

KG
11376
v.582

Zone Observations & Reductions

C. 20

From Nov. 18, 1873 to Feb. 10, 1874.

6.20 $\begin{matrix} 4 & 39 & 335 \\ 2 & 19 & 367 \end{matrix}$ $\begin{matrix} 50 & -5.7 \\ 50 & 461 \end{matrix}$ Dec. 9. " 16

C19
Nov. 18 1873 to Feb 10 1874

Values of i adopted for 1873-1874

From Nov. 18 1873 to Dec 29 $i = 4^{\circ} 58' 24''$

From Jan 15 to Apr. 12 $i = 4 \quad 59 \quad 8$

For Circle Readings

From Nov. 18 1873 to Jan. 15 1874

$i = -4^{\circ} 58' 24''$

$\log \tan i \quad 8.93962_m$

$\log 15 \quad 1.17609$

$\log 15 \tan i \quad .11571_m$

For Declinations

From Nov. 18 1873 to Jan 14 1874

$i = +4^{\circ} 58' 24''$

$\log \tan i \quad 8.93962$

$\log 15 \quad 1.17609$

$\log 15 \tan i \quad .11571$

i for 1874

Jan 15 1874 to Apr 12 1874 + $\frac{i}{4^{\circ} 59' 8''}$ $\log \tan i \quad \log 15 \tan i$
 $\log \tan i \quad 8.94069 \quad .11678$ $-4^{\circ} 59' 8'' \quad 8.94069_m \quad .11678_m$
 Apr 13 - May 28 + $4^{\circ} 54' 28''$ $8.93383 \quad .10992$ $-4^{\circ} 54' 28'' \quad 8.93383_m \quad .10992_m$

May 29 - Sept 10 + $4^{\circ} 51' 50''$ $8.92991 \quad .10600$ $-4^{\circ} 51' 50'' \quad 8.92991_m \quad .10600_m$

Sept 11 - Oct 28 + $4^{\circ} 50' 54''$ $8.92851 \quad .10460$ $-4^{\circ} 50' 54'' \quad 8.92851_m \quad .10460_m$

Oct 29 - Dec 10 + $4^{\circ} 48' 44''$ $8.92525 \quad .10134$ $-4^{\circ} 48' 44'' \quad 8.92525_m \quad .10134_m$

Dec 11 - Dec 31 + $4^{\circ} 43' 22''$ $8.91706 \quad .09315$ $-4^{\circ} 43' 22'' \quad 8.91706_m \quad .09315_m$

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

1.39

974

1.31

((8) -

1.5

978

1.4

Runs

W. R. is the observer and J. R. is the recorder
throughout this book.

For A. R. on 6/19

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+17.7 1.24797 9.78346 1.14714	4 11.9	57.2	44	4.55	38 43.80 52 36 24.4522 + 14.03			40	52 36 38.48 - 8 + 4 + 10.60 + .50 - 28.90 36 20.6542	+11.07
($\delta - D$) $\frac{d'}{100}$											
δ_1		57 3.80 37.8		37 0.5							
d	+23.3 1.36736 9.78346 1.26653	4 14.9	59.9	44	7.40	38 40.95 52 36 20.2857 + 18.47			40	36 38.753904 - 14 + 8 + 10.72 + .50 - 29.00 36 20.912120	+11.16
($\delta - D$) $\frac{d'}{100}$											
δ_2		57 37.8 54.28 54.11		37 1.3							
d	+30.8 1.48855 9.78805 1.39231	2 22.6	7.3	12	14.95	10 33.40 52 8 14.0513.52 + 24.68			10	52 8 38.7350 - 25 + 2 + 10.10 + .50 - 28.80 8 20.30.07	+10.37
($\delta - D$) $\frac{d'}{100}$											
δ_1		58 54.28 6 22.90		9 0.2							
d	-5.8 0.76343m 9.78805 0.66719m	1 53.8	38.7	11	46.25	11 2.10 52 8 41.9372 - 4.65			10	8 36.783707 - 1 + 4 + 10.20 + .50 - 28.90 8 20.30.07	+10.73
($\delta - D$) $\frac{d'}{100}$											
δ_2		58 54.11		8 59.0							
d	+25.3 1.40312 9.78494 1.30377	3 25.5	9.9	53	17.70	29 30.65 52 27 11.3007 + 20.13			50	52 27 31.4220 - .16 + 3 + 10.43 + .50 - 28.80 27 13.4320	+10.80
($\delta - D$) $\frac{d'}{100}$											
δ_1		0 32.90		27 53.3							
d	+27.2 1.45457 9.78494 1.33522	3 25.5	10.1	53	17.80	29 30.55 52 27 9.881017 + 21.64			50	27 31.5281 - .20 + 10.54 + .50 - 29.00 27 13.4372	+10.91
($\delta - D$) $\frac{d'}{100}$											
δ_2		0 32.74		27 53.8							
d	+25.3 1.40312 9.79288 1.31171	2 54.1	39.8	42	46.95	40 1.40 51 37 42.054182 + 20.50			40	51 38 2.5532 - .17 + 3 + 9.57 + .48 - 28.70 37 43.76.53	+9.91
($\delta - D$) $\frac{d'}{100}$											
δ_1		2 0.14		38 23.6							
d	+29.5 1.46982 9.79288 1.37841	2 57.3	43.1	42	50.20	39 58.15 51 37 37.4877 + 23.90			40	38 1.5867 - 23 + 6 + 9.67 + .48 - 28.80 37 42.5685	+9.98
($\delta - D$) $\frac{d'}{100}$											
δ_2		2 0.06		38 23.0							
d	-35.8 1.55388m 9.79573 1.46522m + 25.2 1.40140 9.79573 1.31284	0 27.8	13.0	0	20.40	22 27.95 51 20 8.6037 - 29.19 + 20.55			0	51 19 39.7118 - .35 + 0 + 9.25 + .46 - 28.60 19 20.171994	+9.54
($\delta - D$) $\frac{d'}{100}$											
δ_1		3 13.96 21.02		20 0.0 20 50.0							
d	-24.7 1.39270m 9.796573 1.30414m + 37.3 1.54771 9.79573 1.48315	0 36.3	22.1	0	29.20	22 19.15 51 19 58.4847 - 24.47 - 14.19 + 30.42			0	19 38.620 - 17 + 1 + 9.35 + .46 - 28.80 19 19.4820	+9.74
($\delta - D$) $\frac{d'}{100}$											
δ_2		3 13.78 21.02		19 59.6 20 49.9							

262
Date₁ = Nov. 18, 1873
n = +, 21

Observer *W. A. R.*
Recorder *C. F. M.*

Date₂ = Nov. 19, 1873

Observer _____
Recorder _____

Ru

Star.	α	δ	Mag.	T_s	T_m	T_o	T_i	T_g	T_h	Sum	Mean	Red. to T_m	T
06	06 51 13	8.2	6	16.1	25.1	28.5	31.7	35.2	38.4	6	31.74		
05	14.3 51 7.8	8.4	6	11.6							-19.38	47	
κ				13.5							+2.6		
(8) - D				11.7						-19.23	6	12.60	
a_1											-2.55		+6.24
											6	14.05	+40.10
												9.96	
07	01 51 57	8.3	7	14.8	19.6	22.8	26.1	29.4	32.8	7	31.86		
06	8.2 51 51.2	8.6	7	9.2							-19.46	36	
κ				11.7							+1.5		
(8) - D				5.596						-19.23	6	12.53	
a_1				60.8							-2.53	6	10.68
													+6.24
													+40.10
07	01 51 57	8.3	7	14.8	19.6	22.8	26.1	29.4	32.8	7	31.86		
06	8.2 51 51.2	8.6	7	9.2							-19.38	47	
κ				11.7							+2.7		
(8) - D				5.5						-19.22	7	12.01	
a_1											-2.547		+6.25
											7	44.4	+40.08
												4.35	
08	01 51 56	7.8	7	14.4	19.2	22.8	26.1	29.6	33.0	7	31.86		
07	8.2 51 51.2	8.6	7	9.2							-19.46	36	
κ				11.7							+1.5		
(8) - D				4.3						-19.23	7	12.87	
a_1											-2.55		+6.25
											7	44.4	+40.08
												4.36	
08	01 51 56	7.8	8	14.2	19.6	22.8	26.1	29.6	33.0	8	31.86		
07	8.2 51 51.2	8.6	8	18.9							-19.38	47	
κ				21.1							+2.7		
(8) - D				18.1						-19.22	8	25.14	
a_1											-2.58		+6.27
											8	22.58	+40.08
												4.36	
08	01 51 56	7.8	8	14.2	19.6	22.8	26.1	29.6	33.0	8	31.86		
07	8.2 51 51.2	8.6	8	18.9							-19.46	36	
κ				21.1							+1.5		
(8) - D				18.1						-19.23	8	24.99	
a_1											-2.57		+6.27
											8	22.42	+40.08
												5.2	
09	11 51 53	8.7	10	14.8	31.0	34.3	37.6	41.1	44.3	10	37.66		
19	18.6 57 47.1	9.0	10	9.4							-19.38	47	
κ				12.1							+2.7		
(8) - D				9.7						-19.22	10	18.53	
a_1											-2.61		+6.25
											10	15.72	+40.06
												8.3	
09	11 51 53	8.7	10	16.6	31.0	34.3	37.6	41.1	44.3	10	37.66		
19	18.6 57 47.1	9.0	10	18.5							-19.46	36	
κ				20.2							+1.5		
(8) - D				18.4						-19.23	10	18.31	
a_1											-2.59		+6.29
											10	15.72	+40.06
												8.2	
10	56 57 14	8.7	11	8.9	15.3	18.6	21.8	25.3	28.5	11	21.90		
10	3.4 57 8.6	8.7	11	2.5							-19.38	47	
κ				4.4							+2.6		
(8) - D				2.6						-19.23	11	2.76	
a_1											-2.61		+6.30
											11	4.5	+40.06
												0.06	
10	56 57 14	8.7	11	11.0	15.2	18.6	21.9	25.3	28.4	11	21.94		
10	3.4 57 8.6	8.7	11	12.7							-19.46	36	
κ				14.5							+1.5		
(8) - D										-19.23	11	2.51	
a_1											-2.59		+6.30
											11	4.94	+40.06
												0.02	

Runs		Nov 18		Nov 19		$\phi = 42^\circ 22' 48.35''$		$\phi = 42^\circ 22' 48.35''$		3	
		$R = -2' 19.55''$		$-2' 20.67''$		$\phi = 42^\circ 22' 48.35''$		$\phi = 42^\circ 22' 48.35''$		3	
		$R_{20} = +1.01$		$+1.02$		$\phi = 42^\circ 22' 48.35''$		$\phi = 42^\circ 22' 48.35''$		3	
		$T_m - T_v$		$T_m - T_v$		$T_m - T_v$		$T_m - T_v$		$T_m - T_v$	
		A		C		Sum		Mean		Red. to m. wire	
		Red. to h. wire		Red. runs		Stroke		z		8'	
d	$(\delta) - D$	1' 42.1		27.9		6		35.88		51 16 13.5	
		1.30103		1.21342		1.21342		51 13 54.00		53.77	
δ_1	$(\delta) - D$	6 16.20		14 31.2		14 10.35		51 14 10.35		11 +9.54	
		1.21342		1.21342		1.21342		51 14 10.35		11 +9.54	
d	$(\delta) - D$	1 54.8		36.0		6		43.40		51 16 4.95	
		1.49276		1.40515		1.40515		51 13 44.28		57 +25.42	
δ_1	$(\delta) - D$	6 16.34		14 30.9		14 9.70		51 16 4.95		57 +25.42	
		1.40515		1.40515		1.40515		51 16 4.95		57 +25.42	
d	$(\delta) - D$	3 22.9		7.6		23		15.25		51 57 33.10	
		1.22789		1.13343		1.13343		51 57 13.75		52 +13.60	
δ_1	$(\delta) - D$	7 10.60		57 48.9		57 27.35		51 57 33.10		52 +13.60	
		1.13343		1.13343		1.13343		51 57 33.10		52 +13.60	
d	$(\delta) - D$	3 27.0		12.0		23		19.50		51 57 28.85	
		1.33846		1.24400		1.24400		51 57 6.18		78.9 +17.54	
δ_1	$(\delta) - D$	7 10.61		57 47.2		57 25.43		51 57 28.85		78.9 +17.54	
		1.24400		1.24400		1.24400		51 57 28.85		78.9 +17.54	
d	$(\delta) - D$	4 37.8		22.6		24		30.20		51 58 18.15	
		1.40140		1.30410		1.30410		51 58 58.80		57 +20.28	
δ_1	$(\delta) - D$	8 28.77		56 40.6		56 19.08		51 58 18.15		57 +20.28	
		1.30410		1.30410		1.30410		51 58 18.15		57 +20.28	
d	$(\delta) - D$	4 38.0		22.8		24		30.40		51 58 17.95	
		1.40140		1.31563		1.31563		51 58 57.28		57 +20.68	
δ_1	$(\delta) - D$	8 28.79		56 40.0		56 17.96		51 58 17.95		57 +20.68	
		1.31563		1.31563		1.31563		51 58 17.95		57 +20.68	
d	$(\delta) - D$	2 26.8		11.5		27		19.15		51 55 29.20	
		1.44716		1.35334		1.35334		51 55 9.85		62 +22.56	
δ_1	$(\delta) - D$	10 22.12		53 53.7		53 32.41		51 55 29.20		62 +22.56	
		1.35334		1.35334		1.35334		51 55 29.20		62 +22.56	
d	$(\delta) - D$	2 20.1		5.1		27		12.60		51 55 35.75	
		1.28330		1.18948		1.18948		51 55 15.05		87 +15.47	
δ_1	$(\delta) - D$	10 22.11		53 52.5		53 30.55		51 55 35.75		87 +15.47	
		1.18948		1.18948		1.18948		51 55 35.75		87 +15.47	
d	$(\delta) - D$	0 57.8		42.6		5		58.20		51 16 58.15	
		1.28556		1.09779		1.09779		51 14 38.50		57 +15.77	
δ_1	$(\delta) - D$	11 6.36		15 15.4		14 54.57		51 16 58.15		57 +15.77	
		1.09779		1.09779		1.09779		51 16 58.15		57 +15.77	
d	$(\delta) - D$	0 49.0		34.7		5		41.85		51 17 6.50	
		0.95504		0.87127		0.87127		51 14 45.83		46.12 +7.42	
δ_1	$(\delta) - D$	11 6.32		15 14.6		14 53.25		51 17 6.50		46.12 +7.42	
		0.87127		0.87127		0.87127		51 17 6.50		46.12 +7.42	

Date₁ = Nov. 18, 1873Observer W. A. R.
Recorder J. F. M.Date₂ = Nov. 19, 1873Observer
Recorder

Ru

Star.	α	δ	Mag.	T_a	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
12 ^m	06 51 28	6.8	13 ^m	7.2	13 26.7	30.1	33.4	36.6	39.9	12 ^m	33.34		
11 ^k	13.7 51 22.2	7.8		9.0							-19.58	47	
				10.5							+ 2.6		
(δ) - D				8.9					-19.23		- 2		
a_1										12	14.20		
											- 2.63		
										12	11.52	48	+6.32
													+40.06
κ		7.2	12	9.7	12 26.6	30.0	33.3	36.7	40.7	12	33.32		
				11.3							-19.76	36	
(δ) - D				11.3					-19.23		+ 1.5		
a_2										12	13.99		
											- 2.61		
										12	11.38	48	+6.32
													+40.06
13 ^m	11 51 11	8.8	13	14.4	13 30.8	34.1	37.4	40.8	43.9	13	37.40		
12 ^k	18.4 51 5.2	8.9		16.0							-19.58	47	
				18.8							+ 2.6		
(δ) - D				16.1					-19.23		- 2		
a_1										13	18.26		
											- 2.64		
										13	15.62	53	+6.34
													+40.04
κ		8.8	13	14.8	13 30.7	34.2	37.5	40.7	44.0	13	37.42		
				16.3							-19.46	36	
(δ) - D				16.2					-19.23		+ 1.5		
a_2										13	18.09		
											- 2.62		
										13	15.47	57	+6.34
													+40.04
15 ^m	24 51 30	8.0	15	39.0	15 54.1	57.3	0.7	3.9	7.3	16	0.66		
14 ^k	41.3 51 24.9	8.8		40.4							-19.88	47	
				42.0							+ 2.6		
(δ) - D				40.5					-19.23		- 2		
a_1										15	41.52		
											- 2.67		
										15	38.85	76	+6.37
													+40.02
κ		8.0	15	34.0	15 54.0	57.3	0.8	3.9	7.2	16	0.64		
				35.5							-19.76	36	
(δ) - D				37.3					-19.23		+ 1.5		
a_2				35.6						15	41.31		
											- 2.65		
										15	38.66	76	+6.37
													+40.02
16 ^m	28 52 00	8.6	16	28.7	16 47.8	57.0	54.4	57.8	1.1	16	54.42		
15 ^k	34.8 51 54.8	8.6		30.2							-19.58	47	
				31.5							+ 2.7		
(δ) - D				30.1					-19.22		- 2		
a_1										16	35.29		
											- 2.67		
										16	32.60	51	+6.39
													+40.00
κ		8.2	16	24.8	16 47.6	57.0	54.4	57.7	1.0	16	54.34		
				26.3							-19.46	36	
(δ) - D				25.3					-19.23		+ 1.5		
a_2										16	35.01		
											- 2.67		
										16	32.94	44	+6.39
													+40.00
17 ^m	41 51 54	9.5	17	36.2	18 1.1	4.6	7.9	11.1	14.5	18	7.84		
16 ^k	47.9 51 48.7	9.3		38.0							-19.58	47	
				39.5							+ 2.7		
(δ) - D				37.9					-19.22		- 2		
a_1										17	48.71		
											- 2.69		
										17	46.02	45.93	+6.41
													+39.98
κ		9.5	17	57.8	18 1.0	4.3	7.8	11.0	14.3	17	7.68		
				52.6							-19.46	36	
(δ) - D				53.6					-19.23		+ 1.5		
a_2				52.3						17	48.35		
											- 2.67		
										17	45.68	48	+6.41
													+39.98

Runs $P_{eq} = -2' 19.85$ Nov. 18 $-2 20.67$ Nov. 19

		$T_m - T$	A	C	Sum	Mean	$\phi - 2$ Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
+2	d	+24.4 1.38739 9.79447 1.29751	2' 33.1	17.8	52	25.45	51 30 22.90 51 28 3.55 +19.84	22.90 28 23.39		50	51 28 23.39 - 16 + 3 + 9.42 + 47 -28.55	16 +9.76 37
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		12 17.80		28 44.4						28 46.0	
	d	+22.0 1.34242 9.79447 1.25260	2 30.0	15.3	52	22.65	51 30 25.70 51 28 5.08 +17.89	25.70 28 22.92		50	22.92 23.21 - 13 + 5 + 9.53 + 47 -28.70	+9.92 43
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		12 17.80		28 44.5						28 47.4	
-2	d	+21.3 1.32888 9.79715 1.24124	4 25.3	11.2	9	11.25	51 13 30.10 51 11 10.75 +17.43	30.10 11 28.18		5	51 11 28.18 - 12 + 4 + 9.11 + 46 -28.50	27.95 +9.49
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		13 21.87		11 49.0						11 9.17	8.94
	d	+21.2 1.32634 9.79715 1.23920	4 25.7	11.1	9	11.40	51 13 29.95 51 11 9.28 +17.35	29.95 11 26.63		5	26.63 92 - 12 + 8 + 9.23 + 46 -28.65	+9.65
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		13 21.91		11 48.0						11 7.63	92
+2	d	+20.2 1.30535 9.79399 1.21405	4 41.9	26.3	49	24.10	51 33 14.25 51 30 54.94 +16.37	14.25 31 11.27		45	51 31 11.27 - 11 + 5 + 9.47 + 48 -28.50	104 +9.89
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		15 45.13		31 32.4						30 52.66	43
	d	+25.6 1.39794 9.79399 1.30764	4 44.8	30.1	49	37.45	51 33 10.90 51 30 50.23 +20.31	10.90 31 10.54		45	10.54 83 - 17 + 9 + 9.57 + 48 -28.65	+9.99
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		15 45.13		31 32.2						30 51.88	5217
-8	d	+24.3 1.38561 9.78934 1.29066	0 11.5	4 56.9	20	4.20	52 2 44.15 52 0 24.50 +19.53	44.15 0 44.33		20	52 0 44.33 - 16 + 0 + 9.98 + 50 -28.55	10 +10.32
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		16 38.90		1 5.9						0 24.10	25.87
	d	+28.8 1.45939 9.78934 1.36444	0 13.9	5.9	20	6.90	52 2 41.45 52 0 20.78 +23.14	41.45 0 43.92		20	43.92 44.21 - 22 + 0 + 10.11 + 50 -28.70	+10.39
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		16 38.83		1 5.9						0 25.61	90
-16	d	+29.9 1.45939 9.79965 1.37475	0 57.7	41.9	25	49.80	50 56 58.55 50 54 39.20 +23.70	58.55 55 2.90		25	50 55 2.90 - 24 + 1 + 8.18 + 45 -28.40	67 +9.10
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		17 52.34		55 23.25						54 43.60	37
	d	+15.4 1.18752 9.79965 1.10288	0 44.4	29.3	25	38.85	51 57 11.50 51 54 50.83 +12.67	11.50 55 2.50		25	3.50 79 - 4 + 1 + 8.95 + 45 -28.55	+9.35
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		17 52.19		55 24.6						54 44.30	59

Date₁ = Nov. 18, 1873Observer W. A. R.
Recorder J. F. M.Date₂ = Nov. 19, 1873Observer
Recorder

Ru

Star.	α	δ	Mag.	T_s	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
18 ^m 17	44 51 17 50.6 51 11.9	9.1 8.0	18 ^m 38.0 38.4 40.9 38.8	19 3.3	6.7	9.8	13.3	16.6	19	9.94 -19.58 + 2.6 - 2	47		-18
										-19.23			
(8) - D) $\frac{\kappa'}{100}$										18	50.80 - 2.71		+6.42 +39.98
a_1										18	48.09		
κ			9.1	18 57.1 58.3 59.5 58.3	19 3.3	6.5	9.8	13.0	16.2	19	9.76 -19.44 + 1.5 - 2	36	
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										18	50.43 - 2.67		+6.42 +39.98
										18	47.74	84	
19 36 51 44 18 42.4 51 38.3	8.7 8.7	19 35.0 36.4 37.9 36.4	19 56.2	59.4	2.8	6.1	9.4	20	2.78 -19.58 + 2.6 - 2	47			0
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										19	43.64 - 2.72		+6.44 +39.96
										19	40.92	83	
κ			8.4	19 49.4 50.2 50.5 50.2	19 56.2	59.5	2.8	6.0	9.4	20	2.78 -19.46 + 1.5 - 2	36	
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										19	43.45 - 2.71		+6.44 +39.96
										19	40.74	84	
20 42 50 45 19 51.6 50 39.6	9.1 8.9	20 42.4 44.3 45.7 44.7	21 4.5	1.8	11.0	14.2	17.2	21	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0	14.0	17.4	21	10.98 -19.46 + 1.5 - 2	36		
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_2										20	51.65 - 2.71		+6.44 +39.94
										20	48.74	49.04	
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
23 33 56 51 17 33 8.7 51 12.4	8.8 9.0	23 42.4 44.3 45.7 44.7	24 4.5	1.8	11.0	14.2	17.2	24	10.94 -19.58 + 2.6 - 2	47			
(8) - D) $\frac{\kappa'}{100}$										-19.23			
a_1										20	51.80 - 2.73		+6.44 +39.94
										20	49.07	4898	
κ			9.0	21 5.4 5.8 5.9 5.8	21 4.5	8.0							

Runs $R_{eq} =$ Nov. 18 $-2' 19.35''$ Nov. 19 $-2' 20.67''$

 $\phi - 2$

7

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
18	$+31.1$ 1.49276 9.77605 1.40452	2' 25.0	11.0	2	18.80	51 20 30.35 51 18 17.00 10.77 + 25.38			0	51 18 26.38 ¹⁵ - 26 + 2 + 9.26 + 47 - 28.45 18 17.42 ¹⁹	+9.49
δ_1		18 54.42		18 57.2				18 36.38			
d	$+11.5$ 1.06070 9.77605 0.97246	2 7.5	53.7	2	0.60	51 20 47.75 51 18 27.08 ³⁷ + 9.39			0	36.87 ⁷⁶ - 3 + 4 + 9.37 + 47 - 28.60 18 17.72 ¹⁵⁰¹	+9.85
δ_2		18 54.26		18 58.0				18 36.47			
(8) - D $\frac{d'}{100}$											
0	$+26.4$ 1.42160 9.77176 1.32907	1 5.9	50.4	35	58.15	51 46 50.20 51 44 30.85 ⁶² + 21.33			35	51 44 52.78 ⁵⁷⁹⁵ - 18 + 1 + 9.72 + 47 - 28.50 44 32.72 ⁴⁹	+10.04
δ_1		19 47.27		45 12.4				44 52.18			
d	$+13.4$ 1.12710 9.77176 1.03457	0 54.1	39.0	35	46.53	51 47 1.80 51 44 41.13 ⁴² + 10.83			35	51.46 ⁵²²⁵ - 5 + 2 + 9.84 + 49 - 28.68 44 33.61 ⁹⁰	+10.30
δ_2		19 47.28		45 13.9				44 51.96			
(8) - D $\frac{d'}{100}$											
+ 4	$+26.8$ 1.42813 9.77120 1.34504	0 58.1	43.1	36	50.60	50 48 57.75 50 44 38.40 ¹⁷ + 22.13			30	50 45 0.53 ³⁰ - 18 + 1 + 8.67 + 44 - 28.40 44 5 41.07 ^{40.84}	+8.94
δ_1		20 55.42		46 20.8				45 0.53			
d	$+5.6$ 0.74819 9.77105 0.66495	4 39.9	25.0	34	32.45	50 48 15.90 50 45 55.20 ⁵² + 4.62			30	45 59.55 ⁰¹⁴ 46 - 1 + 9 + 8.79 + 44 - 28.50 45 40.62 ⁹⁵	+9.31
δ_2		20 55.48		46 20.9				45 59.85			
(8) - D $\frac{d'}{100}$											
d											
δ_1											
(8) - D $\frac{d'}{100}$											
d											
δ_2											
(8) - D $\frac{d'}{100}$											
d	$+13.5$ 1.13033 9.78580 1.03164	2 18.7	4.0	57	11.35	52 25 37.00 52 23 17.65 ⁴² + 10.76			55	52 23 28.41 ¹⁸ - 5 + 2 + 10.38 + 50 - 28.85 23 10.41 ¹⁸	+10.85
δ_1								23 28.41			
(8) - D $\frac{d'}{100}$											
d	$+15.7$ 1.19570 9.79538 1.10719	3 16.9	1.7	58	9.80	51 28 39.05 51 28 19.70 ⁴⁷ + 12.50			55	51 28 32.50 ²⁷ - 7 + 3 + 9.00 + 47 - 28.65 28 13.58 ³⁵	+9.73
δ_2		4 53.34		22 53.4				21 32.50			
(8) - D $\frac{d'}{100}$											

Runs

Nov. 19
 $\text{Reg} = -2' 20.67$
 38

9

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+11.8	3.52.0	38.0	3	45.50	52 19 3.35			0	52 16 52.18	39
$((\delta) - D) \frac{d'}{100}$	1.07188					52 16 42.6897				- 4	+10.93
δ_1	9.78658					+9.42	16	52.10		+ 8	
	6.97417									+10.38	
										+ 50	
										-28.95	
		37 39.84		17 14.3						16 34.837	
d	+14.5	Ans. 25.7	10.3	50	18.00	52 32 30.35			50	52 30 21.20	49
$((\delta) - D) \frac{d'}{100}$	1.16137					52 30 9.6897				- 5	+11.09
δ_1	9.78445					+11.52	30	21.20		+ 1	
	1.06153									+10.63	
										+ 50	
										-29.00	
		45 41.92		30 43.6						30 3.2958	
		2 38.7	24.1						5		
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											

Date₁ = Dec. 9, 1873Observer W. A. R.
Recorder G. F. M.Date₂ = Dec. 10, 1873Observer
Recorder

Ru

Star. α C = +.058

Mag.

T_aT_mT_gT_fT_h

Sum

Mean

Red. to T_m

T

31 16 50 34
30 23.9 50 28.3
κ

7.5

31 54.4

31 26.2

29.5

32.7

36.0

39.3

31

32.74

- 7.89

70

(8) - D) $\frac{\kappa'}{100}$ a₁

7.8

31 7.8

31 26.3

28.8

32.0

35.3

38.6

31

32.04

- 7.18

76

(8) - D) $\frac{\kappa'}{100}$ a₂31 59 50 45
31 6.8 50 40.0
κ

9.0

32 15

32 8.8

12.2

15.3

18.5

21.8

32

15.32

- 7.89

72

(8) - D) $\frac{\kappa'}{100}$ a₁

9.1

31 53.4

32 8.0

11.3

14.5

17.8

21.1

32

14.54

- 7.18

72

(8) - D) $\frac{\kappa'}{100}$ a₂33 07 50 07
32 15.4 50 2.0
κ

9.1

33 0.1

33 17.8

21.1

24.4

27.8

31.0

33

24.42

- 7.89

72

(8) - D) $\frac{\kappa'}{100}$ a₁

9.1

32 52.1

33 17.1

20.4

23.8

27.0

30.2

33

23.70

- 7.18

72

(8) - D) $\frac{\kappa'}{100}$ a₂34 08 51 57
33 12.2 51 57.7
κ

9.0

34 35.5

34 15.4

18.7

22.1

25.3

28.8

34

23.06

- 7.89

72

(8) - D) $\frac{\kappa'}{100}$ a₁

9.0

34 12.5

34 14.7

17.7

21.5

24.5

27.8

34

21.24

- 7.18

72

(8) - D) $\frac{\kappa'}{100}$ a₂35 51 51 44
34 45.6 51 38.2
κ

8.2

35 25.0

35 48.6

52.0

55.3

58.6

2.0

35

58.30

- 7.89

72

(8) - D) $\frac{\kappa'}{100}$ a₁

8.5

35 26.1

35 47.8

51.3

54.6

57.9

1.2

35

54.66

- 7.18

72

(8) - D) $\frac{\kappa'}{100}$ a₂

Runs		Dec. 9 $R = -2' 17.82''$ $K_{\text{res}} = +.11$ $T_m - T$	Dec. 10 $-2' 16.35''$ $+ .11$ A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
70	d	+36.5 1.56229 9.80290 1.48090	1' 27.9	22.0	46	24.95	50 36 23.40 50 34 5.58 +30.26	34 35.84	45	50 34 35.84	- 36 + 15 + 8.48 + 43 - 30.70 34 13.84	+8.70
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		31 29.24		34 53.6							
	d	+22.7 1.35603 9.80290 1.27464	1 19.9	15.5	46	17.70	50 36 30.65 50 34 14.30 +18.82	34 33.12	45	50 34 33.12	- 14 + 14 + 8.81 + 43 - 30.80 34 11.56	+9.24
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		31 29.20		34 51.3	X.10						
78	d	+13.2 1.12057 9.80105 1.03733	4 34.3	28.3	34	31.30	50 48 17.05 50 45 59.23 +10.90	46 10.03	30	50 46 10.03	- 5 + 50 + 8.67 + 44 - 30.75 45 48.84	+9.56
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		32 11.83		46 28.6							
	d	+17.6 1.24551 9.80105 1.16227	4 41.8	32.0	34	36.90	50 48 11.45 50 45 55.10 +14.53	46 9.63	30	50 46 9.63	- .9 + 50 + 9.01 + 44 - 30.85 45 48.64	+9.86
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		32 11.70		46 28.4							
72	d	+23.8 1.35793 9.80686 1.28050	2 49.9	44.0	12	46.95	50 10 1.40 50 7 43.58 +19.08	8 2.66	10	50 8 2.66	- 14 + 29 + 8.00 + 41 - 30.60 7 40.62	+8.56
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		33 20.92		8 20.3							
	d	+29.5 1.46982 9.80686 1.39239	2 58.9	49.1	12	54.00	50 9 54.35 50 7 38.00 +24.68	8 2.68	10	50 8 2.68	- 23 + 30 + 8.32 + 41 - 30.70 7 40.78	+8.80
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		33 20.54		8 20.5							
82	d	+18.6 +23.6 1.26951 1.37291 9.79918	2 46.9 2 46.9	40.1 40.1	22 22	43.50 43.50	51 0 4.85 51 0 4.85 50 57 47.03 50 57 47.03 +15.29 +19.40	58 2.32 58 6.48	20 20	51 58 2.32 51 58 2.32 - 10 + 30 + 9.92 + 50 - 30.95 57 41.99	58 6.43 - 15 + 30 + 9.92 + 50 - 30.95 57 46.05	+10.57
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		34 18.59 1.28780 19.87		58 21.6 25.7							
	d	+8.7 +16.3 0.93952 1.21219 9.79918	2 42.9 2 42.9	33.7 33.7	22 22	38.30 38.30	51 0 10.05 51 0 10.05 50 57 53.70 50 57 53.70 +7.15 +13.40	58 0.85 58 7.10	20 20	51 58 0.85 51 58 0.85 - 2 + 29 + 10.32 + 50 - 31.05 57 40.89	58 7.10 - 7 + 29 + 10.32 + 50 - 31.05 57 47.09	+11.04
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		34 18.43 1.12408 20.27		58 20.6 27.8	26.7						
74	d	+29.1 1.46389 9.79192 1.37152	1 28.9	32.1	36	25.50	51 46 22.85 51 44 5.03 +23.53	44 28.56	35	51 44 28.56	- 22 + 16 + 9.68 + 49 - 30.90 44 7.77	+10.11
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		35 51.83		44 47.4							
	d	+26.9 1.42975 9.79192 1.33738	1 29.7	20.3	36	25.00	51 46 23.35 51 44 7.00 +21.75	44 28.75	35	51 44 28.75	- 17 + 16 + 10.07 + 49 - 31.00 44 8.28	+10.53
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		35 51.76		44 47.9							

Date₁ = Dec. 9, 1873Observer W.A.R.
Recorder F.H.M.Date₂ = Dec. 10, 1873Observer
Recorder

12

Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
37	10 50 14	9.3	36 44.4	37 21.1	24.1	27.4	31.0	34.0	37	27.8	27.8		70
κ			36 17.0	37 45.9						- 7.60			
(8) - D			37 23.1	37 22.0	25.7	28.6	31.8	34.8	37	28.46	37 - 19.98	+6.66	
α_1										- 7.89	37 - 2.57	+39.58	78
α_2										- 7.89	37 17.41		
κ			36 48.9	37 20.4	23.7	26.7	30.3	33.3	37	26.88	37 - 2.57	+6.66	
(8) - D			37 24.8	37 21.0	24.3	27.7	31.2	34.2	37	27.68	37 18.29	+39.58	
α_1										- 7.18			
α_2										- 7.18			
κ			39 15.6	39 35.6	38.9	42.1	45.3	48.8	39	42.18		+6.66	
(8) - D			39 17.0						39	- 7.89	1736 1812	+39.58	58
α_1			39 18.7						39	- 7.89			
α_2			39 17.1						39	- 7.89			
κ			39 11.3	39 35.1	38.2	41.4	45.0	48.3	39	41.60		+6.71	
(8) - D			39 13.0						39	- 7.18			
α_1			39 15.3						39	- 7.18			
α_2			39 18.2						39	- 7.18			
κ			40 25.7	40 34.4	37.7	40.9	44.1	47.3	40	40.88		+6.70	
(8) - D			40 26.9						40	- 7.89		+39.48	
α_1			40 28.1						40	- 7.89			
α_2			40 27.2						40	- 7.89			
κ			40 17.1	40 33.8	37.1	40.2	43.4	46.7	40	40.24		+6.70	
(8) - D			40 18.4						40	- 7.18		+39.48	
α_1			40 19.7						40	- 7.18			
α_2			40 18.4						40	- 7.18			
κ			41 25.4	41 42.7	45.9	49.2	52.4	55.6	41	49.16		+6.73	
(8) - D			41 26.8						41	- 7.89		+39.44	
α_1			41 28.2						41	- 7.89			
α_2			41 26.8						41	- 7.89			
κ			41 28.9	41 41.8	45.1	48.5	51.8	55.0	41	48.44		+6.73	
(8) - D			41 30.1						41	- 7.18		+39.44	
α_1			41 31.5						41	- 7.18			
α_2			41 30.2						41	- 7.18			
κ			42 52.0	43 7.3	10.5	13.8	17.1	20.4	43	18.82		+6.76	
(8) - D			42 53.5						43	- 7.89		+39.40	
α_1			42 54.9						43	- 7.89			
α_2			42 53.5						43	- 7.89			
κ			42 42.0	43 6.5	9.8	13.1	16.4	19.6	43	18.08		+6.76	
(8) - D			42 43.0						43	- 7.18		+39.40	
α_1			42 45.4						43	- 7.18			
α_2			42 43.5						43	- 7.18			

Runs $R_{\text{sp}} = -2' 17.82$ Dec. 10
 $-2 16.35$

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		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
70	d	+41.8 1.62118 9.80595 1.54284	1 7.8 1 7.8	1.3 1.3	6 6	4.55 4.55	50 16 43.80 50 16 43.80 50 14 25.98 50 14 25.98			5	50 15 08.8 - 46 +8.26 + 19 + 8.12 + 41 - 30.60 14 38.54	14 30.95 31.66 + 19 + 8.12 + 41 - 30.60 14 38.54
78 (8) - D	$\frac{d'}{100}$	+45.4 0.73239 9.80595 1.54284					+34.90 + 4.51					
δ_1		37 24.04 24.95			15 18.1 14 48.2							14 38.54 14 38.54
d		+43.0 1.63347 9.80595 1.54284	1 10.8 1 10.8	1.8 1.8	6 6	6.30 6.30	50 16 42.05 50 16 42.05 50 14 25.70 50 14 25.70			5	1.60 - 50 +8.47 + 12 + 8.44 + 41 - 30.70 14 38.37	28.12 - 0 + 12 + 8.44 + 41 - 30.70 14 38.37
(8) - D	$\frac{d'}{100}$	0.46240 9.80595 0.38406					+35.90 + 2.47					
δ_2		37 24.02 24.82			15 19.0 14 44.0	4.60						6.89
58	d	+35.1 1.39967 9.79887 1.31425	0 50.9	45.0	20	47.95	57 2 2.40 50 59 42.88 +20.62			20	57 0.320 - 17 + 8 + 8.90 + 45 - 30.75 59 41.71	+9.26
(8) - D	$\frac{d'}{100}$							0 3.20				
δ_1		39 38.69			0 21.2							
d		+28.4 1.45332 9.79887 1.36790	0 56.8	47.2	20	52.50	57 1 56.35 50 59 40.00 +23.33			20	333 - 21 + 9 + 9.26 + 45 - 30.85 59 42.07	+9.59
(8) - D	$\frac{d'}{100}$							0 3.33				
δ_2		39 38.76			0 21.6							
64	d	+13.7 1.13672 9.80507 1.06050	0 14.7	8.7	20	11.70	50 2 36.65 50 0 18.83 +11.50			20	50 0 30.33 - 5 + 2 + 7.86 + 40 - 30.55 0 8.01	+8.23
(8) - D	$\frac{d'}{100}$							0 30.33				
δ_1		40 37.36			0 47.5							
d		+21.8 1.33846 9.80807 1.26224	0 24.4	15.3	20	19.85	50 2 28.50 50 0 12.15 +18.29			20	30.44 - 13 + 3 + 8.17 + 40 - 30.65 0 8.26	+8.47
(8) - D	$\frac{d'}{100}$							0 30.44				
δ_2		40 37.37			0 47.7							
72	d	+22.4 1.36025 9.80550 1.27146	3 59.9	54.1	3	57.00	50 18 51.35 50 16 33.53 +18.68			0	50 16 52.21 - 13 + 42 + 8.16 + 40 - 30.60 16 30.47	+8.86
(8) - D	$\frac{d'}{100}$							16 52.21				
δ_1		41 45.66			17 9.9							
d		+18.2 1.26007 9.80550 1.18128	3 59.1	50.1	3	54.60	50 18 53.75 50 16 37.40 +15.18			0	52.58 - 9 + 42 + 8.48 + 40 - 30.70 16 31.10	+9.22
(8) - D	$\frac{d'}{100}$							16 52.58				
δ_2		41 45.59			17 10.5	10						
74	d	+20.3 1.30750 9.79918 1.22239	2 24.9	18.4	32	21.65	50 0 26.70 50 58 8.98 +16.69			20	50 58 25.67 - 11 + 26 + 8.88 + 45 - 30.70 58 4.45	+9.48
(8) - D	$\frac{d'}{100}$							58 26.02				
δ_1		43 10.33			58 43.8							
d		+29.6 1.47129 9.79918 1.28618	2 34.8	24.9	38	29.85	57 0 16.50 50 58 2.15 +24.33			20	26.48 - 23 + 27 + 9.23 + 45 - 30.80 58 54.0	+9.72
(8) - D	$\frac{d'}{100}$							58 27.00				
δ_2		43 10.24			58 44.8							

Date₁ = Dec. 9, 1873

Observer

Recorder

W. A. R.
J. F. M.Date₂ = Dec. 10, 1873

Observer

Recorder

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Ru

1873pbae.

