

KG
11366
v. 599

Rose Observations & Reductions
C. 37.

from Jan. 20 1877. to April 23 1878

Charles W. Sever, University Bookstore, Cambridge.

637	^h	^m	^s	⁰	
	4	45	57	57	Feb 3
	4	33	28	54	" 14
	6	0	43	52	" 21
	7	0	41	53	Mar. 6
	7	17	4	52	" 24

uns

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'																														
d																																									
$((\delta) - D) \frac{d'}{100}$																																									
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d																																									
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<div>Adopted values of i for 1877.</div> <table><thead><tr><th></th><th></th><th></th><th>For Circle Readings</th><th>For Declinations</th></tr></thead><tbody><tr><td>d</td><td>Jan 13 - Mar 1</td><td>+ 54 41 14"</td><td>15 tang i</td><td>15 tang i</td></tr><tr><td>$((\delta) - D) \frac{d'}{100}$</td><td>March 2 - May 2¹⁴</td><td>+ 5 1 41</td><td>0.12416</td><td>0.12416 w</td></tr><tr><td>δ_1</td><td>May 15 - July 4</td><td>+ 4 59 45</td><td>0.12048</td><td>0.12048 w</td></tr><tr><td></td><td>July 5 - Dec 31</td><td>+ 5 3 9</td><td>0.11768</td><td>0.11768 w</td></tr><tr><td></td><td></td><td></td><td>0.12260</td><td>0.12260 w</td></tr></tbody></table>															For Circle Readings	For Declinations	d	Jan 13 - Mar 1	+ 54 41 14"	15 tang i	15 tang i	$((\delta) - D) \frac{d'}{100}$	March 2 - May 2 ¹⁴	+ 5 1 41	0.12416	0.12416 w	δ_1	May 15 - July 4	+ 4 59 45	0.12048	0.12048 w		July 5 - Dec 31	+ 5 3 9	0.11768	0.11768 w				0.12260	0.12260 w
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δ_2																																									

512

Date₁ = 1877 Jan. 20
n = -38 c = -12Observer
Recorder

513

Date₂ = Jan. 23 n = -41 c = -12
Jan. 30 n = -36 c = -12Observer
Recorder

2

Run

Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
13 22	54 46	7.7	3	14	37	14	32	6.7	103	138	174	14	10.28
12 82	42.0	7.0			40					-21.12			20.37
κ					46								.54
(S) - D					6.77							13	.21
a_1												*	49.16
													1.08
													48.13
23			7.8	18	388	14	24	5.9	9.2	130	16.6	14	9.42
κ					380						-20.42		19.63
(S) - D					410								.58
a_2					37.60								.21
												13	49.00
												*	0.96
													48.04
30			7.4	13	303	13	58.6	3.1	66	10.1	13.9	14	6.66
κ					339						-17.70		16.98
(S) - D					360								.51
a_1					33.40								.21
												13	48.96
													0.78
													48.18
20	14 15	54 7	9.0	15	170	14	47.3	57.0	54.4	58.0	1.6	14	54.46
78 7.0	4.9	9.3			208						-21.09		20.37
12 54.5	4.4				234								.52
(S) - D					20.40								.20
a_2												14	33.37
													1.04
													32.55
23			9.0	14	362	14	46.8	50.1	53.8	57.3	0.8	14	53.76
κ					395						-20.40		19.63
(S) - D					426								.57
a_1					39.43								.20
												14	33.36
													.97
													32.39
20			8.5	15	90	14	—	—	—	54.4	58.0	14	50.94
κ					135						-17.68		16.98
(S) - D					154								.50
a_2					12.63								.20
												14	33.26
													.79
													32.47
20	15 38	54 13	9.0	16	182	16	18.9	22.3	25.9	29.4	32.9	16	25.88
14 24.3	9.3	8.4			164						-21.10		20.37
κ					200								.53
(S) - D					16.53								.20
a_1												16	4.78
													1.06
													3.72
23			8.9	15	475	16	180	21.5	25.1	28.7	32.0	16	25.06
κ					508						-20.40		19.63
(S) - D					540								.57
a_2					50.77								.20
												16	4.66
													.99
													3.67
20			8.6	16	74	16	153	18.9	22.3	25.8	29.4	16	22.34
κ					105						-17.68		16.98
(S) - D					136								.50
a_1					10.50								.20
												16	4.66
													.81
													3.85
20	18 17	54 44	9.0	18	286	18	57.7	1.3	4.8	8.6	12.2	19	4.92
17 2.4	40.0	8.6			316						-21.12		20.37
κ					330								.54
(S) - D					36.7								.21
a_2					31.93							18	43.80
													1.09
													42.71

	Re	"	"
Jan 20 -	4 22.46	- .32	+ 1.14
23 -	4 22.87	- .31	
30 -	4 22.18	- .27	+ 0.69

+ 1.14

 $+ 2.03$ $+0.69$

Z

[illegible]

Date₁ = 1877 Jan. 20Observer
RecorderDate₂ = Jan. 23 513
Jan. 30 514Observer
Recorder

Ru

Star.	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
18 17 17 24 κ	54° 44' 40.0	9.1 8.6	3 18 27.7 31.7 33.8 31.07	18 57.0	0.5	4.1	7.7	11.4 -20.42	19	4.14 19.63 5.28 2.1 43.72 1.03 42.69 2.8		
(8) - D $\frac{\kappa'}{100}$		9.2							18	43.72		
α_1										1.03		
20		9.1	18 38.4 41.4 44.6 41.47	18 54.2	57.6	1.3	4.8	8.5 -17.70	19	1.36 16.98 1.51 2.1 43.58 1.85 42.73		
κ										16.98		
(8) - D $\frac{\kappa'}{100}$		9.3							18	43.58		
α_2										42.73		
20	20 47 19 32.5 κ	52 27 22.6	7.4 6.7	21 2.2 5.2 8.2 5.20	21 26.0	29.5	32.9	36.2 89.7 -21.06	21	32.86 20.37 4.9 2.0 11.80 1.11 10.69		
(8) - D $\frac{\kappa'}{100}$									21	11.80		
α_1										1.11		
23		6.8	21 16.1 18.3 22.0 19.13	21 25.4	21.9	32.2	35.6	89.0 -20.36	21	32.22 19.63 5.3 2.0 11.86 1.04 10.82		
κ										19.63		
(8) - D $\frac{\kappa'}{100}$									21	11.86		
α_2										1.04		
30		7.0	20 54.3 57.2 59.3 56.93	21 22.4	25.9	29.3	32.7	36.0 -17.65	21	29.26 16.98 4.7 2.0 11.61 1.12 10.73		
κ										16.98		
(8) - D $\frac{\kappa'}{100}$									21	11.61		
α_1										1.12		
20	21 47 20 32.3 κ	53 13 9.2	9.3 9.4	22 25.4 28.9 31.9 28.73	22 27.2	30.6	34.0	37.4 41.0 -21.08	22	34.04 20.37 5.1 2.0 12.96 1.12 11.84		
(8) - D $\frac{\kappa'}{100}$									22	12.96		
α_2										1.12		
23		9.4	22 28.0 25.5 28.3 25.93	22 26.4	30.0	33.1	36.8	40.2 -20.38	22	33.30 19.63 5.5 2.0 12.92 1.06 11.86		
κ										19.63		
(8) - D $\frac{\kappa'}{100}$									22	12.92		
α_1										1.06		
24		9.5	22 4.0 6.5 8.6 6.37	22 23.7	27.1	30.4	34.0	37.3 -17.65	22	30.50 16.97 4.8 2.0 12.85 1.09 11.96		
κ										16.97		
(8) - D $\frac{\kappa'}{100}$									22	12.85		
α_2										1.09		
20	22 07 21 41.6 κ	53 58 54.2	9.2 9.2	23 29.4 32.4 35.2 32.43	23 35.1	38.5	42.0	45.4 49.0 -21.09	23	42.00 20.37 5.2 2.0 20.91 1.15 19.76		
(8) - D $\frac{\kappa'}{100}$									23	20.91		
α_1										1.15		
23		9.0	23 10.4 12.8 14.9 12.70	23 34.0	37.7	41.1	44.6	48.1 -20.40	23	41.10 19.63 5.7 2.0 20.70 1.08 19.62		
κ										19.63		
(8) - D $\frac{\kappa'}{100}$									23	20.70		
α_2										1.08		

Runs

+ 114

+ 2.03

+ 0.69

5

	$T_m - T_s$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+33.07 1.51943 9.91203 1.55562	3 15.2 9.46129 1.40488	26.9	421 33	21.05	54 49 45 45	27.30 4.52 -36.44 -25.40		30	+ 0.71 54 44 39.12 - .28 + 1.02 + 13.64 + .50 - 21.8 44 39.44	+12.84 14.87 32.90
(8) - D) $\frac{d'}{100}$	-9.03 -25.98	18 33.66		44 6.9	33						
d	+19.81 1.29688 9.91203 1.33307	3 21.4 9.46129 1.18233	33.9	553 3	27.65	54 49 44 44	20.70 58.52 -21.83 -15.22		30	52 44 41.33 - .10 - .94 + 13.50 + .50 - 22.0 44 41.33	+12.96 13.65 34.95
(8) - D) $\frac{d'}{100}$	-9.03 -25.98	18 33.70		44 9.0	49						
d	+27.66 1.44185 9.89937 1.46538	4 36.8 9.78461 1.35062	49.1	859 4	42.95	52 33 29 28	54.0 42.64 -24.20 -32.42		45	52 28 50.22 - .20 - 1.50 + 10.36 + .40 - 21.0 28 50.22	+ 9.06 10.20 34.95
(8) - D) $\frac{d'}{100}$	-8.82 -25.64	21 1.87		27 43.8	49						
d	+13.09 1.11694 9.89927 1.14087	4 52.2 9.48448 1.02588	3.1	1153 4	57.65	52 32 28 28	50.70 27.92 -13.52 -10.61		45	52 28 17.31 - .5 - 1.53 + 11.05 + .40 - 21.2 28 17.31	+ 9.87 11.90
(8) - D) $\frac{d'}{100}$	-8.82 -25.64	21 2.00		27 43.1	49						
d	+32.33 1.50961 9.89937 1.56314	4 32.1 9.78461 1.41838	44.5	766 4	38.30	52 33 28 28	10.05 47.87 -34.13 -26.20		45	52 28 21.67 - .28 - 1.24 + 10.93 + .40 - 21.4 28 21.67	+ 9.81 10.50
(8) - D) $\frac{d'}{100}$	-8.82 -25.64	21 1.91		27 41.5	40						
d	+5.31 0.72509 9.90377 0.75302	3 30.1 9.47894 0.62619	43.9	740 3	37.00	53 19 14 14	11.35 48.59 -56.69 -40.23		0	53 14 44.76 - 1 - 1.15 + 11.19 + .40 - 20.2 14 44.76	+10.43 11.57
(8) - D) $\frac{d'}{100}$	-8.91 -25.52	22 2.93		14 9.6							
d	+7.37 0.86747 9.90377 0.89540	3 34.6 9.77694 0.76857	46.0	806 3	40.30	53 19 14 14	8.05 45.27 -7.56 -5.87		0	53 14 39.40 - 2 - 1.15 + 11.93 + .40 - 21.4 14 39.40	+11.16 13.19
(8) - D) $\frac{d'}{100}$	-8.91 -25.52	22 2.95		14 6.4							
d	+24.13 1.38256 9.90377 1.41049	3 15.9 9.77694 0.28366	27.1	430 3	21.50	53 19 15 15	26.85 4.67 -25.73 -19.22		0	53 14 45.45 - .15 - .90 + 11.81 + .40 - 21.6 14 45.45	+11.16 11.85
(8) - D) $\frac{d'}{100}$	-8.91 -25.52	22 3.05		14 10.2	19						
d	+9.57 0.98091 9.90787 1.01294	4 28.6 9.76939 0.87446	41.1	697 4	34.85	53 3 58 58	13.50 50.74 -10.38 -59.5		15	53 58 44.79 - 3 - 1.47 + 11.96 + .50 - 21.4 58 44.79	+10.96 12.10
(8) - D) $\frac{d'}{100}$	-8.99 -25.36	23 10.77		58 10.1	19						
d	+28.40 1.45332 9.90787 1.48535	4 17.0 9.76939 0.34687	26.4	434 4	21.70	53 3 59 59	26.65 3.87 -30.57 -22.23		15	53 58 41.64 - .21 - 1.35 + 12.76 + .50 - 21.6 58 41.64	+11.70 13.73
(8) - D) $\frac{d'}{100}$	-8.99 -25.36	23 10.63		58 9.1							

Date₁ = Jan 20Observer
RecorderDate₂ = Jan 23 512
Jan 30 514Observer
Recorder

Star.	α	δ	Mag.	T_1	T_m	T_s	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
22	57	53° 58'	9.2	3	23	24	23	31.3	34.9	38.3	41.9	45.3	23
21	41.6	54.2	9.2			50						-17.67	
κ						86							
$((\delta) - D) \frac{\kappa'}{100}$						5.33							
a_1													
20	54	52	8.9		24	24	24	29.7	33.0	36.3	39.8	43.0	24
22	36.7	27.4	8.9			25.2						-21.06	
κ						81.8							
$((\delta) - D) \frac{\kappa'}{100}$						29.03							
a_2													
23			8.9		24	11.0	24	28.8	32.2	35.6	39.0	42.4	24
κ						139						-20.36	
$((\delta) - D) \frac{\kappa'}{100}$						16.0							
a_1						13.63							
30			8.7		24	11.0	24	25.8	29.4	32.8	36.0	39.6	24
κ						14.0						-17.64	
$((\delta) - D) \frac{\kappa'}{100}$						16.3							
a_2						13.77							
20	33	54	8.1		27	50.2	28	13.6	16.9	20.5	24.3	27.5	28
26	17.8	3.5	9.0			53.3						-21.09	
κ						57.6							
$((\delta) - D) \frac{\kappa'}{100}$						53.70							
a_1													
23			9.2		27	40.0	28	12.7	16.2	19.8	23.4	26.7	28
κ						43.6						-20.40	
$((\delta) - D) \frac{\kappa'}{100}$						46.3							
a_2						43.30							
30			9.2		27	41.8	28	9.9	13.3	16.7	20.2	24.0	28
κ						44.8						-17.67	
$((\delta) - D) \frac{\kappa'}{100}$						48.3							
a_1						45.00							
20	52	53	8.6		29	13	29	31.8	35.3	38.8	42.2	45.8	29
27	37.2	23.1	8.3			53						-21.08	
κ						76							
$((\delta) - D) \frac{\kappa'}{100}$						4.73							
a_2													
23			8.5		29	35	29	31.1	34.4	38.0	41.5	44.8	29
κ						6.4						-20.38	
$((\delta) - D) \frac{\kappa'}{100}$						8.9							
a_1						6.27							
30			8.8		29	26	29	28.1	31.7	35.3	38.5	42.2	29
κ						6.0						-17.65	
$((\delta) - D) \frac{\kappa'}{100}$						8.4							
a_2						5.67							

Runs

	$T_m - T_j$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	$8'$
d	+33.05 1.51907 9.90784 1.55120	4 10.4	22.5	329	19 16.45	3 31.90	53 59 9.72		15	53 58 43.85 + 11.65	
(8) - D) $\frac{d'}{100}$	9.46939 1.41272						-25.58 -25.87			- .28 12.34	
δ_1	-8.99 -25.36	23 10.81		55 9.0						+ 12.64 + 45 - 21.8 58 32.0 54.39	
d	+7.33 0.86510 9.89966 0.86892	1 23	16.5	188	46 9.40	36 38.95	52 32 16.19		45	52 32 10.26 + 10.46	
(8) - D) $\frac{d'}{100}$	9.48412 0.77338						-7.74 -5.93			- 2 11.60	
δ_2	-8.86 -25.24	24 48.9		31 35.6						+ 10.43 + 40 - 21.0 31 57.7 32 0.86 + 0.71	
d	+21.97 1.34183 9.89966 1.26565	0 54.4	5.0	1194	0 59.70	36 48.65	52 32 25.87		45	52 32 8.08 + 11.16	
(8) - D) $\frac{d'}{100}$	9.48412 1.25011						-23.21 -17.79			- .13 13.12	
δ_1	-8.86 -25.24	24 53.0 23 48.9		31 35.5						+ 31 + 11.13 + 40 - 21.2 31 57.7 32 0.71	
d	+18.95 1.27761 9.89966 1.30143	0 52.9	5.9	1188	0 59.40	36 48.95	52 32 26.77		45	52 32 11.43 + 11.07	
(8) - D) $\frac{d'}{100}$	9.48412 1.18589						-20.02 -15.34			- 8 11.76	
δ_2	-8.86 -25.24	24 53.0		31 36.6						+ 11.02 + 40 - 21.4 32 7.79	
d	+126.86 1.42911 9.90878 1.46205	4 39.8	52.4	922	4 46.10	13 2.25	54 8 39.49		5	54 8 18.55 + 10.89	
(8) - D) $\frac{d'}{100}$	9.46765 1.32092						-28.98 -20.94			- .19 12.03	
δ_1	-9.06 -24.72	27 49.20		7 44.6						+ 154 + 12.12 + 50 - 21.3 8 5.79	
d	+36.46 1.56182 9.90878 1.59476	4 35.5	43.8	793	4 39.65	13 8.70	54 8 45.92		5	54 8 17.50 + 11.64	
(8) - D) $\frac{d'}{100}$	9.46765 1.45363						-34.33 -28.42			- .35 13.67	
δ_2	-9.06 -24.72	27 49.16		7 45.6						+ 144 + 12.93 + 50 - 21.6 8 5.79	
d	+31.82 1.50270 9.90878 1.53864	4 35.2	45.4	806	4 40.30	13 8.05	54 8 45.87		5	54 8 21.04 + 14.74	
(8) - D) $\frac{d'}{100}$	9.46765 1.39451						-34.33 -24.80			- .26 12.43	
δ_1	-9.06 -24.72	27 49.12		7 49.0						+ 126 + 12.81 + 45 - 21.8 8 5.79	
d	+34.05 1.53212 9.90499 1.56127	4 34.7	6.5	1212	5 0.60	32 47.75	53 28 24.99		45	53 27 58.01 + 9.96	
(8) - D) $\frac{d'}{100}$	9.47473 1.43101						-36.44 -26.98			- .30 11.10	
δ_2	-9.00 -24.54	29 7.48		27 23.0						+ 11.41 + 45 - 21.2 27 46.87 47.51	
d	+31.69 1.50892 9.90499 1.53007	0 1.3	12.0	133	0 6.65	32 41.70	53 28 18.92		50	53 27 53.51 + 12.34	
(8) - D) $\frac{d'}{100}$	9.47473 1.39981						-33.89 -25.11			- .26 14.37	
δ_1	-9.00 -24.54	29 7.43		27 23.0						+ 3 + 12.18 + 45 - 21.4 27 46.87 47.49	
d	+29.49 1.46967 9.90499 1.49882	4 39.1	9.4	1285	5 4.25	32 44.10	53 28 21.92		45	53 27 58.56 + 10.86	
(8) - D) $\frac{d'}{100}$	9.47473 1.36856						-31.54 -23.36			- .23 11.55	
δ_2	-9.00 -24.54	29 7.52		27 24.0						+ 137 + 12.06 + 40 - 21.6 27 46.87 48.51	

Date₁ = 1877 Jan. 20Observer
RecorderDate₂ = Jan. 23 5:38
Jan. 30 5:14Observer
Recorder

8

1877pbae

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
20	31 19 30 38 κ	53° 35' 311	9.0 9.0	3	31 46.8 50.0 33.4 50.07	31 58.4	1.8	5.4	8.7	12.3 -21.09	32 - - 31	5.32 20.37 52 20 44.23 12.4 42.99	
23	a_1 κ (8) - D $\frac{\kappa'}{100}$		9.1	31 30.7 33.8 37.1 33.90	31 57.9	1.3	4.8	8.3	11.7 -20.39	32 - - 31	4.50 19.63 56 20 44.41 1.19 43.22		-9.0 -2.0
30	a_2 κ (8) - D $\frac{\kappa'}{100}$		9.4	31 19.5 21.7 26.6 22.40	31 54.8	58.3	1.7	5.4	8.8 -17.66	32 - - 31	1.80 16.97 49 20 44.14 1.02 43.12		-9.0 -2.0
20	33 25- 32 19.5 κ	53 41 385	9.0 9.0	33 54.4 57.7 1.3 57.80	34 15.4	18.9	22.4	26.0	28.5 -21.09	34 - - 34	22.44 20.37 52 20 1.35 1.27 0.08		-9.0 -2.0
23	a_2 κ (8) - D $\frac{\kappa'}{100}$		9.2	33 42.9 45.7 48.1 45.90	34 14.8	18.3	21.7	25.2	28.7 -20.40	34 - - 34	21.74 19.83 57 20 1.84 1.22 0.12		-9.0 -2.0
30	a_1 κ (8) - D $\frac{\kappa'}{100}$		9.0	33 42.6 45.9 48.4 45.97	34 11.8	15.3	18.7	22.2	24.8 -17.65	34 - - 34	18.76 16.96 49 20 1.11 1.05 0.06		-9.0 -2.0
20	34 06 32 49.7 κ	53 7 40	9.0 9.0	35 4.9 8.0 11.0 7.97	34 44.2	48.1	51.6	53.0	58.4 -21.08	34 - - 34	51.46 20.37 51 20 30.38 1.28 29.10		-9.0 -2.0
23	a_1 κ (8) - D $\frac{\kappa'}{100}$		8.8	35 10.4 13.6 16.0 13.33	34 44.0	47.3	50.8	54.1	57.6 -20.38	34 - - 34	50.76 19.63 55 20 30.38 1.22 29.16		-9.0 -2.0
30	a_2 κ (8) - D $\frac{\kappa'}{100}$		8.7	35 08 5.2 7.1 4.37	34 40.9	44.4	48.0	51.3	54.9 -17.64	34 - - 34	47.90 16.96 48 20 30.26 1.05 29.21		-9.0 -2.0
	a_3 κ (8) - D $\frac{\kappa'}{100}$												-9.0 -2.0

