.4	52 43 / 52 38.2	8.8 / 8.9	14 / 22.0 / 23.9 / 27.0 / 7 29 / 24.3	37.0	40.3	43.7	47.0	50.4	21 84 / +31,21	43.68	14 / 43.68 / + 30.72 / + .58 / − 7 / − 2 / 15 14.89 / + .24 / 15 15.13	.06 / +13.1 / +0 39
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			8.9	14 / 53.6 / 55.7 / 57.8 / 16 7 1 / 55.7	15 48	8.4	11.7	15.2	18.6	5 87 / +3,23	11.74	15 / 11.74 / + 2.69 / + .56 / − 2 / 15 14.94 / + .28 / 15 15.25	+13.1 / +0 39
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
3	17 / 16	10 / 55.5	52 27 / 52 23.5	8.5 / 8.2	16 / 12.0 / 13.5 / 15.8 / 4 16 / 13.9	33.6	37.0	40.8	43.6	47.0	20 15 / +31,20	40.30	16 / 40.30 / + 30.72 / + .57 / − 7 / − 2 / 17 11.50 / + .23 / 17 11.73	.06 / +13.1 / +0 39
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			8.0	17 / 21.7 / 23.3 / 25.8 / 7 0 8 / 23.6	17 1.6	5.0	8.3	11.9	15.0	4 18 / +3,22	8.36	17 / 8.36 / + 2.69 / + .55 / − 2 / 17 11.58 / + .27 / 17 11.85	+13.1 / +0 39
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
3	19 / 18	54 / 39.0	52 54 / 52 51.0	8.6 / 8.6	18 / 47.8 / 49.9 / 52.6 / 15 0 3 / 50.1	19 15.3	18.7	22.2	25.5	28.9	11 06 / +31,21	22.12	19 / 22.12 / + 30.72 / + .58 / − 7 / − 2 / 19 53.33 / + .21 / 19 53.54	.06 / +13.2 / +0 38
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			8.8	19 / 23.7 / 25.3 / 27.3 / 7 6 3 / 25.4	43.4	46.6	50.2	53.6	57.1	25 09 / +3.23	50.18	19 / 50.18 / + 2.69 / + .56 / − 2 / 19 53.41 / + .24 / 19 53.65	+13.2 / +0 38
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													

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

1871phaeproj.1579R

Runs Jan. 10 +1 332 R −.10 (Rg. Rss.)
12 +1 0.96 M −.10

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	10.0	2′ 37.2	19.9	5 71	28.55	15 19.80			5′	52 16 14.93	
	+ 10.0				7 28.55	52 16 23.12				− 3	+10.78
d	1.00000					− 8.19				− 25	
	9.78674									+ 1051	
((δ) − D) $\frac{d'}{100}$	0.91343									+ 55	
										− 9.30	
+12.98 δ_1		6 31.94		16 57.8						16 16.41	
+0 41.40											
	14.0	2′ 29.3	13.1	4 24	21.20	15 27.15			5	16 16.64	
	+ 14.0				7 21.20	52 16 28.11				− 5	+10.59
d	1.14613					−11.47				− 24	
	9.78674									+ 10.33	
((δ) − D) $\frac{d'}{100}$	1.05456									+ 55	
										− 9.50	
+12.98 δ_2		6 31.85		16 59.1						16 17.73	
+0 41.40											
	11.7	2 18.3	54.3	18 76	68.80	0 39.55			20	53 1 33.45	
	+ 11.7				22 8.80	53 1 42.87				− 4	+11.70
94 d	1.06819					− 9.42				− 21	
	9.77913									+ 11.35	
((δ) − D) $\frac{d'}{100}$	0.97401									+ .60	
										− 9.40	
+13.18 δ_1		12 38.23		2 15.9						1 35.75	
+0 40.14											
	12.0	2 12.6	56.3	12 89	6 4.45	0 43.90			20	1 35.28	
	+ 11.9				22 4.45	53 1 44.86				− 4	+11.50
d	1.07555					− 9.58				− 21	
	9.77913									+ 11.15	
((δ) − D) $\frac{d'}{100}$	0.98137									+ .60	
										− 9.60	
+13.18 δ_2		12 38.23		2 17.3						1 37.18	
+0 40.14											
	19.4	0 41.3	24.6	6 59	32.95	42 15.40			40	52 43 21.99	
	+ 19.4				40 8.295	52 43 18.72				− 9	+11.46
.06 d	1.28780					−15.73				− 5	
	9.78230									+ 11.00	
((δ) − D) $\frac{d'}{100}$	1.19679									+ .60	
										− 9.30	
+13.18 δ_1		15 28.31		43 44.7						43 5.15	
+0 39.57											
	16.0	0 40.4	25.3	6 57	32.85	42 15.50			40	43 3.49	
	+ 16.0				40 8.285	52 43 16.46				− 4	+11.29
d	1.20412					− 12.97				− 5	
	9.78230									+ 10.81	
((δ) − D) $\frac{d'}{100}$	1.11311									+ .60	
										− 9.40	
+13.18 δ_2		15 28.43		43 45.0						43 5.38	
+0 39.57											
	26.4	0 55.9	37.6	9 35	46.75	27 1.60			55	52 27 43.39	
	+ 26.4				55 46.75	52 28 4.92				− 18	+11.02
.06 d	1.42160					−21.53				− 8	
	9.78478									+ 10.73	
((δ) − D) $\frac{d'}{100}$	1.33307									+ .55	
										− 9.30	
+13.18 δ_1		17 24.91		28 24.3						27 45.11	
+0 39.21											
	− 15.3	1 26.1	9.1	3 52	17.60	26 30.75			66	27 44.11	
	− 15.2				86 17.60	52 27 31.71				− 6	+10.90
d	1.18184					+ 12.40				− 13	
	9.78478									+ 1054	
((δ) − D) $\frac{d'}{100}$	1.09331									+ .55	
										− 9.50	
+13.18 δ_2		17 25.03		28 24.7						27 45.57	
+0 39.21											
	32.1	4 11.5	53.8	12 53	62.65	53 45.70			25	52 54 23.19	
	+ 32.0				29 2.65	52 54 49.02				− .27	+11.13
.06 d	1.50515					− 25.83				− 40	
	9.78030									+ 11.20	
((δ) − D) $\frac{d'}{100}$	1.41214									+ .60	
										− 9.30	
+13.28 δ_1		20 06.82		55 3.7						54 25.02	
+0 38.64											
	24.8	4 13.3	57.0	13 03	65.15	53 43.20			25	54 24.14	
	+ 24.8				29 5.15	52 54 44.16				− .16	+11.03
d	1.39445					−20.02				− 41	
	9.78030									+ 11.00	
((δ) − D) $\frac{d'}{100}$	1.30144									+ .60	
+13.28										− 9.50	
+0 38.64 δ_2		20 06.93		55 4.3						54 25.67	

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

1871phae.proj.1579R

150

Date$_1$ = 1872. Jan. 10. Observer W. A. R. Recorder W. A. R.

151

Date$_2$ = 1872 Jan. 12. Observer A. M. Recorder A. M.

38

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
8	m s 23 54 22 36.7	° ′ 52 31 52 27.4	8.7 8.7	m s 23 0.0 1.7 3.6 5.3 1.8	s 14.0	s 17.2	s 20.6	s 23.9	s 27.4	s 10 31 +31.20	s 20.62	m s 23 20.62 + 30.72 + .57 − .7 − .2 23 51.82 + .18 23 52.00	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_1												
			8.8	23 27.2 28.8 30.8 5.6.8 28.9	41.8	45.3	48.6	51.9	55.3	24 29 +3.22	48.58	23 48.58 + 2.69 + .55 − .2 23 51.80 + .22 23 52.02	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_2												
3	27 26	38 8.5	52 27 52 28.6	9.0 8.9	26	25.7 27.6 29.7 5.3.0 27.7	44.7	48.1	51.4	54.8	58.0	25 70 +31.20	51.40	26 51.40 + 30.72 + .57 − .7 − .2 27 22.60 + .15 27 22.75	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_1												
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_2												
3	29 28	31 16.5	52 25 52 21.2	8.7 7.4	28	21.6 23.2 24.6 6.9.4 23.1	55.0 58.5	1.8	5.2	8.6		30 91 +31.21	61.82	29 1.82 + 30.73 + .57 − .7 − .2 29 33.03 + .14 29 33.17	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_1												
			8.2	29 5.3 6.8 8.2 2.0.3 6.6	23.0	26.3	29.8	33.2	36.5	14 8 6 +3.23	29.76	29 29.76 + 2.70 + .55 − .2 29 32.99 + .17 29 33.16	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_2												
3	32 30	11 55.5	52 58 52 49.2	9.2 8.6	31	58.0 57.6 60.5 17.4.1 58.0	34 33.6	37.1	40.5	44.0	47.3	20 25 +31.21	40.50	31 40.50 + 30.73 + .58 − .7 − .2 32 11.72 + .11 32 11.83	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_1												
			9.5	31 57.0 56.0 10.7.0 53.5	32 1.4	5.0	8.2	12.0	15.2	4 18 +3.24	8.36	32 8.36 + 2.70 + .56 − .2 32 11.60 + .15 32 11.75	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_2												
3	34 33	25 9.7	52 04 52 0.3	9.1 9.0	33	39.7 41.4 42.9 12.4.0 41.3	48.8	52.0	55.4	58.7	62.0	27 69 +31.21	55.38	33 55.38 + 30.73 + .56 − .6 − .2 34 26.59 + .11 34 26.70	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_1												
			9.0	34 1.6 3.3 5.2 10.1 3.4	16.9	20.1	23.4	26.7	30.0	11 71 +3.22	23.42	34 23.42 + 2.70 + .54 − .2 34 26.64 + .14 34 26.78	
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	α_2												

Single Observation.

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

1871phaeproj.1579R

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
		18.8	2 48.6	30.2	78 8	39.40	30 8.95			50	52 30 56.95	
		+ 18.8				52 39.40	52 31 12.27				− .10	+10.98
98	d	1.27416					− 15.32				− 26	
		9.78428									+ 10.79	
	((δ) − D) $\frac{d'}{100}$	1.18513$_n$									+ .55	
											− 9.20	
+13.28	δ_1		24 5.28		31 36.6						30 58.73	
+0 37.86												
		19.7	2 44.1	28.2	72 3	36.15	30 12.20			50	30 57.11	
		+ 19.7				52 36.15	52 31 13.16				− .11	+10.78
	d	1.29447					− 16.05				− 26	
		9.78428									+ 10.60	
	((δ) − D) $\frac{d'}{100}$	1.20544$_n$									+ .55	
											− 9.40	
+13.28	δ_2		24 5.30		31 36.4						30 58.49	
+0 37.86												
		23.7	1 5.1	46.9	11 20	56.00	26 52.35			55	52 27 36.34	
		+ 23.7				55 56.00	52 27 55.67				− .15	+11.04
	d	1.37475					− 19.33				− 9	
		9.78478									+ 10.73	
	((δ) − D) $\frac{d'}{100}$	1.28622$_n$									+ .55	
											− 9.10	
+13.32	δ_1		27 36.07		28 15.4						27 38.28	
+0 37.11												
	d											
	((δ) − D) $\frac{d'}{100}$											
	δ_2											
		38.7	4 45.1	27.2	7 23	36.15	23 12.20			55	52 23 43.91	
		+ 38.7				59 36.15	52 24 15.52				− .40	+10.36
94	d	1.58771					− 31.61				− 46	
		9.78543									+ 10.67	
	((δ) − D) $\frac{d'}{100}$	1.49983$_n$									+ .55	
											− 9.10	
+13.35	δ_1		29 46.52		24 21.9						23 45.17	
+0 36.69												
		23.0	4 08.8	37.3	9 11	45.55	23 2.80			55	28 44.97	
		+ 23.0				59 45.55	52 24 3.76				− .14	+10.41
	d	1.36173					− 18.79				− 48	
		9.78543									+ 10.48	
	((δ) − D) $\frac{d'}{100}$	1.27385$_n$									+ .55	
											− 9.30	
+13.35	δ_2		29 46.51		24 22.8						23 46.08	
+0 36.69												
		− 17.5	1 37.5	20.0	5 75	28.75	51 19.60			30	52 52 37.06	
		− 17.5				31 28.75	52 52 22.92				− .8	+11.55
76	d	1.24304$_n$					+ 14.14				− 15	
		9.78063									+ 11.18	
	((δ) − D) $\frac{d'}{100}$	1.15036									+ .60	
											− 9.10	
+13.45	δ_1		32 25.28		53 15.6						52 39.51	
+0 36.12												
		+ 14.7	1 6.2	50.0	11 62.5	8.25	51 50.25			30	52 52 39.17	
		+ 14.9				30 58.10	52 52 51.21				− 6	+11.43
	d	1.17319					− 12.04				− 10	
		9.78063									+ 10.99	
	((δ) − D) $\frac{d'}{100}$	1.08051$_n$									+ .60	
											− 9.40	
+13.45	δ_2		32 25.20		53 17.3						52 41.20	
+0 36.12												
		14.1	0 18.7	0.3	1 90	9.50	2 38.85			20	52 3 30.57	
		+ 14.1				20 9.50	52 3 42.17				− 5	+10.78
.04	d	1.14922					− 11.60				− 2	
		9.78869									+ 10.30	
	((δ) − D) $\frac{d'}{100}$	1.06460$_n$									+ .55	
											− 8.90	
+13.36	δ_1		34 40.06		4 8.1						3 32.45	
+0 35.64												
		20.0	0 10.8	52.1	122.9	61.45	2 46.90			20	3 31.40	
		+ 20.0				20 1.45	52 3 47.86				− 11	+10.56
	d	1.30103					− 16.46				− 0	
		9.78869									+ 10.12	
	((δ) − D) $\frac{d'}{100}$	1.21641$_n$									+ .55	
											− 9.20	
+13.36	δ_2		34 40.14		4 8.4						3 32.76	
+0 35.64												

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

1871phae.proj.1579R

Date$_1$ = 1872, Jan. 10. Observer W. A. R. Recorder W. A. R.

Jan. 24 n = +.39

Date$_2$ = 1872, Jan. 12. Observer A. M. Recorder A. M.

40

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	m s	° ′		m s	m s	s	s	s	s		s	m	s
	8 6 19	0 52 33	8.8	35 38.5	38.6	42.5	45.8	49.0	52.				
	35 2.6	52 29.2	9.0	40.2	42.5	45.8	44.0	52.6	56.0	24 89	49.18	35	49.18
	κ			42.8						+31,21		+	30.73
				38.5								+	.57
	((δ) — D) $\frac{\kappa'}{100}$			12 15								—	4
				40.5								—	2
	a_1									36	20.48	36	20.39
												+	.09
			9.0	36 25.0	36 10.5	13.8	17.0	20.8	23.6	8 5 21	17.04	36	17.04
				26.0						+3,23		+	2.70
	κ			26.9								+	.55
				27.9								—	2
	((δ) — D) $\frac{\kappa'}{100}$			26.6								36	20.27
												+	.13
	a_2											36	20.40
3	38 14	52 05	9.4	37 33.0	38.2	41.3	44.6	48.1	51.4	2236	44.72	37	44.72
	36 38.4	52 1.5	9.0	34.8						+31,21		+	30.73
	κ			37.2								+	.56
				10 5 0								—	6
	((δ) — D) $\frac{\kappa'}{100}$			35.0								—	2
												38	15.93
	a_1											+	.08
												38	16.01
			9.2	37 39.0	38 5.9	9.3	12.7	15.9	19.4	632	12.64	38	12.64
				61.0						+3.22		+	2.70
	κ			63.1								+	.54
				183.1								—	2
	((δ) — D) $\frac{\kappa'}{100}$			61.0								38	15.86
				38 1.0								+	.12
	a_2											38	15.98
3	40 48	52 05	6.3	39 44.1	40 9.7	13.0	16.2	19.5	22.9	8 13	16.26	40	16.26
	39 31.8	52 1.8	6.6	45.7						+31,21		+	30.73
	κ			47.4								+	.56
				137 2								—	6
	((δ) — D) $\frac{\kappa'}{100}$			43.7								—	2
												40	47.47
	a_1											+	.06
												40	47.53
			7.0	40 17.8	37.5	40.9	44.8	47.7	51.1	2215	44.30	40	44.30
				19.6						+3.22		+	2.70
	κ			21.8								+	.54
				592								—	2
	((δ) — D) $\frac{\kappa'}{100}$			19.7								40	47.52
												+	.10
	a_2											40	47.62
3	43 55	52 11	5.9	42 49.7	43 18.1	21.8	24.4	28.0	31.5	1238	24.76	43	24.76
	42 38.8	52 7.7	8.4	51.0						+31,21		+	30.73
	κ			53.3								+	.56
				1540								—	6
	((δ) — D) $\frac{\kappa'}{100}$			51.3								—	2
												43	55.97
	a_1											+	.04
												43	56.01
			8.5	43 39.8	46.0	49.4	52.9	56.3	59.8	26 44	52.88	43	52.88
				41.8						+3,28		+	2.71
	κ			43.9								+	.54
				125 5								—	2
	((δ) — D) $\frac{\kappa'}{100}$			41.8								43	56.11
												+	.08
	a_2											43	56.19
3	45 49	52 25	9.0	44 53.1	45 11.8	15.2	18.5	21.9	25.2	926	18.52	45	18.52
	44 32.7	52 21.5	9.2	55.0						+31,21		+	30.73
	κ			57.4								+	.57
	June 24			55.2								—	7
	((δ) — D) $\frac{\kappa'}{100}$		9.0	45 49.3	36.8	40.1	43.5	46.8	50.3	21 75	43.50	—	2
				50.6						+6,00		45	49.73 +.02
	a_1			52.5								45	43.50
				1524								+	5.51
				50.8								+	51
												—	2
	κ											45	49.50
												+	.29
	((δ) — D) $\frac{\kappa'}{100}$											45	49.79
	a_2												

Single Observation

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	8.5	3 15.5	58.2	13 37	66.85	29 41.50			50	52 30 37.05	
	+ 8.7				53 6.75	52 30 44.82				− 2	+11.01
d	0.93952						−7.77			− 31	
δ1	9.78428									+ 10.79	
((δ) − D) $\frac{d'}{100}$	0.85049 n									+ 55	
										− 9.00	
+13.46 δ1		36 33.94		31 14.38						30 39.06	
+0 35.25											
	− 9.0	3 24.5	9.1	3 36	16.80	29 31.55			50	30 39.84	
	− 9.0				53 16.80	52 30 32.51				− 2	+10.80
d	0.95424 n						+4.33			− 33	
	9.78428									+ 10.60	
((δ) − D) $\frac{d'}{100}$	0.86521									+ 55	
										− 9.30	
+13.46 δ2		36 33.86		31 16.59						30 41.34	
+0 35.25											
	9.6	4 18.4	0.0	184	9.20	3 39.15			15	52 4 34.19	
	+ 9.7				19 9.20	52 4 42.47				− 3	+10.41
d	0.98677						−7.98			− 42	
	9.78853									+ 10.31	
((δ) − D) $\frac{d'}{100}$	0.90199 n									+ 55	
										− 8.90	
+13.41 δ1		38 29.42		5 10.83						4 36.00	
+0 34.83											
	11.7	4 14.7	58.0	13 27	66.35	3 42.00			10	4 33.42	
	+ 11.6				19 6.35	52 4 42.96				− 4	+10.23
d	1.06446						−9.54			− 41	
	9.78853									+ 10.13	
((δ) − D) $\frac{d'}{100}$	0.97968 n									+ 55	
										− 9.10	
+13.41 δ2		38 29.39		5 9.4						4 34.55	
+0 34.83											
	30.5	8 21.3	2.7	240	12.00	4 36.35			15	52 5 14.51	
	+ 30.6				18 12.00	52 5 39.67				− 25	+10.30
04 d	1.48572						−25.16			− 32	
	9.78837									+ 10.32	
((δ) − D) $\frac{d'}{100}$	1.40078 n									+ 55	
										− 8.80	
+13.45 δ1		41 0.98		5 50.3						5 16.01	
+0 34.29											
	25.0	8 22.0	6.3	273	13.65	4 34.70			15	5 15.43	
	+ 24.6				18 13.65	52 5 35.66				− 17	+10.20
d	1.39094						−20.23			− 32	
	9.78837									+ 10.14	
((δ) − D) $\frac{d'}{100}$	1.30600 n									+ 55	
										− 9.00	
+13.45 δ2		41 1.07		5 50.9						5 16.63	
+0 34.29											
	33.4	244.1	26.0	701	35.05	10 13.30			10	52 10 49.12	
	+ 33.5				12 35.05	52 11 16.62				− 29	+10.43
d	1.52504						−27.50			− 26	
	9.78756									+ 10.43	
12 ((δ) − D) $\frac{d'}{100}$	1.43929 n									+ 55	
+13.50										− 8.70	
+0 33.72 δ1		44 9.57		11 24.6						10 50.85	
	11.1	259.2	42.3	1015	50.75	9 57.60			10	10 49.45	
	+ 11.1				12 50.75	52 10 58.56				− 3	+10.49
d	1.04532						−9.11			− 28	
	9.78756									+ 10.25	
((δ) − D) $\frac{d'}{100}$	0.95957 n									+ 55	
+13.50										− 9.00	
+0 33.72 δ2		44 9.69		11 24.7						10 50.94	
	23.3	4 6.2	47.9	11 41	57.05	23 57.30			55	52 24 35.60	
	+ 23.3				58 57.05	52 24 54.62				− 14	+10.69
+13.56 d	1.36736						−19.02			− 40	
+0 33.21	9.78527									+ 1068	
((δ) − D) $\frac{d'}{100}$	1.27932 n	4 31.3	58.2	1495	74.75	23 33.60			55	+ 55	
	− 7.3	3.31			59 14.75	52 24 32.65				− 8.80	
δ1	0.86332 n	46 22.96		25 10.7		+5.96				24 37.49	
	9.78527	3 35		11.19						Jan 24	
	0.77528										
										24 38.01	
+13.56										− 2	+10.90
+0 33.21 d										− 42	
										+ 1084	
((δ) − D) $\frac{d'}{100}$										+ 50	
										− 1020	
δ2										24 38.71	

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

1871phae.proj.1579R

Date$_1$ = 1872, Jan. 10. n = +44 c = −04, 1872 Jan. 24 m red; n = +.39 — Observer W.A.R. W.A.R — Recorder W.A.R. W.A.R

Date$_2$ = 1872, Jan. 12. n = +.42 — Observer A.Mc. — Recorder A.Mc.

Star.	α	n = +.39 δ	Mag.	T_a	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
3	m 48 47	° ′ 18 51 45	8.1	m 47	s 11.1 12.7 15.4	4.12	44.6	47.8	51.2	54.6	23 94 +31.22	47.88	m 47	47.88
	2.6	51 42.0	8.0		3 9 2 13.7								+	30.74
	κ												+	.56
													−	6
	((δ) − D) $\frac{\kappa'}{100}$												−	2
													48	19.10
	c_1												+	.01
													48	19.11
			9.5	47	s 57.3 59.3 60.9 1773 59.1	48 9.2 12.7 15.8 19.2 22.2	12.7	15.8	19.2	22.6	7 95 +3.23	15.90	48	15.90
	κ												+	2.71
													+	.54
													−	2
	((δ) − D) $\frac{\kappa'}{100}$												48	19.13
	c_2												+	.05
													48	19.18
3	50 49	38. 21.4	9.2 9.0	49	s 43.9 46.5 48.8 139 2 46.4	50 5.2	8.6	12.0	15.4	18.7	5 99 +31.23	17.98	50	11.98
	κ	52 40.2				Single Observation.							+	30.74
													+	.58
													−	7
	((δ) − D) $\frac{\kappa'}{100}$												−	2
													50	43.20
	a_1												+	.00
													50	43.21
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	a_2													
3	52 51	27 10.3	8.8 8.5	51	s 33.8 36.0 39.4 36.4	50.1	53.5	56.9	0.2	3.6	28 43 +31.22	56.86	51	56.86
	κ	52 28.4											+	30.74
													+	.57
													−	7
	((δ) − D) $\frac{\kappa'}{100}$		8.3	52	8.6	Single Observation.					52 2806		−	2
					10.7 12.0 10.4	18.4	21.7	25.0	28.5	32.0	12 56 2 +6.00	5.12	52	28.08 −.02
	a_1												52	25.12
													+	5.51
													+	.57
													−	2
	κ												52	31.11
													+	.24
	((δ) − D) $\frac{\kappa'}{100}$												52	31.36
	a_2													
3	54 53	29 12.7	—	53	s 28.2 30.2 33.0 30.5	53.4	56.8	0.2	3.4	6.9	300 7 +31.22	60.14	54	0.14
	κ	52 21.1	9.0										+	30.74
													+	.57
													−	7
	((δ) − D) $\frac{\kappa'}{100}$		9.0	54	4.9	Single Observation.					54 31.83 33		−	2
					6.5 8.7 6.7	18.4	21.6	25.0	28.4	31.8	12 52 +6.00	20.04	54	31.36 −.03
	a_1												54	25.04
													+	5.51
													+	.51
													−	2
	κ												54	31.04
													+	.22
	((δ) − D) $\frac{\kappa'}{100}$												54	31.26
	a_2													
3	56 55	26 9.1	9.2 9.0	55	s 42.8 45.2 47.0 45.1	50.3	53.7	57.0	0.6	4.1	28 57 +31.23	57.14	55	57.14
	κ	52 41.3											+	30.74
													+	.58
													−	7
	((δ) − D) $\frac{\kappa'}{100}$		9.0	56	10.8 12.4 14.8 12.9	15.3	18.8	22.4	25.6	28.9	56 28.32 11 10 +6.01	22.20	−	2
													56	22.20 −.05
	a_1												+	5.51
													+	.52
													−	2
	κ												56	28.21
													+	20
	((δ) − D) $\frac{\kappa'}{100}$												56	28.41
	a_2													

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

1871phae_proj_15798

Runs

Jan 10 + 1 3.32 R −.10
12 + 1 0.96 M −.10
24 + 0 58.45 R −.10

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	Jan. 24
	34.7	3 19.0	1.1	201	10.05	49 38.30			35	51° 45′ 12.74	
	+ 34.8				38 10.05	51 45 41.62				− .32	+9.87
02 d	1.54158						−28.83			− .32	
	9.79160									+ 9.96	
((δ) − D) $\frac{d'}{100}$	1.45987 m									+ .55	
										− 8.60	
+13.49 δ_1		48 32.60		45 46.7						45 14.06	
+0 32.67											
	4.33	3 27.8	11.9	397	19.85	44 28.50			35	45 15.54	
	+ 16.8				38 19.45	51 45 29.46				− .8	+9.93
d	1.22531						−13.92			− .33	
	9.79160									+ 9.79	
((δ) − D) $\frac{d'}{100}$	1.14360 m									+ .55	
										− 8.90	
+13.49 δ_2		48 32.67		45 49.2						45 14.57	
+0 32.67											
	25.6	1 15.3	− 2.5	128	6.40	41 41.95			40	52 42 24.51	
	+ 25.6				41 6.40	52 42 45.27				− .18	+11.30
d	1.40824						−20.76			− .11	
	9.78230									+ 10.99	
((δ) − D) $\frac{d'}{100}$	1.31723 m									+ .60	
										− 8.80	
+13.67 δ_1		50 56.88		42 59.1						42 27.01	
+0 32.13											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
	20.5	2 56.1	38.0	941	47.05	30 1.30			50	52 30 47.92	30 28.32
	+ 20.5			5	52 47.05	52 31 4.82				− 11	+10.96 − 6 +11.08
28 d	1.31175						−16.70			− 28	− 31
	9.78428									+ 10.80	+ 10.95
+13.66	1.22272 m									+ 55	+ .50
+0 31.74 ((δ) − D) $\frac{d'}{100}$		3 23.0	50.0	1330	66.50	9			50	− 8.70	− 10.20
	14.6				53 6.50	28 41.85				30 50.18	30 29.20
δ_1	+ 14.7	52 41.72		31 21.9		52 30 40.30					
	1.16732						−11.98			28.32	
	9.78428										
	1.07829 m										
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
	29.7	4 13.9	55.4	1293	64.65	23 43.70			55	52 24 22.85	24 24.51
	+ 29.6				59 4.61	52 24 47.02				− 24	+10.58 − 9 +10.84
90 d	1.47129						−24.17			− 41	− 41
	9.78527									+ 10.68	+ 10.84
+13.66	1.38325 m									+ .55	+ .50
+0 31.29 ((δ) − D) $\frac{d'}{100}$		4 24.4	50.4	744	37.20	23 40.95			55	− 8.60	− 10.10
					59 7.40	52 24 39.40				24 24.83	24 25.25
δ_1		54 44.99		24 56.1			−14.94				
		44.92		56.5							
	18.3										
+13.66	+ 18.3										
+0 31.29 d	1.26245										
	9.78527										
((δ) − D) $\frac{d'}{100}$	1.17441 m										
δ_2		14 44.92									
	12.0	4 39.2	20.2	594	29.70	43 18.65			35	52 44 12.16	44 13.40
	+ 12.1				39 29.20	52 44 21.97				− 4	+11.15 − 3 +11.28
06 d	1.08279						−9.81			− 45	− 44
	9.78213									+ 11.04	+ 11.20
+13.74	0.99141 m									+ .60	+ .55
+0 30.84 ((δ) − D) $\frac{d'}{100}$		4 42.2	9.2	514	25.70	43 22.65			35	− 8.60	− 10.20
	+ 9.5			5	39 25.70	52 44 21.10				44 14.71	44 14.48
δ_1	0.97772	56 42.06		44 45.5			−7.70				
	9.78213	56 42.15		45.3							
+13.74	0.88654 m										
+0 30.84 d											
((δ) − D) $\frac{d'}{100}$											
δ_2											

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

1871phae.proj.1579R

Date$_1$ = 1872, Jan. 10. 152 (1872 Jan. 24) Observer W. A. R. W.A.R. Recorder W. A. R. W.A.R. Date$_2$ = Observer Recorder

44

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	m s	° ′ ″		m s	s	s	s	s	s		s	m s	
	58 40	53 18	9.2	58 5.8	4.2	7.4	10.8	14.3	17.7	5 4 4	10.88	58 10.88	
	57 23.2	52 57.8	9.3							+31.23		+ 30.74	
	κ											+ .58	
												= 1/2	4.02
	((δ) — D) $\frac{\kappa'}{100}$		—	58 17.6	28.9	32.4	35.8	39.3	42.6	17 90	35.80	58 35.80	58 42.11
				18.6						46.01		+ 5.51	42.04 — .07
	c_1		55	19.3								+ .52	+13.
				16.5								2	1 +0 36
												58 41.81	
												+ .18	
	κ											58 41.99	+13.
													+0 36
	((δ) — D) $\frac{\kappa'}{100}$												
	c_2												
4	0 16	52 40	8.4	59 32.7	39.3	42.4	45.8	49.2	52.7	22 94	45.88	59 45.88	
3	58 57.2	52 37.2	8.5	34.3						+31.23		+ 30.74	
	κ			37.2								+ .58	
				10 42								= 1/2	
	((δ) — D) $\frac{\kappa'}{100}$			34.7								00 17.11	+13.
												— .08	
	a_1											00 17.03	+0 2
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	a_2												
4	3 15	52 36	9.0	2 11.6	37.8	41.3	44.6	48.0	51.3	2 23 0	44.60	2 44.60	
1	57.4	52 33.9	9.0	13.5						+31.22		+ 30.74	
	κ			16.1								+ .57	
				13.7								= 1/2	3 15.82 .88
	((δ) — D) $\frac{\kappa'}{100}$		8.8 2	37.1 3	2.8	6.1	9.6	13.0	16.4	4 79	9.58	3 9.58	15.73 +13.8
				38.7						+6.00		+ 5.51	+0 29.
	a_1		75	41.7								+ .57	
				39.8								2	3 15.58
													+ .15 +13.
	κ												15.73 +0
	((δ) — D) $\frac{\kappa'}{100}$												
	a_3												
4	6 39	52 39	9.5	6 0.7	2.3	5.6	9.0	12.4	15.7	4 50	9.00	6 9.00	
5	21.3	52 36.2	9.2	3.0						+31.22		+ 30.74	
	κ			5.0								+ .57	
				2.9								= 1/2	96
	((δ) — D) $\frac{\kappa'}{100}$		9.2	9.2 6	27.1	30.6	34.0	37.4	40.7	16 98	33.90	6 33.96	40.22 — .11 +13.8
				3.4						+6.01		+ 5.52	40.11 +0 25
	a_1			5.3								+ .57	
				8.1								2	
				5.6									
												6 39.97	
												+ .12	+13.
	κ											6 40.09	+0
	((δ) — D) $\frac{\kappa'}{100}$												
	a_3												
4	8 39	52 39	8.1	7 41.2	5 [illegible]	5.0	8.3	11.6	15.0	4 15	8.30	5 8.30	
7	21.5	52 36.7	8.3	43.6						+31.23		+ 30.75	
	κ			46.5								+ .57	
				43.8								= 1/2	96
	((δ) — D) $\frac{\kappa'}{100}$		7.9	8 2.3	26.4	29.8	33.3	36.7	40.1	16 63	33.28	8 33.26	8 39.53 — .13 +13.8
				4.0						+6.01		+ 5.52	8 39.40 +0 2
	a_1			5.7								+ .51	
				7.0								2	
				6.3									
												8 39.27	
												+ .10	+13
	κ											8 39.37	+0
	((δ) — D) $\frac{\kappa'}{100}$												
	a_2												