Star.	α	δ	Mag.	T_a	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
44 ^m 43 ^k 42 ^k (8) - D ₁₀₀ a_1	13 ⁵⁰ 18.7 41.7 43.1	50 52 46.9 43.1	6.0 6.7	43 ^m 40.4 41.7 43.6 41.9	43 46.0 41.7 43.6 41.9	49.1	52.4	55.6	58.9	43 ^m 62.40 - 7.89 + 24 + 8 - 2 43 44.81 - 2.66 43 42.15 43 57.8 - 7.18 + 32 - 8 - 2 43 44.82 - 2.65 43 42.17 45 37.62 - 7.89 + 24 + 8 - 2 45 30.03 - 2.69 45 27.34 45 36.86 - 7.18 + 33 + 8 - 2 45 30.11 - 2.72 45 27.24 47 31.10 - 7.89 + 24 + 8 - 2 47 23.51 - 2.72 47 20.79 47 30.54 - 7.18 + 32 - 8 - 2 47 23.58 - 2.70 47 20.88 49 51.14 - 7.88 + 24 + 8 - 2 48 57.56 - 2.75 48 54.81 49 4.42 - 7.18 + 33 + 8 - 2 48 57.47 - 2.73 48 54.74 50 35.58 - 7.88 + 23 + 8 - 2 50 27.99 - 2.75 50 25.24 50 34.86 - 7.18 + 32 - 8 - 2 50 28.00 - 2.74 50 25.26	62 +6.77 +39.36 +6.77 +39.36 +6.81 +39.32 +6.81 +39.32 +6.82 +39.24 +6.82 +39.24 +6.86 +39.20 +6.86 +39.20 +6.85 +39.14 +6.85 +39.14		
45 ^m 44 ^k (8) - D ₁₀₀ a_1	23 51 35 26.8 51 29.4	51 29.4	8.4 7.9	45 ^m 9.4 10.8 12.1 10.8	45 30.9 10.8 12.1 10.8	34.3	37.6	41.0	44.3	45 ^m 37.62 - 7.89 + 24 + 8 - 2 45 30.03 - 2.69 45 27.34 45 36.86 - 7.18 + 33 + 8 - 2 45 30.11 - 2.72 45 27.24 47 31.10 - 7.89 + 24 + 8 - 2 47 23.51 - 2.72 47 20.79 47 30.54 - 7.18 + 32 - 8 - 2 47 23.58 - 2.70 47 20.88 49 51.14 - 7.88 + 24 + 8 - 2 48 57.56 - 2.75 48 54.81 49 4.42 - 7.18 + 33 + 8 - 2 48 57.47 - 2.73 48 54.74 50 35.58 - 7.88 + 23 + 8 - 2 50 27.99 - 2.75 50 25.24 50 34.86 - 7.18 + 32 - 8 - 2 50 28.00 - 2.74 50 25.26	76 +6.81 +39.32 +6.81 +39.32 +6.82 +39.24 +6.82 +39.24 +6.86 +39.20 +6.86 +39.20 +6.85 +39.14 +6.85 +39.14		
47 ^m 46 ^k (8) - D ₁₀₀ a_1	13 51 03 18.9 50 57.4	50 57.4	9.5 9.4	47 ^m 10.6 12.0 13.0 11.9	47 34.5 12.0 13.0 11.9	37.9	31.3	34.3	37.6	47 ^m 37.62 - 7.89 + 24 + 8 - 2 47 23.51 - 2.72 47 20.79 47 30.54 - 7.18 + 32 - 8 - 2 47 23.58 - 2.70 47 20.88 49 51.14 - 7.88 + 24 + 8 - 2 48 57.56 - 2.75 48 54.81 49 4.42 - 7.18 + 33 + 8 - 2 48 57.47 - 2.73 48 54.74 50 35.58 - 7.88 + 23 + 8 - 2 50 27.99 - 2.75 50 25.24 50 34.86 - 7.18 + 32 - 8 - 2 50 28.00 - 2.74 50 25.26	62 +6.82 +39.24 +6.82 +39.24 +6.86 +39.20 +6.86 +39.20 +6.85 +39.14 +6.85 +39.14		
48 ^m 47 ^k (8) - D ₁₀₀ a_1	50 51 48 52.9 51 42.1	51 42.1	8.0 8.4	48 ^m 38.5 39.8 41.5 39.9	48 57.5 39.8 41.5 39.9	1.8	5.1	8.5	11.8	48 ^m 37.62 - 7.89 + 24 + 8 - 2 48 57.56 - 2.75 48 54.81 49 4.42 - 7.18 + 33 + 8 - 2 48 57.47 - 2.73 48 54.74 50 35.58 - 7.88 + 23 + 8 - 2 50 27.99 - 2.75 50 25.24 50 34.86 - 7.18 + 32 - 8 - 2 50 28.00 - 2.74 50 25.26	62 +6.86 +39.20 +6.86 +39.20 +6.85 +39.14 +6.85 +39.14		
50 ^m 49 ^k (8) - D ₁₀₀ a_1	18 50 24 23.0 50 18.4	50 18.4	9.1 9.1	50 ^m 8.6 10.3 12.3 10.4	50 29.1 10.3 12.3 10.4	32.3	35.6	38.9	42.0	50 ^m 37.62 - 7.89 + 24 + 8 - 2 50 27.99 - 2.75 50 25.24 50 34.86 - 7.18 + 32 - 8 - 2 50 28.00 - 2.74 50 25.26	62 +6.85 +39.14 +6.85 +39.14		
52 ^m 51 ^k (8) - D ₁₀₀ a_1	18 50 24 23.0 50 18.4	50 18.4	9.1 9.1	52 ^m 8.6 10.3 12.3 10.4	52 29.1 10.3 12.3 10.4	32.3	35.6	38.9	42.0	52 ^m 37.62 - 7.89 + 24 + 8 - 2 52 27.99 - 2.75 52 25.24 52 34.86 - 7.18 + 32 - 8 - 2 52 28.00 - 2.74 52 25.26	62 +6.85 +39.14 +6.85 +39.14		

Runs $R_{eq} = -2' 17.82$ Dec. 9
 $-2' 16.35$ Dec. 10

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
62	d	5 +10.5 1.02119 9.80058 0.93748	1	52.8	17.6	31	19.90	50 51 28.45 50 49 10.83 + 8.66		30	50 49 19.29 - 3 + 14 + 8.73 + 44 - 30.65 48 57.92	lev min + 9.28
	$(\delta) - D$	$\frac{d'}{100}$								19.29		
	δ_1		43 48.92 1.6		49 37.3			1 51.10 50 52 40.60 50 50 30.25 49 16.16		38	49 50 14.09 - 11 + 8.10 + 9.09 + 44 - 30.75 48 49 52.76	18.60 + 9.42 52
	d	+44.4 -19.6 1.27226 9.80043 1.20840	0	10.6	52.9	30	17.45 57.25					
	$(\delta) - D$	$\frac{d'}{100}$								14.09		
	δ_2		48 48.94		49 36.7							48 49 52.76 57.37
76	d	+26.8 1.42813 9.79335 1.33719	0	19.5	13.1	45	16.30	51 37 32.05 51 35 14.23 + 21.74		45	51 35 35.97 - 19 + 3 + 9.54 + 48 - 30.50 35 15.03	+ 9.86
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		45 34.15		35 54.7							
	d	+25.0 1.39794 9.79335 1.30700	0	19.9	11.0	45	15.45	51 37 32.90 51 35 16.55 + 20.28		45	- 36.83 - 17 + 3 + 9.92 + 48 - 30.70 35 16.19	+ 10.26
	$(\delta) - D$	$\frac{d'}{100}$								35 36.83		
	δ_2		45 34.05		35 55.5							
88	d	+19.2 1.28330 9.79540 1.19741	2	14.9	8.4	17	11.65	51 5 36.70 51 3 18.88 + 15.75		15	51 3 34.63 - 10 + 24 + 8.97 + 45 - 30.70 3 13.99	+ 9.56
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		47 27.61		3 52.7							
	d	+23.4 1.36922 9.79540 1.28338	2	20.1	10.9	17	16.50	51 5 32.55 51 3 16.50 + 19.20		15	35.70 - 14 + 24 + 9.33 + 45 - 30.80 3 14.78	+ 9.88
	$(\delta) - D$	$\frac{d'}{100}$								3 35.70		
	δ_2		47 27.70		3 54.0							
72	d	+25.2 1.40140 9.79128 1.30839	2	23.2	17.9	32	20.55	51 50 27.80 51 48 9.98 + 20.34		30	51 48 80.32 - 17 + 25 + 9.76 + 49 - 30.80 48 9.85	+ 10.33
	$(\delta) - D$	$\frac{d'}{100}$								48 30.32		
	δ_1		49 1.67		48 49.0							
	d	+23.5 1.37107 9.79128 1.27806	2	26.0	16.0	32	21.00	51 50 27.35 51 48 11.00 + 18.97		30	29.97 - 14 + 25 + 10.16 + 49 - 30.80 48 9.83	+ 10.76
	$(\delta) - D$	$\frac{d'}{100}$								48 29.97		
	δ_2		49 1.60		48 49.0							
62	d	+25.2 1.40140 9.80428 1.32139	1	52.1	45.5	58	48.80	50 26 59.55 50 24 41.93 + 20.96		55	50 25 2.69 - 17 + 9 + 8.26 + 42 - 30.50 24 40.79	+ 8.60
	$(\delta) - D$	$\frac{d'}{100}$								25 2.69		
	δ_1		50 32.09		25 19.9							
	d	+23.5 1.42325 9.80428 1.34324	2	58.6	48.8	58	53.70	50 26 54.65 50 24 38.30 + 22.04		55	0.34 - 19 + 10 + 8.63 + 42 - 30.60 24 38.70	+ 8.96
	$(\delta) - D$	$\frac{d'}{100}$								25 0.34		
	δ_2		50 32.11		25 17.8							

265
Date₁ = Dec. 9, 1873
Observer W. A. R.
Recorder J. L. M.

266
Date₂ = Dec. 10, 1873

Observer
Recorder

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Star.	α	δ	Mag.	T_a	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
51	50	50	9.1	51	51	40.8	44.0	47.4	50.8	44	44.12		
κ	50	50	9.2	51	51	40.8	44.0	47.4	50.8	51	44.12		
(δ) - D													
a_1													
51	50	50	9.2	51	51	40.2	43.2	46.6	49.8	51	43.32		
κ	50	50	9.2	51	51	40.2	43.2	46.6	49.8	51	43.32		
(δ) - D													
a_2													
52	51	51	8.8	52	52	55.9	59.2	2.6	57.7	52	59.20		
κ	51	51	8.5	52	52	55.9	59.2	2.6	57.7	52	59.20		
(δ) - D													
a_1													
52	51	51	8.7	52	52	55.2	58.5	1.8	57.0	52	58.00		
κ	51	51	8.7	52	52	55.2	58.5	1.8	57.0	52	58.00		
(δ) - D													
a_2													
53	52	52	7.8	53	53	54.4	57.7	1.1	4.4	54	57.6		
κ	52	52	7.5	53	53	54.4	57.7	1.1	4.4	54	57.6		
(δ) - D													
a_1													
53	52	52	8.0	53	53	56.9	0.1	3.7	7.0	54	0.26		
κ	52	52	8.0	53	53	56.9	0.1	3.7	7.0	54	0.26		
(δ) - D													
a_2													
55	54	54	7.0	55	55	36.1	39.6	43.0	46.1	55	39.28		
κ	54	54	7.1	55	55	36.1	39.6	43.0	46.1	55	39.28		
(δ) - D													
a_1													
55	54	54	7.0	55	55	36.1	39.6	43.0	46.1	55	39.28		
κ	54	54	7.0	55	55	36.1	39.6	43.0	46.1	55	39.28		
(δ) - D													
a_2													
56	55	55	8.8	56	56	5.1	8.3	11.6	14.9	57	8.84		
κ	55	55	8.3	56	56	5.1	8.3	11.6	14.9	57	8.84		
(δ) - D													
a_1													
56	55	55	8.5	56	56	4.4	7.6	10.9	14.2	57	7.66		
κ	55	55	8.5	56	56	4.4	7.6	10.9	14.2	57	7.66		
(δ) - D													
a_2													

Runs Reg = Dec. 9^h Dec. 10^h
-2' 17.82 -2' 16.35

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
50	d	+30.3 1.30750 9.80807 1.23128	5 26.5	20.9	20	23.70	50 2 24.65 50 0 6.83 +17.03	0	23.86	20	50 0 23.86 - 11 + 4 + 7.86 + 40 -30.45 0 1.60	+8.19
	δ_1		51 40.62		0 40.7							
	d	+16.0 1.20412 9.80807 1.12790	0 26.2	17.0	20	21.60	50 2 26.75 50 0 10.40 +13.42	0	23.82	20	23.82 - 7 + 4 + 8.18 + 40 -30.55 0 1.82	+8.55
	δ_2		51 40.46		0 40.9							
70	d	+26.4 1.42160 9.80166 1.33897	3 36.7	29.4	38	33.05	50 44 15.30 50 41 57.48 +21.83			35	50 42 19.31 - 19 + 39 + 8.60 + 44 -30.55 41 58.00	+9.24
	δ_1		52 55.71		42 37.0							
	d	+17.4 1.24055 9.80166 1.15792	3 33.4	24.0	38	38.70	50 44 19.65 50 42 3.30 +14.45			35	17.75 - 8 + 38 + 8.95 + 44 -30.65 41 56.77	+9.69
	δ_2		52 55.66		42 35.8							
78	d	+21.5 1.33244 9.79542 1.24357	3 16.5	10.0	58	13.25	51 24 35.10 51 22 17.28 +17.52			55	51 22 34.80 - 12 + 35 + 9.30 + 47 -30.65 22 14.15	+10.00
	δ_1		53 57.67		22 53.2							
	d	+19.3 0.96848 9.79542 0.87961	3 9.0	0.1	58	4.55	51 24 43.80 51 22 27.45 +7.58			55	35.03 - 2 + 34 + 9.67 + 47 -30.75 22 14.76	+10.48
	δ_2		53 57.44		22 53.8							
70	d	+26.1 1.41664 9.79778 1.33013	3 41.4	34.9	13	38.15	51 9 10.20 51 6 52.38 +21.40			10	51 7 13.78 - 18 + 40 + 9.02 + 46 -30.60 6 52.88	+9.70
	δ_1		55 36.05		7 31.8							
	d	+19.9 1.27855 9.79778 1.21234	3 39.1	29.8	13	34.45	51 9 13.90 51 6 57.55 +16.31			10	13.86 - 11 + 39 + 9.40 + 46 -30.65 6 53.35	+10.14
	δ_2		55 35.99		7 32.3							
68	d	+34.7 1.54033 9.80320 1.45924	3 12.5	7.3	48	9.90	50 34 38.45 50 32 20.63 +28.77			45	50 32 49.42 - 32 + 34 + 8.44 + 43 -30.45 32 27.86	+8.89
	δ_1		57 48.4		33 6.7							
	d	+17.7 1.24797 9.80320 1.16688	3 4.4	55.7	98	0.85	50 34 48.80 50 32 31.95 +14.69			45	46.64 - 9 + 33 + 8.78 + 43 -30.55 32 25.54	+9.45
	δ_2		57 48.1		33 4.4							

265
Date₁ = Dec. 9, 1873Observer W. A. R.
Recorder J. F. M.266
Date₂ = Dec. 10, 1873Observer
Recorder

18

Ru

Star.	α	δ	Mag.	T_a	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
58	17	50 38	8.9	38	9.1	58 27.8	31.0	34.5	37.6	40.7	58	34.2	
57	21.3	50 32.8	8.8		10.6							- 7.88	
	κ				12.2							+ 23	
	(δ) - D				10.6							+ 8	
	α_1								- 7.59		58	- 2	
												26.73	+6.93
											58	- 2.86	+38.80
											58	23.87	
											58	33.64	
												- 7.18	
	κ				12.1							+ 32	
	(δ) - D				10.5							- 8	
	α_2				15.6							- 2	
					13.7						58	- 26.68	+6.93
											58	- 2.85	+38.80
											58	23.83	
												4.60	
89	26	49 55	9.5		37.4	59 38.4	41.4	44.5	47.6	51.1	59	- 7.88	
58	30.9	50 49	9.3									+ 23	
	κ	49 50.1										+ 8	
	(δ) - D											- 2	
	α_1								- 7.59		59	- 37.01	+6.96
											59	- 2.87	+38.76
											59	34.14	
											59	43.98	
	κ				20.4							- 7.18	
	(δ) - D				21.4							+ 31	
	α_2				23.4							- 8	
					21.8						59	- 2	
											59	- 37.01	+6.96
											59	- 2.85	+38.76
											59	34.16	
1	40	51 55	8.8	1	40.8	1 48.0	51.6	54.9	58.2	1.5	1	- 54.84	
00	41.6	51 49.8	8.6		43.4							- 7.88	
	κ				44.4							+ 24	
	(δ) - D				42.5							+ 8	
	α_1										1	- 2	
												47.26	+7.05
											1	- 2.93	+38.66
											1	44.33	
											1	54.14	
	κ				38.3							- 7.18	
	(δ) - D				39.4							+ 31	
	α_2				41.1							- 8	
					39.7						1	- 2	
											1	- 47.19	+7.05
											1	- 2.91	+38.66
											1	44.38	
02	57	50 20	7.0	2	58.0	3 8.6	11.9	15.1	18.3	21.6	3	- 15.10	
02	1.3	50 14.3	7.1		54.4							- 7.88	
	κ				56.1							+ 23	
	(δ) - D				54.5							+ 8	
	α_1										3	- 2	
												7.51	+7.02
											3	- 2.93	+38.60
											3	45.8	
											3	14.32	
	κ				1.1							- 7.18	
	(δ) - D				2.4							+ 32	
	α_2				4.2							- 8	
					2.6						3	- 2	
											3	- 7.36	+7.02
											3	- 2.91	+38.60
											3	44.3	
03	57	50 51	9.5	4	4.6	4 9.0	12.1	15.1	18.7	21.9	4	- 15.36	
03	0.9	50 45.5	9.5		5.7							- 7.88	
	κ				6.9							+ 24	
	(δ) - D				5.7							+ 8	
	α_1										4	- 2	
												7.78	+7.05
											4	- 2.95	+38.54
											4	48.3	
											4	14.64	
	κ				58.2							- 7.18	
	(δ) - D				59.7							+ 32	
	α_2				1.3							- 8	
					59.7						4	- 2	
											4	- 7.68	+7.05
											4	- 2.93	+38.54
											4	47.5	

Runs $\Delta_{\text{proj}} = \begin{matrix} \text{Dec. 9} & \text{Dec. 10} \\ -2' 17.82'' & -2' 16.35'' \end{matrix}$

19

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
68	d	+23.7 1.37475 9.86213 129.259	1' 40.7'	34.3	41	37.50	50 41 19.825 50 38 52.985 +19.61	50 38 52.985 +19.61	39	12.59	40' 50 39 12.89 64 - 15 + 18 + 8.53 + 43 -30.45 38 51.15 20	+9.01
	$(\delta) - D) \frac{d'}{100}$											
	δ_1		58 30.80		39 30.0							
	d	+19.9 1.29885 9.80213 121.669	1 41.0	32.7	41	36.85	50 41 11.50 50 38 55.15 +16.47	50 38 55.15 +16.47	39	11.62	40 11.62 - 11 + 16 + 8.87 + 43 -30.53 38 50.44	+9.37
	$(\delta) - D) \frac{d'}{100}$											
	δ_2		58 30.76		39 29.2							
67	d	+7.2 0.85733 9.80587 0.78171	4 25.0	18.9	24	21.95	49 58 26.40 49 56 8.58 +6.05	49 56 8.58 +6.05	56	14.63	20 49 56 14.63 - 1 + 48 + 7.79 + 40 -30.30 55 52.99	+8.66
	$(\delta) - D) \frac{d'}{100}$											
	δ_1		59 41.10		56 31.8							
	d	+22.2 1.34635 9.80587 127.073	4 42.3	32.7	24	37.50	49 58 10.45 49 58 54.50 +18.65	49 58 54.50 +18.65	56	13.15	20 13.15 - 13 + 51 + 8.11 + 40 -30.40 55 51.64	+8.89
	$(\delta) - D) \frac{d'}{100}$											
	δ_2		59 41.12		56 30.4							
70	d	+12.3 1.08991 9.78999 0.99561	4 53.2	46.8	24	50.00	51 57 58.35 51 55 40.53 +9.90	51 55 40.53 +9.90	55	50.43	20 51 55 50.43 - 4 + 53 + 9.87 + 50 -30.60 55 30.71	+10.88
	$(\delta) - D) \frac{d'}{100}$											
	δ_1		1 57.38		56 9.4							
	d	+14.4 1.15836 9.78999 1.06406	4 57.0	48.1	24	52.55	51 57 55.80 51 55 39.45 +11.59	51 55 39.45 +11.59	55	51.04	20 51.04 - 5 + 53 +10.30 + 50 -30.70 55 31.62	+11.28
	$(\delta) - D) \frac{d'}{100}$											
	δ_2		1 57.33		56 10.3							
78	d	+20.6 1.31387 9.80584 123.462	0 22.9	16.7	0	19.80	50 22 28.55 50 20 10.73 +17.16	50 20 10.73 +17.16	20	27.89	0 50 20 27.89 - 12 + 3 + 8.21 + 42 -30.30 20 6.13	+8.54
	$(\delta) - D) \frac{d'}{100}$											
	δ_1		3 11.60		20 44.7							
	d	+11.7 1.06819 9.80584 0.98894	0 17.5	7.7	0	12.60	50 22 35.75 50 20 19.40 +9.75	50 20 19.40 +9.75	20	29.15	0 29.15 - 29.15 - 4 + 2 + 8.56 + 42 -30.40 20 7.71	+8.96
	$(\delta) - D) \frac{d'}{100}$											
	δ_2		3 11.47		20 46.3							
72	d	+9.7 0.98677 9.80027 0.90278	4 6.2	1.1	29	36.5	50 53 44.70 50 51 26.85 +7.99	50 51 26.85 +7.99	51	34.87	20 51 34.87 - 2 + 44 + 8.78 + 44 -30.35 51 14.16	+9.64
	$(\delta) - D) \frac{d'}{100}$											
	δ_1		4 11.88		51 52.7							
	d	+14.9 1.17319 9.80027 1.08917	4 13.2	4.0	29	8.60	50 53 39.75 50 51 23.40 +12.28	50 51 23.40 +12.28	51	35.68	20 35.68 - 6 + 45 + 9.13 + 44 -30.50 51 15.19	+9.96
	$(\delta) - D) \frac{d'}{100}$											
	δ_2		4 11.80		51 53.7							

265
Date₁ = Dec. 9, 1873

Observer *H. A. R.*
Recorder *J. F. M.*

266
Date₂ = Dec. 10, 1873

Observer
Recorder

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Star.	α	δ	Mag.	T_a	T_m	T_e	T_r	T_s	T_h	Sum	Mean	Red. to T_m	T
05	36.3	50 24	9.1	5 18.2	3 45.4	48.7	51.9	55.3	58.5	5	51.96		
04	36.9	50 19.2	8.9	19.9							- 7.88		
κ				22.0							+ 2.3		
$((\delta) - D) \frac{\kappa'}{100}$				20.0							- 2		
a_1										5	44.37		+7.06
										5	- 2.96		+38.46
										5	41.41		
			9.1	5 23.4	5 44.7	47.8	57.0	54.3	57.6	5	57.08		
κ				24.4							- 7.18		
$((\delta) - D) \frac{\kappa'}{100}$				26.2							+ 3.2		
a_2				24.8							- 2		
										5	44.12		+7.06
										5	- 2.95		+38.46
										5	41.17		
18	09 51 43	8.9	18 10.2	18 19.6	22.9	26.3	29.6	32.9		18	26.26		
17	8.3	51 38.0	8.6	11.7							- 7.88		
κ				13.4							+ 2.4		
$((\delta) - D) \frac{\kappa'}{100}$				11.5							+ 8		
a_1										18	18.69		+7.28
										18	- 3.15		+37.78
										18	18.34		
			9.0	18 7.9	18 18.7	22.1	25.4	28.8	32.1	18	25.42		
κ				10.3							- 7.18		
$((\delta) - D) \frac{\kappa'}{100}$				10.8							+ 3.3		
a_2				9.3							- 8		
										18	18.47		+7.28
										18	- 3.14		+37.78
										18	15.33		
19	46 51 08	8.5	19 36.4	19 54.9	58.1	1.5	4.8	8.3		20	15.2		
18	45.3	51 3.0	7.8	37.7							- 7.87		
κ				36.8							+ 2.4		
$((\delta) - D) \frac{\kappa'}{100}$				37.9							+ 8		
a_1											- 2		
										19	53.95		+7.28
										19	- 3.17		+37.68
										19	50.78		
			8.3	19 48.3	19 54.3	57.4	0.6	3.9	7.2	20	0.68		
κ				49.8							- 7.18		
$((\delta) - D) \frac{\kappa'}{100}$				53.4							+ 3.2		
a_2				49.9							- 8		
											- 2		
										19	53.72		+7.28
										19	- 3.16		+37.68
										19	50.56		
Single Observations.													
1	20 52	51 13	8.8	20 58.4	20 1	3.4	6.8	10.3	13.4	20	6.80		
19	51.1	51 7.8	8.5	57.8							- 7.18		
κ				52.9							+ 3.2		
$((\delta) - D) \frac{\kappa'}{100}$				57.7							- 8		
a_1											- 2		
										20	59.84		+7.30
										20	- 3.17		+37.62
										20	56.67		
κ													
$((\delta) - D) \frac{\kappa'}{100}$													
a_1													
κ													
$((\delta) - D) \frac{\kappa'}{100}$													
a_2													

Runs $\theta_{\text{eq}} = -2.1782$ Dec 9.
 -2.1635 Dec. 10.

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
88	+32.0 1.50575 9.50428 1.42514	0' 25.1	19.0	58	22.05	50 27 26.30 50 25 8.48 + 26.62			55	50 25 35.10 - 28 + 4 + 8.82 + 42 - 30.25 25 13.35	+8.50
d											
((8) - D) $\frac{d'}{100}$											
δ_1		5 48.47		25 51.8							
88	+26.3 1.41996 9.50428 1.33995	0 24.3	14.2	55	19.25	50 27 29.10 50 25 12.85 + 21.88			55	34.63 - 19 + 3 + 8.66 + 42 - 30.35 25 13.20	+8.92
d											
((8) - D) $\frac{d'}{100}$											
δ_2		5 48.23		25 51.7							
84	+14.5 1.16137 9.79192 1.06900	1 49.0	43.0	36	46.50	51 46 2.35 51 43 44.53 + 11.72			35	51 43 56.25 - 5 + 19 + 9.68 + 47 - 30.15 43 36.41	+10.31
d											
((8) - D) $\frac{d'}{100}$											
δ_1		18 22.82		44 14.2							
84	+16.1 1.20683 9.79192 1.11446	1 55.1	44.1	36	49.60	51 45 58.75 51 43 42.40 + 13.02			35	55.42 - 7 + 20 + 10.08 + 47 - 30.30 43 35.83	+10.24
d											
((8) - D) $\frac{d'}{100}$											
δ_2		18 22.61		44 13.6							
84	+23.6 1.37291 9.79746 1.28608	1 37.8	31.1	11	34.46	51 71 13.90 51 8 56.08 + 19.32			10	51 9 15.40 - 15 + 17 + 9.06 + 46 - 30.00 89 54.94	+9.54
d											
((8) - D) $\frac{d'}{100}$											
δ_1		19 58.06		9 32.6							
84	+10.6 1.03342 9.79746 0.94659	1 29.0	19.1	11	24.05	51 11 24.30 51 9 7.95 + 8.84			10	16.79 - 3 + 13 + 9.44 + 46 - 30.75 89 56.66	+10.02
d											
((8) - D) $\frac{d'}{100}$											
δ_2		19 57.84		9 34.3							
d											
((8) - D) $\frac{d'}{100}$											
δ_1											
84	+15.1 1.17898 9.79668 1.09137	1 58.2	47.7	6	52.95	51 15 55.40 51 13 39.05 + 12.84			5	51 13 51.39 - 6 + 21 + 9.54 + 46 - 30.10 139 31.44 321.2 9.06	+10.15
d											
((8) - D) $\frac{d'}{100}$											
δ_2		21 38.7		14 19.1							
d											
((8) - D) $\frac{d'}{100}$											
δ_1											
d											
((8) - D) $\frac{d'}{100}$											
δ_2											

266

Date₁ = Dec 10, 1873
Dec 15 267

Observer *N. A. K.*
Recorder *F. L. M.*

Date, = Dec. 16, 1873

Observer
Recorder

22

Ru

[illegible]

Dec. 15 Dec. 16.
 Runs $R_E = -2 \ 16.26$ $-2 \ 17.01$
 $R_{\text{res.}} = +1.2$ $+1.2$
 $T_m - T$ A C Sum Mean

							Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	Dec. 15
25 ¹ 1.56	d	+8.5 0.93952 9.79463 28.4986 +23.2 1.36549 9.79478 1.27598	84 7.0	57.1	54	26.5	51 29 46.30 51 27 29.95 + 7.08 27 37.03 51 28 34.05 51 26 17.79 + 18.88 26 36.67	50	51	27 37.03 - 37.03 + 33 + 9.81 + 47 - 30.10	26 36.67 + 6.59 - 14 + 57 + 9.81 + 47 - 30.65	+10.65
3 52	δ_1	22 54.42 54.32 +21.1 1.32428 9.79478 1.23477	4 18.1	10.5	26 53.0 26 54.2	14.30	51 28 35.85 51 26 18.84 + 17.17	50	26	36.01 - 12 + 50 + 9.72 + 47 - 30.75	26 36.01 + 10.57 + 50 + 9.72 + 47 - 30.75	
22	δ_2	22 54.32	22 54.32	26 53.4						26 15.83		
48 92	d	+17.2 1.23553 9.78967 1.14091 +19.9 9.78967 1.20423	2 31.2	20.3	22	26.75	52 0 22.60 58 58 6.25 + 13.83 58 20.08 52 0 20.55 58 58 4.29 + 16.00 58 20.29	20	51 58	20.08 - 8 + 26 + 10.36 + 50 - 30.15	58 20.29 - 11 + 29 + 10.38 + 50 - 30.75	+11.04
14	δ_1	24 1.54 1.51 +32.0 1.50515 9.78967 1.41053	2 31.8	23.8	22	27.80	52 0 11.25 51 57 54.24 + 25.74	20	51 58	19.98 - 27 + 31 + 10.28 + 50 - 30.80	58 0.97 58 0.60	
14	δ_2	24 1.52	24 1.52	58 37.4						58 0.70		
50 02	d	+19.7 1.29447 9.79715 1.20733 +9.5 0.97772 9.79715 0.89058 +23.9 1.37840 9.79715 1.29126	4 42.4	31.8	9	37.10	57 13 11.25 57 10 54.90 + 16.12 11 11.02 57 13 19.75 57 11 3.49 + 7.77 11 11.26	5	51 11	11.02 - 11 + 57 + 9.49 + 46 - 29.90	11 11.26 - 2 + 53 + 9.57 + 46 - 30.58	+10.48
	δ_1	26 26.54 26.42 +23.9 1.37840 9.79715 1.29126	4 33.0	24.2	9	28.60	57 13 9.15 57 10 52.14 + 19.55	5	51 11	11.26 - 15 + 56 + 18.42 + 46 - 30.60	10 57.17 10 37.19	
	δ_2	26 26.52	26 26.52	11 28.7						10 57.38		
58 50	d	+14.5 1.16137 9.79793 1.07501 +18.8 1.27416 9.79793 1.18780 +9.7 0.98617 9.79778 0.90026	4 33.9	24.0	14	28.95	57 8 19.40 57 6 3.05 + 11.88 6 14.93 57 8 16.50 57 6 0.24 + 15.41 6 15.65	10	51 6	14.93 - 6 + .49 + 9.40 + 45 - 29.85	6 15.65 + 10.28 - 10 + 54 + 9.42 + 45 - 30.50	+10.31
	δ_1	28 51.81 51.78 +27.4 1.27416 9.79793 1.18780 +9.7 0.98617 9.79778 0.90026	4 35.9	27.8	14	31.85	57 9 24.40 57 7 1.39 + 7.95 7 15.34	10	51 6	15.65 - 29.85 5 55.36 5 55.46	5 55.46	
	δ_2	28 51.67	28 51.67	6 32.2						5 55.03		
45 1	d	-8.9 0.94939 9.78938 0.85460 +33.8 1.52892 9.78934 1.43397 +23.0 1.36173 9.78938 1.26694	1 15.0	5.1	21	10.25	52 1 38.30 51 59 21.95 - 7.15 59 14.80 52 1 57.85 51 59 41.59 - 27.16 59 14.43	20	51 59	14.80 - 2 + 13 + 10.38 + 50 - 29.75	59 14.43 - 30 + 10 + 10.40 + 50 - 30.65	+10.70
	δ_1	29 36.14 36.49 +23.0 1.36173 9.78938 1.26694	1 39.5	31.9	21	35.70	52 1 12.65 57 58 55.84 + 18.49	20	51 59	14.13 - 14 + 17 + 10.20 + 50 - 30.65	58 55.84 58 54.48	
	δ_2	29 36.10	29 36.10	59 31.4						58 54.33		

266

date₁ = Dec. 10, 1873
Dec. 15 267

Observer *W. A. K.*
Recorder *L. F. M.*

Date, = Dec. 16, 1873

Observer _____
Recorder _____

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_p	T_h	Sum	Mean	Red. to T_m	T
1873phae												
30	37	51 52	9.2	30	49.0	30 44.1	57.4	53.6	57.0	1.3	30	53.6
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
30	37	51 52	9.0	30	49.0	30 44.1	57.4	53.6	57.0	1.3	30	53.6
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_2												
31	54	51 44	9.0	31	47.0	30 2.1	5.3	9.0	12.2	15.5	32	8.86
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
31	54	51 44	9.1	31	48.2	30 2.1	5.3	9.0	12.2	15.5	32	8.86
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
31	54	51 44	9.5	31	53.8	32 0.3	3.9	7.0	10.4	13.4	32	7.00
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
31	54	51 44	8.9	31	43.6	31 59.6	2.0	6.4	9.6	13.0	32	6.32
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_2												
34	55 52 17	9.0	33	53.3	34 11.7	15.3	18.7	22.0	25.5	34	15.64	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
34	55 52 17	9.4	33	54.9	34 11.7	15.3	18.7	22.0	25.5	34	15.64	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
34	55 52 17	8.9	33	54.9	34 11.7	15.3	18.7	22.0	25.5	34	15.64	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_2												
35	24 52 39	8.9	35	30.7	35 31.4	34.8	38.1	41.7	45.0	35	38.20	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
35	24 52 39	9.0	35	31.7	35 31.4	34.8	38.1	41.7	45.0	35	38.20	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
35	24 52 39	8.8	35	8.8	35 29.5	32.8	36.3	39.9	43.2	35	36.34	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
35	24 52 39	9.4	35	16.8	35 26.8	30.5	34.0	37.5	40.7	35	38.50	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_2												
35	24 52 39	8.8	35	5.3	35 28.9	32.2	35.7	39.0	42.6	35	38.68	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_2												
36	12 52 33	7.9	36	15.0	36 19.7	23.0	26.4	30.0	33.2	36	26.46	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
36	12 52 33	8.5	36	8.0	36 17.9	21.3	24.8	28.2	31.6	36	24.76	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_1												
36	12 52 33	8.9	36	4.1	36 17.3	20.7	24.1	27.5	30.8	36	24.08	
κ												
(8) - D	$\frac{\kappa'}{100}$											
a_2												

Dec. 10. Dec. 15. Dec. 16.
 Runs $P_2 = -2' 16.35''$ 16.26 17.01

		$T_m - T_j$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	$\delta_0.15$
2.60	d	+4.7 0.67210 9.79047 0.57828	2 3.8	53.0	26.7	58.40	57.54 49.95 57.53 33.60 +2.3.79			25	57 50 37.39	Common ✓ +11.00 +22.36 +10.00 +49 -29.90 52 18.49 16.23
	(8) - D	$\frac{a'}{100}$										
	δ_1		30 50.87		52 55.6 31 20.4	140						
	d	+30.5 1.48430 9.79063 1.39064	3 23.0	15.0	28	19.00	51 54 29.35 51 52 12.34 +24.58			25	52 36.92	-25 +10.83 +40 +10.19 +49 -30.60 52. 17.55 15
	(8) - D	$\frac{a'}{100}$										
	δ_2		30 50.71		52 54.5 31 20.2							
54	d	+30.6 1.31387 9.79224 1.22182 +12.1 1.08279 9.79224 0.99074 +21.3	3 40.9	31.0	38	35.95	51 44 12.40 51 41 56.95 +16.67 51 44 20.58 51 42 4.29 +9.79			35	51 42 12.72	42 14.08 -12 +39 +10.83 +10.88 +48 -29.80 41 53.75 41 54.34
86	(8) - D	$\frac{a'}{100}$	3 31.8	23.8	38	27.80				25		
	δ_1		32 6.05 6.06		42 30.7 31.3							
	d	+30.5 1.32838 9.79224 1.23633	3 40.5	32.2	38	36.35	51 44 12.00 51 41 54.99 +17.23			35	12.22	-12 +10.78 +43 +9.99 +48 -30.50 41 52.50
	(8) - D	$\frac{a'}{100}$										
	δ_2		32 5.95		42 29.4							
60	d	+23.7 1.37475 9.78658 1.27604 +8.1 0.95904 9.78739 0.86214 +29.1	3 35.8	24.8	3	30.30	52 19 18.05 52 17 1.70 +15.93 52 14 36.50 52 12 19.24 +7.28			0	52 17 20.63	12 26.52 -15 +11.44 +39 +10.70 +50 -29.80 17 2.27 12 7.41
82	(8) - D	$\frac{a'}{100}$	3 17.0	8.7	8	12.85				5		
	δ_1		34 15.84		17 39.0							
	d	+29.1 1.46389 9.78658 1.36618	3 38.8	30.1	3	34.45	52 19 13.90 52 16 56.89 +23.24			0	20.13	-22 +11.32 +43 +10.61 +50 -30.55 17 10.90
	(8) - D	$\frac{a'}{100}$										
	δ_2		34 15.69		17 37.7							
52	d	+7.0 0.85410 9.78296 0.75277 +25.9 1.41330 9.78296 1.31197 +16.0	1 21.3	11.0	41	16.15	52 41 32.20 52 39 15.85 +5.66 52 41 17.50 52 39 1.24 +20.51			40	52 39 21.51	39 21.75 -18 +14 +11.11 +50 -29.80 39 3.45 39 2.68
54	(8) - D	$\frac{a'}{100}$	1 35.3	26.4	41	30.85				40		
	δ_1		35 35.42 35.42		39 40.1 39.4							
	d	+16.0 1.20412 9.78296 1.10279 +28.8 1.45939 9.78296 1.35806 +11.5	1 37.4	28.9	41	33.15	52 41 15.20 52 41 15.20 52 38 58.19 52 38 58.19 +12.67 +22.81			40	39 10.86	21.00 +11.65 +19 +11.03 +50 -30.60 39 51.91 39 1.90
	(8) - D	$\frac{a'}{100}$										
	δ_2		35 32.66 35.34		40 28.6 39 38.6							
48	d	+11.5 1.06070 9.78395 0.96036 +14.7 1.16732 9.78395 1.06698 +18.5	2 33.1	22.1	47	27.60	52 35 20.75 52 33 4.40 +9.13 52 35 18.35 52 33 2.09 +11.67			45	52 33 13.53	33 13.76 -4 +27 +11.73 +11.00 +50 -29.80 32 55.46 32 54.87
50	(8) - D	$\frac{a'}{100}$	2 34.2	25.8	47	30.80				45		
	δ_1		36 23.68 23.84		33 32.1 31.5							
	d	+18.5 1.26717 9.78395 1.16683	2 36.4	27.8	47	32.10	52 35 16.25 52 32 59.24 +14.68			45	13.92	-9 +11.64 +30 +10.93 +50 -30.55 32 55.01
	(8) - D	$\frac{a'}{100}$										
	δ_2		36 23.74		33 31.6							

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Date₂ = Dec. 16, 1873John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

Runs $\Delta_{\text{ref}} = -2' 16.35$ Dec. 10. 17.01 Dec. 16.