Runs

+114

+2.03

+0.69

9

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+15.25 1.18327 9.90574 1.21317	1' 59.0	10.8	1298	42 4.90	53 40' 43.45	20.69		40	53 36 8.65	+11.28
(8) - D	9.77336 1.080792					-16.34	-12.04			- 6	12.42
δ_1	-9.04 -24.20	31 33.95		35 35.7	41					+ 67 + 11.56 + 4.5 - 21.2	59.87
d	+30.90 1.48996 9.90574 1.51986	1 50.9	0.8	1117	1 55.85	53 40 52.50	29.72		40	53 36 5.31	+11.94
(8) - D	9.77336 1.387482					-32.10	-24.41			- .25	13.94
δ_2	-9.04 -24.20	31 34.18		35 34.4	41					+ 59 + 12.33 + 4.5 - 21.4	58.59
d	+39.40 1.59550 9.90583 1.62549	1 39.8	51.2	910	1 45.50	53 41 2.85	40.67		40	53 36 9.56	+11.74
(8) - D	9.77319 1.492852					-42.22	-31.11			- 41	12.48
δ_1	-9.04 -24.20	31 34.08		35 36.1	35					+ 46 + 12.21 + 4.5 - 21.7	58.59
d	+24.64 1.39164 9.90639 1.42219	0 18.9	32.0	509	0 25.45	53 47 22.90	0.14		35	53 42 40.73	+11.84
(8) - D	9.77216 1.287962					-26.44	-19.41			- 13	12.98
δ_2	-9.07 -23.88	33 51.01		42 8.7	35					+ 11.68 + 4.5 - 21.1	58.59
d	+35.84 1.55437 9.90639 1.58492	0 15.0	26.0	410	0 20.50	53 47 27.85	5.07		35	53 42 36.84	+12.48
(8) - D	9.77216 1.450692					-38.15	-28.23			- 34	14.51
δ_1	-9.07 -23.88	33 51.05		42 6.9	35					+ 12.46 + 4.5 - 21.3	30.76
d	+32.79 1.51574 9.90639 1.54629	0 12.4	25.1	375	0 18.75	53 47 29.60	7.42		35	53 42 41.59	+12.43
(8) - D	9.77216 1.412062					-35.18	-25.83			- 28	13.12
δ_2	-9.07 -23.88	33 50.99		42 9.1	10					+ 12.34 + 4.5 - 21.7	58.59
d	+16.51 1.217737 9.90311 1.24502	0 22.2	36.4	586	0 29.30	53 12 19.05	56.29		10	53 8 9.47	+11.23
(8) - D	9.77512 1.12003					+17.58	+13.18			- 17	12.37
δ_1	-9.01 -23.82	34 20.09		7 37.0	10					+ 11.06 + 4.0 - 21.0	58.59
d	+16.51 1.353532 9.90311 1.38080	0 30.9	41.4	723	0 36.15	53 12 12.20	49.42		10	53 8 7.44	+11.89
(8) - D	9.77512 1.25581					+24.03	+18.02			- 14	13.92
δ_2	-9.01 -23.82	34 20.15		7 37.0	10					+ 11.82 + 4.0 - 21.2	8' 0.87
d	+16.47 1.216692 9.90311 1.24396	0 22.9	34.6	575	0 28.75	53 12 19.60	57.42		10	53 8 10.57	+11.89
(8) - D	9.77482 1.11897					+17.52	+13.15			- 13	12.58
δ_1	-9.01 -23.82	34 20.20		7 37.8						+ 4.0 - 21.5	1.65
d											
(8) - D											
δ_2											

Date₁ = 1877 Jan. 23Observer
RecorderDate₂ = Jan. 30Observer
Recorder

10

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
36 30	53 30	8.2	3	36	334	36 57.1	2.6	6.0	4.5	125	37	6.00	
36 41	27.1	8.0			87.5					-20.38	-	19.63	
κ					32.9						-	.55	
(δ) - D) $\frac{\kappa'}{100}$					36.93						36	45.62	
a_1											-	1.25	
											-	44.37	
30			8.4	36	25.3	36 56.2	59.7	3.3	6.3	100	37	3.10	
κ					28.9					-17.65	-	16.96	
(δ) - D) $\frac{\kappa'}{100}$					32.0						-	.49	
a_2					29.13						36	45.45	
											-	1.08	
											-	44.37	
37 41	53 33	9.4		37	50.6	38 20.6	24.0	27.7	31.1	34.5	38	27.58	
36 25.1	28.9	9.4			54.4					-20.39	-	19.63	
κ					17.7						-	.58	
(δ) - D) $\frac{\kappa'}{100}$					54.23						38	2.0	
a_1											-	7.19	
											-	1.26	
											-	59.3	
			9.5	37	54.3	38 17.8	21.3	24.9	28.3	31.6	38	24.78	
κ					58.5					-17.65	-	16.96	
(δ) - D) $\frac{\kappa'}{100}$					1.2						-	.49	
a_2					58.00						38	2.0	
											-	7.13	
											-	1.09	
											-	6.04	
38 50	53 26	9.0		38	13.3	39 39.7	43.0	46.6	50.0	53.5	39	46.56	
37 48.7	22.7	9.0			16.5					-20.38	-	19.63	
κ					19.5						-	.55	
(δ) - D) $\frac{\kappa'}{100}$					16.43						39	2.0	
a_1											-	26.18	
											-	1.28	
											-	24.90	
			8.3	39	2.9	39 37.0	40.3	44.0	47.3	50.7	39	43.86	
κ					6.4					-17.65	-	16.96	
(δ) - D) $\frac{\kappa'}{100}$					100						-	.49	
a_2					6.43						39	2.0	
											-	26.21	
											-	1.12	
											-	25.09	
40 54	54 57	8.0										.59	
39 38.0	54.2	8.0											
κ													
(δ) - D) $\frac{\kappa'}{100}$													
a_1													
			8.6	41	6.4	41 31.6	35.6	39.0	42.7	46.2	41	39.02	
κ					10.4					-17.68	-	16.96	
(δ) - D) $\frac{\kappa'}{100}$					13.2						-	.51	
a_2					10.00						41	2.1	
											-	21.34	
											-	1.16	
											-	20.18	
41 32	53 09	9.0		42	29.7	42 10.4	13.9	17.4	20.9	24.4	42	17.40	
40 15.8	6.4?	8.7			32.8					-20.38	-	19.63	
κ					36.0						-	.55	
(δ) - D) $\frac{\kappa'}{100}$					32.83						41	2.0	
a_1											-	57.02	
											-	1.31	
											-	55.71	
			9.0	42	32.5	42 -	11.4	14.9	-	21.4	42	14.73	
κ					35.7			14.8		-17.64	-	16.96	
(δ) - D) $\frac{\kappa'}{100}$					40.3			14.5			-	.48	
a_2					36.17						41	2.0	
											-	57.09	
											-	1.15	
											-	58.94	

Date₁ = 1877 Jan. 23Observer
RecorderDate₂ = Jan. 30.Observer
Recorder

12

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
43 33		52° 11'	8.3	3 44	46 33.5	36.9	40.2	43.8	47.0	44	40.28		
42 38.8		77	8.4		77				-20.36		19.63		
K					115						.53		
(δ) - D					793					44	19.92		
α_1											1.32		
											18.60		
			8.4	43 58.5	44 30.9	34.3	37.5	40.7	44.3	44	37.54		
K				09					-17.62		16.96		
(δ) - D				2.8							.46		
α_2				60.73						44	19.92		
											1.17		
											18.76		
45 45		53 30	9.5	45 56.3	46 27.1	30.5	34.0	37.5	40.8	46	33.98		
44 29.3		26.8	9.0	58.8					-20.38		19.63		
K				12							.55		
(δ) - D				58.77						46	13.60		
α_1											1.37		
											12.23		
			9.0	45 50.8	46 24.0	27.6	31.2	34.6	37.9	46	31.06		
K				54.0					-17.64		16.95		
(δ) - D				57.0							.49		
α_2				53.93						46	13.42		
											1.21		
											12.21		
52 22		53 22	8.8	52 27.2	53 11	4.5	8.0	11.6	15.2	53	8.08		
51 4.9		19.5	8.9	30.6					-20.38		19.63		
K				34.3							.535		
(δ) - D				30.70							2.0		
α_1										52	47.70		
											1.45		
											46.25		
			8.4	52 17.9	52 58.1	1.6	5.1	8.6	12.0	53	5.08		
K				1.0					-17.64		16.95		
(δ) - D				42.5							.49		
α_2				46.8						52	47.44		
				44.65							1.30		
											46.24.14		
54 42		54 39	8.8	54 53.4	55 22.1	25.8	29.3	32.8	36.4	53	29.28		
53 20.1		53.8	8.5	59.0					-20.42		19.63		
K				23							.58		
(δ) - D				58.90							2.1		
α_1										55	8.86		
											1.49		
											7.37		
			8.4	54 47.6	55 19.2	22.7	26.3	29.9	33.3	55	26.28		
K				57.0					-17.66		16.94		
(δ) - D				53.2							.51		
α_2				50.60							2.1		
										55	8.62		
											1.34		
											7.28		
56 10		53 14	8.5	56 21.6	56 49.2	52.3	55.8	59.3	2.8	56	55.88	52.94	
54 52.7		11.3	8.4	25.0					-20.38		19.63	16.94.63	
K				27.7							.55	.48	
(δ) - D				24.72							2.0	2.0	
α_1			8.4	56 14.8	56 46.0	49.5	53.0	56.3	59.9	56	52.94	56 35.32	
				17.2					-17.62?		1.49	1.34	
				21.0							34.01	33.98	
				17.67							30.56	27.74	
58 44		53 1	7.0	58 57.8	59 23.8	27.0	30.4	34.0	37.6	59	30.56	27.74	
57 27.3		52 58.1	7.1	1.0					-20.38		16.94	16.94	
K				4.0							.55	.48	
(δ) - D				0.93							2.0	2.0	
α_2			7.2	58 49.2	59 20.8	24.3	27.8	31.1	34.7	59	27.74	59 10.12	
				52.4					-17.62		1.34	1.34	
				52.37							1.62	8.75	
											12.86	8.66	

Runs

+2.03

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	$+0.69$ z	8'
d	+32.35 1.50987 9.89771 1.53174m	1' 19' 9.78739 1.42142m	11.1	130	6' 6.50	52 16	41.85 19.07 -34.02 -26.39		5'	+0.71 52 11 52.68 +10.54 -28 12.57 -34 +1076 +40 -208 11 45.16	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.00 -22.48	44 9.60		11 22.7	6						
d	+36.81 1.56597 9.89771 1.58784m	0 58.7 9.78739 1.47752m	4.5	1162	0 58.10	52 16	50.25 28.27 -34.77 -30.03		5	52 11 58.04 +10.42 -36 11.11 -27 +1065 +40 -211 11 45.55	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.00 -22.48	44 9.75		11 23.1	47						
d	+35.21 1.54667 9.90527 1.57610m	1 58.9 9.77422 1.44505m	8.5	1274	2 3.70	53 35	44.65 21.57 -37.68 -27.86		45	53 30 54.01 +12.76 -32 13.79 -63 +1226 +45 -211 30 47.41	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.16 -22.14	46 3.07		30 25.3	46						
d	+37.13 1.56972 9.90527 1.59915m	1 52.1 9.77422 1.46810m	3.5	1156	1 57.80	53 35	50.55 28.37 -39.73 -29.38		45	53 30 58.99 +11.68 -36 12.37 -53 +12.12 +45 -215 30 47.41	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.16 -22.14	46 3.05		30 27.7	53						
d	+37.38 1.57264 9.90471 1.60151m	3 27.5 9.77524 1.47204m	36.7	642	3 32.10	53 29	16.25 53.47 -34.95 -29.65		50	53 24 23.82 +11.11 -37 13.14 -107 +1212 +45 -209 24 16.77	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.20 -21.16	52 37.05		23 55.6	53						
d	+43.91 1.44256 9.90471 1.62143m	3 37.1 9.77524 1.54196m	47.5	846	3 42.30	53 29	6.05 43.87 -46.93 -34.53-16.21		50	53 24 28.75 +10.88 +11.30 -10.54 11.54 -100 98 +11989 +1197 +40 +40 -213 -213 +10.71 11.64	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.20 -21.16	52 36.94		23 57.2	39						
d	+30.38 1.48259 9.91146 1.51824m	4 27.7 9.77524 1.36911m	35.2	629	4 30.45	54 43	17.90 55.12 -32.98 -23.39		35	54 38 31.70 +12.38 -29 14.41 -140 +13.52 +50 -211 38 25.75	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.37 -20.80	54 58.07		38 57.0	39						
d	+35.68 1.55242 9.91146 1.58807m	4 18.6 9.76236 1.43894m	28.6	472	4 23.60	54 43	24.75 2.57 -36.73 -27.48		35	54 38 35.09 +12.38 -32 13.07 -119 +1339 +50 -215 38 25.75	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.37 -20.80	54 57.91		38 5.9							
d	+31.11 1.49290 9.90386 1.52092m	2 25.0 9.77677 1.39383m	36.1	611	2 30.55	53 20	17.80 55.02 -37.18 -24.76		0	53 15 30.26 33.74 +11.38 +11.27 -25 -33 13.41 -78 -65 +1196 +1185 +45 +40 -208 -21.2 15 21.52358 21.50	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.22 -20.60	2 18.4		30.3	487						
d	+29.63 1.47173 9.90254 1.57543m	1 6.9 9.77913 1.37502m	16.9	238	1 11.90	53 6	36.45 13.67 -31.57 -23.72		15	53 1 49.95 55.21 +11.57 +11.30 -25 -33 13.53 -37 -27 +1172 +1159 +40 +40 -206 -211 1 46.14	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.21 -20.20	8.1		1253	1						
d	+35.37 1.54864 9.90254 1.57543m	0 57.2 9.77913 1.45193m	8.1	1253	1 2.65	53 6	45.70 23.52 -37.64 -28.31		15	53 2 23.52 +40 +40 -206 -211 1 46.14	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.21 -20.20	58 59.45		1 23.4	2						

Date₁ = 1877 Feb. 1
515
n = -48 c = -12

Observer
 Recorder

Date₂ = Feb. 3
516
n = -47 c = -15

Observer
 Recorder

14

Star.	α	δ	Mag.	T_{δ}	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
20 58 19 36.6 K	54° 33'	8.7 8.6	5	21 23.0 26.0 28.4 25.80	21 35.9	39.4	43.0	46.6	38.0 -16.70	21	42.98 15.83 .68 .21 26.26 2.37 23.89		
(8) - D $\frac{\kappa'}{100}$										21	26.26		
a_1											2.37		
a_2											23.89		
K			8.4	21 18.3 21.6 23.4 21.10	21 35.1	38.8	42.5	46.0	48.5 -16.04	21	42.38 15.12 .66 .26 26.34 2.34 24.00		
(8) - D $\frac{\kappa'}{100}$										21	26.34		
a_2											2.34		
a_1											24.00		
21 48 20 38.6 K	51 17	9.3 9.1		22 30.4 33.4 36.7 33.50	22 30.0	32.0	36.3	39.6	42.9 -16.62	22	36.36 15.83 .60 .19 19.74 2.25 17.49		
(8) - D $\frac{\kappa'}{100}$										22	19.74		
a_1											2.25		
a_2											17.49		
K			9.3	22 40.5 48.7 47.4 43.87	22 29.0	32.5	35.8	38.1	42.1 -15.95	22	35.72 15.12 .59 .24 19.77 2.22 17.55		
(8) - D $\frac{\kappa'}{100}$										22	19.77		
a_2											2.22		
a_1											17.55		
24 02 22 41.4 K	54 38	8.8 8.8		24 22.4 25.7 25.7 25.60	24 41.0	44.5	48.2	51.8	53.4 -16.72	24	48.18 15.83 .68 .21 31.46 2.41 29.05		
(8) - D $\frac{\kappa'}{100}$										24	31.46		
a_1											2.41		
a_2											29.05		
K			9.0	24 32.7 35.4 38.8 35.63	24 40.6	44.0	47.7	51.0	54.7 -16.04	24	47.60 15.12 .66 .26 31.56 2.37 29.19		
(8) - D $\frac{\kappa'}{100}$										24	31.56		
a_2											2.37		
a_1											29.19		
26 03 24 42.0 K	54 19	5.8 6.0		26 18.4 22.5 25.6 22.50	26 41.7	45.3	48.8	52.3	53.9 -16.71	26	48.80 15.83 .67 .21 32.09 2.42 29.67		
(8) - D $\frac{\kappa'}{100}$										26	32.09		
a_1											2.42		
a_2											29.67		
K			5.5	26 22.7 26.2 28.3 25.73	26 41.1	44.5	48.0	51.7	53.0 -16.04	26	48.06 15.12 .66 .26 32.02 2.38 29.64		
(8) - D $\frac{\kappa'}{100}$										26	32.02		
a_2											2.38		
a_1											29.64		
28 38 27 16.6 K	54 9	9.0 8.8		28 51.9 55.6 53.6 55.37	28 18.0	24.5	25.0	28.6	32.1 -16.70	29	25.04 15.83 .67 .26 8.34 2.44 5.90		
(8) - D $\frac{\kappa'}{100}$										29	8.34		
a_1											2.44		
a_2											5.90		
K			9.1	28 42.8 46.2 48.4 45.80	28 17.4	20.8	24.3	27.9	31.2 -16.02	29	24.32 15.12 .65 .25 8.30 2.41 5.89		
(8) - D $\frac{\kappa'}{100}$										29	8.30		
a_2											2.41		
a_1											5.89		

Runs

Feb 1 - 4' 22.53 - .26
 3 - 4 20.51 - .24 - 0.02

+ 0.65

15

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	-002 z	8'
d	+1718 1.23502 9.91105 1.27023	3' 38.9 9.76324 1.12242	18.1	1300	4 5.00	54 38' 43.35 34 20.82 -18.68 -13.26			40	54 34 7.56 +12.65 -10.7 +12.69 +45 -184 34 116 181	
((8) - D) $\frac{d'}{100}$											
δ_1	-9.85 -6.74	21 14.04		33 55.1	44						
d	+2128 1.32797 9.91105 1.36318	3 58.1 9.76324 1.21537	8.1	1262	4 3.10	54 38' 45.25 34 24.74 -23.08 -16.42			40	54 34 8.32 +12.38 -11 97 +12.95 +45 -187 34 116 181	
((8) - D) $\frac{d'}{100}$											
δ_2	-9.85 -6.74	21 14.15		33 55.2							
d	+286 0.45637 9.89233 0.47286	0 17.2 9.79605 0.37658	30.1	473	0 23.65	51 22' 24.70 18 2.17 -29.71 -23.80 -2.38			0	51 17 38.37 59.79 +9.46 -10 10.11 +721 +35 -176 17 51.65 52.30	
((8) - D) $\frac{d'}{100}$											
δ_1	-9.44 -6.66	22 8.05		17 45.7							
d	-8.15 0.91116 9.89233 0.92765	0 28.1 9.79605 0.83137	42.1	702	0 35.10	51 22' 13.25 17 52.74 +8.46 +6.78			0	51 17 59.52 +9.57 -2 14 +940 +35 -179 17 41.27 51.19	
((8) - D) $\frac{d'}{100}$											
δ_2	-9.44 -6.66	22 8.11		17 44.6							
d	+2258 1.35372 9.91149 1.38937	4 7.1 9.76236 1.24024	18.1	252	4 12.60	54 43' 35.75 39 13.22 -24.57 -17.39			35	54 38 55.83 +12.65 -14 -109 +1278 +45 -183 38 44.53 50.18	
((8) - D) $\frac{d'}{100}$											
δ_1	-9.86 -6.22	24 19.19		38 44.0	39						
d	+11.97 1.07569 9.91149 1.11374	4 15.8 9.76236 1.09646	28.4	442	4 22.10	54 43' 26.25 39 5.74 -12.99 -9.22			35	54 38 56.52 +12.39 -4 -106 +1304 +45 -186 38 44.53 50.18	
((8) - D) $\frac{d'}{100}$											
δ_2	-9.86 -6.22	24 19.33		38 44.1							
d	+2630 1.41996 9.90987 1.45399	2 14.7 9.76554 1.30966	27.6	423	2 21.15	54 25' 27.20 21 4.67 -28.44 -20.40			55	54 20 44.24 +12.13 -18 -60 +1246 +45 -188 20 44.24 38.95	
((8) - D) $\frac{d'}{100}$											
δ_1	-9.83 -5.88	26 19.84		20 33.1	54						
d	+2233 1.34889 9.90987 1.38292	2 19.2 9.76554 1.23859	32.4	516	2 25.80	54 25' 22.55 21 2.14 -24.15 -17.32			55	54 20 44.72 +12.46 -13 -58 +12.72 +45 -184 20 44.72 38.95	
((8) - D) $\frac{d'}{100}$											
δ_2	-9.83 -5.88	26 19.81		20 32.9							
d	+29.67 1.47232 9.90887 1.50535	3 20.9 9.76747 1.36395	32.2	581	3 26.55	54 14' 21.80 9 59.27 -32.07 -23.12			5	54 9 36.15 +11.55 -23 12.20 -88 +12.26 +40 -179 9 36.15 30.45	
((8) - D) $\frac{d'}{100}$											
δ_1	-9.81 -5.42	28 56.09		9 25.0							
d	+38.52 1.58369 9.90887 1.61872	3 15.7 9.76747 1.47732	28.0	437	3 21.85	54 14' 26.50 10 5.09 -41.56 -30.01			5	54 9 35.98 +11.72 -39 -80 +12.51 +40 -182 9 35.98 29.48	
((8) - D) $\frac{d'}{100}$											
δ_2	-9.81 -5.42	28 56.08		9 24.1							