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

1871phae.proj.1579R

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
		5.0 s	1′ 35.8	17.8	536	26.80	1 21.55			20′	53° 2′ 20.76	
24.02	d	+ 5.1				21 26.80	53 2 24.87				− 1	+11.82
		0.70757						−4.11			− 14	
2.11		9.77916									+ 11.37	
−.07	((δ) − D) $\frac{d'}{100}$	0.48339n	1 28.8	54.0	14 28	1 11.40	1 36.95			20	+ 60	
2.04		+ 17.3				21 11.40	53 2 35.40				− 8.70	
+13.82		1.23805						−13.93			2 23.88	
1	δ_1	9.77913	58 55.86		2 54.2							
+0 30.33		1.14387n	55.81		2 53.4							
		+6.3									2 21.47	
											− 8	+11.89
+13.82	d										− 12	
+0 30.33											+ 11.54	
	((δ) − D) $\frac{d'}{100}$										+ 55	
											− 10.30	
	δ_2										2 23.06	
		10.4	3 48.1	30.0	780	3 39.00	39 9.30			40	52 40 3.53	
		+ 11.2				48 39.00	52 40 12.62				− 3	+11.18
	d	1.04922						−9.09			− 36	
		9.78280									+ 10.97	
	((δ) − D) $\frac{d'}{100}$	0.95871n									+ .60	
+13.78											−8.60	
+0 29.97	δ_1		0 30.81		40 36.1						40 6[illegible].11	
			~~2 4.9 46.8~~							~~45~~		
	d											
	((δ) − D) $\frac{d'}{100}$											
	δ_2											
		30.9	2 4.9	46.8	11 17	1 55.85	35 52.50			45	52 36 30.71	
		+ 30.9				46 55.85	52 36 55.82				− .25	+11.02
	d	1.48996						−25.11			− .19	
15.82		9.78329					−.10				+ 10.91	
−.09		1.59994n									+ 55	
+13.80	((δ) − D) $\frac{d'}{100}$	30.4	2 7.2	33.0	10 02	1 50.10	35 58.25			45	− 8.50	
15.73		+ 30.4				46 50.10	52 36 56.70				36 33.23	
+0 29.28		1.48287	3 29.53		37 2.5			−24.71				
	δ_1	9.78329	29.53		2.3							
5.58												
.15	+13.80		~~0 3.7 45.8~~							~~45~~	36 32.89	
5.73	+0 29.28	1.39285n	~~2 4.9 46.8~~								− .24	+11.15
	d										− .18	
											+ 11.07	
	((δ) − D) $\frac{d'}{100}$										+ .50	
											− 10.20	
	δ_2										36 33.04	
		6.1	0 3.7	45.3	10 90	0 54.50	37 53.85			45	52 38 52.22	
		+ 6.1				47 54.50	52 38 57.17				− 1	+11.50
	d	0.78533						−4.95			− 49	
.96		9.78296									+ 10.95	
0.22		0.69498n									+ 55	
−.11	((δ) − D) $\frac{d'}{100}$	+28.4	4 47.3	13.0	6 03	4 30.15	38 18.20			40	− 8.40	
10.11		1.45332				44 30.15	52 39 16.65				38 54.82	
+13.84		9.78296	6 53.95		39 23.7			−23.07				
+0 28.53	δ_1	1.36297n	53.93		22.9							
		26.4	~~0~~							~~45~~	38 53.58	
											− .21	+10.94
+13.84											− .45	
+0 28.53	d										+ 11.11	
	((δ) − D) $\frac{d'}{100}$										+ 50	
											− 10.20	
	δ_2										38 54.33	
		24.5	4 23.7	5.9	2 96	4 14.80	38 33.55			40	52 39 16.98	
		+ 24.5				44 14.80	52 39 36.87				− .15	+10.98
	d	1.38917						−19.89			− 42	
.96		9.78280									+ 10.95	
3.53		1.29866n	4 23.0	48.2	8 11.2	4 5.60	38 42.75			40	+ 60	
−.18	((δ) − D) $\frac{d'}{100}$	27.0				44 5.60	52 39 41.20				− 8.40	
39.40		+ 27.0	8 53.27		39 47.6			−21.92			39 19.56	
+13.87		1.43136	53.24		48.2							
+0 28.05	δ_1	9.78280										
		1.34085n									39 19.28	
+13.87											− 19	+11.06
+0 28.05	d										− 41	
	((δ) − D) $\frac{d'}{100}$										+ 11.11	
											+ 55	
	δ_2										− 10.20	
											39 20.14	

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

1871phae.proj.1579R

150

Date$_1$ = 1872, Jan. 10. Observer W.A.R. W.A.R

1872 Jan 24. 152 Recorder W.A.R. W.A.R Date$_2$ = Observer Recorder

46

Rv

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T	
2	m s 10 45 9 27.5 κ	° ′ ″ 53 02 52 59.5	8.1 8.0	m s 9 40.2 42.6 44.5 42.4	m s 10 8.0	11.2	14.7	18.1	21.4	734 +31.24	14.68	m s 10 14.68 + 30.75 + .58 — 2		04
	$((\delta) - D)\frac{\kappa'}{100}$		8.3	10 13.6 15.1 17.3 15.3	32.8	36.3	39.8	43.1	46.6	19 86 +6.02	39.72	10 + 39.72 + 5.52 + .52 — 2	10 45.92 — .15 10 45.77 10 45.74 + .09 10 45.83	+13.9 +0 2
	a_1													
	κ													
	$((\delta) - D)\frac{\kappa'}{100}$													
	a_2													
4	12 19 11 1.9 κ	53 01 52 57.0	8.6 8.5 7.89	23.9 25.9 29.1 26.3	42.9	46.4	49.7	53.1	56.6	2487 +31.24	49.74	11 + 49.74 + 30.75 + .58 — 2		04
	$((\delta) - D)\frac{\kappa'}{100}$		8.6	11 52.1 54.5 56.8 ~~54.6~~ 54.6	12 8.0	11.4	14.7	18.2	21.6	734 +6.02	14.78	12 + 14.78 + 5.52 + .52 — 2	12 20.98 — .16 12 20.82 12 20.80 + .07 12 20.87	+13.9 +0 2 +13.9 +0 27
	a_1		10.34											
	κ													
	$((\delta) - D)\frac{\kappa'}{100}$													
	a_2													
4	14 20 13 7.2 κ	5 13 7 51 35.0	6.0 6.6 7.11	13 21.8 22.9 26.4 23.7	46.5	49.7	53.0	~~56.6~~	59.8	26 55 +3.22	53.10	1 3 + 53.10 + 30.75 + .55 — 2		04
	$((\delta) - D)\frac{\kappa'}{100}$		7.0 13.36	13 42.7 44.6 46.3 44.5	14 11.6	14.8	18.1	21.4	24.8	907 +5.99	18.14	14 + 18.14 + 5.52 + .49 — 2	14 24.32 — .15 14 24.17 14 24.13 + .07 14 24.20	+13.76 +0 26 +13.7 +0 2
	a_1													
	κ													
	$((\delta) - D)\frac{\kappa'}{100}$													
	a_2													
4	16 30 15 12.0 κ	5 12 12 52 9.9	7.5 7.9 8.5	15 34.0 35.9 38.6 36.2	52.4	55.8	59.1	2.5	5.8	29.56 +31.23	59.12	15 + 59.12 + 30.75 + .56 — 2	16 30.35	.02
	$((\delta) - D)\frac{\kappa'}{100}$		8.2 15.97	15 50.7 53.0 56.0 53.2	16 17.4	20.8	24.1	27.6	30.8	1207 +6.00	24.14	16 + 24.14 + 5.52 + .50 — 2	16 30.18 16 30.14 + .05 16 30.19	+13.87 +0 26 +13.8 +0 2
	a_1													
	κ													
	$((\delta) - D)\frac{\kappa'}{100}$													
	a_2													

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

1871phae.proj.1579R

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
		32.3	1 30.8	11.7	425	21.25	1 27.10			26	53° 2 4.42	
		+32.3				21 21.25	53 2 30.42				− .27	+11.56
	d	1.50920						−26.00			− 14	
		9.77913									+ 11.37	
	((δ) − D) $\frac{d'}{100}$	1.41592 m									+ 60	
+13.95		+24.4	40.8	5.5	463	1 23.15	1 25.20			20	− 8.40	
+0 27.54	δ_1	1.38739				21 23.15	53 2 23.65				2 7.58	
		9.77913	10 59.72		2 35.1		− 19.64					
		1.29321 m	59.78		33.0							
		245									2 4.01	
+13.95											− .15	+11.80
+0 27.54	d										− 14	
											+11.54	
	((δ) − D) $\frac{d'}{100}$										+ 55	
											−10.30	
	δ_2										2 5.51	
		23.4	1 59.2	40.2	994	1 49.70	0 58.65			20	53 1 43.13	
		+23.4				21 49.70	53 2 1.97				− .14	+11.65
	d	1.36922						− 18.84			− 18	
		9.77913									+ 11.37	
	((δ) − D) $\frac{d'}{100}$	1.27504 m									+ .60	
+13.97		+20.3	2 2.6	2.76	902	1 45.10	1 3.25			20	− 8.30	
+0 27.18	δ_1	1.30750	12 34.79		2 13.7	21 45.10	53 2 1.70				1 46.48	
		9.77913	34.84		14.0		− 16.34					
		1.21332 m									1 45.36	
+13.97											− .10	+11.81
+0 27.18	d										− 18	
											+11.54	
	((δ) − D) $\frac{d'}{100}$										+ .55	
											−10.30	
	δ_2										1 46.87	
		29.3	0 35.2	16.0	512	0 25.60	37 22.75			45	51 38 1.64	
		+29.4				45 25.60	51 38 26.07				− .22	+10.12
	d	1.46835						−24.43			− 4	
		9.79288		57.6							+ 9.83	
	((δ) − D) $\frac{d'}{100}$	1.38792 m									+ .55	
+13.76		33.6	0 32.6	− 2.4	3020	0 15.10	37 33.25			45	− 8.00	
+0 26.70	δ_1	+33.6				45 15.10	51 38 31.70				38 3.76	
		1.52634	14 37.93		38 30.5			−27.92				
		9.79288	37.96		30.4							
		1.44591 m									38 3.78	
+13.76											− .34	+10.13
+0 26.70	d										− 2	
											+ 9.99	
	((δ) − D) $\frac{d'}{100}$										+ 50	
											− 9.90	
	δ_2										38 4.01	
		22.9	1 5.0	46.3	1113	0 55.65	11 52.70			10	52 12 37.24	
		+22.9				10 50.60	52 12 56.02				− .14	+10.79
	d	1.35984						− 18.78			− 9	
		9.78723									+ 10.47	
	((δ) − D) $\frac{d'}{100}$	1.27376 m									+ .55	
+13.87		30.9	1 0.8	26.0	868	0 43.40	12 4.95			10	− 8.10	
+0 26.19	δ_1	+30.9				10 43.40	52 13 3.40				12 39.93	
		1.48996	16 44.05		13 6.1			−25.34				
		9.78723	44.06		13 5.0	4.9						
		1.40388 m									12 38.06	
+13.87											− .25	+10.80
+0 26.19	d										− 7	
											+10.62	
	((δ) − D) $\frac{d'}{100}$										+ .50	
											−10.10	
	δ_2										12 38.76	
	d											
	((δ) − D) $\frac{d'}{100}$											
	δ_1											
	d											
	((δ) − D) $\frac{d'}{100}$											
	δ_2											

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

1871phae.proj.1579R

152

Date$_1$ = 1872 Jan. 24 — Observer W.A.R. — Recorder W.A.R.

n = +.39

153

Date$_2$ = 1872 Jan. 31 — Observer W.A.R. — Recorder W.A.R.

n = +.52

48

Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	m s	° ′ ″		m s	s	s	s	s	s	s	s	m s	
	26 56	52 01	8.5	26 18.7	48.9	52.4	55.7	59.0	12.4	27 84	55.68	26 55.68	
	25 43.7	67 58.7	8.4	21.0						+6.00		+ 5.52	
	κ			23.6								+ .50	
				6 3 3								− 2	1.66
	((δ) − D) $\frac{\kappa'}{100}$			21.1								27 1.68	
												− .03	
	a_1											27 1.65	+13.9
													+0 2
			9.4	26 20.9	47.8	50.7	54.0	57.3	0.8	27 01	54.02	26 54.02	
				21.9						+7.55		+ 6.90	
	κ			23.7								+ .67	
				25.0								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			9 1 5								27 1.57	
				22.9								+ .11	+13.
	a_2											27 1.68	
													+0 2
4	28 41	51 45	8.7	28 19.3	33.7	37.0	40.3	43.5	46.8	20 13	40.26	28 40.26	
	27. 28.2	51 42.8	8.9	21.7						+6.00		+ 5.52	
	κ			24.6								+ .50	
				6 5 6								− 2	.72
	((δ) − D) $\frac{\kappa'}{100}$			21.9								28 46.26	
												− .04	+13.9
	a_1											28 46.22	
													+0 2
			9.4	28 22.0	32.0	35.0	38.6	42.0	45.1	19 27	38 54	28 38 54	
				23.6						+7.55		+ 6.90	
	κ			25.1								+ .67	
				7 0 7								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			23.6								28 46.09	
												+ .10	+13.
	a_2											28 46.19	
													+0 2
4	32 49	52 53	8.5	32 12.7	38.6	41.9	45.3	48.6	52.1	22 65	45.30	32 45.30	
	21 31.4	52 57.2	8.0	14.6						+6.02		+ 5.52	
	κ			16.0								+ .52	
				4 3 3								− 2	.72
	((δ) − D) $\frac{\kappa'}{100}$			14.4								32 54.32	
												− .08	+14.
	a_1											32 51.24	
													+0 2
			8.7	32 35.6	36.6	40.3	43.5	47.0	50.5	21 79	43.58	32 43.58	
				37.3						+7.57		+ 6.90	
	κ			39.2								+ .69	
				1 1 2.1								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			37.4								32 51.15	
												+ .06	+14.
	a_2											32 51.21	
													+0 2
4	34 53	52 06	~~8.2~~	34 37.6	42.1	45.3	48.7	52.1	55.5	24 37	48.74	34 48.74	
	33 35.4	52 2.3	7.4	39.0						+6.00		+ 5.52	
	κ		7.0	41.5								+ .50	
				1 1 8 1								− 2	.84
	((δ) − D) $\frac{\kappa'}{100}$			39.4								34 54.74	
												− .09	+14.
	a_1											34 54.65	
													+0 2
			~~8.4~~ 8.2	34 29.9	40.3	43.~~5~~ 4	46.~~8~~ 9	50.~~3~~	53.~~8~~ 7	23 45	46.90	34 46.~~9~~ 86	
				31.6						+7.55		+ 6.90	
	κ			33.0								+ .67	
				9 3 9								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			3 1 3								34 54.45	
												+ .05	+14.
	a_2											34 54.56	
													+0 2
4	36 50	51.47	8.4	36 36.6	43.7	47.0	50.4	53.6	57.0	25 17	50.34	36 50.34	
	35 36.4	51 44.9	8.1	38.1						+6.00		+ 5.52	
	κ			41.0								+ .50	
				1 1 5 7								− 2	.72
	((δ) − D) $\frac{\kappa'}{100}$			38.16								36 56.34	
												− .10	+13.9
	a_1											36 56.24	
													+0 2
			9.0	36 40.0	42.2	45.4	48.5	51.8	55.2	24 31	48.62	36 48.62	
				42.6						+7.55		+ 6.90	
	κ			44.3								+ .67	
				1 2 6 9								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			42.3								36 56.17	
												+ .03	+13.
	a_2											36 56.20	
													+0 2

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

1871phae_proj.1579R

Runs Jan. 24 + 0 58.45 Reg. R. 73. −.10
31 2 0 + 0 42.33 2 11 4 0 + 0 42.44 5 50 R −.11

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	34.6	2 23.5	48.2	13 17	65.85	0 42.50			25	52° 1′ 12.44	
	+34.6			22 5.85	22 5.85	52 1 40.95				− .32	+10.38
d	1.53908					− 28.51				− .21	
1.66	9.78918									+ 1041	
((δ) − D) $\frac{d'}{100}$	1.45495									+ .50	
										− 9.80	
+13.94 δ_1		24 15.59		1 36.7						1 13.02	
+0 23.70											
	31.1	3 0.2	25.3	8 35	42.75	0 5.60			20	1 13.16	
	+31.1			22 42.75	22 42.75	52 0 48.04				− .25	+10.58
d	1.49276					+25.12				− .30	
	9.78918									+ 1068	
((δ) − D) $\frac{d'}{100}$	1.39998									+ .45	
+13.94										− 10.30	
+0 23.70 δ_2		27 15.62		1 37.0						1 13.34	
	18.4	3 43.0	8.2	5 12	25.60	44 22.75			35	51 45 5.95	
	+18.4			38 25.60	38 25.60	51 45 21.20				− 9	+10.24
d	1.26482					−15.25				− 34	
.72	9.79176									+10.12	
((δ) − D) $\frac{d'}{100}$	1.18327									+ .55	
+13.91										− 9.80	
+0 23.28 δ_1		29 0.13		45 29.9						45 6.59	
	15.0	3 57.1	20.2	7 43	37.15	44 11.20			35	45 5.75	
	+14.9			38 37.15	38 37.15	51 44 53.64				− 6	+10.41
d	1.17319					+ 12.11				− 40	
	9.79176									+10.34	
((δ) − D) $\frac{d'}{100}$	1.08299									+ .50	
+13.91										− 10.20	
+0 23.28 δ_2		29 0.10		45 29.1						45 5.88	
	30.9	0 14.6	39.6	11 42	57.10	52 51.25			30	52 53 24.74	
	+30.9			24 57.10	24 57.10	52 53 46.70				− .31	+11.68
d	1.48996					−24.96				+ 1	
.72	9.78047									+ 11.37	
((δ) − D) $\frac{d'}{100}$	1.39712									+ .55	
+14.14										− 10.20	
+0 22.26 δ_1		33 5.38		53 48.9						53 26.65	
	6.1	0 26.0	4 53.0	80 19.0	30 0 9.50	52 38.85			30	53 26.20	
	+6.2			30 9.50	30 9.50	52 53 21.29				− 1	+12.14
d	0.79239					+4.91				− 1	
	9.78047									+ 11.66	
((δ) − D) $\frac{d'}{100}$	0.69090									+ .50	
+14.14										− 10.20	
+0 22.26 δ_2		33 5.35		53 50.2						53 27.94	
	9.3	3 15.5	39.1	11 46	27.30	4 51.05			15	52 5 41.85	
	+9.3			19 57.30	19 57.30	52 5 49.50				− 3	+10.67
d	0.96848					−7.65				− 340	
.84	9.78837									+ 10.50	
((δ) − D) $\frac{d'}{100}$	0.85354									+ .50	
+14.02										− 9.50	
+0 21.78 δ_1		35 8.67		6 4.8						5 43.02	
	15.5	3 15.3	41.8	11 71	58.55	4 49.80			15	5 44.72	
	+15.6			17 58.55	17 58.55	52 5 32.24				− 7	+10.82
d	1.19312					+12.48				− 33	
	9.78837									+ 10.77	
((δ) − D) $\frac{d'}{100}$	1.09953									+ .45	
+14.02										−10.20	
+0 21.78 δ_2		35 8.53		6 7.1						5 45.34	
	11.8	1 40.6	6.3	4 69	23.45	46 24.90			35	51 47 13.66	4
	+11.7			36 23.45	36 23.45	51 47 23.35				− 4	+10.88
d	1.06819					−9.69				− 14	
.72	9.79144									+ 1016	
((δ) − D) $\frac{d'}{100}$	0.98632									+ .50	
+13.98										− 9.40	
+0 21.27 δ_1		37 10.22		47 $\frac{3}{4}$ 6.0						47 14.74	
	+6.3	1 36.3	2.3	3 86	19.30	46 29.05			35	47 16.60	
	0.79934			36 19.30	36 19.30	51 47 11.49				− 1	+10.72
d	9.79144					+ 5.11				− 14	
	0.70882									+ 10.42	
((δ) − D) $\frac{d'}{100}$										+ .45	
+13.98										− 10.10	
+0 21.27 δ_2		37 10.18		47 35.5						47 17.22	

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

1871phae.proj.1579R

Date$_1$ = 1872, Jan. 24. 152 Observer W. A. R. Recorder W. A. R.

Date$_2$ = 1872, Jan. 31. 153. Observer W. A. R. Recorder W. A. R.

50

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	m s	° ′		m s	s	s	s	s	s			m	s
	42 23	51 09	8.2	41	13.0	16.2	19.8	22.8	26.2	9 77	19.54	42	19.54
	41 10.0	51 7.6	8.7	56.1						+5.98		+	5.52
	κ		8.9	57.7								+	.48
				60.7								−	2
	((δ) − D) $\frac{\kappa'}{100}$			56.2 42								42	25.52 −13
			42	39.6	13.4	16.7	19.9	23.0	26.5	9 93	19.86	42	19.86 42 25.39
				41.3						+5.98			+5.52
	c_1			43.3									+ .48
				41.4 42									− 2
												42	25.84 −13
			8.7	42	11.2	14.2	17.6	20.6	24.6	8 76	19.52	42	17.52 42 25.76
			9.0	29.9						+7.52			+ 6.90
	κ			31.8									+ .64
				33.2									− 2
	((δ) − D) $\frac{\kappa'}{100}$			31.6 42								42	25.08 −.01
			41	46.2	12.8	15.0	18.5	21.7	24.7	9 19	18.38	42	18.38 25.08
				48.1						+7.52			+ 6.90
	c_2			50.0									+ .64
				48.1									− 2
												42	25.02 −.01
4	45 10	51 51	8.5	45	46 1.6	4.9	8.3	11.6	14.9	4 13	8.26	46	8.26
	42 56.5	51 47.1	8.6	29.1						+6.00		+	5.52
	κ			30.8								+	.50
	44 54.3	51 51.5		32.1								−	2
	((δ) − D) $\frac{\kappa'}{100}$			29.0								46	14.26
			Double star.	31.0									.17
	a_1											46	14.09
			8.5	44 88.2	45 59.8 3.3	6.5	9.8	13.1	33 25	6650		46	6.50
				59.3						+7.55		+	6.90
	κ			61.5								+	.67
			45	47.0								−	2
	((δ) − D) $\frac{\kappa'}{100}$			48.9								46	14.05
				30.3								−	.04
				146.2								46	14.01
	a_2			48.7									
4	49 11	52 16	7.7	48	26.8	58.7	2.0	5.4	8.7	12.2	32 70	65.40	49 5.40
	47 51.8	52 14.8	8.0	28.8						+6.00		+	5.52
	κ			30.2								+	.50
				85.5								−	2
	((δ) − D) $\frac{\kappa'}{100}$			28.6								49	11.40
												−	.19
	a_1											49	11.21
			8.6	48	35.0 57.0	0.3	3.7	6.9	10.3	31 82	63.64	49	8.64
				36.8						+7.55		+	6.90
	κ			38.5								+	.67
				11 0.3								−	2
	((δ) − D) $\frac{\kappa'}{100}$			36.8								49	11.19
												−	.08
	a_2											49	11.11
4	54 44	51 43	9.0	54	7.8 10.0	10 9.6	12.9	16.3	19.5	22.8	8 11	16.22	54 16.22
	53 53.3	51 41.3	8.9		11.6						+6.00		+ 5.52
	κ				28.9								+ .50
					9.6								− 2
	((δ) − D) $\frac{\kappa'}{100}$											54	22.22
56 31													− .22
58 36	a_1											54	22.00
	53 30.2	51 41.3	9.4	54	30.3	34.9	37.7	41.2	44.6	47.6	29 60	41.20	54 41.20
					31.3						+7.55		+ 6.90
	κ				32.6								+ .67
					9 49								− 2
	((δ) − D) $\frac{\kappa'}{100}$				31.4							54	48.75
												−	11
	a_2											54	48.64
5	3 54	51 16	7.3	3	31.6	46.8	50.0	53.3	56.7	59.9	26 67	53.34	3 53.34
	2 39.8	51 14.9	8.0		32.1						+6.00		+ 5.52
	κ				35.3								+ .50
					9 9 4								− 2
	((δ) − D) $\frac{\kappa'}{100}$				33.1							3	59.34
												−	.29
	a_1											3	59.05
			8.3	3	24.4	45.3	48.3	51.6	54.9	58.3	25 84	51.68	3 51.68
					25.8						+7.51		+ .89
	κ				27.2								+ .64
					7 1.4								− 2
	((δ) − D) $\frac{\kappa'}{100}$				25.8							3	59.19
												−	.17
	a_2											3	59.02

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	21.3	3 26.8	52.4	13 92	69.60	9 38.75			10′	51° 10′ 19.33	10 55.24
+13.92	+21.3				13 9.60	51 10 37.20				− 12 +9.50	− 12 +9.52
+9 19.92 d	1.32838					−17.87				− 31	− 31
	9.79715	1.25222 n								+ 9.48	+ 9.50
5.39 ((δ) − D) d′/100	38.4					+18.04				+ 45	+ 45
	+38.5				6					− 9.20	− 9.20
+13.92 δ1	−21.5		42 39.31		10 39.54					10 19.63	10 55.56
+0 19.92	1.33244 n	1.25628	39.67		11 15.48						
	9.79715										
25.75	− 14.1	3 15.4	40.3	11 57	57.85	9 50.50			10	10 21.31	10 57.86
+13.92	+45.9				12 57.85	51 10 32.94				− 5 +9.76	− 24 +9.59
+0 19.52 d	1.49922 n					−11.63				− 32	− 32
	9.79715	1.07306								+ 9.73	+ 9.45
26.08	1.06541 n	39.00				+24.92				+ 40	+ 40
17.97 ((δ) − D) d′/100	30.4									− 9.90	− 9.90
8.97 +13.92 δ2	+30.3	42 38.99								10 21.17	10 57.55
+0 19.92	1.48144	39.87		10 41.1							
	9.79715	1.40528 n	41.2	11 17.5							
2.589	1.39663										
95	37.3	0 16.2	−18.8	8 74	28.70	52 49.65			30	51 53 17.29	
	+37.3				29 58.70	51 53 48.10				− 36 +10.41	
d	1.57171					−30.81				− 0	
76	9.79031									+ 10.27	
((δ) − D) d′/100	1.48871 n									+ .50	
+14.07										−9.20	
+0 18.96 δ1		46 28.16		53 37.5						53 18.50	
	+0.2	0 46.2	10.0	5 52	27.60	52 20.75			20	53 17.61	
	+17.8				30 27.60	51 53 3.19				− 9 +10.85	
d	1.25042					+14.42				− 4	
	9.79047									+10.53	
((δ) − D) d′/100	1.15893									+ .45	
+14.07										− 10.00	
+0 18.96 δ2		46 28.08		53 37.4						53 18.46	
	40.1	0 58.4	24.1	8 25	41.25	17 7.10			5	52 17 35.43	
	+36.8				5 41.25	52 18 5.55				− .36 +10.79	
d	1.56585					−30.12				− 7	
76	9.78642									+ 10.72	
((δ) − D) d′/100	1.47896 n									+ .50	
+14.15										− 9.00	
+0 18.24 δ1		49 25.36		17 55.5						17 37.22	
	26.8	1 02.1	58.5	15 06	75.30	16 43.05			5	17 37.00	
	+28.8				6 15.30	52 17 25.49				− 19 +11.13	
d	1.42813					+21.51				− 13	
	9.78642									+ 11.00	
((δ) − D) d′/100	1.33254									+ 45	
+14.15										− 9.80	
+0 18.24 δ2		49 25.26		17 56.6						17 38.33	
	6.7	0 2.9	4 27.8	79 30.7	35 4 45.35	48 3.00			40	51 43 55.98	
	+6.6				39 45.35	51 44 1.45				− 2 +10.61	
d	0.81954					− 5.47				+ 2	
	9.79192									+ 10.11	
((δ) − D) d′/100	0.73815 n									+ .50	
										− 9.00	
+14.09 δ1		54 36.09		44 14.4						43 57.59	
+0 16.80											
	9.8	0 49.9	14.2	6 41	3.205	42 16.30			40	43 6.71	
	+9.8				40 3.205	42 58.74				− 3 +10.71	
d	0.99123					+7.97				− 5	
	9.79208									+ 10.34	
((δ) − D) d′/100	0.70135									+ .45	
										− 9.80	
+14.09 δ2		55 2.73		43 24.4						43 7.62	
+0 16.80											
	20.2	2 5.8	30.8	9 66	1 48.30	16 0.05			5	51 16 41.59	
	+20.2				6 48.30	51 16 58.50				− 11 +9.77	
d	1.30585					−16.91				− 18	
66	9.79621									+ 9.61	
((δ) − D) d′/100	1.22825 n									+ .45	
										− 8.70	
+14.07 δ1		4 13.12		16 57.2						16 42.66	
+0 14.49											
	25.8	2 26.1	51.8	13 79	2 8.95	15 39.40			5	16 43.11	
	+25.9				7 8.95	51 16 21.84				− 8 +9.97	
d	1.41330					+21.27				− 12	
	9.79636									+ 9.87	
((δ) − D) d′/100	1.32770									+ .40	
										− 9.50	
+14.07 δ2		4 13.09		16 58.1						16 43.58	
+0 14.49											

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

1871phae.proj.1579R

152 .52

Date$_1$ = 1872, Jan. 24 Observer W. A. R. Recorder W. A. R.

153

Date$_2$ = 1872 Jan. 31. Observer W. A. R. Recorder W. A. R.

Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
2	6 15	51 30	8.7	5 48.4	6 8.0	11.5	14.7	18.0	21.4	736	14.72	6	14.72
	5 0.5	51 29.9	9.0	49.9						+5.99		+	5.52
	κ			52.3								+	.49
				15 06								−	2
	((δ) − D) $\frac{\kappa'}{100}$			50.2								6	20.71
												−	.31
	c_1											6	20.40
			8.9	5 52.7	6 6.6	9.7	13.0	16.3	19.7	653	13.06	6	13.06
				54.0						+7.52		+	6.89
	κ			55.3								+	.65
				16 20								−	2
	((δ) − D) $\frac{\kappa'}{100}$			54.0								6	20.68
												−	.19
	c_2											6	20.39
5	8 32	52 41	8.2	7 57.4	8 20.6	24.0	27.4	30.6	34.1	13 67 27.34		8	27.34
	7 11.5	52 40.0	8.2	53.0						+6.03		+	5.53
	κ			55.5								+	.52
				15 99								−	2
	((δ) − D) $\frac{\kappa'}{100}$			53.3								8	33.37
												−	.34
11 37	a_1											8	33.03
			8.6	7 58.3	8 18.9	22.2	25.7	28.9	32.4	1281	25.62	8	25.62
				60.1						+7.56		+	6.89
	κ			61.8								+	.69
				18 02								−	2
	((δ) − D) $\frac{\kappa'}{100}$			8 60.1								8	33.18
				0.1								−	.23
	a_2											8	32.95
5	13 47	52 49	8.4	13 50.3	36.2	39.6	43.0	46.3	49.7	2148	42.96	13	42.96
	12 26.8	52 47.4	8.3							+6.03		+	5.53
	κ											+	.52
												−	2
	((δ) − D) $\frac{\kappa'}{100}$											13	48.99
												−	.38
	a_1											13	48.61
			8.6	13 22.5	34.4	37.8	41.8	44.6	48.0	2061	41.22	13	41.22
				23.9						+7.56		+	6.89
	κ			25.8								+	.69
				7 22								−	2
	((δ) − D) $\frac{\kappa'}{100}$			24.1								13	48.78
												−	.27
	a_2											13	48.51
5	15 55	52 30	9.1	15 33.1	43.7	47.0	50.6	53.8	57.3	2524	50.48	15	50.48
	14 34.2	52 29.1	9.0	35.2						+6.02		+	5.53
	κ			37.9								+	.51
				10 62								−	2
	((δ) − D) $\frac{\kappa'}{100}$			35.4								15	56.52
							48.0					−	.39
	a_1						48.5					15	56.11
			9.5	15 28.1	41.8	45.2	48.7	51.8	55.1	2431	48.62	15	48.68
										+7.55		+	6.89
	κ											+	.68
												−	2
	((δ) − D) $\frac{\kappa'}{100}$											15	56.14
												−	.28
	a_2											15	55.89.95
5	21 03	51 12	9.0	20 17.7	29.7	33.0	36.4	39.5	43.0	1816	36.32	20	36.32
	19 48.8 21.8	51 11.8 .2	9.2	19.5						+5.99		+	5.53
	κ			22.0								+	.48
				59 2								−	2
	((δ) − D) $\frac{\kappa'}{100}$			19.7								20	42.31
												−	.39
	a_1											20	41.92
	19 45.8	51 9.8	7.5	21 13.4	20 51.2	54.4	57.7	60.9	64.3	2855	57.10	20	57.70
				15.1						+7.51		+	6.89
	κ			16.2								+	.64
				4 47								2	
	((δ) − D) $\frac{\kappa'}{100}$			14.9								20	65.21
												−	.30
	a_2											21	4.91

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	25.4	3′ 04.1	−0.2	339	0′ 16.95	29 31.40			50′	51° 30′ 9.43	
	+24.5		5.8		52 16.95	51 30 29.85				− .15	+9.82
	1.38917					− 20.42				− 33	
d	9.79415									+ 9.85	
((δ) − D) $\frac{d'}{100}$	1.31001									+ .45	
										− 8.70	
+14.12 δ_1		6 34.52		30 24.44						30 10.55	
	19.0	6 53.0	18.7	717	3 35.85	29 12.50			50	30 10.54	
	+19.1				58 35.85	51 29 54.94				− .10	+10.03
d	1.28103					+15.60				− 40	
((δ) − D) $\frac{d'}{100}$	9.79415									+ 10.13	
	1.19322									+ .40	
+14.12 δ_2		6 34.51		30 24.9						− 9.60	
+0 13.89										30 10.94	
	34.4	2 24.9	50.1	13 50	2 7.5	40 40.85			40	52 41 11.71	
	+34.0				42 7.50	52 41 39.30				− .30	+11.20
72 d	1.53148					−27.59				− 21	
((δ) − D) $\frac{d'}{100}$	9.78263									+ 11.16	
	1.44080									+ .55	
+14.35 δ_1		8 47.38		41 27.3						− 8.90	
+0 12.82										41 14.01	
	25.6	2 54.5	20.4	749	2 37.45	40 10.90			40	41 13.63	
	+25.5				42 37.40	52 40 53.34				− .16	+11.57
d	1.40654					+20.29				− 29	
((δ) − D) $\frac{d'}{100}$	9.78263									+ 11.46	
	1.30721									+ .50	
+14.35 δ_2		8 47.30		41 28.7						− 9.80	
+0 11.32										41 15.34	
	− 7.3	0 42.8	8.7	510	0 25.50	47 22.85			35	52 48 27.21	
	−7.9				35 25.54	52 48 21.30				− 2	+11.78
14 d	0.86332					+ 5.91				− 4	
((δ) − D) $\frac{d'}{100}$	9.78147									+11.29	
	0.77148									+ .55	
+14.40 δ_1		14 3.01		48 42.2						− 8.80	
+0 11.97			57.9							48 30.19	
	17.2	0 81.2	−2.1	291	0 14.55	47 33.80			35	48 29.81	
	+17.1				35 14.55	52 48 16.24				− 8	+11.99
d	1.23300					+13.57				− 2	
((δ) − D) $\frac{d'}{100}$	9.78147									+11.59	
	1.13251									+ 50	
+14.40 δ_2		14 2.91		48 44.1						− 9.70	
+0 11.97										48 32.10	
	15.2	2 44.0	10.8	548	2 27.40	30 20.95			50	52 31 7.10	
	+15.1				52 27.40	52 31 19.40				− 6	+11.16
86 d	1.17878					−12.30				− 25	
((δ) − D) $\frac{d'}{100}$	9.78428									+10.97	
	1.08995									+ .50	
+14.35 δ_1		16 10.46		31 21.0						− 8.70	
+0 11.43										31 9.56	
	20.8	2 55.5	21.0	765	2 38.25	30 10.10			50	31 8.87	
	+20.5				52 38.25	52 30 52.54				− 11	+11.32
d	1.31175					+16.33				− 29	
((δ) − D) $\frac{d'}{100}$	9.78428									+11.27	
	1.21307									+ .45	
+14.35 δ_2		16 10.30		31 22.0						− 9.60	
+0 11.43										31 10.59	
	20.0	1 46.8	12.6	544	1 29.70	11 18.65			10	51 12 3.18	
	+16.6				11 29.70	51 12 17.10				− 8	+9.74
62 d	1.22011					−13.92				− 15	
((δ) − D) $\frac{d'}{100}$	9.79699									+ 9.52	
	1.14379									+ 45	
+14.13 δ_1		20 56.05		12 14.8						− 8.20	
+0 10.08										12 4.72	
	~~42.6~~	2 49.8	15.0	648	2 32.40	10 15.95			10	10 41.25	
	~~+42.5~~				12 32.40	51 10 58.39				− 8	+9.81
d	−17.2					−14.14				− 27	
((δ) − D) $\frac{d'}{100}$	1.23533									+ 9.76	
	9.79715									+ 40	
	1.15052									− 9.20	
+14.13 δ_2		21 19.04		10 54.9						10 44.86	
+0 10.08											

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

1871phae.proj.1579R

152

Date$_1$ = 1872, Jan. 24 Observer W.A.R. Recorder W.A.R.