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
256	$+24.6$	3' 39.1	28.9	53	33.90	52 29 14.45			50'	52 27 17.67	
d	1.39094					52 26 58.10				-16	+11.62
(8) - D) $\frac{d'}{100}$	9.78494					+19.57	27 17.67			+39	
δ_1	1.29159									+10.89	
		37.40.07		27 36.1						+50	
										-29.70	
										26 59.59	
d	+23.9	3 37.6	29.0	53	33.30	52 29 15.05			50	17.05	
(8) - D) $\frac{d'}{100}$	1.37840					52 26 58.94				-15	+11.63
δ_2	9.78494					+19.01	27 17.05			+43	
	1.27905									+10.85	
		37 39.95		27 34.5						+50	
										-30.45	
										26 58.23	
20	+18.0	1 42.7	30.1	6	35.40	52 16 12.95			5	52 14 10.99	
d	1.25527					52 13 56.60				-9	+11.23
(8) - D) $\frac{d'}{100}$	9.78707					+14.39	14 10.99			+17	
δ_1	1.15805									+10.65	
		39.9.77		14 29.1						+50	
										-29.53	
										13 52.67	
d	+24.3	1 44.9	36.1	6	40.50	52 16 7.85			5	10.26	
(8) - D) $\frac{d'}{100}$	1.38561					52 13 50.84				-16	+11.13
δ_2	9.78707					+19.42	14 10.26			+20	
	1.28839									+10.57	
		39 9.73		14 27.4						+50	
										-30.40	
										13 50.99	
d	+21.0	3 45.9	35.0	43	40.45	52 39 7.90			40	52 37 8.19	
(8) - D) $\frac{d'}{100}$	1.32222					52 36 51.55				-12	+11.85
δ_1	9.78329					+16.64	37 8.19			+40	
	1.22122									+11.07	
		40.17.60		37 26.7						+50	
										-29.65	
										36.57 50.39	
d		2 4.2	56.0	42	0.10	52 40 48.25			40		
(8) - D) $\frac{d'}{100}$						52 38 31.24					
δ_2											
62	+16.2	4 15.0	4.0	49	9.50	52 33 38.85			45	52 31 35.07	
d	1.20952					52 31 22.50				-7	+11.90
(8) - D) $\frac{d'}{100}$	9.78428					+12.57	31 35.07			+49	
δ_1	1.10951									+10.98	
		42.51.28		31 53.6						+50	
										-29.60	
										31 17.47	
d	+26.4	4 20.2	10.9	49	15.85	52 33 32.80			45	36.76	
(8) - D) $\frac{d'}{100}$	1.42160					52 31 15.79				-18	+11.75
δ_2	9.78428					+20.97	31 36.76			+51	
	1.32159									+10.92	
		42 51.10		31 54.4						+50	
										-30.00	
										31 18.21	
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
d											
(8) - D) $\frac{d'}{100}$											
δ_2											

Runs $R_{\text{eq}} = -2' 16.35$ Dec. 10 " 16.26 Dec. 15 "

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	5	3' 27.7	16.0	28	21.85	52 54 26.50			25	52 52.2709	51 40.29
(8) - D	$\frac{d'}{100}$	2 27.7	16.0	28	21.85	52 54 26.50			25	- 12	- 21 +12.01
δ_1	1.33244 9.78080 1.57864 9.78080	1.22895	50.	52 45.8	51 38.9	52 52 10.15 52 52 10.45 +16.94 -29.86	52 27.09			+ 37 +12.10 +11.35 + 50 -29.50	+ 37 +11.35 + 50 -29.50
d	+9.4	0 7.7	4 56.1	3	1.90	52 17 46.45			5	52 15 37.61	
(8) - D	$\frac{d'}{100}$	0.27313 9.78691 6.87575				52 15 30.10 +7.51	15 37.61			- 2 +11.17 + 0 +10.64 + 50 -29.35	
δ_2		45 19.38		15 55.4						15 19.43	
d	+131	4 16.0	8.8	9	12.40	52 13 35.95			5	51 11.3016	
(8) - D	$\frac{d'}{100}$	1.11727 9.78691 1.01989				52 11 19.69 +10.47	11 30.26			- 5 +10.45 + 48 + 9.54 + 46 -30.53	
δ_1		27 23.76		11 47.3						11 19.06	
d											
(8) - D	$\frac{d'}{100}$										
δ_2											
d											
(8) - D	$\frac{d'}{100}$										
δ_1											
d											
(8) - D	$\frac{d'}{100}$										
δ_2											
d											
(8) - D	$\frac{d'}{100}$										
δ_1											
d											
(8) - D	$\frac{d'}{100}$										
δ_2											

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Date₁ = Dec. 16, 1873

Observer *W. R.*
Recorder *C. L. M.*

Date₂ = Dec. 18, 1873

Observer _____
Recorder _____

Ru

$$n = +.18$$
[illegible]

Runs Dec. 17
 $R_2 = -2.17.18$
 $R_{10} = +1.12$

Dec. 18
 $-2.16.86$
 $+1.12$

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
		+31.8	3' 34.2	25.0	28	29.60	52 54 18.75			25	52 52 26.80	51 40.23
1.32	d	1.50242	3' 34.3	25.0	28	29.60	52 54 18.75			25	- 26	- 20
34		9.78080					52 52 1.74	52 26.80			+ 42	+ 42
	(8) - D	1.39894					52 52 1.74				+11.28	+ 11.28
	δ_1	-27.3	43 50.22		52 44.5		+25.06				+ 50	+ 50
		1.43616	51.44		50 58.0		-21.51	51 40.23			-30.30	-30.30
		9.78080	1.38267								52 8.44	51 21.93
06	d	+53.1	3' 53.1	43.4	38	48.25	52 54 2.10			25	26.66	40.09
		1.74115	3' 53.1	42.4	28	48.25	52 54 2.10			25	- 79	- 1
	(8) - D	1.63766					52 57 43.24	52 26.66			+ 46	+ 46
	δ_2	-4.0					52 57 43.24				+11.12	+ 11.12
		0.60206					+43.42				+ 50	+ 50
		9.78080	43 50.25		52 43.5		- 3.15	51 40.09			-30.55	-30.55
		0.49851	51.43		51 57.7	x.10					52 7.40	51 21.61
9	d	+29.6	0 20.8	11.9	5	16.35	52 17 32.00			5	52 15 38.54	
06		1.47129					52 15 14.89				- 23	+10.93
	(8) - D	1.37391					+23.65				+ 3	+ 3
	δ_1		45 19.33		15 55.3			15 38.54			+10.63	+ 10.63
											+ 50	+ 50
											-30.15	-30.15
											15 19.32	
	d	+26.2	0 17.9	7.7	5	12.80	52 17 35.55			5	39.63	
		1.41830					52 15 15.69				- 18	+10.80
	(8) - D	1.32092					+20.94				+ 3	+ 3
	δ_2		45 19.38		15 56.0			15 39.63			+10.45	+ 10.45
											+ 50	+ 50
											-30.35	-30.35
											15 20.28	
	d	+20.2	1 52.3	23.1	21	27.70	53 1 20.65			20	52 59 19.51	
		1.30535					52 59 3.64				- 10	+11.99
	(8) - D	1.20069					+15.87				+ 17	+ 17
	δ_1		48 3.32		59 37.8			59 19.51			+11.42	+ 11.42
											+ 50	+ 50
											-30.15	-30.15
											59 1.35	
	d	+29.2	1 57.9	28.4	21	33.15	53 1 15.20			20	20.76	
		1.46538					52 58 58.34				- 22	+11.69
	(8) - D	1.36072					+22.42				+ 19	+ 19
	δ_2		48 3.34		59 37.8			59 20.76			+11.22	+ 11.22
											+ 50	+ 50
											-30.40	-30.40
											59 20.5	
	d	+24.4	4 13.0	5.1	4	9.05	51 18 39.30			0	51 16 42.22	16 43.17
22		1.38739					51 16 22.29				- 16	+10.37
38	d	9.79636					+19.93	16 42.22			+ 50	+ 46
	(8) - D	1.29946	3 57.0	48.8	3	52.90	51 18 58.45			0	+9.57	+ 9.47
	δ_1	-6.0					51 16 38.27				+ 46	+ 46
		0.77815					+4.90	16 43.17			-29.75	-29.75
		9.79621	50 20.29		16 58.4						16 22.84	16 23.68
		0.69007	20.33		59.2							
42	d	+22.3	4 10.4	1.9	4	6.15	51 18 42.20			0	43.55	
34		1.34830					51 16 25.24				- 13	+10.23
64	d	9.79636					+18.21				+ 49	+ 49
	(8) - D	1.26037						16 43.55			+ 9.41	+ 9.41
	δ_2		50 20.40		16 59.3						+ 46	+ 46
											-30.00	-30.00
											16 23.78	
	d	+12.4	0 11.4	4.39	40	7.65	50 42 40.70			40	50 40 33.95	40 35.98
34		1.09342					50 40 23.69				- 4	+9.32
64	d	9.80197					+10.26	40 33.95			+ 1	+ 1
	(8) - D	1.01110	0 10.0	1.9	40	5.95	50 42 42.40			40	+8.92	+ 8.82
	δ_1	+13.0					50 40 25.22				+ 43	+ 43
		1.11394	51 34.04		40 49.0		+10.76	40 35.98			-29.60	-29.75
		9.80197	51 34.01		50.8						40 13.67	40 15.44
		1.03162	(18.2)?									
34	d	+23.9	0 48.2	10.8	40	(24.50)	50 42 15.85			40	40 36.76	
		1.37840					50 40 16.96				- 15	+9.09
	(8) - D	1.29608					+19.77	40 21.76			+ 6	+ 6
	δ_2		51 34.03		40 51.4						+ 8.75	+ 8.75
											+ 43	+ 43
											-29.80	-29.80
											40 16.05	

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Date₁ = Dec. 16, 1873
Dec. 17 269Observer R. A. R.
Recorder J. F. M.Date₂ = Dec. 18, 1873Observer
Recorder

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Star.	α	δ	Mag.	T_1	T_m	T_2	T_3	T_4	T_5	T_6	Sum	Mean	Red. to T_m	T
1	52	50 51 41	8.6	53	39.7	53 58.8	2.3	5.6	9.0	12.2	53	5.58		
	57	47.5 51 36.2	9.1		41.6							-4.82		
					42.8							+2.5		
Dec. 17			8.8		41.4							-2		
	(8) - D	κ'		52	37.3	52 58.1	1.6	4.9	8.2	11.5	53	4.86	53 0.99	+7.75
					39.5							-4.16	-3.53	+35.32
	α_1				42.9							+2	52 57.46	
					33.2							-2	53 0.87	+7.75
			9.0	53	34.5	52 57.5	1.0	4.2	7.5	11.0	53	4.24	-3.51	+35.32
	κ				36.5							+2.5	52 57.36	
	(8) - D	κ'			33.3							-2		
	α_2										53	0.95	-3.51	+7.75
											52	57.44		+35.32
												-2		
			8.8	53	36.1	53 53.7	59.0	2.3	5.7	9.0	54	2.34		
	52	44.2 51 17.9	9.0		37.6							-4.82		
					38.9							+2.5		
Dec. 17			8.9		37.5							-2		
	(8) - D	κ'		53	35.5	53 -		1.7	5.0	8.4	54	1.73	53 57.75	+7.74
					37.9							-4.16	-3.52	+35.24
	α_1				34.6							+2	53 54.21	
					33.0							-2	53 57.74	
			8.3	53	42.2	53 54.9	57.7	1.0	4.3	7.6	54	1.00	-3.52	+7.74
	κ				43.4							+2.5	53 54.22	+35.24
	(8) - D	κ'			45.0							-2		
	α_2				42.5						53	57.71	-3.51	+7.74
											53	54.20		+35.24
												-2		
			9.1	55	13.0	55 33.6	37.0	49.1	43.3	46.7	55	40.14		
	54	21.8 50 51.3	9.0		14.5							-4.82		
					16.1							+2.5		
Dec. 17			8.9		14.5							-2		
	(8) - D	κ'		53	7.9	55 33.0	36.3	39.5	42.6	46.0	55	39.48	55 35.53	+7.74
					9.2							-4.16	-3.53	+35.10
	α_1				11.7							+2	55 32.00	
					7.3							-2	55 35.49	+7.74
			9.0	55	16.1	55 32.3	35.5	38.9	42.2	45.4	55	38.86	-3.53	+35.10
	κ				19.6							+2.5	55 31.96	
	(8) - D	κ'			21.8							-2		
	α_2				19.8						55	35.53	-3.52	+7.74
											53	32.04		+35.10
												-2		
			8.8	56	31.4	56 44.6	48.0	51.3	54.5	57.8	56	57.24		
	55	32.3 50 37.7	9.0		22.9							-4.82		
					24.3							+2.5		
Dec. 17			8.8		24.3							-2		
	(8) - D	κ'		56	29.3	56 44.0	47.4	50.6	53.8	57.1	56	50.58	56 46.64	+7.74
					31.0							-4.16	-3.55	+35.50
	α_1				32.6							+2	56 43.07	
					30.7							-2	56 46.58	+7.74
			8.8	56	12.6	56 43.5	46.7	50.0	53.3	56.5	56	50.00	-3.54	+35.00
	κ				13.9							+2.5	56 43.04	
	(8) - D	κ'			15.7							-2		
	α_2				14.1						56	46.70	-3.53	+7.74
											56	43.17		+35.00
												-2		
			6.5	57	13.7	57 14.9	18.0	21.2	24.4	27.8	57	21.26		
	56	4.2 50 35.5	7.0		10.5							-4.82		
		49 56.5			16.0							+2.5		
Dec. 17			7.0		16.0							-2		
	(8) - D	κ'		54	14.9	57 14.4	17.5	20.6	24.0	27.2	57	20.74	57 16.66	+7.71
					16.0							-4.16	-3.54	+34.96
	α_1				17.8							+2	57 13.12	
					16.2							-2	57 16.74	
			7.0	57	40.8	57 13.5	16.7	20.0	23.1	26.4	57	19.54	-3.53	+7.71
	κ				41.9							+2.5	57 13.21	+34.96
	(8) - D	κ'			43.7							-2		
	α_2				41.7						57	16.63	-3.51	+7.71
											57	13.12		+34.96

Runs $P_{\text{eq}} = \begin{matrix} \text{Dec. 16.} & \text{Dec. 17.} & \text{Dec. 18.} \\ -2^{\circ} 17.01 & 17.18 & 16.56 \end{matrix}$

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	Dec. 17
34		+24.2	3' 7.2	58.8	38	3.00	51 44 45.35			35	51 42 47.92	42 47.96
72	d	1.38382	1.29177				51 42 25.34				-16	-18
		9.79224	3 8.1	59.9	38	4.00	+19.58	42 47.92			+37	+37
	(δ - D) $\frac{d}{100}$	+25.7					51 44 44.35			35	+10.06	+9.94
	δ_1	1.40993					51 42 27.07				+48	+48
		9.79224	53 5.21		43 4.2		+20.79	42 47.96			-29.75	-29.85
		1.31788	5.11		4.0						42 28.92	28.72
32	d	+28.7	3 10.0	18	38	590	51 44 42.45			35	48.81	
		1.45788					51 42 25.59				-22	+10.52
	(δ - D) $\frac{d}{100}$	9.79224					+23.22	42 48.81			+37	
	δ_2	1.36583									+9.89	
			53 19		43 4.7	x10					+48	
			5.22								-29.75	
											42 29.38	
34		+24.8	2 5.0	57.7	57	1.35	51 25 47.00			55	51 23 50.09	23 50.50
61	d	1.39445					51 23 29.89				-16	-2
		9.79526	1 52.3	43.2	56	47.75	+20.20	23 50.09			+24	+21
	(δ - D) $\frac{d}{100}$	+8.7					51 26 0.60			55	+9.71	+9.60
	δ_1	0.93952					51 23 43.42				+47	+47
		9.79510	54 2.95		24 6.0		+7.08	23 50.50			-29.60	-29.75
		0.85033	1.96		24 6.3						23 30.75	23 31.01
		+17.5	1 58.1	50.1	86	54.10	51 25 54.25			55	51.64	
	d	1.24304					51 23 37.39				-9	+10.15
	(δ - D) $\frac{d}{100}$	9.79510					+14.25	23 51.64			+23	
	δ_2	1.15385									+9.54	
			54 1.94		24 7.2						+47	
											-29.85	
											23 31.94	
28		+25.6	3 40.5	31.9	23	36.20	50 59 12.15			20	50 57 16.19	57 15.80
66	d	1.40824					50 56 55.14				-18	-25
		9.79934	3 44.2	36.2	23	40.20	+21.05	57 16.19			+43	+44
	(δ - D) $\frac{d}{100}$	+30.2					50 59 8.15			20	+9.23	+9.12
	δ_1	1.48001					50 56 50.97				+45	+45
		9.79934	55 39.74		31.8		+24.83	57 15.80			-29.45	-29.60
		1.39506	39.70		31.1						56 56.67	56 55.96
		+19.1	3 24.9	25.9	23	30.40	50 59 17.95			20	16.80	
	d	1.28103					50 57 1.09				-10	+9.83
	(δ - D) $\frac{d}{100}$	9.79934					+15.71	57 16.80			+42	
	δ_2	1.19608									+9.06	
			55 39.78		57 32.0						+45	
											-29.70	
											56 56.93	
24		+28.3	2 40.1	32.8	37	36.45	50 45 11.90			25	50 43 18.28	43 19.25
66	d	1.45179					50 42 54.89				-22	-11
		9.80151	2 32.5	23.9	37	28.20	+23.39	43 18.28			+31	+30
	(δ - D) $\frac{d}{100}$	+19.7					50 45 20.15			25	+8.97	+8.86
	δ_1	1.29447					50 43 2.97				+44	+44
		9.80151	56 50.83		43 33.4		+16.28	43 19.25			-29.35	-29.50
		1.21169	50.78		43 34.2	34.2					42 58.43	42 59.24
		+35.9	2 45.2	37.9	37	41.55	50 45 6.80			35	19.61	
	d	1.55509					50 42 49.94				-35	+7.22
	(δ - D) $\frac{d}{100}$	9.80151					+29.67	43 19.61			+32	
	δ_2	1.47231									+8.81	
			56 50.91		43 34.2						+44	
											-29.60	
											42 59.23	
32		+6.2	3 19.1	11.0	18	15.05	50 4 33.30			15	50 2 21.49	2 22.24
52	d	0.79239					50 2 16.29				-1	-1
		9.80777	3 16.4	9.0	18	12.70	+5.40	2 21.49			+39	+38
	(δ - D) $\frac{d}{100}$	+4.5					50 4 35.65			15	+8.22	+8.12
	δ_1	0.65321					50 2 18.47				+40	+40
		9.80777	57 20.83		2 36.3		+3.77	2 22.24			-29.15	-29.35
		0.57669	20.92		36.7						2 1.34	2 1.78
		+22.0	2 54.1	46.2	17	50.15	50 4 58.20			15	22.89	
	d	1.34242					50 2 41.34				-13	+8.68
	(δ - D) $\frac{d}{100}$	9.80777					-18.45	2 22.89			+34	
	δ_2	1.26590									+8.07	
			57 20.83		2 38.1						+40	
											-29.40	
											2 2.17	

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270

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Date₁ = Dec. 16, 1873
Dec. 17, 269Observer R. A. W.
Recorder J. F. M.Date₂ = Dec. 18, 1873Observer
Recorder

Run

1873phase

Star.	α	δ	Mag.	T_1	T_m	T_2	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T	
Dec. 17	58 57	17 15.6	50 43 50 38.0	8.5 8.4	59 57.4 59 57.0	58 26.7 58 26.0	29.9 29.1	33.0 32.4	36.4 35.7	39.7 39.0	58 58	33.14 32.44 -4.82 +2.24 -4.16 +2.24 -4.00 +2.24 -3.50 +2.21 -2.85 +2.20	58 28.54 58 24.96 58 28.44 58 24.88 58 28.57 58 25.02	+7.76 +34.86 +7.76 +34.86 +7.76 +34.86
Dec. 17	59 58	15 13.2	50 29 50 24.3	8.3 7.9	59 61 59 57.4	59 24.1 59 23.5	29.4 26.7	30.7 29.9	33.9 33.1	37.1 36.4	59 59	30.64 29.52 -4.82 +2.24 -4.16 +2.24 -4.00 +2.24 -3.50 +2.22 -2.85 +2.20	59 26.04 59 22.45 59 25.92 59 22.35 59 26.12 59 22.56	+7.76 +34.78 +7.76 +34.78 +7.76 +34.78
Dec. 17	2 1	0 59	17 12.6	52 15 52 10.2	8.6 8.5	59 59.0 59 58.6	0 25.8 0 25.2	29.2 28.6	32.7 31.8	36.1 35.3	0 0	32.66 31.52 -4.82 +2.26 -4.16 +2.19 -3.50 +2.23 -2.85 +2.23	0 28.08 0 24.42 0 27.93 0 24.29	+7.88 +34.70 +7.88 +34.70
Dec. 17	0 00	48 40.3	52 18 52 13.2	9.4 8.8	2 57.7 2 56.2	2 24 2 12.7	5.8 16.0	9.1 15.7	12.2 22.3	15.5 25.7	2 2	9.07 7.87 -4.81 +2.26 -4.57 +2.26	2 4.43 2 0.74 2 14.55 2 10.86	+7.90 +34.56 +7.92 +34.56
Dec. 17	0 02	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 3 14.37 3 10.71	+7.94 +34.46 +7.92 +34.46
Dec. 17	0 01	01 50.1	52 45 52 40.7	9.0 8.8	3 29.8 3 29.1	3 37 3 30	7.0 6.3	13.9 9.9	17.4 13.1	17.4 16.7	3 3	10.48 9.80 -4.81 +2.26 -4.57 +2.20	3 5.91 3 2.20 	

Runs $R_g =$ Dec. 16. Dec. 17. Dec. 18.
 2 17.01 17.18 16.86

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		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
26	d	+34.2	2 34.0	26.1	37	30.0	50 45 18.35			35	50 43 29.60	43 30.27
70	(8) - D	1.53403					50 42 56.34				- 32	- 19
	δ_1	1.45125	2 27.3	18.8	37	23.05	50 45 25.30	43 29.60		35	+ 30	+ 29
	δ_2	1.34535	58 32.72		43 44.6		50 43 8.12				+ 8.97	+ 8.88
	d	+20.1	2 21.0	13.0	37	17.00	50 45 31.35			35	+ 44	+ 44
	(8) - D	1.80320					50 43 14.49				- 27.30	- 27.40
	δ_1	1.31731	58 32.78		43 45.9		+ 22.15	43 30.27			43 9.69	43 10.29
	δ_2	1.22042					+ 16.62	43 31.11			- 30.00	
	d	+23.2	1 9.0	59.9	51	4.45	50 31 43.90			50	- 11	+ 9.42
72	(8) - D	1.36549					50 29 26.89				+ 27	
	δ_1	1.28486	1 8.2	59.3	51	3.75	50 31 44.60	29 46.16		50	+ 8.82	
	δ_2	1.31731	59 30.21		30 0.9		50 29 27.42	29 48.19			+ 44	
	d	+24.6	1 8.1	58.9	51	3.50	50 31 44.85			50	- 30.00	
	(8) - D	1.39074					50 29 27.99				+ 29.50	
	δ_1	1.31031	59 30.32		30 2.7		+ 20.43	29 48.42			43 11.03	
	δ_2	1.26482									- 27.45	
30	d	+32.2	0 42.9	34.9	5	38.90	52 17 9.45			5	52 15 18.17	15 18.53
74	(8) - D	1.50786					52 14 52.44				- 28	- 9
	δ_1	1.41048	0 1.9	4 53.3	4	57.60	52 17 50.75	15 18.17		5	+ 8	+ 0
	δ_2	1.26482	0 32.30		15 34.3		52 15 33.57	15 18.53			+ 10.63	+ 10.52
	d	+11.7	0 35.9	16.3	58	21.10	52 17 27.25			5	+ 50	+ 50
	(8) - D	1.06519					52 15 10.39				- 29.50	- 29.60
	δ_1	1.26482	0 32.32		15 35.6		+ 9.35	15 19.74			14 59.60	14 59.86
	δ_2	1.26482									- 27.75	
23	d	-41.8	2 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
46	(8) - D	1.62014					52 37 29.89	36 56.84		40	- 46	- 48
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 36	+ 36
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	+ 50	+ 50
	(8) - D	1.62014					52 37 29.89	36 56.84			- 27.45	- 27.45
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			- 27.45	- 27.45
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			36 38.83	36 38.83
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	52 36 56.84	36 56.84
	(8) - D	1.62014					52 37 29.89	36 56.84			+ 36	+ 36
	δ_1	1.51914	2 8.64	36 13.4	43	54.90	52 36 29.89	36 56.84			+ 11.04	+ 10.92
	δ_2	1.53044	3 18.75	37 20.2	43	54.90	52 36 29.89	36 56.84			+ 50	+ 50
	d	+43.5	0 5.9	57.0	43	1.45	52 39 46.90			40	- 27.45	- 27.45
	(8) - D	1.62014					52 37 29.89	36 56.84			36 38.83	36 38.83
	δ_1	1.51914	2 8.64	36 13.4								

Date₁ = Dec. 16, 1873
Dec. 17, 269

Observer *H. A. R.*
Recorder *J. F. M.*

Date, = Dec. 18, 1873

Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_z	T_h	Sum	Mean	Red. to T_m	T					
18730	04	51	52	51	8.7	4	6.9	4	16.1	19.4	22.8	26.3	29.6	4	22.4	4	18.27	+7.97
	03	2.1	52	46.2	9.2	5	7.9	4	15.5	18.9	22.1	25.6	29.1	4	22.4	4	-3.73	+34.36
Dec. 17	κ				9.0	5	7.9											
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_1					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ					5	7.9							4	22.4	4	14.54	
	$(\delta) - D$	$\frac{\kappa'}{100}$				5	7.9							4	22.4	4	14.54	
	a_2					5	7.9							4	22.4	4	14.54	
	κ																	

1873phase P

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
	+143	3 52.2	43.5	58	4685	52 54 0.50			25	52 51 54.76	52 55.91
60 d	1.85534					52 57 43.49				- 5	+122.2
	9.78050	105185		28		+11.27	51 54.76			+ 45	+ 46
(8) - D) $\frac{d'}{100}$	+269	84 1.0	51.9	27	56.45	52 54 51.90			25	+11.32	+11.21
	1.42975					52 52 34.72				+ 50	+ 50
δ_1	9.78063	1.32609				+21.19	52? 55.91			-27.40	-27.50
			4 22.51	52 11.9						51 37.58	52 38.39
			22.51	12.18							
Lost											
d											
(8) - D) $\frac{d'}{100}$											
δ_2											
30	+4.8	0 43.2	33.0	5	38.10	52 17 10.25			5	52 14 57.08	14 58.06
60 d	0.68124					52 14 53.24				- 1	- 1
	9.78691					+3.84	14 57.08			+ 45	+ 48
(8) - D) $\frac{d'}{100}$	0.58386	0 43.5	34.7	5	39.10	52 17 9.25			5	+10.65	+10.49
	+7.5					52 14 52.07				+ 50	+ 50
δ_1	0.84506					+ 5.99	14 58.06			-29.20	-29.35
	9.78691	5 37.63		15 13.3						14 39.10	14 39.77
	0.77768	37.57		14.0							
8 d	+10.5	0 46.2	38.1	5	42.15	52 17 6.20			5	52 14 57.73	14 58.06
	1.02119					52 14 47.34				- 3	+10.99
(8) - D) $\frac{d'}{100}$	9.78691					+ 8.39				+ 8	+ 8
	0.92381									+10.44	+10.44
δ_2										+ 50	+ 50
										-29.45	-29.45
		5 37.63		15 13.4						14 39.27	14 39.27
32	+23.8	0 34.9	25.7	25	30.30	51 57 18.05			25	51 55 20.20	55 22.02
70 d	1.37658					51 55 4.04				- 15	- 13
	9.79015					+19.16	55 20.20			+ 45	+ 45
(8) - D) $\frac{d'}{100}$	1.28244	0 31.3	22.1	25	26.70	51 57 21.65			25	+10.30	+10.15
	+21.8					51 55 4.47				+ 50	+ 50
δ_1	1.33846					+17.55	55 22.02			-29.10	-29.20
	9.79015	7 7.94		55 35.92						55 1.81	55 3.89
	1.24432	7 7.88		37.55							
	+18.6	0 30.1	20.8	25	25.45	51 57 22.90			25	21.01	21.01
d	1.26951					51 55 6.04				- 10	+10.55
(8) - D) $\frac{d'}{100}$	9.79015					+14.97	55 21.01			+ 5	+ 5
	1.17537									+10.10	+10.10
δ_2										+ 50	+ 50
										-29.85	-29.85
		7 7.93		55 36.3						55	
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
											</

38.