Date₁ = 1877 Feb. 1Observer
RecorderDate₂ = Feb. 2Observer
Recorder

16

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
30 02	28 40.7	54 0 29	9.4	30 20.9	30 42.3	46.0	49.7	58.5	57.0	30	49.70		
		27.9	9.4	24.2					-16.71	-	15.83		
				27.3						-	.67		
				24.13						-	.21		
(δ) - D	$\frac{\kappa'}{100}$									30	32.99		
α_1										-	2.47		
										-	30.52		
			9.3	30 24.4	30 42.0	45.7	49.0	52.7	56.0	30	49.08		
				28.2					-16.04	-	15.12		
				29.8						-	.66		
				27.47						-	.26		
(δ) - D	$\frac{\kappa'}{100}$									30	33.04		
α_2										-	2.44		
										-	30.60		
31 23	30 2.0	54 16 14.6	9.4	31 28.6	32 3.9	7.4	10.7	14.4	17.9	32	10.86		
			9.3	32.5					-16.70	-	15.83		
				35.2						-	.67		
				32.13						-	.20		
(δ) - D	$\frac{\kappa'}{100}$									31	54.16		
α_1										-	2.48		
										-	51.68		
			9.3	31 28.6	32 3.2	6.6	10.4	13.8	17.5	32	10.30		
				31.5					-16.02	-	15.12		
				34.5						-	.68		
				31.53						-	.25		
(δ) - D	$\frac{\kappa'}{100}$									31	54.28		
α_2										-	2.45		
										-	51.853		
32 28	31 7.2	54 11 9.7	9.1	32 43.5	33 7.9	11.3	14.8	18.4	21.9	33	14.86		
			9.2	46.2					-16.70	-	15.83		
				49.4						-	.67		
				45.67						-	.20		
(δ) - D	$\frac{\kappa'}{100}$			46.57						32	58.16		
α_1										-	2.48		
										-	56.68		
			9.1	32 44.2	33 7.2	10.7			21.2	33	14.20		
				47.6					-16.02	-	15.82		
				50.6						-	.65		
				47.84						-	.20		
(δ) - D	$\frac{\kappa'}{100}$			47.84						32	58.18		
α_2										-	2.45		
										-	55.73		
33 48	32 27.1	55 0 54 58.8	9.1	33 56.7	34 28.8	32.3	35.9	39.4	43.0	34	36.88		
			9.3	59.3					-16.73	-	15.83		
				1.9						-	.69		
				59.30						-	.21		
(δ) - D	$\frac{\kappa'}{100}$									34	19.15		
α_1										-	2.54		
										-	16.61		
			9.2	33 57.3	34 28.2	31.9	35.2	38.8	42.7	34	35.36		
				59.8					-16.05	-	15.12		
				2.4						-	.67		
				59.83						-	.26		
(δ) - D	$\frac{\kappa'}{100}$									34	19.31		
α_2										-	2.50		
										-	16.81		
34 33	33 12.5	54 43 42.0	8.8	35 11.0	35 14.5	18.0	21.8	25.2	28.8	35	21.66		
			8.7	13.9					-16.72	-	15.83		
				17.6						-	.68		
				14.13						-	.21		
(δ) - D	$\frac{\kappa'}{100}$									35	4.94		
α_1										-	2.53		
										-	2.41		
			8.7	35 1.7	35 14.0	17.6	21.0	24.6	28.0	35	21.04		
				6.3					-16.04	-	15.12		
				8.4						-	.66		
				5.47						-	.26		
(δ) - D	$\frac{\kappa'}{100}$									35	5.00		
α_2										-	2.50		
										-	2.50		

Runs

+0.65

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	-0.02 z	δ'
d	+25.57 1.40773 9.91060 1.44249	4 1.5 9.76413 1.29602	12.9	144	4 7.20	33' 41.15 29 18.62 -27.70 -19.77	45	54 28 58.85 - .17 - 1.07 + 12.60 + .45 - 17.9 28 53.41	45	+11.87 12.46	
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.86 -5.18	30 20.66		28 48.2							
d	+21.61 1.33465 9.91060 1.36941	4 6.4 9.76413 1.22294	18.0	244	4 12.20	33 36.15 29 15.64 -23.41 -16.71	45	54 28 58.93 - .12 - 1.01 + 12.86 + .45 - 18.1 28 53.01	45	+12.18	
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.86 -5.18	30 20.74		28 47.8							
d	+38.73 1.58805 9.90957 1.62172	1 39.1 9.76625 1.47846	51.8	909	1 45.45	21 2.90 16 40.37 -44.55 -30.09	0	54 16 30.28 - .39 - .44 + 12.37 + .40 - 17.8 16 5.07	0	+11.94 12.59	
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.83 -4.94	31 41.85		16 0.1							
d	+38.77 1.58850 9.90951 1.62217	1 39.9 9.76625 1.47891	53.6	935	1 46.75	21 1.60 16 41.09 -44.40 -30.12	0	54 16 10.97 - .40 - .43 + 12.62 + .40 - 18.0 16 5.14	0	+12.19	
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.83 -4.94	31 42.00		16 0.2							
d	+28.49 1.45469 9.90906 1.48791	1 4.1 9.76712 1.34597	16.4	205	1 10.25	16 38.10 12 15.57 -30.75 -22.18	5	54 11 53.39 - .21 - .31 + 12.30 + .40 - 17.7 11 47.77	5	+12.18 83	
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.82 -4.76	32 45.86		11 43.8							
d	+26.73 1.42700 9.90906 1.31828	1 7.5 9.76712 1.31828	20.2	277	1 13.85	16 34.50 12 13.99 -20.81	5	54 11 53.18 - .39 - .27 + 12.55 + .40 - 17.9 11 47.73	5	+12.47 5	
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.82 -4.76	32 45.91		11 43.0							
d	+36.58 1.56324 9.91336 1.60076	3 11.0 9.75859 1.44599	22.4	334	3 16.70	4 31.65 0 9.12 -30.58 -27.92	15	54 59 41.20 - .34 - .86 + 13.15 + .50 - 17.8 59 36.56	15	+12.45 13.10	
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.94 -4.52	34 6.67		59 32.0							
d	+35.53 1.55060 9.91336 1.58812	3 12.0 9.75859 1.43335	25.1	371	3 18.55	4 29.80 0 9.29 -28.74 -27.12	15	54 59 42.17 - .32 - .79 + 13.42 + .50 - 18.1 59 36.86	15	+12.81 79	
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.94 -4.52	34 6.87		59 32.3							
d	+7.53 0.84679 9.91185 0.91280	0 38.6 9.76164 0.76259	51.1	897	0 44.85	47 3.50 42 40.97 - 8.18 - 5.99	35	54 42 35.18 - .2 - 1.8 + 12.84 + .45 - 17.7 42 30.54	35	+13.09 74	
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.90 -4.40	34 52.51		42 26.8							
d	+15.57 1.19229 9.91185 1.22830	0 34.3 9.76164 0.78097	46.1	804	0 40.20	47 8.15 42 47.64 - 16.42 - 11.99	35	54 42 35.67 - .7 - 1.7 + 13.13 + .45 - 17.9 42 31.09	35	+13.34 2	
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.90 -4.40	34 52.60		42 26.7							

Date₁ = 1877 Feb. 1Observer
RecorderDate₂ = Feb. 3Observer
Recorder

18

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
35 10 38 49.8 K		54° 2' 21.4	9.1 9.0	5 36 54 8.0 11.4 8.27	35 53.1	56.7	0.6	4.0	7.5 -16.71	36	0.38 15.83 6.7 2.1 43.67 2.53 41.14		
(S) - D) κ'_{100}													
a_1													
K			9.3	36 19.1 21.2 24.8 21.03	35 52.4	56.0	58.7	3.2	6.9 -16.04	35	59.64 15.12 1.66 2.6 43.60 2.49 41.11		
(S) - D) κ'_{100}													
a_2													
37 03 38 42.1 K		54 25 24.0	6.3 6.0	37 15.3 17.8 21.6 18.23	37 42.0	45.7	48.2	52.6	56.2 -16.70	37	49.14 15.82 6.7 2.1 32.94 2.55 29.89		
(S) - D) κ'_{100}													
a_1													
K			9.0	37 18.9 24.0 26.5 23.13	37 41.4	44.8	48.5	52.0	53.5 -16.04	37	48.44 15.12 6.6 2.6 32.40 2.51 29.89		
(S) - D) κ'_{100}													
a_2													
39 30 38 7.6 K		54 1 0.1	9.5 9.3	39 39.0 42.1 45.0 42.03	40 7.9	11.5	15.0	18.3	22.1 -16.68	40	14.96 15.82 6.6 2.0 58.28 2.55 55.78		
(S) - D) κ'_{100}													
a_1													
K			9.5	39 36.4 39.7 42.2 39.43	40 7.2	11.0	14.5	18.0	21.4 -16.02	40	14.42 15.12 1.65 2.5 58.40 2.52 55.88		
(S) - D) κ'_{100}													
a_2													
40 26 39 4.2 K		54 39 38.2	8.8 8.5	40 44.8 47.9 51.6 48.10	41 4.9	8.4	12.0	15.6	18.1 -16.71	41	12.00 15.82 6.8 2.1 55.29 2.59 52.70		
(S) - D) κ'_{100}													
a_1													
K				40 44.2 47.8 50.9 47.63	41 4.1	7.8	11.4	14.8	18.6 -16.04	41	11.34 15.12 1.66 2.6 55.30 2.56 52.74		
(S) - D) κ'_{100}													
a_2													
42 45 41 22.7 K		54 35 38.7	9.2 9.0	42 58.0 1.3 4.3 1.20	43 24.4	28.1	31.8	35.3	38.9 -16.71	43	31.70 15.82 6.8 2.1 14.99 2.62 12.37		
(S) - D) κ'_{100}													
a_1													
K			9.5	43 2.9 6.5 9.5 6.30	43 24.2	27.8	31.3	34.6	38.2 -16.04	43	31.24 15.12 1.66 2.6 15.18 2.59 12.59		
(S) - D) κ'_{100}													
a_2													

Runs

+ 0.65

19

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	-7.89 0.89708m 9.91005 0.93129	0' 39.0	57.5	905	57 45.25	27' 3.10			55		
d						54 22 40.57				54 22 46.69 +12.74	
(8) - D	9.96519 0.978643					+ 8.54 + 6.12 + 6.1				- 18 + 12.49 + 45 - 176 22 44.3	13.39
δ_1	-9.85 -4.28	31.29 35.5049		22 38.2							42.48
	-21.39 1.33021m 9.90996 1.36433	0 52.0	39	1159	57 57.95	26 50.40			55		
d						54 22 29.89				54 22 46.48 +12.875	
(8) - D	9.96537 1.21974					+ 23.14 + 16.59				- .12 - 22 + 12.76 + 45 - 178 22 44.53	
δ_2	-9.85 -4.28	35 31.26		22 37.2							
	+30.91 1.49010 9.91042 1.52468m	1 15.9	28.1	440	57 22.00	31 26.35			50		
d						54 27 3.82				54 26 39.90 +12.39	
(8) - D	9.96448 1.37874m					- 23.44 - 23.92				- .25 - 36 + 12.55 + 45 - 175 26 34.79	13.04
δ_1	-9.86 -3.94	37 20.03		26 31.5							35.44
	+25.31 1.40329 9.91042 1.43787m	1 22.5	34.8	573	57 28.65	31 19.70			50		
d						54 26 59.19				54 26 39.60 +12.785	
(8) - D	9.96448 1.29193m					- 27.41 - 19.59				- .17 - 36 + 12.85 + 45 - 177 26 34.55	
δ_2	-9.86 -3.94	37 20.03		26 30.7							
	+32.93 1.51759 9.90805 1.54980m	2 7.9	19.1	270	57 13.55	5 31.80			15		
d						54 1 12.2732				54 0 46.52 +12.64	
(8) - D	9.96904 1.41079m					- 35.47 - 25.75				- .28 - 57 + 12.07 + 40 - 17.2 0 40.76	12.29
δ_1	-9.81 -3.54	39 45.92		0 38.1							41.61
	+34.99 1.54394 9.90805 1.57615m	2 7.2	19.7	269	57 13.45	5 34.90			15		
d						54 1 14.39				54 0 47.03 +11.89	
(8) - D	9.96904 1.43714m					- 37.68 - 27.36				- .32 - 53 + 12.34 + 40 - 175 0 41.42	
δ_2	-9.81 -3.54	39 46.07		0 37.9							
	+23.40 1.37840 9.91149 1.41405m	4 7.9	17.9	258	57 12.90	43 35.15			35		
d						54 39 12.92				54 38 54.52 +11.99	
(8) - D	9.96236 1.26492m					- 25.94 - 18.40				- .15 - 109 + 12.78 + 45 - 17.386 38 49.21	12.64
δ_1	-9.90 -3.36	40 42.80		38 46.5							
	+23.71 1.37493 9.91149 1.41058m	4 9.3	20.9	302	57 15.10	43 33.25			35		
d						54 39 12.74				54 38 54.48 +12.34	
(8) - D	9.96236 1.26145m					- 25.74 - 18.26				- .15 - 101 + 13.05 + 45 - 17.6 38 49.26	
δ_2	-9.90 -3.36	40 42.84		38 45.8							
	+30.50 1.48430 9.91114 1.51960m	3 48.4	0.9	1093	57 54.65	38 53.70			40		
d						54 34 31.17				54 34 7.65 +11.89	
(8) - D	9.96307 1.37153m					- 23.08 - 23.52				- .24 - 101 + 12.69 + 45 - 173 34 24.24	12.54
δ_1	-9.89 -2.98	43 2.48		33 59.9							2.89
	+24.92 1.39655 9.91105 1.43176m	3 54.1	4.7	1188	57 59.40	38 48.95			40		
d						54 34 28.44				54 34 9.21 +12.28	
(8) - D	9.96324 1.28395m					- 27.02 - 19.23				- .16 - 96 + 12.96 + 45 - 176 34 24.28	
δ_2	-9.89 -2.98	43 2.70		34 0.9							3.88

Date₁ = 1877 Feb. 1Observer
RecorderDate₂ = Feb. 3Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
45- 43 κ	58 46.3	54 50 489	9.5 9.0	5- 45	16.0 45.32 20.5 24.8 20.43	50.1	57.2 57.3		-16.74	45	58.16 15.82 .68 .21	57.25	
(δ) - D)	κ'_{100}									45	44.45 26.6 38.74	40.34	
α_1													
κ		9.5		45 15.0	45-49.4	52.8	56.6	0.1	3.6	45	56.50 15.12 .67 .26		
(δ) - D)	κ'_{100}									45	40.45 26.3 37.82		
α_2													
Feb. 3				Single Observations									
5 22 41 21 20.4 κ	54 9 83	9.5 9.8	5 23	38.9 23			26.7 26.8 26.7	30.3	33.7	23	26.73 15.12 .65 .25		
(δ) - D)	κ'_{100}									23	10.71 2.33 8.38		
α_1													
κ													
(δ) - D)	κ'_{100}												
α_2													
κ													
(δ) - D)	κ'_{100}												
α_1													
κ													
(δ) - D)	κ'_{100}												
α_2													
κ													
(δ) - D)	κ'_{100}												
α_1													
κ													
(δ) - D)	κ'_{100}												
α_2													

Runs

+ 0.65

21

- 0.02

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
$+3682$ 1.56608 9.76057 1.45081 $((\delta) - D) \frac{d'}{100}$ -9.93 -2.54 δ_1	$+3773$ 1.57669 9.91239 1.61324 4	$3' 54.1$ 9.76067 1.61422 4	5.2	1193	$3' 59.65$	54 $53'$ 49 118.70 26.17 -41.07 -28.24 -22.98 28.95	54 49 118.70 26.17 -41.07 -28.24 -22.98 28.95	25	54 118 57.93 57.24 $+11.99$ -36 1264 -104 $+12.94$ $+45$ -17.1 53.47		
d $((\delta) - D) \frac{d'}{100}$ -9.93 -2.54 δ_2	$+3770$ 1.57634 9.91239 1.61289 4	3 53.9 9.76054 1.61072 4	5.4	1193	$3' 59.65$	54 $53'$ 49 118.70 26.19 -41.07 -28.91	54 49 118.70 26.19 -41.07 -28.91	25	54 118 59.28 $+12.39$ -36 $+13.24$ $+45$ -17.3 48 57.33 54 10 52.47 $+11.94$ 9 -91 $+12.52$ $+40$ -185 10 45.89 9		
d $((\delta) - D) \frac{d'}{100}$ -9.80 -6.44 δ_1	-15.57 1.19229 9.90587 1.08392 2	3 42.4 9.76447 1.08392 2	53.9	950	$3' 47.50$	54 14 0.85 10 40.34 7 12.13	54 14 0.85 10 40.34 7 12.13	5			
d $((\delta) - D) \frac{d'}{100}$ δ_2											
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d $((\delta) - D) \frac{d'}{100$											

Observer
Recorder

Date₁ = 1877 Feb. 3

$n = -.47$ $C = -.15$

Date₂ = Feb. 4

$n = -.51$ $C = -.04$

Observer
Recorder

22

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
35- 14 33 55.2 κ	53 24 22.0	9.2 9.0	4	35 26.5 29.5 32.4 29.47	35 50.9	54.2	57.8	13	4.4 -16.01	35	57.72 15.13 .63 .25 41.71 1.74 39.97		
(8) - D) $\frac{\kappa'}{100}$										35	41.71		
a_1											1.74		
κ		9.0		35 27.5 32.0 34.8 31.43	35 50.3	53.8	57.3	0.8	4.2 -15.64	35	57.28 14.88 .69 .4 41.64 1.72 39.92		
(8) - D) $\frac{\kappa'}{100}$										35	41.64		
a_2											1.72		
37 40 36 20.9 κ	53 3 14	7.2 7.0		37 42.4 44.8 47.8 45.00	38 15.0	18.3	21.8	23.2	28.7 -16.01	38	21.80 15.13 .63 .25 5.79 1.76 4.03		
(8) - D) $\frac{\kappa'}{100}$										38	5.79		
a_1											1.76		
κ				37 50.7 54.4 56.3 53.80	38 14.3	18.0	21.3	24.6	28.2 -15.68	38	21.28 14.88 .68 .7 5.65 1.74 3.91		
(8) - D) $\frac{\kappa'}{100}$										38	5.65		
a_2											1.74		
39 21 38 1.7 κ	53 8 6.3	8.6 7.8		39 27.9 30.9 33.7 30.83	39 57.2	0.6	4.0	7.5	11.0 -16.01	40	4.06 15.13 .63 .25 48.05 1.78 46.27		
(8) - D) $\frac{\kappa'}{100}$										39	48.05		
a_1											1.78		
κ				39 40.0 43.4 46.0 43.13	39 56.5	0.2	3.6	7.0	10.4 -18.63 5	40	3.54 14.88 7.068 7 47.71 1.76 46.15		
(8) - D) $\frac{\kappa'}{100}$										39	47.71		
a_2											1.76		
41 09 39 51.4 κ	52 27 24.4	9.1 9.2		41 21.8 24.7 27.1 24.53	41 44.4	48.0	51.5	54.7	57.9 -15.99	41	51.30 15.13 .61 .25 35.31 1.79 33.52		
(8) - D) $\frac{\kappa'}{100}$										41	35.31		
a_1											1.79		
κ				41 18.6 20.9 23.8 21.10	41 43.9	47.5	50.8	54.1	57.6 -15.61	41	50.78 14.88 .66 .7 35.17 1.77 33.40		
(8) - D) $\frac{\kappa'}{100}$										41	35.17		
a_2											1.77		
42 34 41 14.6 κ	54 49 46.8	7.9 8.0		42 40.0 43.1 45.3 42.87	43 10.7	14.4	17.9	21.5	25.0 -16.06	43	17.90 15.13 .67 .26 1.84 1.87 59.97		
(8) - D) $\frac{\kappa'}{100}$										43	1.84		
a_1											1.87		
κ				42 46.8 57.0 53.2 50.33	43 10.2	13.8	17.3	20.8	24.6 -15.67	43	17.34 14.88 .72 .7 1.64 1.86 59.81		
(8) - D) $\frac{\kappa'}{100}$										43	1.64		
a_2											1.86		