153.

Date$_2$ = 1872 Jan. 31. Observer W.A.R. Recorder W.A.R.

54

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′		m s	s	s	s	s	s			m s	s
	23 03	51 21	7.9	22	23.1	55.9	59.2	2.5	5.9	9.1	31 26	62.52	23	2.52
	21 48.3	51 20.3	8.2		25.2						+6.00		+	5.53
	κ				27.0								+	.49
					1.53								−	2
	((δ) − D) $\frac{\kappa'}{100}$				3.1								23	8.52
					25.7								−	.41
24	18 c_1												23	8.11
			8.2	22	43.3	54.2	57.6	0.8	4.1	7.4	3041	60.82	23	0.82
					44.8						+7.52		+	6.89
	κ				46.4								+	.65
					1.45								−	2
	((δ) − D) $\frac{\kappa'}{100}$				4.18								23	8.34
													−	.32
	a_2												23	8.02
5	28 08	51 21	7.8	27	34.3	28 1.2	4.5	7.8	11.2	14.4	391	7.82	28	7.82
	26 53.9	51 20.7	7.9		36.4						+6.00		+	5.53
	κ				38.1								+	.49
					1.68								−	2
	((δ) − D) $\frac{\kappa'}{100}$				3.63								28	13.82
													−	.44
	a_1												28	13.38
			7.9	27	58.8	27 59.5	2.6	6.1	9.3	12.6	3301	66.02	28	6.02
					60.2						+7.52		+	6.89
	κ				61.1								+	.65
					1801								−	2
	((δ) − D) $\frac{\kappa'}{100}$			28	60.0								28	13.54
					0.0								−	.35
	a_2												28	13.19
5	30 27	52 30	7.7	29	58.0	30 15.0	18.3	21.8	25.0	28.4	1085	21.70	30	21.70
	29 6.2	52 28.3	7.2		59.8						+6.02		+	5.53
	κ				61.7								+	.51
					1795								−	2
	((δ) − D) $\frac{\kappa'}{100}$				59.8								30	27.72
32	44 a_1												−	.48
													30	27.24
			7.7	30	3.0	13.4	16.7	20.0	23.4	26.6	1001	20.02	30	20.02
					4.2						+7.55		+	6.89
	κ				6.1								+	.68
					1.33								−	2
	((δ) − D) $\frac{\kappa'}{100}$				4.4								30	27.59
	Jan 24												−	.38
	a_2												30	27.39.19
4	21 58	51 04	8.8											
	20 45.2	51 7.1	8.9											
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	jan. 24													
	a_1													
4	56 31	51 3 44	9.6	55	59.0	56 14.3	17.6	20.9	24.2	27.6	1046	20.92	56	20.92
	55 ~~47.6~~ 64	51 ~~32.5~~ 44.3	9.0		60.2						+5.99		+	5.52
	κ				61.7								+	49
					63.6								−	2
	((δ) − D) $\frac{\kappa'}{100}$				2447								56	26.91
	jan. 24			56	~~64.2~~								−	.24
	a_2				1.2								56	26.67
4	58 36	51 50	9.3	58	25.1	30.3	33.3	36.7	40.0	43.5	1835	36.76	58	36.76
	57 22.0	51 48.9	9.1		27.3						+6.00		+	5.52
	κ				30.0								+	.50
					824								−	2
	((δ) − D) $\frac{\kappa'}{100}$				27.5								58	42.76
	jan. 24												−	.26
	a_1												58	42.50
5	11 ~~37~~	51 21	7.8											
	10 22.0	51 20.0	7.8											
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	a_2													

Single Observations

1.73 ± 0.46

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	37.4 s	1′ 16.1	41.8	11 79	0′ 58.95	21 49.40			0	51° 22′ 16.60	
	+37.4				0 58.95 51	22 47.85				− 37	+9.68
d	1.57287					−31.25				− 10	
	9.79526									+ 9.70	
70 ((δ) − D) $\frac{d'}{100}$	1.49482 n									+ .45	
										− 8.20	
+14.17 δ_1		23 22.28		22 27.6						22 18.08	
+0 9.57											
	16.0	1 48.6	7.7	5 13	2 5.65	21 22.70			0	22 18.25	
	+16.0				1 25.65 51	22 3.14				− 7	+10.15
d	1.20412					+13.11				− 15	
	9.79542									+ 9.97	
((δ) − D) $\frac{d'}{100}$	1.11758									+ .40	
										− 9.20	
+14.17 δ_2		23 22.19		22 28.8						22 19.20	
+0 9.57											
	31.5	2 8.1	32.1	10 02	1 50.10	20 58.25			0	51 21 30.37	
	+31.5				1 50.10 51	21 56.70				− 26	+9.70
d	1.49831					−26.33				− 18	
	9.79542									+ 9.69	
20 ((δ) − D) $\frac{d'}{100}$	1.42042 m									+ 45	
										− 8.10	
+14.19 δ_1		28 27.57		21 40.2						21 31.97	
+0 8.25											
	6.X	2 21.8	46.9	12 87	2 4.35	20 44.00			0	21 31.36	
	+6.0				2 4.35 51	21 26.44				− 1	+10.12
d	0.77815					+4.92				− 23	
	9.79542									+ 9.96	
((δ) − D) $\frac{d'}{100}$	0.69161									+ .40	
										− 9.10	
+14.19 δ_2		28 27.44		21 40.6						21 32.38	
+0 8.25											
	22.0	4 8.6	35.0	10 36	3 51.80	28 56.55			50	52 29 37.15	10.94
	+21.9				53 51.80 52	29 55.00				− .13	+11.74
68 d	1.34044					−17.85				− 39	
	9.78445									+10.96	
((δ) − D) $\frac{d'}{100}$	1.25158 n									+ 50	
										− 8.30	
+14.40 δ_1		30 41.64		29 47.5						29 39.79	
+0 7.68											
	15.6	4 21.9	48.1	13 00	4 3.00	28 43.35			50	29 38.25	
	+15.6				54 3.00 52	29 25.79				− 7	+11.19
d	1.19312					+12.46				− 45	
	9.78445									+ 11.26	
((δ) − D) $\frac{d'}{100}$	1.09561									+ 45	
										− 9.30	
+14.40 δ_2		30 41.59		29 47.8						29 40.14	
+0 7.68											
		0 0.0	4 24.9	29 24.9	10 4 42.45	8 5.90			15		
					14 42.45 51	9 4.35					
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
	19.7	2 48.2	13.0	6 12	2 30.60	45 17.75			35	51 45 54.88	
	+14.7				37 30.60 51	46 16.20				− 11	+10.27
d	1.29447					−16.32				− 25	
	9.79160									+ 10.13	
((δ) − D) $\frac{d'}{100}$	1.21276 n									+ 50	
+14.08										− 9.00	
+0 16.38 δ_2		56 40.75		46 17.5						46 1.15	
	9.3	4 7.9	34.1	10 20	3 21.00	48 57.35			30	51 49 48.11	
	+9.3				33 51.00 51	49 5.80				− 3	+10.30
d	0.96848					−7.69				− 39	
	9.79095									+10.72	
((δ) − D) $\frac{d'}{100}$	0.88612 n									+ 50	
+14.14										− 9.00	
+0 15.84 δ_1		58 56.64		50 5.2						49 49.41	
		2 16.6	43.0	11 96	1 59.80	35 48.55			45		
					46 59.80						
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											

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

1871phae.prj.1579R

Single Observations.

152

56

Date$_1$ = Jan. 24, 1872 Observer W.A.R Recorder W.A.R

Date$_2$ = Observer Recorder

Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′		m s	s	s	s	s	s			m s	° ′
4	24 18	51 50	8.2	24 18.6	12.9	16.8	19.5	23.0	26.3	9 50	19 60	24	19.60
	23 2.7	51 48.8	8.0							+6.01			+ 5.53
	κ												+ .50
	((δ) — D) $\frac{\kappa'}{100}$												— 2
	Jan. 24											24	25.61
	c_1												— .42
												24	25.19
5	32 44	52 09	8.8	32 5.0	22.8	36.2	39.5	42.9	46.1	19 75	3 9.50	32	39.50
	31 23.2	52 8.9	9.0	7.0						+6.01			+ 5.53
	κ			9.9									+ .50
	((δ) — D) $\frac{\kappa'}{100}$			21.9									— 2
				7.3								32	45.51
	α_2												— .48
												32	45.03
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_1												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_2												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_1												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_2												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_1												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_2												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_1												
	κ												
	((δ) — D) $\frac{\kappa'}{100}$												
	α_2												

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

1871phae.proj.1579r

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	0.9″	4′ 31.1″	56.8	14 7 9	4′ 15″	48 34.40			36′	51° 49′ 32.02″	
	+1.0				34 13.95	51 49 32.85				− 0	+10.29
d	0.00000					− 0.83				− 42	
$((\delta) - D)\frac{d'}{100}$	9.79111									+ 10.21	
	9.91780 m									+ .50	
										− 8.30	
+14.26 δ_1		24 39.45		49 43.2						49 34.01	
+0 9.24											
	32.2	4 50.7	15.3	6 5 0	32.50	8 15.35		138	10	52 8 ~~31.34~~ 47.35	
	+32.2				14 33.00	52 ~~8 57.79~~ 9				− 27	+10.34
d	1.50786					− 26.45				− 45	
$((\delta) - D)\frac{d'}{100}$	9.78788									+ 10.56	
	1.42243 a									+ .50	
										− 8.10	
+14.35 δ_2		32 59.38		8 56.7						8 ~~33.58~~ 49.59	
+0 7.08											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											

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

1871phae.proj.1579R

154

Date$_1$ = 1872, Feb. 1.
n = +.54

Observer W. A. R.
Recorder W. A. R.

155

Date$_2$ = 1872. Feb. 4.
n = +.46

Observer ~~W. A. R.~~ A M.
Recorder ~~W. A. R.~~ A M.

58

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	38 37	24 51 20	9.5 9.0	38	37.0 39.5 42.0 16.5 ~~59.25~~ 39.5	38 14.9	19.1	21.4	24.7	28.0	10 8.1 +8.13	21.62	38 21.62 + 7.47 + .68 − 2 38 29.75 + .04 38 29.79	1.34 +13.92 +0 20
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			9.2	38	9.5 10.7 12.6 3 28 16.4	14.0	17.0	20.2	23.4	26.8	10 14 +9.35	20.28	38 20.28 + 8.79 + .68 − 2 38 29.63 + .11 38 29.74	+13.9 +0 20
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
4	40 39	32 58 02 14.5 52 59.7	8.9 8.5	40	13.6 14.8 16.7 ~~4.51~~ ~~1.55~~ 15.0	21.2	24.6	27.4	31.4	34.8	13 99 +8.16	27.98	40 27.98 + 7.47 + .72 − 3 40 36.14 + .01 40 36.15	.34 +14.2 +0 2
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			9.0	40	2.6 3.7 4.9 11.2 ~~0.50~~ 3.7	20.0	23.2	26.5	30.0	33.5	13 32 +9.37	29.64	40 26.64 + 8.79 + .61 − 3 40 35.91 + .08 40 35.99	+14.23 +0 20
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
4	42 41	23 51 17.2 10.0 51 7.0	8.7 9.0 9.4	42	38.6 40.0 41.4 ~~42 40.0~~ ~~41 41.4~~ ~~57.1~~ ~~57.8~~ 11.49 41 57.44	42 10.9 42 11.6	13.8 14.2	17.0 17.5	20.5 20.9	22.6 24.1	8 48 +8.12 8 83 +8.12	16.96 17.66	42 16.96 + 7.47 + .67 − 2 42 17.66 + 7.47 + .07 − 2	42 25.08 + .01 25.09 25.78 +13.91 +0 19.
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			8.8	42	0.8 2.6 3.7 7.1 ~~3.50~~ 2.3	9.3	12.5	15.8	19.1	22.3	7 90 +9.34	15.80	42 16.80 + 8.79 + .57 − 2 42 25.14 + .08 42 25.22	42 25.79 +13.9 +0 19.
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
4	45 44	22 51 09 9.0 51 7.3	9.6 9.0	45	26.3	45 14.0	17.3	20.7	23.8	27.4	10 82 +8.12	20.64	45 20.64 + 7.47 + .67 − 2 45 28.76 − .01 45 28.75	.24 +13.9 +0 1.
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			9.5	44	52.1 53.6 55.0 16 D7 ~~44 50.3~~ ~~45 20.3~~ 53.6	45 12.8	16.1	19.4	22.6	26.1	9 70 +9.34	19.40	45 19.40 + 8.79 + .57 − 2 45 28.74 + .05 45 28.79	+13.9 +0 19
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													
4	47 46	51 50 01 37.5 49 59	9.1 9.0	47	26.5 29.1 30.6 6 62 ~~13.1~~ 28.7	41.7	44.7	47.9	51.1	54.6	24 00 +8.10	48.00	47 48.00 + 7.48 + .64 − 2 47 56.10 − .02 47 56.08	28 +13.7 +0 18
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1													
			9.0	47	23.5 24.6 25.7 13.16 ~~56.9~~ 24.6	40.4	43.6	46.6	50.0	53.0	23 36 +9.33	46.72	47 46.72 + 8.80 + .55 − 2 47 56.05 + .04 47 56.09	+13.7 +0 18
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													

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

1871phaeproj.1579R

Feb. 1 — Runs 1 / 4

Rg. h m 1 48 +0 43.58 / 3 54 +0 42.65 M.

h m 4 22 / 6 26 +0 42.37 R +0 42.98

mean Kg for gone Rd −.11 −.11

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	h	δ′
	s 3.75	3 47.2	12.5	59 2	29.6	19 18.75			0	51° 19′ 47.05	
	−17.9			3 2960	3 2960	51 20 1.73				− 9	+9.98
d	1.25285 n					−14.68				− 39	
1.34	9.79573									+ 1006	
((δ) − D) $\frac{d'}{100}$	1.16662 n									+ 40	
+13.92										− 10.10	
δ_1 +0 20.88		38 43.71		20 7.8						19 46.93	
	3.8	4 10.2	36.8	10 65	5 3.25	18 53.10			0	19 45.46	
	+9.4				3 3-3.25	51 19 37.75				− 3	+9.61
d	0.97013					+7.71				− 39	
	9.79573									+ 963	
((δ) − D) $\frac{d'}{100}$	0.88690									+ 40	
+13.92										− 10.30	
δ_2 +0 20.88		38 43.66		20 5.6						19 44.77	
	10.4	2 52.7	16.2	689	34.45	0 13.90			20	53 1 7.14	
	+12.0				22 34.45	53 0 56.88				− 5	+12.41
d	1.11394					+10.26				− 28	
34	9.77930									+ 11.97	
((δ) − D) $\frac{d'}{100}$	1.01128									+ 50	
+14.23										− 10.58	
δ_1 +0 20.37		40 50.38		1 29.2						1 8.18	
	20.9	2 56.7	23.0	799	39.85	0 8.50			20	1 9.23	
	+22.9				22 39.85	53 0 51.15				− 14	+11.49
d	1.35984					+18.08				− 30	
	9.77930									+ 11.48	
((δ) − D) $\frac{d'}{100}$	1.25718									+ 45	
+14.23										− 10.80	
δ_2 +0 20.37		40 50.32		1 30.3						1 9.92	
	−2.30	3 8.3	32.9	10 1250.60		9 57.75			10	51 ~~+117~~ 21.81	10 57.43
	17.0				12 50.60	51 10 40.73				10 37 +9.68	− 11 +9.86
	+37.0					~~+3044~~				− 31	− 31
1.36173	1.56820					−18.92				+ 9.88	+ 9.88
39.79 d 715	9.79715					+16.70				+ 40	+ 40
1.17692	1.48539									−1000	−1000
((δ) − D) $\frac{d'}{100}$	20.1									10 ~~+4077~~ 21.49	10 57.29
+13.91	+20.3										
δ_1 +0 19.92	1.30750	42 39.00		10 41.1				Reference			
	9.79715	39.70		11 17.2							
	1.22269										
+13.91	18.3	3 37.2	3.0	402	20.10	9 28.25			10	10 22.01	
+0 19.92	+13.5				13 20.10	51 10 10.90				− 5	+9.416
d	1.13033					+11.11				− 36	
16	9.79731									+ 9.47	
((δ) − D) $\frac{d'}{100}$	1.04568									+ 40	
+13.91										−1030	
δ_2 +0 19.92		42 39.13		10 41.1						10 21.17	
	5.6	0 2.6	4 28.0	906	45.30	8 3.05			15	57 8 41.34	
	−5.7				17 45.30	51 8 46.03				− 1	+10.26
d	0.75587 n					−4.69				+ 253	
24	9.79746									+ 9.85	
((δ) − D) $\frac{d'}{100}$	0.67137 n									+ 40	
+13.94										−990	
δ_1 +0 19.17		45 42.69		9 0.9						8 41.70	
	0.9	0 27.0	52.2	1392	69.60	7 38.75			15	8 42.64	
	+25.8				15 9.60	51 8 21.40				− 18	+9.63
d	1.41162					+21.24				− 2	
	9.79746									+ 9.43	
((δ) − D) $\frac{d'}{100}$	1.32712									+ 40	
+13.94										−1020	
δ_2 +0 19.17		45 42.73		9 1.2						8 42.07	
	4.6	3 4.0	28.7	27	4635	0 2.00			20	50 1 1.26	
	+19.3				22 4635	50 0 44.98				− .10	+8.50
d	1.28556					+16.28				− 31	
28	9.80792									+ 8.56	
((δ) − D) $\frac{d'}{100}$	1.21152									+ 35	
+13.76										− 9.60	
δ_1 +0 18.54		48 9.84		1 18.7						1 0.16	
	9.7	3 5.8	31.0	22	4840	59 59.95			20	1 1.24	
	+22.1				23 4840	50 0 42.60				− .13	+8.12
d	1.34439					+18.64				− 31	
	9.80792									+ 8.20	
((δ) − D) $\frac{d'}{100}$	1.27035									+ 35	
+13.76										− 9.90	
δ_2 +0 18.54		48 9.85		1 18.0						0 59.45	

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

1871phae.proj.1579R

154 155 60

Date$_1$ = 1872, Feb. 1. Observer W.A.R. Recorder W.A.R.

Date$_2$ = 1872, Feb. 4. Observer ~~W.A.R.~~ A.M. Recorder ~~W.A.R.~~ A.M.

Rur

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	50 20	50 02	8.8	49 46.3	50 10.0	13.1	16.3	19.4	22.6	5 14	16.28	50 16.28	
	49 6.3	50 0.4	8.4	47.3						+8.16		+ 7.48	
	κ			48.6								+ .64	1.24
				142.2								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			47.4								50 24.38	
	52 38											− .04	
	55 26 α_1											50 24.34	+13.78 +0 11
			—	49 48.4	50 8.7	11.8	14.8	18.4	21.5	7 52	15.04	50 15.04	
				49.9						+9.33		+ 8.80	
	κ			51.6								+ .55	
				149.9								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			49.9								50 24.37	
	α_2											+ .02	
												50 24.39	+13.7 +0 1
4	57 41	51 56	8.4	57 23.5	33.3	36.6	39.9	43.3	46.7	19 98 3 996		57 3.996	
	56 26.9	51 54.9	8.8	24.9						+8.15		+ 7.48	
	κ			26.8								+ .69	28
				75.2								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			25.1								57 48.11	
	54 29											− .12	
	α_1											57 47.99	+14.1 +0 1
			8.5	57 16.7	32.0	35.4	38.6	42.0	45.4	19 34	38.68	57 38.68	
				18.1						+9.38		+ 8.81	
	κ	5 1 30		19.7								+ .59	
				54.5								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			18.1								57 48.06	
												− .05	
	α_2											57 48.01	+14.1 +0 1
5	3 32	52 52	8.7	2 48.6	3 19.3	22.6	26.0	29.4	32.8	13 01	26.02	3 26.02	
	2 11.6	52 50.5	9.0	50.6						+8.17		+ 7.48	
	κ			52.7								+ .71	18
				151.9								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			50.6								3 34.19	
												− .17	
	α_1											3 34.02	+14.3 +0 1
			9.0	8 4.3	18.0	21.3	24.8	28.6	31.8	12 42	24.84	3 24.84	
				5.6						+9.40		+ 8.81	
	κ			7.0								+ .61	
				16.9								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			5.6								3 34.24	
												− .11	
	α_2											3 34.13	+14.3 +0 1
5	6 43	52 07	9.3	6 9.2	28.2	31.6	35.0	38.3	41.8	17 49	34.98	6 34.98	
	5 22.0	52 5.7	9.1	10.7						+8.16		+ 7.49	
	κ			12.0								+ .69	40
				31.9								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			10.6								6 43.14	
												− .19	
	α_1											6 42.95	+14.2 +0 1
			8.8	6 13.3	27.0	30.2	33.6	36.9	40.2	16 79	33.58	6 33.58	
				14.6						+9.39		+ 8.82	
	κ			16.8								+ .59	
				44.7								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			14.9								6 42.97	
												− .13	
	α_2											6 42.84	+14.2 +0 1
5	8 32	52 41	8.4	8 6.5	18.0	21.4	24.8	28.4	31.9	12 46	24.92	8 24.92	
	7 11.5	52 40.6	8.2	8.6						+8.18		+ 7.49	
	κ			10.3								+ .71	.26
				25.4								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			8.5								8 33.10	
												− .21	
	α_1											8 32.89	+14. +0 1
			8.0	8 7.9	16.9	20.3	23.6	27.0	30.5	11 83	23.66	8 23.66	
				9.3						+9.41		+ 8.82	
	κ			11.6								+ .61	
				28.8								− 2	
	((δ) − D) $\frac{\kappa'}{100}$			9.6								8 33.07	
												− .15	
	α_2											8 32.92	+14.3 +0 1

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

1871phaeproj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+28.9	2′ 13.2	37.1	21	55.15	0	53.20		20′	50° 2′ 0.54	
	1.46090			21	55.15	50 1	36.18			− 23	+8.49
d	9.80777						+24.36			− 21	
	1.38671									+ 8.58	
((δ) − D) $\frac{d'}{100}$										+ 35	
+13.78										−9.60	
δ₁		50 38.12		2 11.4						1 59.43	
+0 11.94											
	+25.1	2 8.8	23.0	21	32.90	0	57.45		20	2 1.26	
	1.39967			27	10.90	50 1	40.10			− .17	+8.20
d	9.80777						+21.16			− 20	
	1.32548									+ 8.22	
((δ) − D) $\frac{d'}{100}$										+ 35	
+13.78										− 9.90	
δ₂		50 38.17		2 11.5						1 59.56	
+0 11.94											
	+14.9	2 28.8	54.0	27	11.40	55	36.95		25	51 56 31.98	
	1.17319			27	11.40	51 56	19.93			− 6	+10.90
28 d	9.78999						+12.05			− 24	
	1.08122									+ 10.75	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.15										− 10.00	
δ₁		58 2.14		56 48.9						56 32.88	
+0 16.05											
	+20.6	2 32.0	58.1	27	15.05	55	33.30		25	56 32.62	
	1.31387			27	15.05	51 56	15.95			− .12	+10.34
d	9.78999						+ 16.67			− 25	
	1.22190									+ 10.31	
((δ) − D) $\frac{d'}{100}$										+ .40	
+14.15										− 10.30	
δ₂		58 2.16		56 48.7X						56 32.66	
+0 16.05											
	+35.4	2 35.0	1.6	32	18.30	52°	30.05		30	52 51 41.09	
	1.54900			32	18.30	52 51	13.03			− 32	+11.75
18 d	9.78097						+28.06			− 25	
	1.44801									+ 11.82	
((δ) − D) $\frac{d'}{100}$										+ .50	
+14.35										− 10.10	
δ₁		3 48.37		51 57.4						51 42.74	
+0 14.61											
	+19.2	2 21.7	48.6	32	5.75	50	43.20		30	51 41.07	
	1.28330			32	6.75	52 51	25.85			− 9	+11.45
d	9.78097						+15.22			− 23	
	1.18231									+ 11.32	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.35										− 10.40	
δ₂		3 48.48		51 56.7						51 42.12	
+0 14.61											
	+24.4	2 52.8	17.0	17	34.90	5	13.45		15	52 6 16.10	
	1.38739			17	34.90	52 5	56.43			− .15	+10.97
40 d	9.78837						+19.67			− 27	
	1.29380									+ 10.74	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.23										− 9.80	
δ₁		6 57.18		6 31.1						6 17.27	
+0 13.80											
	+18.7	2 46.1	11.9	17	29.90	5	19.35		15	6 17.07	
	1.27184			17	29.90	52 6	2.00			− .10	+10.51
d	9.78837						+15.07			− 27	
	1.17825									+ 10.48	
((δ) − D) $\frac{d'}{100}$										+ .40	
+14.23										− 10.20	
δ₂		6 57.07		6 31.2						6 17.38	
+0 13.80											
	+16.4	2 49.2	14.2	42	31.70	40	16.65		40	52 41 12.68	
	1.21484			42	31.70	52 40	59.63			− 7	+11.77
26 d	9.78263						+13.05			− 27	
	1.15551									+ 11.61	
((δ) − D) $\frac{d'}{100}$										+ .50	
+14.35										− 9.90	
δ₁		8 47.24		41 27.9						41 14.55	
+0 13.32											
	+14.1	2 43.6	10.4	42	27.00	40	21.35		40	41 15.22	
	1.14922			42	27.00	52 41	4.00			− 5	+11.26
d	9.78263						+11.22			− 26	
	1.04989									+ 11.12	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.35										− 10.30	
δ₂		8 47.27		41 29.5						41 16.18	
+0 13.32											

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

1871phae.prd.1579R

154

Date$_1$ = 1872, Feb. 1 — Observer W.A.R. — Recorder W.A.R.

155

Date$_2$ = 1872, Feb. 4, — Observer ~~W.A.R.~~, A.M. — Recorder ~~W.A.R.~~, A.M.

62

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
5	11m 50s	52° 02′	9.3	11m 10.0	35.3	38.5	42.0	45.4	48.5	209.7	41.94	m	s
	10 29.0	52 0.6	9.1	11.9						+8.16		11	41.94
	κ			13.8								+	7.49
	((δ) — D) $\frac{\kappa'}{100}$			35.7								+	.69
				11.9								—	2
	c_1											11	50.10
												—	23
												11	49.87
			9.0	11 18.2	34.0	37.4	40.7	44.1	47.4	203.6	40.72	11	40.72
				17.5						+9.39		+	8.82
	κ			21.1								+	.59
	((δ) — D) $\frac{\kappa'}{100}$			58.8								—	2
				19.6								11	50.11
	a_2											—	17
												11	49.94
5	14 19	62 06	7.7	13 20.6	14 2.9	6.2	9.6	12.9	16.3	479	9.58	14	9.58
	12 58.2	52 8.1	7.8	21.9						+8.16		+	7.49
	κ			23.2								+	.69
	((δ) — D) $\frac{\kappa'}{100}$			95.7								—	2
21 49				31.9								14	17.74
	a_1											—	25
												14	17.49
			8.2	13 49.4	14 1.6	5.0	8.4	11.8	15.0	418	8.36	14	8.36
				50.8						+9.39		+	8.82
	κ			52.5								+	.59
	((δ) — D) $\frac{\kappa'}{100}$			152.4								—	2
				50.8								14	17.75
	a_2											—	19
												14	17.56
5	23 32	51 13	9.2	23 11.5	23.9	27.0	30.6	33.7	37.0	152.2	30.44	23	30.44
	22 17.7	51 12.6	9.2	12.7						+8.16		+	7.50
	κ			13.9								+	.68
	((δ) — D) $\frac{\kappa'}{100}$			38.7								—	2
				12.7								23	38.60
	a_1											—	30
												23	38.30
			9.2	23 11.8	22.7	25.8	29.0	32.3	35.8	145.8	29.12	23	29.12
				13.4						+9.38		+	8.83
	κ			15.3								+	.57
	((δ) — D) $\frac{\kappa'}{100}$			46.5								—	2
				13.5								23	38.50
	a_2											—	25
												23	38.25
5	−25 24	52 29	8.5	24 52.0	25 9.8	13.2	16.5	19.9	23.3	82.7	16.54	25	10.54
	24 22	52 28.1	8.5	53.8						+8.18		+	7.50
	κ			55.9								+	70
	((δ) — D) $\frac{\kappa'}{100}$			161.7								—	2
				53.9								25	24.72
	a_1											—	33
												25	24.39
			—	25 [illegible]	8.5	11.8	15.1	18.6	22.0	76.0	15.20	25	15.20
				3.8						+9.41		+	8.83
	κ			5.6								+	.60
	((δ) — D) $\frac{\kappa'}{100}$			11.9								—	4
				4.0								25	25.01
	a_2											—	28
												25	24.33
5	29 18	52 40	8.8	28 29.7	29 4.7	7.8	11.3	14.7	18.0	565	19.30	29	11.30
	27 57.5	52 38.8	8.9	31.7						+8.19		+	7.50
	κ			32.8								+	71
	((δ) — D) $\frac{\kappa'}{100}$			94.2								—	2
				31.4								29	19.49
	a_1											—	36
												29	19.13
			8.7	28 55.2	29 3.5	6.8	10.2	13.6	16.8	509	10.18	29	10.18
				56.6						+9.42		+	8.83
	κ			58.0								+	.61
	((δ) — D) $\frac{\kappa'}{100}$			169.8								—	2
				56.6								29	19.60
	a_2											—	32
												29	19.28

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

1871phmae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+30.0	2′ 21.6	45.8	22′	3,70	0 44.65			20′	52 1 51.86	
d	1.47712					52 1 27.63				− 24	+10.85
1.12	9.78918					+24.23				− 22	
((δ) − D) $\frac{d'}{100}$	1.38434									+ 10.86	
										+ .45	
+14.24 δ₁										− 9.70	
+0 12.51		12 4.11		2 5.5						1 53.01	
	+21.1	2 12.2	38.6	21	55.40	0 52.95			20	1 52.64	
d	1.32428					52 1 35.60				− .12	+10.48
	9.78918					+17.04				− 21	
((δ) − D) $\frac{d'}{100}$	1.23150									+ 10.41	
										+ .40	
+14.24 δ₂										− 10.10	
+0 12.51		12 4.18		2 5.5						1 53.02	
	+37.7	3 0.7	26.1	17	43.40	5 4.95			15	52 6 18.32	
.22 d	1.57634					52 5 47.93				− .38	+10.71
	9.78837					+30.39				− 30	
((δ) − D) $\frac{d'}{100}$	1.48275									+ 10.94	
										+ .45	
+14.27 δ₁										− 9.70	
+0 11.85		14 31.76		6 31.2						6 19.33	
	+17.6	2 44.0	28.4	17	26.20	5 22.15			15	6 18.99	
d	1.24551					52 6 4.80				− 9	+10.53
	9.78837					+14.19				− 26	
((δ) − D) $\frac{d'}{100}$	1.15192									+ 10.48	
										+ .40	
+14.27 δ₂										− 10.00	
+0 11.85		14 31.83		6 31.4						6 19.52	
	+17.7	0 27.8	−8.2	10	9.80	12 38.55			10	51 13 36.08	
32 d	1.24797					51 13 21.53				− 9	+10.23
	9.79684					+14.55				− 2	
((δ) − D) $\frac{d'}{100}$	1.16285									+ 9.94	
										+ .40	
+14.15 δ₁										− 9.30	
+0 9.45		23 52.45		13 46.5						13 37.01	
	+15.6	0 28.7	49.8	10	6.75	12 41.60			10	13 37.07	
d	1.19312					51 13 24.25				− 7	+9.84
	9.79684					+12.82				− 1	
((δ) − D) $\frac{d'}{100}$	1.10800									+ 9.52	
										+ .40	
+14.15 δ₂										− 9.60	
+0 9.45		23 52.40		13 46.8						13 37.31	
	+22.6	0 38.6	8.8	53	21,20	29 27.15			55	52 28 28.20	
d	1.35411					52 28 10.13				− 14	+11.63
34	9.78478					+18.07				− 4	
((δ) − D) $\frac{d'}{100}$	1.25693									+ 11.36	
+14.38										+ .45	
+0 8.97 δ₁		25 38.77		28 39.3						− 9.50	
										28 30.33	
	+11.2	0 28.7	55.2	55	11,95	27 36.40			55	28 28.00	
d	1.04922					52 28 19.05				− 3	+11.23
	9.78478					+8.95				− 2	
((δ) − D) $\frac{d'}{100}$	0.95204									+ 10.88	
										+ .40	
+14.38										− 9.70	
+0 8.97 δ₂		25 38.71		28 38.3						1.90	
										28 29.33	
	+39.9	4 50.6	16.7	44	33,65	38 14.70			40	52 39 29.44	
12 d	1.60047					52 38 57.68				− .42	+11.12
	9.78296					+31.76				− 49	
((δ) − D) $\frac{d'}{100}$	1.50197									+ 11.58	
										+ 45	
+14.43										− 9.50	
+0 7.98 δ₁		29 33.56		39 39.0						39 ~~49.03~~ 39.06	
	+13.6	4 26.8	52.6	44	9.70	38 38.65			40	39 32.13	
d	1.13354					52 39 21.30				− 5	+10.99
	9.78296					+10.83				− 46	
((δ) − D) $\frac{d'}{100}$	1.03454									+ 10.10	
										+ 40	
+14.43										− 9.90	
+0 7.98 δ₂		29 33.71		39 41.2						39 33.22	

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

1871phae.proj.1579R

154

Date$_1$ = 1872, Feb. 1. Observer W. A. R. Recorder W. A. R.