Star.	α	δ	Mag.	T_0	T_m	T_e	T_s	T_g	T_h	Sum	Mean	Red. to T_m	T
1873phae													
10	34	51 13	9.4	28.1	10 442	47.3	50.8	54.0	54.4	10	50.74		
09	30.8	51 9.1	8.4	28.2									
κ				28.5									
Dec. 17			9.5	28.1	10 435	46.8	50.1	53.5	54.0	10	50.18	10 46.16	+7.94
(8) - D				28.2									+33.74
α_1				28.5									
α_2				28.6									
11	52	50 58	8.5	12 12.7	12 18.3	21.3	24.8	24.9	3.0	12	24.46		
10	49.2	50 53.4	9.0	14.6									
κ				16.1									
Dec. 17				14.5	11 41.0	12 12	4.5	7.8	11.0	14.3	12	7.76	12 20.08
(8) - D				14.6									
α_1				14.7									+7.94
α_2				14.8									+33.62
12	12.7			12 18.3									
11	49.2			14.6									
κ				16.1									
Dec. 17				14.5	11 41.0	12 12	4.5	7.8	11.0	14.3	12	7.76	12 20.08
(8) - D				14.6									
α_1				14.7									+7.94
α_2				14.8									+33.62
13	05	50 47	8.2	13 11.7	13 2.7	6.0	9.2	12.5	15.9	13	9.26		
12	1.6	50 43.5	8.6	13.5									
κ				14.4									
Dec. 17				14.5	12 54.1	13 2.1	5.4	8.7	12.0	15.2	13	8.68	13 4.68
(8) - D				14.6									+33.54
α_1				14.7									
α_2				14.8									
14	03	54 46	8.2	15 0.3	15 13.0	16.2	19.6	23.9	26.3	15	19.60		
13	57.7	51 41.6	8.5	1.4									
κ				3.0									
Dec. 17				1.6	15 54.5	13 1.4	4.8	8.1	11.3	14.6	13	8.04	13 4.70
(8) - D				1.7									+33.54
α_1				1.8									+7.94
α_2				1.9									+33.54
15	03	54 46	8.2	15 0.3	15 13.0	16.2	19.6	23.9	26.3	15	19.60		
13	57.7	51 41.6	8.5	1.4									
κ				3.0									
Dec. 17				1.6	15 54.5	13 1.4	4.8	8.1	11.3	14.6	13	8.04	13 4.70
(8) - D				1.7									+33.54
α_1				1.8									+7.94
α_2				1.9									+33.54
16	12	51 18	9.3	16 1.5	16 2.6	24.8	28.2	31.4	34.7	16	28.14		
15	7.7	51 13.3	8.8	1.5									
κ				5.7									
Dec. 17				5.8	16 3.8	7.0	10.4	13.6	16.8	16	16.8	16 23.57	+8.02
(8) - D				5.9									+33.20
α_1				6.0									
α_2				6.1									
17	12	51 18	9.3	17 1.5	17 2.6	24.8	28.2	31.4	34.7	17	28.14		
15	7.7	51 13.3	8.8	1.5									
κ				5.7									
Dec. 17				5.8	16 3.8	7.0	10.4	13.6	16.8	16	16.8	16 23.57	+8.02
(8) - D				5.9									+33.20
α_1				6.0									
α_2				6.1									
18	12	51 18	9.3	18 1.5	18 2.6	24.8	28.2	31.4	34.7	18	28.14		
15	7.7	51 13.3	8.8	1.5									
κ				5.7									
Dec. 17				5.8	16 3.8	7.0	10.4	13.6	16.8	16	16.8	16 23.57	+8.02
(8) - D				5.9									+33.20
α_1				6.0									
α_2				6.1									
19	12	51 18	9.3	19 1.5	19 2.6	24.8	28.2	31.4	34.7	19	28.14		
15	7.7	51 13.3	8.8	1.5									
κ				5.7									
Dec. 17				5.8	16 3.8	7.0	10.4	13.6	16.8	16	16.8	16 23.57	+8.02
(8) - D				5.9									+33.20
α_1				6.0									
α_2				6.1									

Runs

Dec. 16 Dec. 17, Dec. 18.
Run = -2' 17.01 17.18 16.86

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
16	+25.6	1' 34.1	26.8	6	30.85	51 16 18.30			5	51 14 19.76	14 21.91
d	1.35411					51 14 1.28				- 14	- 12 +9.91
(8) - D	9.79668					+18.47	14 19.76			+ 18	+10.05 + 17
δ_1	1.26650	1 31.1	22.1	6	26.60	51 16 21.75			5	+ 9.55	+ 9.40
	+20.6					51 14 4.57				+ 46	+ 46
(8) - D	1.31387					+16.84	14 21.41			-28.80	-28.90
δ_2	9.79668	10 50.34		14 34.8						14 1.01	14 24.2
	1226.26	50.39		36.2							
d	+14.4	1 27.0	18.5	6	22.75	51 16 25.60			5	- 20.51	
(8) - D	1.15836					51 14 8.47				- 5	+9.93
δ_1	9.79668					+11.77	14 20.51			+ 16	
	1.07075									+9.36	
(8) - D										+ 46	
δ_2		10 50.49		14 35.1						-29.05	
										14 1.39	
d	+10.3	2 36.9	28.9	7	32.90	50 15 15.45			5	50 13 6.96	50 58 50.63
(8) - D	1.00860					50 12 58.37				- 2	+10.27 - 3
δ_1	9.80610	2 6.2	56.8	22	150	+ 8.52	13 6.96			+ 30	+ 30
	0.93041					50 0 46.85			20	+ 9.53	+ 9.15
(8) - D	+25.5					50 58 27.57				+ 46	+ 45
δ_2	1.40654	12 7.96		59 5.3		+20.96	58 50.63			-28.70	-28.80
	9.79918									12 48.53	58 31.70
(8) - D	1.32143										
d	+16.3	1 58.0	49.4	21	53.70	51 0 54.65			20	50 58 51.18	
(8) - D	1.2129					50 58 37.28				- 7	+9.70
δ_1	9.79903					+13.39	58 51.18			+ 23	
	1.12693									+ 9.09	
(8) - D										+ 45	
δ_2		12 7.96		59 5.6						-28.70	
										58 31.98	
d	-6.2	2 52.0	43.4	37	47.70	50 45 4.65			35	50 42 40.50	43 42.20
(8) - D	-3.8					50 42 48.37				- 7	+9.76 - 2
δ_1	0.57978	23 10	52.8	36	56.90	- 3.14	42 40.50			+ 33	+ 23
	9.80151					50 45 51.45			35	+ 9.00	+ 8.87
(8) - D	+9.6					50 43 34.77				+ 44	+ 44
δ_2	0.98227	13 8.85		42 55.2		+7.93	43 42.20			-28.63	-28.70
	9.80151									42 21.71	43 23.02
(8) - D	0.89949										
d	+12.2	23 4.9	55.9	37	0.40	50 45 47.95			35	43 41.17	
(8) - D	1.08636					50 43 34.77				- 4	+9.46
δ_1	9.80151					+10.08	43 41.17			+ 24	
	1.00358									+ 8.82	
(8) - D										+ 44	
δ_2		13 8.94		42 55.4						-28.80	
										43 21.83	
d	+18.0	2 47.0	38.1	32	42.55	51 50 5.80			30	51 48 3.32	
(8) - D	1.25527					51 47 48.72				- 9	+10.91
δ_1	9.79128	2 51.0	41.7	32	46.35	+14.53	48 3.32			+ 32	
	1.16226					51 50 2.00			30	+10.19	
(8) - D						51 47 44.72				+ 49	
δ_2		15 19.22		48 18.9						-28.65	
										47 45.58	
d		4 22.0	14.9	34	18.95	51 48 29.40			30		
(8) - D						51 46 12.41					
δ_2											
d	+17.5	+35.3	1 32.1	23.2	1	27.65	51 21 20.70		0	51 19 32.49	18 16.53
(8) - D	1.24304	1 32.1	23.2	1	27.65	51 21 20.70			0	17.97	31.06
δ_1	9.79589	1 45.937				51 19 3.62	19 32.49		0	- 8	+10.21 - 43
	1.15464	1 25.0	16.4	1	20.70	51 19 3.69				+ 17	+ 17
(8) - D	-40.0					+28.80				+ 9.65	+ 9.65
δ_2	1.68120	16 27.75		19 32.9		-47.16	18 16.53			+ 47	+ 47
	9.79589					+14.28				-28.50	-28.50
(8) - D	1.67353					-82.63				18 59.68	18 13.42
d	+14.6	1 27.8	19.7	1	23.75	51 21 24.60			0	19 19.65	18 31.60
(8) - D	1.16435					51 19 7.64	19 19.65		0	- 6	+10.03 - 50
δ_1	9.79589					51 19 7.64				+ 16	+ 16
	1.07595					+11.91				+ 9.46	+ 9.46
(8) - D						-36.14	18 31.60			+ 47	+ 47
δ_2		16 9.97		19 34.1						-28.75	-28.75
	1.55800	27.68		18 45.6						19 0.93	18 12.41

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Date, = Dec. 16, 1873

Observer *W. H. K.*
Recorder *J. J. M.*

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Date₂ = Dec. 18, 1873

Observer _____
Recorder _____[illegible]

Runs $R_g = -2' 17.01$ Dec. 16
Dec. 18
16.86

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
36	+28.0 4.9	2' 43.9	56.0	12'	39.95	51 10 8.40 51 7 51.32 +16.38			10'	57 8 777 - 11 +10.13 + 32 + 9.46 + 46 -28.35 7 49.55	
d	1.30103 5.79762 1.21436						8 7.77				
(8) - D) $\frac{d'}{100}$											
δ_1		18 4.66		8 22.6							
d	+19.4 1.28780 5.79762 1.20113	2 43.7	35.1	12	39.40	51 10 8.75 51 7 52.78 +15.89			10	798 - 10 +9.95 + 32 + 9.287 + 46 -28.60 7 49.33	
(8) - D) $\frac{d'}{100}$							8 7.98				
δ_2		18 4.61		8 22.4							
22	+17.6 1.24551 9.78950 1.15072	1 57.0	48.0	21	52.50	52 0 55.85 51 58 38.54 +14.15			20	57 58 52.99 - 9 +11.03 + 22 +10.40 + 50 -28.45 58 35.57	
d							58 52.99				
(8) - D) $\frac{d'}{100}$											
δ_1		19 28.98		59 8.5							
d	+18.1 1.25768 9.78950 1.16289	1 56.1	46.9	21	57.50	52 0 56.85 51 58 39.82 +14.55			20	5454 - 9 +10.82 + 22 +10.19 + 50 -28.70 58 36.66	
(8) - D) $\frac{d'}{100}$							58 54.54				
δ_2		19 29.06		59 9.6							
30	+20.9 1.32015 9.80027 1.23613	4 57.9	57.0	29	1.45	50 53 46.90 50 57 29.82 +17.22			25	57 57 47.11 - 12 +9.97 + 48 + 9.17 + 44 -28.15 51 28.93	
d							51 47.11				
(8) - D) $\frac{d'}{100}$											
δ_1		21 5.60		52 1.7							
d	+25.5 1.40654 9.80027 1.32252	4 7.9	59.4	29	3.65	50 53 44.70 50 57 27.71 +21.01			25	4883 - 18 +9.72 + 48 + 8.98 + 44 -28.40 51 30.17	
(8) - D) $\frac{d'}{100}$				29			51 48.83				
δ_2		21 5.60		52 2.1							
28	+22.4 1.35025 9.80807 1.27403	0 36.9	29.0	20	32.95	50 2 15.40 49 59 58.32 +18.79			20	50 0 17.18 - 13 +8.55 + 6 + 8.22 + 40 -27.95 59 57.78	
d							0 17.18				
(8) - D) $\frac{d'}{100}$											
δ_1		22 7.17		0 30.4							
d	+17.4 1.24055 9.80807 1.26433	0 32.9	23.9	20	28.40	50 2 19.95 50 0 13.29 +18.88 14.60 0 21.47			20	2447 17.69 - 8 +8.42 + 6 + 8.04 + 40 -28.20 59 46.4 57.91	
(8) - D) $\frac{d'}{100}$				5							
δ_2		22 7.19		0 30.6							
32	-33.6 0.55632 9.79176 0.46377	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	57 44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
d							44 48.78				
(8) - D) $\frac{d'}{100}$							44 45.71				
δ_1		22 53.85		45 3.8							
d	+17.4 1.24055 9.79176 1.114802 +13.11	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
(8) - D) $\frac{d'}{100}$											
δ_2		22 53.85		45 3.8							
24	-33.6 0.55632 9.79176 0.46377	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
d							44 48.78				
(8) - D) $\frac{d'}{100}$							44 45.71				
δ_1		22 53.85		45 3.8							
d	+17.4 1.24055 9.79176 1.114802 +13.11	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
(8) - D) $\frac{d'}{100}$											
δ_2		22 53.85		45 3.8							
24	-33.6 0.55632 9.79176 0.46377	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
d							44 48.78				
(8) - D) $\frac{d'}{100}$							44 45.71				
δ_1		22 53.85		45 3.8							
d	+17.4 1.24055 9.79176 1.114802 +13.11	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
(8) - D) $\frac{d'}{100}$											
δ_2		22 53.85		45 3.8							
24	-33.6 0.55632 9.79176 0.46377	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
d							44 48.78				
(8) - D) $\frac{d'}{100}$							44 45.71				
δ_1		22 53.85		45 3.8							
d	+17.4 1.24055 9.79176 1.114802 +13.11	0 43.9	35.4	35	39.65	51 47 6.70 51 47 8.70 51 44 51.62 57 44 57.62 -2.91 -5.98			35	44 48.78 + 8 +10.15 + 49 -28.20 44 31.30	
(8) - D) $\frac{d'}{100}$											
δ_2		22 53.85		45 3.8							

Date₁ = ²⁶⁸ Dec. 16, 1873Observer *N. A. R.*
Recorder *J. F. M.*Date₂ = ²⁷⁰ Dec. 18, 1873Observer
Recorder

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Star.	α	δ	Mag.	T_1	T_m	T_2	T_3	T_4	T_5	T_6	Sum	Mean	Red. to T_m	T
²⁴ 23 κ	²⁹ 24.3	^{51° 44'} 51 39.7	^{6.5} 6.5	^{24 38.9} 23.2 24.4 22.8	^{24 39.1} 42.4	^{45.7} 45.7	^{49.0} 49.0	^{52.4} 52.4			²⁴ 24 24	^{45.72} 4.80 2.5 2 41.15 3.96 37.19		⁵ +8.15 +32.38
(8) - D) $\frac{\kappa'}{100}$														
α_1														
κ			^{6.0} 9.4											
(8) - D) $\frac{\kappa'}{100}$														
α_2														
²⁵ 24 κ	³⁰ 25.2	^{51 52} 51 48.1	^{9.0} 9.1	^{25 15.9} 17.3 18.9 17.4	^{25 40.0} 43.3	^{46.7} 46.7	^{49.9} 49.9	^{53.2} 53.2			²⁵ 25 25	^{46.62} 4.80 2.6 2 42.06 3.98 38.08		³ +8.17 +32.26
(8) - D) $\frac{\kappa'}{100}$														
α_1														
κ			^{9.1}	^{25 30.0} 31.2 33.0 31.4	^{25 38.6} 42.0	^{45.4} 45.4	^{48.8} 48.8	^{52.2} 52.2			²⁵ 25 25	^{45.40} 3.49 2.3 2 42.12 3.96 38.16		³ +8.17 +32.26
(8) - D) $\frac{\kappa'}{100}$														
α_2														
²⁶ 25 κ	⁴⁹ 44.7	^{51 43} 51 39.2	^{8.8} 9.2	^{26 43.4} 44.6 46.2 44.7	^{26 58.9} 2.2	^{5.5} 5.5	^{8.7} 8.7	^{12.2} 12.2			²⁷ 27 26	^{5.80} 4.80 2.5 2 0.93 3.99 5.694		³ +8.17 +32.12
(8) - D) $\frac{\kappa'}{100}$														
α_1														
κ			^{8.9} 9.3	^{26 44.2} 46.0 47.3 45.8	^{26 57.9} 1.0	^{4.2} 4.2	^{7.6} 7.6	^{11.0} 11.0			²⁷ 27 27	^{4.24} 3.49 2.3 2 0.96 3.97 5.699		³ +8.17 +32.12
(8) - D) $\frac{\kappa'}{100}$														
α_2														
²⁷ 26 κ	⁵⁶ 51.8	^{51 25} 51 20.3	^{6.5} 7.0	^{27 55.0} 56.4 57.8 56.4	^{28 7.3} 10.7	^{14.0} 14.0	^{17.2} 17.2	^{20.5} 20.5			²⁸ 28 28	^{13.94} 4.80 2.5 2 9.37 3.99 5.38		³ +8.16 +32.02
(8) - D) $\frac{\kappa'}{100}$														
α_1														
κ			^{7.4}	^{28 33.4} 34.2 35.4 34.3	^{28 5.9} 9.2	^{12.6} 12.6	^{15.8} 15.8	^{19.2} 19.2			²⁸ 28 28	^{12.54} 3.49 2.2 2 9.25 3.97 5.28		³ +8.16 +32.02
(8) - D) $\frac{\kappa'}{100}$														
α_2														
³⁰ 29 κ	^{42.57} 37.2	^{51 17} 51 12.4	^{9.3} 9.3 9.4	^{30 19.4} 21.0 23.1 21.2	^{30 53.1} 56.4	^{59.7} 59.7	^{3.0} 3.0	^{6.4} 6.4			³⁰ 30 30	^{59.72} 4.79 2.5 2 55.16 4.02 51.14		³ +8.19 +31.72
(8) - D) $\frac{\kappa'}{100}$														
α_1														
κ			^{9.4} 9.3	^{30 37.1} 28.3 29.3 28.2	^{30 52.0} 55.3	^{58.6} 58.6	^{1.9} 1.9	^{5.2} 5.2			³⁰ 30 30	^{55.60} 3.49 2.2 2 51.60 4.03 6.17		³ +8.19 +31.72
(8) - D) $\frac{\kappa'}{100}$														
α_2														
²⁹ 29 κ	^{37.2} 37.2	^{51 12.4} 51 12.4	^{9.3} 9.3 9.4	^{30 19.4} 21.0 23.1 21.2	^{30 53.1} 56.4	^{59.7} 59.7	^{3.0} 3.0	^{6.4} 6.4			³⁰ 30 30	^{59.72} 4.79 2.5 2 55.16 4.02 51.14		³ +8.19 +31.72
(8) - D) $\frac{\kappa'}{100}$														
α_1														
κ			^{9.4} 9.3	^{30 37.1} 28.3 29.3 28.2	^{30 52.0} 55.3	^{58.6} 58.6	^{1.9} 1.9	^{5.2} 5.2			³⁰ 30 30	^{55.60} 3.49 2.2 2 51.60 4.03 6.17		³ +8.19 +31.72
(8) - D) $\frac{\kappa'}{100}$														
α_2														

Runs $P_2 = -2.1701$ Dec 16, Dec 18, 1686

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+22.9	4 49.1	41.5	35	46.50	51 47 3.05			35	51 45 4.55	
(8) - D	$\frac{d'}{100}$					51 44 46.04				- 17	+10.54
δ_1		24 45.34		45 19.4		+ 18.51	45 4.55			+ 9	
d		0 42.9	34.7	35	38.80	51 47 9.55			35	+10.15	
(8) - D	$\frac{d'}{100}$	0 42.9	34.7	35	38.80	51 44 52.59			35	+ 49	
δ_2						51 44 52.59				-28.10	
22	+29.2	4 22.3	14.0	29	18.15	51 53 30.20			25	51 51 36.82	
d						51 51 13.12				- 23	+11.06
(8) - D	$\frac{d'}{100}$					+23.63				+ 52	
δ_1		25 46.25		51 52.1			51 36.82			+10.28	
d	+14.0	4 10.9	1.9	29	6.40	51 53 41.95			25	+ 49	
(8) - D	$\frac{d'}{100}$					51 51 24.09				+10.07	+11.00
δ_2		25 46.33		51 51.4		+11.83	51 36.42			+ 49	
26	+20.8	1 55.9	47.7	36	51.80	51 45 56.55			35	- 12	+10.72
d						51 43 39.44				+ 22	
(8) - D	$\frac{d'}{100}$					+16.81	43 56.35			+10.13	
δ_1		27 5.11		44 11.3						+ 49	
d	+18.4	1 53.0	44.1	36	48.55	51 45 59.80			35	- 9	
(8) - D	$\frac{d'}{100}$	1 15.0	6.1	36	10.55	51 46 37.80			35	+ 22	+10.53
δ_2		27 5.16		44 12.3		51 43 42.87	43 57.81			+ 9.91	+ 9.91
d	+15.4	1 14.4	6.9	56	10.65	51 26 37.70			55	+ 49	- 28.20
(8) - D	$\frac{d'}{100}$					51 24 20.68				-27.90	
δ_1		28 13.54		24 49.8		+14.25	24 34.94			43 40.14	44 8.12
d	-21.8	0 42.1	32.4	55	37.20	51 27 11.15			55	- 13	+9.98
(8) - D	$\frac{d'}{100}$					51 24 59.16				+ 9.57	
δ_2		28 13.44		24 50.4		-17.75	24 36.54			+ 47	
12	+38.5	3 40.2	31.9	3	36.05	51 19 12.30			0	- 25	+10.06
d						51 19 12.30			0	+ 42	+10.23
(8) - D	$\frac{d'}{100}$					51 16 55.23	17 26.72			+ 9.43	+ 9.40
δ_1		30 59.33		17 41.0		51 16 55.23	+ 81.43			+ 46	-27.60
d	+30.4	3 31.9	32.3	3	27.60	51 19 20.75			0	- 27.60	
(8) - D	$\frac{d'}{100}$					51 17 3.78	17 28.71			17 9.24	16 55.88
δ_2		31 14.36		17 42.6		+17.80	17 13.09				
d	+17.2	3 31.9	32.3	3	27.60	51 19 20.75			0	- 25	+10.06
(8) - D	$\frac{d'}{100}$					51 17 3.78	17 28.71			+ 42	+10.23
δ_1		31 14.56		17 42.6		+24.82	17 17.93			+ 9.43	+ 9.40
d	+17.2	3 31.9	32.3	3	27.60	51 19 20.75			0	+ 46	-27.60
(8) - D	$\frac{d'}{100}$					51 17 3.78	17 28.71			-27.90	
δ_2		31 14.56		17 42.6		+14.04	17 17.93			17 10.87	17 0.26

Date₁ = Dec. 16, 1873Observer J. A. R.
Recorder J. S. M.Date₂ = Dec. 18, 1873Observer
Recorder

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Rur

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
32 ^m 31	18 58 57 11.8 50 53.1	9.1 9.0		32 8.5 8.4 10.6 9.4	32 27.2	30.7	33.9	37.2	40.4	32	32.8 -4.79 +2.5 -2		
(8) - D) κ' α_1									-4.56	32	29.32 -4.03		+8.18 +31.54
			9.2	32 1.9 3.4 4.9 3.4	32 26.2	29.4	32.9	36.1	39.3	32	32.78 -3.49 +2.2 -2		
(8) - D) κ' α_2									-3.29	32	29.49 -4.01		+8.18 +31.54
33 32	32 51 14 26.6 51 9.9	8.7 8.8		33 16.4 17.8 19.2 17.8	33 41.0	44.3	47.6	52.9	54.2	33	47.60 -4.79 +2.5 -2		
(8) - D) κ' α_1									-4.56	33	43.04 -4.05		+8.21 +31.42
			8.9	33 14.0 16.1 17.4 16.0	33 39.8	48.0	46.4	49.7	53.0	33	46.38 -3.49 +2.2 -2		
(8) - D) κ' α_2									-3.29	33	43.09 -4.03		+8.21 +31.42
34 33	37 57 52 31.7 51 47.5	9.6 9.5		34 25.2 26.4 27.8 26.5	34 48.2	57.5	54.9	58.0	1.6	34	54.84 -4.79 +2.6 -2		
(8) - D) κ' α_1									-4.55	34	50.29 -4.10		+8.27 +31.30
			9.7	34 26.2 27.6 24.1 27.6	34 46.8	57.2	53.7	57.0	0.1	34	53.76 -3.49 +2.3 -2		
(8) - D) κ' α_2									-3.28	34	50.28 -4.08		+8.27 +31.30
35 34	42 51 45 36.9 51 40.0	8.4 8.5		35 38.0 39.6 41.0 39.5	35 52.7	56.1	59.4	2.8	6.0	35	59.40 -4.79 +2.5 -2		
(8) - D) κ' α_1									-4.56	35	54.84 -4.11		+8.28 +31.18
			8.5	35 29.9 31.8 33.4 31.7	35 51.4	54.8	58.2	1.5	4.8	35	58.14 -3.49 +2.3 -2		
(8) - D) κ' α_2									-3.28	35	54.86 -4.09		+8.28 +31.18
37 36	50 57 28 44.9 51 24.2	9.0 9.3		37 42.6 44.0 45.3 43.9	38 1.9	52	8.5	11.8	15.1	38	8.00 -4.79 +2.5 -2		
(8) - D) κ' α_1									-4.56	38	3.94 -4.12		+8.28 +30.92
			9.1	37 43.0 46.3 44.8	38 1.6	3.9	7.3	10.5	13.7	38	7.20 -3.49 +2.3 -2		
(8) - D) κ' α_2									-3.28	38	3.92 -4.10		+8.28 +30.92

Runs $P_{\text{eq}} = -2' 14.01$ Dec 16. Dec 18. 16.86

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
10 d	+24.5 1.38917 9.79918 1.30406	2' 40.4	32.0	22	36.45	51 0 12.90 50 57 54.82 +20.14	58 15.03		20	58 150.3 - 16 + 31 + 9.30 + 45 -27.45 57 57.48	+9.90
(8) - D $\frac{d'}{100}$											
δ_1		32 33.47		58 29.0							
d	+29.4 1.46835 9.79918 1.38324	2 44.0	34.9	221	39.45	51 0 8.90 50 57 52.94 +24.17	58 16.21		20	16.21 - 23 + 32 + 9.08 + 45 -27.75 57 58.08	+9.62
(8) - D $\frac{d'}{100}$											
δ_2		32 33.66		58 29.6							
22 d	+29.8 1.47422 9.79652 1.38645	0 13.0	5.1	5	9.05	51 17 39.30 51 15 22.22 +24.85	15 46.64		5	15 46.64 - 24 + 2 + 9.63 + 46 -27.45 15 29.06	+9.87
(8) - D $\frac{d'}{100}$											
δ_1		33 47.20		16 0.5							
d	+30.4 1.48287 9.79652 1.39510	0 13.5	4.9	5	9.20	51 17 39.15 51 15 22.22 +24.84	15 47.13		5	47.13 - 25 + 2 + 9.41 + 46 -27.70 15 29.07	+9.64
(8) - D $\frac{d'}{100}$											
δ_2		33 47.27		16 0.5							
28 d	+28.3 1.48179 9.79063 1.35813	3 25.9	17.1	38	21.50	51 54 26.85 51 52 19.77 +22.81	52 32.65		25	51 52 32.65 - 21 + 40 + 10.31 + 49 -27.45 52 16.19	+10.99
(8) - D $\frac{d'}{100}$											
δ_1		34 54.46		52 47.5							
d	+26.0 1.41497 9.79063 1.32131	3 24.9	15.0	38	19.95	51 54 28.40 51 52 11.41 +20.96	52 32.50		25	32.50 - 18 + 40 + 10.08 + 49 -27.75 52 15.54	+10.79
(8) - D $\frac{d'}{100}$											
δ_2		34 54.47		52 46.8							
26 d	+19.9 1.29885 9.79160 1.20616	4 38.3	29.3	34	35.80	51 48 14.55 51 45 57.44 +16.07	46 13.61		30	51 46 13.61 - 11 + 55 + 10.18 + 49 -27.35 45 57.37	+11.11
(8) - D $\frac{d'}{100}$											
δ_1		35 59.01		46 28.6							
d	+26.4 1.42160 9.79160 1.32891	4 42.1	33.7	34	37.90	51 48 12.45 51 45 53.46 +21.33	46 14.92		30	14.92 - 18 + 56 + 9.24 + 49 -27.65 45 58.08	+10.81
(8) - D $\frac{d'}{100}$											
δ_2		35 59.05		46 29.3							
30 d	+24.6 1.39094 9.79431 1.30096	1 47.8	40.0	51	43.90	51 31 4.45 51 28 47.34 +20.00	29 7.44		50	51 29 7.44 - 16 + 21 + 9.88 + 47 -27.15 28 56.69	+10.40
(8) - D $\frac{d'}{100}$											
δ_1		38 8.10		29 21.6							
d	+22.6 1.35411 9.79431 1.26413	1 46.8	38.0	87	42.40	51 31 5.95 51 28 49.09 +18.37	29 7.46		50	7.46 - 13 + 20 + 9.03 + 47 -27.45 28 50.18	+10.17
(8) - D $\frac{d'}{100}$											
δ_2		38 8.10		29 21.1							

Date₁ = Dec. 16, 1873Observer W. A. R.
Recorder J. L. M.Date₂ = Dec. 18, 1873Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
35	5	51 47	8.5	38	42.9	38 58.6	1.9	5.2	8.5	12.0	39	5.24	
37	41.5	51 42.6	8.5		44.6							-4.79	
					46.1							+ 25	
					44.6					-4.56		- 2	
(8) - D											39	0.68	+8.32
a_1											38	-4.15	+30.82
												56.53	
			7.8	38	41.3	38 57.3	0.6	3.9	7.3	10.6	39	3.94	
					48.2							-3.49	
					45.6							+ 23	
(8) - D					42.4					-3.28		- 2	+8.32
a_2											39	0.66	+30.82
											38	-4.13	
												56.53	
39	27	51 00	9.1	39	53.9	39 32.5	35.8	39.2	42.3	45.6	39	39.08	
38	24.0	50 56.8	9.0		54.3							-4.79	
	15.5	55.8	9.2		54.0					-4.56		+ 25	+8.26
					56.7							- 2	+30.76
(8) - D				39	48.0	39 37.9	40.5	43.8	47.2	52.6	39	43.96	
a_1	21.0	50 56.0			49.4							-4.79	
					51.0					-4.56		+ 25	+8.26
					45.5							- 2	+30.76
			9.2	40	53.3	39 31.2	34.5	37.9	41.3	44.5	39	37.88	
	9.0				7.0							-3.49	
					8.9					-3.29		+ 22	+8.26
(8) - D				39	66.4	39 36.0	39.3	42.8	46.0	49.4	39	42.70	+30.76
a_2					58.1							-3.49	
					6.0					-3.29		+ 22	+8.26
					58.2							- 2	+30.76
				41	0.3	40 34.2	37.5	40.9	44.2	47.5	40	40.76	
	17.8	51 22.4	9.0		2.0							-4.79	
					3.5					-4.56		+ 25	
(8) - D					1.9						40	36.30	+8.31
a_1											40	-4.15	+30.64
												32.15	
			9.0	40	54.5	40 33.2	36.8	—	42.0	46.3	40	39.42	
					56.0				43.0	46.3		-3.49	66
					57.6							+ 23	
(8) - D					56.0					-3.28		- 2	+8.31
a_2											40	36.54	+30.64
											40	-4.13	
												32.47	25
41	30	51 18	9.0	41	32.2	41 40.5	43.9	47.2	50.5	53.8	41	47.18	
40	23.0	51 13.7	9.1		33.5							-4.79	
					34.6							+ 25	
(8) - D					33.4					-4.56		- 2	+8.31
a_1											41	42.62	+30.52
											41	-4.16	
												38.46	
			9.0	41	37.2	41 39.4	42.6	46.0	49.2	52.4	41	45.92	
					38.6							-3.49	
					44.1							+ 22	
(8) - D					38.6					-3.29		- 2	+8.31
a_2											41	42.63	+30.52
											41	-4.14	
												38.49	
43	58	51 41	8.5	42	52.0	48 8.2	11.5	14.8	18.1	21.5	43	14.82	
41	52.2	51 36.8	8.3		53.4							-4.79	
					55.3							+ 25	
(8) - D					52.6					-4.56		- 2	+8.36
a_1											43	10.26	+30.34
											43	-4.19	
												6.07	
			8.0	42	52.5	48 6.9	10.2	13.5	16.8	20.1	43	13.50	
					53.7							-3.49	
					55.5							+ 23	
(8) - D					53.9					-3.28		- 2	+8.36
a_2											43	10.22	+30.34
											43	-4.17	
												6.05	

Runs $\alpha_2 = -2' 17.01''$ Dec. 16 1686
 $\alpha_2 = -2' 17.01''$ Dec. 18 1686

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
20	5	3' 23.8	15.1	33	19.45	51 49 28.90			30	51 47 28.52	
d	+20.6					51 47 11.88				-12	+10.98
(8) - D	$\frac{d'}{100}$	1.31387				+16.63		47 28.52		+40	
δ_1		9.79144								+10.21	
		1.22102								+49	
										-27.15	
										47 12.35	
20	3	23.4	15.8	33	19.60	51 49 28.75			30	28.44	
d	+20.5					51 47 11.79				-12	+10.74
(8) - D	$\frac{d'}{100}$	1.31175				+16.55		47 28.44		+40	
δ_2		9.79144								+9.97	
		1.21890								+49	
										-27.43	
										47 11.73	
20	4	39.5	32.0	19	35.75	51 3 12.60			15	51 0 41.14	0 51.07
38	4	39.5	32.0	19	35.75	51 3 12.60			15	-9	-1
d	+17.6					51 0 55.58		0 41.14		+55	+85
(8) - D	$\frac{d'}{100}$	1.24551				51 0 55.58				+9.36	+9.36
δ_1		9.79872				-14.45				+45	+45
		1.15994				-4.52		0 57.07		-26.75	-26.75
										0 24.46	0 34.47
20	4	39.5	32.0	19	35.75	51 3 22.45			15	41.61	52.86
38	4	39.5	32.0	19	35.75	51 3 22.45			15	-23	-6
d	+17.6					51 1 5.46		0 41.61		+53	+53
(8) - D	$\frac{d'}{100}$	1.24551				51 1 5.46				+9.14	+9.14
δ_2		9.79872				-23.98				+45	+45
		1.15994				-12.73		0 52.86		-27.25	-27.25
										0 24.25	0 35.67
20	2	40.9	33.4	52	37.15	51 30 11.20			50	51 27 37.11	
38	2	40.9	33.4	52	37.15	51 27 54.12				-12	+10.52
d	+17.6					-17.08				+31	
(8) - D	$\frac{d'}{100}$	1.23222						27 37.11		+9.86	
δ_1		9.79447								+47	
		1.23240								-27.00	
										27 20.63	
20	2	45.7	36.7	52	41.20	51 30 7.45			50	37.12	
38	2	45.7	36.7	52	41.20	51 27 54.12				-7	+10.35
d	+16.2					-13.17				+32	
(8) - D	$\frac{d'}{100}$	1.20952						27 37.12		+9.63	
δ_2		9.79447								+47	
		1.11970								-27.30	
										27 20.17	
26	2	12.1	-4.1	2	8.10	51 20 40.25			0	51 18 34.50	
32	2	12.1	-4.1	2	8.10	51 18 23.17				-5	+10.37
d	+13.8					+11.26				+26	
(8) - D	$\frac{d'}{100}$	1.13988						18 34.50		+9.69	
δ_1		9.79605								+47	
		1.05164								-26.90	
										18 17.97	
26	3	6.9	57.4	2	2.15	51 20 46.20			0	35.30	
32	3	6.9	57.4	2	2.15	51 18 29.22				-1	+10.17
d	+7.3					+5.96				+24	
(8) - D	$\frac{d'}{100}$	0.86332						18 35.30		+9.47	
δ_2		9.79605								+47	
		0.77508								-27.20	
										18 18.27	
32	0	8.9	1.4	40	5.15	51 42 43.20			40	51 40 43.36	
38	0	8.9	1.4	40	5.15	51 40 26.12				-12	+10.48
d	+20.2					+17.16				+1	
(8) - D	$\frac{d'}{100}$	1.32634						40 43.35		+10.11	
δ_1		9.79256								+48	
		1.23461								-26.85	
										40 26.98	
32	0	7.4	58.5	40	2.95	51 42 45.40			40	44.41	
38	0	7.4	58.5	40	2.95	51 40 28.47				-11	+10.25
d	+19.6					+16.87				+1	
(8) - D	$\frac{d'}{100}$	1.29226						40 44.41		+9.87	
δ_2		9.79256								+48	
		1.20053								-27.15	
										40 27.51	

Date, = Dec. 16/873

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Observer *W.A.R.*
Recorder *E.F.M.*

Date, = Dec. 18, 1873

Observer _____
Recorder _____

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1873 Bae. R.

Star.	α	δ	Mag.	T_0	T_m	T_s	T_1	T_2	T_h	Sum	Mean	Red. to T_m	T
	24^m	$20^s 58.30$	9.0	43	48.6	44 25.7	28.9	32.2	35.5	38.6	44	32.8	
	43	13.4 50 26.8	8.8		44.9								
κ		8.6	3		51.9								
(δ) - D					50.1								
43	13.9 50 26.0	8.1		44 18.5	44 30.5	33.8	37.0	40.2	43.5	44	37.00	44 27.61	+8.28
a_1					20.4								+30.20
					20.6								
					20.2								
κ			9.2	43 58.4	44 34.5	27.7	30.9	34.1	37.4	44	30.92	44 28.28	+8.28
		7.8		53.3									+30.20
(δ) - D				56.6									
a_2				53.7									
				44 28.0	44 39.2	32.5	35.7	39.0	42.3	44	35.74	44 27.63	+8.28
													+30.20
45	34 52 03	8.6	45	31.1	45 46.6	49.9	53.4	56.7	0.1	45	53.34	44 28.31	
44	25.2 51 58.6	9.3		33.2									
κ				34.6									
(δ) - D				33.0									
a_1													
κ			8.6	45 38.3	45 45.2	48.8	52.2	55.5	58.9	45	52.12		
(δ) - D				29.0									
a_2				30.7									
				29.0									
46	51 51 10	8.7	46	49.3	47 2.7	6.0	9.3	13.6	16.0	47	9.32		
45	45.2 51 5.9	8.7		50.6									
κ				52.2									
(δ) - D				50.7									
a_1													
κ			8.7	46 50.1	47 1.4	4.8	8.2	11.4	14.7	47	8.10		
(δ) - D				51.4									
a_2				53.9									
				51.8									
48	12 50 28	8.8	48	15	48 23.0	26.4	29.5	33.0	36.1	48	29.60		
47	5.7 50 24.5	9.0		3.2									
κ				52.4									
(δ) - D				3.4									
a_1													
κ			8.9	48 54	48 31.8	25.1	28.4	31.6	35.0	48	28.38		
(δ) - D				6.0									
a_2				6.3									
				6.9									
49	44 52 43	9.5	49	28.9	49 51.3	54.9	58.0	1.4	4.9	49	58.05		
48	32.3 52 38.5	9.5		29.5									
κ				31.6									
(δ) - D				29.7									
a_1													
κ			9.4	49 33.6	49 49.9	52.3	56.8	0.1	3.5	49	56.72		
(δ) - D				24.1									
a_2				26.0									
				24.2									
				</									

Runs $P_{\text{eq}} = -2.1701$ Dec. 16 Dec. 18
16.86

	$T_m - T_f$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
26	+42.1	0	1.4	54.1	49	57.75	50 32 54.60		50	50 31 8.54	30 47.54
26	1.62428	0	1.4	54.1	49	57.75	50 32 54.60		50	- 47	- 8
d	9.80351						50 30 33.52	31 58.54		0	+8.78
(8) - D	1.54350						50 30 33.52			+8.82	+8.82
	+16.8						+34.95			+43	+43
δ_1	1.22531						+13.95	30 47.54		-26.60	-26.60
	9.80351	44 31.74		31 20.9						30 50.72	30 30.11
	1.14453	36.56		0.3							
	735.8	4	58.2	49.3	49	53.75	50 32 54.60		45	- 745	- 48.28
d	1.55388	4	58.2	49.3	49	53.75	50 32 54.60		45	- 34	+9.27
(8) - D	9.80336						50 30 37.64	31 7.45		+57	+57
	1.47295						50 30 37.64			+8.61	+8.61
	+12.7						+29.71			+43	+43
δ_2	1.10880						+10.54	30 48.28		-26.85	-26.85
	9.80336	44 31.74		31 20.1						30 49.87	30 30.99
	1.03284	36.59		1.2							
22	+20.3	2	19.0	10.0	17	14.80	52 5 33.85		15	52 3 33.14	
d	1.30750						52 3 16.84			- 11	+11.17
(8) - D	9.78886						+16.30	3 33.14		+27	+27
	1.21207									+10.51	+10.51
δ_1										+50	+50
		45 52.97		3 47.7						-26.70	-26.70
										3 17.61	
	+23.1	2	20.2	11.4	17	15.80	52 5 32.55		15	34.23	
d	1.36636						52 3 15.56			- 14	+10.90
(8) - D	9.78886						+18.54	3 34.23		+27	+27
	1.26818									+10.27	+10.27
δ_2		45 53.03		3 48.2						+50	+50
										-27.00	-27.00
										3 18.13	
22	+18.6	4	16.2	8.0	9	12.10	51 13 36.25		5	57 11 34.46	
d	1.26957						51 11 19.77			- 10	+10.43
(8) - D	9.79715						+15.22	11 34.46		+50	+50
	1.18237									+9.57	+9.57
δ_1		47 8.91		11 48.3						+46	+46
										-26.50	-26.50
										11 18.39	
	+16.3	4	13.3	5.0	9	9.15	51 13 39.24		5	35.68	
d	1.21219						51 11 22.21			- 7	+10.24
(8) - D	9.79715						+13.34	11 35.68		+50	+50
	1.12505									+9.35	+9.35
δ_2		47 8.98		11 49.0						+46	+46
										-26.80	-26.80
										11 19.12	
22	+26.2	1	21.4	13.0	51	17.20	50 31 31.15		50	50 29 35.90	
d	1.41830						50 29 14.67			- 19	+9.19
(8) - D	9.80366						+21.76	29 35.90		+15	+15
	1.33767									+8.81	+8.81
δ_1		48 29.16		29 48.5						+42	+42
										-26.30	-26.30
										29 18.79	
	+21.5	1	17.1	8.6	51	12.85	50 31 35.50		50	36.50	
d	1.33244						50 29 18.57			- 12	+9.04
(8) - D	9.80366						+17.86	29 36.50		+14	+14
	1.25181									+8.60	+8.60
δ_2		48 29.23		29 48.7						+42	+42
										-26.60	-26.60
										29 18.94	
36	+28.4	2	47.9	39.0	37	43.45	52 45 4.90		35	52 43 10.35	
d	1.45332						52 42 47.82			- 21	+11.87
(8) - D	9.78280						+22.46	43 10.35		+33	+33
	1.35133									+11.25	+11.25
δ_1		49 57.79		43 25.3						+50	+50
										-26.50	-26.50
										42 55.72	
	+32.5	2	52.3	42.5	37	47.40	52 45 0.95		35	9.79	
d	1.51188						52 42 43.76			- 28	+11.53
(8) - D	9.78280						+25.70	43 9.79		+33	+33
	1.40989									+10.98	+10.98
δ_2		49 57.65		43 24.0						+50	+50
										-26.85	-26.85
										42 54.47	

Date₁ = Dec. 16, 1873Observer *N. A. K.*
Recorder *J. T. M.*Date₂ = Dec. 18, 1873Observer
Recorder

50

Ru

Star.	α	δ	Mag.	T_a	T_m	T_s	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
50	53	51.06	8.8	50	42.8	51	40	7.3	10.6	13.9	17.1	51	10.58
	49	46.1	9.0		44.0								-4.78
	κ				45.5								+2.5
					44.2					-4.55			-2
	(δ - D)									51	6.03		
	α_1									51	-4.31		+8.40
											1.77		+29.44
			9.0	50	39.6	51	2.6	5.4	9.1	12.3	15.8	51	9.10
	κ				41.7								-5.49
	(δ - D)				41.7					-3.29			+22
	α_2									51	5.81		+8.40
										51	-4.24		+29.44
											1.57		
51	40	51.51	6.0	51	36.5	51	52.0	55.3	58.8	2.1	5.4	51	55.72
	50	33.7	7.5										+4.78
	κ	51	47.4	51	37.3	51	53.4	56.9	0.1	3.4	6.9	52	-0.14
	(δ - D)		5.7										-4.78
	α_1									-4.54			+26
										52	-2		-2
										51	59.60		+8.47
										51	-4.31	51.29	+29.34
	κ										5.42		
	(δ - D)		5.8	51	29.9	51	50.9	54.0	57.4	0.7	4.1	51	-5.49
	α_2		7.9							-3.28			+8.47
				51	30.5	51	52.2	55.6	58.7	2.1	5.5	51	-3.49
										-3.28			+29.34
													+23
													-2
													55.54
													-4.29
													51.25
													8.47
													59.72
2	28	21	51	40	9.3	27	Lost						
Dec. 16	27	16.2	51	35.8	8.9								
	κ												
	(δ - D)												
	α_2												
	κ												
	(δ - D)												
	α_1												
	κ												
	(δ - D)												
	α_2												
	κ												
	(δ - D)												
	α_1												
	κ												
	(δ - D)												
	α_2												

Single Observations

Lost

Runs $P_{\text{eq}} = -2.1701$ Dec. 16 16.86 Dec. 18

1873phae.pr

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'	
48 d	$+26.4$ 1.42160 9.79793 1.33524	4' 10.2	3.0'	14'	660	51 8 41.75 51 6 24.67 + 21.64			10'	51 6 46.38 - 18 + 49 + 9.48 + 46 - 26.25 6 38.38	+10.25	
$((\delta) - D) \frac{a'}{100}$												
δ_1		51 10.17		6 59.8								
d	$+27.4$ 1.43775 9.79793 1.35139	4 12.1	4.0	14	825	51 8 40.30 51 6 23.31 + 22.46			10	45.90 - 20 + 50 + 9.26 + 46 - 26.50 6 29.42	+10.02	
$((\delta) - D) \frac{a'}{100}$												
δ_2		51 9.97		6 58.9								
30 d	$+22.2$ 1.84635 $+22.8$ 1.85793 9.79079 1.26443	4 57.7 4 57.7 1.25285	48.7 46.7	29	5320 53.20 -1	51 52 55.15 51 52 55.15 51 50 38.64 51 50 38.64 + 17.90 + 18.38			25	51 50 56.04 - 13 + 59 + 10.31 + 49 - 26.25 50 41.05	50 56.52 - 14 + 59 + 10.81 + 49 - 26.25 50 42.52	+11.25
$((\delta) - D) \frac{a'}{100}$												
δ_1		51 58.34 51 58.34		51 10.4 11.2								
d	$+27.5$ 1.43983 $+28.3$ 1.45179 9.79063 1.35813	45 1.3 45 1.3 1.84567	52.1 52.1	28.7 28.9	56.70 56.70	51 53 51.65 51 53 51.65 51 50 34.69 51 50 34.69 + 22.16 + 22.81			25 25	51 56.95 - 20 + 47 + 10.07 + 49 - 26.55 51 41.23	51 57.60 - 21 + 47 + 10.07 + 49 - 26.55 51 41.87	+10.82
$((\delta) - D) \frac{a'}{100}$												
δ_2		51 58.32	51 58.32	51 10.6 11.2								
d												
$((\delta) - D) \frac{a'}{100}$												
δ_1												
d												
$((\delta) - D) \frac{a'}{100}$												
δ_2												
d												
$((\delta) - D) \frac{a'}{100}$												
δ_1												
d												
$((\delta) - D) \frac{a'}{100}$												
δ_2												

271
Date₁ = Dec. 29, 1873
h = +27

Observer M. A. R.
Recorder J. T. M.