Runs

Feb 3 - 4 20.51 - .24 - 0.02
 4 - 4 20.94 - .24 .00

- .02

23

	T _m - T	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	+ .00 z	8'
d	+28.25 1.45702 9.90471 1.47989	3' 8.7 9.77524 1.35042	21.8	305 3	15.25	53 29' 33" 10 25 12.59 -30.19 -22.41	50	53 24 50.18	+11.07		
(8) - D) $\frac{d'}{100}$											
-9.50 δ_1		35 30.47		24 26.4							
-14.46											
d	+25.85 1.41246 9.90471 1.44133	3 9.9 9.77524 1.31186	24.1	340 3	17.00	53 29 31 35 25 10.41 -27.63 -20.50	50	53 24 49.91	+11.23		
(8) - D) $\frac{d'}{100}$											
-9.50 δ_2		35 30.42		24 26.2							
-14.46											
d	+36.80 1.56585 9.90282 1.59283	3 2.5 9.77862 1.46863	14.9	174 3	8.70	53 9 39.65 5 19.14 -39.16 -29.42	10	53 4 49.72	+10.60		
(8) - D) $\frac{d'}{100}$											
-9.48 δ_1		37 54.55		4 25.9							
-14.06											
d	+27.48 1.43902 9.90282 1.46600	3 8.9 9.77862 1.34180	22.1	310 3	15.50	53 9 32.85 5 11.91 -29.24 -21.97	10	53 4 49.94	+10.83		
(8) - D) $\frac{d'}{100}$											
-9.48 δ_2		37 54.43		4 26.4							
-14.06											
d	+33.23 1.52153 9.90320 1.54889	3 56.9 9.77795 1.42364	9.9	1268 4	3.40	53 13 44.95 9 24.44 -35.39 -26.52	5	53 8 57.92	+10.54		
(8) - D) $\frac{d'}{100}$											
-9.49 δ_1		39 36.78		8 34.5							
-13.78											
d	+20.41 1.30984 9.90320 1.33720	4 6.9 9.77795 1.21195	19.0	259 4	12.95	53 13 35.10 9 14.46 -21.74 -16.29	5	53 8 58.17	+10.79		
(8) - D) $\frac{d'}{100}$											
-9.49 δ_2		39 36.66		8 34.9							
-13.78											
d	+26.77 1.42765 9.89918 1.45099	1 16.9 9.78494 1.33675	30.5	474 1	23.70	52 31 24.65 27 41.14 -25.25 -21.71	50	52 26 42.43	+10.49		
(8) - D) $\frac{d'}{100}$											
-9.42 δ_1		41 24.10		26 19.2							
-13.70											
d	+29.68 1.44246 9.89918 1.49580	1 18.5 9.78494 1.38156	30.4	459 1	22.95	52 31 25.10 27 41.16 -31.32 -24.07	50	52 26 40.39	+10.57		
(8) - D) $\frac{d'}{100}$											
-9.42 δ_2		41 23.98		26 17.2							
-13.70											
d	+35.03 1.54444 9.91254 1.58117	2 47.9 9.76021 1.42881	0.1	108.0 2	54.00	54 54 54.35 50 33.84 -38.12 -26.84	25	54 50 70.0	+12.70		
(8) - D) $\frac{d'}{100}$											
-9.72 δ_1		42 50.25		49 45.8							
-13.26											
d	+27.01 1.43152 9.91248 1.46816	2 54.1 9.76039 1.31607	6.0	1201 3	0.05	54 54 48.30 50 27.36 -27.39 -20.41	25	54 50 6.65	+12.96		
(8) - D) $\frac{d'}{100}$											
-9.72 δ_2		42 50.09		49 45.8							
-13.26											

Date₁ = 1877 Feb. 3Observer
RecorderDate₂ = Feb. 4Observer
Recorder

24

Runs

Star.	α	δ	Mag.	T_s	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
45 57 44 89 K	51 46 4.3	9.0 8.9	4	46 6.8 2.6 120 9.47	46 —	—	87.3 37.1 37.2	40.4	43.8 -18.95	46 — — 46	37.20 15.13 58 24 21.25 1.84 19.41		
(8) — D) κ'_{100}													
a_1													
K		9.0		46 160 18.0 221 19.03	46 80.1	33.5	36.8	40.0	43.4 -15.57	46 — — 46	36.76 14.88 16.23 6 21.19 1.82 19.37		
(8) — D) κ'_{100}													
a_2													
47 48 46 84.2 K	51 55 52.8	8.8 9.0		48 5.0 8.6 111 8.23	48 26.4	29.7	33.2	36.5	38.9 -15.97	48 — — 48	33.14 15.13 60 24 17.17 1.86 15.31		
(8) — D) κ'_{100}													
a_1													
K		9.0		48 5.6 9.3 120 8.97	48 26.0	29.4	32.7	36.0	38.5 -15.59	48 — — 48	32.72 14.88 65 6 17.13 1.84 15.29		
(8) — D) κ'_{100}													
a_2													
49 11 47 57.8 K	52 16 14.3	8.0 8.0		49 13.0 16.4 19.3 16.23	49 45.9	48.3	52.8	56.1	59.6 -15.98	49 — — 49	52.74 15.13 61 24 36.76 1.88 34.88		
(8) — D) κ'_{100}													
a_1													
K		8.0		49 24.0 27.0 29.2 26.73	49 45.5	48.8	52.2	55.5	58.0 -15.60	49 — — 49	52.20 14.88 66 6 36.64 1.86 34.74		
(8) — D) κ'_{100}													
a_2													
50 26 49 6.3 K	54 39 26.9	8.9 8.9		50 43.1 46.8 48.5 46.47	51 8.2	11.8	15.4	18.8	22.5 -16.05	51 — — 50	15.34 15.13 66 26 39.29 1.97 57.32		
(8) — D) κ'_{100}													
a_1													
K		9.1		50 38.8 42.0 45.8 42.20	51 7.9	11.4	15.0	18.4	22.0 -15.67	51 — — 50	14.94 14.88 72 7 59.27 1.95 57.32		
(8) — D) κ'_{100}													
a_2													
52 01 50 41.4 K	54 12 9.9	8.9 8.8		52 10.2 13.9 16.0 13.37	52 38.7	42.3	45.6	48.3	52.7 -16.04	52 — — 52	45.72 15.13 65 26 29.68 1.97 27.71		
(8) — D) κ'_{100}													
a_1													
K		9.2		52 13.5 17.8 20.5 17.27	52 38.3	41.8	45.4	48.8	52.5 -15.66	52 — — 52	45.38 14.88 71 7 29.72 1.95 27.77		
(8) — D) κ'_{100}													
a_2													

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+27.73 1.44295 9.79778 1.36489	1 14.0	28.1	421	11 21.05	51 11'	27.30 6.79 23.17	10	51 6 43.62	+9.02	
((8) - D) $\frac{d'}{100}$											
-9.29 δ_1		46 10.12		6 20.5							
-12.70											
d	+17.73 1.24841 9.59122 1.26409	1 22.1	35.9	580	11 29.00	51 11'	19.35 20.29 58.41 59.35 -15.37 -12.04 14.81	10	51 6 44.50 46.34 9 -3.6 +9.30 +35 -19.4 6 33.22	+9.20	
((8) - D) $\frac{d'}{100}$											
-9.29 δ_2		46 10.08		6 21.5							
-12.70											
d	+24.91 1.32637 9.59624 1.41677	2 40.0	54.1	941	2 47.05	51 0	130 40.79 -26.41 -20.43	20	51 56 20.36 17 +10.06 +40 -19.6 56 10.38	+9.68	
((8) - D) $\frac{d'}{100}$											
-9.39 δ_1		48 59.2		54 58.0							
-12.36											
d	+23.75 1.34566 9.59614 1.39596	2 40.9	54.5	954	2 47.70	51 0	0.65 39.71 -24.89 -19.49	20	51 55 20.22 15 -6.7 +10.16 +40 -19.7 55 10.26	+9.74	
((8) - D) $\frac{d'}{100}$											
-9.39 δ_2		48 59.0		54 57.9							
-12.36											
d	+36.57 1.56241 9.59840 1.58497	4 34.5	47.6	821	4 41.05	52 23	7.30 46.79 -38.46 -29.70	55	52 18 17.09 35 -11.3 +10.45 +40 -19.6 18 6.84	+9.38	
((8) - D) $\frac{d'}{100}$											
δ_1											
d	+25.47 1.40803 9.59840 1.42859	4 42.8	56.9	997	4 49.85	52 22	58.50 37.56 -26.53 -20.72	55	52 18 16.84 17 -11.3 +10.58 +40 -19.7 18 6.80	+9.66	
((8) - D) $\frac{d'}{100}$											
δ_2											
d	+28.87 1.46045 9.91141 1.49602	0 37.2	50.2	874	0 43.70	54 42	11.65 44.14 -37.33 -22.24	40	54 34 21.90 22 -17 +12.97 +45 -20.2 34 14.70	+13.03	
((8) - D) $\frac{d'}{100}$											
-9.74 δ_1		50 45.38		37 2.8							
-11.94											
d	+32.74 1.51508 9.91141 1.55065	0 34.2	47.5	817	0 40.85	54 42	7.50 46.56 -35.53 -24.22	40	54 37 21.34 27 -19 +13.13 +45 -20.3 37 14.16	+13.12	
((8) - D) $\frac{d'}{100}$											
-9.74 δ_2		50 47.58		37 2.2							
-11.94											
d	+32.35 1.50987 9.90906 1.54309	1 24.2	35.9	601	1 30.05	54 16	18.30 57.79 -24.92 -25.19	5	54 11 32.60 27 -36 +12.57 +40 -20.0 11 24.86	+12.28	
((8) - D) $\frac{d'}{100}$											
-9.69 δ_1		52 18.02		11 13.2							
-11.68											
d	+28.11 1.44886 9.90906 1.48208	1 26.9	39.8	667	1 33.35	54 16	15.00 54.06 -30.34 -21.58	5	54 11 32.18 20 -38 +12.60 +40 -20.1 11 24.56	+12.48	
((8) - D) $\frac{d'}{100}$											
-9.69 δ_2		52 18.08		11 12.9							
-11.68											

Date₁ = 1877 Feb. 3Observer
RecorderDate₂ = Feb. 4Observer
Recorder

26

Star.	α	δ	Mag.	T_s	T_m	T_o	T_e	T_c	T_h	Sum	Mean	Red. to T_m	T
53 18 51 58.2 κ	54 34 22.4	9.1 9.2	4 53	31.8 353 350 35.10	53 56.7	0.1	3.8	7.4	10.9 -16.04	54 3.78 15.12 66 26 53 47.74 20.0 45.74			
(δ) - D) κ' a_1													
κ		9.1	53 33.2	366 380 36.27	53 56.2	59.7	3.4	7.0	10.4 -15.67	54 3.34 14.88 72 53 47.67 15.98 45.69			
(δ) - D) κ' a_2													
54 10 52 48.7 κ	54 48 46.4	8.5 8.4	54 32.2	36.2 38.2 35.53	54 47.5	57.1	54.6	58.1	1.6 -16.05	54 54.58 15.12 64 26 54 38.53 20.2 36.51			
(δ) - D) κ' a_1													
κ		8.7	54 34.4	373 42.0 37.90	54 47.0	57.6	54.3	57.7	1.2 -15.67	54 54.16 14.88 72 54 38.49 20.0 36.49			
(δ) - D) κ' a_2													
53 50 54 28.7 κ	54 57 54.5	8.2 7.6	56 4.5	7.6 11.3 7.80	56 26.3	29.8	33.5	37.0	40.5 -16.05	56 33.42 15.12 67 26 56 17.37 20.4 15.33			
(δ) - D) κ' a_1													
κ		8.5	56 9.8	14.3 16.5 13.53	56 25.8	29.6	33.0	34.5	40.3 -15.67	56 33.04 14.88 72 56 17.37 20.2 15.35			
(δ) - D) κ' a_2													
57 22 56 1.2 κ	54 50 47.8	8.2 7.5	57 39.8	42.7 45.7 42.73	57 58.9	24	6.0	9.8	13.1 -16.05	58 6.04 15.12 67 26 57 49.99 20.6 47.93			
(δ) - D) κ' a_1													
κ		8.2	57 29.7	32.2 34.3 32.07	57 58.6	1.9	5.7	9.1	12.8 -15.67	58 5.62 14.88 72 57 49.65 20.4 47.91			
(δ) - D) κ' a_2													
58 36 57 22.0 κ	51 50 48.9	9.2 9.1	59 2.3	6.0 9.0 5.77	59 17.3	20.5	24.0	27.3	30.8 -15.96	59 23.98 15.12 60 24 59 8.02 1.98 6.04			
(δ) - D) κ' a_1													
κ		8.8	58 49.4	52.9 57.1 53.13	59 16.8	20.3	23.5	26.8	30.2 -15.59	59 23.52 14.88 65 59 7.93 1.96 5.97			
(δ) - D) κ' a_2													

Runs

-02

27

+00

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+28.68 1.45758 9.91114 1.49288	3' 19.8 9.76307 9.76307 9.76307	32.8 34.4812	526 43	26.30	39' 22.05 54 35 1.54 -31.11 -22.12	40	54 34 39.42	+12.38	3	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.71 -11.46	53 36.03	34 20.2	43							
d	+27.07 1.43249 9.91114 1.46779	3 20.5 9.76307 9.76307 9.76307	33.5 34.4812	540 43	27.00	39 21.35 54 35 0.41 -29.36 -20.88	40	54 34 39.53	+12.55		
(8) - D) $\frac{d'}{100}$											
δ_2	-9.71 -11.46	53 35.74	34 20.4	29							
d	+19.05 1.27989 9.91239 1.31644	4 17.9 9.76057 9.76057 9.76057	30.1 34.4812	480 29	24.00	53 24.35 54 49 3.84 -20.72 -14.61	25	54 48 49.23	+12.54	2	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.78 -11.34	54 26.73	48 30.3	29							
d	+16.26 1.21112 9.91239 1.24767	4 19.1 9.76057 9.76057 9.76057	32.1 34.4812	512 29	25.60	53 22.75 54 49 1.81 -17.69 -12.47	25	54 48 49.34	+12.74		
(8) - D) $\frac{d'}{100}$											
δ_2	-9.78 -11.34	54 26.71	48 30.6	21							
d	+25.62 1.40858 9.91310 1.44584	1 2.4 9.75913 9.75913 9.75913	14.1 34.4812	165 21	8.25	53 40.10 54 57 19.59 -27.91 -19.58	20	54 57 0.01	+13.50	38	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.81 -11.02	56 51.52	56 42.4	21							
d	+19.51 1.29026 9.91310 1.32752	1 5.4 9.75913 9.75913 9.75913	18.4 34.4812	238 21	11.90	53 36.45 54 57 15.51 -21.26 -14.91	20	54 57 0.60	+13.63		
(8) - D) $\frac{d'}{100}$											
δ_2	-9.81 -11.02	56 51.54	56 43.1	28							
d	+23.31 1.36754 9.91248 1.40418	3 51.4 9.76039 9.76039 9.76039	2.9 34.4812	1143 28	57.15	53 51.20 54 49 30.69 -25.36 -17.87	25	54 49 12.82	+12.61	59	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.80 -10.78	57 38.13	46 54.6	28							
d	+33.55 1.52569 9.91248 1.56233	3 43.0 9.76039 9.76039 9.76039	55.1 34.4812	981 28	49.05	53 59.30 54 49 38.36 -36.50 -25.72	25	54 49 12.58	+12.67	64	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.80 -10.78	57 38.11	48 54.5	27							
d	+18.21 1.26031 9.89564 1.28011	2 41.9 9.79079 9.79079 9.79079	55.4 34.4812	973 27	48.65	54 59.70 51 50 39.89 -19.06 -14.97	25	51 50 24.22	+9.60	58	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.45 -10.56	58 56.59	50 4.1	27							
d	+30.39 1.48273 9.89564 1.50253	2 29.5 9.79079 9.79079 9.79079	43.0 34.4812	725 27	36.25	55 12.10 51 50 51.16 -31.81 -24.98	25	51 50 26.18	+9.63		
(8) - D) $\frac{d'}{100}$											
δ_2	-9.45 -10.56	58 56.52	50 6.0								

Date₁ = 1877 Feb. 3

Observer _____
Recorder _____Date₂ = Feb. 4Observer _____
Recorder _____

Ru

Star.	δ	Mag.	α	T_1	T_m	T_2	T_3	T_4	T_5	T_6	T_7	Sum	Mean	Red. to T_m	T
1877phae. b 1 38 0 18.0 K (8) - D) $\frac{\kappa'}{100}$ a_1	53 17 15.6	7.2 7.5	5-	1 46.9 49.9 52.4 49.73	2 13.7	17.1	20.5	24.0	27.6 -16.00	2	20.58 15.12 .63 .25 4.58 2.06 2.62				
2 K (8) - D) $\frac{\kappa'}{100}$ a_2	6.7		1	5.62 59.0 1.5 58.90	2 13.3	16.6	20.3	23.7	27.1 -15.63	2	20.20 14.88 -1.68 7 4.57 2.04 2.53				
3 36- 1 42.6 K 51.6 (8) - D) $\frac{\kappa'}{100}$ a_1	53 29 24.1 22.4	9.0 9.4	3	30.7 34.9 37.6 34.40	3 50.0	53.5	57.2	0.7	4.0 -16.00	3	57.08 15.12 .63 .25 4.108 2.08 39.00				
4 K (8) - D) $\frac{\kappa'}{100}$ a_2	8.8		3	31.1 35.3 37.7 34.70	3 49.8	53.2	56.6	0.1	3.6 -15.64	3	56.66 14.88 .69 7 4.102 2.06 38.96				
5 29 3 8.4 K (8) - D) $\frac{\kappa'}{100}$ a_1	53 4 1.6	5.9 6.6	4	43.0 45.8 48.5 46.10	5 3.6	6.9	10.5	14.0	17.4 -16.00	5	10.48 15.12 .63 .25 54.48 2.09 52.39 6				
6 K (8) - D) $\frac{\kappa'}{100}$ a_2	6.0		4	38.2 40.4 43.6 40.83	5 3.1	6.7	10.1	13.4	17.0 -15.63	5	10.08 14.88 .68 7 54.73 2.07 52.36				
Feb. 3 12 29 11 8.1 K (8) - D) $\frac{\kappa'}{100}$ a_1	53 31 28.9	9.3 9.0	12	43.7 47.6 49.9 47.07	13 6.5	10.0	13.4	16.8	20.3 -16.00	13	13.40 15.12 .63 .25 47.40 2.19 55.21				
7 K (8) - D) $\frac{\kappa'}{100}$ a_2	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
8 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
9 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
10 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
11 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
12 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
13 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
14 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
15 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
16 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
17 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
18 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
19 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
20 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
21 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
22 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
23 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
24 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
25 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
26 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
27 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
28 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
29 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
30 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
31 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
32 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
33 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
34 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
35 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
36 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
37 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
38 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
39 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
40 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
41 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
42 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
43 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
44 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
45 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
46 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
47 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
48 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
49 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
50 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
51 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
52 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
53 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
54 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
55 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7 54.46 2.17 55.29				
56 K (8) - D) $\frac{\kappa'}{100}$ a_1	9.1		12	48.1 53.5 56.3 52.63	13 6.3	9.7	12.9	16.6	20.0 -15.64	13	13.10 14.88 .69 7				

Runs

-02

29

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	+00 z	8'
d	+30.85 1.48926 9.90405 1.51747	0 6.7 9.77643 1.38985m	20.9	276 0	13.80	22 34.65 53 18 14.24 -32.92 -24.54	0'			53 17 49.50 +11.72 +11.65 3	
(8) - D) $\frac{d'}{100}$										- .25 + 11.55 + 40 - 194 17 46.78	
δ_1	-9.62 -10.06	1 52.90		17 31.7							
d	+21.30 1.32838 9.90405 1.35659	0 12.5 9.77643 1.22897m	27.9	404 0	20.20	22 28.15 53 18 7.21 -22.73 -16.94	0			53 17 50.27 +11.89	
(8) - D) $\frac{d'}{100}$										- .12 + 11.68 + 40 - 195 17 42.66	
δ_2	-9.62 -10.06	1 52.91		17 32.6							
d	+22.68 1.35364 9.90480 1.38460	2 14.4 9.77507 1.25487m	25.4	368 2	18.40	30 29.95 53 26 9.14 -24.24 -17.98	50			53 25 51.46 +11.70 38	
(8) - D) $\frac{d'}{100}$										- .55 + 11.69 + 40 - 193 25 43.34	
δ_1	-9.65 -9.82	3 29.35		25 33.7							
d	+21.96 1.34163 9.90480 1.37059	2 10.6 9.77507 1.24086m	24.2	348 2	17.40	30 30.95 53 26 10.01 -23.47 -17.41	50			53 25 52.60 +11.55	
(8) - D) $\frac{d'}{100}$										- .13 + 11.83 + 40 - 194 25 44.75	
δ_2	-9.65 -9.82	3 29.31		25 34.9							
d	+24.38 1.38703 9.90273 1.41392	3 59.9 9.77879 1.28998m	11.6	1315 4	5.75	53 8 42.60 4 22.09 -35.94 -19.50	10			53 3 46.15 +10.58 4	
(8) - D) $\frac{d'}{100}$										- .15 + 98 + 1129 + 40 - 192 3 53.93	
δ_1	-9.60 -9.58	4 42.79		3 44.4							
d	+29.23 1.46583 9.90273 1.49272	3 54.3 9.77879 1.36878m	6.6	1209 4	0.45	53 8 47.90 4 26.96 -34.10 -23.38	10			53 4 3.58 +10.64	
(8) - D) $\frac{d'}{100}$										- .22 + 96 + 11.42 + 40 - 193 3 54.92	
δ_2	-9.60 -9.58	4 42.76		3 45.3							
d	+26.33 1.42045 9.90518 1.44979	2 58.5 9.77439 1.31900m	10.4	894 2	34.95	53 34 13.40 30 22.89 -25.14 -20.84	45			53 30 2.05 +11.28 4	
(8) - D) $\frac{d'}{100}$										- .18 + 74 + 11.78 + 40 - 189 29 54.44	
δ_1	-9.68 -8.20	12 45.53		29 46.2							
d	+20.47 1.31112 9.90518 1.34046	3 2.2 9.77439 1.20967m	14.9	171 3	8.55	53 34 39.80 30 18.86 -21.90 -16.21	45			53 30 2.65 +11.45	
(8) - D) $\frac{d'}{100}$										- .11 + 74 + 11.70 + 40 - 190 29 53.10	
δ_2	-9.68 -8.20	12 45.61		29 46.9							
d	+19.99 1.30081 9.90490 1.32987	1 10.5 9.77490 1.19987m	23.8	343 1	17.15	53 31 31.20 27 10.69 -21.37 -15.84	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_1	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						
d	+14.16 1.15106 9.89324 1.16846	1 8.9 9.77463 1.06985m	23.1	320 1	16.00	53 31 32.35 27 32.35 -23.43 -17.37	50			53 26 52.85 +11.78 +11.81	
(8) - D) $\frac{d'}{100}$										- .10 + 31 + 11.75 + 40 - 188 26 47.75	
δ_2	-9.68 -8.04	1 10.5		23.1	51 16.00						