155

Date$_2$ = 1872. Feb. 4. Observer ~~W. A. R.~~ A. M. Recorder ~~W. A. R.~~ A. M.

64

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
5	h m s 31 29	° ′ ″ 80 52 07	8.3 8.0	m 30	s 37.6 38.2 41.7	s 45.0	s 48.1	s 51.5	s 54.9	s 58.4	25 39 +8.17	51.58	m 30	s 51.58
	κ												+	7.50
													+	.69
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				11.85								30	59.75
	c_1				39.5								−	37
													30	59.38
			—	30	37.6 8.7 10.2	30 49.8	53.8	57.0			+9 40		30	50.15
	κ												+	8.83
													+	.59
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				26.5	1st 1.2 gone.							30	59.51
	a_2				8.8								−	32
													30	59.19 23
5	5	33 07 31 46.7	52 24 52 23.0	6.9 7.0	32	21.0 22.6 23.9	54.0	57.3	0.8	4.1	7.5	30 37 +8.19	60.74	33	0.74
	κ												+	7.51
													+	.70
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				67.5								33	8.93
	a_1				22.5								−	39
													33	8.54
			7.0	32	40.0 41.7 43.8	52.8	56.2	57.6	2.8	6.2	29 76 +9 41	59.52	32	59.52
	κ												+	8.83
													+	.60
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				125.5								33	8.93
	a_2				41.8								−	34
													33	8.59
5	5	35 15 33 54.5	52 06 52 5.8	6.8 8.1	34	51.2 52.6	55 1.8	4.9	8.8	11.5	14.9	4 11 +8.19	8.22	35	8.22
	κ				123.8								+	7.51
													+	.70
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				51.9								35	16.41
	a_1												−	40
													35	16.01
			6.5	34	36.6 37.7 38.7	35 0.2	3.7	7.1	10.4	13.7	3 51 +9 41	7.02	35	7.02
	κ												+	8.84
													+	.59
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				113.2								35	16.43
	a_2				37.7								−	.36
													35	16.07
5	5	37 43 36 22.7	52 39 52 38.4	8.9 9.0	37	8.0 9.5 10.7	30.1	33.6	37.0	40.8	43.6	18 46 +8.19	36.92	37	36.92
	κ												+	7.51
													+	.70
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				28.2								37	45.11
	a_1				9.4								−	.43
													37	44.68
			9.0	37	18.7 19.7 21.6	28.9	32.1	35.6	39.0	42.5	17 81 +9 42	35.62	37	35.62
	κ												+	8.84
													+	.60
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				60.0								37	45.04
	a_2				20.0								−	.38
													37	44.66
5	5	39 28 38 23.0	51 20 51 19.3	8.0 8.2	39	3.7 4.8 6.0	28.6 ~~31.6~~	31.6	35.0	38.5	41.7	17 54 +8.17	35.08	39	35.08
	κ												+	7.51
													+	.68
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				14.5								39	43.25
	a_1				4.8								−	42
													39	42.83
			8.0	39	16.5 18.0 19.6	27.3	30.4	33.7	37.0	40.3	16 87 +9 40	33.74	39	33.74
	κ												+	.84
													+	.58
													−	2
	((δ) − D) $\frac{\kappa'}{100}$				54.1								39	43.14
	a_2				18.0								−	37
													39	42.77

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

1871phae.proj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z,	δ′
	s	2′ 59.2	23.2	17	41,20	5 7.15			15″	52° 5′ 59.88	
	+12.1					52 5 50.13				− 4	+11.07
1.47 d	1.082799					+9.75				− 30	
	9.788837									+ 10.96	
((δ) − D) $\frac{d'}{100}$	0.589920									+ .45	
										− 9.30	
+14.33 δ_1		31 13.71		6 9.2						6 1,65.	
+0 7.53											
	+7.3	2 32.2	56.9	17	14,55	5 33.80			15″	6 1.38	
	−18.7					52 6 16.45				− .10	+10.54
d	1.27184m					−15.07				− 25	
	9.78837									+ 10.49	
((δ) − D) $\frac{d'}{100}$	1.178 25m									+ .40	
										− 9.70	
+14.33 δ_2		31 13.56		6 9.8						6 2.22	
+0 7.53											
	+3.2	4 7.3	31.3	58	49.30	23 59.05			55″	52 25 12.60	
	1.58206					52 24 42.03				− .38	+10.97
22 d	9.78527					+30.57				− .42	
	1.48537									+ 11.32	
((δ) − D) $\frac{d'}{100}$										+ .45	
										− 9.30	
+14.39 δ_1		33 22.93		25 21.5						25 14.27	
+0 7.26											
	+17.7	8 48.3	13.2	58	30,75	24 17.60			55″	25 14.42	
	1.24797					52 25 0.25				− 9	+10.76
d	9.78527					+14.17				− 39	
	1.15128									+ 10.84	
((δ) − D) $\frac{d'}{100}$										+ .40	
										− 9.70	
+14.39 δ_2		33 22.98		25 22.7						25 15.48	
+0 7.26											
	+16.3	2 41.4	6.4	17	23,90	5 24.45			15″	52 6 20.57	
	1.21219					52 6 7.43				− 4	+11.08
20 d	9.78837					+13.14				− 36	
	1.11860									+ 10.96	
((δ) − D) $\frac{d'}{100}$										+ .45	
										− 9.20	
+14.34 δ_1		35 30.35		6 28.9						6 22.45	
+0 6.42											
	+29.3	2 50.1	15.9	17	33,00	5 15.35			15″	6 21.62	
	1.46687					52 5 58.00				− 22	+10.38
d	9.78837					+23.62				− 29	
	1.37328									+ 10.49	
((δ) − D) $\frac{d'}{100}$										+ .40	
										− 9.60	
+14.34 δ_2		35 30.41		6 28.8						6 22.40	
+0 6.42			52.4								
	+5.5	0 27.8	− 7.6	45	10.40	37 38.25			45″	52 38 43.13	
	1.43933					52 38 21.23				− 19	+11.88
d 30	9.78313					+21.90				− 2	
	1.34050									+ 11.59	
((δ) − D) $\frac{d'}{100}$										+ .50	
										− 9.30	
+14.44 δ_1		37 59.12		38 51.5						38 45.71	
+0 5.76										52 45.47	
	+15.6	0 15.0	4.3	44	58,15	37 50.20			45″	38 45.27	
	1.19312					52 38 32.85				− 7	+11.48
d	9.78313					+12.42				− 0	
	1.09429									+ 11.10	
((δ) − D) $\frac{d'}{100}$										+ 45	
										− 9.70	
+14.44 δ_2		37 59.10		38 52.8						38 47.05	
+0 5.76											
	+30.3	4 40.5	4.9	4	22,70	18 25.65			0	51 19 33.48	
	1.48144					51 19 8.63				− 24	+9.75
d 34	9.79589					+24.85				− 48	
	1.39537									+ 10.07	
((δ) − D) $\frac{d'}{100}$										+ 40	
										− 8.90	
+14.21 δ_1		39 57.04		19 39.6						19 34.33	
+0 5.25											
	+15.7	4 27.0	52.0	4	9.50	18 38.85			0	19 34.38	
	1.19590					51 19 21.50				− 7	+9.51
d	9.79589					+12.88				− 46	
	1.10983									+ 9.64	
((δ) − D) $\frac{d'}{100}$										+ .40	
										− 9.30	
+14.21 δ_2		39 56.98		19 39.8						19 34.59	
+0 5.25											

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

1871phae.proj.1579R

154

Date$_1$ = 1872, Feb. 1. Observer W.A.R. Recorder W.A.R.

155

Date$_2$ = 1872, Feb. 4. Observer ~~W.A.R.~~ A.M. Recorder ~~W.A.R.~~ A.M.

66

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
34	42 05	52 09	8.8	41 32.6	50.4	58.7	57.0	0.5	3.8	28 54	57.08	41	57.08
	40 44.2	52 8.4	8.9	34.2						+8.18		+	7.51
	κ			35.6								+	.69
	((δ) — D) $\frac{\kappa'}{100}$			102.3								−	2
				34.1								42	5.26
	α_1											−	.45
												42	4.81
			8.8	41 40.5	49.3	52.6	56.0	59.3	2.6	27 98	55.96	41	56.96
				42.1						+9.41		+	8.84
	κ			44.4								+	.59
	((δ) — D) $\frac{\kappa'}{100}$			127.0								−	2
				42.3								42	5.37
	α_2											−	.40
												42	4.97
5	44 07	52 13	8.9	43 33.2	53.0	56.5	59.8	3.0	6.4	29 84	59.74	43	59.74
	42 46.7	52 12.9	8.8	34.8						+8.18		+	7.51
	κ			36.1								+	.69
	((δ) — D) $\frac{\kappa'}{100}$			104.1								−	2
				34.7								44	7.92
	α_1											−	.47
												44	7.45
			8.7	43 42.3	51.8	55.1	58.6	1.8	5.1	29 24	58.48	43	58.48
				43.5						+9.41		+	8.84
	κ			45.0								+	.59
	((δ) — D) $\frac{\kappa'}{100}$			130.8								−	2
				43.6								44	7.89
	α_2											−	.42
												44	7.47
5	46 00	51 46	6.8	45 35.7	49.7	52.9	56.2	59.7	3.0	28 16	56.32	45	56.32
	44 44.8	51 45.4	7.0	36.5						+8.18		+	7.51
	κ			38.0								+	.69
	((δ) — D) $\frac{\kappa'}{100}$			110.5								−	2
				36.8								46	4.50
	α_1											−	.47
												46	4.03
			7.0	45 35.7	48.5	51.8	55.1	58.5	1.8	27 57	55.14	45	55.14
				37.0						+9.42		+	8.85
	κ			38.5								+	.59
	((δ) — D) $\frac{\kappa'}{100}$			111.2								−	2
				37.1								46	4.56
	α_2											−	.43
												46	4.13
5	48 03	52 01	—	47 ~~48.7~~	48.7	52.1	55.4	58.7	2.0	27 69	55.38	47	55.38
	46 41.5	~~51~~ ~~53.0~~	9.0	~~52.1~~						+8.18		+	7.51
	κ	52 1.1		~~55.4~~								+	.69
	((δ) — D) $\frac{\kappa'}{100}$			34.1								−	2
				35.3								48	3.56
	α_1			36.8								−	.49
				106.2								48	3.07
				35.4									
			8.8	47 40.3	47.5	50.8	54.1	57.6	61.0	27 10	54.20	47	54.20
				41.7						+9.42		+	8.85
	κ			43.7								+	.59
	((δ) — D) $\frac{\kappa'}{100}$			125.7								−	2
				41.9								48	3.62
	α_2											−	.45
	Feb. 1											48	3.17
4	36 37	51 05	8.6	36 6.2	27.4	30.5	33.8	37.0	40.2	16 89	33.78	36	33.78
	35 23.4	51 2.7	8.1	7.3						+8.12		+	7.47
	κ			8.9								+	.67
	((δ) — D) $\frac{\kappa'}{100}$			22.4								−	2
				7.5								36	41.90
	α_1											+	.06
	Feb. 1											36	41.96
4	52 38	51 52	9.2	52 ~~12.7~~	32 26.1	29.1	32.5	35.8	39.4	16 30	32.60	52	32.60
	~~51~~ ~~21.1~~	51 38.2	9.0	~~10.8~~						+8.15		+	7.48
	κ			35.3								+	.69
	((δ) — D) $\frac{\kappa'}{100}$											−	2
												52	40.75
	α_2											−	.07
												52	40.68

no Rm Obsn

Single Observations

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

1871phaeproj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+23.0	0′ 43.2	6.3	15	24.75	7 23.60			15′	52° 8′ 25.11	
	1.36173					52 8 6.58				− 14	+11.27
d	9.78805					+18.53				− 4	
12	1.26782									+11.00	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.36										−9.00	
+0 4.62 δ₁		42 19.17		8 32.0						8 27.38	
	+13.7	0 33.1	58.3	15	15.70	7 22.65			15	8 25.60	
	1.13672					52 8 15.30				− 5	+10.86
d	9.78805					+10.30				− 3	
	1.01281									+10.54	
((δ) − D) $\frac{d'}{100}$										+ .40	
+14.36										−9.40	
+0 4.62 δ₂		42 19.33		8 31.7						8 27.06	
	+25.0	0 25.4	50.2	10	7.80	12 40.53			10	52 13 43.63	
	1.39794					52 13 23.53				− 17	+11.39
26 d	9.78723					+20.10				−	
	1.30321									+ 11.12	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.38										−9.00	
+0 4.11 δ₁		44 21.83		13 50.1						13 46.02	
	+14.9	0 15.6	41.2	9	5.80	12 49.95			10	13 44.58	
	1.17319					52 13 32.60				− 6	+10.99
d	9.78723					+11.98				− 0	
	1.07846									+10.65	
((δ) − D) $\frac{d'}{100}$										+ .40	
+14.38										−9.40	
+0 4.11 δ₂		44 21.85		13 50.3						13 46.17	
	+19.5	2 28.0	58.0	37	10.50	45 37.85			35	51 46 36.67	
	1.29003					51 46 20.83				− .10	+10.70
d	9.79160					+15.84				− 24	
	1.19967									+10.59	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.29										−8.80	
+0 3.60 δ₁		46 18.32		46 42.2						46 38.57	
	+18.0	2 27.3	52.3	37	9.80	45 38.55			35	46 35.82	
	1.25527					51 46 21.20				− 9	+10.20
d	9.79160					+14.62				− 24	
	1.16491									+10.13	
((δ) − D) $\frac{d'}{100}$										+ .40	
+14.29										−9.30	
+0 3.60 δ₂		46 18.42		46 40.3						46 36.72	
	+20.0	2 37.0	1.4	22	19.20	0 29.15			20	52 1 28.28	
	1.30103					52 1 12.13				− 11	+10.98
18 d	9.78918					+16.15				− 25	
	1.20825									+10.89	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.35										−8.90	
+0 3.06 δ₁		48 17.42		1 33.4						1 30.36	
	+12.3	2 27.1	53.9	22	10.50	0 37.85			20	1 30.43	
	1.08991					52 1 20.50				− 4	+10.54
d	9.78918					+9.93				− 24	
	0.99713									+10.42	
((δ) − D) $\frac{d'}{100}$										+ .40	
+14.35										−9.30	
+0 3.06 δ₂		48 17.52		1 34.7						1 31.67	
	+26.3	4 27.0	51.8	19	9.40	3 38.95			15	51 4 43.62	
	1.41996					51 4 21.93				− .18	+9.51
d	9.79825					+21.69				− .46	
18	1.33623									+9.75	
((δ) − D) $\frac{d'}{100}$										+ .40	
+13.86										−10.10	
+6 21.33 δ₁		36 55.82		5 4.4						4 43.03	
	−2.7	2 18.5	43.7	32	1.10	50 47.25			30	51 51 28.04	
	0.43136					51 51 30.23				− 1	+10.88
d	9.79079					−2.19				− 22	
	0.34019									+10.66	
((δ) − D) $\frac{d'}{100}$										+ .45	
+14.11										~~−10.10~~	
+0 17.34 δ₂		52 54.79		51 46.4						−9.90	
										51 29.02	

1.26 ± .050

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

1871phae.proj.1579R

Single Observations

Date$_1$ = 1872 Feb. 1 154 | Observer W.A.R. | Recorder W.A.R. | Date$_2$ = Feb 4 155 | Observer A.M. | Recorder A.M. | 68

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	33 54	26 12.2	51 45 51 43.3	9.8 9.5	55	4.0 5.2 6.7 15.9 5.3	17.5	20.8	24.2	27.6	31.0	12.11 +8.15	24.22	55 24.22 + 7.48 + .69 − 2 55 32.37 − .10 55 32.27	+14.1 +0 16
4	59 58	29 9.4	52 38 52 31.8	10.0 9.4	59	10.5 12.2 13.6 36.3 12.1	15.3	18.8	22.3	25.3	29.0	11 07 +8.16	22.14	59 22.14 + 7.48 + .70 − 2 59 30.30 − .14 59 30.16	+14. +0 1
5	21 20	49 34.6	51 07 51 6.1	7.7 7.6	21	25.1 27.0 28.3 80.4 26.8	38.6	41.9	45.3	48.5	51.8	22 61 +8.15	45.22	21 40.22 + 7.50 + .67 − 2 21 53.37 − .29 21 53.08	+14. +0 9
5	1 0	30 15.9	51 54 51 52.0	9.0 9.0	D	58.4 59.7 61.3 179.4 59.8	1 22.5	26.0	29.3	32.6	36.0	14 64 +9.38	24.28	1 29.28 + 8.81 + .59 − 2 1 38.66 − .09 1 38.57	+14.1 +0 1

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

1871phaeproj.15798

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+18.9	4′ 0″.7	25″.7	38″	43″.20	44 5.15			35″	51° 45′ 3″.49	
	1.27646					51 44 48.13				− .10	+1.048
d	9.79176					+15.36				− .41	
	1.18626									+ 10.54	
										+ .45	
$((\delta) - D)\frac{d'}{100}$										− 10.00	
+14.11				45 20.6						45 [illegible]	
δ_1 +0 16.65		55 46.38		52 1.6							20.62
	+10.0	0 26.6	1.3	50	18.95	32 29.40			50	52 33 20.36	
	1.00000					52 33 12.38				− 3	+11.84
d	9.78395					+7.98				− 3	
	0.90199									+ 11.45	
										+ .45	
$((\delta) - D)\frac{d'}{100}$										− 10.10	
+14.28										33 22.10	
δ_2 +0 15.63		59 44.44		33 37.7							
	+18.4	0 56.4	20.0	15″	38.20	7 10.15			15″	51 8 8.28	
	1.26482					51 7 53.13				− 9	+18.08
d	9.79762					+15.15				− 7	
	1.18048									+ 9.84	
										+ .40	
$((\delta) - D)\frac{d'}{100}$										− 9.70	
+14.12										− 9.30	
δ_1 +0 9.90		22 7.20		8 19.0						8 9.06	
	+29.5	4 51.8	17.8	29	34.80	53 13.55			25″	51 54 20.09	
	1.46982					51 53 56.20				− .22	+10.00
d	9.79031					+23.89				− .50	
	1.37817									+ 10.27	
										+ .45	
$((\delta) - D)\frac{d'}{100}$										− 10.20	
+14.17										54 19.89	
δ_2 +0 15.12		1 52.74		54 35.0							
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_1											
d											
$((\delta) - D)\frac{d'}{100}$											
δ_2											

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

1871phae.proj.1579R

156

Date$_1$ = 1872, Feb. 7. Observer W.A.R. Recorder W.A.R.

n_1 = +4.36

157

Date$_2$ = 1872, Feb. 8. Observer W.A.R. Recorder W.A.R.

n = +42 c = −.06

70

Star.	α	δ	Mag.	T_g	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
2	55 58	50 24	8.7	55	23.2	45.6	49.0	52.1	55.4	58.7	26 08 52.16		52.16
	54 47.2	50 21.8	8.6		24.8						+10.26 29	+0.15	55 + 9.847
	κ				26.8								+ .44
					27.7								− 2
	((δ) − D) $\frac{\kappa'}{100}$				102.5								56 2.42
37	35				25.6								+ 54
39	9 c_1												56 2.99
41	36		8.6	56	51.7	55			55.0	58.3			55 51.80
44	8				6.7						+10.64 61+01	Add +.015 to (ΔT_4 m) for T_4 1.8	+ 10.24
47	2 κ				7.5								+ .51
49	4 3 ((δ) − D) $\frac{\kappa'}{100}$				19.9								− 9
52	14				6.6							It has been added to sum of constants 56 and final R.A.	− 2
	c_2												56 2.44
													+ 57
													56 2.98
3	58 01	50 33	8.1	58	4.0	34.0	37.3	40.5	43.7	46.9	20 24 40.48		58 40.48
	56 ~~54.1~~	~~50 29.8~~	9.0		5.4						+10.26 29		+ 9.847
	κ 57 35.3	50 33.0			6.6								+ .44
4 0	30 ((δ) − D) $\frac{\kappa'}{100}$				14.9								− 2
					5.3								58 50.74
	α_1												+ 52
													58 51.29
			8.2	58	12.3	33.7	36.8	40.0	43.2	46.4	20 01 40.02		58 40.02
					13.6						+10.64 61+02		+ 10.24
	κ				15.1								+ .51
					41.0								− 9
	((δ) − D) $\frac{\kappa'}{100}$				13.7								− 2
													58 50.66
	α_2												+ 54
													58 51.19
4	0 3 27	50 00	9.0	2	55.8	3 14.7	18.0	21.0	24.3	27.5	10 55 21.10		3 21.10
	2 15.0	49 56.7	8.8		56.8						+10.25 28		+ 9.847
	κ				58.3								+ .43
					170.9								− 2
	((δ) − D) $\frac{\kappa'}{100}$				56.9								3 31.36
	α_1												+ 47
													3 31.83
			9.0	3	35.9	3			24.1	27.0			3 20.94
					37.2						+10.63 60+01		+ 10.24
	κ				38.7								+ .50
					111.8								− 9
	((δ) − D) $\frac{\kappa'}{100}$				37.3								− 2
													3 31.37
	α_2												+ 50
													3 31.87
4	5 28	50 32	9.0	4	55.0	5 21.7	25.0	28.1	31.2	34.4	14 04 28.08		5 28.08
	4 ~~16.3~~	50 29.4	9.2		57.2						+10.26 29		+ 9.847
	κ 22.1	.0			59.5								+ .44
					171.7								− 2
	((δ) − D) $\frac{\kappa'}{100}$				57.2								5 38.34
	α_1												+ 46
													5 38.83
			8.9	5	2.0	21.1	24.3	27.6	30.7	34.0	13 77 27.54		5 27.54
					4.0						+10.64 61+02		+ 10.24
	κ				5.7								+ .51
					11.7								− 9
	((δ) − D) $\frac{\kappa'}{100}$				3.9								− 2
	α_2												5 38.18
													+ 49
													5 38.67
4	7 47	50 30	9.1	7	10.0	36.3	39.5	42.7	45.8	49.1	21 34 42.66		7 42.68
	6 35.5	50 26.9	9.2		11.6						+10.26 30		+ 9.848
	κ				13.5								+ .44
					33.1								− 2
	((δ) − D) $\frac{\kappa'}{100}$				11.7								7 52.94
	α_1												+ 44
													7 53.42
	6 16.8	50 29.9	7.0	7	34.5	—	18.1	21.4	24.7	28.0			7 21.43
					35.8						+10.64 62+01		+ 10.24
	κ				37.6								+ .57
					107.9								− 9
	((δ) − D) $\frac{\kappa'}{100}$				35.9								− 2
	α_2												7 32.07
													+ 44
													7 32.58

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

1871phaeproj.1579R

Feb. 7 — R7 — h m 1 56 +0 41.69 R — h m 4 55 5 36 +0. 42.23 R — +0 41.96 Reg for Zone — Rds. −.11 −.12

Runs 8 +0 42.75R

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+28.6	4′ 45.4	12.3	59	28.85	23 19.50			55	50° 24′ 23.71	
	1.42488					50 24 1.46				− .20	+8.46
d	9.80443					+22.25				− .49	
	1.34735									+ 8.86	
0.36										+ .30	
((δ) − D) $\frac{d'}{100}$										−10.30	
+13.38											
+0 30.93 δ_1		56 16.37		24 52.8						50 24 21.87	
	+44.2	4 9.6	36.4	58	53.00	23 53.35			55	24 25.72	
	−14.8					50 24 38.10				− 6	+8.48
d	1.17026 a_1					−12.38				− .47	
	9.80443									+ 8.71	
	1.09273 n									+ .30	
((δ) − D) $\frac{d'}{100}$										−10.40	
+13.38											
+0 30.93 δ_2		56 16.37		24 54.7						24 23.80	
	+35.2	3 25.8	54.4	48	10.10	34 38.25			45	50 35 49.54	
	1.54654					50 35 20.21				− .33	+8.69
d	9.80274					+29.33				− .35	
	1.46732									+ 9.07	
46										+ .30	
((δ) − D) $\frac{d'}{100}$										−10.40	
+13.43											
+0 30.30 δ_1		59 4.72		36 18.1						50 35 47.83	
	+26.3	3 19.0	47.2	48	3.10	34 45.25			45	35 49.92	
	1.41996					50 35 28.00				− .18	+8.68
d	9.80274					+21.92				− .37	
	1.34074									+ 8.93	
										+ .30	
((δ) − D) $\frac{d'}{100}$										−10.50	
+13.43											
+0 30.30 δ_2		59 4.62		36 18.4						35 48.10	
	+24.2	4 53.5	21.2	24	37.35	38 11.00			20	49 59 13.37	
	1.38382					49 58 52.96				− .15	+8.04
d	9.80807					+20.41				− .57	
	1.30993									+ 8.40	
36										+ .30	
((δ) − D) $\frac{d'}{100}$										−10.30	
+13.39										~~59 24.33~~	
+0 29.22 δ_1		3 45.24		59 40.3						59 11.71	
	~~+~~	4 18.4	46.2	24	2.30	58 46.05			20	59 14.80	
	−16.6					49 59 28.80				− 8	+8.01
d	1.22011 a_2					−14.00				− .48	
	9.80807									+ 8.27	
	1.14622 n									+ .30	
((δ) − D) $\frac{d'}{100}$										−10.30	
+13.39											
+0 29.22 δ_2		3 45.24		59 41.7						59 12.51	
	+30.9	2 26.5	53.5	52	10.00	30 38.35			50	50 31 46.10	
	1.48996					50 31 20.31				− .26	+8.80
d	9.80336					+25.79				− .24	
	1.41136									+ 9.00	
84										+ .30	
((δ) − D) $\frac{d'}{100}$										−10.40	
+13.49											
+0 28.77 δ_1		5 52.32		32 13.3						31 44.50	
	+23.6	2 21.0	49.2	52	5.10	30 43.25			50	31 45.69	
	1.37291					50 31 26.00				− .15	+8.76
d	9.80336					+19.69				− .25	
	1.29431									+ 8.86	
										+ .30	
((δ) − D) $\frac{d'}{100}$										−10.40	
+13.49											
+0 28.77 δ_2		5 52.19		32 12.8						31 44.05	
	+31.0	4 32.8	0.4	54	16.60	28 31.75			50	50 29 39.60	
	1.49136					50 29 13.71				− .26	+8.52
25 d	9.80366					+25.89				− .47	
	1.41306	Diff #'s								+ 8.85	
				5.9						+ .30	
((δ) − D) $\frac{d'}{100}$										−10.40	
+13.51											
+0 28.23 δ_1		8 6.93		30 ~~6.6~~						29 37.72	
	~~+~~	0 56.1	23.8	50	3.95	32 8.40			50	32 39.06	
	+14.5					50 32 51.15				− 5	+9.04
d	1.16137 a_3					−12.09				− .8	
	9.80305									+ 8.87	
	1.08246 n									+ .30	
((δ) − D) $\frac{d'}{100}$										−10.50	
+13.51											
+0 28.23 δ_2		7 46.04		33 5.8						32 37.60	

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

1871phae.proj.1579R

Date$_1$ = 1872, Feb. 7. Observer W.A.R. Recorder W.A.R. — Date$_2$ = 1872. Feb. 8 Observer W.A.R. Recorder W.A.R.

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	m s 10 02 8 49.5 κ	° ′ ″ 51 57 51 54.6	9.2 9.0	m 9	s 30.0 30.6 60.6 30.3	s 50.8	s 54.0	s 57.4	s 0.8	s 4.1	28 71 +10.28 32	s 57.42	m 9 + 9.88 + .46 − 2 10 7.70 + 42 10 8.16	s 57.42 30 +13.7 +0 2
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
	κ		9.6	9	36.9 38.6 40.8 116.3 38.8	50.5	54.1	57.0	0.4	3.6	28 56 +10.66 64+02	57.12	9 + 10.22 + .54 − .10 − 2 10 7.78 + 45 10 8.23	57.12 +13.7 +0 2
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													
4	12 39 11 25.4 κ	51 17 51 14.9	8.6 8.0	12	6.8 7.8 9.6 24.2 8.1	25.6	29.0	32.4	35.5	38.8	16 13 +10.27 31	32.26	12 + 9.88 + .45 − 2 12 42.53 + .40 12 42.97	32.26 32 +13.6 +0 2
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
	κ		8.9	12	10.7 12.3 13.7 36.7 12.2	25.6	28.7	31.9	35.1	38.4	15 97 +10.64 62+01	31.94	12 + 10.22 + .52 − .10 − 2 12 42.58 + 42 12 42.99	31.94 +13. +0 2
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													
4	14 20 13 7.2 κ	51 37 51 35.0	6.8 6.6	13	54.7 53.6 56.9 167.2 55.7	14 7.0	10.2	13.6	17.0	20.1	6 79 +10.27 31	13.58	14 + 9.88 + .45 − 2 14 23.85 + .38 14 24.27	13.58 26 +13. +0 26
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
	κ		6.9	13	52.8 54.7 56.6 57.6 221.7 55.4	14 7.5	9.8	13.1	16.4	19.8	6 66 +10.65 63+02	13.32	14 + 10.22 + .53 − .10 − 2 14 23.97 + .41 14 24.38	13.32 +13.7 + 26
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													
4	17 35 16 22.4 κ	51 58 51 55.9	9.1 9.0 9.3	17	11.2 12.6 13.9 37.7 12.6	23.6	26.8	30.1	33.5	36.8	15 08 +10.28 32	30.16	17 + 9.88 + .46 − 2 17 32.18 + 9.88 + .46 − 2 17 42.46	30.16 12 17 40.44 + 35 17 40.83 +0.35 +13.84 +0 25 38
	$((\delta) - D)\frac{\kappa'}{100}$			No 8		25.6	28.8	32.1	35.5	38.9	16 09 +10.28 32	32.18		
	α_1													
	κ		9.1 9.3	17 17	10 9.4 10.7 11.8 10.6 9.4	23.3	26.9	30.2	(33.4)	36.5	+10.67 64+01		17 + 10.22 + .54 − .10 − 2 17 40.73 + 38 17 41.08	30.06 42.85 1.2 9.1 1.1
	$((\delta) - D)\frac{\kappa'}{100}$			17	10.7 11.8	25.3	28.4	31.8	35.1	38.7	+10.67 64+01		17 + 10.22 + .54 − .10 − 2 17 42.44	+13.8 +0
	α_2			No 8	42.3									
4	20 13 19 0.8 κ	51 35 51 32.1	9.1 9.0	19	36.9 38.8 40.2 41.1 157.0 39.2	20 2.9	6.0	9.4	12.7	15.9	4 69 +10.27 31	9.38	20 + 9.88 + .45 − 2 20 19.65 + .33 20 20.02	9.38 + 38 20 42.83 38 +13.8 +0 2
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
	κ	21. 58		19	50.4 52.0 53.8 156.2 52.1	20 2.4	5.7	8.9	12.3	15.7	4 50 +10.66 63+02	9.00	20 + 10.22 + .53 − .10 − 2 20 19.66 + 36 20 20.02	9.00 +13.8 +0 2
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													