274
Date₂ = Jan. 20, 1874
n = +24

Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sam	Mean	Red. to T_m	T
27	56	59 25	7.6	57	45.9	58 1.6	5.0	8.2	11.6	14.7	28	8.22	
26	51.8	51 20.3	7.0		47.3							+0.75	
					48.8							+ .34	
					47.3					+ 1.07		- 2	
(8) - D	κ'_{100}										28	9.29	
25 9	α_1											- 3.81	+8.16
26 26											28	5.48	+1601
													+32.02
			7.0	27	39.4	28 50.3	53.6	57.2	0.4	35	27	57.00	
	κ				42.0							+11.54	
					46.0							+ .30	
(8) - D	κ'_{100}				42.5					+ 11.82		- .02	
α_2											28	8.82	+408
											28	+ .72	
											28	9.54	+1601
28	56	52 15	8.8	28	33.4	28 57.3	0.5	3.7	7.3	18.7	29	3.90	
27	47.9	52 10.9	8.2		35.6							+0.75	
	κ				37.9							+ .35	
(8) - D	κ'_{100}				35.6					+ 1.08		- 2	
α_1											29	4.98	+8.24
											29	- 3.86	+31.90
											29	1.12	
			8.8	28	43.7	28 54.0	49.5	52.8	56.0	59.4	28	52.74	
	κ				46.7							+11.54	
(8) - D	κ'_{100}				57.0							+ .31	
α_2					46.8					+ 11.83		- 2	
											29	4.57	+412
											29	+ .72	+15.95
											29	5.29	
31	03	52 26	9.3	30	49.1	31 4.7	8.0	11.3	14.9	18.4	31	11.46	
29	54.8	52 21.8	9.0		51.7							+0.75	
	κ				52.6							+ .35	
(8) - D	κ'_{100}				50.8					+ 1.08		- 2	
α_1											31	12.54	+8.28
											31	- 3.70	+31.68
											31	8.64	
			9.0	30	34.8	30 53.3	56.8	0.2	3.6	7.1	31	0.20	
	κ				46.2							+11.54	
(8) - D	κ'_{100}				42.9					+ 11.83		+ .31	+4.14
α_2					38.3						31	- 2	+15.84
											31	12.03	
											31	+ .70	
											31	12.73	
32	25	52 08	8.8	32	13.3	32 34.4	37.7	41.2	44.5	47.8	32	41.12	
31	48.8	52 38	8.9		14.8							+0.75	
	κ				16.5							+ .35	
(8) - D	κ'_{100}				14.4					+ 1.08		- 2	
α_1											32	42.20	+8.27
											32	- 3.91	+31.54
											32	38.29	
31	18.8	52 3.7	8.8	31	53.4	32 12.0	16.4	19.9	23.7	26.5	32	19.90	
	κ				57.3							+11.54	
(8) - D	κ'_{100}				57.2							+ .31	
α_2										+ 11.83		- 2	
											32	31.73	+4.13
											32	+ .68	+15.77
											32	32.41	
35	02	51 24	9.0	34	41.9	35 5.7	9.3	12.4	15.6	19.1	35	12.42	
33	56.7	51 19.6	8.7		43.3							+0.75	
	κ				45.2							+ .34	
(8) - D	κ'_{100}				43.5					+ 1.07		- 2	
α_1											35	13.49	+8.24
											35	- 3.92	+31.24
											35	9.57	
			8.9	34	17.2	34 54.5	57.9	1.0	4.2	7.8	35	1.08	
	κ				20.2							+11.54	
(8) - D	κ'_{100}				22.9							+ .31	+4.12
α_2					34 19.3					+ 11.83		- 2	+15.62
											35	12.91	
											35	+ .66	
											35	13.57	

Dec. 29th Jan. 20th
 Runs $\log = -2' 13.78$ $-7' 31.56$
 Krs. = +.13 +.05
 $T_m - T$ A C Sum Mean Red. to m. wire Red. to h. wire Red. runs Stroke z 8'

1122	5	1' 17.9	10.8	56	14.35	51 26 34.00	55	51 24 37.24		
d	+20.9					51 24 20.73		-12	18.05	
((8) - D) $\frac{d'}{100}$	1.32015					+17.02	24 37.24	+16	49.5	
δ_1	9.79510							+7.54		
	1.23096							+47		
								-30.95		
		28 13.64		24 48.4	x.10			24 16.34		
d	+14.5	0 27.9	22.1	50	25.00	51 32 23.35	50	39.85		
((8) - D) $\frac{d'}{100}$	1.16137					51 24 51.80		-5	+9.20	
δ_2	9.77510					+11.84	24 39.85	+2		
	1.07325						25 3.63	+8.78		
		28 13.62		24 50.5				+45		
								-14.60		
d	+28.3	0 11.9	4.1	10	8.00	52 12 40.35	40	49.23		
((8) - D) $\frac{d'}{100}$	1.45179					52 10 26.48	15	15 21	44.05	
δ_1	9.78772					+22.66		+1	+10.66	
	1.35522						10 49.23	+10.36		
		29 9.36		16 0.7	x.10			+50		
d	+5.9	4 23.1	18.1	59	20.60	52 23 27.75	55	-31.05		
((8) - D) $\frac{d'}{100}$	0.77085					52 15 56.20		15 28.84		
δ_2	9.78674					+4.72	15 57.34	+1		
	0.67437						16 0.91	+10.86		
		29 9.41		16 4.0				+50		
								-14.90		
d	+30.7	4 12.2	38	54	8.00	52 28 40.35	50	15 48.03		
((8) - D) $\frac{d'}{100}$	1.31597					52 26 26.48				
δ_1	9.78510					+16.47	26 43.04	-12	+11.57	
	1.21678							+54		
		31 16.1		26 55.3				+10.65		
d	+20.9	3 19.0	13.6	48	16.30	52 34 32.05	45	+50		
((8) - D) $\frac{d'}{100}$	1.32015					52 27 0.30		-30.95		
δ_2	9.78494					+16.67	26 43.82	26 23.66		
	1.22187						27 17.16			
		31 16.87		26 56.3				+50		
								-15.00		
d	+26.2	3 18.9	112	13	15.05	52 9 33.30	10	26 40.42		
((8) - D) $\frac{d'}{100}$	1.41830					52 7 19.92				
δ_1	9.78821					+21.00	7 40.52	-18	+11.04	
	1.32222							+42		
		32 46.56		7 52.2				+10.30		
d	+22.7	0 31.6	24.9	5	28.25	52 17 20.10	5	+50		
((8) - D) $\frac{d'}{100}$	1.35603					52 9 48.55		-30.85		
δ_2	9.78772					+18.22	9 30.32	7 20.71		
	1.26053						10 6.76			
		32 36.54		9 42.5				+50		
								-14.70		
d	+28.9	0 45.1	36.9	53	41.00	51 27 7.35	55	9 26.74		
((8) - D) $\frac{d'}{100}$	1.46090					51 24 53.48				
δ_1	9.79494					+23.53	25 17.10	-23	+9.88	
	1.37155							+9		
		35 17.81		25 27.7				+9.54		
d	+41.8	4 26.5	20.9	49	23.70	51 33 24.65	45	+47		
((8) - D) $\frac{d'}{100}$	1.62118					51 25 53.48		-30.55		
δ_2	9.79478					-34.10		24 56.43		
	1.53274									
		35 17.69		25 28.7						

Date₁ = Dec. 29, 1873Observer W. A. R.
Recorder J. F. M.Date₂ = Jan. 20, 1874
m = +.24Observer
Recorder

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Ru

Star.	α	δ	Mag.	T_b	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
36	06 50 11	9.0	55 53.2	36 16.9	14.1	17.3	20.6	22.8	36	17.24			
35	05 50 6.4	8.4	55 56.6							+ 0.75			
			56.3							+ 3.2			
(δ) - D	κ'_{100}		56.7						+ 1.05				
a_1									36	18.39			+8.17
									36	- 3.88			+31.14
									36	14.51			
		8.2	35 55.5	35 59.5	2.6	6.0	9.4	12.5	36	6.00			
κ			53.0							+11.54			
(δ) - D	κ'_{100}		55.4							+ .29			
a_2			53.0						+ 11.81				
									36	- 2			
									36	17.81			+4.08
									36	+ 6.5			+15.57
									36	18.46			
37	06 52 41	8.4	37 2.8	37 21.6	24.8	28.3	31.8	35.3	37	28.34			
35	56.4 52 37.0	8.0	4.4							+ 0.75			
36	11.5 52 33.4		5.8							+ 3.5			
(δ) - D	κ'_{100}		4.3						+ 1.08				
a_1									37	- 2			
									37	29.42			+8.37
									37	- 4.00			+31.02
									37	25.42			
35	56.4 52 37.0	7.9	36 43.8	36 53.3	38.5	2.0	5.4	8.8	37	1.98			
κ			46.9							+11.54			
(δ) - D	κ'_{100}		49.3						+ 11.83				
a_2			46.7						37	- 2			
									37	13.71			+4.18
									37	+ 6.4			+15.51
									37	14.45			
38	06 51 35	8.8	38 4.8	38 10.6	13.8	17.1	20.6	23.9	38	17.204			
37	0.3 51 31.3	8.8	6.4							+ 0.75			
κ			8.3							+ 3.4			
(δ) - D	κ'_{100}		6.6						+ 1.07				
a_1									38	- 2			
									38	18.24			+8.29
									38	- 3.96			+30.92
									38	14.31			
		9.0	37 38.5	37 59.3	2.6	5.8	9.3	12.6	38	5.92			
κ			41.8							+11.54			
(δ) - D	κ'_{100}		44.3						+ 11.82				
a_2			41.5						38	- 2			
									38	17.84			+4.15
									38	+ 6.2			+15.46
									38	18.36			
39	27 51 00	8.3	39 0.7	39 10.7	14.0	17.4	20.9	23.9	39	17.34			
38	2.0 50 56.8	8.2	2.1							+ 0.75			
κ	0.0		4.3							+ 3.3			
(δ) - D	κ'_{100}		2.1						+ 1.06				
a_1									39	- 2			
									39	18.40			+8.26
									39	- 3.96			+30.76
									39	14.44			
		7.5	39 14.5	38 89.5	2.9	6.2	9.4	12.8	39	6.16			
κ		9.4								+11.54			
(δ) - D	κ'_{100}								+ 11.82				
a_2			38 41.5	39 18.9	18.8	22.3	25.4	28.8	39	- 3.0			
	38 15.5	50 55.8	48.7						39	+ 2	39 17.98		+4.13
			49.8						39	22.20	+ 6.0		+15.38
			41.2						39	+11.54	39 18.58		
									39	+ .30			
									39	- 2	39 34.02		
40	18 52 30	7.8	39 58.6	40 18.4	21.9	25.3	28.9	32.2	40	25.34			+4.13
39	8.0 52 25.1	8.3	40 2.0							+ 0.75			+15.38
κ			3.4							+ 3.5			
(δ) - D	κ'_{100}		6.3						+ 1.08				
a_1									40	- 2			
									40	26.42			+8.39
									40	- 4.03			+30.66
									40	22.39			
		8.2	39 58.4	40 9.2	10.7	14.0	17.4	20.8	40	14.02			
κ			6.5							+11.54			
(δ) - D	κ'_{100}		5.9						+ 11.83				
a_2			60.9						40	- 2			
									40	25.85			+4.19
									40	+ 6.1			+15.33
									40	26.46			

Runs Reg = Dec. 29 Jan 20
-2 13.78 -7 31.56
+.05

1873phae.p

	T _m - T	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'	
34	+20.6 1.31387 9.50641 1.23599	4 20.7	13.5	9	17.08	50 13 31.35 50 11 17.48 +18.03	11 35.60	5	50 11 35.60 - 12 + 54 + 8.24 + 41 - 30.30 11 14.37	+9.07		
d												
((8) - D) $\frac{d'}{100}$												
δ_1		36 22.68		11 45.5								
35	+13.0 1.11394 9.50625 1.03697	3 37.2	25.2	3	28.20	50 19 20.15 50 11 48.68 +10.89	11 37.70 59 48	0	3770 - 5 + 17 + 855 + 40 - 14.50 11 32.27	+9.07		
d												
((8) - D) $\frac{d'}{100}$												
δ_2		36 22.54		11 47.8								
36	+24.0 1.38021 9.78329 1.27921	3 10.1	0.9	48	5.50	52 39 42.85 52 37 28.78 +19.02	37 48.09	40	52 37 48.09 - 15 + 40 +10.84 + 50 - 30.65 37 29.03	+11.59		
d												
((8) - D) $\frac{d'}{100}$												
δ_1		37 32.79		38 0.0								
37	+15.3 1.18469 9.78246 1.08393	2 57.3	52.0	32	54.65	52 49 53.70 52 42 22.15 +12.13	42 34.27	30	42 10.01 - 6 + 14 +11.36 + 53 - 15.10 42 6.90	+11.99		
d												
((8) - D) $\frac{d'}{100}$												
δ_2		37 18.63		42 22.4								
38	+10.6 1.02531 9.79144 0.92246	3 42.4	35.0	48	38.70	51 39 9.65 51 36 55.78 + 8.36	37 42.3	40	51 37 42.3 - 3 + 47 + 9.76 + 48 - 30.45 36 44.46	+10.68		
d												
((8) - D) $\frac{d'}{100}$												
δ_1		38 22.60		37 15.4								
39	+24.4 1.38739 9.79304 1.29721	2 53.0	47.0	37	60.00	51 44 58.35 51 37 26.80 +19.82	37 46.61	35	6.97 - 15 + 54 +10.87 + 48 - 14.90 37 28.1	+10.74		
d												
((8) - D) $\frac{d'}{100}$												
δ_2		38 22.51		37 18.3								
40	+14.9 1.17319 9.79872 1.08762	4 38.3	20.2	19	24.25	51 3 24.10 51 1 10.23 +12.24	1 22.56	15	51 1 22.56 - 6 + 57 + 9.11 + 45 - 30.25 1 2.38	+10.07		
d												
((8) - D) $\frac{d'}{100}$												
δ_1		4 39 22.70		1 33.1								
41	-8.8 0.91908 9.79856 0.83442	8 3.0	58.0	124	0.50	51 98 47.85 51 98 47.85 51 81 16.30 51 81 16.30 +6.83 +31.27	23.12 2 9.46 1 45.02 2 47.56	10 10	12 23.12 - 2 + 9.94 + 10.18 + 9.94 + 45 - 14.50 12 18.26 50	45.02 - 39 + 2.54 + 7.45 - 14.50 37.74 40.03	+9.57 81	
d												
((8) - D) $\frac{d'}{100}$												
δ_2		39 22.71		1 33.9								
42	+24.0 1.38021 9.78445 1.28037	0 47.1	38.1	30	42.60	52 32 5.75 52 29 51.88 +19.07	30 11.04	50	52 30 11.04 - 15 + 9 +10.70 + 60 - 30.45 29 57.73	+11.14		
d												
((8) - D) $\frac{d'}{100}$												
δ_1		40 30.78		30 22.4								
43	+13.1 1.11727 9.78445 1.01850	4 55.5	49.0	44	52.25	52 37 56.10 52 30 24.55 +10.44	30 34.98	40	1410 - 5 + 24 +11.15 + 52 - 15.20 30 10.74	+11.86		
d												
((8) - D) $\frac{d'}{100}$												
δ_2		40 30.65		30 26.1								

271
Date₁ = Dec. 29, 1873

Observer N. A. K.
Recorder J. L. M.

274
Date₂ = Jan. 20, 1874
n = +24

Observer
Recorder

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Run

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_h	Sum	Mean	Red. to T_m	T
41	27	52 04	9.1	41 10	41 30.2	33.7	36.9	40.3	43.7	47	36.96	
40	16.5	52 0.0	9.2	110	124						+ 0.75	
κ				14.3							+ 3.5	
(8) - D	$\frac{\kappa'}{100}$			12.4					+ 1.08	41	38.04	+8.37
a_1										41	34.01	+30.54
41	10	52 18.8	9.3	41 10	41 18.8	22.3	25.8	28.9	32.4	41	25.14	
κ				3.4							+ 11.54	
(8) - D	$\frac{\kappa'}{100}$			6.8					+ 11.83	41	37.57	+4.18
a_2				5.7						41	38.06	+15.27
42	31	52 44	8.0	42 1.5	42 28.9	32.2	35.6	39.0	42.5	42	35.64	
41	19.6	52 39.3	8.7								+ 0.75	
κ											+ 3.5	
(8) - D	$\frac{\kappa'}{100}$								+ 1.07	42	36.71	+8.43
a_1										42	32.64	+30.42
42	9.9	52 17.6	8.8	42 9.9	42 17.6	21.1	24.6	27.9	31.4	42	24.50	
κ				10.5							+ 11.54	
(8) - D	$\frac{\kappa'}{100}$			12.7					+ 11.82	42	36.34	+4.22
a_2				10.4						42	36.98	+15.21
43	27	52 52	7.7	43 3.9	43 26.9	25.3	33.8	37.3	40.7	43	33.80	
42	15.2	52 47.6	8.2								+ 0.75	
κ				6.0							+ 3.6	
(8) - D	$\frac{\kappa'}{100}$			7.5					+ 1.08	43	34.88	+8.46
a_1				5.8						43	30.79	+30.30
43	9.0	52 15.7	8.1	43 9.0	43 15.7	19.0	22.7	26.2	29.5	43	22.62	
κ				11.4							+ 11.54	
(8) - D	$\frac{\kappa'}{100}$			14.6					+ 11.83	43	34.45	+4.23
a_2				11.6						43	35.03	+15.15
45	11	52 14	5.0	44 52.8	45 12.3	15.7	19.0	22.4	25.8	45	19.04	
43	59.9	52 9.4	4.2								+ 0.75	
κ				54.9							+ 3.5	
(8) - D	$\frac{\kappa'}{100}$			56.3					+ 1.08	45	20.12	+8.42
a_1				44.7						45	16.03	+30.10
44	34.0	52 11.1	4.0	44 34.0	45 1.1	4.6	7.8	11.1	14.6	45	7.84	
κ				37.1							+ 11.54	
(8) - D	$\frac{\kappa'}{100}$			39.4					+ 11.83	45	19.67	+4.21
a_2				36.8						45	20.23	+15.05
46	17	51 44	9.0	46 2.5	46 22.8	26.2	29.4	32.9	36.3	46	29.52	
45	10.4	51 40.3	9.2								+ 0.75	
κ				4.0							+ 3.4	
(8) - D	$\frac{\kappa'}{100}$			5.8					+ 1.07	46	30.59	+8.40
a_1				4.1						46	26.50	+29.98
46	47.0	51 11.9	9.2	46 47.0	46 11.9	15.1	18.4	21.7	25.0	46	17.49	
κ				47.1							+ 11.54	
(8) - D	$\frac{\kappa'}{100}$			53.4					+ 11.82	46	30.24	+4.20
a_2				47.7						46	30.78	+14.99

Runs $R_{29} = -2' 13.78''$ Dec. 29 " Jan 20 "
 $-7' 31.56''$
 $+ .05$

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
22	+24.4 1.38739 9.78869 1.29179	1' 33.1	25.4	16'	29.25	52 6 19.10 52 4 5.23 +19.58			15'	52 4 24.90 -15 +19 +10.23 +50 -3030 4 5.37	+10.77
d								4	24.90		
((S) - D) $\frac{d'}{100}$											
δ_1		41 42.38		4 35.9							
21	+21.9 1.34044 9.78863 1.24575	0 36.1	30.0	10	33.05	52 12 15.30 52 4 43.75 +17.61			10	26.13 -13 +3 +10.66 +50 -15.10 4 22.09	+11.06
d								4	26.13		
((S) - D) $\frac{d'}{100}$								5	1.35		
δ_2		41 42.24		41 37.4							
14	+34.1 1.53275 9.78875 1.43244 0.76	2 57.9	49.1	37	53.50	52 44 54.85 52 32 46.98 +27.07 +26.96			35	52 43 8.14 -30 +37 +10.94 +50 -3035 42 49.30-49.29	8.03 +11.51
d								43	8.14		
((S) - D) $\frac{d'}{100}$								8	23		
δ_1		42 41.07		43 19.6							
11	+14.1 1.14722 9.78230 1.04830	1 58.3	52.1	31	53.20	52 50 53.15 52 43 21.60 +11.18			30	10.41 -5 +9 +11.39 +53 -15.30 43 7.07	+11.96
d								43	32.77		
((S) - D) $\frac{d'}{100}$											
δ_2		42 41.15		43 22.3							
20	+38.0 1.44716 9.78097 1.34384	4 36.0	28.0	29	32.00	52 53 16.35 52 57 2.48 +22.07			25	52 51 24.64 -21 +57 +11.08 +50 -3030 51 6.30	+11.96
d								51	24.64		
((S) - D) $\frac{d'}{100}$											
δ_1		43 39.25		51 36.6							
10	+11.0 1.04139 9.78080 0.93897	3 44.9	38.8	23	41.85	52 59 6.50 52 57 34.98 +8.69			20	26.25 -3 +18 +11.54 +53 -15.30 51 23.19	+12.24
d								51	43.63		
((S) - D) $\frac{d'}{100}$											
δ_2		43 39.26		51 38.3							
16	+24.3 1.38561 9.78707 1.28839	1 13.1	5.4	6	9.25	52 16 39.10 52 14 25.23 +19.43			5	52 14 44.75 -15 +15 +10.43 +50 -3010 14 25.58	+10.93
d								14	44.75		
((S) - D) $\frac{d'}{100}$											
δ_1		45 24.45		14 55.7							
12	+31.0 1.49186 9.78691 1.39505	0 7.0	1.4	0	4.20	52 22 44.15 52 15 12.64 +24.84			0	47.75 -25 +10.0 +10.86 +51 -15.20 14 43.67	+11.12
d								15	47.75		
((S) - D) $\frac{d'}{100}$								15	37.48		
δ_2		45 24.44		14 58.7							
17	+25.4 1.40483 9.77176 1.31230	0 46.6	40.3	35	44.45	57 47 3.90 57 44 50.63 +20.53			35	51 45 10.65 -17 +9 +9.90 +49 -3000 44 50.96	+10.31
d								45	10.65		
((S) - D) $\frac{d'}{100}$											
δ_1		46 34.90		45 20.9							
13	+28.7 1.45788 9.79160 1.31626 0.36642	4 45.0	38.9	29	41.95	51 53 6.40 51 45 34.83 +20.71 -23.25			25	11.59 -22 +23 +10.41 +49 -15.10 45 9.44-9.40	+10.91
d								45	55.55		
((S) - D) $\frac{d'}{100}$											
δ_2		46 34.98		45 22.4							

Date₁ = Dec. 29, 1873Observer W. A. R.
Recorder J. F. M.Date₂ = Jan. 20, 1874
n = +24Observer
Recorder

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Runs

Star.	α	δ	Mag.	T_1	T_m	T_s	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
47	50	50 16	8.5	47 33.7	47 54.1	57.8	1.2	4.3	7.5	48	1.10		
κ				38.9	36.0						+0.75		
(8) - D				34.9					+1.05	48	+32		
α_1											-2		
											2.15		+8.30
										48	-4.04		+29.80
										47	58.11		
			8.8	47 20.4	47 43.5	46.4	49.9	53.0	56.5	47	49.92		
κ				26.4	28.9						+11.54		
(8) - D				26.2					+11.81	48	+1.29		
α_2											-2		
										48	1.73		+4.15
										48	+51		+14.90
										48	2.24		
48	37	52 24	9.0	48 26.1	48 39.4	43.0	46.2	49.7	53.1	48	46.28		
κ			8.8	24.4	29.1						+0.75		
(8) - D				27.5					+1.08	48	+3.5		
α_1											-2		
										48	47.36		+8.48
										48	-4.14		+29.70
										48	43.22		
			8.8	48 12.5	48 28.4	31.0	35.0	38.3	42.0	48	35.06		
κ				15.3	18.1						+11.54		
(8) - D				15.5					+11.83	48	+31		
α_2											-2		
										48	46.89		+4.24
										48	+52		+29.70
										48	47.41		+14.85
50	38	50 51	9.7	50 23.7	50 44.1	47.1	52.5	53.8	57.2	50	50.54		
κ			8.9	24.3	26.0						+0.75		
(8) - D				24.3					+1.06	50	+33		
α_1											-2		
										50	51.60		+8.37
										50	-4.11		+29.46
										50	47.49		
			9.0	49 28.5	49 42.0	45.3	48.4	51.9	55.2	49	48.56		
κ			8.9	30.6	33.0				+11.82	49	+11.54		
(8) - D				31.7							+1.30		
α_2				50 33.0	50 33.6	36.0	39.2	42.5	45.8	50	39.22	50 0.38	
				34.8					+11.82		+11.54	50 +0.50	+4.19
				37.0							+30	50 0.88	+14.73
				37.6							-2	50 51.04	
53	03	50 56	8.8	53 41.6	53 9.1	12.5	15.8	19.1	22.5	53	15.80		
κ			8.6								+0.75		
(8) - D									+1.06		+33		
α_1											-2		
										53	16.86		+8.41
										53	-4.14		+29.18
										53	12.72		
			8.3	52 20.1	52 58.0	1.3	4.4	7.9	11.8	53	4.41		
κ				24.5	30.0						+11.54		
(8) - D				30.2					+11.82	53	+30		
α_2											-2		
										53	16.34		+4.20
										53	+4.6		+14.59
										53	16.80		
54	03	50 55	8.8	53 48.0	54 8.8	12.0	15.5	18.5	21.9	54	15.34		
κ			8.6	49.3	51.2						+0.75		
(8) - D				44.5					+1.06		+33		
α_1											-2		
										54	16.40		+8.41
										54	-4.15		+29.06
										54	12.25		
			8.8	53 29.6	53 57.5	0.7	4.0	7.3	10.6	54	4.02		
κ				32.4	35.4						+11.54		
(8) - D				32.5					+11.82	54	+30		
α_2											-2		
										54	15.84		+4.21
										54	+4.5		+14.53
										54	16.29		

Runs

Dec. 29 Jan. 20
 Reg = -2 13.78 -7 31.56
 +.05

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'	
18	+26.2 1.41830 9.80550 1.33951	3' 51.0	44.0	3'	47.50	50 19 0.85 50 16 46.78 +21.85			0'	50 17 8.92 -18 +49 +8.32 +41 -27.60 16 48.36	+9.04	
d								17 8.92				
(8) - D) $\frac{d'}{100}$												
δ_1		48 6.41		17 18.2	-1"							
22	+23.7 1.37475 9.80534 1.29687m	2 49.0	43.5	57	46.25	50 25 2.10 50 17 30.54 -19.81			55	11.73 17 50.35	+9.07	
d												
(8) - D) $\frac{d'}{100}$												
δ_2		48 6.39		17 21.0								
22	+18.8 1.27416 9.78560 1.17547	2 23.7	14.9	57	19.40	52 25 28.95 52 23 15.08 +14.98			55	52 23 30.15 -10 +30 +10.57 +50 -27.95 23 11.49	+11.29	
d												
(8) - D) $\frac{d'}{100}$												
δ_1		48 51.70		23 41.2								
22	+19.6 1.29226 9.78543 1.19447m	1 34.0	27.5	51	30.75	52 31 17.60 52 23 46.05 +15.65			50	30.49 -11 +7 +10.07 +42 -15.30 23 26.58 11.39	+11.39	
d												
(8) - D) $\frac{d'}{100}$												
δ_2		48 51.65		23 41.3								
22	+26.2 1.41830 9.77934 1.33335	3 41.4	33.2	28	37.30	50 54 11.05 50 56 57.78 +21.54			25	50 58 18.81 -18 +47 +9.05 +45 -27.55 56 59.05	+9.749	
d												
(8) - D) $\frac{d'}{100}$												
δ_1		50 55.86		52 28.5								
22	+17.9 1.25285 9.80027 1.16990m	4 28.4 2 48.9	22.3 43.0	24 22	25.35 45.75	50 58 23.00 51 0 52.40 50 50 51.45 50 52 30.85 +14.79 +12.06	50 36.60 51 6.23 52 18.78		20 20	50 36.65 -0.9 +22 +9.30 +45 -14.90 50 31.63	52 18.78 -6 +14 +9.31 +45 -14.90 52 13.72	+9.84
d												
(8) - D) $\frac{d'}{100}$												
δ_2		50 50.4 50 55.74		52 28.4								
32	+34.2 1.53403 9.77950 1.44924	4 36.6	29.5	24	33.05	50 58 15.30 50 56 1.42 +12.55 28.13	56 13.57		20	50 56 29.65 -81 +59 +9.04 +45 -27.40 56 10.22	+9.77	
d												
(8) - D) $\frac{d'}{100}$												
δ_1		53 21.13		56 37.2								
22	+34.2 1.53403 9.77934 1.45015m	3 20.3	14.9	18	17.60	57 4 30.75 50 56 59.26 +28.20			15	30.99 -31 +16 +9.37 +45 -15.30 56 25.38	+9.69	
d												
(8) - D) $\frac{d'}{100}$												
δ_2		53 21.00		56 40.0								
32	+25.8 1.41162 9.77965 1.32698	0 18.1	10.9	25	14.50	50 57 33.65 50 55 17.78 +21.23			25	50 55 41.30 -18 +3 +9.03 +45 -27.30 55 21.33	+9.33	
d												
(8) - D) $\frac{d'}{100}$												
δ_1		54 20.66		55 50.4								
22	+31.5 1.49581 9.77980 1.41459m	4 11.4	5.7	19	8.55	57 3 39.50 50 56 8.25 +25.98			15	42.26 -26 +20 +9.39 +45 -15.30 55 36.74	+9.78	
d												
(8) - D) $\frac{d'}{100}$												
δ_2		54 20.50		55 51.3								

Date₁ = Dec 29, 1873Observer N. A. R.
Recorder J. F. M.Date₂ = Jan 20, 1874

n = +.24

Observer
Recorder

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Star.	α	δ	Mag.	T_0	T_m	T_e	T_p	T_s	T_h	Sum	Mean	Red. to T_m	T
271 54	85 20.0	53 56.0	4.0 3.2	33 13.6	33 33.4	36.6	39.8	43.2	46.1	53	39.66 + 0.75 + 3.6 - 3		
(8) - D)	κ'									55	40.94 - 4.27		
α_1										55	36.67	+8.61 +28.88	
55	37	52	8.5	54	53	23	28	32	35	55	28.50 +11.54 + 3.2 - 3		
(8) - D)	κ'									55	40.63 + 4.6		
α_2										55	41.09	+4.30 +14.44	
56	37	52	8.6	56	57	41	44	47	51	56	44.20 + 0.75 + 3.5 - 2		
(8) - D)	κ'									56	45.28 - 4.25		
α_1										56	41.03	+8.55 +28.76	
56	37	52	8.5	56	56	29	32	34	39	56	32.92 +11.54 + 3.1 - 2		
(8) - D)	κ'									56	44.75 + 4.4		
α_2										56	45.19	+4.28 +14.38	
58	12	51	9.0	58	59	23	26	29	33	58	26.26 + 0.75 + 3.4 - 2		
(8) - D)	κ'									58	27.43 - 4.26		
α_1										58	23.17	+8.54 +28.54	
59	32	11	8.5	59	58	11	15	18	21	58	18.06 +11.54 + 3.1 - 2		
(8) - D)	κ'									58	26.89 + 4.1		
α_2										58	22.30	+4.27 +14.27	
3	17	53	9.7	17	18	14	18	21	25	18	18.28 + 0.75 + 3.3 - 2		
(8) - D)	κ'									18	19.34 - 4.44		
α_1										18	14.90		
19 23	17	53	9.3	17	17	52	56	59	25	17	56.04 +11.54 + 2.9 - 2		
(8) - D)	κ'									18	7.85 + 1.8		
α_2										18	8.03	+4.30 +13.01	
20	47	50	8.8	21	20	57	0.4	3.6	7.0	20	0.44 + 0.75 + 3.3 - 2		
(8) - D)	κ'									21	1.50 - 4.50		
α_1										20	57.00	+8.68 +25.64	
20	47	50	9.0	20	20	46	47	52	56	20	4.94 +11.53 + 3.0 - 2		
(8) - D)	κ'									21	1.21 + 2.0		
α_2										21	1.41	+4.34 +12.82	

Runs $\phi_{eq} = \begin{matrix} \text{Dec } 29'' \\ -2' 13.78'' \end{matrix} \quad \begin{matrix} \text{Jan } 20'' \\ -7' 31.56'' \\ +.05'' \end{matrix}$

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
06 d	+26.3 1.41996 9.77946 1.31513	5 17.0	8.8	20	1298	53 2 35.351 53 0 21.82 +20.66			20	53 0 92.27 -18 +3 +11.25 +50 -29.55 0 29.32	+11.60
((8) - D) $\frac{d'}{100}$								0 42.27			
δ_1		55 45.28		0 53.2							
d	+32.4 1.51055 9.77946 1.40679	4 40.3 10.35	3.3	14	26.80 6.80	53 8 41.55 1 9.99 -25.51			10	0 44.48 -27 +20 +11.72 +53 -15.40 0 47.26	+12.18
((8) - D) $\frac{d'}{100}$											
δ_2		55 45.39		0 55.7							
28 d	+20.7 1.31597 9.78707 1.21875	3 3.8	51.2	16	57.50	52 15 50.85 52 18 36.78 +16.55			5	52 18 53.62 -12 +26 +10.41 +50 -29.35 13 35.32	+11.05
((8) - D) $\frac{d'}{100}$								13 53.62			
δ_1		56 49.58		13 4.1							
d	+13.9 1.14301 9.78723 1.04702	2 14.9	8.9	2	11.90	52 20 36.45 52 13 4.90 +11.14			0	12 53.75 -5 +11 +10.86 +57 -15.10 12 50.08	+11.43
((8) - D) $\frac{d'}{100}$								13 16.03			
δ_2		56 49.47		13 4.5							
30 d	+25.3 1.40312 9.79095 1.30978	0 20.1	12.9	30	16.50	51 52 31.85 51 50 17.98 +20.41			30	51 50 38.48 -17 +3 +10.01 +49 -29.15 50 19.69	+10.36
((8) - D) $\frac{d'}{100}$								50 38.48			
δ_1		58 31.71		50 48.2							
d	+33.7 1.52763 9.79079 1.43520	4 12.0	6.1	24	905	51 58 89.30 51 51 7.75 +27.24			20	40.50 -31 +21 +10.42 +49 -15.10 50 36.21	+10.81
((8) - D) $\frac{d'}{100}$								50 34.98			
δ_2		58 31.57		50 50.5							
24 d	+23.5 1.37107 9.80305 1.28983	2 29.8	22.2	47	26.00	50 35 22.35 50 33 8.48 +19.49			45	50 33 28.06 -14 +31 +8.62 +43 -27.50 33 9.78	+9.22
((8) - D) $\frac{d'}{100}$								33 28.06			
δ_1											
d	+42 0.62325 9.80397 0.54400	3 2.8	57.4	48	010	50 34 48.25 50 28 16.78 +3.50			45	27 13.19 +15 +8.82 +43 -15.00 27 6.758	+9.39
((8) - D) $\frac{d'}{100}$								27 20.19			
δ_2		18 12.33		26 20.6							
d	+27.2 1.43457 9.79965 1.34993	0 33.0	24.1	25	28.55	50 57 19.84 50 55 5.93 +22.38			25	50 54 43.64 -19 +6 +9.01 +44 -27.30 54 25.66	+9.32
((8) - D) $\frac{d'}{100}$								54 43.64			
δ_1		21 5.68		54 51.3							
d	+31.8 1.50243 9.79965 1.41886	0 6.9	59.9	20	340	50 2 44.95 50 55 13.46 +26.23			20	47.16 -27 +50 +9.38 +44 -15.20 54 41.51	+9.55
((8) - D) $\frac{d'}{100}$								54 41.51			
δ_2		21 5.75		54 54.3							