Date₁ = 1887 Feb. 6
 $n = -61$

Observer
 Recorder

Date₂ = Feb. 8 $n = -59$
 Feb. 11 $n = -55$ $c = -03$

Observer
 Recorder

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Star.	α	δ	Mag.	T_a	T_m	T_o	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
41 30 40 κ	54 42 32.8	8.4 8.0	4 41	49.9 53.5 57.0 53.47	42 7.3	11.0	14.4	17.9	21.7 -15.26	42 - - 41	14.46 14.40 8.6 59.20 1.79 57.41		
((δ) - D) $\frac{\kappa'}{100}$													
a_1													
8			7.8	41 39.2 42.2 45.4 42.27	42 6.6	10.2	13.7	17.5	20.9 -14.64	42 - - 41	13.96 13.81 8.3 59.14 1.74 57.40		
κ													
((δ) - D) $\frac{\kappa'}{100}$													
a_2													
41			8.2	41 45.0 48.3 51.4 48.23	42 5.0	8.6	12.0	15.8	18.3 -13.18	42 - - 41	12.14 12.35 7.8 58.96 1.66 57.30		
κ													
((δ) - D) $\frac{\kappa'}{100}$													
a_1													
6	42 34 41 κ	54 18 16.0	8.8 8.5	42 58.0 1.7 4.4 61.37	43 11.7	15.2	18.7	22.4	25.7 -15.25	43 - - 43	18.74 14.40 8.5 3.49 1.79 1.70		
((δ) - D) $\frac{\kappa'}{100}$													
a_2													
8			9.0	42 57.0 54.4 56.8 54.07	43 10.9	14.5	18.1	21.6	25.1 -14.63	43 - - 43	18.04 13.81 8.2 3.41 1.74 1.67		
κ													
((δ) - D) $\frac{\kappa'}{100}$													
a_1													
11			8.8	42 45.2 48.5 51.2 48.30	43 9.5	13.1	16.5	20.0	23.6 -13.16	43 - - 43	16.54 12.35 7.6 3.38 1.67 1.71		
κ													
((δ) - D) $\frac{\kappa'}{100}$													
a_2													
6	45 07 43 κ	51 23 22.8	7.0 7.0	45 27.0 29.8 32.5 29.77	45 45.0	48.4	51.7	55.0	58.4 -15.17	45 - - 45	51.70 14.40 7.7 36.53 1.75 34.78		
((δ) - D) $\frac{\kappa'}{100}$													
a_1													
8			7.0	45 19.0 22.5 24.5 22.00	45 44.2	47.7	51.0	54.4	57.6 -14.55	45 - - 45	50.98 13.81 7.4 36.43 1.71 34.72		
κ													
((δ) - D) $\frac{\kappa'}{100}$													
a_2													
11			7.4	45 15.3 18.3 21.3 18.30	45 42.9	46.1	49.5	52.8	56.1 -13.09	45 - - 45	49.48 12.35 6.9 36.39 1.63 34.76		
κ													
((δ) - D) $\frac{\kappa'}{100}$													
a_1													
6	46 08 44 κ	51 32 30.0	9.1 8.9	46 20.5 23.4 27.1 23.67	46 47.9	51.4	54.5	57.9	61.4 -18.17	46 - - 46	54.62 14.40 7.7 36.45 1.77 37.68		
((δ) - D) $\frac{\kappa'}{100}$													
a_2													

Runs

Feb 6 - 4' 21.29 - .23 + .05
 8 - 4 20.62 46 - .22 + .98
 11 - 4 20.93 - .22 + .49

+ .05

+ .98

+ .49

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	T _m - T	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+20.99 1.32201 9.91176 1.35793	1 32.0 9.76182 2.0799	45.9	779	38.95	54 46 41	9.40 48.11 -22.80 -16.14	35	54 41 31.97 - .12 + 13.09 + 4.5 - 20.8 41 24.287	+13.65 10	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.70 -13.42	41 47.71	41 10.8	36	32.85	54 46 41	15.50 54.88 -34.23 -24.23	35	+ 0.16 54 41 30.65 - .25 + 13.26 + 4.5 - 20.9 41 24.287	+13.73 14.11	
d	+31.51 1.49845 9.91176 1.53437	1 26.6 9.76182 2.384432	39.1	657	32.85	54 46 41	15.50 54.88 -34.23 -24.23	35	+ 0.16 54 41 30.65 - .25 + 13.26 + 4.5 - 20.9 41 24.287	+13.73 14.11	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.70 -13.42	41 47.70	41 10.6	36	36.80	54 46 41	11.53 50.62 -25.97 -18.39	35	+ 0.16 54 41 32.23 - .15 + 13.27 + 4.0 - 21.2 41 24.287	+13.77 66	
d	+23.91 1.37858 9.91176 1.41450	1 29.6 9.76182 2.264562	44.0	736	36.80	54 46 41	11.53 50.62 -25.97 -18.39	35	+ 0.16 54 41 32.23 - .15 + 13.27 + 4.0 - 21.2 41 24.287	+13.77 66	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.70 -13.42	41 47.60	41 10.3	36	15.85	54 21 17	32.50 11.21 -16.74 -13.50	0	+ 0.16 54 16 57.71 - .28 + 12.65 + 4.5 - 20.7 16 49.65	+12.75 80	
d	+17.37 1.23980 9.90951 1.27347	1 9.4 9.76625 1.130212	22.3	317	15.85	54 21 17	32.50 11.21 -16.74 -13.50	0	+ 0.16 54 16 57.71 - .28 + 12.65 + 4.5 - 20.7 16 49.65	+12.75 80	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.66 -13.26	42 52.04	16 36.6	5	14.10	54 21 17	34.95 13.63 -25.90 -18.62	0	+ 0.16 54 16 55.01 - .15 + 12.81 + 4.5 - 20.8 16 49.65	+12.85 13.83	
d	+23.97 1.37467 9.90951 1.41334	1 7.7 9.76625 1.27008	20.5	282	14.10	54 21 17	34.95 13.63 -25.90 -18.62	0	+ 0.16 54 16 55.01 - .15 + 12.81 + 4.5 - 20.8 16 49.65	+12.85 13.83	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.66 -13.26	42 52.01	16 34.9	5	8.70	54 21 17	39.65 18.72 -30.52 -21.94	0	+ 0.16 54 16 56.78 - .20 + 12.82 + 4.0 - 21.0 16 49.65	+12.78 13.27	
d	+28.24 1.45086 9.90951 1.48453	1 1.6 9.76625 1.34127	15.8	174	8.70	54 21 17	39.65 18.72 -30.52 -21.94	0	+ 0.16 54 16 56.78 - .20 + 12.82 + 4.0 - 21.0 16 49.65	+12.78 13.27	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.66 -13.26	42 52.05	16 35.8	5	15.45	51 28 24	52.90 31.61 -22.82 -18.20	50	+ 0.16 51 24 13.41 - .13 + 9.53 + 3.5 - 19.8 24 49.65	+8.85 90	
d	+21.93 1.34104 9.89304 1.35824	3 48.4 9.79494 2.26014	2.5	509	15.45	51 28 24	52.90 31.61 -22.82 -18.20	50	+ 0.16 51 24 13.41 - .13 + 9.53 + 3.5 - 19.8 24 49.65	+8.85 90	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.32 -12.82	45 25.46	23 49.7	53	57.65	51 28 24	56.70 36.08 -30.15 -24.05	50	+ 0.16 51 24 12.03 - .22 + 9.68 + 3.0 - 19.9 24 49.65	+8.87 98.5	
d	+28.98 1.46210 9.89304 1.47930	3 45.4 9.79494 2.38120	57.9	1033	57.65	51 28 24	56.70 36.08 -30.15 -24.05	50	+ 0.16 51 24 12.03 - .22 + 9.68 + 3.0 - 19.9 24 49.65	+8.87 98.5	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.32 -12.82	45 25.40	23 49.3	53	46.55	51 28 24	59.80 38.87 -32.44 -25.88	50	+ 0.16 51 24 12.99 - .26 + 9.84 + 3.0 - 20.1 24 49.65	+8.85 93.4	
d	+31.18 1.49388 9.89304 1.51108	3 40.9 9.79494 2.41298	56.2	971	46.55	51 28 24	59.80 38.87 -32.44 -25.88	50	+ 0.16 51 24 12.99 - .26 + 9.84 + 3.0 - 20.1 24 49.65	+8.85 93.4	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.32 -12.82	45 25.44	23 49.4	53	47.10	51 38 33	1.25 39.96 -32.27 -25.60	40	+ 0.16 51 33 14.36 - .26 + 9.70 + 4.0 - 19.8 32 49.65	+8.74 9	
d	+30.95 1.49066 9.89395 1.50877	4 40.3 9.79351 2.40833	53.9	942	47.10	51 38 33	1.25 39.96 -32.27 -25.60	40	+ 0.16 51 33 14.36 - .26 + 9.70 + 4.0 - 19.8 32 49.65	+8.74 9	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.34 -12.64	46 28.34	32 50.7	53							

Date₁ = 1877 Feb. 6Observer
RecorderDate₂ = Feb. 8

Feb. 11

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
46 08 44 34.6 κ	51° 32'	30.0	9.2 8.9	4 46 20.2 24.0 27.2 28.80	46 47.2	50.6	54.0	57.2	1.0 -14.55	46 54.00 13.81 74 36.45 1.72 37.73			
(δ) - D) κ'_{100}													
a_1													
46 26.1 29.3 31.8 29.07	9.1			46 26.1 29.3 31.8 29.07	46 43.8	49.0	52.2	55.6	58.9 -13.08	46 52.30 12.34 69 15 39.22 1.65 37.57			
(δ) - D) κ'_{100}													
a_2													
47 47 46 27.2 κ	53 42	40.3	9.5 9.4	47 58.2 1.0 45 61.23	48 23.2	26.8	30.0	33.4	37.3 -15.23	48 30.14 14.40 83 14.91 1.84 13.07			
(δ) - D) κ'_{100}													
a_1													
48 21.0 23.7 26.4 23.33	9.5			48 21.0 23.7 26.4 23.33	48 22.9	25.9	29.1	33.3	36.6 -14.61	48 29.75 13.81 80 15.15 1.79 13.86			
(δ) - D) κ'_{100}													
a_2													
48 28 5.8 9.8 6.13	9.3			48 28 5.8 9.8 6.13	48 22.9	24.6	28.0	31.6	34.8 -13.14	48 24.02 12.34 75 14.88 1.72 13.16			
(δ) - D) κ'_{100}													
a_1													
50 26 49 6.3 κ	54 39	36.9	9.0 8.9	50 38.1 41.5 44 41.33	51 7.3	10.9	14.3	18.0	21.6 -15.26	51 14.42 14.40 86 59.16 1.90 58.26	57.26		
(δ) - D) κ'_{100}													
a_2													
50 36.8 39.7 43.2 39.90	8.8			50 36.8 39.7 43.2 39.90	51 6.9	10.4	13.7	17.3	20.7 -14.64	51 13.80 13.81 83 59.16 1.88 57.31			
(δ) - D) κ'_{100}													
a_1													
50 38.8 36.4 39.3 36.50	8.6			50 38.8 36.4 39.3 36.50	51 5.1	8.6	12.0	15.9	19.3 -13.17	51 12.18 12.34 78 59.01 1.78 57.23			
(δ) - D) κ'_{100}													
a_2													
52 01 50 41.4 κ	54 12	9.9	8.8 8.8	52 22.7 26.8 28.0 26.17	52 37.7	44.2	44.8	48.4	51.8 -15.25	52 44.78 14.40 85 29.53 1.91 27.62			
(δ) - D) κ'_{100}													
a_1													
52 5.6 8.8 11.8 8.73	9.2			52 5.6 8.8 11.8 8.73	52 37.2	40.5	44.1	47.8	51.2 -14.63	52 44.16 13.81 82 29.53 1.86 27.67			
(δ) - D) κ'_{100}													
a_2													

Runs

33

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z'	δ'
	+30.20 1.48001 9.89395 1.49812	4 42.8	53.9	987	49.35	37'	54.00		40	51 33	+0.16 13.39 +8.86 24 9.84
d	9.79351 1.49812	4 42.8	53.9	987	49.35	37'	54.00		40	51 33	+0.16 13.39 +8.86 24 9.84
(8) - D) $\frac{d'}{100}$	9.79351 1.49812	4 42.8	53.9	987	49.35	37'	54.00		40	51 33	+0.16 13.39 +8.86 24 9.84
δ_1	-9.34 -12.64	46 28.39		32 50.8							
	+23.23 1.36605 9.89395 1.38416	4 46.1	1.0	1071	53.55	37'	54.80		40	51 33	+0.16 14.65 +8.94 14 9.43
d	9.79351 1.38416	4 46.1	1.0	1071	53.55	37'	54.80		40	51 33	+0.16 14.65 +8.94 14 9.43
(8) - D) $\frac{d'}{100}$	9.79351 1.38416	4 46.1	1.0	1071	53.55	37'	54.80		40	51 33	+0.16 14.65 +8.94 14 9.43
δ_2	-9.34 -12.64	46 28.23		32 51.3							
	+28.91 1.46105 9.90639 1.49160	0 15.2	29.2	444	22.20	47'	26.15		35	53 42	+0.16 12.09 +12.18 22 9
d	9.77216 1.49160	0 15.2	29.2	444	22.20	47'	26.15		35	53 42	+0.16 12.09 +12.18 22 9
(8) - D) $\frac{d'}{100}$	9.77216 1.49160	0 15.2	29.2	444	22.20	47'	26.15		35	53 42	+0.16 12.09 +12.18 22 9
δ_1	-9.61 -12.40	48 3.46		42 21.6							
	+6.06 0.78247 9.90639 0.81302	0 37.1	50.5	876	43.80	47'	25.55		35	53 42	+0.16 39.16 +12.43 15 13.41
d	9.77216 0.81302	0 37.1	50.5	876	43.80	47'	25.55		35	53 42	+0.16 39.16 +12.43 15 13.41
(8) - D) $\frac{d'}{100}$	9.77216 0.81302	0 37.1	50.5	876	43.80	47'	25.55		35	53 42	+0.16 39.16 +12.43 15 13.41
δ_2	-9.61 -12.40	48 3.55		42 19.9							
	+21.89 1.34025 9.90639 1.37080	0 21.6	36.3	579	28.95	47'	19.40		35	53 42	+0.16 41.23 +12.36 13 8.5
d	9.77216 1.37080	0 21.6	36.3	579	28.95	47'	19.40		35	53 42	+0.16 41.23 +12.36 13 8.5
(8) - D) $\frac{d'}{100}$	9.77216 1.37080	0 21.6	36.3	579	28.95	47'	19.40		35	53 42	+0.16 41.23 +12.36 13 8.5
δ_1	-9.61 -12.40	48 3.55		42 21.1							
	+33.09 1.51970 9.91132 1.55518	1 33.1	46.2	793	39.65	47'	8.70		40	54 37	+0.16 21.91 +12.80 28 5
d	9.76241 1.55518	1 33.1	46.2	793	39.65	47'	8.70		40	54 37	+0.16 21.91 +12.80 28 5
(8) - D) $\frac{d'}{100}$	9.76241 1.55518	1 33.1	46.2	793	39.65	47'	8.70		40	54 37	+0.16 21.91 +12.80 28 5
δ_2	-9.74 -11.94	50 47.52		38 2.4							
	+33.90 1.53020 9.91141 1.56577	0 33.9	47.2	811	40.55	42'	7.80		40	54 37	+0.16 21.07 +13.18 30 14.16
d	9.76253 1.56577	0 33.9	47.2	811	40.55	42'	7.80		40	54 37	+0.16 21.07 +13.18 30 14.16
(8) - D) $\frac{d'}{100}$	9.76253 1.56577	0 33.9	47.2	811	40.55	42'	7.80		40	54 37	+0.16 21.07 +13.18 30 14.16
δ_1	-9.74 -11.94	50 47.57		37 2.8							
	+35.68 1.55242 9.91141 1.58799	0 31.6	45.8	774	38.70	42'	9.65		40	54 37	+0.16 21.23 +13.44 32 6.3
d	9.76253 1.58799	0 31.6	45.8	774	38.70	42'	9.65		40	54 37	+0.16 21.23 +13.44 32 6.3
(8) - D) $\frac{d'}{100}$	9.76253 1.58799	0 31.6	45.8	774	38.70	42'	9.65		40	54 37	+0.16 21.23 +13.44 32 6.3
δ_2	-9.74 -11.94	50 47.49		37 2.1							
	+18.61 1.26975 9.90906 1.30297	1 32.1	46.4	795	39.75	16'	8.60		5	54 11	+0.16 32.72 +12.58 9 5
d	9.76712 1.30297	1 32.1	46.4	795	39.75	16'	8.60		5	54 11	+0.16 32.72 +12.58 9 5
(8) - D) $\frac{d'}{100}$	9.76712 1.30297	1 32.1	46.4	795	39.75	16'	8.60		5	54 11	+0.16 32.72 +12.58 9 5
δ_1	-9.69 -11.68	52 17.93		11 13.3							
	+35.43 1.54937 9.90906 1.58259	1 22.6	35.6	582	29.10	16'	19.35		5	54 11	+0.16 31.05 +12.45 33 13.43
d	9.76712 1.58259	1 22.6	35.6	582	29.10	16'	19.35		5	54 11	+0.16 31.05 +12.45 33 13.43
(8) - D) $\frac{d'}{100}$	9.76712 1.58259	1 22.6	35.6	582	29.10	16'	19.35		5	54 11	+0.16 31.05 +12.45 33 13.43
δ_2	-9.69 -11.68	52 17.98		11 12.6							

Date₁ = 1877 Feb. 6Observer
RecorderDate₂ =Feb. 8 519
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Recorder

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Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
52 01	54 12	9.0	4 52	33	52 33.4	39.0	42.5	46.0	49.4	52	42.46		
50 41.4	8.9	8.8		6.9					-13.14	-	12.33		
κ				10.1						-	17.6		
(8) - D				6.77						52	29.32		
α_1										-	1.79		
										-	27.53		
53 18	54 34	9.0	53	31.0	53 55.7	59.2	2.8	6.1	10.0	54	2.76		
01 58.2	8.2	9.2		84.0					-15.26	-	14.40		
κ				36.9						-	8.26		
(8) - D				33.97						53	44.50		
α_1										-	1.94		
										-	45.56		
53 45.1	53 53.0	9.2	53	35.1	58.5	2.2	5.8	9.2	9.2	54	2.14		
47.8				47.8					-14.64	-	13.81		
κ				51.9						-	1.83		
(8) - D				48.27						53	47.50		
α_1										-	1.89		
										-	45.61		
53 31.8	53 33.4	9.0	53	35.0	57.0	0.6	4.0	7.7	7.7	54	0.54		
35.0				38.0					-13.16	-	12.33		
κ				34.93						-	1.78		
(8) - D										53	47.38		
α_1										-	1.82		
										-	45.56		
54 10	54 48	8.4	54	33.7	54 46.9	50.0	53.6	57.2	0.8	54	53.60		
52 48.7	8.4	8.4		87.2					-15.27	-	14.40		
κ				40.1						-	8.7		
(8) - D				37.00						54	38.33		
α_1										-	1.95		
										-	36.38		
54 48.0	54 45.9	8.8	54	51.1	49.4	53.1	56.8	0.1	0.1	54	53.06		
51.1				53.1					-14.65	-	13.81		
κ				57.40						54	38.41		
(8) - D										-	1.90		
α_1										-	36.51		
54 30.5	54 46.0	8.2	54	84.0	47.9	57.5	55.0	58.6	58.6	54	51.40		
84.0				86.3					-13.16	-	12.33		
κ				33.60						-	1.78		
(8) - D										54	38.24		
α_1										-	1.83		
										-	36.41		
53 50	54 57	8.3	53	52.9	56 23.3	26.9	32.5	36.2	39.6	56	32.54		
54 28.7	8.3	8.3		57.4					-15.27	-	14.40		
κ				59.4						56	17.27		
(8) - D				56.67						-	1.98		
α_1										-	15.29		
53 54.0	56 24.9	8.8	53	58.5	28.3	31.9	35.4	39.0	39.0	56	31.80		
58.5				1.8					-14.65	-	13.81		
κ				58.10						56	17.15		
(8) - D										-	1.93		
α_1										-	15.22		
53 53.2	56 23.2	8.7	53	53.7	26.7	30.3	33.9	37.5	37.5	56	30.32		
53.7				57.8					-13.16	-	12.33		
κ				56.23						-	1.78		
(8) - D										56	17.16		
α_1										-	1.86		
										-	15.30		