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

1871phaeproj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	x	δ′
d	+2.71	1 54.6	22.4	26	38.50	56 9.85			25	51° 57′ 13.73	
	1.43297					51 56 51.81				− .19	+10.61
30	9.78983					+21.92				− .18	
((δ) − D) $\frac{d'}{100}$	1.34084									+ 10.58	
										+ .40	
+13.77 δ1		10 21.93		57 41.1						−10.90	
+0 27.69										57 13.44	
d	+18.3	1 46.8	14.7	26	3975-	56 17.60			25	57 15.15	
	1.26245					51 57 0.35				− 9	+10.56
	9.78983					+14.80				− 18	
((δ) − D) $\frac{d'}{100}$	1.17032									+ 10.43	
										+ .40	
+13.77 δ2		10 22.00		57 42.5						−10.90	
+0 27.69										57 14.81	
d	+24.2	1 11.8	39.2	5-	55.50	16 52.85			5	51 17 54.67	
	1.38382					51 17 34.81				− .15	+9.96
32	9.79605					+19.86				− .10	
((δ) − D) $\frac{d'}{100}$	1.29791									+ 9.86	
										+ .35	
+13.69 δ1		12 56.66		18 21.1						−10.60	
+0 27.09										51 17 64.03	
d	+19.7	1 9.0	36.7	3-	52.85-	16 55.50			5	17 54.41	
	1.29447					51 17 38.25				− 11	9.84
	9.79605					+16.16				− 10	
((δ) − D) $\frac{d'}{100}$	1.20856									+ 9.70	
										+ .35	
+13.69 δ2		12 56.68		18 20.6						−10.70	
+0 27.09										17 63.56	
d	+17.9	0 56.5	24.3	45-	40.40	37 7.95			45	51 38 4.49	
	1.26285					51 37 49.91				− 9	+10.41
26	9.79288					+14.58				− 8	
((δ) − D) $\frac{d'}{100}$	1.16377									+ 10.23	
										+ .35	
+13.76 δ1		14 38.03		38 30.9						−10.70	
+ 26.70										38 4.20	
d	+17.9	0 57.0	25.1	45-	4.105-	37 7.30			45	38 4.63	
	1.26285					51 37 50.05				− 9	+10.25
	9.79288					+14.58				− 8	
((δ) − D) $\frac{d'}{100}$	1.16377									+ 10.07	
										+ .35	
+13.76 δ2		14 38.14		38 30.7 8						−10.80	
+ 26.70										38 4.08	
d	+17.6	0 40.3	7.7	25-	24.60	57 24.35			25	51 58 20.54	
	1.24551					51 58 6.31				− 9	+10.87
12	9.78967					+14.23				− 4	
+13.84 ((δ) − D) $\frac{d'}{100}$	1.15322	0								+ 10.60	
+0 25.92	—									+ .40	
38 δ1		17 54.67 56.69		58 46.4						−10.90	
										58 20.51	
+1.95	+29.1	0 41.5	8.8	25-	25.15-	57 23.20			25	58 ~~24.45~~ 21.72 58 23.09	
1.29033	1.46389					51 58 5.95				− ~~.10.22~~ +10.57 — .12	+10.67
d 9.78967	9.78967					~~+23.53~~		Re-Reserve.		− 5 .19 − 5	
1.19774	1.37160					+ 15.77				+ 10.44	
((δ) − D) $\frac{d'}{100}$	+ 21.2					~~+17.14~~				+ .40	
+13.84	1.32634									−10.90	
+0 25.92 δ2	9.78967	17 54.93		58 47.4						~~58 29.15~~ 58 22.86	
	1.23405	56.67								21.51	
	+30.2	4 26.0	54.3	49	10.15-	33 38.20			45	51 34 44.80	
d	1.48001					51 34 20.16				− 24	+9.81
	9.79351					+ 24.64				− 46	
38 ((δ) − D) $\frac{d'}{100}$	1.39156									+10.16	
+13.80										+ 35	
+0 25.29 δ1		20 33.82		35 9.2						−10.70	
										34 43.91	
d	+16.9	4 16.0	45.0	49	0.50	33 47.85			45	34 44.39	
	1.22789					51 34 30.60				− 8	+9.92
	9.79351					+13.79				− 36	
((δ) − D) $\frac{d'}{100}$	1.13944									+ 10.01	
										+ 35	
+13.80										−10.80	
+0 25.29 δ2		20 33.81		35 8.8						34 43.51	

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

1871phae.proj.1579R

Date$_1$ = 1872, Feb. 7. Observer W.A.R. Recorder W.A.R. Date$_2$ = 1872 Feb. 8. Observer W.A.R. Recorder W.A.R. 74 Ru

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	26m 24	85 52 36 46.2 52 33.9	9.1 8.0 9.0	25m 46.9	25 47.9	51.2	—	57.5	1.7	+10.29 33		25 + 9.82 .47 2	54.58 +1403
	(δ) − D) $\frac{\kappa'}{100}$ κ			25 31.7 32.9 34.1 34.9	26 —	—	3.8	7.0	10.5	+10.29 33		26 + 9.82 .47 2	4.87 +0 23 34
	(δ) − D) $\frac{\kappa'}{100}$ c_1	24 852 52 34,3		133.6 93.4									5.19
			9.2 8.3	25 33.0 34.7 36.6 104.3 34.8	47.2 26	51.1	54.0	57.7	1.2	27 1 2 54.24 +10.68 65+.01		25 + 10.25 .53 .10 2	54.24 +.29 14.03.31 +1403 +0 2 33
	(δ) − D) $\frac{\kappa'}{100}$ κ												
	(δ) − D) $\frac{\kappa'}{100}$ c_2			28 18.5 19.7 22.4 60.6 20.2	—	—	3.4	6.8	10.1	+10.68 65+.01		26 + 10.25 .53 .10 2	3.37 26 5.28 1405 +1403 +0 23
4	29 28 20 7.1	51 23 51 20.6	8.5 9.0	28 46.5 48.5 49.8 144.8 48.3	29 7.8	11.2	14.4	17.8	21.2	7 24 14.48 +10.27 31		29 + 9.82 .45 2	14.48 +.31 14.33 +1403 +0 36
	(δ) − D) $\frac{\kappa'}{100}$ a_1											29 24.75 + .26 29 25.05	+13.8 +0 2
	(δ) − D) $\frac{\kappa'}{100}$ κ	31 45?	8.5	28 43.6 46.0 48.6 138.2 46.1	29 7.6	10.7	14.2	17.4	20.7	7 06 14.12 +10.41 63+.02		29 + 10.25 .53 .10 2	14.12
	(δ) − D) $\frac{\kappa'}{100}$ a_2											29 24.78 + .26 29 25.04	+13.8 +0 2
4	33 32 55 37.3	52 45 52 42.5	8.7 8.7	33 19.7 21.1 22.0 23.4 86.2 21.5	40.1	43.4	46.9	50.4	53.8	23 4 6 46.92 +10.30 34		33 + 9.82 .48 2	46.92 30
	(δ) − D) $\frac{\kappa'}{100}$ a_1											33 57.22 + .21 33 57.43	+14. +0 2
	(δ) − D) $\frac{\kappa'}{100}$ κ		8.7	33 27.5 28.7 30.2 86.4 28.8	39.8	43.2	46.8	50.0 49.0	53.8	23 3 1 46.62 +10.49 66+.01		33 + 10.25 .56 .10 2	46.62
	(δ) − D) $\frac{\kappa'}{100}$ a_2											33 57.31 + .24 33 57.55	+14. +0 2
4	36 35 50 36.4	51 47 51 44.2	8.7 8.1	36 13.0 14.0 15.7 42.7 14.2	39.1	42.3	45.6	49.0	52.3	22 5 3 45.66 +10.28 32		36 + 9.82 .46 2	45.66 32
	(δ) − D) $\frac{\kappa'}{100}$ a_1											36 55.94 + .19 36 56.13	+13.9 +0 2
	(δ) − D) $\frac{\kappa'}{100}$ κ		8.5	36 13.7 15.0 16.1 44.8 14.9	38.6 38	42.0	45.4	48.7	52.0	22 6 7 45.34 +10.67 64+.02		36 + 10.25 .54 .10 2	45.34
	(δ) − D) $\frac{\kappa'}{100}$ a_2											36 56.01 + .22 36 56.23	+13. +0 2
4	38 37 43 29.9	50 43 50 40.8	9.2 9.1	38 41.4	32.0	35.0	38.3	41.6	44.7	19 1 6 38.32 +10.26 30		38 + 9.82 .44 2	38.32 26
	(δ) − D) $\frac{\kappa'}{100}$ a_1											38 48.58 + .18 38 48.80	+13. +0 24
	(δ) − D) $\frac{\kappa'}{100}$ κ		9.4	38 31.6 32.5 33.7 97.8 32.6	31.0	35.2	38.1	41.4	44.6	19 0 3 38.06 +10.65 62+.01		38 + 10.25 .52 .10 2	38.06
	(δ) − D) $\frac{\kappa'}{100}$ a_2											38 48.71 + .21 38 48.89 90	+13.81 +0 24

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′	
+14.03	+7.7	2′ 34.4	2.4	47	18.40	35 29.95			45	52° 36′ 18.05	36′ 36.06	
+0 23.94	0.88649					52 36 11.91				− 2 +11.46	− 24	+11.45
d	9.78346					+ 6.14				− 25	− 25	
34	4.78799									+ 11.33	+ 11.34	
((δ) − D) $\frac{d'}{100}$	+30.3			47	18.40	35 29.95				+ .40	+ 40	
	1.48144					52 36 11.91				− 11.00	− 11.00	
δ1	9.78346	26 19.22		36 42.4		+ 24.15				36 18.51	36 36.81	✓
+14.03	1.26490	28.34		37 0.8								
+0 23.94	+19.4	2 45.0	13.5	47	29.40	35 18.95			45	36 17.16	36 36.13	
	1.28780					52 36 1.70				− .10 +11.16	− .49	+10.78
d	9.78346					+15.46				− 30	− 30	
33	1.18930									+ 11.16	+ 11.17	
((δ) − D) $\frac{d'}{100}$				47	29.40	35 18.95				+ .40	+ .40	
+14.03	+43.2	26 19.24				52 36 1.70				−11.10	−11.10	
+0 23.94 δ2	1.63548	28.37				+34.43				36 17.22	36 35.81	
	9.78346			36 41.2								
	1.53698			59.8 7								
+14.03	+26.2	0 45.0	13.3	0	29.15	22 19.20			0	51 23 22.62		
+0 23.94	1.41830					51 23 1.16				− .18 +10.08		
d	9.79526					+21.46				− 5		
36	1.33160									+ 9.96		
((δ) − D) $\frac{d'}{100}$										+ 35		
+13.85				.2						−10.60		
+0 23.10 δ1		29 38.90		23 45.4						23 22.10		
	+28.0	0 47.3	16.0	0	31.65	22 16.70			0	23 22.38		
	1.44716					51 22 59.45				− .21 +9.88		
d	9.79526					+22.93				− .6		
	1.36046									+ 9.80		
((δ) − D) $\frac{d'}{100}$										+ 35		
+13.85										−10.70		
+0 23.10 δ2		29 38.91		23 44.7						23 21.56		
	+25.4	4 23.6	57.2	39	7.40	43 40.95			35	52 44 43.09		
	1.40483					52 44 22.91				− .16 +11.34		
d	9.78213					+ 20.18				− .45		
30	1.30500									+ 11.50		
((δ) − D) $\frac{d'}{100}$										+ .45		
+14.12										−11.00		
+0 22.02 δ1		34 11.59		45 5.4						44 43.43		
	+17.8	4 17.8	46.7	39	2.25	43 46.10			35	44 42.99		
	1.25042					52 44 28.85				− .8 +11.22		
d	9.78213					+ 14.14				− 48		
	1.15059									+ 11.33		
((δ) − D) $\frac{d'}{100}$										+ .45		
+14.12										−11.00		
+0 22.02 δ2		34 11.65		45 5.2						44 43.21		
	+31.5	1 56.0	23.3	36	39.65	46 8.70			35	51 47 16.23		
	1.49831					51 46 50.66				− .25 +10.38		
d	9.79144					+25.57				− .18		
32	1.40779									+ 10.41		
((δ) − D) $\frac{d'}{100}$										+ .40		
+13.98										−10.70		
+0 21.27 δ1		37 10.15		47 37.28						47 15.91		
	+30.4	1 56.3	24.0	36	40.15	46 8.20			35	47 15.63		
	1.48287					51 46 50.95				− .24 +10.20		
d	9.79144					+24.68				− 20		
	1.39235									+ 10.24		
((δ) − D) $\frac{d'}{100}$										+ .40		
+13.98										−10.80		
+0 21.27 δ2		37 10.20		47 36.3						47 15.03		
	−3.1	0 55.9	22.9	40	39.40	42 8.95			40	50 42 48.33	Cremin	
	0.49136					50 42 50.91				− 1 +9.36		
d	9.80166					2.58				− .19		
26	0.41106									+ 9.21		
((δ) − D) $\frac{d'}{100}$										+ .35		
+13.81										−10.40		
+0 20.82 δ1		39 2.61		43 8.1						42 47.29		
	+5.5	1 3.1	30.0	40	46.53	42 1.80			40	42 49.12		
	0.74036					50 42 44.55				− 1 +9.31		
d	9.80151					+4.57				− 9		
	0.65991									+ 9.06		
((δ) − D) $\frac{d'}{100}$										+ .35		
+13.81										−10.50		
+0 20.82 δ2		39 2.71		43 8.7						42 47.93		

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

1872phae.proj.1579R

Date$_1$ = 1872. Feb. 7. 156 Observer W.A.R. Recorder W.A.R.

Date$_2$ = 1872. Feb. 8 157 Observer W.A.R. Recorder W.A.R.

76

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4h	m s	° ′ ″		m s	m s	s	s	s	s	s	s	m	s
	41 54	50 18	8.8	42	41 41.4	44.6	47.9	51.1	54.4	23 84	47.68	41	47.68
	40 40.0	50 15.9	9.2	1.6						+10.25 30		+	9.8 x 9
	K			2.6								+	.43
	((δ) — D) $\frac{\kappa'}{100}$			4.7								−	2
	α_1			6.9								41	58.13
				2.9								+	.15
												41	58 33
			9.1	41	22.0	41.3	44.5	47.6	51.0	54.0	23 84 47.68	41	47.68
					23.3						+10.67 61 +02	+	10.28 3
	K				24.6							+	.50
	((δ) — D) $\frac{\kappa'}{100}$				6 9.9							−	.10
	α_2				23.3							−	2
												41	58.39
												+	.18
												41	58.47 9
4	45 31	51 38	8.0	44	53.3	45 19.6	23.0	26.3	29.5	32.9	13 13 26.26	45	26.26
	44 17.6	51 36.0	8.0		54.5						+10.27 32	+	9.8 x 9
	K				56.7							+	.45
	((δ) — D) $\frac{\kappa'}{100}$				163.5							−	2
	α_1				54.5							45	36.53
												+	.12
												45	36.70
			7.9	44	57.6	45 19.8	22.5	26.0	29.8	32.5	12 96 25.92	45	25.92
					58.8						+10.27 64 +01	+	10.28 3
	K				0.4							+	.53
	((δ) — D) $\frac{\kappa'}{100}$				176.8							−	.10
	α_2				58.9							−	2
												45	36.59
												+	.11
												45	36.70
4	47 ~~47~~	50 46	8.7	47	15.8	35.7	38.8	42.2	45.3	48.7	21 07 42.14	47	42.14
	46 32.9	50 44.7	8.8		16.4						+10.26 31	+	9.8 x 9
	K				20.3							+	.44
	((δ) — D) $\frac{\kappa'}{100}$				54.5							−	2
	α_1				18.2							47	52.40
												+	.10
												47	52.55
			8.9	47	11.0	35.2	38.5	41.7	45.0	48.1	20 85 41.70	47	41.90
					13.7						+10.66 63 +02	+	10.28 3
	K				15.8							+	.52
	((δ) — D) $\frac{\kappa'}{100}$				40.5							−	.10
	α_2				13.5							−	2
												47	52.36
												+	.13 8
												47	52.46
4	51 42	50 32	8.6	51	7.1	29.6	32.8	36.0	39.4	42.5	18 03 36.06	51	36.06
	50 28.0	50 30.3	9.0		7.7						+10.27 31	+	9.8 x 9
	K				8.8							+	.44
	((δ) — D) $\frac{\kappa'}{100}$				23.6							−	2
	α_1				7.9							51	46.33
												+	.07
												51	46.44
			8.5	51	19.6	29.5	32.3	35.7	39.1	42.1	17 87 35.74	51	35.74
					21.2	~~32.3~~					+10.~~26~~ 63 +01	+	10.28 3
	K				22.7	~~35.7~~						+	.51
	((δ) — D) $\frac{\kappa'}{100}$				63.5							−	9
	α_2				21.2							−	2
												51	46.40
												+	.09
												51	46.49
4	53 24	50 26	8.7	53	1.7	12.6	15.7	19.0	22.2	25.5	9 50 19.00	53	19.00
	52 10.1	50 24.8	8.9		3.0						+10.27 31	+	9.8 x 9
	K				5.0							+	.44
	((δ) — D) $\frac{\kappa'}{100}$				9.7							−	2
	α_1				3.2							53	29.27
												+	.06
												53	29.37
			——	53	0.5	12.1	15.3	18.7	22.0	25.2	9 33 18.66	53	18.66
					1.8						+10.66 63 +02	+	10.28 3
	K				3.0							+	.51
	((δ) — D) $\frac{\kappa'}{100}$				5.3							−	9
	α_2				1.8							−	2
												53	29.32
												+	.08 9
												53	29.37

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	x	δ′
	+~~23.0~~	0′ 13.0	4′ 39.4	~~4~~′′	56.20	17 52.15			5′	50° 18′ 21.54	
	−1.50					50 18 34.11				− 6	+9.00
d	1.17609					− 12.57				+ 1	
	9.80584									+ 8.75	
20 ((δ) − D) $\frac{d'}{100}$	1.09947									+ 30	
										− 10.30	
+13.77 δ_1		42 12.10		18 40.2						18 20.24	
+0 20.04											
	+24.4	0 46.8	13.0	5	29.90	17 18.45			5	18 21.65	
	1.38739					50 18 1.20				− .15	+8.69
d	9.80534					+ 20.45				− 6	
	1.31077									+ 8.60	
((δ) − D) $\frac{d'}{100}$										+ 30	
+13.77 δ_2		42 12.26		18 40.1						− 10.30	
+0 20.04										18 20.04	
	+31.8	1 51.2	18.5	46	34.85	36 13.50			45	51 37 21.37	
	1.50243					51 36 55.46				− .27	+10.17
d	9.79304					+ 25.91				− 18	
	1.41351									+ 10.22	
34 ((δ) − D) $\frac{d'}{100}$										+ .40	
										− 10.60	
+14.02 δ_1		45 50.72		37 40.1						37 20.94	
+0 19.14											
	+27.0	1 46.1	14.0	46	30.05	36 18.30			45	37 23.05	
	1.43136					51 37 1.05				− .19	+10.10
d	9.79304					+ 22.00				− 18	
	1.34244									+ 10.07	
((δ) − D) $\frac{d'}{100}$										+ 40	
										− 10.70	
+14.02 δ_2		45 50.73		37 41.6						37 22.45	
+0 19.14											
	+23.9	2 35.3	2.8	37	19.05	45 29.30			35	50 46 31.08	
	1.37840					50 46 11.26				− .15	+9.23
d	9.80105					+ 19.82				− 25	
	1.29719									+ 9.28	
44 ((δ) − D) $\frac{d'}{100}$										+ 35	
										− 10.40	
+13.89 δ_1		48 6.44		46 48.5						46 29.91	
+0 18.57											
	+28.2	2 38.5	8.8	37	22.40	45 25.95			35	46 32.11	
	1.45025					50 46 8.70				− .21	+8.99
d	9.80105					+ 23.41				− .28	
	1.36934									+ 9.13	
((δ) − D) $\frac{d'}{100}$										+ 35	
										− 10.40	
+13.89 δ_2		48 6.37		46 49.3						46 30.70	
+0 18.57											
	+28.2	1 49.8	16.8	51	33.30	31 15.05			50	50 32 20.53	
	1.45025					50 31 57.01				− .28	+8.86
d	9.80320					+ 23.52				− 17	
	1.37149									+ 9.01	
32 ((δ) − D) $\frac{d'}{100}$										+ 30	
										− 10.20	
+13.87 δ_1		52 0.31		32 36.8						32 19.19	
+0 17.58											
	+14.5	1 37.4	4.2	37	20.80	31 27.55			50	32 22.40	
	1.16137					50 32 10.30				− 5	+9.07
d	9.80320					+ 12.10				− 15	
	1.08261									+ 8.97	
((δ) − D) $\frac{d'}{100}$										+ 30	
										− 10.30	
+13.87 δ_2		52 0.34		32 38.8						32 21.17	
+0 17.58											
	+15.8	2 21.0	48.8	57	49.0	25 43.45			55	50 26 38.62	
	1.19866					50 26 25.41				− 7	+8.91
34 d	9.80412					+ 13.21				− 22	
	1.12082									+ 8.90	
((δ) − D) $\frac{d'}{100}$										+ 30	
										− 10.20	
+13.87 δ_1		53 43.24		26 54.5						26 37.33	
+0 17.16				57							
	+16.9	2 22.1	5 20.0	56	47.05	25 52.30			55	26 39.18	
	1.22789					50 26 25.05				− 8	+8.74
d	9.80412					+ 14.13				− 25	
	1.15005									+ 8.77	
((δ) − D) $\frac{d'}{100}$										+ 30	
										− 10.30	
+13.87 δ_2		53 43.26		26 54.8						26 37.62	
+0 17.16											

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

1871phae.proj.1579R

156

Single Observations.

78

Date$_1$ = 1872, Feb. 7. Observer W.A.H. Recorder W.A.R. Date$_2$ = Observer Recorder

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	m 37 / 36	s 35 / 24.2	° ′ 51 18 / 51 14.9	6.8 / 6.5	m 37	s 14.6 15.7 17.7 19.0 67.0 17.0	s 21.6	s 24.7	s 27.9	s 31.2	s 34.6	14 00 28.60 +1026 30	m 37 + 9.88 + .44 − 2 37 38.26 + .41 37 39.01	25.00
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2 Feb. 7													
3	39 / 37	09 / 58.8	51 34 / 51 30.7	8.5 / 8.2	38	43.5 44.9 47.0 135.4 45.1	56.8	0.8	3.5	6.8	10.2	31 76 63.32 +10.27 31	39 + 9.88 + .45 − 2 39 13.79 + .40 39 14.53	3.52
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2 Feb. 7													
2	41 / 40	36 / 26.0	50 43 / 50 39.7	8.6 / 8.5	41	19.0 20.5 22.7 62.5 20.8	24.5	27.7	31.0	34.8	37.7	15 52 31.04 +10.26 30	41 + 9.88 + .44 − 2 41 41.30 + .67 41 42.01	31.04
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1 Feb. 7		49 59											
3	44 / 42	08 / 57.9	~~50 00~~ 49 56.0	9.0 / 8.7	43	42.0 43.5 45.7 131.2 43.7	55.5	58.8	1.9	5.2	8.4	30 98 61.96 +10.25 29	44 + 9.88 + .43 − 2 44 12.21 + .64 44 12.89	1.96
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2 Feb. 7													
3	47 / 45	02 / 51.3	50 19 / 50 16.3	8.5 / 8.7	46	27.5 29.2 30.6 87.3 29.1	48.6	51.9	55.1	58.8	1.4	27 53 55.06 +10.25 29	46 + 9.88 + .43 − 2 47 5.31 + .62 47 5.97	55.06
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1 Feb. 7													
3	49 / 48	43 / ~~33.2~~ 0.3	51 06 / 51 ~~34~~ 4.7	8.2 / 9.5	48	50.7 52.1 54.0 54.9 211.7 52.9	~~44.9~~	58.4	1.7	4.8	8.2 11.5	32 40 ~~6 49.2~~ +10.26 30	49 + 9.88 + .44 − 2 49 15.18 + .60 49 15.82	4.92
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2 Feb. 7													
3	52 / 51	14 / 3.0	50 16 / 50 13.5	8.3 / 8.0	51	42.3 43.6 45.0 130.9 43.6	52 1.0	4.3	7.6	10.7	13.8	3 74 7.46 +10.25 29	52 + 9.88 + .43 − 2 52 17.73 + .57 52 18.34	7.48
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2 Feb. 7													
4 3	0 / 59	30 / 18.8	51 28 / 51 25.5	9.8 / 9.5	0	18.1 20.6 22.8 61.5 20.5	19.0	22.4	25.6	29.1	32.4	12 85 25.70 +10.27 31	0 + 9.88 + .45 − 2 0 35.91 + .50 0 36.51	25.70
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2 Feb. 8				31									
4	31 / 30	45 / 31.9	50 57 / 50 ~~55.2~~	9.2 / 9.0	31	28.0 80.0 58.0 29.0	—	6.5	9.6	12.9	16.7	Rej: Ch. record doubtful.	31 +10 25 52 10 − 2 ~~10.05~~	
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_1 Feb. 8													
4	22 / 20	58 / 45.2	51 09 / 51 7.1	— / 8.9		Reject								
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	α_2													

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	5	0′ 32.4	1.8″	~~50~~ 5	10.10	~~32~~ 17 31.25			~~50~~ 5	51° 18′ 22.~~4~~ 23	
	+11.0					51 ~~33~~ 13.21				− 3	+10.14
d	1.04139					18 + ~~8~~ 98				− 3	
	9.79~~367~~ 605					90 2				+ 9.85	
((δ) − D) $\frac{d'}{100}$	0.95~~3~~ 10 48									+ 35	
+13.29										− 10.60	
+0 34.98 δ_1		37 52.30	44.6	18 56.8						18 21.77	
	+18.4	0 15.5	− 15.4	50	0.05	32 48.30			50	51 33 45.28	
	1.26482					57 33 30.26				− 9	+10.41
d	9.79367					+ 15.02				− 0	
	1.17653									+ 10.15	
((δ) − D) $\frac{d'}{100}$										+ 35	
										− 10.60	
+13.35 δ_2		39 27.88		34 19.7						33 45.09	
+0 34.62											
	+10.2	0 40.6	8.0	40	24.30	42 24.05			40	50 43 14.48	
	1.00860					50 43 6.01				− 3	+9.48
d	9.80151					+ 8.47				− 4	
	0.92815									+ 9.20	
((δ) − D) $\frac{d'}{100}$										+ 35	
										− ~~*~~ 10.30	
+13.26 δ_1		41 55.27		43 47.8						43 13.66	
+0 34.11											
	+18.3	0 − 8.0	4 19.2	24	3.560	58 12.75			25	49 59 10.15	
	1.26245					49 58 54.71				− 9	+8.10
d	9.80807					+ 15.44				− 31	
	1.18856									+ 8.40	
((δ) − D) $\frac{d'}{100}$										+ 30	
										− 10.10	
+13.18 δ_2		44 26.07		59 41.7						59 8.15	
+0 33.54											
	+36.0	4 48.2	15.7	4	31.95	18 16.40			0	50 19 20.15	
	1.41497					50 18 58.36				− 18	+8.39
d	9.80519					+ 21.79				− 49	
	1.33820									+ 8.76	
((δ) − D) $\frac{d'}{100}$										+ 30	
										− 10.20	
+13.26 δ_1		47 19.23		19 51.2						19 18.34	
+0 32.91											
	+1.2.0	1 18.0	46.8	16	2.40	6 45.95			15	51 7 37.80	
	1.07918					57 7 27.91				− 4	+9.87
d	9.79778					+ 9.89				− 11	
	0.99500									+ 9.67	
((δ) − D) $\frac{d'}{100}$										+ 35	
										− 10.50	
+13.40 δ_2		49 29.22		8 9.5						7 37.17	
+0 32.34											
	+23.9	2 34.8	1.8	7	18.30	15 30.05			5	50 16 32.06	
	1.37840					50 16 12.01				− 15	+8.61
d	9.80565					+ 20.05				− 25	
	1.30209									+ 8.71	
((δ) − D) $\frac{d'}{100}$										+ 30	
+13.31										− 10.30	
+0 31.77 δ_1		52 31.65		17 2.1						16 30.37	
	+5.2	0 30.4	− 1.1	55	14.65	27 33.70			55	51 28 19.91	
	0.71600					51 28 15.66				− 1	+10.11
d	9.79447					+ 4.25				− 3	
	0.62851									+ 9.80	
((δ) − D) $\frac{d'}{100}$										+ 35	
										− 10.70	
+13.59 δ_2		0 50.10		28 49.2						28 19.32	
+0 29.88											
		2 16.2	44.8	27	0.50	55 47.85			25		
						50 56 30.60					
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
		4 23.7	57.8	14	7.75	8 40.60			10		
						57 9 23.35					
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											

0.37 ± .074

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

1871phae.proj.1579R

158

Date$_1$ = 1872, Feb. 12, n = +.38 — Observer W.A.R. Recorder W.A.R.

159

Date$_2$ = 1872, Feb. 14, n = +.31 — Observer W.A.R. Recorder W.A.R.

80

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	m s	° ′		m s	m s	s	s	s	s		s	m	s
	45 51	51 06	8.9	44 51.8	45 10.4	13.6	16.9	20.2	23.5	8 4 6	16 9 2	45	16.92
	44 57.8	51 [illegible]	8.9	53.7						+11.61		+	11.16
	κ 9.0	7.3		54.8								+	.47
				56.0								−	2
	((δ) − D) $\frac{\kappa'}{100}$			216.3								45	28.53
47 47				54.1								+	.24
	c_1											45	28.77
	44 37.9	51 43	9.10	45 10.6	37.8	41.0	44.3	47.6	50.7	22 1 4	44.28	45	44.28
		42 29		12.1						+11.66		+	11.30
	κ			13.6								+	.38
				36.3								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			12.1								45	55.94
												+	.28
	α_2											45	56.22
4	51 26	50 04	8.9	51 47	11.0	14.1	17.4	20.7	23.8	8 7 0	17.40	51	17.40
	50 11.8	50 2.1	9.0	6.0						+11.59		+	11.16
	κ		8.5	7.1								+	.45
				12.8								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			2.9								51	28.99 +19
			51	9.7	11.5	14.6	18.0	21.2	24.3	8 9 6	17.92	51	17.92 51 29.18
			27.5	9.2						+11.59		+	11.16
	α_1		9.2	10.6								+	.45
												−	.2
												51	29.51 + 19
			8.9	50 41.6	51 11.0	14.1	17.3	20.5	23.7	8 6 6	17.32	51	17.32 29.70
			9.0							+11.65		+	11.30
	κ											+	.37
												−	.2
	((δ) − D) $\frac{\kappa'}{100}$			30 43.5	11.4	14.5	18.8	20.9	24.1	8 8 7	17.74	51	17.74 +.24
#										+11.65		+	11.30 29.21
	α_2	50										+	.37
												−	.2
													29.39
4	53 21	50 49	8.9	52 45.4	53 5.0	8.1	11.4	14.6	18.0	5 7 1	11.42	53	11.42 +.24
	52 7.0	50 48.2	9.0	46.6						+11.61		+	11.16 29.83
	κ			47.7								+	.47
				139.7								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			46.6								53	23.03
												+	.17
	α_1											53	23.20
			8.9	52 54.8	53 4.9	8.0	11.4	14.5	17.8	5 6 6	11.32	53	11.32
				56.1						+11.66		+	11.30
	κ			57.5								+	.38
				168.4								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			56.1								53	22.98
												+	.22
	α_2											53	23.20
4	55 35	49 52	8.9	54 58.6	55 22.6	25.6	28.8	31.9	35.1	14 4 0	28.60	55	28.80
	54 20.9	49 50.7	9.1	0.7						+11.59		+	11.16
	κ			1.7								+	.45
				181.0								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			60.3								55	40.39
												+	.16
	α_1											55	40.55
			8.8	54 52.2	55 22.3	25.5	28.7	32.0	35.1	14 3 6	28.72	55	28.72
				53.7						+11.64		+	11.29
	κ			54.9								+	.37
				160.8								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			53.4								55	40.36
												+	.20
	α_2											55	40.56
4	57 59	50 28	8.9	57 21.0	47.5	50.6	53.8	56.9	0.3	269 1	53.82	57	53.82
	56 45.2	50 26.2	9.0	22.8						+11.59	60	+	11.16
	κ			24.0								+	.43
				67.8								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			22.6								58	5.41
												+	.13
	α_1											58	5.55
			8.9	57 19.0	47.2	50.5	53.6	57.0	0.2	268 5	53.70	57	53.70
				19.6						+11.65		+	11.29
	κ			21.0								+	.38
				22.7								−	.2
	((δ) − D) $\frac{\kappa'}{100}$			82.3								58	5.35
												+	.18
	α_2			20.6								58	5.53

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

1871phae_proj.1579R

Feb 12 — Runs 14 — δ_{1950} 42.59 — +0 ~~42.59~~ 43.27 R — +0 ~~41.87~~ 43.27 R — Rds. −.12 −.12

A correction in Rey. was made to the wrong date originally. The first date stands 42.59 & the 2nd date should be 43.27

81

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	s	0′ 19.7	−7.8	~~20~~ 18	6,35	~~8~~ 7 42.00			~~20~~ 15′	51 ~~03′~~ 04′ 43.40	
	+22.8					51 ~~38~~ 39 24.59				− .14	+9.28
d	1.35793					+18.81				− 1	
	9.79840									+ 9.08	
((δ) — D) $\frac{d'}{100}$	1.27437									+ 35	
										−10.80	
+13.94 δ_1		45 42.71		9 0.9						~~8~~ 8 ~~42.87~~ 41.88	
+0 19.05											
	+32.2	3 10.0	38.7	17	54,35	4 54.00			15	6 2.35	
	1.50786					51 5 35.81				− 27	+9.02
d	9.79793					+ 26.54				− 35	
	1.42383									+ 9.29	
((δ) — D) $\frac{d'}{100}$										+ 35	
										−10.90	
+13.93 δ_2		46 10.15		6 21.0						6 ~~.147~~ 1.93	
+0 19.05											
	+11.5	0 5.0	37.0	19	57.00	2 57.35			20	50 3 49.63	3 47.27 +8.32
	1.06070					50 3 39.94				− 3 +8.31	− 2 +8.28
08 d	9.80762					+9.69				+ 2	+ 2
	0.98636									+ 8.02	+ 8.02
((δ) — D) $\frac{d'}{100}$	+8.7					+7.33				+ 30	+ 30
	0.98952									−10.50	−10.50
+13.79 δ_1	9.80762	51 42.97	49 56.3	4 5.1						3 ~~48.17~~ 47.44	3 ~~45.82~~ 45.09
+17.67	0.86518	43.~~42~~ 43		2.8							
	+35.7	0 28.3	− 3.7	20	12,30	2 36.05			20	3 47.94	3 46.68
	1.55267					50 3 17.86				− .35 +8.10	− .31 +8.14
18 d	9.80762					+30.08				− 2	− 2
	1.47833									+8.17	+8.17
((δ) — D) $\frac{d'}{100}$	+34.2					+28.82				+ 30	+ 30
	1.53403									−1060	−1060
+13.79 δ_2	9.80762	51 43.00		4 4.6						3 ~~46.12~~ 46.90	3 ~~44.22~~ 45.68
+17.67	1.45969	43.~~42~~ 43		3.4							
	+24.8	3 49.1	20.8	33	34,95	49 13.40			30	50 50 16.55	
	1.39445					50 49 55.99				− .17 +8.59	
d	9.80043					+20.56				− 42	
10	1.31292									+ 8.83	
((δ) — D) $\frac{d'}{100}$										+ 35	
										−10.70	
+13.93 δ_1		53 37.13		50 31.6						50 ~~15.17~~ 14.84	
+17.16											
	+15.2	3 44.8	11.9	33	28,35	~~45~~ 49 20.00			30	50 +441	
	1.18184					50 50 1.81				− 6 +8.88	
d	9.80043					+12.60				− 41	
	1.10031									+ 9.00	
((δ) — D) $\frac{d'}{100}$										+ 35	
										−10.80	
+13.93 δ_2		53 37.13		50 32.1						50 ~~12.49~~ 14.95	
+17.16											
	+28.5	1 53.6	24.8	31	39.20	51 9.15			30	49 52 15.85	
	1.45484					49 51 51.74				− 21 +7.85	
d	9.80927					+24.11				− .19	
	1.38213									+ 7.95	
((δ) — D) $\frac{d'}{100}$										+ 30	
										−10.40	
+13.79 δ_1		55 54.34		52 29.9						52 ~~14.03~~ 13.30	
+16.62											
	+35.1	2 2.8	29.7	31	46,25	51 2.10			30	52 13.60	
	1.54531					49 51 43.91				− 33 +7.87	
d	9.80927					+29.69				− 20	
	1.47262									+ 8.10	
((δ) — D) $\frac{d'}{100}$										+ 30	
										−10.50	
+13.79 δ_2		55 54.35		52 29.0						52 ~~10.97~~ 12.43	
+16.62											
	+31.2	1 55.0	27.3	56	41,15	26 7.20			55	50 27 15.86	
	1.49415					50 26 49.79				− 26 +8.28	
d	9.80397					+26.07				− 19	
12	1.41616									+ 8.43	
((δ) — D) $\frac{d'}{100}$										+ 30	
+13.90 δ_1		58 19.45		27 29.6						−1060	
+16.02										27 ~~17.28~~ 13.54	
										~~13.84~~	
	+33.1	2 0.9	27.2	56	44,05	26 4.30			55	27 13.77	
	1.51983					50 26 46.11				− 30 +8.40	
d	9.80397					+27.66				− 19	
	1.44184									+ 8.59	
((δ) — D) $\frac{d'}{100}$										+ 30	
+13.90										−10.70	
+16.02 δ_2		58 19.43		27 29.0						27 ~~11.47~~ 12.93	

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

1871phae.proj.1579R

158

Date$_1$ = 1872, Feb. 12. Observer W. A. R. Recorder W. A. R.