Date₁ = 271
Dec. 29, 1873Observer
RecorderDate₂ = 274
Jan. 20, 1874
n = +24Observer
Recorder

62

Ru

Star.	α	δ	Mag.	T_a	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
21	38 50 02	7.7	51 48.7	51 33.7	56.9	5.1	3.3	6.6	22	0.12			
20	39.4 50 -12	7.0	52.0	52.1						+ 0.75			
κ			52.5							+ 32			
$((\delta) - D) \frac{\kappa'}{100}$			52.1							- 2			
α_1										+ 1.05			
										22	1.17		
										- 4.46			+8.61
										21	5.671		+2.550
			7.0	21 16.6	21 42.6	46.0	49.0	52.2	55.5	21	49.06		
κ			25.0							+11.53			
$((\delta) - D) \frac{\kappa'}{100}$			22.6							+ .29			
α_2			14.7							- 2			
										+ 11.80			
										22	0.86		
										+ 1.19			+4.30
										22	1.03		+12.75
22	28 50 00	8.0	22 49.7	22 34.2	37.5	45.6	43.8	47.2	22	40.66			
21	19.8 50 -57	8.0	50.9							+ 0.75			
κ			52.5							+ 32			
$((\delta) - D) \frac{\kappa'}{100}$			51.0							- 2			
α_1										+ 1.05			
										22	41.71		
										- 4.47			+8.61
										22	37.24		+2.542
			7.9	22 30.2	22 33.3	26.3	29.5	32.8	35.9	22	29.56		
κ			22.1							+11.53			
$((\delta) - D) \frac{\kappa'}{100}$			24.5							+ .29			
α_2			21.2							- 2			
										+ 11.80			
										22	41.36		+4.30
										+ 1.19			
										22	41.53		+12.71
24	47 50 09	8.9	24 39.6	24 53.4	56.5	59.9	3.1	6.4	24	59.86			
23	38.2 50 52	9.0	32.2							+ 0.76			
κ			33.9							+ 32			
$((\delta) - D) \frac{\kappa'}{100}$			31.7							- 2			
α_1										+ 1.06			
										25	0.92		
										- 4.51			+8.64
										24	56.41		+2.510
			9.0	24 19.3	24 42.4	45.5	48.7	51.9	55.2	24	48.94		
κ			16.6							+11.53			
$((\delta) - D) \frac{\kappa'}{100}$			17.0							+ .29			
α_2			16.6							- 2			
										+ 11.80			
										25	0.54		
										+ 1.15			+4.32
										25	0.69		+12.55
25	24 50 17	9.0	25 26.0	25 30.7	38.7	39.0	45.2	43.5	25	37.02			
24	15.0 50 14.0	9.0	27.3							+ 0.76			
κ			29.0							+ 32			
$((\delta) - D) \frac{\kappa'}{100}$			27.4							- 2			
α_1										+ 1.06			
										25	38.08		
										- 4.51			+8.66
										25	33.57		+2.502
			8.9	25 44.5	25 19.4	23.6	26.0	29.1	32.5	25	25.92		
κ			47.4							+11.53			
$((\delta) - D) \frac{\kappa'}{100}$			47.3							+ .29			
α_2			47.1							- 2			
										+ 11.80			
										25	37.72		+4.33
										+ 1.15			
										25	37.87		+12.51
2	25 09 52 14	8.5	24 49.5	Single Observations.									
24	4.4 51 57.8	8.5	51.0	25 16.5	19.0	22.1	25.7	29.0	25	22.26			
κ			53.1							+ 0.74			
$((\delta) - D) \frac{\kappa'}{100}$			51.2							+ 35			
α_1										- 2			
										+ 1.07			
										25	23.33		+8.18
										- 3.80			+32.30
										25	19.53		
26	26 50 37	9.0	26 18.9	26 31.1	34.2	37.5	40.8	44.1	26	37.54			
25	21.8 50 32.0	9.0	22.4							+ 0.75			
κ			21.4							+ 33			
$((\delta) - D) \frac{\kappa'}{100}$										- 2			
α_2										+ 1.06			
										26	38.60		+8.09
										- 3.76			+32.18
										26	34.84		

Runs $R_{eq} = -2.1378$ Dec 29 Jan. 20
 -7.3156
 $+ .05$

63

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
06	+10.0	2' 52.2	45.1	17	48.65	50 4 59.70			15	50 2 54.30	
d	1.00000					50 2 45.83				-3	+8.81
(8) - D) $\frac{d'}{100}$	9.80762					+8.38				+36	
δ_1	0.92333						2	54.30		+8.08	
		22 5.32		3X 1.5						+40	
				11	59.					-27.10	
										2. 3601	
d	+29.4	1 58.9	1.9	12	8.40	50 10 47.95			10	57.69	✓
(8) - D) $\frac{d'}{100}$	1.46885					50 3 18.33				-23	+8.69
δ_2	9.80762					724.70	2	51.69		+10	
	1.39275						3	41.04		+8.41	
		22 5.33		2 59.1						+41	
										-15.00	
										2. 45.38	
										46.38	
10	+10.3	1 38.3	29.1	21	33.70	50 1 14.65			20	49 58 52.23	
d	1.01284					49 59 0.98				-3	+8.57
(8) - D) $\frac{d'}{100}$	9.80822					-8.64				+20	
δ_1	0.93677									+8.00	
		22 45.85		58 59.2						+40	
										-27.05	
										58 33.75	
d	+7.4	1 17.9	11.7	16	14.80	50 6 33.55			15	55.76	
(8) - D) $\frac{d'}{100}$	0.86923					49 59 2.88				-2	+8.80
δ_2	9.80822					76.23				+6	
	0.79423						58 55.76			+8.36	
		22 45.83		59 2.4			59 8.22			+40	
										-14.90	
										58 49.66	
12	+28.0	1 39.1	30.9	11	35.80	50 11 13.33			10	50 9 22.99	
d	1.44716					50 8 59.48				-21	+8.58
(8) - D) $\frac{d'}{100}$	9.80671					+23.42				+20	
δ_1	1.36958						9	22.99		+8.18	
		25 5.05		9 29.8						+41	
										-26.85	
										9 4.72	
d	+32.1	0 27.8	21.6	5	24.70	50 17 23.65			5	25.17	
(8) - D) $\frac{d'}{100}$	1.50651					50 9 52.10				-28	+8.67
δ_2	9.80671					726.92	9	25.17		+2	
	1.43000						10	19.0+		+8.53	
		25 5.01		9 31.4						+40	
										-16.00	
										9 18.84	
10	+9.6	2 36.0	27.9	2	31.95	50 20 16.40			0	50 18 10.62	
d	0.98227					50 18 2.63				-3	+9.05
(8) - D) $\frac{d'}{100}$	9.80534					+8.00				+32	
δ_1	0.90332									+8.84	
		25 42.23		18 17.9						+42	
										-26.80	
										17 52.87	
d	-21.2	2 26.0	19.8	57	22.90	50 25 25.45			55	11.61	
(8) - D) $\frac{d'}{100}$	1.82634					50 17 53.96				-12	+9.10
δ_2	9.80534					+17.72				+12	
	1.24846						18	11.61		+8.69	
		25 42.20		18 18.2						+41	
										-15.00	
										18 57.1	
d	+31.1	1 17.8	9.9	16	13.85	52 6 34.59			15	52 4 45.68	
(8) - D) $\frac{d'}{100}$	1.49276					52 4 20.63				-26	+10.65
δ_1	9.78567					+24.96				+16	
	1.39716						4	45.68		+40.25	
		25 27.71		4 57.7						+50	
										-36.52	
										4 25.38	
d	+17.1	2 43.0	35.6	42	39.30	50 40 9.05			40	50 38 9.43	
(8) - D) $\frac{d'}{100}$	1.23300					50 32 37.50				-8	+9.39
δ_2	9.80228					+14.22				+34	
	1.15099						32	51.71		+8.70	
		26 42.93		38 20.1						+43	
										-36.70	
										37 47.92	

Single Observations.

Date₁ = Dec. 29, 1873Observer H. A. R.
Recorder J. F. M.Date₂ = Jan. 20, 1874
m = +.24Observer
Recorder

Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T.
19	23	50 00	9.1	19 47.4	19 28.8	32.0	36.2	38.4	41.6	19	35.20		
18	14.1	50 -4.0	8.5						+ 1.05		+ 0.75		
18	14.1	50 -4.0	7.7	19 44.6	29.0	32.2	35.4	38.6	41.8	19	35.40	19 36.25	+8.58
									+ 1.05		+ 0.75	- 4.43	+25.82
											+ .32	19 31.82	
											- 2		
												19 36.45	+8.58
												- 4.43	+25.82
												19 32.02	
2	59	51 36	9.0	59 18.2	59 44.4	47.6	50.9	54.4	57.6	59	50.98		
58	43.6	51 32.2	9.0	21.1							+11.54		
				24.9							+ .30		
				21.4							- 2		
											0	2.80	
											+ 0.40		+4.26
											0	3.20	+14.17
3	01	52 40	6.8	1 25.5	1 32.3	35.6	39.2	42.5	46.0	1	39.12		
10	29.4	52 35.8	7.0	27.3							+11.54		
				27.5							+ .31		
				27.4							- 3		
											1	50.94	+4.32
											+ 0.39		+14.06
											1	51.33	
3	03	52 23	7.8	2 58.6	3 13.0	16.3	19.7	23.0	26.4	3	19.68		
02	9.0	52 19.0	8.3	1.3							+11.54		
				4.2							+ .31		
				61.4							- 2		
											3	31.51	+4.32
											+ 0.37		+13.96
											3	31.88	
3	04	51 18	7.7	3 57.0	4 27.0	30.4	33.5	37.0	40.4	4	33.66		
03	24.7	51 14.6	7.8	0.3							+11.54		
				2.8							+ .30		
				65.0							- 2		
											4	45.48	+4.28
											+ 0.35		+13.88
											4	45.83	
3	05	51 06	8.3	5 35.0	5 38.1	31.3	34.7	37.9	41.0	5	39.60		
14	32.4	51 2.3	8.6	35.8							+11.54		
				25.4							+ .30		
											- 2		
											5	46.42	
											+ 0.34		
											5	46.76	
3	06	52 39	9.8	6 58.2	6 43.9	47.0	50.5	53.9	57.5	6	50.56		
05	45.2	52 34.6	9.5	59.5							+11.54		
				6.7							+ .32		
				57.5							- 3		
											7	23.9	
											+ 0.34		
											7	27.3	
3	10	51 36	8.6	10 19.4	10 44.0	47.2	50.6	54.0	57.5	10	50.66		
09	37.2	51 32.2	8.6	31.8							+11.54		
				24.1							+ .30		
				21.8							- 2		
											11	24.8	+4.32
											+ 0.29		+13.47
											11	27.7	
3	11	52 02	8.9	11 37.3	11 57.2	54.6	58.0	1.5	4.7	11	58.00		
10	46.7	52 58.5	8.8	30.3							+11.54		
				32.6							+ .31		
				56.1							- 2		
											12	9.83	+4.35
											+ 0.28		+13.41
											12	10.11	
3	12	50 38	8.7	12 25.5	12 37.4	40.6	43.9	47.0	50.4	12	43.66		
11	34.5	50 34.2	8.8	38.2							+11.54		
				30.4							+ .29		
				28.0							- 3		
											12	55.66	+4.29
											+ 0.27		+13.35
											12	55.98	

Runs

Dec 29 Jan 20
 $R_p = -2.1378$ -7.3156
 $+0.05$

65

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	-412.2 1.08636 9.80807 -9.8 0.96379 9.80807	0' 40.9 40.9 1.01014	33.7 33.7	26 20	37.30 37.30	50 2 11.05 50 2 11.05 49 59 54.87 49 59 54.87 -10.24 -7.72	59 47.03 59 47.03 59 49.55		20 20	49 59 47.03 -4 +8 +8.02 +40 -27.30 59 28.19	59 49.55 -3 +8 +8.02 +40 -27.30 59 30.72
$(\delta) - D) \frac{d'}{100}$											
δ_1	+29.6 1.47129 9.79288 1.38095	2 20.1 20.1	13.4	37	16.75	51 45 31.60 51 38 0.08 +24.04 38 24.08			35	51 37 36.00 -24 +11 +10.17 +48 -15.20 37 31.32	+10.52
d	+11.7 1.06819 9.78280 0.96777	0 24.8 24.8	16.7	35	20.75	52 47 27.60 52 39 56.04 +9.29 39 46.75 40 5.33			35	52 39 46.75 -4 +2 +11.35 +10.22 +48 -15.50 39 43.03	+11.78
$(\delta) - D) \frac{d'}{100}$											
δ_1	+18.3 1.26245 9.78543 1.16466	0 50.6 50.6	43.2	50	46.90	52 32 1.45 52 24 29.90 +14.61 24 44.56			50	52 24 15.28 -9 +3 +11.04 +47 -15.40 24 11.2633	+11.45
d	+33.7 1.52763 9.79589 1.44030	1 9.8 9.8	4.1	56	6.95	51 26 41.40 51 19 9.85 +27.56 19 42.28 19 37.40			55	51 18 42.28 -31 +5 +9.83 +46 -15.20 18 37.11	+10.03
$(\delta) - D) \frac{d'}{100}$											
δ_1	+9.2 0.96379 9.79621 0.87678	3 10.1 10.1	4.3	58	7.20	51 24 41.15 51 17 9.68 +7.53 17 17.12			55	51 17 2.06 -3 +15 +9.75 +46 -15.20 16 57.19	+10.33
d	-8.9 0.94939 9.78379 0.84996	1 40.2 40.2	33.3	41	36.75	52 41 11.60 52 33 40.05 +7.08 33 32.96			40	52 33 47.12 -3 +8 +11.22 +47 -15.50 33 43.36	+11.74
$(\delta) - D) \frac{d'}{100}$											
δ_1	+28.9 1.46090 9.79304 1.32072	3 24.1 24.1	17.9	38	21.00	51 44 27.35 51 36 55.80 +20.45 36 35.34 -23.48 37 16.24			35	51 36 35.34 -22 +17 +10.16 +48 -15.30 36 30.63	+10.59
d	+27.9 1.44560 9.78886 1.35124	1 57.0 57.0	49.5	11	53.25	52 10 55.10 52 3 23.53 +22.45 3 45.99			10	52 3 1.09 -21 +14 +10.65 +50 -15.40 2 56.77	+11.08
$(\delta) - D) \frac{d'}{100}$											
δ_1	+15.9 1.20140 9.80213 1.12031	1 12.5 12.5	6.9	36	9.70	50 46 38.65 50 39 7.18 +13.19 39 53.90 39 20.28			35	50 38 53.90 -7 +6 +8.08 +43 -15.00 38 48.40	+9.50
d											
$(\delta) - D) \frac{d'}{100}$											
δ_2											

Date, =

Observer *N. A. R.*
Recorder *G. H. M.*

Single Observations

Date₂ = Jan. 20, 1874
n = 424

Observer
Recorder

66

Ru

[illegible]

Runs

 $\alpha_{29} = \text{Jan 20}$
 $-7 \ 31.56$
 $+ .05$

67.

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
δ_1	+24.9 138.202 9.80610 1.30490 $((\delta) - D) \frac{d'}{100}$	+57.2 1.70927 9.80610 1.63215	2 9.9 2.8 2	2	6.35	50 20 42.00 50 13 10.45 42.87 12 27.57 -29.18 13 53.81			0'	50 12 50.26 27.57 -70 +10 +8.59 +41 -1500 12 20.97 56.86	+8.40
δ_2	+1.1 0.04139 9.77965 9.95782 $((\delta) - D) \frac{d'}{100}$	0 6.9 0.9 20	20	2.90	50 2 44.45 50 55 12.98 +0.91 55 13.80			20	50 55 11.98 -00 +0 +9.38 +44 -1500 55 6.80	+9.80 ²	
δ_1	+7.3 0.86332 9.80351 0.78361 $((\delta) - D) \frac{d'}{100}$	0 13.9 7.2 45	45	10.55	50 37 37.80 50 30 6.234 6.08 30 12.32			45	50 30 0.16 -2 +1 +8.92 +42 -1500 29 54.39	+9.33	
δ_2	-15.5 1.19033 9.79463 1.10174 $((\delta) - D) \frac{d'}{100}$	3 13.9 6.9 48	48	10.40	51 34 37.95 51 27 6.46 +12.64 27 19.03 26 52.75			45	51 27 19.03 -6 +16 +9.94 +44 -1530 27 14.27	+10.54	
δ_1											
δ_2											
δ_1											
δ_2											
δ_1											
δ_2											
δ_1											
δ_2											

272
Date₁ = Jan 17 1874
n = +22

Observer W. A. R.
Recorder J. F. No.

273
Date₂ = Jan 18 1874
n = +25

Observer W. A. R.
Recorder J. F. No.

68

Star.	α	δ	Mag.	T_0	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
19 28 18 14.1 K		50.0 49 56.0	7.5 7.7	19 53 8.5 12.0 8.6	19 29	23.8	37.2	50.0	33.3	37	19 27.04 +8.96 + .26 - 2 + 9.20		
(8) - D	κ'_{100}										19 36.24 + 14 36.38		
a_1													
K		8.4		19 7.1 9.1 12.0 7.4	19 19.6	22.9	26.0	29.4	33.4	19	26.06 +8.96 + .30 + 10.09 + 02 - 2 + 19 36.13 + 16 36.31		
(8) - D	κ'_{100}												
a_2													
20 47.8 19 39.0 K		50 54 50 57.0	9.0 8.9	20 34.5 38.4 41.7 37.2	20 45.4	48.8	52.0	55.4	59.2	20	53.16 +8.96 + .27 - 2 + 9.21		
(8) - D	κ'_{100}										21 1.37 + 13 21 1.50		
a_1													
K		8.9		20 39.8 32.3 34.9 35.8 33.2	20 44.6	47.9	51.2	54.4	57.6	20	51.14 +8.96 + .30 + 10.09 + 02 - 2 21 1.31 + 15 21 1.36		
(8) - D	κ'_{100}												
a_2													
21 38 20 39.4 K		50 02 49 58.8	7.0 7.0	21 30.7 33.7 37.7 33.8	21 41.2	48.6	51.6	55.0	58.2	21	51.72 +8.96 + .26 - 2 + 9.20		
(8) - D	κ'_{100}										22 0.92 + 12 22 1.08 + 4		
a_1													
K		7.5		21 31.9 25.0 27.3 24.8	21 44.4	47.5	50.8	54.0	57.1	21	50.76 +8.96 + .30 + 10.09 + 02 - 2 22 0.83 + 14 22 0.97 + 1.01		
(8) - D	κ'_{100}												
a_2													
22 29 21 19.8 K		49 52 49 57.3	8.5 8.0	22 13.6 16.8 20.0 16.8	22 25.7	29.0	32.3	35.1	38.6	22	32.14 +8.96 + .26 - 2 + 9.20		
(8) - D	κ'_{100}										22 41.34 + 11 22 41.45		
a_1													
K		8.0		22 19.9 22.4 25.3 22.5	22 25.0	28.0	31.3	34.6	37.8	22	31.34 +8.96 + .30 + 10.09 + 02 - 2 22 41.41 + 13 22 41.54		
(8) - D	κ'_{100}												
a_2													
23 27 21 58.0 K													
(8) - D	κ'_{100}												
a_1													
K													
(8) - D	κ'_{100}												
a_2													

ΔT_{m1}
initial
K

Add +0.019 to
(4E+m) for Jan 18 -
21- has been added
to sum of constants
and to final
R.#.

+4.25
+12.5

+4.2
+12.2

+4.34
+12.82

+4.34
+12.82

+4.30
+12.75

+4.30
+12.75

+4.30
+12.71

+4.30
+12.71

Runs

Bound
Rrs.
Ref.
Ryl.

272

Date₁ = Jan. 17 1844

n = 4.22

Observer H. A. R.
Recorder J. F. M.Date₂ = Jan. 18, 1844
n = 4.25Observer
Recorder

70

Ru

Star.	α	δ	Mag.	T_b	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
24 ^m 4 ^s	50 09	8.8	24 ^m 23 ^s	24 45.0	48.3	51.4	54.4	57.8	24 ^m 51 ^s	51.38			
23 ^m 38.2	50 0.2	9.0	24 ^m 24.0	24 45.0	48.3	51.4	54.4	57.8	24 ^m 51 ^s	51.38			
(8) - D) κ'_{100}			24 ^m 27.1						24 ^m 51 ^s	51.38			
α_1									24 ^m 51 ^s	51.38			
κ		9.2	24 16.8	24 20.1	23.3	26.3	29.6	32.7	24	26.40			
(8) - D) κ'_{100}			24 18.1						24	26.40			
α_2			24 22.2						24	26.40			
25 24	50 17	9.2	25 24	25 22.0	25.1	28.7	31.9	35.2	25	28.58			
24 15.0	50 14.0	9.0	25 24	25 22.0	25.1	28.7	31.9	35.2	25	28.58			
(8) - D) κ'_{100}			25 24						25	28.58			
α_1									25	28.58			
κ		9.0	25 44.7	25 31.1	24.4	27.7	30.9	34.1	25	27.64			
(8) - D) κ'_{100}			25 44.7						25	27.64			
α_2			25 44.7						25	27.64			
27 38	52 27	8.9	27 38	27 15.3	19.0	22.4	25.7	29.1	27	22.34			
26 8.5	52 23.6	8.9	27 38	27 15.3	19.0	22.4	25.7	29.1	27	22.34			
(8) - D) κ'_{100}			27 38						27	22.34			
α_1									27	22.34			
κ		8.4	27 9.7	27 14.8	18.0	21.6	24.8	28.2	27	21.48			
(8) - D) κ'_{100}			27 9.7						27	21.48			
α_2			27 9.7						27	21.48			
28 44	52 11	8.7	28 20.3	28 40.6	44.0	47.5	50.6	53.9	28	47.32			
27 35.7	52 7.3	8.5	28 20.3	28 40.6	44.0	47.5	50.6	53.9	28	47.32			
(8) - D) κ'_{100}			28 20.3						28	47.32			
α_1									28	47.32			
κ		8.6	28 36.3	28 39.7	43.2	46.4	49.7	53.0	28	46.40			
(8) - D) κ'_{100}			28 36.3						28	46.40			
α_2			28 36.3						28	46.40			
29 31	52 25	7.7	29 24.0	29 26.1	29.6	32.9	36.2	39.6	29	32.88			
28 16.5	52 21.2	7.4	29 24.0	29 26.1	29.6	32.9	36.2	39.6	29	32.88			
(8) - D) κ'_{100}			29 24.0						29	32.88			
α_1									29	32.88			
κ		7.7	29 44.3	29 46.6	28.6	31.7	35.7	38.5	29	31.50			
(8) - D) κ'_{100}			29 44.3						29	31.50			
α_2			29 44.3						29	31.50			

Runs $R_g =$

	Jan 17	Jan 18
	-7 33.51	32.25
	+ .06	+ .05

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire.	Red. runs	Stroke	z	s'
78	0	0' 37.0'	25.2	5	31.18	50 17 17.25			5	50 9 23.37	
d	+24.3					50 9 43.75				+15	+8.94
(8) — D	1.38561					20.37	9 23.37			+3	
$\frac{d'}{100}$	9.80656						14 4.11			+8.66	
δ_1	1.30895									+40	
										-15.80	
										9 17.57	
84	0	6.9 4 59.0	10	2.95	50 12 45.40				10	5 6.11	+8.76
d	+7.2					50 5 12.28				+2	
(8) — D	0.85733					6.04	5 15.19			+8.38	
$\frac{d'}{100}$	9.80731									+40	
δ_2	0.78142									-14.80	
										5 0.07	
94	4	2 7.0	58.8	57	0.90	50 25 46.45			55	50 18 47.1	+9.5
d	+6.3					50 18 12.95				+12	
(8) — D	0.79954	0.63347	4			5.23	18 7.71			+8.83	
$\frac{d'}{100}$	9.80228					3.57	18 16.17			+41	
δ_1	0.71840									-14.90	
	0.55253									18 2.16	+8.2
		25 42.19		18 16.3							
86	2	24.9	15.3	87	20.10	50 25 28.25			55	18 13.19	+9.03
d	-20.1					50 17 56.13				+11	
(8) — D	1.30320					17.19	18 13.19			+8.62	
$\frac{d'}{100}$	9.80534									+41	
δ_2	1.23532									-15.00	
		25 42.19		18 19.7						18 7.22	
86	1	58.9	47.9	46	53.40	52 35 54.95			45	52 28 3.18	+11.79
d	+22.9					52 28 21.45				-14	
(8) — D	1.35984					15.26	28 39.70			+12	
$\frac{d'}{100}$	9.78478									+11.29	
δ_1	1.26140									+52	
		27 36.08		28 12.0						-15.30	
										27 59.67	
86	2	8.8	58.9	49	38.8	52 35 44.50			45	5.63	+11.63
d	+8.3					52 28 12.38				-2	
(8) — D	0.91908					6.62	28 18.87			+10	
$\frac{d'}{100}$	9.78478									+11.03	
δ_2	0.82064									+52	
		27 36.14		28 14.3						-15.30	
										28 1.96	
92	4	6.4	55.4	4	0.90	52 18 47.45			0	52 10 55.01	+11.87
d	+23.6					52 11 13.84				-15	
(8) — D	1.37291					18.93	10 55.01			+24	
$\frac{d'}{100}$	9.78756					11 32.87				+10.97	
δ_1	1.27725									+57	
		29 1.03		11 3.6						-15.30	
										10 51.28	
86	4	17.8	7.9	4	12.88	52 18 35.50			0	58.20	+11.42
d	+6.3					52 11 3.38				-1	
(8) — D	0.79934					5.05	10 58.20			+21	
$\frac{d'}{100}$	9.78756						11 8.25			+10.71	
δ_2	0.70368									+57	
		29 1.03		11 6.6						-15.30	
										10 54.32	
98	8	3.0	57.1	49	57.05	52 32 51.30			50	52 254 1069	+11.73
d	+8.9					52 25 17.80				-2	
(8) — D	0.94939					7.10	25 24.84			-1	
$\frac{d'}{100}$	9.78527									+11.24	
δ_1	0.85144									+52	
		29 46.61		24 19.4						-15.30	
										25 7.12	
8	1	20.9	12.6	57	16.75	52 31 31.60			50	24 12/2	+11.41
d	-16.0					52 23 59.48				-4	
(8) — D	1.20412					12.77	23 46.58			+6	
$\frac{d'}{100}$	9.78543									+10.90	
δ_2	1.10633									+52	
		29 46.44		24 20.4						-15.40	
										24 8.13	

272

Date₁ = Jan. 17 1874
n = +.22Observer
RecorderH. A. P.
G. F. M.Date₂ = Jan. 18 1874
n = +.25Observer
Recorder

72

Ru

1873phae

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
30	10	50 51	9.2	32 6.3	32 8.7	12.4		18.2	21.9	32	15.30		
31	0.4	50 48.2	8.7	31 9.1							+8.97		
				11.0							+ .27		
(8) - D	κ'_{100}			8.8					+ 9.22	32	24.53		
a_1										32	24.55		+4.39
													+12.03
κ													
(8) - D	κ'_{100}												
a_2													
33	52	50 56	8.8	33 28.7	33 50.4	53.8	59.0	6.4	3.7	33	57.06		
312	42.0	50 53.0	8.7	32.0							+8.98		
				34.7							+ .27		
(8) - D	κ'_{100}			31.8					+ 9.23	34	6.29		
a_1										34	6.29		+4.40
													+11.92
κ			8.5	33 22.7	33 49.6	52.8	56.0	59.4	2.9	33	56.14		
				33.0							+9.82		
(8) - D	κ'_{100}			28.4					+ 10.11 + .02	34	6.23		+4.40
a_2				25.4						34	6.27		+11.92
35	14	50 08	7.0	34 51.7	35 11.5	14.7	18.1	21.4	24.5	35	18.04		
34	4.4	50 4.7	7.3	33.8							+8.98		
				58.7							+ .26		
(8) - D	κ'_{100}			55.3					+ 9.22	35	27.26		+4.36
a_1										35	27.25		+11.82
κ			7.7	34 55.0	35 12.8	14.0	17.1	20.4	2.35	35	17.16		
				57.8							+9.82		
(8) - D	κ'_{100}			6.5					+ 10.10 + .02	35	27.25		+4.36
a_2				57.8						35	27.27		+11.82
36	51	52 02	9.0	36 9.3	36 15.4	18.8	22.2	25.7	29.0	36	22.22		
35	44.4	51 59.5	9.2	12.0							+8.98		
	5.8			13.9							+ .28		
(8) - D	κ'_{100}			11.7					+ 9.24	36	31.46		+4.46
a_1										36	31.44		+11.70
κ			8.8	35 48.8	36 14.6	17.8	21.2	24.8	28.0	36	21.28		
				52.4							+9.82		
(8) - D	κ'_{100}			54.6					+ 10.12 + .02	36	31.39		+4.46
a_2				51.9						36	31.48		+11.70
38	05	51 07	6.7	37 44.4	38 2.8	6.3	9.7	12.8	16.0	38	6.02		
36	54.9	51 4.4	7.0	41.9							+8.98		
				54.2							+ .27		
(8) - D	κ'_{100}			47.5					+ 9.23	38	18.75		+4.42
a_1										38	18.71		+11.62
κ			7.5	37 38.3	38 2.1	5.4	8.8	11.9	15.3	38	8.70		
				41.2							+9.82		
(8) - D	κ'_{100}			43.2					+ 10.11 + .02	38	18.80		+4.42
a_2				40.9						38	18.79		+11.62

Runs $R_{\text{eq}} = \begin{matrix} \text{Jan 17} & \text{Jan 18} \\ -7.3351 & 32.25 \\ +.06 & +.05 \end{matrix}$

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	0	3 7.2	56.4	20	180	50 59 46.55			20	50 52 7.68	
(8) - D	$\frac{d'}{100}$					50 52 13.054					+10.08
δ_1		32 28.94		52 14.8		52 18.40				52 2.76	
d											
(8) - D	$\frac{d'}{100}$										
δ_2											
92		3 32.5	22.0	18	27.25	50 4 21.10			15	50 56 26.73	
d						50 56 47.68					+10.04
(8) - D	$\frac{d'}{100}$					57 8.45					
δ_1		34 10.69		56 33.7						56 21.77	
d											
(8) - D	$\frac{d'}{100}$										
δ_2		34 10.69		56 35.5						56 23.58	
98		3 25.8	18.0	18	21.90	50 4 26.45			15	50 56 54.33	
d						50 56 54.33					+9.69
(8) - D	$\frac{d'}{100}$					57 19.51					
δ_1		35 31.61		8 41.9						8 30.07	
d											
(8) - D	$\frac{d'}{100}$										
δ_2		35 31.65		8 43.2						8 31.34	
94		1 25.0	14.9	6	19.95	50 16 28.48			5	50 8 35.86	
d						50 8 54.78					+9.01
(8) - D	$\frac{d'}{100}$					8 13.92					
δ_1		35 31.61		8 41.9						8 30.07	
d											
(8) - D	$\frac{d'}{100}$										
δ_2		35 31.65		8 43.2						8 31.34	
94		0 10.7	4 0.1	15	5.40	52 7 42.95			15	52 0 0.98	
d						52 0 9.98					+11.25
(8) - D	$\frac{d'}{100}$					0 17.90					
δ_1		36 35.90		0 8.7						59 57.03	
d											
(8) - D	$\frac{d'}{100}$										
δ_2		36 35.88		0 10.6						59 58.85	
82		4 53.7	44.9	14	49.30	52 7 59.45			10	52 0 26.43	
d						52 0 26.43					+11.03
(8) - D	$\frac{d'}{100}$					0 50.48					
δ_1		36 35.88		0 10.6						59 58.85	
d											
(8) - D	$\frac{d'}{100}$										
δ_2		36 35.88		0 10.6						59 58.85	
82		1 51.5	40.8	6	46.15	51 16 2.20			5	51 8 10.63	
d						51 8 25.78					+10.21
(8) - D	$\frac{d'}{100}$					8 36.75					
δ_1		38 23.13		8 17.5						8 5.84	
d											
(8) - D	$\frac{d'}{100}$										
δ_2		38 23.23		8 18.9						8 7.30	
d											
(8) - D	$\frac{d'}{100}$										
δ_2		38 23.23		8 18.9						8 7.30	

272
 Date₁ = Jan. 17 1874
 n = +22

Observer H. A. R.
 Recorder J. L. M.