Runs

+05
+98
+49

35

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+35.69 1.55255 9.90906 1.58577	1' 19.6	34.5	541	1' 27.05	16' 54 12	21.30 0.37 -36.53 -27.79		5'	54 11 32.58 - 33 - 33 + 12.72 + 40 - 20.7 11 24.34 24.83	+12.46 95
(8) - D) $\frac{\delta'}{100}$											
δ_1	-9.69 -11.68	52 17.84		11 13.2	43						
d	+28.79 1.45924 9.91114 1.49454	3 18.6	31.6	502	3 25.10	39 54 35	23.25 1.96 -37.23 -22.21		40	54 34 39.75 - 22 - 78 + 13.00 + 45 - 20.3 34 31.85 + 0.16	+12.45 50
(8) - D) $\frac{\delta'}{100}$											
δ_2											
d	+13.87 1.14208 9.91114 1.17738	3 33.6	45.5	791	3 39.55	39 54 34	8.80 48.18 -15.04 -10.70		40	54 34 37.48 - 5 - 79 + 13.14 + 45 - 20.5 84 30.87 + 0.16	+12.75 1373
(8) - D) $\frac{\delta'}{100}$											
δ_1											
d	+25.61 1.40841 9.91114 1.44371	3 20.0	34.0	540	3 27.00	39 54 35	21.35 0.42 -27.75 -14.75		40	54 34 40.67 - 17 - 76 + 13.15 + 40 - 20.7 84 30.87 + 0.16	+12.63 1311
(8) - D) $\frac{\delta'}{100}$											
δ_2											
d	+16.60 1.22011 9.91239 1.25666	4 17.9	31.1	490	4 29.50	53 54 49	23.85 2.56 -15.06 -12.73		25	54 48 49.83 - 4 - 101 + 13.26 + 45 - 20.3 48 42.56 + 0.16	+12.63 8
(8) - D) $\frac{\delta'}{100}$											
δ_1											
d	+1.66 0.22011 9.91239 1.25666	4 31.3	43.4	747	4 37.35	53 54 48	11.00 50.38 -1.81 -1.27		25	54 48 49.11 - 0 - 101 + 13.40 + 45 - 20.5 48 42.56 + 0.16	+12.84 1382
(8) - D) $\frac{\delta'}{100}$											
δ_2											
d	+17.80 1.25042 9.91239 1.28697	4 16.6	30.3	469	4 23.45	53 54 49	24.40 3.97 -19.36 -13.65		25	54 48 50.32 - 8 - 97 + 13.41 + 40 - 20.7 48 42.56 + 0.16	+12.76 1325
(8) - D) $\frac{\delta'}{100}$											
δ_1											
d	+35.87 1.55273 9.91310 1.59199	0 51.9	4.9	1168	0 58.40	1 54 57	49.95 28.66 -36.08 -27.42		20	54 57 1.24 - 33 - 23 + 13.41 + 50 - 20.3 56 54.34 + 0.16	+13.85 40
(8) - D) $\frac{\delta'}{100}$											
δ_2											
d	+33.70 1.52463 9.91310 1.56489	0 57.1	9.0	1261	1 3.05	1 54 57	45.30 24.68 -36.72 -25.76		20	54 56 58.92 - 29 - 22 + 13.55 + 50 - 20.4 56 54.34 + 0.16	+13.54 1452
(8) - D) $\frac{\delta'}{100}$											
δ_1											
d	+34.09 1.53263 9.91310 1.56989	0 53.6	7.1	1207	1 0.35	1 54 57	48.00 27.07 -37.44 -26.06		20	54 57 1.01 - 30 - 22 + 13.56 + 40 - 20.7 56 54.34 + 0.16	+13.44 93
(8) - D) $\frac{\delta'}{100}$											
δ_2											

Date₁ = 1877 Feb. 6Observer
RecorderDate₂ = Feb. 8

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Star.	α	δ	Mag.	T_s	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
57 22 56 12 κ	54 50 47.8	8.0 7.5	4	57 236 280 300 2720	57 57.9	14	5.0	8.5	12.2 -15.27	58 5.00 14.40 87 47.73 1.99 47.74			
(8) - D) $\frac{\kappa'}{100}$													
c_1													
8		8.3		57 302 330 379 33.70	57 57.4	10	4.6	8.0	11.5 -14.65	58 4.50 13.81 84 49.85 1.94 47.91			
κ													
(8) - D) $\frac{\kappa'}{100}$													
c_2													
11		8.0		57 250 284 308 28.07	57 53.8	59.2	2.9	6.5	10.1 -10.16	58 2.90 12.33 78 5 49.74 1.87 47.87			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
6	58 37 57 17.5 κ	53 41 38.8	8.2 8.5	58 42.6 480 494 46.77	58 12.7	16.2	18.8	23.2	26.7 -15.23	59 19.72 14.40 83 4.49 1.97 2.52			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_2													
8		8.5		58 460 493 528 49.37	58 12.3	15.8	18.1	22.5	26.0 -14.61	59 19.14 13.81 80 4.52 1.93 2.60			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
11		8.0		58 489 53.9 563 53.37	58 10.4	14.0	17.6	21.1	24.5 -13.13	59 17.52 12.33 75 5 4.39 1.86 2.53			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_2													
6	1 38 0 0 18.62 κ	53 17 136	6.8 7.5	5 43.8 48.6 51.4 48.60	2 12.7	16.0	18.4	23.1	26.5 -15.22	2 19.60 14.40 82 4.38 2.00 2.38			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
8		7.5		1 44.4 46.8 50.2 47.13	2 12.0	13.5	18.1	22.4	26.1 -14.60	2 19.02 13.81 79 4.42 1.95 2.47			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_2													
11		6.9		1 38.1 40.9 44.0 41.00	2 10.6	14.0	17.4	20.8	24.4 -13.12	2 17.44 12.33 74 4.32 1.88 2.44			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_1													
6	8 13 1 57.6 κ	53 24 22.4	8.8 9.0	3 13.3 18.9 20.6 18.33	3 49.2	32.7	56.2	59.6	3.3 -15.22	3 56.20 14.40 82 4.098 2.02 38.96			
κ													
(8) - D) $\frac{\kappa'}{100}$													
a_2													

Runs

37

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+37.80 1.54749 9.91248 1.61413	3 38.4	57.5	899	28 44.95	54 49	54 49	340 54 49 54 49	25	13.13 54 49 54 49	+12.58
(8) - D $\frac{\delta'}{100}$											
δ_1	-9.80 -10.78	57 37.94		48 54.7	28 44.95					13.13 54 49 54 49	
d	+30.80 1.48855 9.91248 1.52514	3 46.4	58.1	1045	3 52.25	54 49	53 56.10	54 49 35.48 33.57 -23.61	25	11.87 54 49 54 49	+12.79
(8) - D $\frac{\delta'}{100}$											
δ_2	-9.80 -10.78	57 38.11		48 54.6	3 52.25					13.67 54 49 54 49	
d	+34.83 1.54195 9.91248 1.57859	3 40.8	55.1	959	3 47.95	54 49	54 49	0.40 39.44 -37.90 -26.70	25	12.77 54 49 54 49	+12.66
(8) - D $\frac{\delta'}{100}$											
δ_1	-9.80 -10.78	57 38.07		48 54.4	3 47.95					13.15 54 49 54 49	
d	+32.95 1.57786 9.90620 1.54822	2 43.5	57.5	1010	2 50.50	53 40	53 40	57.85 36.56 -35.34 -25.97	35	10.59 53 40 53 40	+11.57
(8) - D $\frac{\delta'}{100}$											
δ_2	-9.65 -10.58	58 52.87		39 51.7	2 50.50					11.57 53 40 53 40	
d	+29.77 1.47578 9.90620 1.50414	2 48.1	1.1	1092	2 54.60	53 40	53 40	53.75 33.13 -31.93 -23.47	35	9.66 53 40 53 40	+11.66
(8) - D $\frac{\delta'}{100}$											
δ_1	-9.65 -10.58	58 52.95		39 51.9	2 54.60					12.64 53 40 53 40	
d	+24.15 1.38292 9.90611 1.41319	2 57.0	4.8	1158	2 57.90	53 40	53 40	50.45 29.52 -25.89 -19.04	35	10.48 53 40 53 40	+11.75
(8) - D $\frac{\delta'}{100}$											
δ_2	-9.65 -10.58	58 52.85		39 51.8	2 57.90					12.24 53 40 53 40	
d	+31.00 1.49136 9.90405 1.51957	0 4.4	19.1	235	0 11.75	53 18	53 18	36.60 15.31 -23.08 -24.66	0	50.65 53 17 53 17	+11.78
(8) - D $\frac{\delta'}{100}$											
δ_1	-9.62 -10.06	1 52.76		17 32.7	0 11.75					11.78 53 17 53 17	
d	+31.89 1.50365 9.90405 1.53186	0 6.3	20.5	268	0 13.40	53 22	53 22	36.60 14.33 -24.03 -25.37	0	48.96 53 17 53 17	+11.81
(8) - D $\frac{\delta'}{100}$											
δ_2	-9.62 -10.06	1 52.85		17 32.0	0 13.40					12.79 53 17 53 17	
d	+36.44 1.56158 9.90405 1.58979	0 0.1	15.7	58	0 2.90	53 22	53 22	45.45 24.52 -35.89 -28.98	0	53.54 53 17 53 17	+11.73
(8) - D $\frac{\delta'}{100}$											
δ_1	-9.62 -10.06	1 52.82		17 32.6	0 2.90					12.22 53 17 53 17	
d	+37.87 1.64830 9.90480 1.60726	1 56.7	9.9	1266	2 3.30	53 30	53 30	45.05 23.76 -40.48 -30.03	50	53.73 53 25 53 25	+11.30
(8) - D $\frac{\delta'}{100}$											
δ_2	-9.64 -9.78	3 29.32		25 35.7	2 3.30					11.30 53 25 53 25	

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Date₁ = 1877 Feb. 6Observer
RecorderDate₂ = Feb. 8 519
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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
3	13	53° 24'	9.2	5	3 42.4	3 48.7	52.2	53.8	58.8	22	3	55.54	
	1	87.6	22.4	9.0						-14.60	-	13.81	
	κ				42.40						-	.79	
	(δ) - D	$\frac{\kappa'}{100}$									-	40.94	
	a_1										-	1.97	
											-	38.97	
11			8.9	3	200	3 47.0	50.4	54.0	57.4	0.9	3	53.94	
	κ				24.0					-13.12	-	12.33	
	(δ) - D	$\frac{\kappa'}{100}$			23.33						-	.74	
	a_2				20.0						-	40.82	
											-	1.91	
											-	38.91	
6	3 48	53 52	7.0	4	17.9	4 22.2	25.8	29.3	32.8	36.3	4	29.28	
	2 26.7	50.3	8.0		20.6					-15.24	-	14.40	
	κ				24.3						-	.84	
	(δ) - D	$\frac{\kappa'}{100}$			20.93						-	14.04	
	a_1										-	2.04	
											-	12.00	
8			8.7	4	20.5	4 21.9	25.3	28.5	31.9	35.6	4	28.64	
	κ				24.9					-14.62	-	13.81	
	(δ) - D	$\frac{\kappa'}{100}$			23.4						-	.81	
	a_2				26.3						-	14.02	
					23.40						-	1.99	
											-	12.03	
11			8.4	4	20.6	4 20.3	23.5	27.2	30.5	34.1	4	27.06	
	κ				23.8					-13.13	-	12.32	
	(δ) - D	$\frac{\kappa'}{100}$			26.4						-	.76	
	a_1				27.2						-	.5	
					23.87						-	13.93	
											-	1.93	
											-	12.00	
6	4 33	53 5	9.1	5	24	5 23	12.9	16.4	20.0	23.2	5	16.36	
	3 13.4	8.1	9.2		6.2					-15.22	-	14.40	
	κ				9.0						-	.82	
	(δ) - D	$\frac{\kappa'}{100}$			5.87						-	1.14	
	a_2										-	2.03	
											-	59.11	
8	3 8.4	53 16	5.8	5	13.8	5 20	5.3	8.8	12.3	15.8	5	8.84	
	κ				16.6					-14.60	-	13.81	
	(δ) - D	$\frac{\kappa'}{100}$			20.0						-	.79	
	a_1				16.80						-	54.24	
											-	1.98	
											-	52.26	
11	3 13.4		9.4	5	11.7	5 7.4	10.6	14.0	17.6	21.0	5	14.00	
	κ				14.4					-13.10	-	12.32	
	(δ) - D	$\frac{\kappa'}{100}$			18.9						-	.73	
	a_2				15.00						-	.5	
											-	1.02	
											-	1.92	
											-	59.10	
6	6 33	54 2	7.0	6	38.0	7 8.8	12.4	15.8	19.4	22.9	7	15.86	
	5 11.8	0.2	7.5		41.4					-15.24	-	14.40	
	κ				44.5						-	.84	
	(δ) - D	$\frac{\kappa'}{100}$			41.30						-	0.62	
	a_1										-	2.08	
											-	58.54	
8			8.7	7	2.9	7 29.1	32.6	35.8	39.3	42.8	7	35.92	
	κ				6.0					-14.62	-	13.81	
	(δ) - D	$\frac{\kappa'}{100}$			8.1						-	.81	
	a_2				6.00						-	21.30	
											-	2.03	
											-	19.27	

Runs

39

	$T_m - T_s$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+13.14 1.11860 9.90480 1.14756	2 19.1	32.0	511	2 25.55	30 53 26	22.80 2.18 -14.09 -10.42		50	+0.16 +98 +49 +0.16 +11.87 +40 -19.8 25 44.79	
d											
((S) - D) $\frac{d'}{100}$											
δ_1	-9.64 -9.78	3 29.33		25 35.0	52						
	+33.9 1.53020 9.77057 1.42943	2 28	12.0	148	2 7.40	30 53 26	40.95 28.02 -32.72 -24.62 -26.88		50	53.14 25 53.75 +11.52 -25 +12.01 -46 +11.88 +35 -20.0 25 47.76 45.15	
d											
((S) - D) $\frac{d'}{100}$											
δ_2	-9.64 -9.78	3 29.27		25 35.4	25						
	+8.35 0.92169 9.90731 2.95316	0 39.1	53.6	927	0 46.35	57 53 52	2.00 40.71 -8.98 -6.70		25	53 52 34.01 +12.45 -2 50 -18 +12.25 +40 -17.7 52 26.81	
d											
((S) - D) $\frac{d'}{100}$											
δ_1	-9.70 -9.70	4 2.30		52 17.1	25						
	+5.24 0.71933 9.90731 0.75080	0 43.7	57.3	1010	0 50.50	56 53 52	57.85 37.23 -5.63 -4.11		25	53 52 33.12 +12.58 -18 13.56 +12.37 +40 -19.8 52 27.04	
d											
((S) - D) $\frac{d'}{100}$											
δ_2	-9.70 -9.70	4 2.33		52 17.3	25						
	+3.19 0.50379 9.90731 0.53526	0 43.3	58.4	1017	0 50.85	56 53 52	57.50 36.57 -3.43 -2.50		25	53 52 34.07 +12.59 -18 13.08 +12.38 +40 -19.8 52 27.05	
d											
((S) - D) $\frac{d'}{100}$											
δ_1	-9.70 -9.70	4 2.30		52 17.4	13						
	+10.49 1.02078 9.90282 1.04776	3 12.7	26.1	388	3 19.40	9 53 5	28.95 7.66 -11.6 -5.39		10	53 4 59.27 +10.99 -3 11.04 -76 +11.38 +40 -19.5 4 50.81	
d											
((S) - D) $\frac{d'}{100}$											
δ_2	-9.60 -9.56	4 49.51		4 41.2	14						
	-7.96 0.90091 9.90273 0.92780	4 25.9	37.2	631	4 31.55	8 53 3	16.80 56.18 +5.17 +6.37		10	53 4 2.55 +10.87 -2 11.85 -99 +11.48 +40 -19.5 4 50.81	
d											
((S) - D) $\frac{d'}{100}$											
δ_1	-9.60 -9.56	4 42.66		3 45.4	13						
	-0.88 9.94448 9.90282 9.97146	3 22.0	35.4	574	3 28.70	9 53 4	19.85 58.72 42 +0.93 +0.708		10	53 4 59.42 +11.04 -0 56 -77 +11.49 +35 -19.5 4 50.81	
d											
((S) - D) $\frac{d'}{100}$											
δ_2	-9.60 -9.56	4 49.50		4 41.5	15						
	+34.56 1.53857 9.90874 1.57087	0 52.6	5.9	1185	0 59.25	6 54 2	49.10 27.81 -37.23 -27.01		15	54 2 0.80 +12.29 -31 34 -23 +12.42 +40 -19.6 1 53.524	
d											
((S) - D) $\frac{d'}{100}$											
δ_1	-9.73 -9.22	6 48.81		1 44.3	15						
	+29.92 1.47546 9.90823 1.50835	0 4.5	18.5	230	0 11.50	7 54 3	36.85 16.23 -32.24 -23.38		15	54 2 52.86 +12.70 -23 13.68 -4 +12.57 +40 -19.8 2 46.89	
d											
((S) - D) $\frac{d'}{100}$											
δ_2											

518

40

Date₁ = 1877 Feb. 6Observer
RecorderDate₂ = Feb. 8 519
Feb. 11 520Observer
Recorder

Ru

Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
6	33	54° 2'	7.0	5	6 34.0	7 6.5	10.2	13.7	17.2	20.6	7	13.64	
	κ	0.2	7.5		37.3					-13.13	-	12.32	
					41.4						-	1.76	
					34.23						-	1.5	
	(δ) - D				37.07						7	0.51	
	α_1										-	1.97	
											-	58.54	
6	49	54 53	8.5	10	4.0	10 25.3	28.7	32.6	35.9	39.8	10	32.46	
	κ	0.38	8.0		6.5					-15.27	-	14.40	
					1.00						-	0.87	
					8.83						10	17.19	
	(δ) - D										-	2.15	
	α_2										-	15.04	
8			8.5	10	7.0	10 24.7	28.1	31.9	35.3	38.9	10	31.98	
	κ				9.7					-14.65	-	13.81	
					12.2						-	0.84	
	(δ) - D				9.63						10	17.13	
	α_1										-	2.11	
											-	15.02	
11			7.5	10	4.2	10 23.2	26.5	30.3	33.8	37.4	10	30.24	
	κ				8.0					-13.15	-	12.32	
					11.3						-	1.78	
	(δ) - D				7.83						10	17.09	
	α_2										-	2.04	
											-	15.05	
6	19	54 15	8.8	7	42.5	7 56.0	59.8	3.1	6.6	10.0	8	3.10	
	κ	0.5	8.5		45.7					-15.25	-	14.40	
					49.3						-	0.85	
	(δ) - D				45.83						7	47.85	
	α_1										-	2.10	
											-	45.75	
11			8.4	7	36.5	7 53.9	57.3	0.8	4.4	7.9	8	0.86	
	κ				39.6					-13.13	-	12.32	
					43.6						-	1.76	
	(δ) - D				39.90						7	47.73	
	α_2										-	1.99	
											-	45.74	
6	52	54 48	9.1	9	3.8	9 28.2	31.7	35.3	39.0	42.5	9	35.34	
	κ	0.63	8.3		7.9					-15.27	-	14.40	
					10.8						-	0.87	
	(δ) - D				7.50						9	20.07	
	α_1										-	2.13	
											-	17.94	
11			8.7	8	59.2	9 26.0	29.8	33.2	36.7	40.3	9	33.20	
	κ				3.0					-13.15	-	12.32	
					5.8						-	1.78	
	(δ) - D				9 2.67						9	20.05	
	α_2										-	2.02	
											-	18.03	
6	57	54 7	6.3	11	3.1	11 26.2	29.8	33.3	36.8	40.2	11	33.26	
	κ	0.0	6.3		5.6					-15.24	-	14.40	
					8.6						-	0.84	
	(δ) - D				5.77						11	18.02	
	α_1										-	2.14	
											-	15.88	
11			6.7	10	57.6	11 23.8	27.4	30.9	34.3	38.0	11	30.88	
	κ				1.7					-13.13	-	12.32	
					4.4						-	1.76	
	(δ) - D				1.23						11	17.75	
	α_2										-	2.03	
											-	15.72	

Runs

+ .05

+ .98

+ .49

41

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
d	+36.07 1.55415 9.90514 1.58945	0 50.9 9.76887 1.46018m	6.0	1169	0 58.45	54 6' 49.90 2 28.97 -38.86 -28.20			15	54 2' 0.77 -34 +12.54 +40 -20.0 1 53.64	+12.58 87
((8) - D) $\frac{d'}{100}$											
δ_1	-9.73 -9.22	48.61		114.4	22						
d	+25.63 1.40875 9.91301 1.44592	2 44.9 9.75931 1.29222m	57.4	1023	2 57.15	54 59 57.20 55 35.91 -27.92 -19.60			20	54 58 16.31 -17 -65 +13.39 +50 -19.6 55 9.83	+13.47 12
((8) - D) $\frac{d'}{100}$											
δ_2	-9.86 -8.66	10 5.18		55 1.2	22						
d	+22.15 1.34537 9.91301 1.38254	2 50.1 9.75931 1.2884m	1.6	1117	2 55.85	54 59 52.50 55 31.88 -24.13 -16.94			20	54 55 14.94 -12 -64 +13.53 +50 -19.8 55 9.57	+13.47 29 14.27
((8) - D) $\frac{d'}{100}$											
δ_1	-9.86 -8.66	10 5.16		55 0.9	22						
d	+22.41 1.35044 9.91301 1.38761	2 47.9 9.75931 1.23391m	1.8	1097	2 54.85	54 59 53.50 55 32.87 -24.41 -17.14			20	54 55 15.13 -13 -64 +13.53 +40 -20.1 55 8.98	+13.46 65
((8) - D) $\frac{d'}{100}$											
δ_2	-9.86 -8.66	10 5.19		55 0.3	22						
d	+17.27 1.23729 9.90942 1.27087	2 47.5 9.76642 1.2787m	1.3	1088	2 54.40	54 19 53.95 15 32.66 -18.66 -13.42			0	54 15 19.24 -7 -67 +12.64 +40 -19.6 15 11.97	+12.38 3
((8) - D) $\frac{d'}{100}$											
δ_1	-9.77 -9.10	7 35.98		15 2.9	22						
d	+20.96 1.32139 9.90942 1.35497	2 44.1 9.76642 1.21197m	59.1	1032	2 51.60	54 19 56.75 15 35.82 -22.64 -16.29			0	54 15 19.53 -11 -63 +12.78 +40 -20.1 15 12.36	+12.44 93
((8) - D) $\frac{d'}{100}$											
δ_2	-9.77 -9.10	7 35.97		15 3.3	30						
d	+27.84 1.441467 9.91230 1.48113	0 7.2 9.76075 1.32958m	21.6	288	0 14.40	54 52 33.95 48 12.66 -30.28 -21.36			30	54 47 57.30 -20 -5 +13.24 +45 -19.7 47 45.09	+13.44 9
((8) - D) $\frac{d'}{100}$											
δ_1	-9.84 -8.82	9 8.10		47 36.3	30						
d	+30.53 1.48473 9.91230 1.52119	0 4.9 9.76075 1.36964m	20.2	251	0 12.55	54 52 35.80 48 14.84 -33.20 -23.42			30	54 47 57.45 -24 -4 +13.41 +40 -20.2 47 45.27	+13.53 14.02
((8) - D) $\frac{d'}{100}$											
δ_2	-9.84 -8.82	9 8.19		47 36.4	10						
d	+27.49 1.43917 9.90869 1.47202	0 32.3 9.76782 1.33115m	46.8	791	0 39.55	54 12 8.80 7 47.51 -29.65 -21.44			10	54 7 26.07 -19 -14 +12.49 +40 -19.4 7 19.28	+12.56 61
((8) - D) $\frac{d'}{100}$											
δ_1	-9.76 -8.48	11 6.12		7 10.8	10						
d	+29.65 1.47202 9.90869 1.50487	0 31.5 9.76782 1.36400m	45.7	772	0 38.60	54 12 9.75 7 48.82 -31.98 -23.12			10	54 7 25.70 -23 -13 +12.64 +40 -19.9 7 18.97	+12.68 13.17
((8) - D) $\frac{d'}{100}$											
δ_2	-9.76 -8.48	11 5.96		7 10.5							