159

Date$_2$ = 1872, Feb. 14 Observer W. A. R. Recorder W. A. R.

82

Run

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
5	m s 3 26 2 11.6 κ	° ′ ″ 50 53 50 57.8	8.7 9.4	m s 3 10.3 11.4 12.7 34.4 11.5	s 34.3	s 37.6	s 40.8	s 44.0	s 47.3	20 40 +11.61	s 40.80	m s 3 40.80 + 11.16 + .47 − 2 3 52.41 + .08 3 52.49	
	((δ) − D) $\frac{\kappa'}{100}$ α_1												
	no Dm. κ		9.3	3 7.9 10.0 11.6 29.5 9.8	2 45.6	49.1	52.0	55.4	58.6	26 07 +11.65	52.14	2 52.14 + 11.29 + .38 − 2 3 3.79 + .13 3 3.92	+14.0 +14.
	((δ) − D) $\frac{\kappa'}{100}$ α_2												
5	5 44 4 22.3 κ	50 24 50 23.0	7.8 7.7	5 8.4 9.9 11.0 29.3 9.8	29.8	33.0	36.1	39.7	42.7	18 13 +11.59	36.26	5 36.26 + 11.16 + .45 − 2 5 47.85 + .07 5 47.92	0 +13.9 +14
	((δ) − D) $\frac{\kappa'}{100}$ α_1												
	κ		7.4	5 2.4 4.2 5.7 12.3 4.1	29.8	33.0	36.4	39.4	42.7	18 13 +11.65	36.26	5 36.26 + 11.29 + .38 − 2 5 47.91 + .11 5 48.02	+13.9 +14
	((δ) − D) $\frac{\kappa'}{100}$ α_2												
5	7 19 6 5.3 κ	50 28.7 50 25.7	9.3 9.2	6 45.7 46.8 48.8 141.3 47.1	7 5.7	9.0	12.1	15.4	18.6	6 08 +11.59	12.16	7 12.16 + 11.16 + .45 − 2 7 23.75 + .06 7 23.81	24 +13.9 +13
	((δ) − D) $\frac{\kappa'}{100}$ α_1												
	κ ((δ) − D) $\frac{\kappa'}{100}$ α_2	9 45 11 56 13 53 16 1 18 5	9.3	6 50.0 50.4 100.4 50.2	7 5.6	8.8	11.9	15.1	18.3	5 96 +11.65	11.92	7 11.92 + 11.29 + .38 − 2 7 23.57 + .10 7 23.67	+13.9 +13.
5	21 49 20 34.6 κ	51 07 51 6.1	7.9 7.5	22 0.5 1.4 2.4 4.3 1.4	21 35.2	38.2	41.4	44.7	48.1	20 76 +11.62	41.52	21 41.52 + 11.17 + .47 − 2 21 53.14 − .07 21 53.07	04 +14. +9.4
	((δ) − D) $\frac{\kappa'}{100}$ α_1												
	κ		7.8	21 4.1 6.4 8.0 18.5 6.2	35.0	38.2	41.4	44.8	48.0	20 74 +11.64	41.48	21 41.48 + 11.28 + .38 − 2 21 53.12 − .03 21 53.09	+14.1 +9.9
	((δ) − D) $\frac{\kappa'}{100}$ α_2												
5	24 18 23 3.7 κ	51 50 51 48.8	8.0 8.0	23 44.4 45.4 47.8 137.6 45.9	24 6.4	10.2	13.4	16.8	20.1	6 74 +11.64	13.48	24 13.48 + 11.17 + .49 − 2 24 25.02 − .09 24 24.93	12 +14. +9.
	((δ) − D) $\frac{\kappa'}{100}$ α_1												
	κ		8.6	23 41.2 42.9 44.3 128.4 42.8	6.8 24 10.0	13.4	16.6	20.0		6 68 +11.66	13.36	24 13.36 + 11.28 + .40 − 2 24 25.12 − .05 24 24.97	+14.26 +9.24
	((δ) − D) $\frac{\kappa'}{100}$ α_2												

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	S	2 10.6	42.4	31	56.50	50 57.85			30′	50° 51 58.71	
	+29.3					50 51 34.44				− 22	+8.77
d	1.46687	Diff #'s				+24.27				− 23	
	9.80012									+ 8.87	
((δ) − D) $\frac{d'}{100}$	1.38503									+ 35	
										−10.60	
δ_1										51 ~~57.61~~	56.88
	− 17.7									+ 1.46	
	~~+42.3~~	4 38.9	6.1	~~6.1~~ 29	22.50	53 25.85			25	53 53.01	
	1.24797n					50 54 7.66				− 9	+8.81
d	9.79981					−14.65				− 52	
	1.16582n									+ 9.07	
((δ) − D) $\frac{d'}{100}$										+ 35	
										−10.80	
+14.00 δ_2 +14.61		3 17.92		54 7.1						53 ~~54.02~~	52.48
	+26.5	4 24.0	86.8	59	10.40	23 37.95			55	50 24 42.71	
	1.42325					50 24 20.54				− 18	+8.01
d	9.80443					+22.17				− 50	
0	1.34572									+ 8.39	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−10.50	
+13.93 δ_1 +14.04		6 1.85		24 54.3						24 ~~40.93~~	40.22
	+32.2	4 33.0	1.0	59	17.00	23 31.35			55	24 40.03	
	1.50786					50 24 13.16				− 28	+8.06
d	9.80443					+26.87				− 51	
	1.42933									+ 8.65	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−10.60	
+13.93 δ_2 +14.04		6 1.95		24 53.0						24 ~~37.49~~	38.95 ✓
	+25.1	2 23.7	54.3	57	9.00	25 39.35			55	50 26 42.92 3	
	1.39967					50 26 21.94				− 17	+8.48 ✓
d 24	9.80412					+20.98				− 26	
	1.32183									+ 8.43	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−10.50	
+13.95 δ_1 +13.65		7 37.76		26 54.4						26 ~~41.45~~	40.72
	+21.7	2 25.0	51.8	57	8.40	25 39.95			55	26 39.90	
	1.33646					50 26 21.76				− 13	+8.50
d	9.80412					+18.14				− 26	
	1.25862									+ 8.59	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−1060	
+13.95 δ_2 +13.65		7 37.62		26 52.9						26 ~~37.80~~	39.26
	~~+40.7~~	0 17.0	485 −11.5	15−	2.75−	7 45.60			15	51 8 11.80	
	− 19.9					51 8 28.19				− 11	+9.39
d 04	1.29885n					−16.39				− 0	
	9.79762									+ 9.15	
((δ) − D) $\frac{d'}{100}$	1.21451n									+ 35	
										−10.50	
+14.12 δ_1 +9.90		22 7.19		8 20.6						8 ~~11.12~~	10.69
	+35.3	1 8.0	25.2	10−	46.0	7 1.75			15−	8 12.63	
	1.54777					51 7 43.56				− 23	+9.25
d	9.79762					+29.07				− 9	
	1.46343									+ 9.32	
((δ) − D) $\frac{d'}{100}$										+ 35	
										−10.70	
+14.12 δ_2 +9.90		22 7.21		8 22.5						8 ~~11.18~~	12.64
	+27.6	4 29.9	2.2	34	16.05−	48 32.30			30	51 49 37.28	
	1.44091					51 49 14.89				− 21	+9.57
d 12	9.79111					+22.39				− 51	
	1.35006									+ 9.89	
((δ) − D) $\frac{d'}{100}$										+ 40	
										−1060	
+14.26 δ_1 +9.24		24 39.19		49 45.5						49 ~~36.98~~	36.25
	+30.6	4 36.0	4.9	34	20.45−	48 27.90			30	49 34.53	
	1.48572					51 49 9.71				− 25	+9.70
d	9.79111					+24.82				− 52	
	1.39487									+ 10.07	
((δ) − D) $\frac{d'}{100}$										+ 40	
										−1080	
+14.26 δ_2 +9.24		24 39.23		49 44.1						49 ~~33.43~~	34.89

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

1871phae.proj.1579R

158

Date$_1$ = 1872, Feb. 12. Observer W.A.R. Recorder W.A.R.

159

Date$_2$ = 1872, Feb. 14 Observer W.A.R. Recorder W.A.R.

	Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
		m s	° ′		m s	s	s	s	s	s	s	s	m s	
		26 32	50 53	8.5	28 22.8	11.4	14.6	17.8	21.1	24.5	894	17.88	28	17.88
		27	50	8.5	23.8						+11.62		+	11.17
	κ		53.4		25.8								+	.47
					72.4								−	.2
	((δ) − D) $\frac{\kappa'}{100}$				24.1								28	29.50
	α_1												−	.12
													28	29.38
				9.2	28 3.1	11.1	14.6	18.0	21.2	24.4	893	17.86	28	17.86
					3.7						+11.64		+	11.28
	κ				6.8								+	.38
					3.4								−	.2
	((δ) − D) $\frac{\kappa'}{100}$												28	29.50
	α_2												−	.08
													28	29.42
5		30 08	49 56	8.6	29 37.8	29 54.7	57.7	1.0	4.1	7.3	3048	60.96	30	0.96
		28 53.5	49 55.3	8.8	38.8						+11.60		+	11.17
	κ				39.9								+	.45
					116.5								−	.2
	((δ) − D) $\frac{\kappa'}{100}$				38.8								30	12.56
	α_1												−	.13
													30	12.43
				8.3	29 33.2	29 54.6	57.7	0.8	4.0	7.1	3042	60.84	30	0.84
					34.8						+11.63		+	11.28
	κ				37.3								+	.37
					105.3								−	.2
	((δ) − D) $\frac{\kappa'}{100}$				35.1								30	12.47
	α_2												−	.09
													30	12.38
5		34 03	50 43	8.0	33 23.5	49.4	52.6	55.8	59.1	2.4	2793	55.86	33	55.86
		32 48.6	50 43.0	8.0	24.7						+11.62		+	11.17
	κ				26.2								+	.47
					74.4								−	.2
	((δ) − D) $\frac{\kappa'}{100}$				24.8								34	7.48
	α_1												−	.17
													34	7.31
			36 37	7.9	33 23.0	49.3	52.5	55.7	58.9	2.2	2786	55.72	33	55.72
					23.8						+11.63		+	11.27
	κ				46.8								+	.38
					23.4								−	.2
	((δ) − D) $\frac{\kappa'}{100}$												34	7.35
	α_2												−	.13
													34	7.22
5		39 03	50 33	8.8	38 22.1	50.9	54.1	57.4	0.6	3.9	2869	57.38	38	57.38
		37 48.9	50 33.0	9.0	23.2						+11.60		+	11.17
	κ				24.5								+	.45
					69.8								−	.2
	((δ) − D) $\frac{\kappa'}{100}$				23.3								39	8.98
	α_1												−	.21
													39	8.77
				8.5	38 25.0	50.9	54.1	57.3	0.6	3.5	2867	57.34	38	57.34
					25.8						+11.63		+	11.27
	κ				50.8								+	.38
					25.4								−	.2
	((δ) − D) $\frac{\kappa'}{100}$												39	8.97
	α_2												−	.17
													39	8.80
5		40 47	50 40	9.1	x 40 9.7	34.0	37.0	40.4	43.6	47.0	2020	40.40	40	40.40
		39 34.6	50 39.3	9.2	10.8						+11.62		+	11.17
	κ				12.3								+	.47
					32.8								−	.2
	((δ) − D) $\frac{\kappa'}{100}$				10.9								40	52.02
45 49	α_1												−	.22
47 7													40	51.80
50 12				8.7	40 18.6	34.0	37.1	40.3	43.6	46.8	2018	40.36	40	40.36
52 49					19.7						+11.63		+	11.27
55 52	κ				21.1								+	.38
57 22	((δ) − D) $\frac{\kappa'}{100}$				19.8								−	.2
	α_2												40	51.99
													−	.18
													40	51.81

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

1871phaeq.proj.35708

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	~~3.5~~ −6.2	4 21.8	52.9	29	7.35	53 41.00			25	50 54 18.46	
d	0.79239 n					50 54 23.59				− 1	+8.75
12	9.79981					−5.13				− 49	
((δ) — D) $\frac{d'}{100}$	0.71024 n									+ 8.90	
										+ 35	
+14.11 δ_1		28 43.49		54 25.0						−10.40	
+0 8.16										54 ~~17.54~~	16.81
										+ 1.46	
	+14.5	4 42.8	11.3	29	27.05	53 21.30			25	54 15.11	
d	1.16137					50 54 3.11				− 5	+9.84
	9.79981					+12.00				− 53	
((δ) — D) $\frac{d'}{100}$	1.07922									+ 10.07	
										+ 35	
+14.11 δ_2		28 43.53		54 24.1						−10.50	
+0 8.16										54 ~~14.45~~	15.91
	+22.2	2 3.3	33.6	26	48.45	55 59.90			25	49 57 1.24	
12 d	1.34635					49 56 42.49				− .13	+7.90
	9.80852					+18.75				− 22	
((δ) — D) $\frac{d'}{100}$	1.27291									+ 7.95	
										+ 30	
+13.94 δ_1		30 26.37		57 6.8						−6 10.10	
+7.74										57 ~~59.77~~	59.04
	+25.7	2 10.7	37.2	26	53.95	55 54.40			25	56 57.91	
d	1.40993					49 56 36.21				− 18	+7.99
	9.80852					+21.70				− 23	
((δ) — D) $\frac{d'}{100}$	1.33649									+ 8.10	
										+ 30	
+13.94 δ_2		30 26.32		57 4.9						−10.20	
+7.74										56 ~~55.70~~	57.16
	+31.1	4 46.2	18.9	39	32.55	43 15.80			35	50 44 24.22	
14 d	1.49276					50 43 58.39				− 26	+8.28
	9.80136					+25.83				− 54	
((δ) — D) $\frac{d'}{100}$	1.41216									+ 8.73	
										+ 35	
+14.09 δ_1		34 21.40		44 29.0						−10.20	
+6.72										44 ~~23.83~~	22.30
	+32.3	4 58.3	20.3	39	36.80	43 11.55			35	44 20.19	
d	1.50920					50 43 53.36				− 27	+8.54
	9.80136					+26.83				− 43	
((δ) — D) $\frac{d'}{100}$	1.42860									+ 8.89	
										+ 35	
+14.09 δ_2		34 ~~31~~ 31.31		44 26.5						−10.40	
+6.72										44 ~~16.33~~	19.79
	+34.1	0 39.3	10.4	50	24.83	32 23.50			50	50 33 34.52	
d	1.53275					50 33 6.09				− 31	+8.48
04	9.80305					+25.43				− 5	
((δ) — D) $\frac{d'}{100}$	1.45384									+ 8.54	
										+ 30	
+14.07 δ_1		39 22.84		~~33~~ 38.3						−10.10	
+5.43										33 ~~33.63~~	32.90
	+31.9	0 43.2	9.3	50	26.25	32 22.10			50	33 30.51	
d	1.50379					50 33 3.91				− 27	+8.68
	9.80305					+26.60				− 5	
((δ) — D) $\frac{d'}{100}$	1.42488									+ 8.70	
										+ 30	
+14.07 δ_2		39 22.87		33 35.8						−10.30	
+5.43										33 ~~28.89~~	30.35
	+29.5	4 19.1	51.0	44	5.05	38 43.30			40	50 39 50.44	
d	1.46982					50 39 25.89				− 22	+8.29
04	9.80213					+24.55				− 49	
((δ) — D) $\frac{d'}{100}$	1.38999									+ 8.65	
										+ 35	
+14.09 δ_1		41 5.89		39 53.6						−10.10	
+4.95										39 ~~49.36~~	48.63
	+20.6	4 16.3	43.1	43	59.70	38 48.65			40	39 47.60	
d	1.31387					50 39 30.46				− 12	+8.57
	9.80213					+17.14				− 48	
((δ) — D) $\frac{d'}{100}$	1.23404									+ 8.82	
		.90		52.3						+ 35	
+14.09 δ_2		41 5.84		39 ~~52.3~~						−10.30	
+4.95										39 ~~45.84~~	47.33

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

1871phae.proj.1579R

Single Observations.

Date$_1$ = 1872, Feb. 12. (158) Observer W. A. R. Recorder W. A. R.

Date$_2$ = Feb. 14. (137) Observer W. A. R. Recorder W. A. R. (86)

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4	47 47	50 46	8.7	47	10.7	34.1	37.3	40.8	44.0	47.1	203 3	40.66	47	40.66
	46 32.9	50 44.7	8.8		12.1						+11.61		+	11.16
	κ				13.5								+	.47
					36 3								−	2
	((δ) − D) $\frac{\kappa'}{100}$				12.1								47	52.27
	a_1 Feb. 12												−	22
													47	52.05 .49
5	45 49	51 51	8.5	45	7.5	37.7	41.0	44.4	47.6	51.0	221 7	44.34	45	44.34
	44 34.2	51 50.3	8.8		8.6						+11.64		+	11.17
	κ				9.9								+	.49
					26.0								−	2
	((δ) − D) $\frac{\kappa'}{100}$				8.7								45	55.98
	a_2 Feb. 12												−	28
													45	55.70
5	47 07	50 20	8.8	46	40.0	53.6	56.8	~~59.0~~ 60.0	3.0	6.5	299 9	59.98	46	69.98
	45 52.5	50 19.9	8.8		41.1						+11.66		+	11.17
	κ				42.2								+	.45
					12 33								−	2
	((δ) − D) $\frac{\kappa'}{100}$				41.1								47	11.58
	a_1 Feb. 12.												−	.26
													47	11.32
5	50 12	51 06	6.5	49	22.0	46.9	50.1	53.3	56.5	59.8	266 6	53.32	49	53.32
	48 ~~57.2~~	51 ~~06.8~~	8.9		23.9						+11.62		+	11.17
	κ 46.5	2.7			25.5								+	.47
					71.4								−	2
	((δ) − D) $\frac{\kappa'}{100}$				23.8								50	49.4
	a_2 Feb. 12												−	.29
													50	47.65
5	52 49	49 53	6.0	52	3.0	34.4	37.4	40.7	43.8	47.0	203 3	40.66	52	40.66
	51 34.6	49 52.3	6.0		4.1						+11.60		+	11.17
	κ				5.3								+	.45
					12.4								−	2
	((δ) − D) $\frac{\kappa'}{100}$				4.1								52	52.26
	a_1 Feb. 12												−	3.1
													52	51.95
5	55 52	51 32	9.3	55	18.1	39.8	42.8	46.1	49.5	52.7	230 9	46.18	55	46.18
	54 36.7	51 32.0	8.8		19.6						+11.64		+	11.18
	κ				21.4								+	.48
					59.1								−	2
	((δ) − D) $\frac{\kappa'}{100}$				19.7								55	57.82
	a_2 Feb. 12												−	.36
													55	57.46
5	57 22	51 21	9.5	57	33.7	57 13.0	16.4	19.8	23.0				57	~~47.0~~ 16.48
	56 6.9	51 21.8 4	9.2		34.5	− 16.6	16.4	16.5	16.4		+11.64		+	11.18
	κ				35.3								+	.48
					103 5								−	2
	((δ) − D) $\frac{\kappa'}{100}$				34.5								57	~~31.30~~ 28.08
	a_1 Feb 14												−	.37
													57	~~30.97~~ 27.71
4	42 29	50 34	8.9	41	52.0	42 2.7	5.9	9.1	12.3	15.6	456	9.12	42	9.12
	41 ~~25.8~~	50 ~~22.1~~	8.4		53.3						+11.66		+	11.30
	κ 2.7	33.5			54.9								+	.38
					160.2								−	2
	((δ) − D) $\frac{\kappa'}{100}$				53.4								42	20.78
	a_2 Feb. 14												+	.32
													42	21.10
5	9 45	50 52	9.2											
	8 31.2	50 51.0	8.0											
	κ													
	((δ) − D) $\frac{\kappa'}{100}$													
	a_1 Feb. 14													
5	11 56	51 53	9.5	11	11.2	10 56.2	59.4	2.8	6.4	9.6	31 44	62.88	11	2.88
	10 41.3	51 51.4	9.5		11.8						+11.67		+	11.29
	κ				23.0								+	.40
					11.5								−	2
	((δ) − D) $\frac{\kappa'}{100}$												11	14.55
	a_2												+	.06
													11	14.61

Reject.

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+28.6	2′ 34.0	8.1″	~~22~~ 37	21.85	45 27.30			30′	50° ~~0.73~~ + 33.59	
d	1.45637					50 ~~8~~ 9.89			35	~~46~~ 22	+8.72
	9.80027					46 + 23.70				− 28	
	1.37468									+ 8.87	
((δ) − D) $\frac{d'}{100}$										+ 35	
+13.89										− 10.70	
+18.57 δ_1		48 6.38		46 50.2						~~51~~ 32.34	31.61
										~~46~~ ~~0.73~~	
	+35.6	3 6.6	38.1	32	52.35	49 56.00			30	51 51 7.45	
d	1.55145					51 50 38.59				− 34	+9.59
	9.79079					+ 28.86				− 34	
	1.46028									+ 9.92	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.31										− 10.30	
+3.63 δ_2		46 10.01		51 10.4						51 ~~7.49~~	6.74
										+ ~~0.73~~	
	+18.9	4 3.0	83.2	3	48.10	19 0.25			0	50 19 58.67	
d	1.27646					50 19 42.84				− .10	+8.04
	9.80504					+ 15.83				− 46	
	1.19954									+ 8.30	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.05										− 9.50	
+3.30 δ_1		47 25.37		20 0.2						19 ~~57.64~~	56.91
										+ ~~0.73~~	
	+29.5	4 66.9	38.0	19	52.45	2 58.90			15	51 4 2.82	
d	1.46982					51 3 38.49				− 22	+8.63
	9.79825					+ 24.33				− 58	
	1.38611									+ 9.08	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.18										− 10.00	
+0 2.49 δ_2		50 18.83		4 3.9						~~4~~ ~~2.18~~	1.45
										+ ~~0.73~~	
	+36.6	0 10.8	41.6	29	56.20	52 52.15			30	49 54 5.68	
d	1.56348					49 53 34.74				− .37	+7.87
	9.80897					+ 30.94				+ 1	
	1.49049									+ 7.95	
((δ) − D) $\frac{d'}{100}$										+ 20	
+13.97										− 9.60	
+1.80 δ_1		53 5.92		54 5.8						54 ~~4.70~~	3.97
										+ ~~0.73~~	
	+26.5	2 5.3	36.2	57	50.75	30 57.60			50	51 32 1.82	
d	1.42325					51 31 40.19				− .18	+9.53
	9.79383					+ 21.63				− 22	
	1.33512									+ 9.58	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.26										− 10.00 ~~0.08~~	
+1.02 δ_2		56 11.72		32 2.24						32 ~~2.30~~	1.35
										+ ~~0.73~~	
~~18.0~~	=~~14.8~~	2 41.4	34.9	1	49.65	20 58.70			0	51 21 ~~29.17~~ 26.54	
1.25527 n	~~1.17026~~ n					51 21 41.29				− 6	+9.47
9.79542	~~9.79542~~					− ~~12.12~~				− 22	
1.16873 n	~~1.08372~~ n					− 14.75				+ 9.40	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.23		41.94								− 9.80	
+0.60 δ_1		57 ~~42.01~~		21 26.8						~~21~~ ~~20.57~~ ~~25.44~~	
										Sum 14.57 21 26.21	
										+ 1.46	
	+15.7	3 7.0	34.5	~~4~~ 44	51.75	34 56.60			~~45~~ 45	50 35 51.62 49	
d	1.19520					50 35 38.41				− 7	+8.70
	9.80 ~~2.24~~					+ 13.~~21~~ .08				− 34	63
	~~1.12110~~									+ 8 ~~21~~ .74	
	1.11668									+ .20	
((δ) − D) $\frac{d'}{100}$										− 1060.70	
+13.82										35 ~~49.12~~ 50.5~~5~~	
+0 19.89 δ_2		42 34.92		36 10.8							.88
		3 46.8	14.0	33	30.40	49 17.95			30		
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
	−8.6	1 29.7	57.5	31	13.60	57 34.75			30	51 52 + 1.46 9.54	
	0.93450 n					51 52 16.56				− 3	+10.33
d	9.79063					− 6.97				− 15	
	0.84317 n									+ 10.11	
((δ) − D) $\frac{d'}{100}$										+ 40	
										− 11.00	
δ_2										52 ~~8.92~~	1038

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

1871phae.proj.1579R

Single Observations

Date$_1$ = Observer / Recorder

Date$_2$ = 1872, Feb. 14. Observer W.A.R. Recorder W.A.R.

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	h m s	° ′		m s	s	s	s	s	s			m	s
	13 53	50 20	8.7	13 23.8	38.6	41.7	44.9	48.1	51.3	22 46	44.92	13	44.92
	12 38.2	50 19.4	8.7	24.9						+11.65		+	11.29
	κ			26.3								+	.38
				75.0								−	2
	((δ) − D) $\frac{\kappa'}{100}$			25.0								13	56.57
												+	.04
	a_1 Feb. 14.											13	56.61
5	16 01	50 54	5.8	23.8	48.1	51.5	54.8	58.0	1.2	27 36	54.72	15	54.72
	14 46.5	50 53.0	9.2	25.5						+11.64		+	11.28
	κ			27.0								+	.38
				76.3								−	2
	((δ) − D) $\frac{\kappa'}{100}$			25.4								16	6.36
												+	.02
	a_2 Feb. 14.											16	6.38
5	18 05	50 22	9.5	50.8	54.8	57.8	41	4.3	7.5	30 55	6.10	18	1.10
	16 49.6	50 21.1	9.4	52.0						+11.64		+	11.28
	κ			53.6								+	.38
				156.4								−	2
	((δ) − D) $\frac{\kappa'}{100}$			52.1								18	12.74
												+	.02
	a_1 Feb. 14.											18	12.76
5	36 37	51 02	9.2	36 4.6	31.1	34.1	37.6	40.9	44.2	18 79	37.58	36	37.58
	35 22.0	51 2.0	8.8	6.0						+11.63		+	11.27
	κ			7.6								+	.38
				18.2								−	2
	((δ) − D) $\frac{\kappa'}{100}$			6.1								36	49.21
												−	.15
	a_2											36	49.06
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	a_1												
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	a_2												
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	a_1												
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	a_2												
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	a_1												
	κ												
	((δ) − D) $\frac{\kappa'}{100}$												
	a_2												

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

1871phac.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
d	+19.9	3′ 30.0	11.8	3′	10.90	19 42.45			0′ 50°	20 40.93	
	1.29885	2				50 20 24 26				− 35 11	+8.30
((δ) − D) $\frac{d'}{100}$	9.80504					+16.67				− 37	
	1.22193									+ 848	
				47.1						+ 30	
+13.96 δ_1		14 10.57		20 46.1						−10.50	
+11.94										20 38.73	48.19
										+1.46	35.19
d	+29.3	0 22.0	−10.0	30	6.00	52 42.35			30	50 53 48.42	4.94 4.713
	1.46687					50 53 24.16				− 22	+9.19
((δ) − D) $\frac{d'}{100}$	9.79996					+24.26				− 1	
	1.38683									+ 9.07	
										+ 35	
+14.06 δ_2		16 20.44		53 59.8						−10.70	
+11.40										53 47.91	48.37
d	+9.0	1 20.8	47.9	1	4.35	21 44.00			0	50 22 33.34	
	0.95424					50 22 25.81				− 3	+8.65
((δ) − D) $\frac{d'}{100}$	9.80473					+7.53				− 13	
	0.87701									+ 851	
				43.8						+ 30	
+13.98 δ_1		18 26.73		22 35.8						−10.50	
+10.89										22 31.79	32.95
										+1.46	11.89 4.384
d	+31.5	0 58.2	16.2	20	37.20	2 11.15			20	57 3 18.93	
	1.49831					51 2 52.96				− 27	+9.25
((δ) − D) $\frac{d'}{100}$	9.79840					+25.99				− 7	
	1.41475									+ 924	
										+ 85	
δ_2										−10.50	
										3 17.70	19.16
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											
d											
((δ) − D) $\frac{d'}{100}$											
δ_1											
d											
((δ) − D) $\frac{d'}{100}$											
δ_2											

ΔT = +09 (± 042)

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

1871phae.proj.1579R

160

Date$_1$ = 1872, Feb. 16. Observer A.M.
n = +39 Recorder A. M.

161

Date$_2$ = 1872, Feb. 17. Observer A.M
n = +41 Recorder A. M.