273
 Date₂ = Jan 18 1874
 n = +25

Observer
 Recorder

74

1873phae

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
39 ^m 8 ^s 34 ^k 54.9		50 27 50 237	9.0 7.7 9.0	38 46.7 49.0 54.8 54.6	39 49 24.3 20.3 24.3	20.3 24.3	20.3 24.3	33.4 33.4	17.8 +9.23	39 12.12 +8.98 + .27 39 21.35	39 21.35		+440 +11.54
(8) - D $\frac{\kappa'}{100}$ 38 12.8 α_1		50 237		38 36.0 59.0 1.9 58.9	39 23.7 24.8 23.9	24.3 24.3	24.3 24.3	33.4 33.4	+9.23 +9.23	39 27.14 +8.98 + .27 39 36.37	39 21.31		+440 +11.54
κ			8.8 7.0	38 46.9 49.9 54.4 54.2	39 49 24.9 24.9	8.2 11.4	11.4 11.4	14.6 14.6	17.9 +10.10 +10.10	39 71.40 +8.98 + .27 39 36.33	39 36.33		+440 +11.54
(8) - D $\frac{\kappa'}{100}$ α_2				38 36.0 59.0 1.2 58.8	39 19.7 22.9 22.9	24.3 24.3	24.3 24.3	32.8 32.8	+10.10 +10.10	39 26.26 +8.98 + .30 39 36.36	39 21.45	50	+440 +11.54
40 10 38 59.8 κ		50 48 50 44.9	8.9 8.8	40 7.8 58.6	40 8.8 11.6	15.7 15.7	15.7 15.7	18.7 18.7	22.3 +9.23	40 15.42 +8.98 + .27 40 24.65	39 36.36	6	+440 +11.54
(8) - D $\frac{\kappa'}{100}$ α_1				40 7.8 58.6	40 8.8 11.6	15.7 15.7	15.7 15.7	18.7 18.7	22.3 +9.23	40 24.65 - .5 40 24.60			+442 +11.47
κ			8.8	40 3.0 8.5 11.9 8.2	40 8.1 11.5	14.7 14.7	14.7 14.7	17.7 17.7	31.0 +10.10	40 14.60 +8.98 + .30 40 24.70			+442 +11.47
(8) - D $\frac{\kappa'}{100}$ α_2				40 3.0 8.5 11.9 8.2	40 8.1 11.5	14.7 14.7	14.7 14.7	17.7 17.7	31.0 +10.10	40 24.70 - .2 40 24.68		70	+442 +11.47
41 30 40 26.0 κ		50 43 50 38.7	8.7 8.5	41 17.9 30.0 23.0 20.5	41 35.0 38.5	42.0 42.0	44.7 44.7	48.2 48.2	+9.22	41 41.68 +8.98 + .26 41 50.90			+441 +11.37
(8) - D $\frac{\kappa'}{100}$ α_1				41 17.9 30.0 23.0 20.5	41 35.0 38.5	42.0 42.0	44.7 44.7	48.2 48.2	+9.22	41 50.90 - .7 41 50.83			+441 +11.37
κ			8.6	41 14.7 17.0 19.4 17.1	41 34.3 37.5	45.8 45.8	43.8 43.8	47.4 47.4	+10.10	41 40.76 +8.98 + .30 41 50.86			+441 +11.37
(8) - D $\frac{\kappa'}{100}$ α_2				41 14.7 17.0 19.4 17.1	41 34.3 37.5	45.8 45.8	43.8 43.8	47.4 47.4	+10.10	41 50.86 - .5 41 50.81			+441 +11.37
42 52 41 41.9 κ		50 59 50 56.0	8.8 8.8	42 24.8 29.2 34.2 27.7	42 50.3 53.7	57.0 57.0	0.3 0.3	3.1 3.1	+9.23	42 56.88 +8.98 + .27 43 6.11			+444 +11.27
(8) - D $\frac{\kappa'}{100}$ α_1				42 24.8 29.2 34.2 27.7	42 50.3 53.7	57.0 57.0	0.3 0.3	3.1 3.1	+9.23	43 6.11 - .8 43 6.03			+444 +11.27
κ			9.0	42 38.4 38.9 40.8 38.2	42 49.2 52.5	55.8 55.8	59.2 59.2	2.5 2.5	+10.11	42 55.84 +8.98 + .31 43 59.5			+444 +11.27
(8) - D $\frac{\kappa'}{100}$ α_2				42 38.4 38.9 40.8 38.2	42 49.2 52.5	55.8 55.8	59.2 59.2	2.5 2.5	+10.11	43 59.5 - .6 43 58.9		91	+444 +11.27
44 9 42 54.9 κ		44 54 49 56.0	8.6 8.7	43 38.6 39.0 40.0 38.9	44 61 9.5	12.0 12.0	15.9 15.9	19.0 19.0	+9.22	44 12.62 +8.98 + .26 44 21.84			+439 +11.18
(8) - D $\frac{\kappa'}{100}$ α_1				43 38.6 39.0 40.0 38.9	44 61 9.5	12.0 12.0	15.9 15.9	19.0 19.0	+9.22	44 21.84 - .2 44 21.78			+439 +11.18
κ			8.7	43 39.9 42.4 46.0 42.9	44 52.0 8.6	11.8 11.8	15.0 15.0	18.1 18.1	+10.10	44 11.84 +8.98 + .30 44 21.84			+439 +11.18
(8) - D $\frac{\kappa'}{100}$ α_2				43 39.9 42.4 46.0 42.9	44 52.0 8.6	11.8 11.8	15.0 15.0	18.1 18.1	+10.10	44 21.84 - .2 44 21.79		9	+439 +11.18

Runs $R_p =$ Jan 17 Jan 18
 -7.3351 32.25
 $+06$ $+05$

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
	+22.9	2 45.7	34.2	47	39.95	50 35 8.40			45	50 27 15.82	27 11.40
d	1.35984	2 45.7	34.2	47	39.95	50 35 8.40			45	50 27 14.45	27 11.40
(8) - D	9.50382					50 27 34.98	27 15.82			+	+16
δ_1	1.28044w					50 27 34.98	11.40			+	+9.01
	+28.2					50 27 34.98	27 58.38			+	+42
δ_2	1.45025					50 27 34.98	19.07			+	+14.90
8r	9.50382	1.37085w	39.25.71	27 21.9		50 27 34.98	27 58.38			+	+14.90
d	+21.7	2 43.5	34.9	47	39.20	50 35 9.15			45	27 18.82	13.63
(8) - D	1.33646	2 43.5	34.9	47	39.20	50 35 9.15	18.82		45	27 13.63	13.63
δ_1	9.50382					50 27 34.98	27 54.98			+	+13
δ_2	1.25706w					50 27 34.98	27 54.98			+	+8.79
82	+27.7					50 27 34.98	27 54.98			+	+42
d	1.44248					50 27 34.98	27 54.98			+	+42
(8) - D	9.50382					50 27 34.98	27 54.98			+	+42
δ_1	1.36308w					50 27 34.98	27 54.98			+	+42
δ_2	+7.6	1 45.1	34.0	26	39.55	50 56 8.80			25	50 48 29.01	29.01
d	0.88081					50 48 35.39				+	+9.92
(8) - D	9.50058					50 48 35.39				+	+10
δ_1	0.779817w					50 48 35.39				+	+9.40
δ_2						50 48 35.39				+	+44
d	+6.4	1 45.8	35.4	26	40.60	50 56 7.75			25	30.23	30.23
(8) - D	0.80618					50 48 35.39				+	+9.69
δ_1	9.79903					50 48 35.39				+	+8
δ_2	0.72199w					50 48 35.39				+	+9.18
d	+21.2	1 21.7	10.7	31	16.20	50 51 32.15			30	50 43 41.08	41.08
(8) - D	1.32634					50 43 38.65				+	+9.72
δ_1	9.50136					50 43 38.65				+	+8
δ_2	1.24448w					50 43 38.65				+	+9.33
d	+23.7	1 18.9	7.8	31	13.35	50 51 32.15			30	43.12	43.12
(8) - D	1.37475					50 44 34.27				+	+9.44
δ_1	9.50136					50 44 34.27				+	+6
δ_2	1.29289w					50 44 34.27				+	+9.10
d	+29.2	0 22.9	11.9	15	19.40	51 7 30.95			15	50 59 33.39	33.39
(8) - D	1.46538					50 59 33.39				+	+9.87
δ_1	9.77887					50 59 33.39				+	+2
δ_2	1.38103w					50 59 33.39				+	+9.62
d	+17.6	0 31.1	21.9	15	26.50	51 7 21.65			15	35.11	35.11
(8) - D	1.24551					50 59 33.39				+	+9.78
δ_1	9.77887					50 59 33.39				+	+2
δ_2	1.16116w					50 59 33.39				+	+9.40
d	+33.7	0 15.3	4.1	15	9.70	50 7 38.65			15	49 59 36.79	36.79
(8) - D	1.52763					50 0 5.18				+	+8.60
δ_1	9.50807					50 0 5.18				+	+1
δ_2	1.45248w					50 0 5.18				+	+8.50
d	+28.8	0 18.1	9.5	15	13.80	50 7 34.55			15	38.08	38.08
(8) - D	1.45939					50 0 5.18				+	+8.47
δ_1	9.50807					50 0 5.18				+	+1
δ_2	1.38424w					50 0 5.18				+	+8.29

272

Date₁ = Jan 17 1874
n = +22Observer H. A. P.
Recorder J. F. M.273.
Date₂ = Jan 18 1874
n = +25Observer
Recorder

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Ru

Star.	α	δ	Mag.	T_1	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
43 ^k	54.0	51 59.5	7.3	44 47.0	45 35	6.7	10.3	13.3	16.8	45	10.16		
(8) - D	$\frac{\kappa'}{100}$			50.7						45	+8.98		
α_1										45	+2.28		
										45	-2		
										45	19.40		
										45	-10		+4.50
										45	19.30		+11.12
			7.8	44 47.8	45 35	5.9	9.2	12.5	15.8	45	9.18		
κ				50.3						45	+8.82		
(8) - D	$\frac{\kappa'}{100}$			52.5						45	+3.32		
α_2				50.2						45	-2		
										45	19.30		+4.50
										45	-8		+11.12
										45	19.22		
46 38	52 10	8.3	46 13.0	46 31.6	32.9	34.6	40.6	42.3	46	37.40			
45 21.1	52 10	8.7	15.0							46	+8.98		
κ			17.6							46	+2.28		
(8) - D	$\frac{\kappa'}{100}$		15.2							46	-2		
α_1										46	46.64		
										46	-1.2		+4.51
										46	46.52		+11.01
			8.4	46 21.0	46 29.8	33.2	36.6	40.0	43.0	46	36.52		
κ				24.6						46	+9.82		
(8) - D	$\frac{\kappa'}{100}$			24.4						46	+3.32		
α_2				24.3						46	-2		
										46	46.64		+4.51
										46	-10		+11.01
										46	46.54		
47 40	51 48	9.1	47 18.9	47 39.8	43.2	46.5	49.9	53.0	47	46.48			
46 29.1	51 44.6	9.1	23.0							47	+8.98		
κ			24.8							47	+2.28		
(8) - D	$\frac{\kappa'}{100}$		23.1							47	-2		
α_1										47	55.72		
										47	-13		+4.50
										47	55.59		+10.92
			9.1	47 18.6	47 38.8	42.0	45.4	49.1	52.2	47	45.50		
κ				23.4						47	+8.83		
(8) - D	$\frac{\kappa'}{100}$			25.4						47	+3.32		
α_2				22.1						47	-2		
										47	55.63		+4.50
										47	-11		+10.92
										47	55.52		
49 13	51 08	7.0	48 51.0	49 9.4	12.5	15.7	17.9	22.0	49	15.76			
48 0.3	51 4.7	7.8	53.0							49	+8.98		
κ			59.0							49	+2.27		
(8) - D	$\frac{\kappa'}{100}$		55.0							49	-2		
α_1										49	24.99		+4.47
										49	-15		+10.81
										49	24.76		
			7.8	48 35.2	49 8.1	11.5	14.8	17.9	21.2	49	14.70		
κ				34.4						49	+9.83		
(8) - D	$\frac{\kappa'}{100}$			40.0						49	+3.31		
α_2				37.6						49	-2		
										49	24.82		+4.47
										49	-1.2		+10.81
										49	24.70		
50 38	52 43	8.7	50 13.6	50 36.5	39.9	43.4	46.9	50.0	50	43.34			
49 21.4	52 40.2	9.0	17.0							50	+8.98		
κ			17.4							50	+2.29		
(8) - D	$\frac{\kappa'}{100}$		16.8							50	-3		
α_1										50	52.58		+4.56
										50	-16		+10.71
										50	52.42		
			9.0	50 19.2	50 33.4	39.0	42.3	45.7	49.1	50	42.30		
κ				19.2						50	+9.83		
(8) - D	$\frac{\kappa'}{100}$			33.3						50	+3.32		
α_2				19.4						50	-3		
										50	52.42		+4.56
										50	-15		+10.71
										50	52.28		

Runs $P_{\text{eq}} = \begin{matrix} \text{Jan 17} & \text{Jan 18} \\ -7' 33.51 & 32.25 \\ +06 & +05 \end{matrix}$

776

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
98	+19.5 1.29003 9.78886 1.19567 _m	2' 7.9'	56.4'	12	2.15	52 10 46 20 52 3 12 48 *15.69	2 57.00 3 28.38		10	52 2 57.00 -10 +12 +9.69 +45 -14.90 2 52.26	+10.16
d											
$(\delta) - D) \frac{d'}{100}$											
δ_1		45 23.80		3 3.4							
98	+19.0 1.29875 9.78886 1.18439 _m	2 6.4	57.9	12	2.15	52 10 46 20 52 3 14 08 *15.29	2 58.66 3 29.24		10	58.66 -10 +10 +9.44 +45 -15.00 2 53.55	+9.89
d											
$(\delta) - D) \frac{d'}{100}$											
δ_2		45 23.74		3 4.7							
88	+22.2 1.34635 9.78772 1.25085 _m	0 15.1	4.9	5	10.00	52 17 38 35 52 10 4.854 *17.82	9 47.02 10 22.66		5	52 9 47.02 -13 +1 +10.96 +50 -15.10 9 43.26	+11.34
d											
$(\delta) - D) \frac{d'}{100}$											
δ_1		46 51.03		9 54.3							
98	+12.2 1.08636 9.78772 0.99086 _m	0 21.0	11.9	5	16.45	52 17 31 20 52 2 59.78 *9.79	9 49.86 10 9.44		5	49.86 -4 +1 +10.70 +50 -15.20 9 45.83	+11.17
d											
$(\delta) - D) \frac{d'}{100}$											
δ_2		46 51.07		9 56.8							
98	+23.4 1.36922 9.79111 1.27701 _m	1 45.3	33.7	26	39.50	51 56 8.85 51 48 35.354 *18.92	16.42 48 54.26		25	51 48 16.42 -14 +10 +10.54 +49 -15.10 48 12.31	+10.99
d											
$(\delta) - D) \frac{d'}{100}$				23.7							
δ_1		48 0.09		48 16.8							
98	+23.4 1.36922 9.79111 1.27711 _m	1 45.5	36.1	26	40.80	51 56 7.55 51 48 35.43 *18.93	16.37 48 54.23		25	16.37 -14 +8 +10.29 +49 -15.10 48 11.99	+10.72
d											
$(\delta) - D) \frac{d'}{100}$				48 22.9							
δ_2		48 0.04		48 22.9							
06	+20.8 1.31806 9.79746 1.23230 _m	1 40.0	49.1	36	54.55	51 16 58.809 51 9 20.33 *17.07	3.22 9 34.36		5	51 9 3.22 -12 +5 +9.80 +45 -14.90 8 58.50	+10.18
d											
$(\delta) - D) \frac{d'}{100}$				8 9.3							
δ_1		49 29.23		8 9.3							
98	+27.1 1.56937 9.79746 1.48361 _m	1 44.1	34.8	6	39.45	51 16 8.90 51 8 36.78 *30.45	8 6.20 9 4.10		5	8 6.20 -37 +8 +9.55 +45 -15.00 8 0.91	+9.71
d											
$(\delta) - D) \frac{d'}{100}$				8 11.7							
δ_2		49 29.19		8 11.7							
04	+26.5 1.42325 9.78230 1.32233 _m	2 12.5	59.6	32	5.55	52 50 42.809 52 43 9.30 *21.01	42 48.28 43 30.30		30	52 42 48.28 -18 +13 +11.59 +53 -15.20 42 45.15	+12.07
d											
$(\delta) - D) \frac{d'}{100}$				42 55.9							
δ_1		50 56.98		42 55.9							
98	+22.4 1.35025 9.78230 1.24933 _m	2 12.4	2.6	32	7.50	52 50 40.85 52 43 8.98 *17.76	42 50.84 43 26.36		30	50.84 -13 +10 +11.29 +53 -15.30 42 47.33	+11.79
d											
$(\delta) - D) \frac{d'}{100}$				42 58.0							
δ_2		50 56.85		42 58.0							

272
Date₁ = Jan 17
n = +22

Observer W. A. P.
Recorder J. F. M.

273
Date₂ = Jan 18
n = +25

Observer
Recorder

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Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_p	T_h	Sum	Mean	Red. to T_m	T
52 19	52 19	52 14	9.4	51 41.5	52 13.1	16.7	19.9	23.4	52	20.5	19.90	
κ				46.6						+8.99		
				50.9						+28		
(δ) - D				45.8						+9.25		
α_1									52	29.38	15	+4.54
										-18		+10.59
									52	29.15		
										28.97		
9.4				51 55.1	51 57.1	54.6	57.9	1.3	51	57.90		
κ				37.2						+9.83		
				39.8						+32		
(δ) - D				37.4						+10.13+02		
α_2									52	8.03		
										-16		
									52	7.87	9	
53 18	52 18	52 18	8.0	53 53.5	53 12.6	16.0	19.3	22.7	53	19.32		
κ				53.7						+8.99		
				0.4						+28		
(δ) - D				56.6						+9.25		
α_1									53	28.57		
										-19		+4.55
									53	28.38		+10.52
8.0				52 43.5	53 11.5	15.1	18.3	22.0	53	18.40		
κ				46.3						+9.83		
				45.1						+32		
(δ) - D				46.30						+10.15+02		
α_2									53	28.55		
										-17		+4.55
										28.38	40	+10.52
54 30	52 59	52 59	8.0	54 6.8	54 29.3	27.7	13.1	34.5	54	31.12		
κ				10.2						+8.99		
				12.5						+29		
(δ) - D				9.8						+9.25		
α_1									54	40.37		+4.59
										-20		+10.42
									54	40.17		
52 43.4	52 52.3	52 52.3	8.9	53 43.1	53 53.1	56.5	59.9	35	54	0.00		
κ				45.6						+9.83		
				48.2						+32		
(δ) - D				45.6						+10.13+02		
α_2									54	10.13		+4.58
										-18		+10.42
									54	9.95	7	
55 38	52 31	52 31	9.0	55 5.3	55 19.4	23.3	26.8	29.7	55	26.46	46	
κ				8.4						+8.99		
				11.3						+29		
(δ) - D				8.4						+9.26		
α_1									55	35.72		+4.56
										-21		+10.34
									55	35.51		
8.9				55 1.7	55 18.9	22.1	25.3	28.7	55	25.32		
κ				3.0						+9.83		
				4.1						+32		
(δ) - D										+10.13+02		
α_2									55	35.45		+4.56
										-19		+10.34
									55	35.26	8	
57 11	50 00	50 00	4.2	56 40.2	56 56.9	0.2	3.5	6.8	57	3.42		
κ				43.1						+8.99		
				46.2						+26		
(δ) - D				43.2						+9.23		
α_1									57	12.65		+4.44
										-20		+10.23
									57	12.45		
6.0				56 39.4	56 53.9	59.2	24	5.6	57	2.40		
κ				32.5						+9.83		+4.44
				34.6						+30		+10.23
(δ) - D				32.2						+10.11+02		
α_2									57	12.52		
										-19		
									57	12.32	4	

Runs $P_{29} = \begin{matrix} \text{Jan. 17} \\ 7.3351 \\ +.06 \\ T_m - T \end{matrix} \quad \begin{matrix} \text{Jan. 18} \\ 32.25 \\ +.05 \\ A \end{matrix}$

1873phae, p

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
4 59		+34.4	34.3	0	41.8	29.5	0	3.65	52 22 12.70 52 14 39.28 +27.48 14 11.71 32 15 6.64	0	52 14 11.71 -31 +11.27 +4 +11.04 +50 -15.10 14 7.88804	
	d	1.53839 9.78691 1.43898 644										
	((8) - D) $\frac{d'}{100}$											
	δ_1		52 33.51		14 18.6							
		+20.5	3	22.1	14.0	3	18.05	52 19 39.305 52 11 58.75 +16.44 11 41.61 12 14.49	0		11 41.61 -11 +11.26 +16 +10.71 +50 -15.20 11 37.67	
	d	1.31175 9.78739 1.21592										
	((8) - D) $\frac{d'}{100}$											
	δ_2											
55 52		+22.7	3	31.1	20.7	58	25.90	52 24 22.45 52 16 48.924 +15.17 16 30.77 17 7.11	55	52 16 30.77 -14 +11.63 +20 +11.07 +50 -15.10 16 27.30		
	d	1.35603 9.78658 1.25939										
	((8) - D) $\frac{d'}{100}$											
	δ_1		53 32.93		16 37.8							
55 52		+32.10	3	22.1	13.5	58	17.80	52 24 30.55 52 16 58.43 -25.70	55	52 16 32.60 -27 +16 +10.74 +11.13 +50 -15.20 16 28.53		
	d	1.50251 9.78658 1.40987										
	((8) - D) $\frac{d'}{100}$											
	δ_2		53 32.95		16 39.0							
7 2		+21.3	1	23.9	12.1	16	18.00	53 6 30.35 52 58 56.54 +16.78 58 40.06 59 13.62	15	52 58 40.06 -12 +12.38 +28 +11.87 +55 -15.30 58 37.14		
	d	1.32838 9.77963 1.22479										
	((8) - D) $\frac{d'}{100}$											
	δ_1		54 44.76		58 47.6							
8 12		+14.4	1	27.2	18.5	19	22.85	53 3 25.50 52 55 53.55 +11.36 55 41.89 56 46.1	15	55 41.89 -5 +12.25 +22 +11.53 +55 -15.40 58 38.74		
	d	1.15836 9.78013 1.05527										
	((8) - D) $\frac{d'}{100}$											
	δ_2		54 44.55		55 49.2							
14		+18.1	1	55.8	43.2	46	49.57	52 35 58.85 52 28 25.354 +14.43 28 39.77 1091	45	52 28 10.91 -9 +11.84 +11 +11.30 +52 -15.10 28 76.5		
	d	1.25768 9.78478 1.15924										
	((8) - D) $\frac{d'}{100}$											
	δ_1		55 40.07		28 18.0							
4		+21.2	1	51.4	42.1	46	46.75	52 36 1.60 52 28 29.45 +16.90 28 12.45 46.25	45	12.45 -12 +11.52 +9 +11.03 +52 -15.20 28 8.77		
	d	1.32634 9.78478 1.22790										
	((8) - D) $\frac{d'}{100}$											
	δ_2		55 39.84		28 19.1							
02		+20.2	4	33.9	22.1	14	28.80	50 8 20.35 50 0 46.54 +16.98 0 29.86 3.82	10	50 0 29.86 -11 +9.06 +27 +8.50 +40 -14.60 0 24.32		
	d	1.00535 9.50792 1.23005										
	((8) - D) $\frac{d'}{100}$											
	δ_1		57 16.89		0 34.6							
		+30.2	4	22.1	15.0	14	18.53	50 8 29.50 50 0 57.25 +25.39 0 32.15 5.96	10	32.15 -24 +8.66 +21 +8.29 +40 -14.60 0 26.22		
	d	1.48001 9.50792 1.23047										
	((8) - D) $\frac{d'}{100}$											
	δ_2		57 16.78		0 36.2							

Date₁ = Jan 17Observer *W. A. B.*
Recorder *J. F. M.*Date₂ = Jan 18Observer
Recorder

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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	58 44 54 35.3 κ	50 36 50 33.0 7.7											
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_1												
	κ												
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_2												
4 3	0 30 59 18.8 κ	50 28 50 25.5											
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_1												
	κ												
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_2												
2 1	50 41.9 κ	50 50 50 47.2 8.0											
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_1												
	κ												
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_2												
3 2	4.8 31.8 κ	50 08 50 4.8											
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_1												
	κ												
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_2												
4 3	20 8.1 κ	51 30 51 27.0											
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_1												
	κ												
	$(\delta) - D) \frac{\kappa'}{100}$												
	α_2												

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											
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											

Date₁ = Jan 14

Observer

Recorder

H. A. R.
J. L. M.Date₂ = Jan 18

Observer

Recorder

82

Run

Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
-------	----------	----------	------	-------	-------	-------	-------	-------	-------	-----	------	---------------	---

5	34	50 32											
4	22.1	50 29.0											

 $(\delta) - D) \frac{\kappa'}{100}$ α_1 κ $(\delta) - D) \frac{\kappa'}{100}$ α_2

6	36	50 25											
5	24.9	50 22.1											

 $(\delta) - D) \frac{\kappa'}{100}$ α_1 κ $(\delta) - D) \frac{\kappa'}{100}$ α_2

7	48	52 49											
16	30.9	52 46.5											

 $(\delta) - D) \frac{\kappa'}{100}$ α_1 κ $(\delta) - D) \frac{\kappa'}{100}$ α_2

9	34	52 33											
18	19.0	52 30.9											

 $(\delta) - D) \frac{\kappa'}{100}$ α_1 κ $(\delta) - D) \frac{\kappa'}{100}$ α_2

4 ^h	11	H	50 04	8.0									
	9	59.4	50 1.3										

Feb 10	11	11	50 4	7.8	10	42.3	10	42.0	18.4	55.3	58.6	2.0	
	9	57.4	50 1.3			44.3							

 $(\delta) - D) \frac{\kappa'}{100}$ α_1 κ $(\delta) - D) \frac{\kappa'}{100}$ α_2

For observations of Feb. 4. 10. See end of C 18

Single Observations

Feb 10 18.4

10	55.38
+	27.79
+	2.9
-	2
11	23.54
+	.75
11	23.69

+ 28.16

$$T_m - T$$

A

C

Sum

Mean

Red. to
m. wire

Red. to
h. wire

Red.
runs

Stroke

Z

8'

d

$$((8) - D) \frac{d'}{100}$$

 δ_1

d

$$((\mathfrak{S}) - D) \frac{d'}{100}$$

 δ_2

d

$$((\delta) - D) \frac{d'}{100}$$

 δ_1

d

$$((\delta) - D) \frac{d'}{dw}$$

 δ_2

d

$$((\delta) - D) \frac{d'}{d}$$

 δ_1

d

$$((\delta) - D) \frac{d'}{100}$$

8

d

$$((\delta) - D) \frac{d'}{100}$$

 δ_1

d

$$((\delta) - D) \frac{d'}{u_0}$$

8.

~~0 57.0 40.5 15- 45.75-~~

$$\begin{array}{r} 15 \quad 49 \quad 59 \quad 21.81 \\ - \quad \quad \quad 3 \quad \quad \quad + 8.41 \\ + \quad \quad \quad 5 \quad \quad \quad \\ + \quad \quad \quad 8.05 \\ + \quad \quad \quad 40 \\ - \quad \quad \quad 16.10 \\ \hline 59 \quad 14.18 \end{array}$$

d						
(δ) - D	$\frac{d'}{100}$	+10.9	0.510	40.5	15	45.75
		1.03743				
		9.80807				
δ_1		0.96228				

$$\begin{array}{r} 49 \quad 59 \quad 30.98 \\ \quad \quad \quad - \quad \quad \quad 9.17 \\ \hline \end{array}$$

d

$$((\delta) - D) \frac{d'}{100}$$

8

276
Date₁ = Feb. 10 1874
 $\alpha = +.39$

Observer H. A. R.
Recorder J. F. M.

277
Date₂ = Feb. 11 1874
 $\alpha = +.30$

Observer
Recorder

84

Ru

Star.	α	δ	Mag.	T_s	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
30	26	51 20	8.8	19	22.8	20 58	9.4	12.6	16.0	17.3	20	12.62	
19	16.8	51 17.3	9.0		35.7							+27.79	
κ					22.0							+ .41	
(8) - D					34.8					+ 28.18	20	40.80	
12	39	18 58									20	+ .5	+4.59
α_1											20	40.85	+8.41
κ			9.0	19	51.2	20 53	8.7	11.4	13.2	18.6	20	11.94	
(8) - D					53.9							+28.46	
α_2					56.4							+ .38	
(8) - D					53.5					+ 28.82	20	40.76	+4.59
α_2											20	+40.83	+8.41
22	47	52 32	8.8	21	41.1	22 17.2	20.6	24.0	27.3	30.8	22	23.98	
21	22.9	52 30.0	9.0		44.2							+27.79	
κ					47.0							+ .43	
(8) - D					44.1					+ 28.20	22	52.18	
α_1											22	+ .3	+4.66
(8) - D											22	52.21	+8.24
κ			9.0	21	30.0	22 16.4	20.0	23.1	26.4	30.0	22	23.22	
(8) - D					32.2							+28.46	
α_2					34.4							+ .39	
(8) - D					32.5					+ 28.83	22	52.05	+4.66
α_2											22	+ .5	+8.24
23	39	52 21	9.0	23	16.3	23 40.8	44.2	47.5	50.9	54.3	23	47.48	
22	44.7	52 18.8	9.1		18.9							+27.79	
κ					22.1							+ .42	
(8) - D					18.1					+ 28.19	24	15.67	
α_1											24	+ .1	+4.66
(8) - D											24	15.68	+8.17
22	20.6	52 18.8	8.8	23	7.0	23 14.0	17.3	20.7	22.4	27.2	23	20.62	
κ					12							+28.46	
(8) - D					13.0					+ 28.83	23	49.45	
α_2					7.7						23	+ .4	+4.65
(8) - D											23	49.49	+8.17
24	47	50 43	7.7	24	16.0	24 26.0	29.3	32.6	35.8	39.0	24	32.54	
23	34.0	50 41.2	7.5		18.4							+27.79	
κ					21.0							+ .40	
(8) - D					18.5					+ 28.17	25	07.1	
α_1											25	+ .1	+4.57
(8) - D											25	07.2	+8.07
κ			7.7	23	57.7	24 25.3	28.6	37.5	35.0	35.5	24	31.84	
(8) - D					0.9							+28.46	
α_2					2.7							+ .39	
(8) - D					60.4					+ 28.81	25	06.5	
α_2											25	+ .3	+4.57
(8) - D											25	06.8	+8.07
26	05	52 36	9.0	25	17.7	25 27.7	42.0	46.4	49.8	53.2	25	46.42	
24	46.2	52 33.9	9.0		22.1							+27.79	
κ					25.3							+ .45	
(8) - D					22.4					+ 28.20	26	14.62	
α_1											26	+ .1	+4.68
(8) - D											26	14.61	+7.98
κ			8.9	25	10.2	25 26.8	42.3	45.6	49.0	52.5	25	45.64	
(8) - D					13.7							+28.46	
α_2					16.0							+ .39	
(8) - D					13.3					+ 28.83	26	14.47	+4.68
α_2											26	+ .2	+7.98
(8) - D											26	14.49	

Feb. 4. 10. See C/8

Runs $P = -7' 31.62''$ $-7' 31.45''$
 $+0.06$ $+0.06$
 $T_m - T$ A C Sum $Mean$ $Red. to$ $Red. to$ $Red.$
 $m. wire$ $h. wire$ $runs$ $Stroke$ z S'

68	d	+36.8 1.56585 7.80489 1.48752 _m	4' 48.0	38.2	54	43.10	51 28 5.25 50 20 38.50 + 80.73	20 2.90 21 4.36	50'	51 20 2.90 - 37 + 28 + 5.41 + 9.46 - 16.50 19 56.27	+ 9.87
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		20 45.44		20	4.7					
	d	+18.1 1.25768 7.80504 1.17950 _m	0 3.4	53.6	54	58.50	51 27 49.85 51 20 18.40 + 15.12	20 3.28 20 3.52	55	328 - 9 - 0 + 9.58 + 46 - 16.50 19 56.73	+ 9.95
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		20 45.42		20	5.1					
76	d	+39.9 1.60097 7.80325 1.52080 _m 50770	2 7.7	56.0	421	18.5	52 40 46.50 52 33 15.63 + 33.17 - 31.74	15 0.7 32 41.71 33 48.05	40	52 32 41.71 - 42 + 12 + 10.80 + 52 - 16.70 32 38.43	+ 11.02
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		22 56.87		32	46.1					
	d	+30.7 1.48714 7.80395 1.38787 _m	2 13.9	3.0	42	8.45	52 40 37.90 52 33 8.45 + 24.43	32 44.02 33 32.88	40	37.65 44.02 - 25 + 13 + 10.91 + 52 - 16.90 32 38.43	+ 11.31
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		22 56.76		32	46.7					
	d	+28.4 1.45332 7.78527 1.35537 _m	4 53.2	42.0	49	47.60	52 33 0.75 52 25 29.30 + 22.67	25 57.80	45	52 25 6.46 - 21 + 29 + 10.65 + 52 - 16.50 25 0.91	+ 11.25
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		24 20.34		25	9.1					
	d	+10.9 1.03743 7.78576 0.93997 _m	3 30.8	19.9	53	25.35	52 29 23.00 52 21 51.55 + 8.91	21 42.84 22 0.26	50	21 42.84 - 13 + 20 + 10.71 + 46 - 16.90 21 37.28	+ 11.34
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		23 54.14		21	45.4					
70	d	+14.0 1.14613 7.80136 1.06427 _m	0 55.0	44.1	30	49.55	50 51 58.80 50 44 27.55 + 11.59	15.59 44 38.77	30	50 44 15.59 - 5 + 5 + 8.84 + 43 - 16.30 44 8.56	+ 9.27
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		25 5.29		44	16.6					
	d	+31.4 1.49693 7.80120 1.41491 _m	0 36.5	29.0	30	33.75	50 52 14.60 50 44 43.15 + 26.00	44 17.15 45 9.15	30	17.15 - 26 + 4 + 8.93 + 43 - 16.30 44 9.99	+ 9.11
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		25 5.25		44	18.1					
78	d	+24.0 1.38021 7.78329 1.25028 _m	3 23.8	13.0	38	18.40	52 44 29.35 52 36 58.30 + 19.07	36 39.26 37 17.40	35	52 36 39.26 - 15 + 20 + 10.89 + 53 - 16.90 36 33.83	+ 11.47
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		26 19.29		36	41.8					
	d	+32.3 1.50920 7.78329 1.40927 _m	3 16.9	5.9	38	11.40	52 44 36.95 52 37 5.50 + 25.66	36 39.84 37 37.16	35	39.84 - 27 + 19 + 10.88 + 53 - 16.90 36 34.37	+ 11.43
	$(\delta) - D$	$\frac{d'}{100}$									
	δ_1		26 19.17		36	42.4					

276

Observer
RecorderH. A. B.
J. F. M.Date₁ = Feb 10Date₂ = Feb 11Observer
Recorder

86

Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
37	14	51 24.3	8.6	56 22.5	56 54.1	57.5	0.6	4.1	7.6	37	0.84		
36	1.1	51 22.1	8.8	56 22.5	56 54.1	57.5	0.6	4.1	7.6	37	+27.79		
κ				25.7							+ .41		
(S) - D				25.2							- 2		
a_1				25.6							+28.18		
										37	28.92		+4.64
										37	-13		
										37	28.89	28.89	+7.06
										37	0.24		
κ				32.5							+28.46		
(S) - D				32.8							+ .38		
a_2				33.1							- 2		
										37	29.06		+4.64
										37	-11		
										37	28.95		+7.06
										37	0.24		
κ				32.5							+28.46		
(S) - D				32.8							+ .38		
a_2				33.1							- 2		
										37	29.06		+4.64
										37	-11		
										37	28.95		+7.06
										38	10.94		
38	24	51 20	8.8	37 56.1	38 4.3	7.6	11.0	14.3	17.5	38	+27.79		
39	11.1	51 17.8	9.0	37 56.1	38 4.3	7.6	11.0	14.3	17.5	38	+ .41		
κ				20							- 2		
(S) - D				57.1							+28.18		
a_1										38	39.12		
										38	-14		
										38	38.98		+4.64
													+6.96
										38	10.30		
κ				46.1							+28.46		
(S) - D				46.1							+ .37		
a_2				46.2							- 2		
										38	39.11		+4.64
										38	-13		
										38	38.98		+6.96
										40	46.04		
41	02	52 11	8.8	40 14.8	40 39.2	42.7	46.1	49.4	52.8	40	+27.79		
39	44.9	52 8.5	8.7	40 14.8	40 39.2	42.7	46.1	49.4	52.8	40	+ .42		
κ				17.3							- 2		
(S) - D				20.1							+28.19		
a_1				17.4						41	14.23		
										41	-17		
										41	14.06		+4.69
													+6.85
										40	45.32		
κ				13.4							+28.46		
(S) - D				17.4							+ .38		
a_2				14.7							- 2		
										41	14.12		+4.69
										41	-15		
										41	13.97		+6.85
										41	48.18		
42	05	52 32	8.1	41 18.1	41 41.4	44.8	48.3	51.4	55.0	41	+27.79		
40	44.3	52 29.9	8.7	41 18.1	41 41.4	44.8	48.3	51.4	55.0	41	+ .43		
κ				20.9							- 2		
(S) - D				23.0							+28.75		
a_1				24.3						42	16.38		
										42	-18		
										42	16.20		+4.72
													+6.67
										41	47.48		
κ				20.6							+28.46		
(S) - D				24.1							+ .39		
a_2				20.9							- 2		
										42	16.31		+4.72
										42	-16		
										42	16.15		+6.67
										42	44.34		
43	02	52 37	6.0	42 17.1	42 37.7	41.0	44.3	47.7	51.0	42	+27.79		
41	44.0	52 34.3	7.2	42 17.1	42 37.7	41.0	44.3	47.7	51.0	42	+ .43		
κ				19.8							- 2		
(S) - D				22.4							+28.20		
a_1				19.8						43	12.54		
										43	-17		
										43	12.35		+4.72
													+6.58
										42	43.62		
κ				22.7							+28.46		
(S) - D				25.6							+ .39		
a_2				22.7							- 2		
										43	12.45		+4.72
										43	-17		
										43	12.28		+6.58

Runs $R_{eq} = -7.3162$ Feb 10. -7.3145 Feb 11.
 $+ .06$ $+ .06$

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
60	d	+35.2 1.54654 9.79494 1.45826m	0	3.5	4 52.2	49	57.85	51 32 50.50 51 25 14.58 +28.72	24 50.16 25 47.60	50	51 24 50.16 -33 -1 +9.58 +4.47 -16.50 24 43.37	+9.71
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		37	33.53		24 50.4						
	d	+27.1 1.43297 9.79494 1.34469m	0	10.4	60.0	50	52.0	51 32 43.15 51 25 11.70 +22.11	24 49.59 25 33.81	50	49.59 -19 +1 +9.64 +4.47 -16.60 24 42.95	+9.96
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		37	33.59		24 50.0						
64	d	+11.8 1.07188 9.79573 0.98439m	0	6.9	56.3	58	1.60	51 27 46.75 51 20 15.30 +9.65	20 24.78 548	55	51 20 5.48 -4 +0 +9.49 +4.46 -16.50 19 58.89	+9.91
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		38	43.62		20 5.8						
	d	+24.1 1.38202 9.79573 1.29453m	4	57.3	47.7	54	52.50	51 27 55.85 51 20 24.40 +19.70	20 44.10 470	50	4.70 -15 +29 +9.59 +4.46 -16.50 19 58.39	+10.19
	$(\delta) - D$	$\frac{d'}{100}$				3						
	δ_2		38	43.62		20 5.8						
74	d	+28.6 1.45637 9.78756 1.36071m	4	14.8	4.0	4	9.40	52 18 38.95 52 11 7.50 +22.95	10 44.38 H 30.28	0	52 10 44.38 -22 +25 +10.41 +51 -16.70 10 38.63	+10.95
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		41	18.75		10 45.5						
	d	+30.6 1.48572 9.78756 1.39006m	4	12.9	3.2	4	8.05	52 18 40.30 52 11 8.85 +24.55	10 44.30 H 30.40	0	44.30 -25 +25 +10.52 +51 -16.80 10 38.53	+11.03
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		41	18.66		10 45.4						
70	d	+27.9 1.44560 9.78395 1.34633m	2	26.1	15.1	42	20.60	52 40 27.75 52 32 56.50 +22.20	32 33.93 33 18.33	40	52 32 33.93 -21 +14 +10.80 +52 -16.80 32 28.38	+11.25
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		42	20.92		32 35.0						
	d	+26.6 1.42488 9.78395 1.32561m	2	27.8	17.0	42	22.40	52 40 25.95 52 32 54.50 +21.16	32 33.34 33 15.66	40	33.34 -19 +14 +10.28 +52 -16.90 32 27.81	+11.37
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		42	20.87		32 34.5						
72	d	+24.5 1.38917 9.78313 1.28908m	2	26.5	14.8	37	20.65	52 45 27.70 52 37 56.28 +19.46	37 36.62 38 15.54	35	52 37 36.62 -15 +19 +10.89 +53 -16.80 37 31.23	+11.41
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_1		43	17.07		37 37.8						
	d	+20.9 1.32015 9.78313 1.22006m	2	28.1	17.9	37	23.00	52 45 25.35 52 37 53.90 +16.60	37 37.30 38 10.50	35	37.30 -12 +14 +11.00 +53 -16.90 37 31.95	+11.55
	$(\delta) - D$	$\frac{d'}{100}$										
	δ_2		43	17.00		37 38.5						

$\text{Date}_1 =$ Feb. 27
 $n =$ Jan. 17
 4.33

Observer *H. A. R.*
Recorder *J. F. M.*

277
Feb. 11
Date₂ = Jan. 18
n = + 30

Observer _____
Recorder _____
S_____

88

Ru

Star.	α	δ	Mag.	T_a	T_m	T_s	T_g	T_h	Sum	Mean	Red. to T_m	T
1873phae	44 44 18 43 0.5 κ	52 13 52 10.7	8.8 8.9	43 16.2 19.4 22.3 19.3	53 54.6	58.0	13	2.7	8.0	44 1.32 +27.79 + .42 2 44 29.51 21 44 29.30		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.19			+4.70 +6.49
	a_1											
	κ			8.8 43 18.4 20.6 23.9 20.9	43 52.8	57.2	0.6	4.0	7.4	44 0.60 +28.46 + .38 2 44 29.42 18 44 29.24		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.82			+4.70 +6.49
	a_2											
	45 5 43 40.4 κ	52 13 52 12.7	8.7 8.8	44 21.9 24.0 27.0 24.3	44 41.6	48.0	48.4	5.7	53.0	44 48.34 +27.79 + .42 2 45 16.53 22 45 16.31		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.19			+4.71 +6.42
	a_1											
	κ			8.5 44 56.0 57.5 58.0 57.5	44 —	—	—	51.2	54.4	44 47.75 +28.46 + .38 2 45 16.54 20 45 16.37		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.82			+4.71 +6.42
	a_2											
	45 59 44 39.9 κ	52 39 52 37.3	8.5 8.5	45 17.2 17.8 23.1 20.1	45 38.6	57.0	49.5	43.8	47.3	45 40.44 +27.79 + .43 2 46 8.64 23 46 8.41		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.20			+4.73 +6.34
	a_1											
	κ			Lost								
	$((\delta) - D) \frac{\kappa'}{100}$											
	a_2											
	44 0.9 45 53.2 κ	50 58 50 56.3	9.1 9.0	46 35.9 31.6 34.5 31.3	46 47.1	50.5	53.5	56.9	0.1	46 53.602 +27.79 + .41 2 47 21.80 23 47 21.57		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.18			+4.64 +6.24
	a_1											
	κ			9.1 46 14.0 16.4 17.3 16.4	46 46.3	49.5	52.7	56.0	59.4	46 52.763 +28.46 + .37 2 47 21.59 21 47 21.38		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.81			+4.64 +6.24
	a_2											
	44 51 46 30.5 κ	50 57 49 59.0	9.3 9.0	47 22.8 25.4 28.3 25.5	47 30.5	33.8	57.0	40.2	43.5	47 37.00 +27.79 + .39 2 48 5.16 24 48 49.2		
	$((\delta) - D) \frac{\kappa'}{100}$								+ 28.16			
	a_1											
	κ			Lost								
	$((\delta) - D) \frac{\kappa'}{100}$											
	a_2											