Date₁ = 1877 Feb. 6Observer
RecorderDate₂ = Feb. 11Observer
Recorder

42

Star.	α	δ	Mag.	T_a	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
12 33 11 11.9 κ	54° 55' 58.6	9.5 9.4	5	12 38.2 41.2 43.9 41.10	13 10.7	14.3	18.0	21.5	25.0 -13.27	13	17.90 14.40 8.7 2.63 2.18 0.45		
(δ) - D) $\frac{\kappa'}{100}$													
a_1													
κ		9.4		12 40.3 48.6 46.3 43.40	13 8.6	12.2	15.7	19.2	22.8 -13.15	13	15.66 12.32 7.8 5 2.55 2.07 0.48		
(δ) - D) $\frac{\kappa'}{100}$													
a_2													
13 19 11 8.8 κ	53 14 12.1	8.8 9.0	13	45.8 48.8 54.4 49.67	13 54.2	57.1	0.8	4.0	7.6 -15.32	14	0.74 14.40 8.2 45.52 2.14 43.38		
(δ) - D) $\frac{\kappa'}{100}$													
a_1													
κ		8.7		13 40.6 43.6 47.3 43.83	13 51.4	54.3	58.4	1.9	5.2 -13.11	13	58.16 12.32 7.4 5 45.25 2.03 43.22		
(δ) - D) $\frac{\kappa'}{100}$													
a_2													
20 24 19 8.0 κ	53 3 2.0	8.3 7.7	20	37.2 41.2 43.4 40.60	21 1.2	4.9	8.0	11.5	13.0 -15.21	21	8.12 14.39 8.2 52.89 2.21 50.70		
(δ) - D) $\frac{\kappa'}{100}$													
a_1													
κ		8.2		20 27.4 29.9 33.7 30.33	20 58.9	2.2	5.9	9.3	12.6 -13.09	21	5.78 12.31 7.3 5 52.69 2.11 50.58		
(δ) - D) $\frac{\kappa'}{100}$													
a_2													
24 02 22 41.4 κ	54 38 36.7	9.0 8.8	24	28.3 31.5 34.2 31.33	24 39.6	43.2	46.7	50.0	53.7 -15.25	24	46.64 14.39 8.6 31.39 2.31 29.08		
(δ) - D) $\frac{\kappa'}{100}$													
a_1													
κ		9.0		24 17.4 21.2 23.6 20.73	24 37.3	40.8	44.4	48.0	57.4 -13.13	24	44.38 12.30 7.8 5 31.25 2.21 29.04		
(δ) - D) $\frac{\kappa'}{100}$													
a_2													
28 53 27 31.7 κ	54 46 45.0	9.2 9.4	29	9.1 13.1 15.8 12.67	29 31.1	34.8	38.3	41.8	45.5 -15.26	29	36.30 14.39 8.7 23.04 2.38 20.66		
(δ) - D) $\frac{\kappa'}{100}$													
a_1													
κ		9.0		28 56.2 59.4 2.2 59.27	29 29.0	32.4	36.0	39.4	43.1 -13.13	29	35.98 12.30 7.8 5 22.85 2.27 20.58		
(δ) - D) $\frac{\kappa'}{100}$													
a_2													

Runs

+ 05

43

+ 49

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
d	+36.80 1.56585 9.91301 1.60302	2' 34.8 9.75931 1.44932	52.1	919	27 28.95 45.90	54 55 0	240.5 41.166 -40.09 -28.14		20	54 55 13.02 - .35 + 13.39 + 50 - 19.5 55 6.48	+12.96 25.93 19.50 64.3 2.0
(δ) - D $\frac{d'}{100}$											
-9.87 δ ₁ -8.20		12 50.58		54 58.3	22						
d	+32.30 1.50920 9.91301 1.54637	2 42.3 9.75931 1.39267	55.2	975	2 46.75	54 55 59	59.60 38.67 -35.19 -24.70		20	54 55 13.94 - .27 + 13.54 + 40 - 20.0 55 7.51	+13.05 54
(δ) - D $\frac{d'}{100}$											
-9.87 δ ₂ -8.20		12 50.61		54 59.3							
d	+11.07 1.04415 9.90386 1.07217	2 42.6 9.77677 1.09450	56.9	995	2 49.75	53 15 19	58.60 37.31 -44.81 -8.81		0	53 15 28.50 - 3 + 64 + 11.56 + 40 - 19.1 15 26.74	+11.29 34
(δ) - D $\frac{d'}{100}$											
-9.65 δ ₁ -8.08		13 33.73		15 12.7							
d	+14.53 1.16227 9.90386 1.19029	2 39.4 9.77677 1.06320	54.3	937	2 46.85	53 15 20	1.50 40.54 -15.50 -11.54		0	53 15 29.00 - 6 + 11.69 + 35 - 19.6 15 21.25	+11.36 85
(δ) - D $\frac{d'}{100}$											
-9.65 δ ₂ -8.08		13 33.57		15 13.2							
d	+27.52 1.43965 9.90273 1.46654	4 14.1 9.77679 1.34260	24.3	354	4 17.70	53 4 8	30.65 9.36 -22.28 -22.01		10	53 4 47.35 - 20 + 99 + 11.36 + 40 - 18.7 3 39.17	+10.57 62
(δ) - D $\frac{d'}{100}$											
-9.65 δ ₁ -6.84		20 41.05		3 32.4	14						
d	+35.45 1.54962 9.90273 1.57651	4 4.8 9.77679 1.45257	19.1	239	4 11.95	53 4 8	36.40 1.547 -37.74 -28.35		10	53 3 47.12 - 33 + 92 + 11.48 + 35 - 19.2 3 38.79	+10.58 11.07
(δ) - D $\frac{d'}{100}$											
-9.65 δ ₂ -6.84		20 40.93		3 32.2							
d	+15.31 1.18498 9.91149 1.22063	4 11.4 9.76286 1.07150	23.4	348	4 17.40	54 39 43	30.95 9.66 -16.62 -11.99		35	54 38 57.87 - 54 + 99 + 13.09 + 45 - 18.9 38 51.81	+12.49 54
(δ) - D $\frac{d'}{100}$											
-9.86 δ ₁ -6.22		24 19.22		38 45.3	39						
d	+23.65 1.37383 9.91149 1.40948	4 5.3 9.76236 1.26035	18.4	237	4 11.85	54 39 43	36.50 15.54 -25.62 -18.21		35	54 38 57.36 - 15 + 92 + 13.24 + 40 - 19.4 38 51.62	+12.04 13.06
(δ) - D $\frac{d'}{100}$											
-9.86 δ ₂ -6.22		24 19.18		38 44.8							
d	+25.63 1.40875 9.91212 1.44503	1 52.0 9.76111 1.29402	5.7	1177	1 58.85	54 46 50	49.50 28.21 -27.86 -19.68		30	54 46 8.53 - 19 + 46 + 13.22 + 45 - 18.7 46 2.92	+13.04 9
(δ) - D $\frac{d'}{100}$											
-9.90 δ ₁ -5.38		29 10.76		45 57.5	31						
d	+36.79 1.56448 9.91224 1.60115	4 42.4 9.76093 1.45687	57.9	1013	1 50.65	54 46 50	57.70 36.44 -27.42 -28.83		30	54 46 7.94 - 34 + 40 + 13.37 + 40 - 19.2 46 2.26	+13.03 52
(δ) - D $\frac{d'}{100}$											
-9.90 δ ₂ -5.38		29 10.68		45 56.9							

Date₁ = 1877 Feb. 6Observer
RecorderDate₂ = Feb. 11Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
30 47 29 23.7 K	54 14 13.0	8.8 9.0	5 31 7.7 10.5 14.5 10.90	31 24.0	29.6	33.2	36.9	40.3 -15.24	31 33.20 14.39 8.5 14.96 2.38 15.68				
(δ - D) $\frac{\kappa'}{100}$													
a_1													
K		8.8	30 49.3 52.9 55.2 52.47	31 23.9	27.3	30.9	34.4	38.0 -18.11	31 30.90 12.30 17.6 1.5 17.79 2.27 15.82				
(δ - D) $\frac{\kappa'}{100}$													
a_2													
31 58 30 36.7 K	54 46 44.5	8.5 8.5	32 16.7 19.9 22.7 19.77	32 36.9	40.5	44.0	47.6	51.3 -15.26	32 44.06 14.39 8.7 28.80 2.42 26.38				
(δ - D) $\frac{\kappa'}{100}$													
a_1													
K		8.2	32 7.9 11.0 14.6 11.17	32 34.6	38.2	41.9	45.4	49.0 -18.13	32 41.82 12.30 17.8 1.5 28.69 2.51 26.38				
(δ - D) $\frac{\kappa'}{100}$													
a_2													
33 48 32 24.1 K	55 0 54 58.8	9.1 9.3	34 4.0 6.2 10.6 6.93	34 27.2	30.7	34.2	37.7	41.4 -15.26	34 34.24 14.39 8.7 18.98 2.45 16.53				
(δ - D) $\frac{\kappa'}{100}$													
a_1													
K		9.1	33 52.0 55.7 59.2 55.63	34 24.7	28.4	32.0	35.6	39.2 -18.13	34 31.98 12.29 17.9 1.5 18.85 2.34 16.51				
(δ - D) $\frac{\kappa'}{100}$													
a_2													
35 05 33 43.7 K	54 1 0.3	7.4 8.0	35 14.4 17.4 20.0 17.27	35 43.0	46.4	49.8	53.5	57.0 -15.23	35 49.94 14.39 8.4 34.71 2.42 32.29				
(δ - D) $\frac{\kappa'}{100}$													
a_1													
K		7.8	35 5.9 9.1 12.4 9.13	35 40.6	44.2	47.7	51.1	54.7 -18.10	35 47.66 12.29 17.6 1.5 34.56 2.32 32.24				
(δ - D) $\frac{\kappa'}{100}$													
a_2													
K													
(δ - D) $\frac{\kappa'}{100}$													
a_1													
K													
(δ - D) $\frac{\kappa'}{100}$													
a_2													

Runs

+ 05

45

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	$\frac{d'}{100}$	δ'
d	+22.30 1.34830 9.90933 1.38179	3' 38.2 9.76660 1.23906	52.2	904	3' 45.20	19 54 14	31.5 41.86 -24.09 -17.34		0'	54 14 24.52 - .13 - 8.5 + 12.64 + 4.0 - 18.4 14 18.23	+12.06 11
(8) - D											
δ_1	-9.83 -5.04	31 57.5		14 13.2							
d	+38.43 1.58467 9.90933 1.61816	3 25.8 9.76660 1.47543	39.5	653	3 32.65	19 54 14	15.70 54.77 -41.57 -29.88		0	54 14 24.89 - .39 - 8.1 + 12.76 + 4.0 - 18.9 14 18.44	+11.96 12.45
(8) - D											
δ_2	-9.83 -5.04	31 56.9		14 13.4							
d	+24.29 1.38543 9.91212 1.42171	1 59.7 9.76660 1.27070	12.5	1222	2 0.10	50 54 46	18.25 28.96 -26.41 -18.65		30	54 46 2 - .15 - 4.6 + 13.22 + 5.0 - 18.5 45 57.07	+13.14 6
(8) - D											
δ_1	-9.90 -4.84	32 16.48		45 52.1							
d	+30.65 1.48643 9.91212 1.52271	1 54.0 9.76660 1.37170	7.5	1215	2 0.75	50 54 46	47.60 26.64 -33.32 -23.53		30	54 46 3.14 - .24 - 4.4 + 13.37 + 4.0 - 19.0 45 57.72	+13.09 58
(8) - D											
δ_2	-9.90 -4.84	32 16.48		45 52.9							
d	+27.31 1.43632 9.91336 1.47384	3 17.9 9.75855 1.31907	20.4	483	3 24.15	41 55 0	24.20 2.91 -29.77 -20.85		15	54 59 42.06 - .19 - 7.8 + 13.48 + 5.0 - 18.4 59 56.72	+13.07 6
(8) - D											
δ_1	-9.94 -4.52	34 6.59		59 32.2							
d	+36.35 1.56050 9.91336 1.59802	3 10.2 9.75855 1.44325	24.5	347	3 17.35	41 55 0	31.00 10.07 -34.63 -27.75		15	54 59 42.32 - .34 - 7.6 + 13.62 + 4.0 - 19.0 59 56.73	+12.92 13.41
(8) - D											
δ_2	-9.94 -4.52	34 6.57		59 32.2							
d	+32.67 1.51415 9.90814 1.54645	1 0.8 9.76887 1.40718	13.6	144	1 7.20	6 54 2	41.15 19.86 -35.19 -25.54		15	54 1 54.32 - .28 - 2.5 + 12.42 + 4.0 - 18.0 1 48.66	+12.29 34
(8) - D											
δ_1	-9.81 -4.30	35 22.48		1 44.4							
d	+38.58 1.58580 9.90814 1.61810	0 55.5 9.76887 1.47883	10.0	1255	0 2.75	6 54 2	45.60 24.64 -41.50 -30.12		15	54 1 54.55 - .39 - 2.2 + 12.55 + 4.0 - 18.6 1 48.78	+12.34 83
(8) - D											
δ_2	-9.81 -4.30	35 22.43		1 44.5							
d											
(8) - D											
δ_1											
d											
(8) - D											
δ_2											

Date₁ = 1877, Feb. 14
n = -57Observer W.A.R.
Recorder J.F.M.Date₂ = 1877, Feb. 19 n = -50
Feb. 20 n = -52Observer W.A.R.
Recorder J.F.M.

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1877phae. B

Star.	α	δ	Mag.	T_{δ}	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T	
12	40	51° 38'	8.0	4	12	56.5	13	15.3	18.6	21.9	25.3	28.6	13	21.94
11	29.2	35.3	7.5			59.8						-11.63	-	10.91
κ						24							-	.72
$((\delta) - D) \frac{\kappa'}{100}$						59.57							13	10.31
a_1													-	1.16
													-	9.15
19			8.5		12	52.0	13	13.3	16.6	20.0	23.3	26.7	13	19.98
κ						55.5						-9.71	-	9.08
$((\delta) - D) \frac{\kappa'}{100}$						59.4							13	10.24
a_2						55.63							-	1.03
													-	9.24
20			7.8		12	46.4	13	12.7	16.0	19.4	22.8	26.1	13	19.40
κ						48.9						-9.21	-	18.55
$((\delta) - D) \frac{\kappa'}{100}$						57.9							13	10.19
a_1						49.07							-	8.99
													-	9.20
14	15	42	53	30	8.6									
14	14	24.0	26.7	8.0										
κ														
$((\delta) - D) \frac{\kappa'}{100}$														
a_2														
19			9.0		15	49.7	16	21.0	24.0	26.4	30.7	35.1	16	27.24
κ						53.2						-9.75	-	9.08
$((\delta) - D) \frac{\kappa'}{100}$						56.6							-	.67
a_1						53.17							16	17.49
													-	1.08
													-	16.41
20			8.2		15	41.8	16	20.4	24.0	27.5	30.0	34.3	16	27.32
κ						44.8						-9.25	-	8.55
$((\delta) - D) \frac{\kappa'}{100}$						47.2							-	.40
a_2						44.60							16	18.27
													-	1.05
													-	17.22
14	17	50	54	19	8.5									
16	21.5	15.7	8.5											
κ														
$((\delta) - D) \frac{\kappa'}{100}$														
a_1														
19			8.8		17	58.4	18	20.1	23.6	27.3	30.5	34.3	18	27.16
κ						2.0						-9.78	-	9.08
$((\delta) - D) \frac{\kappa'}{100}$						4.0							-	.70
a_2						14.7							18	17.38
													-	1.11
													-	16.27
20			8.4		17	57.0	18	18.6	23.1	26.7	30.1	33.8	18	26.66
κ						59.5						-9.27	-	8.55
$((\delta) - D) \frac{\kappa'}{100}$						2.0							-	.42
a_1						59.50							18	17.39
													-	1.08
													-	16.31
14	18	37	54	45	7.5									
17	18.3	41.7	7.5											
κ														
$((\delta) - D) \frac{\kappa'}{100}$														
a_2														

$$\begin{array}{r} +1.40 \\ -0.36 \\ \hline 1.04 \end{array}$$

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521

Date₁ = 1877 Feb. 14Observer
RecorderDate₂ = 1877 Feb. 19 522
Feb. 20 523Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
4	18 17 κ	37 18.3	54 41.7 7.4 7.5	4	18 57.3 57.1 1.2 57.53	19 7.3	10.9	14.5	17.9	21.7 -9.79	19 19 19	14.46 9.08 4.71 4.67 1.12 3.55	
	$(\delta) - D$	κ'											
	α_1												
20			7.5		19 18.1 16.4 19.7 16.40	19 6.6	10.3	13.8	17.5	21.0 -9.28	19 19	13.84 8.55 4.73 4.56 1.08 3.48	-9.5 -17.
	κ												
	$(\delta) - D$	κ'											
	α_2												-9. -17.
14	20 18 κ	6 47.4	53 23.2 9.2 9.0					6h.f.					
	$(\delta) - D$	κ'											
	α_1												
19			9.1		20 22.8 26.6 29.6 26.33	20 8.48	38.2	41.9	45.4	48.5 -9.75	20 20	41.76 9.08 1.67 32.01 11.4 30.87	-9.4 -16.
	κ												
	$(\delta) - D$	κ'											
	α_2												-9.4 -16.
20			9.0		20 24.7 26.9 30.0 27.20	20 8.40	37.5	41.0	44.4	47.9 -9.25	20 20	40.96 8.55 1.70 31.71 1.11 30.60	-9.4 -16.
	κ												
	$(\delta) - D$	κ'											
	α_1												-9.4 -16.
14	21 20 κ	31 11.9	53 29.7 9.0 9.0		21 35.0 88.2 40.7 37.97	22 4.3	8.0	11.5	14.8	18.5 -11.69	22 21	11.42 10.91 1.78 59.73 1.30 58.43	-9.4 -16.
	$(\delta) - D$	κ'											
	α_2												-9.4 -16.
19			8.8		21 45.7 48.9 52.3 48.77	22 2.5	6.1	9.3	13.0	16.3 -9.76	22 21	9.44 9.08 1.68 59.68 1.16 58.52	-9.4 -16.
	κ												
	$(\delta) - D$	κ'											
	α_1												-9.4 -16.
20			9.1		21 29.5 33.1 35.8 32.80	22 1.9	5.7	9.0	12.3	15.9 -9.26	22 21	8.90 8.55 1.71 59.64 1.13 58.51	-9.4 -16.
	κ												
	$(\delta) - D$	κ'											
	α_2												-9.4 -16.
14	25 23 κ	8 49.1	54 16 8.9 9.0		25 16.5 19.9 22.8 19.73	25 40.5	44.0	47.6	50.9	54.7 -11.70	25 25	47.54 10.91 1.44 35.84 1.35 34.49	-9.4 -16.
	$(\delta) - D$	κ'											
	α_1												-9.4 -16.
19			9.0		25 7.7 10.1 12.0 9.93	25 38.0	42.0	45.3	49.3	52.9 -9.77	25 25	45.50 9.08 1.69 35.73 1.21 34.52	-9.4 -16.
	κ												
	$(\delta) - D$	κ'											
	α_2												-9.4 -16.