90

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′		m s	s	s	s	s	s	m s	m s	m s	
5	40 47	50 40	9.2	40 23.8	33.4	36.7	40.0	43.3	46.6	2000	40.00	40	40.00
	39 31.6	50 39.3	9.2	25.7						+11.91		+	11.45
	κ			27.5								+	.48
				7.7.0								−	2
	((δ) − D) $\frac{\kappa'}{100}$			25.7								40	51.91
												−	.14
	α_1											40	51.77
		↑ 39	9.5	41 4.4	40 33.4	36.5	39.8	42.8	46.1	1986	39.72	40	39.72
	κ		5	5.9						+12.21		+	11.72
				7.5								+	.51
				7.6								−	2
	((δ) − D) $\frac{\kappa'}{100}$			5.9								40	51.93
												−	.12
	α_2											40	51.81
5	45 58	51 31	8.5	45 34.3	45.7	49.0	52.5	55.5	59.0	26 17	52.34	45	52.34
	44 43.7	51 31.0	8.5	35.7						+11.92		+	11.45
	κ			37.0								+	.49
				107.0								−	2
	((δ) − D) $\frac{\kappa'}{100}$			35.7								46	4.26
												−	.19
	α_1											46	4.07
			8.5	45 28.0	45.4	48.9	52.0	55.3	58.5	26 01	52.02	45	52.02
	κ			29.5						+12.21		+	11.72
				31.4								+	.51
				889								−	2
	((δ) − D) $\frac{\kappa'}{100}$			29.8								46	4.23
												−	.17
	α_2											46	4.06
5	47 59	51 07	8.6	47 43.5	47.2	50.6	53.8	57.0	0.6	26 92	53.84	47	53.84
	46 44.2	51 6.1	8.8	44.8						+11.91		+	11.45
	κ			46.5								+	.48
				134.8								−	2
	((δ) − D) $\frac{\kappa'}{100}$			44.9								48	5.75
												−	.20
	α_1											48	5.55
			9.2	47 33.7	47.0	50.0	53.5	56.7	0.2	2674	53.48	47	53.48
	κ			35.1						+12.21		+	11.72
				37.4								+	.51
				106.2								−	2
	((δ) − D) $\frac{\kappa'}{100}$			35.4								48	5.69
												−	.18
	α_2											48	5.51
5	50 12	51 06	6.5	47 31.5	46.5	49.6	53.0	56.3	59.5	26 49	52.98	49	52.98
	48 57.2	51 6.8	8.9	33.2						+11.92		+	11.46
	κ 46.5	2.7		34.9								+	.48
				79.6								−	2
	((δ) − D) $\frac{\kappa'}{100}$			33.2								50	4.90
												−	.22
	α_1											50	4.68
			6.7	49 28.0	46.2	49.4	52.6	55.9	59.3	2634	52.68	49	52.68
	κ			29.1						+12.21		+	11.72
				30.2								+	.51
				87.3								−	2
	((δ) − D) $\frac{\kappa'}{100}$			29.1								50	4.89
												−	.20
	α_2											50	4.69
5	53 36	50 37	8.8	53 10.6	22.7	25.9	29.1	32.3	35.6	14 56	29.12	53	29.12
	52 20.7	50 36.4	8.5	11.7						+11.91		+	11.46
	κ			13.7								+	.47
				360								−	2
	((δ) − D) $\frac{\kappa'}{100}$			12.0								53	41.03
												−	.24
	α_1											53	40.79
			8.8	53 14.2	22.3	25.4	28.7	32.0	35.3	1437	28.74	53	28.74
	κ			15.7						+12.20		+	11.72
				17.6								+	.50
				447								−	2
	((δ) − D) $\frac{\kappa'}{100}$			15.8								53	40.94
												−	.22
	α_2											53	40.72

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

1871phaeproj.1579R

	Reg.	Rds.
Feb. 16	+0° 44.96 M.	−.13
Runs 17	+0 44.84 M.	−.13

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	x	δ′
	+ 14.3	4′ 10.3	34.9	43	55.70	3 48 53.25			40″	50° 39′ 50.10	
	+14.3					50 39 38.21				− 5	+8.52
d	1.15534					+11.89				− 57	
28	9.80197									+ 8.78	
((δ) − D) $\frac{d'}{100}$	1.07535									+ 30	
										−10.50	
+14.09 δ_1		41 5.86		39 53.8						39 48.12	
+0 4.95											
	− 26.4	3 35.2	5.1	43	20.15	3 49 28.20			40	39 51.25	
	−26.2					50 40 13.04				− 1.8	+8.59
d	1.41830 n					−21.79				− 43	
	9.80197									+ 8.90	
((δ) − D) $\frac{d'}{100}$	1.33831 n									+ 30	
										−10.60	
+14.09 δ_2		41 5.90		39 54.2						39 49.24	
+0 4.95											
	+16.8	2 12.7	44.5	51	58.60	30 49.75			50	51 31 48.27	
	+16.6					51 31 34.71				− 8	+9.68
d	1.22011					+13.56				− 26	
32	9.79899									+ 9.72	
((δ) − D) $\frac{d'}{100}$	1.13214									+ 30	
				51.0						−10.60	
+14.25 δ_1		46 18.32		31 ~~50.45~~						31 47.35	
+0 3.60											
	22.4	2 18.1	49.0	52	3.53	30 44.80			50	31 47.93	
	+22.4					51 31 29.64				− 13	+9.75
d	1.35025					+18.29				− 26	
	9.79399									+ 9.84	
((δ) − D) $\frac{d'}{100}$	1.26228									+ 30	
				6						−10.70	
+14.25 δ_2		46 18.21		31 ~~50.56~~						31 46.98	
+0 3.60											
	5.9	2 2.1	31.1	16	46.60	6 1.75			15	51 6 54.04	
	+8.9					51 6 46.71				− 3	+9.31
d	0.94939					+7.33				− 23	
36	9.79778									+ 9.27	
((δ) − D) $\frac{d'}{100}$	0.86521									+ 30	
										−10.40	
+14.18 δ_1		48 19.73		6 56.0						6 52.95	
+0 3.06											
	18.1	2 8.8	38.3	16	53.58	5 54.80			15	6 54.55	
	+18.1					51 6 39.64				− 9	+9.35
d	1.25768					+14.91				− 25	
	9.79778									+ 9.39	
((δ) − D) $\frac{d'}{100}$	1.17350									+ 30	
										−10.50	
+14.18 δ_2		48 19.64		6 56.5						6 53.40	
+0 3.06											
	19.8	0 2.2	31.4	19	46.80	3 1.55			20	51 4 2.84	
	+19.8					51 3 46.51				− 11	+9.43
d	1.29667					+16.33				+ 3	
30	9.79825									+ 9.21	
((δ) − D) $\frac{d'}{100}$	1.21296									+ 30	
				4.4						−10.40	
+14.18 δ_1		50 18.86		4 ~~42.6~~						4 1.87	
+0 2.49											
	23.5	0 7.2	36.0	19	57.60	2 56.75			20	4 1.05	
	+23.6					51 3 41.59				− .15	+9.50
d	1.37291					+19.46				+ 2	
	9.79825									+ 9.33	
((δ) − D) $\frac{d'}{100}$	1.28920									+ 30	
										−10.50	
+14.18 δ_2		50 18.87		4 2.5						4 0.05	
+0 2.49											
	17.1	2 30.2	59.5	47	15.00	35 33.35			45	50 36 32.55	
	+17.1					50 36 18.31				− 8	+8.64
d	1.23300					+14.24				− 30	
38	9.80259									+ 8.72	
((δ) − D) $\frac{d'}{100}$	1.15363									+ 30	
				6						−10.20	
+14.10 δ_1		53 54.89		36 ~~32.5~~						36 30.99	
+0 1.59											
	12.9	2 27.4	56.4	47	11.90	35 36.45			45	36 32.03	
	+12.9					50 36 21.29				− 5	+8.79
d	1.11059					+10.74				− 29	
	9.80259									+ 8.83	
((δ) − D) $\frac{d'}{100}$	1.03122									+ 30	
										−10.30	
+14.10 δ_2		53 54.82		36 32.1						36 30.52	
+0 1.59											

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

1871phae.proj.1579R

160

Date$_1$ = 1872, Feb. 16. Observer A. M. Recorder A. M.

161

Date$_2$ = 1872, Feb. 17. Observer A. M. Recorder A. M.

92

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
5	8h 37m 52s	51° 32′	9.4	55m 22.4	39.2	42.5	45.9	49.2	52.5	22 93 +11.93	45.86	55m 40.46 + 11.46 + .49 − 2	
	54 36.7	51 32.0	8.8	23.8 25.4 7 1 6 23.9								55 57.79 − .27	38
	κ											55 57.52	+14.3
	((δ) − D) $\frac{\kappa'}{100}$												+0 1
	c_1												
			9.5	55 30.0 31.6 34.0 9 5.6 31.9	38.7	42.1	45.6	48.8	52.2	22 74 +12.21	45.48	55 40.48 + 11.72 + .51 − 2	
	κ											55 57.69 − .25	+14.
	((δ) − D) $\frac{\kappa'}{100}$											55 57.44	+0 1
	c_2												
5	57 22	51 21	9.5	57 34.5 36.7 35.6 10 9.8 36.6	57 10.0	13.0	16.6	19.9	23.3	8 28 +11.93	16.56	57 16.36 + 11.46 + .49 − 2	
	56 6.9	51 21.4 25.2	9.2									57 28.49 − .28	4
	κ											57 28.21	+14.3
	((δ) − D) $\frac{\kappa'}{100}$												+0 0
	a_1												
			10.0 ? (58)	6.7 8.1 9.6 24.7 8.1	14.9	18.4	21.7	24.9	28.2	10 81 +12.21	21.62	57 21.62 + 11.72 + .51 − 2	
	κ											57 33.83 − .26	
	((δ) − D) $\frac{\kappa'}{100}$											57 33.57	
	a_2												
5	59 56	50 10	8.5	59 29.6 30.8 32.4 9 2.5 30.8	41.5	44.7	47.9	51.1	54.3	23 95 +11.90	47.90	59 47.90 + 11.46 + .46 − 2	
	58 41.4	50 10.3 5	8.5									59 59.80 − .29	38
	κ											59 59.51	+14.4
	((δ) − D) $\frac{\kappa'}{100}$												−00.
	a_1												
			8.8	59 0 4.4 8.2 8.6 19.2 6.4	59 41.0	44.3	47.6	50.7	54.0	23 76 +12.19	47.52	59 47.52 + 11.72 + .49 − 2	
	κ											59 59.71 − .27	
	((δ) − D) $\frac{\kappa'}{100}$											59 59.44	+14.4
	a_2												−0.
6	2 21	49 58	8.0	2 2.5 3.6 5.1 11.2 3.7	7.1	10.3	13.3	16.6	19.8	6 71 +11.90	13.42	2 13.42 + 11.46 + .46 − 2	
	1 5.6	49 58.2	8.3									2 25.32 − .31	30
	κ											2 25.01	+13
	((δ) − D) $\frac{\kappa'}{100}$												−0 0
	a_1												
			8.0	1 55.7 57.1 59.4 12 2.2 57.4	2 6.7	10.0	13.1	16.3	19.5	6 56 +12.19	13.12	2 13.12 + 11.72 + .49 − 2	
	κ											2 25.31 − .29	
	((δ) − D) $\frac{\kappa'}{100}$											2 25.02	+13.
	a_2												−0 0
6	4 23	50 49	8.5	4 6.2 7.7 9.1 23.0 7.7	11.3	14.5	17.5	20.9	24.1	8 83 +11.92	17.66	4 17.66 + 11.46 + .48 − 2	
	3 8.4	50 49.6	8.8									4 29.58 − .33	26
	κ											4 29.25	+14
	((δ) − D) $\frac{\kappa'}{100}$												−0 1
	a_1												
			8.5	4 0.0 1.1 2.8 3 9 1.3	11.0	14.1	17.3	20.6	24.0	8 70 +12.21	17.40	4 17.40 + 11.72 + .51 − 2	
	κ											4 29.61 − .31	
	((δ) − D) $\frac{\kappa'}{100}$											4 29.30	+14.
	a_2												−0 1

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	x	δ′
	22.0	2′ 3.4	33.3	51	48.35	31 0.00			50′	51° 32′ 2.92	6
	+22.0					51 31 44.96				− .13	+9.56
d	1.34242					+17.96				− 23	
38	9.79383									+ 9.72	
((δ) − D) $\frac{d'}{100}$	1.25429									+ 30	
+14.26										−10.40	
δ_1 +0 1.02		56 11.78		32 3.2						32 2.18	
	13.7	1 58.8	28.8	51	43.80	31 4.55			50	32 0.49	
	+13.6					51 31 49.39				− 5	+9.87
d	1.13354					+11.10				− 22	
	9.79383									+9.84	
((δ) − D) $\frac{d'}{100}$	1.04541									+ 30	
+14.26										−10.50	
δ_2 +0 1.02		56 11.70		32 0.9						31 59.86	
	−20.0	3 26.1	56.0	58	11.05	24 37.30			55	51 25 5.89	
	−20.0					51 25 22.26				− 11	+9.36
d	1.30103					−16.37				− 42	
	9.79494									+9.59	
((δ) − D) $\frac{d'}{100}$	1.21401									+ 30	
+14.23										−1040	
δ_1 +0 0.60		57 42.44		25 5.5						25 4.85	
	+13.8	3 9.7	39.8	2	54.50	19 53.85			0?	20 49.76	
	−46.0					51 20 38.69				− 5	+9.49
	+13.5					+11.07				− 38	
d	1.13033									+ 9.62	
	9.79573									+ 30	
((δ) − D) $\frac{d'}{100}$	1.04410									−10.50	
δ_2										20 48.75	
	17.1	3 25.2	54.6	13	9.90	9 38.45			10	50 10 37.78	
	+17.1					50 10 23.41				− 8	+8.05
d	1.23300					+14.37				− 42	
38	9.80641									+ 8.25	
((δ) − D) $\frac{d'}{100}$	1.15745									+ 30	
+14.02										−1000	
δ_1 −00.06		0 13.53		10 35.8						10 35.83	
	−18.8	2 54.2	22.1	12	38.15	10 10.20			10	10 39.16	
	−18.9					50 10 55.04				− 10	+8.22
d	1.27646					−15.88				− 34	
	9.80641									+ 8.36	
((δ) − D) $\frac{d'}{100}$	1.20091									+ 30	
+14.02										−1010	
δ_2 −0.06		0 13.46		10 37.2						10 37.28	
	+9.6	0 42.7	11.0	25	26.85	57 21.50			25	49 58 14.65	
	+9.7					49 58 6.46				− 3	+8.28
d	0.98677					+8.19				− 5	
30	9.80837									+ 806	
((δ) − D) $\frac{d'}{100}$	0.91318									+ 30	
+13.99										−990	
δ_1 −0 0.69		2 39.00		58 12.3						58 13.08	
	15.7	0 48.3	17.4	25	32.85	57 15.50			25	58 13.59	
	+15.7					49 58 0.34				− 7	+8.34
d	1.19590					+13.25				− 6	
	9.80837									+ 8.17	
((δ) − D) $\frac{d'}{100}$	1.12231									+ 30	
+13.99				11.2						−1000	
δ_2 −0 0.69		2 39.01		58 ~~6.2~~						58 11.93	
	9.8	0 33.1	2.3	35	17.70	47 30.65			35	50 48 23.90	
	+10.0					50 48 15.61				− 3	+9.15
d	1.00000					+8.29				− 4	
26	9.80074									+ 892	
((δ) − D) $\frac{d'}{100}$	0.91878									+ 30	
+14.14										−1010	
δ_1 −0 1.23		4 43.39		48 21.7						48 22.95	
	16.0	0 38.9	7.8	35	23.35	47 25.00			35	48 23.19	
	+16.1					50 48 9.84				− 7	+9.22
d	1.20683					+13.35				− 15	
	9.80074									+ 9.04	
((δ) − D) $\frac{d'}{100}$	1.12561									+ 30	
+14.14										−10.20	
δ_2 −0 1.23		4 43.44		48 22.0						48 22.21	

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

1871phae.proj.1579R

160

Date$_1$ = 1872. Feb. 16. Observer A. M. Recorder A. M.

161.

Date$_2$ = 1872. Feb. 17. Observer A. M. Recorder A. M.

94

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′		m s	s	s	s	s	s		s	m	
	6 5 7	52 21	8.6	6 24.2	40.2	43.5	46.8	50.1	53.7	23 43	46.86	6	46.86
	5 35.3	52 21.9	8.3	25.5						+11.95		+	11.46
	κ			26.9								+	.51
				766								−	2
	((δ) − D) $\frac{\kappa'}{100}$			25.5								6	58.81
												−	.38
	α_1											6	58.43
			8.8	6 22.5	39.7	43.3	46.4	49.8	53.3	23 25	46.50	6	46.50
				24.0						+12.23		+	11.72
	κ			26.2								+	.53
				727								−	2
	((δ) − D) $\frac{\kappa'}{100}$			24.2								6	58.73
												−	.36
	α_2											6	58.37
6	9 22	52 25	9.1	8 52.8	9 4.4	7.8	11.2	14.6	17.8	5 58	11.16	9	11.16
	8 0.6	52 25.8	9.0	54.3						+11.95		+	11.46
	κ			56.6								+	.51
				1637								−	2
	((δ) − D) $\frac{\kappa'}{100}$			54.6								9	23.11
												−	.40
	α_1											9	22.71
			9.2	8 51.1	9 4.0	7.3	10.9	14.0	17.6	5 38	10.76	9	10.76
				53.6						+12.23		+	11.72
	κ			56.0								+	.53
				1607								−	2
	((δ) − D) $\frac{\kappa'}{100}$			53.6								9	22.99
												−	.37
	α_2											9	22.62
6	18 03	50 14	9.1	17 44.7	51.0	54.2	57.6	0.8	4.0	28 86	57.52	17	57.52
	16 48.4	50 13.8	9.0	46.8						+11.90		+	11.46
	κ			48.6								+	.46
				1401								−	2
	((δ) − D) $\frac{\kappa'}{100}$			46.7								18	9.42
												−	.43
	α_1											18	~~9.37~~ 8.99
			9.4	18 21.4	17 51.0	54.0	57.2	0.3	3.8	28 63	54.26	17	57.26
				23.1						+12.19		+	11.72
	κ			24.6								+	.49
				691								−	2
	((δ) − D) $\frac{\kappa'}{100}$			23.0								18	9.45
												−	.41
	α_2											18	9.04
6	21 39	50 48	8.8	21 13.7	26.6	29.8	33.0	36.2	39.3	16 49	32.98	21	32.98
	20 24.0	50 48.7	8.5	15.1						+11.92		+	11.46
	κ			16.4								+	.48
				452								−	2
	((δ) − D) $\frac{\kappa'}{100}$			15.1								21	44.90
												−	.47
	α_1											21	44.43
			9.0	21 20.8	26.1	29.4	32.5	35.9	39.1	16 27	32.54	21	32.54
		24	12	22.6						+12.21		+	11.72
	κ			24.3								+	.51
				677								−	2
	((δ) − D) $\frac{\kappa'}{100}$			22.6								21	44.75
												−	.45
	α_2											21	44.30
6	26 26	51 32	9.3	26 41.0	55.6	58.8	2.2	5.6	8.7	31 10	62.20	27	2.20
	25 ~~10.8~~	51 ~~32.4~~	8.5	42.1						+11.93		+	11.46
	κ 51.3	37.5		43.4								+	.49
				1265								−	2
	((δ) − D) $\frac{\kappa'}{100}$			42.2								27	14.13
												−	.52
	α_1											27	13.61
	25 10.8	51 32.4	9.0	26 8.0	17.9	21.1	24.4	27.8	31.2	12 24	24.48	26	24.48
		28	16	6.0						+12.21		+	11.72
	κ			5.0								+	.51
				170								−	2
	((δ) − D) $\frac{\kappa'}{100}$			~~5.7~~								26	36.69
												−	.50
	α_2											26	36.19

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	21.3	1′ 34.7	5.0	1′	19.85	21 28.50			0′	52° 22′ 30.61	
	+21.4					52 22 13.46				− .12	+10.69
d	1.33041					+17.15				− .17	
36	9.78576									+ 10.63	
((δ) — D) $\frac{d'}{100}$	1.23421									+ .35	
				28.9						− 10.50	
+14.41 δ₁		7 12.84		22 32.7						22 30.80	
	22.2	1 38.0	7.1	1	22,53	21 25.80			0	22 28.51	
	+22.3					52 22 10.64				− .13	+10.80
d	1.34830					+17.87				− .18	
	9.78576									+ 10.76	
((δ) — D) $\frac{d'}{100}$	1.25210									+ .35	
		~~6 56.5~~								− 10.60	
+14.41 δ₂		~~7 12.48~~		22 26.8						22 28.71	
	16.6	2 58.8	28.8	57	43,80	25 4.55			55	52 26 2.79	
	+16.6					52 25 49.51				− .8	+10.61
d	1.22011					+13.28				− .35	
40	9.78510									+ 10.69	
((δ) — D) $\frac{d'}{100}$	1.12325									+ .35	
		3								− 10.40	
+14.42 δ₁		9 47.13		26 0.5						26 3.00	
	~~16.3~~	2 59.1	29.4	57	44,25	25 4.10			55	26 2.70	
	~~+16.4~~ +16.2					52 25 48.94				− .8	+10.77
d	1.23553					+13.76				− .35	
	9.78510									+ 10.85	
((δ) — D) $\frac{d'}{100}$	1.13867									+ .35	
		57								− 10.50	
+14.42 δ₂		9 ~~47~~.04		26 0.4						26 2.97	
	10.9	4 48.1	16.1	9	32,10	13 16.25			5	50 14 10.28	
	+10.8					50 14 1.21				− .3	+7.99
26 d	1.03342					+9.07				− .54	
	9.80595									+ 8.31	
((δ) — D) $\frac{d'}{100}$	0.95741									+ .30	
										− 9.60	
+14.02 δ₁		18 23.01		14 3.9						14 8.67	
	~~25.8~~ −25.7	4 14.7	42.4	8	58,56	13 49.80			5	14 13.12	0
	1.40993					50 14 34.64				− .18	+8.83
d	9.80595					−21.52				− .52	
	1.33292									+ 8.43	
((δ) — D) $\frac{d'}{100}$										+ .30	
						6				− 9.70	
+14.02 δ₂		18 23.06		14 6.6						14 11.45	
	~~+17.9~~ +17.9	~~4~~ 49.1	17.5	~~35~~ 6	33,30	47 15.05			35	50 48 14.86	
	1.25285					50 ~~47~~ 0.01				− 9	+9.07
d	9.80074					+14.85				− .6	
44	1.17163									+ 8.92	
((δ) — D) $\frac{d'}{100}$										+ .30	
										− 9.60	
+14.11 δ₁		21 58.54		47 8.6						48 14.33	
	9.9	142.9	12.3	36	27,60	46 20.75			35	47 13.80	Examine
	+9.9					50 47 5.59				− .3	+9.12
d	0.99564					+ 8.21				− .19	
	9.80074									+ 9.04	
((δ) — D) $\frac{d'}{100}$	0.79442									+ .30	
										− 9.70	
+14.11 δ₂		21 58.41		47 7.5						47 13.22	
	20.0	3 4.0	33.0	47	48,50	34 59.85			45	51 36 1.11	Ex
	+20.0					51 35 44.81				− .11	+9.62
d	1.30103					+16.30				− .36	
	9.79319									+ 9.79	
((δ) — D) $\frac{d'}{100}$	1.21226									+ .30	
										− 9.70	
+14.24 δ₁		2727.85		35 54.0						36 1.03	
	~~18.7~~	4 23.4	53.2	54	8,30	28 40.05			50	29 40.25	
	+18.8					51 29 24.89				− .10	+9.48
d	1.27416					+15.36				− .54	
	9.79431									+ 9.82	
((δ) — D) $\frac{d'}{100}$	1.18651									+ .30	
				32.9						− 9.80	
+14.23 δ₂		26 50.42		29 ~~46.9~~						29 39.93	

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

1871phae.proj.1579R

Date$_1$ = 1872. Feb. 16 160 Observer A. M. Recorder A. M.

Date$_2$ = 1872. Feb. 17 161. Observer A. M. Recorder A. M. 96

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	m s	° ′		m	s	s	s	s	s	s	s	m	
	31 18	50 11	8.7	30	50.0	31 7.0	10.2	13.3	16.5	19.8	6 68	13.36	31	13.36
	30 3.8	50 11.5	8.5		51.3						+11.91			+11.47
	κ				52.4									+ 46
					153.7									− 2
	((δ) − D) $\frac{\kappa'}{100}$				51.2								31	25.27
	a_1													− 53
													31	24.74
			8.6	30	57.8	31 6.6	10.0	13.0	16.0	19.4	6 5 0	13.00	31	13.00
					53.0						+12.19			+ 11.72
	κ				54.6									+ 49
					159.4									− 2
	((δ) − D) $\frac{\kappa'}{100}$				53.1								31	25.19
	a_2													− 51
													31	24.68
6	33 12	49 52	8.8	32	56.2	59.4	2.4	5.6	8.7	12.0	32 81	65.62	33	5.62
	31 57.9	49 52.3	8.5		57.5						+11.91			+ 11.47
	κ				58.7									+ 46
					172.4									− 2
	((δ) − D) $\frac{\kappa'}{100}$				57.5								33	17.53
	a_1													− 54
													33	16.99
			8.8	32	54.3	59.1	2.2	5.4	8.6	11.8	32 71	65.42	33	5.42
					55.6						+12.19			+ 11.72
	κ				57.6									+ 49
					167.5									− 2
	((δ) − D) $\frac{\kappa'}{100}$				55.8								33	17.61
	a_2													− 52
													33	17.09
6	36 20	50 31	7.5	35	51.7	36 5.9	9.1	12.5	15.5	18.8	6 18	12.36	36	12.36
	35 6.3	50 31.4	7.3		52.8						+11.92			+ 11.47
	κ				54.6									+ 47
					159.1									− 2
	((δ) − D) $\frac{\kappa'}{100}$				53.0								36	24.28
	a_1													− 57
													36	23.71
			7.5	35	47.4	36 5.7	9.0	12.1	15.3	18.5	6 0 6	12.12	36	12.12
					49.3						+12.20			+ 11.72
	κ				50.8									+ 50
					147.5									− 2
	((δ) − D) $\frac{\kappa'}{100}$				49.2								36	24.32
	a_2													− 55
													36	23.77
6	43 17	51 40	7.5	42	43.3	43 4.3	7.3	10.8	14.2	17.4	5 40	10.80	43	10.80
	42 3.0	51 40.4	7.5		45.5						+11.95			+ 11.47
	κ				47.8									+ 50
					136.6									− 2
	((δ) − D) $\frac{\kappa'}{100}$				45.5								43	22.75
45 43	a_1													− 65
													43	22.10
			7.5	42	50.5	43 4.0	7.3	10.5	13.9	17.1	5 28	10.56	43	10.56
					52.0						+12.22			+ 11.72
	κ				53.3									+ 52
					155.8									− 2
	((δ) − D) $\frac{\kappa'}{100}$				51.9								43	22.78
	a_2													− 63
													43	22.15
6	46 52	51 09	8.0	46	34.8	37.9	41.2	44.5	47.8	51.2	22 23	44.46	46	44.62
	45 37.9	51 9.6	8.0		36.2						+11.93			+ 11.47
	κ				37.2									+ 48
					108.2									− 2
	((δ) − D) $\frac{\kappa'}{100}$				36.1								46	56.45
	a_1													− 66
													46	55.79
			8.0	46	21.7	37.7	41.0	44.5	47.6	50.9	22 17	44.34	46	44.34
					23.7						+12.21			+ 11.72
	κ				25.6									+ 51
					71.0									− 2
	((δ) − D) $\frac{\kappa'}{100}$				23.7								46	56.55
	a_2													− 65
													46	55.90

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+22.2	2 39.0	3.9	12	21.45	10 26.90			10	50 11 30.52	
	1.346 35					50 11 11.86				− 13	+8.13
d	9.806 41					+18.66				− 31	
36	1.270 80									+ 8.27	
((δ) − D) $\frac{d'}{100}$										+ 30	
+13.98										−9.20	
−0 8.25 δ_1		31 38.72		11 21.2						11 29.45	
	+19.9	2 35.0	4.0	12	19.50	10 28.85			10	11 30.41	
	1.298 85					50 11 13.69				− 11	+8.28
d	9.806 41					+16.72				− 30	
	1.223 30									+ 8.39	
((δ) − D) $\frac{d'}{100}$										+ 30	
+13.98										−9.30	
−0 8.25 δ_2		31 38.66		11 21.1						11 29.39	
	+ 8.1	1 51.8	20.4	31	36.10	50 12.25			30	49 52 4.06	
	0.908 49					49 51 57.21				− 2	+8.14
d	9.809 27					+ 6.85				− 20	
20	0.835 80									+8.06	
((δ) − D) $\frac{d'}{100}$										+ 30	
+13.92										−9.10	
−0 8.76 δ_1		33 30.91		51 54.3						52 3.10	
	+9.6	1 54.8	21.8	31	38.30	51 10.05			30	52 3.01	
	0.982 27					49 51 54.89				− 3	+8.23
d	9.809 27					+ 8.12				− 21	
	0.792 58									+ 8.17	
((δ) − D) $\frac{d'}{100}$										+ 30	
+13.92										−9.30	
−0 8.76 δ_2		33 31.01		51 53.2						52 1.94	
	+19.4	3 29.7	59.0	53	14.35	29 34.00			50	50 30 35.15	
	1.287 80					50 30 18.96				− .10	+8.37
24 d	9.803 51					+16.19				− 42	
	1.209 33									+ 8.61	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.02										−9.10	
−0 9.57 δ_1		36 37.73		30 24.9						30 34.44	
	+22.9	3 33.8	1.7	53	17.75	29 30.60			50	30 34.56	
	1.359 84					50 30 15.44				− 14	+8.48
d	9.803 51					+ 19.12				− 43	
	1.281 39									+ 8.75	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.02										−9.30	
−0 9.57 δ_2		36 37.79		30 24.2						30 33.74	
	+25.3	4 2.6	31.8	43	47.20	3 49 1.15			40	51 40 6.70	
	1.403 12					51 39 46.11				− 17	+9.55
24 d	9.792 56					+20.59				− 49	
	1.313 72									+ 9.86	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.19										−9.20	
−0 11.37 δ_1		4 33 6.29		39 55.7						40 7.05	
	+18.7	3 57.0	26.4	43	41.70	39 6.65			40	40 6.71	
	1.271 84					51 39 51.49				− .10	+9.78
d	9.792 56					+15.22				− 48	
	1.182 44									+10.01	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.19										−9.40	
−0 11.37 δ_2		4 33 6.34		39 55.7						40 7.09	
	+8.4	4 0.0	28.3	13	44.15	9 4.20			10	51 9 56.07	
	0.924 28					51 9 49.16				− 2	+9.12
18 d	9.797 31					+ 6.91				− 48	
	0.839 63									+ 9.32	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.09										−9.00	
−0 12.30 δ_1		47 9.88		9 43.9						9 56.19	
	+20.6	4 9.1	38.2	13	53.65	8 54.70			10	9 56.49	
	1.313 87					51 9 39.59				− 12	+9.13
d	9.797 31					+ 16.95				− 51	
	1.229 22									+ 9.46	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.09										− 9.10	
−0 12.30 δ_2		47 9.99		9 44.2						9 56.52	

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

1871phae.proj.1579R

Date$_1$ = 1872, Feb. 16. 160 Observer A. M. Recorder A. M.

Date$_2$ = 1872, Feb. 17 161 Observer A. M. Recorder A. M.

98

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
6	m 49 47 κ	s 03 48.3	° ′ 51 08 51 0.6	9.5 7.6 7.9	48	s 35.9 37.8 39.8 113.5 37.8	49.4	52.6	55.8	59.1	2.4	279.3 +11.93	55.86	m 48 + 11.47 + .48 − 2 49 7.79 − .67 49 7.12
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
			~~10.0~~	48	37.7 39.2 40.8 117.7 39.2	49.0	52.2	55.5	58.9	2.2	277.8 +12.21	55.56	48 + 11.72 + .51 − 2 49 7.77 − .66 49 7.11
	κ													
	$((\delta) - D)\frac{\kappa'}{100}$													
X	α_2													
6	51 50 κ	19 4.5	51 16 51 17.3	7.8 9.2	50	52.4 53.7 55.8 161.9 53.9	51.7.0	10.8	13.4	16.6	20.2	6 75 +11.93	13.50	51 + 11.47 + .48 − 2 51 25.43 − .70 51 24.73
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
			10.0	50	58.6 0.0 1.5 180.1 60.0	51 6.8	10.0	13.3	16.3	19.7	6 61 +12.21	13.22	57 + 11.72 + .51 − 2 51 25.43 − .68 51 24.75
	κ													
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													
6	53 52 κ	57 43.8	51 27 51 28.6	7.8 7.7	53	25.0 27.0 28.6 80.6 26.9	44.6	47.9	51.1	54.5	57.6	25 57 +11.94	51.14	53 + 11.47 + .49 − 2 54 3.08 − .72 54 2.36
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
			7.8	53	20.8 22.4 24.4 67.6 22.5	44.2	47.6	50.7	54.1	57.6	25 42 +12.21	50.84	53 + 11.72 + .51 − 2 54 3.05 − .71 54 2.34
	κ													
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													
	Feb. 16.					Single Observations.								
6	45 44 κ	43 28.8	51 52 51 53.2	8.6 8.8	45	9.0 10.6 12.5 32.1 10.7	32.8	36.0	39.5	42.8	46.2	19 73 +11.95	39.46	45 + 11.47 + .50 − 2 45 51.41 − .67 45 50.74
	$((\delta) - D)\frac{\kappa'}{100}$												✓	
	α_2													
	Feb. 17													
5	39 37 κ	05 49.6	50 03 50 2.2	8.5 8.7	38	38.7 40.1 41.9 120.7 40.2	50.0	53.4	56.6	59.9	3.2	28 31 +12.19	56.62	38 + 11.72 + .49 − 2 39 8.81 − .10 39 8.71
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													
	Feb. 17													
4	24 22 κ	12 56.8	49 56 49 56.2	9.0 8.8	23	50.0 57.6 58.6 155.2 51.7	57.3	0.4	3.6	6.6	9.8	31 77 +12.14	63.54	24 + 11.72 + .49 − 2 24 15.73 − .45 24 15.28
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_1													
	Feb. 17													
6	28 27 κ	16 39.7	50 39 50 39.7	8.0 7.9	28	22.4 27.1 31.4 80.9 27.0	—	4.7	8.1	11.3	14.5	+12.20		28 + 11.72 + .50 − 2 28 20.23 − .50 28 19.73
	$((\delta) - D)\frac{\kappa'}{100}$													
	α_2													

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	x	δ′
	+18.1	0 17.5	41.7	25	26.0	47 45.75			25	50° 58′ 45.67	
	1.25768		34.8	33		50 58 30.71				− 9	+9.33
d	9.79918					+14.96				− 0	
30	1.17490									+ 9.12	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.05				33.3						− 8.90	
δ_1 −0 12.84		49 21.17		58 58.9						58 46.10	
	+16.4	0 8.3	37.1	25	1,75	57 46.60			25	58 44.99	
	1.21484	17.4	46.1			50 58 31.44				− 7	+9.49
d	9.79918					+13.55				− 0	
	1.13206									+ 9.26	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.05				32.6						+ 9.00	
δ_2 −0 12.84		49 21.16		58 58.3						58 45.48	
	+19.6	3 1.0	29.8	7	45,40	15 2.95			5	51 16 4.00	
	1.29226					51 15 47.91				− 11	+9.27
d	9.79636					+16.09				− 35	
28	1.20666									+ 9.43	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.09										− 8.90	
δ_1 −0 12.44		51 38.82		15 50.9						16 4.37	
	+13.2	2 55.8	23.9	7	39,85	15 8.50			5	16 4.18	
	1.12057					51 15 53.34				− 5	+9.48
d	9.79636					+10.84				− 35	
	1.03497									+ 9.58	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.09										− 9.00	
δ_2 −0 12.44		51 38.84		15 51.2						~~17~~ 16 4.66	
	+24.2	1 5.4	34.8	55	50,10	26 58.25			55	51 28 2.99	
	1.38382					51 27 43.21				− .15	+9.69
d	9.79447					+19.78				− .10	
30	1.29633									+9.64	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.11										− 8.80	
δ_1 −0 14.10		54 16.47		27 49.8						28 3.88	
	+28.3	1 8.3	37.1	55	5270	26 55.65			55	28 3.63	7
	1.45179					51 27 40.49				− 21	+9.78
d	9.79447					+ 23.14				− 12	
	1.36430									+9.80	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.11										− 9.00	
δ_2 −0 14.10		54 16.45		27 50.3						28 4.40	
	+28.8	1 53.0	23.9	31	38,45	51 9.90			30	51 52 18.20	
	1.45939					51 51 54.86				− 22	+10.00
d	9.79063					+ 23.34				− 21	
	1.36806									+10.08	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.22										− 9.20	
δ_1 −0 12.00		46 4.96		52 7.0						52 19.00	
	+16.4	0 43.3	13.8	20	28,55	2 19.80			20	50 3 18.46	
	1.21484					50 3 4.64				− 7	+8.40
d	9.80762					+13.82				− 6	
	1.14050									+ 8.23	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.01										−10.40	
δ_2 +0 5.43		39 22.72		3 21.9						50 3 16.46	
	+11.8	2 28.2	36.4	27	12,30	55 36.05			25	49 56 30.86	
	1.07188					49 56 20.89				− 4	+8.14
d	9.80867					+9.97				− 29	
	0.99859									+ 8.77	
((δ) − D) $\frac{d'}{100}$										+ 30	
+13.96										−9.50	
δ_1 −0 6.42		24 29.24		56 23.1						56 29.50	
	−19.0	4 33.2	3.3	44	18.25	38 30.10			40	50 38 59.13	
	1.27875					50 39 14.94				− .10	+8.54
d	9.80213					− 15.81				− 56	
	1.19892									+ 8.90	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.07										− 9.50	
δ_2 −0 7.47		28 33.80		38 50.7						38 58.17	

ΔUT = 0,31 (±0,42)

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

1871phae.prog.1579R

Single Observations. Feb. 27

Date$_1$ = Feb. 24, 1872 — Observer W.A.R. — Recorder W.A.R. — n = +.44 — c = +.02

Date$_2$ = ~~1872~~, ~~Feb. 27~~ March 11. — Observer ~~A.M.~~, W.A.R. — Recorder ~~A.M.~~, W.A.R. — n = +.38 — c = −.04

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
5 Feb 27	m s 46 00 / 44 44.8	° ′ 51 46 / 51 45.4	6.5 / 7.0	45	s 18.0 / 20.0 / 21.8 / 5 9 5 / 19.9	43.8	47.1 / Feb. 27 / Feb. 24	50.5	53.8	57.1	25 23 + 13.43	50.46	m 45 50.46 + 12.86 + .56 + 3 − 2 46 38.9 + .08 46 39.7	20 +14.2 +0 3.
Feb 24			7.5	45	25.6 / 27.5 / 28.8 / 8 1 9 / 27.3	43.6	46.9	50.2	53.6	57.0	25 13 + 13.85	50.26	45 50.26 + 13.33 + 60 − .6 − 2 46 4.11 .00 46 4.11	+14.2 +0 3.
5 Feb 27	49 48.7 / 48	23 49 55 / 7.7 49 54.3	6.2 / 6.0	48	38.7 / 39.3 / 11 8 0 / 59.0	49 5.4	8.5 / Feb. 27	11.8	15.0	18.3	5 9 0 + 13.39	11.80	49 11.80 + 12.86 + .52 + 3 49 28.02 + 13.33 49 25.19 + .85 Feb 27 49 25.24	11.60 + 13.33 + 55 − 6 − 2 49 25.40 + .02 2542	20 +13.9 +0 3.7 08 Feb 2 +13.9 +0 2.
Feb 24			—	48	48.1 / 49.9 / 51.8 / 49.9	49 5.2	8.4 / Feb. 24	11.6	14.8	18.0	5 8 0 + 13.80	11.60			+13.9 +0 2.
March 11			6.0	48	47.5 / 48.4 / 50.0 / 14 5.9 / 48.6	49 4.4	7.6	10.7	13.4	17.0	5 3 6 + 14.18	10.72	49 10.72 + 13.75 + 45 − 2 49 24.90 + 40 49 25.30		+13.9 +0 2.
5 Feb 27	51 49 / 22.6	08 49 57 / 57.3	8.5 / 8.8	50	17.1 / 20.7 / 22.0 / 20.6	21.4	24.6 / Feb. 27	27.7	30.9	34.0	13 8 6 + 13.39	27.72	50 27.72 + 12.86 + .52 + 3 50 27.43 − 2 50 41.11 + .05 50 41.16	27.42 + 13.33 + .55 − 6 − 2 50 41.28 + .02 41.30	+.06 30 +13.9 +0 2.2 +13.9
Feb 24	49 22.6	49 57.3	8.6	50	14.7 / 15.9 / 17.4 / 16.0	21.0	24.2 / Feb. 24	27.5	30.6	33.8	13 7 1 + 13.80	27.42			+0
March 11	49 53.0		8.8	50	36.1 / 37.7 / 39.3 / 11 3.1 / 37.7	51.0	54.1	57.4	0.5	3.7	28 6 7 + 14.18	57.34	50 57.34 + 13.75 + .45 − 2 51 11.52 + .39 51 11.91		+13.9 +0 2.
5 Feb 27	5 4 52 / 57.7	13 49 54 / 49 53.3	9.0 / 8.8	53	38.0 / 39.5 / 41.7 / 11 9.2 / 39.7	58.5	1.5	4.7	7.8	11.0	32 35 +13.39	64.70	54 4.70 + 12.86 + .52 + 3 − 2 54 18.09 + .01 54 18.10	12 +13.9 +0 1.	
March 11			8.9	53	31.0 / 32.6 / 34.3 / 9 7.9 / 32.6	57.2	0.4	3.6	6.7	10.0	31 7 9 +14.18	63.58	54 3.58 + 13.75 + .45 − 2 54 17.76 + .35 54 18.11		+13.9 +0 1.
5 Feb 27	57 56 / 6.9	51 21 / 51 21.4	9.6 / 9.2	56	55.6 / 56.7 / 11 2 3 / 56.1	57 7.7	10.8	14.1	17.7	20.8	7 11 +13.41	14.22	57 14.22 + 12.85 + .55 + 3 − 2 57 27.63 − .02 57 27.61	10 +14.2 +0 0.	
March 11			9.4	56	39.7 / 40.9 / 41.8 / 12 2 4 / 40.8	57 6.5	10.0	13.0	16.4	19.7	6 5 6 +14.21	13.12	57 13.12 + 13.75 + .48 − 2 57 27.33 + .33 57 27.66		+14.2 +0 0.6

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

1871phae.proj.1579R

Obs. R.