Runs $12_{eq} = -7.3162 - 7.3145$
 $+06 +06$

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
72	d	+42.0 162325 9.78707 1.52710 _n	1 28.9	170	1	22.85	52 21 25.58 52 13 54.05 +33.66	13 20.22		0	52 13 20.22 -47 +8 +1044 +51 -16.70 13 14.08	+10.56
	((δ) - D) $\frac{d'}{100}$							+4 27.54				
	δ_1		44 34.00		13 20.6							
	d	+39.7 1.59879 9.78707 1.50264 _n	1 30.0	173	1	24.60	52 21 23.75 52 13 54.30 +31.82	13 20.48		0	20.48 -42 +8 +1053 +51 -16.70 13 14.50	+10.72
	((δ) - D) $\frac{d'}{100}$							+4 14.12				
	δ_2		44 33.94		13 21.0							
59	d	+24.0 1.38021 9.78674 1.28373 _n	4 43.1	32.5	59	37.50	52 23 19.55 52 15 37.16 +19.22	15 58.15		55	52 15 19.71 -15 +28 +1048 +51 -16.70 15 14.13	+11.12
	((δ) - D) $\frac{d'}{100}$											
	δ_1		45 21.02		15 20.6							
	d	+9.8 0.99123 _n 9.78691 1.28949 _n	0 8.6	4 58.1	0	3.35	52 22 45.00 52 15 13.55 +7.85	15 5.70		0	21.40 -3 +1 +1059 +51 -16.70 15 15.78	+11.08
	((δ) - D) $\frac{d'}{100}$											
	δ_2		45 21.08		15 22.2							
	d	+20.3 1.30750 9.78280 1.20708 _n	0 19.0	* 7.9	35	13.45	52 47 34.90 52 40 3.45 +16.11	39 47.17 40 19.39		35	52 39 47.17 -10 +1 +1094 +53 -16.70 39 41.85	+11.38
	((δ) - D) $\frac{d'}{100}$											
	δ_1		46 13.14		39 48.2							
	d											
	((δ) - D) $\frac{d'}{100}$											
	δ_2											
84	d	+22.3 1.34830 9.79903 1.26411 _n	1 40.2	28.9	16	34.55	50 6 13.50 50 58 42.35 +18.37	58 23.81 59 0.55		15	50 58 23.81 -13 +10 +910 +45 -16.30 58 17.03	+9.52
	((δ) - D) $\frac{d'}{100}$											
	δ_1		47 26.21		58 23.3							
	d	+36.2 1.55871 9.80822 1.48371 _n	1 37.1	16.9	16	22.00	50 6 26.35 49 58 54.90 +30.46	58 24.44 59 25.36		15	24.44 -35 +8 +919 +45 -16.40 58 17.41	+9.37
	((δ) - D) $\frac{d'}{100}$											
	δ_2		47 26.02		58 23.6							
	d	+11.5 1.06070 9.80701 0.98449 _n	2 59.0	48.9	X 13	53.95	50 9 54.40 50 7 22.35 +9.55	13.13 7 32.43		5	50 7 13.13 -3 +11 +818 +44 -16.00 7 6.79	+8.66
	((δ) - D) $\frac{d'}{100}$											
	δ_1											
	d											
	((δ) - D) $\frac{d'}{100}$											
	δ_2											

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Observer
RecorderN. A. B.
J. F. M.Date₁ = Feb 10
n = +33

277

Observer
Recorder

90

Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
49 35 ^m 48 15.9 κ	52 53 52 53.8	6.5 6.4	48 27.4 40.0 42.7 40.0	49 9.7	18.0	16.6	20.0	23.4	49 ^m 49 49	16.54 +27.79 + .44 - .3 44.74 - .26 44.48		+4.76 +6.04	
(8) - D ₁₀₀ a_1													
κ		6.5	48 40.4 43.2 43.9 43.2	49 9.0	12.4	15.8	19.1	22.8	49	15.52 +28.46 + .40 - .3 44.65 - .24 44.41		+4.76 +6.04	
(8) - D ₁₀₀ a_2													
50 48 49 34.0 κ	50 55 50 55.5	9.2 9.0	49 51.5 54.2 57.0 54.2	50 27.5	30.9	34.3	37.6	40.9	50 51 51	34.24 +27.79 + .41 - .2 24.2 - .27 2.15		+4.65 +5.93	
(8) - D ₁₀₀ a_1													
κ		9.2	49 33.6 37.9 0.3 37.9	50 27.0	30.2	33.6	36.8	40.0	50	33.52 +28.46 + .37 - .2 2.33 - .26 2.07		+4.65 +5.93	
(8) - D ₁₀₀ a_2													
51 42 50 28.0 κ	50 32 50 30.3	9.0 9.0	50 37.7 6.5 3.3 6.5	51 21.3	24.7	27.4	31.0	34.3	51 51 51	27.54 +27.79 + .40 - .2 56.01 - .28 53.73		+4.62 +5.86	
(8) - D ₁₀₀ a_1													
κ		8.8	51 2.0 5.6 7.7 5.4	51 20.6	28.5	27.2	30.2	32.0	51	27.12 +28.46 + .36 - .2 55.92 - .26 53.66		+4.62 +5.86	
(8) - D ₁₀₀ a_2													
52 38 51 24.1 no 10m κ	51 52 51 50.2	9.2 9.3 9.0	52 22.8 0.3 3.5 1.3 3.8	52 13.6	19.0	22.3	25.8	29.0	52 52 52 52	22.34 +27.79 + .42 - .2 27.22 +27.79 + .42 - .2 21.54 +28.46 + .38 - .2 26.10 +28.46 + .38 - .2 3.68 +27.79 + .42 - .2 31.87 - .31 31.56	52 50.53 - .30 52 50.23 52 55.41 - .30 52 55.11 52 50.36 - .28 52 54.08 52 55.32 - .28 52 55.04	+4.70 +5.78 +4.70 +5.78 +4.70 +5.78	
(8) - D ₁₀₀ a_1													
51 24.1 κ		9.2 9.3	52 16.6 17.5 17.0	52 14.7	18.2	21.5	25.0	28.3	52	21.54 +28.46 + .38 - .2 26.10 +28.46 + .38 - .2 3.68 +27.79 + .42 - .2 31.87 - .31 31.56		+4.70 +5.78	
(8) - D ₁₀₀ a_2													
55 26 54 12.3 53 ^k 4.1 κ	51 45 51 43.5	9.3 9.6	53 49.5 52.4 51.0 50.3	53 57.0	0.4	3.7	7.0	10.3	54 54 54 54	3.68 +27.79 + .42 - .2 31.87 - .31 31.56		+4.70 +5.78	
(8) - D ₁₀₀ a_1													
κ		9.1	54 14.8 18.5 21.0 18.4	54 26.2	22.5	22.9	26.3	29.5	54	32.88 +28.46 + .38 - .2 1.70 - .30 1.40		+4.70 +5.55	
(8) - D ₁₀₀ a_2													

Runs Feb-10 Feb-11
 $R_{29} = -7.3162$ -7.3145
 $+0.06$ $+0.06$
 $T_m - T$ A C Sum $Mean$

Red. to Red. to Red.
 m. wire h. wire runs
 Stroke z s'

72	d	+36.58 1.56229 9.77986 1.45887 _m	2 161	5.0	17	10.58	53 5 37.80 52 58 6.58 +28.77 57 37.41 58 34.95	15	52 57 37.41 -34 +13 +11.27 +55 -16.50 57 32.22	+11.61
	δ_1	49 49.24			57 38.3					
	d	+32.6 1.51322 9.77980 1.40980 _m	3 16.9	8.7	17	13.80	53 5 34.58 52 58 3.10 +25.69 57 37.41 58 28.79	15	37.41 -28 +13 +11.86 +55 -16.90 57 32.27	+11.76
	δ_2	49 49.17			57 38.3					
72	d	+40.0 1.60206 9.77903 1.51787 _m	2 1.7	5.0	16	56.35	57 5 52.00 50 58 20.35 +32.20 58 48.18 59 52.58	15	58 48.18 -43 +5 +9.12 +45 -16.30 58 41.07	+9.19
	δ_1	51 6.80			57 47.0					
	d	+35.6 1.55145 9.77903 1.46726 _m	2 5.5	55.0	167	0.25	57 5 48.10 50 58 16.65 +29.33 58 47.32 59 45.98	15	57 47.32 -35 +6 +9.21 +45 -16.40 58 40.29	+9.37
	δ_2	51 6.72			57 46.2					
72	d	+27.3 1.43616 9.50305 1.35599 _m	2 19.1	8.9	42	14.00	50 40 34.35 50 33 2.70 +22.70 32 40.03 33 25.43	40	50 32 40.03 -20 +13 +8.66 +42 -16.10 32 32.94	+9.01
	δ_1	52 0.35			32 38.8					
	d	+21.4 1.33646 9.50305 1.25629 _m	2 24.6	14.1	42	19.35	50 40 29.00 50 32 57.65 +15.04 32 39.51 23 15.59	40	39.51 -13 +14 +8.75 +42 -16.10 32 32.59	+9.18
	δ_2	52 0.28			32 38.4					
72	d	-0.5 9.69897 9.79063 +23.4 1.36922 9.79063 1.27663 _m	3 15.1 3 15.1 7.60638 _m	4.2 23 4.2 23	23	9.65 9.65	51 59 38.70 51 59 35.10 51 52 7.25 51 52 7.25 +0.40 51 48.14 +18.91 52 25.99	20 20	51 52 7.48 -40 +19 +1008 +49 -16.50 52 7.94 51 48.17 -14 +19 +1008 +49 -16.50 51 42.29	+10.62
	δ_1	52 7.5 51 48.1			52 7.5 51 48.1					
	d	+4.5 0.65821 9.79063 0.56062 _m +26.0 1.41497 9.79063 1.33238 _m	3 11.9 3 11.9	2.0 23 2.0 23	23	6.95 6.95	51 59 41.40 51 59 41.40 51 52 9.95 51 52 9.95 +3.64 51 48.94 +21.01 52 30.96	20 20	6.31 -1 +19 +1017 +105 -16.60 52 0.53 48.94 -18 +19 +1017 +69 -16.60 51 48.01	+10.67
	δ_2	52 54.75 59.74			52 6.3 51 48.8					
72	d	+13.4 1.12710 9.79192 1.03580 _m	0 56.2	45.9	30	57.05	51 51 57.30 51 44 25.88 +10.86 44 36.54	30	51 44 14.82 -5 +5 +9.93 +48 -16.40 44 8.83	+10.41
	δ_1	54 36.26			44 14.4					
	d	+14.5 1.16137 9.79160 1.06975 _m	4 34.5	23.2	29	28.85	51 53 19.50 51 45 48.05 +11.74 45 59.77	25	45 36.31 -5 +27 +1005 +48 -16.50 45 36.56	+10.75
	δ_2									

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Observer
RecorderM.A.B.
J.F.M.Date₁ = Feb 10
n = +33

277

Observer
Recorder

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Star.	α	δ	Mag.	T_a	T_m	T_s	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
4 ^k 56 ^u 29 ^u 55 78 54 ^k 52.5 ^u (8) - D ₁₀₀ ^{k'}		52 48 52 46.5 480	8.8 8.9	53 29.0 41.6 44.2 41.6	55 50.0	52.5	56.9	0.4	3.7	56 ^u 56 ^u 56 ^u	56.90 +27.79 +1.43 -3 25.09 -34 24.75		
α_1													+4.77 +5.46
κ (8) - D ₁₀₀ ^{k'}		8.9 55 28.3 27.0 29.4 26.0		55 49.2	52.8	56.2	58.6	3.0		55 ^u 56 ^u 56 ^u	56.16 +28.46 +1.40 -3 24.99 -32 24.67		+4.77 +5.46
α_2													
57 43 ^u 56 ^k 23.5 ^u (8) - D ₁₀₀ ^{k'}		52 03 52 1.2	9.1 9.0	56 50.3 53.3 56.0 53.2	57 19.7	23.2	26.6	30.0	33.2	57 ^u 57 ^u 57 ^u	26.54 +27.80 +1.42 -2 54.74 -35 54.39		+4.72 +5.36
α_1													
κ (8) - D ₁₀₀ ^{k'}		9.0 56 48.4 52.6 56.3 52.8		57 19.3	22.6	26.0	29.3	32.6		57 ^u 57 ^u 57 ^u	25.96 +28.46 +1.38 -2 54.78 -33 54.45		+4.72 +5.36
α_2													
59 39 ^u 58 ^k 9.4 ^u (8) - D ₁₀₀ ^{k'}		52 33 52 31.8	9.8 9.4	58 57.8 0.1 5.1 61.0	58 30.8	34.1	37.4	40.8	44.1	58 ^u 59 ^u 59 ^u	37.44 +27.80 +1.43 -2 56.5 -37 55.13		
α_1													
58 9.4 ^u κ (8) - D ₁₀₀ ^{k'}			9.7 58 40.6 43.9 47.6 44.0	59 4.4	7.8	11.3	14.6	18.0		59 ^u 59 ^u 59 ^u	11.22 +28.46 +1.39 -2 40.05 -35 39.70		+4.76 +5.21
α_2													
5 0 48 ^u 4 59 28.7 ^u κ (8) - D ₁₀₀ ^{k'}		52 36 52 34.0	8.4 8.6	0 6.3 8.3 11.7 8.8	0 23.5	27.0	30.2	33.7	37.2	0 0 0	30.32 +27.80 +1.43 -2 58.53 -39 58.14		+4.76 +5.10
α_1													
κ (8) - D ₁₀₀ ^{k'}		8.6 59 52.7 56.4 58.5 55.9		0 23.7	26.2	28.6	32.0	36.3		0 0 0	29.56 +28.46 +1.39 -2 58.39 -37 58.02		+4.76 +5.10
α_2													
3 32 ^u 2 11.6 ^u κ (8) - D ₁₀₀ ^{k'}		52 52 52 50.5	9.4 9.0	1 57.8 0.8 2.9 60.5	2 23.4	26.7	30.1	32.5	36.9	2 2 2	30.12 +27.80 +1.44 -3 58.33 -38 57.95		
α_1													
2 11.6 ^u κ (8) - D ₁₀₀ ^{k'}			9.0 2 33.1 36.1 38.6 35.9	3 8.3	12.0	15.2	18.9	22.1		3 3 3	15.34 +28.46 +1.40 -3 44.17 -40 43.77		+4.78 +4.87
α_2													

Runs $R_{92} = \begin{matrix} \text{Feb. 10} & \text{Feb. 11} \\ -7.3162 & -7.3145 \\ +.06 & +.06 \\ T_m - T & A \end{matrix}$

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	S'
74		0	4 57.3	46.4	24	5185	52 57 56.82			20	52 50 12.69	
	d	+15.3					52 50 25.05				- 6	+11.90
	(8) - D	1.18469					* 12.19				+ 29	
		9.78465					50	12.69			+11.13	
	δ_1	1.08592 _m						50	12.69		+ 54	
			5629.52		50 13.4						-16.70	
											50 7.89	
	d	+29.6	4 45.5	34.7	24	4010	52 58 8.25			20	13.41	
	(8) - D	1.47129					52 50 36.80				- 24	+11.82
		9.78097					* 23.39				+ 28	
	δ_2	1.36904 _m						50	13.41		+11.24	
			5629.44		50 13.9						+ 54	
											-16.50	
											50 8.43	
66		+33.3	2 15.9	4.5	12	1020	52 10 38.15			10	52 2 39.73	
	d	1.52244					52 3 6.74				- 29	+10.62
	(8) - D	9.78886					* 26.50				+ 13	
	δ_1	1.42808 _m						3	39.73		+10.27	
			57 59.11		2 39.2						+ 57	
											-16.50	
											2 33.85	
	d	+33.3	2 16.1	5.8	12	10.95	52 10 37.40			10	39.24	
	(8) - D	1.52114					52 3 5.95				- 29	+10.73
	δ_2	9.78886					* 26.71				+ 13	
		1.42678 _m						3	39.24		+10.38	
			57 59.17		2 38.7						+ 57	
											-16.60	
											2 33.37	
	d	+36.4	0 58.9	47.7	40	53.20	52 41 55.05			40	52 34 42.20	
	(8) - D	-23.6					52 34 23.60				- 15	+11.28
	δ_1	1.37291 _m					+18.77				+ 5	
		9.78379						34	46.6		+10.85	
		1.27348 _m									+ 53	
											-16.60	
											34 36.88	
76		+27.2	1 24.9	13.4	41	19.15	52 41 29.20			40	33 36.12	
	d	1.43457					52 33 57.75				- 19	+11.37
	(8) - D	9.78379					* 21.63				+ 8	
	δ_2	1.33512 _m						34	36.12		+10.95	
			59 44.46		33 36.0						+ 53	
											-16.70	
											33 30.79	
	d	+21.5	3 44.9	33.7	38	39.30	52 44 9.05			35	52 36 20.35	
	(8) - D	1.33244					52 36 37.60				- 12	+11.50
	δ_1	9.78329					* 17.08				+ 22	
		1.23251 _m						36	20.35		+10.87	
			1 2.90		36 20.4						+ 53	
											-16.60	
											36 15.25	
	d	+33.7	3 34.9	23.9	38	29.40	52 44 18.95			35	20.73	
	(8) - D	1.52763					52 36 47.50				- 31	+11.42
	δ_2	9.78329					* 26.77				+ 22	
		1.42770 _m						37	20.73		+10.98	
			1 2.78		36 20.6						+ 53	
											-16.70	
											36 15.45	
82		+29.6	0 22.5	21.7	25	24.10	52 51 21.25			25	52 49 26.23	
	d	1.47129					52 49 49.80				- 24	+11.43
	(8) - D	9.78113					* 25.40				+ 2	
	δ_1	1.36920 _m						50	26.23		+11.11	
											+ 54	
											-16.60	
											49 21.06	
	d	+39.4	2 58.0	42.9	22	48.95	52 59 59.40			20	51 58.8	
	(8) - D	1.59550					52 52 27.95				- 40	+11.58
	δ_2	9.78080					* 31.12				+ 17	
		1.49308 _m						52	59.47		+11.27	
			348.55		51 56.6						+ 54	
											-16.70	
											51 51.71	

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 Date₁ = Feb 10
 α = +33
 Star. α

Observer N. A. R.
 Recorder J. F. M.

Date₂ =

Observer
 Recorder

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Star.	α	δ	Mag.	T _δ	T _m	T _e	T _f	T _g	T _h	Sum	Mean	Red. to T _m	T
12 ^m 11 ^κ	39 23.4	51 17 51 14.9	8.3 8.0	11 53.3 53.5 53.1 53.8	12 17.1	20.6	20.5	27.2	20.5	12 ^m 23.4 +27.79 + .41 - 2	5 52.02 + .14 52.16		
(δ) - D	κ ₁₀₀									+ 28.18			
a ₁													+4.56 +8.03
14 13 ^κ	20 7.2	51 37.5 51 35.0	6.5 6.6	13 82.6 41.7 43.5 40.9	13 58.5	1.8	5.2	8.5	11.5	14 5.16 +27.79 + .41 - 2	5 52.02 + .14 52.16		
(δ) - D	κ ₁₀₀									+ 28.18			
a ₂													+4.58 +8.90
16 15 ^κ	56 36.3	52 33 52 30.9	8.3 8.0	16 24 8.2 8.6 5.1	16 29.2	32.5	26.1	37.4	4.1	16 36.04 +27.79 + .43 - 2	5 52.02 + .14 52.16		
(δ) - D	κ ₁₀₀									+ 28.20			
a ₁													+4.65 +8.70
17 16 ^κ	45 34.4	50 58 50 55.3	8.3 8.5	17 25 6.5 9.1 6.5	17 23.8	29.1	22.4	30.3	2.0	17 32.42 +27.79 + .41 - 2	5 52.02 + .14 52.16		
(δ) - D	κ ₁₀₀									+ 28.18			
a ₂													+4.56 +8.63
18 17 ^κ	58 38.9	52 06 52 3.3	7.8 7.5	18 33 6.0 8.2 6.1	18 32.0	23.4	28.6	32.0	2.3	18 38.66 +27.79 + .42 - 2	5 52.02 + .14 52.16		
(δ) - D	κ ₁₀₀									+ 28.19			
a ₁													+4.63 +8.54
12 11 ^κ	23 2.4	52 37 52 35.6	9.0 8.5	11 33.6 57.5 8.6 57.9	12 0.1	2.5	7.0	10.4	12.8	12 6.96 +27.80 + .43 - 2	5 52.02 + .14 52.16		
(δ) - D	κ ₁₀₀									+ 28.21			
a ₂													
κ													
(δ) - D	κ ₁₀₀												
a ₁													
κ													
(δ) - D	κ ₁₀₀												
a ₂													
κ													
(δ) - D	κ ₁₀₀												
a ₁													
κ													
(δ) - D	κ ₁₀₀												
a ₂													

Runs $U_{eq} = -\dot{\gamma} 3162$
 $+ .06$
 $T_m - T$

		A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	$+25.0$ 1.39794 9.79589 $1.31061m$	1 430	32.4	56	37.90	51 26 10.65 51 18 39.20 *20.45	18.58 18. 59.48		55	51 18 18.58 -17 +10 +9.94 +46 -16.40 18 12.01	+9.83
δ_1		12 56.72		18 21.04							
d	$+24.3$ 1.38561 9.79272 $1.29511m$	1 34.4	23.3	36	28.85	51 46 19.50 51 38 48.65 *19.73	28.15 38 27.61		35	51 38 28.15 -15 +9 +9.80 +46 -16.40 38 21.95	+10.20
δ_2		14 38.04		38 30.8							
d	$+30.9$ 1.48996 9.78362 $1.39036m$	0 46.5	37.1	40	42.80	52 42 5.55 52 34 34.40 *24.57	9.36 34 58.56		40	52 34 9.36 -25 +4 +10.82 +53 -16.40 34 3.80	+11.14
δ_1		17 8.99		34 12.5							
d	$+35.9$ 1.41330 9.79903 $1.32911m$	x 2.1	50.9	15	56.50	51 5 51.55 50 58 20.40 *21.34	58 58.89 59 41.57		15	50 58 58.89 7. -18 +5 +9.11 +53 -16.40 58 52.00	+9.51
δ_2		18 5.24		58 0.6							
d	$+32.6$ 1.51322 9.78821 $1.41821m$	3 34.8	23.1	8	28.90	52 14 19.40 52 6 47.95 *26.19	6 21.59 7 12.97		5	52 6 21.59 -29 +21 +10.31 +51 -16.40 6 15.63	+10.74
δ_1		19 11.55		6 24.2							
d	$+8.1$ 0.95904 9.78329 $0.85911m$	3 28.3	16.0	38	22.18	52 44 26.20 52 36 54.75 *7.23	36 47.35 37 1.81		25	52 36 47.35 -3 +20 +10.87 +51 -16.40 36 42.50	+11.55
δ_2											
d											
δ_1											
d											
δ_2											
d											
δ_1											
d											
δ_2											

date₁ = Feb. 4 1874
 $\alpha = +36$

Observer N. A. P.
 Recorder J. R. M.

date₂ = Feb. 10 1874
 $\alpha = +33$

Observer N. A. P.
 Recorder J. R. M.

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Star.	α	δ	Mag.	T_0	T_m	T_0	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
13 ^m 44	52 49	8.7	13 ^m 113	13 29.2	22.5	26.0	29.3	42.8	13	30.96			
12 ^κ 26.8	52 47.8	8.3	21.1							+22.39			
(8) - D) κ'_{100}			24.7							+ .47			
a_1			21.7							- .3			
										+ 22.83			
										13	58.79		
										13	- .64		
											58.15		+4.80
													+3.99
			8.8	13 10	13 23.6	27.0	20.5	22.9	27.1	13	30.42		
κ			2.8								+27.80		
(8) - D) κ'_{100}			6.6								+ .43		
a_2			3.8								- .3		
											+ 28.20		
										13	58.62		
										13	- .57		
											58.11		+4.80
													+3.99
15 6	50 15	8.8	14 26.3	14 50.6	53.8	57.0	0.4	3.4	14	57.04			
13 ^κ 57.4	50 13.7	9.2	26.8							+22.39			
(8) - D) κ'_{100}			31.4							+ .43			
a_1			28.8							- .2			
											+ 22.80		
										15	19.84		
										14	- .63		
											19.21		+4.65
													+3.88
			9.0	14 12.3	14 45.0	48.3	51.4	54.8	58.0	14	57.50		
κ			16.0								+27.80		
(8) - D) κ'_{100}			18.5								+ .39		
a_2			15.6								- .2		
											+ 28.17		
										15	19.67		
										15	- .52		
											19.15		+4.65
													+3.88
16 41	50 09	8.6	15 54.3	16 24.9	25.0	31.3	34.6	37.8	16	31.32			
15 ^κ 26.5	50 0.8	8.4	37.0							+22.40			
(8) - D) κ'_{100}			52.8							+ .43			
a_1			57.0							- .2			
											+ 22.81		
										16	54.13		
										16	- .65		
											53.48		+4.65
													+3.74
			8.8	15 46.2	16 19.3	22.6	28.8	29.2	32.3	16	25.84		
κ			49.3								+27.80		
(8) - D) κ'_{100}			31.5								+ .39		
a_2			42.0								- .2		
											+ 28.17		
										16	54.01		
										16	- .53		
											53.48		+4.65
													+3.74
18 22	50 50	8.5	17 32.5	18 53	12.0	15.1	18.5	21.7	18	15.16			
17 ^κ 7.5	50 49.4	8.7	86.0							+22.40			
(8) - D) κ'_{100}			38.9							+ .445			
a_1			36.1							- .2			
											+ 22.83		
										18	37.987		
										18	- .68		
											37.31		+4.69
													+3.60
			8.8	17 26.6	18 2.2	6.5	8.8	13.0	16.2	18	9.74		
κ			29.3								+27.80		
(8) - D) κ'_{100}			32.0								+ .41		
a_2			29.3								- .2		
											+ 28.19		
										18	37.93		
										18	- .56		
											37.37		+4.69
													+3.60
20 26	51 12	9.0	20 23.3	20 49.5	53.0	56.5	58.5	3.0	20	56.36			
19 ^κ 27.8	51 11.2	8.9	26.0							+22.40			
(8) - D) κ'_{100}			28.6							+ .45			
a_1			25.9							- .2			
											+ 22.83		
										21	19.19		
										21	- .71		
											18.48		+4.71
													+3.36
19 21.8	51 11.2	9.1	19 35.5	20 17.3	20.5	23.6	27.0	30.2	20	23.72			
κ			39.1							+27.80			
(8) - D) κ'_{100}			41.2								+ .401		
a_2			38.6								- .2		
											+ 28.19		
										20	51.921		
										20	- .59		
											51.32		+4.71
													+3.40

Runs

 $R_g = -731.69$ Feb. 4
 $+0.5$
 -731.62 Feb. 10
 $+0.6$

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
5.40	d	+14.3	1	229	179	26	23.90	52 56 24.45		25	52 48 41.45	
		1.15534						52 48 52.59			-11.5	+11.94
		9.78130						* 11.31 48 41.45			+11.38	
		1.05342 _w						49 4.07			+54	
	δ_1	14 2			48	41.6					-15.80	
		13.5795									48 37.59	
	d	+26.6	1	128	6.0	26	9.40	52 56 38.95	-2.70	25	43.25	
		1.42488						52 49 7.58			46.24	
		9.78130						* 21.04 48 46.29			-17	+11.53
		1.32296 _w						49 25.37			+11.11	
	δ_2	14 2.91			48	42.54					+54	
											-16.40	
											48 41.42	
											38.52	
5.4	d	+28.2	4	430	331	59	38.05	50 23 10.30		56	50 15 15.02	
		1.45025						50 15 38.74			-21	+8.97
		9.80565						* 23.59 15 15.02			+23	
		1.37268 _w						16 2.20			+8.54	
	δ_1	15 23.86			15	12.8					+41	
											-15.10	
											15 8.89	
	d	+35.9	4	36.2	24.9	89	30.05	50 23 18.30		56	16.35	
		1.55509						50 15 46.88			-35	+8.67
		9.80565						* 30.03 15 16.35			+27	
		1.47752 _w						16 16.71			+8.34	
	δ_2	15 23.80			15	13.2					+41	
											-15.70	
											15 9.32	
48	d	+34.3	0	35	4 52.6	4	57.05	50 17 50.30		5	50 10 48.47	
		1.53529						50 10 18.74			-31	+8.54
		9.80565						* 14.37 10 9.24			-0	
		1.15757 _w						28.7414 32.98			+8.44	
		4.857									+41	
	δ_1	16 58.13			9	47.0					-15.10	
											9 54.68	4331
	d	+36.8	4	57.9	0 47.4	4	52.90	17 53.45		0	8.44 52.59	
		1.56885						50 10 23.83			-37	+8.58
		9.80565						-15.42			+29	
		1.18813 _w						30.54			+8.25	
		4.857									+41	
	δ_2	16 58.13			9	49.7					-15.60	
											10 1.34	
											9 45.97	
42	d	+39.1	0	2.1	50.9	24	56.50	50 57 51.85		25	50 49 47.85	
		1.69218						50 50 20.29			-41	+9.20
		9.80043						* 32.31 49 47.85			-1	
		1.50939 _w						50 52.47			+9.18	
	δ_1	18 42.00			49	45.4					+44	
											-15.20	
											49 41.85	
	d	+40.4	4	58.2	48.4	24	53.20	50 57 55.05		20	50.04	
		1.60638						50 50 23.88			-43	+9.26
		9.80043						* 33.39 49 50.04			+29	
		1.52359 _w						50 56.82			+8.96	
	δ_2	18 42.06			49	47.2					+44	
											-15.70	
											49 43.60	
4	d	+30.5	2	438	323	2	38.05	51 20 10.30		0	51 12 13.61	
		1.48430						51 12 38.74			-24	+9.94
		9.79684						* 25.00 12 13.61			+13	
		1.39792 _w						13 3.61			+9.57	
	δ_1	21 23.19			12	11.7					+46	
											-15.20	
											12 8.35	
	d	+45.1	2	23.9	14.4	2	19.15	51 20 29.20		0	12 20.61	
		1.65418						51 12 57.72			-54	+9.48
		9.79684						* 36.97 12 20.61			+14	
		1.56780 _w						13 34.55			+9.36	
	δ_2	20 56.03			12	17.6					+46	
											-15.80	
											12 14.23	

275
Date₁ = Feb 11 1874
n = +.36

Observer N. A. R.
Recorder J. F. M.

276
Date₂ = Feb 10 1874
n = +.33

Observer
Recorder

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Run

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
21	48	52 13	9.0	27 25.8	30.0	33.4		39.9	43.3	21	36.65		
20	27.7	52 11.4	9.0	27 27.8							+22.41		
				31.0							+ .46		
				28.2							- 2		
(8) - D											21	59.50	
a_1											21	58.77	+4.77
													+3.30
			9.3	21 10	21 24.6	27.8	34.0	34.5	37.8	21	31.14		
				14							+27.80		
				7.2							+ .42		
(8) - D											21	59.34	
a_2											21	58.73	+4.77
													+3.30
23	14	52 37	8.0	22 32.1	22 36.1	39.4	2.8	6.2	9.6	23	2.82		
21	52.9	52 32.4	7.9	22 33.4							+22.41		
				37.9							+ .47		
(8) - D											23	25.68	
a_1											23	24.93	+4.80
													+3.18
			8.0	22 12.1	22 30.8	34.1	37.6	0.9	4.3	22	57.54		
				13.0							+27.80		
				14.5							+ .43		
(8) - D											23	25.75	
a_2											23	25.12	+4.80
													+3.18
24	36	53 01	8.9	23 36.7	24 18.0	21.1	24.8	28.2	31.7	24	24.76		
23	10.0	52 59.6	9.3	23 32.8							+22.41		
				26							+ .48		
(8) - D											24	47.62	
a_1											24	46.84	+4.83
													+3.07
			9.2	23 44.3	24 12.5	14.9	19.3	23.0	26.2	24	19.38		
				47.7							+27.80		
				37.3							+ .44		
(8) - D											24	47.59	
a_2											24	46.94	+4.83
													+3.07
25	24	52 29	8.3	24 48.3	25 35.0	8.5	11.9	15.2	18.5	25	11.88		
24	3.2	52 28.1	8.5	24 51.2							+22.41		
				38.5							+ .47		
(8) - D											25	34.74	
a_1											25	33.67	+4.79
													+2.99
			8.8	24 48.3	24 39.7	3.0	6.4	8.8	13.3	25	6.44		
				50.8							+27.80		
				38.5							+ .43		
(8) - D											25	34.65	
a_2											25	33.99	+4.79
													+2.99
28	12	50 26	8.2	27 27.5	27 52.6	37.0	0.0	2.0	6.8	28	0.18		
26	56.8	50 25.6	8.0	27 30.8							+22.41		
				38.3							+ .44		
(8) - D											28	23.01	
a_1											28	22.25	+4.68
													+2.75
			8.3	27 16.4	27 48.3	31.5	34.8	37.9	1.2	27	54.74		
				18.6							+27.80		
				22.1							+ .40		
(8) - D											28	22.92	
a_2											28	22.27	+4.68
													+2.75

Continued in C. 18

Runs $R_{eq} = \begin{matrix} \text{Feb. 4} & \text{Feb. 10} \\ -731.69 & 31.62 \\ +.05 & +.06 \end{matrix}$

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
5-1	d	+8.4 ⁵ 0.92428 9.78707 9.82813 _m	1' 35.8	24.1	1'	29.75	52 21 18.40, 52 13 46.54 - 6.73	39.98 13 53.44		0'	52 13 35.98 - 2 + 7 +10.72 + 51 -15.50 13 35.76	+11.28
(8) - D	$\frac{d'}{100}$											
δ_1		22 3.54		13 39.1								
d		+26.9 1.42975 9.78707 1.33360 _m	1 19.5	7.9	1	12.70 12.73	52 21 34.65, 52 14 3.28 - 21.56	13 41.47 14 24.59		0	41.47 - 19 + 7 +10.97 +10.97 + 51 -16.10 13 36.23	+10.96
(8) - D	$\frac{d'}{100}$											
δ_2		22 3.94	50	405	13 39.5							
50	d	+27.7 1.44248 9.78379 1.34305 _m	1 30.3	18.1	41	24.20	52 41 24.156, 52 33 52.64 - 22.03	33 30.43 34 14.49		40	52 33 30.43 - 21 + 7 +11.09 + 52 -15.50 33 26.40	+11.47
(8) - D	$\frac{d'}{100}$											
δ_1		23 29.73		33 29.6								
d		+42.6 1.62941 9.78379 1.52998 _m	1 15.7	4.0	41	9.85	52 41 38.578, 52 34 7.65 - 33.88	33 33.00 34 46.76		40	33.00 - 49 + 7 +10.83 + 52 -16.10 33 27.83	+10.93
(8) - D	$\frac{d'}{100}$											
δ_2		23 29.92		33 31.0								
38	d	+25.1 1.39967 9.77930 1.29575 _m	4 25.8	12.9	14	19.35	53 8 29.00, 53 0 57.44 - 19.76	0 37.55 + 17.07		10	53 0 37.55 - 16 + 21 +11.60 + 55 -15.50 0 34.15	+12.20
(8) - D	$\frac{d'}{100}$											
δ_1		24 51.67		0 37.2								
d		+31.6 1.49969 9.77930 1.39577 _m	4 19.5	7.9	14	13.70	53 8 34.65, 53 1 3.28 - 24.88	0 38.15 + 27.91		10	38.15 - 27 + 25 +11.83 + 55 -16.30 0 33.71	+11.86
(8) - D	$\frac{d'}{100}$											
δ_2		24 51.77		0 36.8								
44	d	+20.9 1.32015 9.78461 1.22154 _m	1 27.0	15.1	46	21.05	52 36 27.38, 52 28 55.44 - 16.65	28 38.96 29 12.26		45	52 28 38.96 - 12 + 7 +11.01 + 52 -15.40 28 35.04	+11.48
(8) - D	$\frac{d'}{100}$											
δ_1		25 38.76		28 38.0								
d		+15.5 1.19033 9.78461 1.09172 _m	1 29.1	18.8	46	23.95	52 36 24.40, 52 28 52.75 - 12.35	28 40.43 29 5.13		45	40.43 - 6 + 8 +10.77 + 52 -16.00 28 35.74	+11.31
(8) - D	$\frac{d'}{100}$											
δ_2		25 38.78		28 38.73								
44	d	+29.7 1.47276 9.78852 1.39336 _m	2 44.3	33.6	47	38.95	50 35 5.40, 50 27 37.84 - 24.74	27 12.97 28 2.45		45	50 27 12.97 - 24 + 13 + 8.76 + 42 -14.80 27 7.24	+9.07
(8) - D	$\frac{d'}{100}$											
δ_1		28 26.93		27 10.0								
d		+35.3 1.54777 9.80382 1.46837 _m	3 36.5	36.8	47	24.65 31.65	50 35 21.70, 50 27 50.25 - 29.40	27 20.68 28 19.48		45	27 20.68 - 33 + 15 + 8.56 + 42 -15.40 27 7.88	+8.80
(8) - D	$\frac{d'}{100}$											
δ_2		28 27.05	26.95	27 11.8								

For rest of Feb 4. 10. See C.18.

Date₁ =

Observer

Recorder

Date₂ =

Observer

Recorder

Star.	α	δ	Mag.	T_{δ}	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
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													

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