Runs — Feb. 24 27 / Mar. 11

	Reg.	Reg.	Mean Reg. for Zone	Res.
24	23.62	23.52	23.57	−.14
27	26.41	26.60	26.50	−.14
Mar. 11	25.56	26.01	25.78	−.12

101

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+30.6	2 5.3	38.5	36	51.95	45 47.90			35	51 46 39.25	
d	1.48572	16.6	44.3	37	0.45	57 46 20.02	14.40			− 24	+9.95
	9.79160					22.95	0			− 28	
20 ((δ) − D) $\frac{d'}{100}$	1.39836					+ 24.85				+ 10.12	
										+ 35	
+14.29 δ_1		46 18.26		46 41.3						− 11.50	
+0 3.60							56.45			46 37.70	
	+23.0	2 16.6	44.3	37	0.45	45 47.90			35	46 38.70	
d	1.36173	5.3	38.5	36	51.90	46 1.47	2002			− 14	+9.48
	9.79160					+ 18.68				− 27	
((δ) − D) $\frac{d'}{100}$	1.27137									+ 9.54	
										+ .35	
+14.29 δ_2		46 18.40		46 40.4						− 11.40	
+0 3.60							52.35			46 36.78	
11.60	+12.8	4 14.3	47.6	29	0.95	53 47.40	188		25	49 54 29.67	54 29.31
−1333	1.10721	12.5	39.5	28	56.00	49 54 10.97	18.85			− .05	+7.73 − 13 +7.18
− 55	9.80897					13.70	+ 10.82			− 55	− 56
− 6	1.03422									+ 8.08	+ 7.62
− 2							47.40			+ .25	+ .25
2540 20 d	+21.7	4 12.5	39.5	28	56.00	53 52.35			25	− 11.10	− 10.80
+.02	1.33646	14.3	47.6	29	0.95	54 1.52	10.97			54 26.30	54 25.49
2542 07 δ_1	9.80897	49 39.22		54 29.0			+ 18.34				
Feb 24	1.26347	39.40		28.4							
+13.98	+22.1	4 16.3	47.2	29	1.75	53 46.60			25	54 31.06	
+0 2.70	1.34439					54 12.38				− 13	+7.59
d	9.80897					+ 18.68				− 48	
((δ) − D) $\frac{d'}{100}$	1.27140									+ 7.95	
		49 28		.6						+ .25	
+13.98		74 39.30		54 29.8						− 11.70	
+0 2.70 δ_2										54 26.95	
27.42 +06	+7.1	0 32.2	6.1	25	15	57 29.20	45		25	49 58 2.14	58 2.39
13.33	0.85126	35.1	2.3		18.70	49 57 52.77	56.15			− .02	+8.36 − 3 +7.87
.55	9.80837					55.70	+ 5.99			− 4	− 4
6 30 d	0.77767									+ 8.17	+ 7.69
+13.99	+11.4	0 35.1	2.3	25	15.0	57 29.65	20		25	+ .25	+ .25
− 2 40 ((δ) − D) $\frac{d'}{100}$	1.05690	32.2	6.1		19.15	57 53.22	52.77			− 11.10	− 10.80
4128	9.80837	50 55.05		58 7.6			+ 9.62			57 59.40	57 59.46
+.02 δ_1	0.98331	55.29		1.7							
4130 +13.99 22											
+0 2.22											
	+19.6	4 38.6	29.0	24	4380	58 4.55			20	58 46.88	
d	1.29226					58 30.33				− 11	+7.61
	9.80837					+ 16.55				− 56	
((δ) − D) $\frac{d'}{100}$	1.21867									+ 8.03	
+13.95										+ .25	
+0 2.22 δ_2		51 25.90		58 45.0						− 11.70	
										58 42.79	
Feb 27	+25.0	4 7.3	33.8	28	5055	53 57.80			25	49 54 45.43	
d	1.39794					49 54 24.30				− 17	+7.74
12	9.80897					+ 21.13				− 53	
((δ) − D) $\frac{d'}{100}$	1.32455									+ 8.19	
+13.98										+ 25	
+0 1.44 δ_1		54 32.08		54 43.5						− 11.10	
										54 42.07	
	+31.0	4 7.3	37.5	28	5240	53 55.95			25	54 47.93	
d	1.49136					49 54 21.73				− 26	+7.59
	9.80897					+ 26.20				− 46	
((δ) − D) $\frac{d'}{100}$	1.41837									+ 8.06	
+13.98										+ 25	
+0 1.44 δ_2		54 32.09		54 45.3						− 11.70	
										54 43.82	
	+18.1	2 20.2	47.0	2	360	20 44.75			0	51 21 26.09	
d	1.25768					51 21 11.25				− 9	+9.60
10	9.79558					+ 14.84				− 28	
((δ) − D) $\frac{d'}{100}$	1.17130									+ 9.67	
+14.23										+ 20	
+0 0.60 δ_1		57 41.84		21 24.9						− 11.40	
										21 24.29	
	+32.3	2 26.4	58.4	2	1240	20 35.95			0	21 28.21	
d	1.50920					51 21 1.73				− 27	+9.29
	9.79558					+ 26.48				− 26	
((δ) − D) $\frac{d'}{100}$	1.42282									+ 9.52	
+14.23										+ 30	
+0 0.60 δ_2		57 41.89		21 25.9						− 11.20	
										21 25.30	

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

1871phae.proj.1579R

Date$_1$ = Feb. 27 (163 inv.) Observer W.A.R. Recorder W.A.R.

Date$_2$ = 1872, March 11 (164) Observer W.A.R. Recorder W.A.R.

102

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
	m s	° ′		m	s	s	s	s	s		s	m	s
	5 8 57	50 53	9.2	58	20.7 42.8	46.1	47.4	52.7	56.0	24 70	49.40	5 8	49.40
	57 41.7	50 52.8	9.0		21.8					+13.40		+	12.85
	κ				23.3							+	.54
					65.8							+	.3
	((δ) — D) $\frac{\kappa'}{100}$				21.9							—	2
												59	2.80
	α_1											—	.03
												59	2.77
			8.9	58	28.0	41.8	45.0	48.2	57.6	54.9	24 15	48.30	58 48.30
					29.4						+14.20		+ 13.75
	κ				30.6								+ .47
					85.0								— 2
	((δ) — D) $\frac{\kappa'}{100}$				29.3							59	2.50
												+	.32
	α_2											59	2.82
6	2 36	50 38	9.0	2	4.3	21.4	24.7	28.0	31.1	34.4	13 96	27.92	2 27.92
	1 21.2	50 37.7	8.7		5.6						+13.39		+ 12.85
	κ				7.4								+ .53
					173								+ .3
	((δ) — D) $\frac{\kappa'}{100}$				5.8								— 2
												2	41.31
	α_1											—	.07
												2	41.24
			8.6	1	56.6	2 20.2	23.4	26.8	30.0	33.3	13 37	26.74	2 26.74
					57.8						+14.18		+ 13.75
	κ				59.3								+ .45
					1237								— 2
	((δ) — D) $\frac{\kappa'}{100}$				57.9							2	40.92
												+	.28
	α_2											2	41.20
6	4 23	50 49	8.8	3	44.7	4 9.3	12.6	15.9	19.2	22.5	7 95	15.90	4 15.90
	3 8.4	50 49.4	8.8		45.8						+13.40		+ 12.85
	κ				47.2								+ .54
					1377								+ .3
	((δ) — D) $\frac{\kappa'}{100}$				45.9								— 2
												4	29.30
	α_1											—	.09
												4	29.21
			8.6	4	45.1	4 8.2	11.5	14.7	17.8	21.2	7 34	14.68	4 14.68
					46.3						+14.20		+ 13.75
	κ				48.5								+ .47
					139.9								— 2
	((δ) — D) $\frac{\kappa'}{100}$				46.6							4	28.88
												+	.26
	α_2											4	29.14
6	6 59	52 34	8.4	6	12.8	38.6	42.1	45.6	48.8	52.3	22 74	45.48	6 45.48
	5 37.7	52 34.6	7.9		13.7						+13.43		+ 12.85
	κ				14.4								+ .57
					409								+ .3
	((δ) — D) $\frac{\kappa'}{100}$				13.6								— 2
												6	58.91
	α_1											—	.12
												6	58.79
			8.0	6	13.2	37.6	41.0	44.3	47.7	51.0	22 16	44.32	6 44.32
					14.6						+14.22		+ 13.75
	κ				16.0								+ .49
					436								— 2
	((δ) — D) $\frac{\kappa'}{100}$				14.6							6	58.54
												+	.23
	α_2											6	58.77
Feb 27													
6	16 32	50 02	9.0	9	54.1	10 18.2	21.5	24.7	27.8	31.1	12 33	24.66	10 24.66
	9 17.4	50 2.1	8.8		55.3						+13.82		+ 13.34
	κ	Feb. 27.11			56.5								+ .56
					55.5								— 2
	((δ) — D) $\frac{\kappa'}{100}$		9.2	10	2.6	18.6	21.6	25.1	28.2	31.4	12 49	24.98	10 24.98
					4.8						+13.37		+ 12.82
	α_1				6.7								+ .52
					5.0								+ .3
													— 2
			9.1	9	58.0	10 17.5	20.6	23.8	27.0	30.2	12 01	24.02	10 23.82
					02						+14.18		+ 13.75
	κ				1.8								+ .45
					1810								— 2
	((δ) — D) $\frac{\kappa'}{100}$				60.3							10	38.00
												+	20
	α_2											10	38.20

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

1871phae.proj.1579R

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	x	δ′
	+27.5	1 19.6	46.2	31	2490	51 45.45			30	50 52 34.73	
d	1.43933					50 52 11.95				− 19	+9.11
	9.80012					+22.78				− 14	
1.10	1.35749									+ 9.14	
((δ) − D) $\frac{d'}{100}$										+ 30	
		59		52 32.7						−11.30	
+14.15 δ₁		54 16.92		59 3.6						52 32.54	
+0 0.18											
	+19.0	1 9.0	39.2	30	5410	51 54.25			30	52 35.77	
d	1.27875					50 52 20.03				− 10	+9.09
	9.80012					+15.74				− 11	
	1.19691									+ 9.00	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−12.00	
+14.15 δ₂		59 16.97		52 33.0						52 32.86	
+0 0.18											
	+22.1	1 1.1	26.7	45	4390	37 44.5			45	50 37 49.35	
d	1.34439					50 37 30.95				− .13	+8.95
	9.80244					+18.40				− 10	
18	1.26487									+ 8.88	
((δ) − D) $\frac{d'}{100}$		9								+ 30	
										−11.10	
+14.10 δ₁		2 55.44		37 46.4						37 47.20	
−0 0.75											
	+28.8	1. 1.1	31.1	45	4610	3 47 2.25			45	37 52.01	
d	1.45939					50 37 28.03				− .22	+8.73
	9.80244					+23.98				− 9	
	1.37987									+ 8.74	
((δ) − D) $\frac{d'}{100}$										+ .30	
+14.10										−11.90	
δ₂		2 55.30		37 48.1						37 48.84	
−0 0.75			59.3								
	+30.0	(1) 33.4	−0.7	35	1635	47 32.00			35	50 48 23.38	
d	1.47712					50 47 58.50				− 24	+9.08
	9.80074					+24.88				− 4	
22	1.39590									+ 9.06	
((δ) − D) $\frac{d'}{100}$										+ 30	
+14.14										−11.20	
δ₁		4 43.35		48 20.0						48 21.26	
−0 1.23			56.6								
	+28.1	(X) 26.5	−3.4	38.5	1153	48 7 36.80			35	478 25.89	Ex mm.
d	1.44871					50 478 2.58				− 21	+8.87
	9.80089					+23.31				− 14	
	1.36764									+ 8.92	
−((δ) − D) $\frac{d'}{100}$										+ 30	
										−12.00	
+14.14 δ₂		4 43.28		48 21.5						478 23.76	
−0 1.23											
	+31.9	4 9.4	37.2	48	5330	33 55.05			45	52 34 47.00	
d	1.50379					52 34 21.55				− 27	+10.55
	9.78379					+25.45				− 55	
16	1.40562									+ 11.02	
((δ) − D) $\frac{d'}{100}$										+ 35	
+14.15										−11.70	
δ₁		7 13.24		34 44.0						34 45.85	
−0 1.89											
	+29.7	4 1.3	32.8	48	4705	34 1.30			45	34 50.77	
d	1.47276					52 34 27.08				− 24	+10.46
	9.78379					+23.69				− .45	
	1.37459									+10.85	
((δ) − D) $\frac{d'}{100}$										+ .30	
										−12.60	
+14.15 δ₂		7 13.22		34 46.7						34 48.63	
−0 1.89 Feb. 24											Feb. 24
	+29.4	2 0.6	31.8	21	4620	1 2.15			20	50 1 49.38	1 50.51
+13.99 d	1.46835					50 1 25.72				− 23 +8.00	− 11 +7.65
−0 2.85	9.80792					+24.79				− 25	− 24
3848 Feb. 27	1.39431									+8.23	+7.75
−21 ((δ) − D) $\frac{d'}{100}$	+19.9	1 59.7	24.8	21	4225	1 6.10			20	+ .25	+ .25
8.27	1.29885					50 1 32.60				−10.70	−10.60
+13.99 δ₁	9.80792	10 52.26		1 43.6		+16.78				1 46.48 46.48	1 47.56
−0 2.85	1.22481	52.21		44.7							
3835											
−.13	+23.5	1 56.9	26.3	21	4160	1 6.75			20	1 52.35	
38.46 22	1.37107					50 1 32.53				− .15 +8.00	
d	9.80792					+19.82				− 20	
	1.29703									+ 8.10	
+13.99 ((δ) − D) $\frac{d'}{100}$										+ 25	
−0 2.85										−11.70	
δ₂		10 52.19		1 45.8						1 48.65	
										48.65	

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

1871phae.proj.1579R

Date$_1$ = 1872. Feb. 24. Observer W. A. R.
n = +.47 c = −.04 Recorder W. A. R.

Date$_2$ = March. 11. Observer W. A. R.
n = +.38 Recorder W. A. R.

Star.	α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
6h	13 05	50 28	8.7	12m 5 24.8	12m 5 49.1	52.4	55.7	58.8	2.0	27 80	55.60	12	56.60
	11 49.8	50 28.0	9.0	26.1						+13.83		+	13.34
	κ			27.7								+	.57
	((δ) − D) $\frac{\kappa'}{100}$			7 86								−	6
				26.2								−	2
	α_1											13	9.43
												+	23
												13	9.20
			8.7	12 23.3	48.3	51.5	54.8	58.0	1.2	27 38	54.76	12	54.76
				24.6						+14.20		+	13.75
	κ			25.7								+	.47
	((δ) − D) $\frac{\kappa'}{100}$			7 36								−	2
				24.5								13	8.96
	α_2											+	18
												13	9.14
6	14 59	51 42	7.7	14 18.0	43.0	46.3	49.6	52.9	56.3	24 81	49.62	14	49.62
	13 43.9	51 ~~42.8~~ 41.8	7.4	19.0						+13.86		+	13.34
	κ			20.0								+	.60
	((δ) − D) $\frac{\kappa'}{100}$			5 70								−	6
				19.0								−	2
	α_1											15	3.48
												+	26
												15	3.22
			7.2	14 15.0	42.1	45.4	48.8	52.0	55.3	24 36	48.72	14	48.72
				16.3						+14.22		+	13.75
	κ			17.9								+	.49
	((δ) − D) $\frac{\kappa'}{100}$			49 2								−	2
				16.4								15	2.94
	α_2											+	16
												15	3.10
6	22 27	51 03	8.0	21 52.3	22 12.3	15.6	18.9	22.1	25.4	9 43	18.86	22	18.86
	21 12.2	51 3.~~8~~ 7	7.5	55.7						+13.84		+	13.34
	κ			56.9								+	.58
	((δ) − D) $\frac{\kappa'}{100}$			16 49								−	6
				54.9								−	2
	α_1											22	32.70
												−	32
												22	32.38
			7.8	21 51.0	22 11.6	14.8	18.0	21.4	24.7	9 05	18.10	22	18.10
				52.4						~~+14.23~~ .19		+	13.74
	κ			53.4								+	.47
	((δ) − D) $\frac{\kappa'}{100}$			15 68								−	2
				52.3								22	32.29
	α_2											+	09
												22	32.38
6	24 17	51 11	8.3	23 38.5	24 1.1	4.4	7.7	10.9	14.3	3 84	7.68	24	7.68
	23 1.7	51 11.8	8.0	38.4						+13.84		+	13.34
	κ			39.5								+	.58
	((δ) − D) $\frac{\kappa'}{100}$			12 44								−	6
				38.1								−	2
	α_1											24	21.52
												−	34
												24	21.18
			8.2	23 44.5	24 0.2	3.6	6.9	10.1	13.5	3 43	6.86	24	6.86
				~~45.6~~ 47.2						+14.14		+	13.74
	κ			13 73								+	.47
	((δ) − D) $\frac{\kappa'}{100}$			45.8								−	2
												24	21.05
	α_2											+	07
												24	21.12
6	26 26	51 32	8.8	25 47.4	26 16.1	19.5	22.8	25.8	29.3	11 35	22.70	26	22.70
	25 10.8	51 32.4	8.5	48.5						+13.85		+	13.34
	κ			50.1								+	.56
	((δ) − D) $\frac{\kappa'}{100}$			146.0								−	6
				48.7								−	2
	α_1											26	36.55
												−	36
												26	36.19
			8.9	25 53.2	26 15.3	18.6	21.9	25.2	28.4	10 94	21.88	26	21.88
				54.2						+14.20		+	13.74
	κ			56.1								+	.48
	((δ) − D) $\frac{\kappa'}{100}$			163 5								−	2
				54.5								26	36.08
	α_2											+	05
												26	36.13

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

1871phae.proj.15795

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	s	ó 43.5	15.2	58	29,35	27 19.00			55	50° 28′ 7.13	
	+29.4					50 27 42.57				− .23	+8.15
d	1.46835					+24.56				− .7	
84	9.80382									+ 8.20	
((δ) − D) $\frac{d'}{100}$	1.39021									+ .25	
										−10.70	
+14.07											
−0 3.51 δ_1		13 23.27		28 1.1						28 4.58	
	+30.3	0 46.2	16.5	55	31,35	27 17.00			55	28 8.09	
	1.48144					50 27 42.78				− .24	+8.51
d	9.80382					+25.31				− .6	
	1.40330									+ 8.56	
((δ) − D) $\frac{d'}{100}$										+ .25	
										−11.90	
+14.07											
−0 3.51 δ_2		13 23.21		28 1.2						28 4.70	
	+30.6	1 54.9	27.8	41	41,35	41 7.00			40	51 41 55.46	
	1.48572					51 41 30.57				− .25	+9.33
d	9.79224					+24.89				− .24	
90	1.39600									+ 9.47	
((δ) − D) $\frac{d'}{100}$										+ .35	
										−11.00	
+14.28											
−0 3.93 δ_1		15 17.50		41 49.9						41 53.79	
	+32.3	1 58.8	29.7	41	44,25	41 4.10			40	41 56.15	
	1.50920					51 41 29.88				− .27	+9.71
d	9.79224					+26.27				− .21	
	1.41948									+ 9.89	
((δ) − D) $\frac{d'}{100}$										+ .38	
										−12.30	
+14.28											
−0 3.93 δ_2		15 17.38		41 49.6						41 53.56	
	+24.0	1.6.9	38.8	20	52,85	1 55.50			20	51 2 38.88	
	1.38021					51 2 19.07				− .15	+8.83
d	9.79856					+19.81				− .13	
76	1.29681									+ 8.81	
((δ) − D) $\frac{d'}{100}$										+ .30	
										−10.70	
+14.15											
−0 5.97 δ_1		22 46.53		2 31.0						2 37.01	
	+25.8	1 8.7	29.5	20	54,10	1 54.25			20	2 41.32	
	1.41162					51 2 20.03				− .18	+9.21
d	9.79856					+21.29				− .10	
	1.32824									+ 9.19	
((δ) − D) $\frac{d'}{100}$										+ .30	
										−12.00	
+14.15											
−0 5.97 δ_2		22 46.53		2 32.6						2 38.53	
	+29.6	2 36.1	9.0	12	23,55	10 25.80			10	51 11 13.72	
	1.47129					51 10 49.37				− .24	+8.69
d	9.79715					+24.35				− .34	
82	1.38648									+ 8.97	
((δ) − D) $\frac{d'}{100}$										+ .30	
										−10.70	
+14.17											
−0 6.45 δ_1		24 35.36		11 5.3						51 11 11.71	
	+21.1	2 31.3	2.0	12	16,65	10 31.70			10	11 14.84	
	1.32428					51 10 57.48				− .12	+9.24
d	9.79715					+17.36				− .27	
	1.23947									+ 9.83	
((δ) − D) $\frac{d'}{100}$				5.6						+ .30	
										−12.00	
+14.17											
−0 6.45 δ_2		24 35.24		11 6.4						11 12.08	
	+34.0	4 11.2	44.2	53	57,70	28 50.65			50	51 29 42.01	
	1.53148					51 29 14.22				− .31	+8.71
d	9.79431					+27.79				− .56	
92	1.44383									+ 9.28	
((δ) − D) $\frac{d'}{100}$										+ .30	
										−10.80	
+14.23											
−0 6.99 δ_1		26 50.42		29 32.9						29 ~~30.34~~ 39.92	
	+27.4	4 7.0	38.1	53	52,55	28 5.80			50	29 43.97	
	1.43775					51 29 21.58				− .19	+9.32
d	9.79431					+22.39				− .46	
	1.35010									+ 9.67	
((δ) − D) $\frac{d'}{100}$										+ .30	
										−12.10	
+14.23											
−0 6.99 δ_2		26 50.36		29 34.2						29 41.19	

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

1871phae.proj.1579R

Date$_1$ = 1872. Feb. 24 (162) Observer W. A. R. Recorder W. A. R.

Date$_2$ = 1872, March 11 (164) Observer W. A. R. Recorder W. A. R.

106

Star.	α_1	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
6	28 16	50 30	8.0	27	36.7	57.9	3.0	6.2	9.5	12.8	33 14	66,28	28	6.28
	27 0.7	50 37.7	7.9		38.3						+13.83		+	13.34
	κ				40.0								+	57
					1150								−	6
	((δ) − D) $\frac{\kappa'}{100}$				38.3								−	2
													28	20.11
	α_1												−	36
													28	19.75
			8.0	27	42.7	58.8	2.1	5.4	8.6	11.8	32 67	65.34	28	5.34
											+1417		+	13.74
	κ												+	.45
	((δ) − D) $\frac{\kappa'}{100}$												−	2
													28	19.51
	α_2												+	04
													28	19.55
6	32 04	50 45	9.5	31	39.3	46.8	50.0	52.9	56.5	57.7	26 59	53.18	31	53.12
	30 46.0	50 45.7	9.4								+13.84		+	13.34
	κ												+	.38
	((δ) − D) $\frac{\kappa'}{100}$												−	6
													−	2
	α_1												32	7.02
													+	40
													32	6.56
			9.4	31	28.8	45.5	48.8	52.8	53.5	58.8			31	52.28
											+1419		+	13.74
	κ												+	47
	((δ) − D) $\frac{\kappa'}{100}$												−	2
													32	6.47
	α_2												+	00
													32	6.47
6	32 28	50 45	9.4	31	35.6		50.4	56.1	56.7	0.0	28 34	56.68	31	56.68
	31 15.7	50 45.4	9.0					52.6			+13.84		+	13.34
6	30 κ 499												+	58
	((δ) − D) $\frac{\kappa'}{100}$												−	6
													−	2
	α_1												32	10.52
													−	40
													32	10.02
			9.3	31	34.0	49.0	52.8	55.8	58.0	2.0	27 86	55.72	31	55.72
											+14.19		+	13.74
	κ												+	47
	((δ) − D) $\frac{\kappa'}{100}$												−	2
													32	9.91
	α_2												+	00
													32	9.91
6	34 19	52 52	8.7	33	33.6	34 1.4	4.7	8.2	11.6	15.0	409	8.18	34	8.18
	33 0.1	52 52.8	8.4		35.0						+13.87		+	13.34
	κ				36.8								+	62
	((δ) − D) $\frac{\kappa'}{100}$				37.4								−	7
					1426								−	2
	α_1				35.7								34	22.05
													−	46
													34	21.59
			8.7	33	34.2	34 0.4	3.8	7.3	10.7	14.2	364	7.28	34	7.28
					36.0						+14.22		+	13.74
	κ				37.7								+	50
	((δ) − D) $\frac{\kappa'}{100}$				1079								−	2
					36.0								34	21.50
	α_2												−	.04
													34	21.46
6	36 51	50 54	8.8	36	16.0	37.4	40.6	43.8	47.0	50.4	2192	43.84	36	43.84
	35 37.3	50 55.2	8.8		17.7						+13.85		+	13.35
	κ				19.1								+	.58
	((δ) − D) $\frac{\kappa'}{100}$				528								−	6
					17.6								−	2
	α_1												36	57.69
													−	.44
													36	57.25
			8.6	36	17.7	36.5	39.7	43.0	46.3	49.6	21 51	43.02	36	43.02
					19.6						+14.19		+	13.74
	κ				21.4								+	.47
	((δ) − D) $\frac{\kappa'}{100}$				587								−	2
					19.6								36	57.21
	α_2												−	05
													36	57.16

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

1871phae.proj.15795

Runs

	$T_m - T$	A	C	Sum	Mean	x.10 Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ′
	+28.0	4 50.0	22.2	44	36.10	38 12.15			40	50 38 59.03	
	1.44716					50 38 35.72				− 21	+7.85
d	9.80228					+23.31				− 64	
94	1.36748									+ 8.40	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−10.50	
+1407 δ_1		24 33.2		38 48.9						38 56.38	
−0 7.47											
	+22.6	4 48.0	18.0	44	33.00	38 15.35			40	38 59.94	
	1.35411					50 38 41.13				− 14	+8.39
d	9.80228					+18.81				− 54	
	1.27443									+ 8.77	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−11.80	
+14.07 δ_2		28 33.02		38 49.1						38 56.53	
−0 7.47											
	+13.9	3 51.8	24.0	38	37.90	44 10.45			35	50 44 45.57	
	1.14301					50 44 34.02				− 5	+8.25
d	9.80136					+11.55				− 50	
50	1.06241									+ 8.50	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−10.40	
+1408 δ_1		32 20.64		44 35.7						44 43.42	
−0 8.46											
	+13.5	3 53.1	23.3	38	38.20	44 10.15			35	44 47.12	
	1.13033					50 44 35.93				− 5	+8.68
d	9.80136					+11.21				− 44	
	1.04973									+ 8.87	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−11.80	
+14.08 δ_2		32 20.55		44 35.6						44 44.02	
−0 8.46											
	+21.1	3 51.8	24.0	38	37.90	44 10.45			35	50 44 51.55	
	1.32428					50 44 34.02				− 12	+8.18
d	9.80136					+17.53				− 50	
56	1.24368									+ 8.50	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−10.40	
+1408 δ_1		32 24.10		44 40.8						44 49.33	
−0 8.58											
	+21.7	3 53.1	23.3	38	38.20	44 10.15			35	44 58.95	
	1.33646					50 44 35.93				− 13	+8.60
d	9.80136					+18.02				− 44	
	1.25586									+ 8.87	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−11.80	
+14.08 δ_2		32 23.99		44 42.7						44 50.75	
−0 8.58											
	+32.5	0 40.8	13.6	30	27.20	52 21.15			30	52 53 10.46	
	1.51188					52 52 44.72				− 27	+10.78
d	9.78063					+25.74				− 6	
90	1.41055									+10.71	
((δ) − D) $\frac{d'}{100}$										+ 40	
										−11.00	
+1445 δ_1		34 36.04		53 1.2						53 10.24	
−0 9.03											
	+31.3	0 40.8	11.1	30	25.95	52 22.40			30	53 12.97	
	1.49554					52 52 48.18				− 25	+11.22
d	9.78063					+24.79				− 5	
	1.39421									+11.17	
((δ) − D) $\frac{d'}{100}$										+ 35	
										−12.50	
+1445 δ_2		34 35.91		53 2.7						53 11.69	
−0 9.03											
	+26.2	4 29.8	1.7	29	15.75	53 32.60			25	50 54 17.85	
	1.41830					50 53 56.17				− 18	+8.18
d	9.79981					+21.68				− 60	
82	1.33615									+ 8.66	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−10.40	
+1408 δ_1		37 11.83		54 5.9						54 15.63	
−0 9.72											
	+23.4	4 27.9	2.7	29	15.30	53 33.05			25	54 18.20	
	1.36922					50 53 58.83				− 14	+8.67
d	9.79981					+19.37				− 51	
	1.28707									+ 8.02	
((δ) − D) $\frac{d'}{100}$										+ 30	
										−11.80	
+1408 δ_2		37 11.24		54 5.4						54 15.07	
−0 9.72											

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

1871phae.proj.15798

Date$_1$ = Observer / Recorder

Date$_2$ = Observer / Recorder

Star. α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
			Continued in 9.14									
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												

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

1871phae.proj.1579R

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

1871phae.proj.1579R

Date$_1$ = Observer / Recorder

Date$_2$ = Observer / Recorder

Star. α	δ	Mag.	T_δ	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
			Continued in 9. 14									
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_1												
κ												
$((\delta) - D)\frac{\kappa'}{100}$												
α_2												

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

1871phae.proj.1579R

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

1871phae.proj.1579R

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

1871phae.proj.1579R

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

1871phae.proj.1579R

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