Runs

+ 1.40

- 0.36

- 36

49

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+16.93 1.22866 9.91194 1.26476	4' 38.0 9.76146 1.11428	57.8	898	34 44.90	48' 52.43	3.45 44.24 -18.40 -13.01		30	31.23 54.43 25.84 - 9.5 + 13.57 + 40 - 21.8 43 21.82	+12.75 39
((8) - D) $\frac{d'}{100}$	-9.56 -17.12										
δ_1		18 53.99		43 4.7	34						
d	-2.56 0.40824 9.91185 0.44425	4 52.8 9.76164 0.29414	6.5	1193	4. 59.65	47 52.43	48.70 29.79 -2.78 -11.64 +1.97		30	31.76 54.43 27.04 - 0 - 100 +13.27 + 40 - 21.8 43 22.27	+12.67 31
((8) - D) $\frac{d'}{100}$	-9.56 -17.12										
δ_2		18 53.92		43 5.1	51						
d		1 19.1	35.4	545	1 27.25	31 53 27	21.10 00.00		50		
((8) - D) $\frac{d'}{100}$											
δ_1											
d	+15.43 1.18834 9.90490 1.21743	1 25.0 9.77490 1.08743	39.2	642	1 32.10	31 53 26	16.25 57.04 -16.50 -12.23		50	44.87 53 26 44.87 - 6 + 11.95 + 35 - 21.4 26 34.78	+11.93 11.57
((8) - D) $\frac{d'}{100}$	-9.41 -16.90										
δ_2		20 21.46		26 18.1	51						
d	+13.76 1.13862 9.90490 1.16768	1 27.0 9.77490 1.03768	41.8	688	1 34.40	31 53 26	13.95 55.04 -14.71 -10.91		50	44.13 53 26 44.13 - 5 + 11.87 + 35 - 21.4 26 34.23	+11.86 50
((8) - D) $\frac{d'}{100}$	-9.41 -16.90										
δ_1		20 21.19		26 17.3	45						
d	+33.45 1.52440 9.90526 1.55402	0 12.0 9.77387 1.42243	27.9	399	0 19.95	37 53 33	28.10 7.30 -35.81 -26.45		45	40.85 53 32 40.85 - 29 + 12.15 + 35 - 21.4 32 33.00	+12.15 13.55
((8) - D) $\frac{d'}{100}$	-9.44 -16.68										
δ_2		21 48.99		32 16.3	45						
d	+20.67 1.31534 9.90546 1.34496	0 24.0 9.77387 1.21339	38.0	620	0 31.00	37 53 32	17.35 58.14 -22.13 -16.34		45	41.80 53 32 41.80 - 11 + 10 + 12.06 + 35 - 21.4 32 32.24	+12.20 11.84
((8) - D) $\frac{d'}{100}$	-9.44 -16.68										
δ_1		21 49.08		32 15.6	45						
d	+36.10 1.55751 9.90546 1.58713	0 14.4 9.77387 1.45552	26.1	375	0 18.75	37 53 33	29.60 10.69 -36.65 -28.55		45	42.14 53 32 42.14 - 34 + 11.98 + 35 - 21.4 32 32.31	+11.93 11.57
((8) - D) $\frac{d'}{100}$	-9.44 -16.68										
δ_2		21 49.07		32 15.6	13						
d	+27.81 1.44420 9.90842 1.47678	3 5.7 9.76835 1.33671	19.8	255	3 12.75	54 9 5	35.60 14.50 -29.98 -21.71		10	52.79 54 4 52.79 - 20 + 67 + 12.74 + 40 - 21.5 4 44.96	+12.27 13.67
((8) - D) $\frac{d'}{100}$	-9.52 -16.10										
δ_1		25 24.97		4 28.9	13						
d	+35.57 1.53708 9.90842 1.58366	3 08 9.76835 1.44389	12.9	137	3 6.85	54 9 5	41.50 22.29 -38.34 -24.77		10	54.52 54 4 54.52 - 33 + 62 + 12.64 + 40 - 21.6 4 45.04 44.65	+12.09 11.73
((8) - D) $\frac{d'}{100}$	-9.52 -16.10										
δ_2		25 25.00		4 28.6	5						

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Runs

+140

51

-36

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+19.64 1.29380 9.90842 1.32638	3 12.7 9.76835 1.18631w	25.9	386	13 19.30	54 9 29.05 5 10.14 -21.20 -15.36			10	521 4 54.78 -10 +12.56 +40 -21.6 4 45.02	+12.20 11.84
(8) - D	$\frac{a'}{100}$										
δ_1	-9.52 -16.10	25 25.07		4 28.9	10 30						
d	+19.25 1.28443 9.90869 1.31728	0 17.4 9.76782 1.17641w	32.1	495	0 24.75	54 12 23.60 8 2.50 -20.76 -15.01			10	521 7 47.44 -19 +12.80 +40 -21.3 7 40.92	+13.03 14.43
(8) - D	$\frac{a'}{100}$										
δ_2	-9.57 -15.00	32 11.57		7 25.3							
d	+27.80 1.44404w 9.90860 1.47680	0 55.4 9.76800 1.33620	8.1	1235	11 1.75	54 11 46.60 7 27.69 +29.98 +21.69			10	54 7 49.38 -20 +12.62 +40 -21.5 7 40.14	+12.62 2.6
(8) - D	$\frac{a'}{100}$										
δ_1	-9.57 -15.00	32 11.58		7 25.1	20						
d	+29.64 1.447188 9.91319 1.50923	0 41.4 9.75895 1.35499w	57.3	987	0 49.35	54 1 59.00 57 37.90 -32.30 -22.65			20	54 57 15.25 -23 +13.74 +40 57 21.5 8.89	+12.74 15.14
(8) - D	$\frac{a'}{100}$										
δ_2											
d	+17.33 1.23880 9.91352 1.27650	1 12.1 9.75823 1.12119w	26.4	385	16 19.25	55 6 29.10 2 10.19 -14.90 -13.22			15	55 1 56.97 -26 +13.63 +40 1 -21.7 48.61	+13.70 3.4
(8) - D	$\frac{a'}{100}$										
δ_1	-9.70 -14.74	33 46.41		1 33.9	25						
d	+20.75 1.31702 9.91274 1.35392	4 57.7 9.75985 1.20103w	10.1	1278	5 3.90	54 57 114.45 53 23.35 -22.59 -15.89			20	54 53 7.46 -11 +10.5 +13.66 +40 53 21.5 0.26	+12.90 14.30
(8) - D	$\frac{a'}{100}$										
δ_2	-9.69 -14.40	36 21.11		52 45.9	21						
d	+34.33 1.53567 9.91810 1.57293	1 43.1 9.76972 1.41896w 1.41987w	56.4	995	1 49.75	54 0 58.60 56 30.69 -37.40 -26.295			20	54 56 134.04 -30 +13.52 +40 56 4.62	+13.24 12.88
(8) - D	$\frac{a'}{100}$										
δ_1	-9.70 -14.40	35 54.84		56 50.2	54						
d	+33.58 1.52608 9.89888 1.54912	4 47.9 9.78523 1.43567w	2.5	1104	4 55.20	52 27 53.15 23 32.05 -35.41 -27.27			50	52 23 4.78 -30 +10.86 +30 -20.97 22 55.31	+9.83 11.23
(8) - D	$\frac{a'}{100}$										
δ_2	-9.39 -14.00	38 16.25		22 41.2	3						
d	+28.32 1.45209 9.89888 1.47513	4 52.9 9.78543 1.36168w	5.9	1188	4 59.40	52 27 48.95 23 30.04 -29.56 -23.00			50	52 23 7.04 -21 +10.70 +30 -20.9 22 55.57	+9.79 4.3
(8) - D	$\frac{a'}{100}$										
δ_1	-9.39 -14.00	38 16.38		22 44.6	1						
d											
(8) - D	$\frac{a'}{100}$										
δ_2											

Date₁ = 1877 Feb. 14⁵²¹Observer W.A.R.
Recorder J.F.M.Date₂ = 1877 Feb. 20⁵²³Observer W.A.R.
Recorder J.F.M.

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Star.	α	δ	Mag.	T_a	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
39	21	53° 8'	7.7	4	39 29.3	39 52.4	53.9	57.3	2.8	6.2	39	59.32	
κ	1.7	6.3	7.8		32.5					-11.66		10.90	
(S) - D					35.9						39	41.66	
a_1					32.57							1.52	
												46.14	
39			8.2		39 18.7	39 50.0	53.4	56.8	0.3	8.7	39	56.84	
κ					21.8					-9.23		8.54	
(S) - D					23.0						39	47.01	
a_2					21.83							1.36	
												46.25	
41	9	52 27	8.8	41	41 11.0	41 39.8	43.1	46.5	49.9	53.4	41	46.54	
κ	1.4	24.4	9.2		14.1					-11.64		10.90	
(S) - D					18.7						41	34.90	
a_1					14.60							1.53	
												33.37	
41			9.1		41 5.0	41 37.2	40.6	44.1	47.3	50.8	41	44.00	
κ					7.8					-9.22		8.54	
(S) - D					10.3						41	34.78	
a_2					7.70							1.38	
												33.40	
42	44	51 18	7.0	42	42 52.0	43 19.0	22.2	25.6	28.7	32.0	43	25.50	
κ	1.6	168	8.0		52.8					-11.61		10.90	
(S) - D					56.2						43	13.89	
a_1					53.00							1.53	
												12.36	
42			8.3		42 56.0	43 16.4	19.7	23.0	26.0	29.7	43	22.96	
κ					58.8					-9.20		8.54	
(S) - D					1.8						43	13.85	
a_3					58.87							1.38	
												12.38	
45	51	51 6	9.0	45	45 52.4	46 26.0	29.3	32.6	36.0	39.0	46	32.58	
κ	1.9	43	8.9		53.7					-11.61		10.90	
(S) - D					57.8						46	20.97	
a_1					55.23							1.57	
												19.40	
45			8.4		45 51.6	46 23.7	26.5	30.9	34.7	36.7	46	30.22	
κ					54.4			29.9		-9.18		8.54	
(S) - D					56.8			30.1			46	20.59	
a_3					54.27							1.42	
												19.47	
												6.0	
53	23	53 22	9.5	53	53 5.5	53 56.0	58.6	3.4	7.1	10.3	54	3.28	
κ	3.0	19.6	9.3		7.9					-11.67		10.90	
(S) - D					10.8						54	51.77	
a_1					8.07							1.72	
												49.89	
53			9.2		53 37.6	54 8.1	11.6	14.9	18.4	22.0	54	15.00	
κ					39.8					-9.23		8.54	
(S) - D					42.3						54	5.77	
a_2					39.90							1.56	
												4.21	

Repeat

Runs

+1.40

53

- .36

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+26.75 1.42732 9.90320 1.45468	4 1.9 9.77795 1.45468	14.9 13.2943m	168	9' 8.40	53 13 9 18.85 -26.49 -21.35	39.95 47.10 28.19 27.94	5	53 8 57.50 -1.19 86 +11.71 +30 -20.9 8 48.46	+10.96 12.36	
(8) - D) $\frac{d'}{100}$	-9.49 -13.78	3936.65	8 35.2	9 12.5	53 13 9 18.85 -26.49 -21.35	47.10 28.19 27.94	5	53 8 57.50 -1.19 86 +11.71 +30 -20.9 8 48.46	+10.96 12.36		
δ_1											
d	+3501 1.54419 9.90320 1.57155	3 54.5 9.77795 1.45468	8.0 13.2943m	1225	4 8.25	53 13 9 18.85 -26.49 -21.35	47.10 28.19 27.94	5	53 8 57.50 -1.19 86 +11.71 +30 -20.9 8 48.46	+10.96 12.36	
(8) - D) $\frac{d'}{100}$	-9.49 -13.78	3936.76	8 39.8	5	53 13 9 18.85 -26.49 -21.35	47.10 28.19 27.94	5	53 8 57.50 -1.19 86 +11.71 +30 -20.9 8 48.46	+10.96 12.36		
δ_2											
d	+31.94 1.50433 9.89918 1.52767	1 12.8 9.78494 1.41343m	29.4	422	1 21.10	52 31 27 6.15 -35.70 -25.91	27.25 6.15 -35.70 -25.91	50	52 26 40.24 -2.24 -28 +10.93 +30 -20.6 26 31.72	+10.68 12.08	
(8) - D) $\frac{d'}{100}$	-9.42 -13.70	4123.95	26 18.0	51	52 31 27 6.15 -35.70 -25.91	27.25 6.15 -35.70 -25.91	50	52 26 40.24 -2.24 -28 +10.93 +30 -20.6 26 31.72	+10.68 12.08		
δ_1											
d	+36.30 1.55991 9.89918 1.58325	1 10.6 9.78494 1.46901m	26.4	370	1 18.50	52 31 27 6.15 -35.70 -25.91	27.25 6.15 -35.70 -25.91	50	52 26 40.24 -2.24 -28 +10.93 +30 -20.6 26 31.72	+10.68 12.08	
(8) - D) $\frac{d'}{100}$	-9.42 -13.70	4123.98	26 17.1	51	52 31 27 6.15 -35.70 -25.91	27.25 6.15 -35.70 -25.91	50	52 26 40.24 -2.24 -28 +10.93 +30 -20.6 26 31.72	+10.68 12.08		
δ_2											
d	+32.50 1.57188 9.89264 1.62868	2 41.4 9.79558 1.43162m	56.8	982	2 49.10	51 20 30 8.15 -33.78 -27.02	59.25 8.15 -33.78 -27.02	55 45	51 20 11.13 -28 -59 +9.70 +25 -20.3 20 1.31	+9.08 10.48	
(8) - D) $\frac{d'}{100}$	-9.30 -13.22	433.06	19 48.1	54	51 20 30 8.15 -33.78 -27.02	59.25 8.15 -33.78 -27.02	55 45	51 20 11.13 -28 -59 +9.70 +25 -20.3 20 1.31	+9.08 10.48		
δ_1											
d	+24.09 1.38184 9.89264 1.39864	2 48.7 9.79558 1.30158m	2.5	1112	2 55.60	51 20 30 8.15 -33.78 -27.02	59.25 8.15 -33.78 -27.02	55 45	51 20 11.13 -28 -59 +9.70 +25 -20.3 20 1.31	+9.08 10.48	
(8) - D) $\frac{d'}{100}$	-9.30 -13.22	433.08	19 48.9	54	51 20 30 8.15 -33.78 -27.02	59.25 8.15 -33.78 -27.02	55 45	51 20 11.13 -28 -59 +9.70 +25 -20.3 20 1.31	+9.08 10.48		
δ_2											
d	+37.35 1.57229 9.89122 1.58767	1 5.6 9.79778 1.49423m	20.3	259	1 12.95	51 11 7 35.40 14.30 -35.70 -31.21	35.40 14.30 -35.70 -31.21	10	51 6 43.09 -38 -25 +9.46 +25 -20.1 6 33.47	+9.08 10.48	
(8) - D) $\frac{d'}{100}$	-9.29 -12.70	4610.11	6 20.8	11	51 11 7 35.40 14.30 -35.70 -31.21	35.40 14.30 -35.70 -31.21	10	51 6 43.09 -38 -25 +9.46 +25 -20.1 6 33.47	+9.08 10.48		
δ_1											
d	+35.50 1.55023 9.89122 1.47217	1 21 9.79778	21.7	288	1 14.40	51 11 7 35.40 14.30 -35.70 -31.21	35.40 14.30 -35.70 -31.21	10	51 6 43.09 -38 -25 +9.46 +25 -20.1 6 33.47	+9.08 10.48	
(8) - D) $\frac{d'}{100}$	-9.29 -12.70	4610.31	6 21.1	11	51 11 7 35.40 14.30 -35.70 -31.21	35.40 14.30 -35.70 -31.21	10	51 6 43.09 -38 -25 +9.46 +25 -20.1 6 33.47	+9.08 10.48		
δ_2											
d	+37.35 1.57229 9.89122 1.58767	1 5.6 9.79778 1.49423m	20.3	259	1 12.95	51 11 7 35.40 14.30 -35.70 -31.21	35.40 14.30 -35.70 -31.21	10	51 6 43.09 -38 -25 +9.46 +25 -20.1 6 33.47	+9.08 10.48	
(8) - D) $\frac{d'}{100}$	-9.29 -12.70	4610.31	6 21.1	11	51 11 7 35.40 14.30 -35.70 -31.21	35.40 14.30 -35.70 -31.21	10	51 6 43.09 -38 -25 +9.46 +25 -20.1 6 33.47	+9.08 10.48		
δ_1											
d	+35.10 1.54531 9.90452 1.57399	4 57.5 9.77558 1.44505m	9.9	1274	5 3.70	53 29 25 8.25 +5.12 +3.80	29.35 8.25 +5.12 +3.80	50	53 25 12.05 -1 70 +12.01 +35 25 4.50	+11.65 13.05	
(8) - D) $\frac{d'}{100}$	-9.29 -12.70	4610.31	6 21.1	11	51 11 7 35.40 14.30 -35.70 -31.21	35.40 14.30 -35.70 -31.21	10	51 6 43.09 -38 -25 +9.46 +25 -20.1 6 33.47	+9.08 10.48		
δ_2											

Repeat

Date₁ = 1877 Feb. 14Observer
RecorderDate₂ = 1877 Feb. 20Observer
Recorder

54

Star.	α	δ	Mag.	T_a	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
4	55 54 κ	58 369 13 111	6.7 7.2	4	55 54.8 57.5 73 57.87	56 29.0	32.7	86.1	39.7	43.3 -11.69	56 - 56 - 56	36.16 10.90 7.79 24.47 1.76 22.87, 71	X
	(8) - D	κ'_{100}											
	a_1												
	κ		7.4		55 57.0 53.4 56.4 53.66	56 26.4	30.0	33.6	37.1	40.7 -9.35	56 - 56 -	33.56 8.53 7.72 26.31 1.60 22.71	
	(8) - D	κ'_{100}											
	a_2												
	56 58 κ	54 40.4 17.6	51 32 28.7 32.5	8.9 8.5	57 2.1 4.6 7.5 4.73	57 9.6	12.8	16.2	19.5	22.7 -11.62	57 - 57 -	16.16 10.90 7.72 4.54 1.77 2.83	
	(8) - D	κ'_{100}											
	a_1												
	55 κ	40.1	51 30.1	7.8	56 37.9 2.0 6.0 2.63	57 21.5	30.7	34.0	37.5	40.7 -9.19	57 - 57 -	34.08 8.53 7.66 24.89 1.58 23.33	
	(8) - D	κ'_{100}											
	a_2												
	58 57 κ	36 22.0	51 50 48.9	9.1 9.1	58 37.2 46.1 42.5 39.93	59 12.6	15.9	19.4	22.6	26.0 -11.62	59 - 59 -	19.30 10.90 7.72 1.68 1.74 5.94	
	(8) - D	κ'_{100}											
	a_1												
	κ		9.0		58 48.8 52.0 54.2 51.67	59 10.2	13.5	16.7	20.3	23.5 -9.19	59 - 59 -	16.84 8.53 7.66 7.65 1.58 6.07	
	(8) - D	κ'_{100}											
	a_2												
5	11 10 κ	51 30.8	52 4 3.1	8.6 8.5	5 12 8.3 11.7 14.3 11.43	12 21.2	24.4	27.9	31.3	34.5 -11.62	12 - 12 -	27.86 10.89 7.73 16.24 1.91 14.33	
	(8) - D	κ'_{100}											
	a_1												
	κ		8.8		11 41.6 44.7 47.5 44.60	12 18.7	22.0	25.3	28.8	32.0 -9.19	12 - 12 -	25.36 8.52 7.64 16.14 1.76 14.41	
	(8) - D	κ'_{100}											
	a_2												
	12 11 κ	56 28.2	52 49 47.6	9.5 9.4	13 14.3 16.0 15.15	13 28.0	31.3	34.6	38.4	41.5 -11.64	13 - 13 -	34.76 10.89 7.75 29.12 1.94 21.18	
	(8) - D	κ'_{100}											
	a_1												
	κ		9.5		13 46.0 48.6 57.7 48.77	13 -	-	32.2 32.1 32.5	35.5	39.3 -9.21	13 - 13 -	32.27 8.52 7.69 23.06 1.79 21.27	
	(8) - D	κ'_{100}											
	a_2												

Runs

+1.40

53

-36

	$T_m - T_2$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+38.29 1.58309 9.90933 1.61654	3 48.0	2.5	1105	3 55.25	18' 53.10	54 14 32.00		0	54 14 2.23	+12.04 13.50
(8) - D) $\frac{d'}{100}$	9.76660 1.47385					-41.36 -29.77				-39 -82 +12.91 +40 -207 13 55.03	
δ_1	-9.71 -11.02	56 18.00		13 44.0							
d	+39.96 1.60163 9.90933 1.63512	3 46.6	59.8	1064	3 53.20	18 55.15	54 14 32.00		0	54 14 51.71	+11.75 59
(8) - D) $\frac{d'}{100}$	9.76660 1.49239					-43.16 -31.07				-42 -78 +12.75 +40 -210 13 55.76	
δ_2	-9.71 -11.02	56 13.00		13 44.7							
d	+11.43 1.05805 9.89395 1.07616	4 37.9	52.6	905	4 45.25	38 3.10	51 33 42.00		40	51 33 32.54	+9.24 10.64
(8) - D) $\frac{d'}{100}$	9.79351 1.09757					-44.42 -9.46				-3 +9.76 +30 -199 33 23.28	
δ_1	-9.38 -10.86	56 53.45		33 12.4							
d	+31.45 1.49762 9.89385 1.51563	0 36.1	51.4	875	0 43.75	37 4.60	51 32 45.69		45	51 32 19.66	+9.68 32
(8) - D) $\frac{d'}{100}$	9.79367 1.41545					-32.77 -26.03				-26 -14 +9.78 +30 -20.2 32 8.78	
δ_2	-9.38 -10.86	57 13.95		31 57.9							
d	+39.37 1.59514 9.89564 1.61497	2 20.1	34.8	549	2 27.45	55 20.90	51 50 59.50		25	51 50 27.43	+9.62 11.02
(8) - D) $\frac{d'}{100}$	9.79079 1.51012					-41.21 -32.37				-41 -53 +10.26 +30 -199 50 18.85	
δ_1											
d	+25.17 1.40088 9.89564 1.42068	2 33.7	47.1	808	2 40.40	55 7.95	51 50 49.04		25	51 50 28.35	+9.77 35
(8) - D) $\frac{d'}{100}$	9.79079 1.31583					-26.34 -20.69				-17 -53 +10.11 +30 -20.2 50 17.50	
δ_2											
d	+16.43 1.21564 9.89712 1.23692	2 48.9	4.4	1133	2 56.65	9 51.70	52 5 30.60		10	52 5 17.19	+10.13 11.53
(8) - D) $\frac{d'}{100}$	9.78837 1.12819					-17.26 -13.43				-63 +10.53 +30 -19.5 5 9.20	
δ_1	-9.50 -8.32	12 4.83		5 0.9							
d	+40.76 1.61023 9.89712 1.63151	2 30.3	43.1	734	2 36.70	10 11.65	52 5 52.74		10	52 5 19.42	+9.72 36
(8) - D) $\frac{d'}{100}$	9.78837 1.52276					-42.84 -33.32				-44 -52 +10.38 +30 -199 5 8.88	
δ_2	-9.50 -8.32	12 4.91		5 0.6							
d	+19.61 1.29248 9.90130 1.31794	3 52.3	5.8	1161	3 59.05	53 49.30	52 49 26.20		25	52 49 12.48	+10.74 12.11
(8) - D) $\frac{d'}{100}$	9.78130 1.19794					-20.79 -15.77				-10 -84 +11.35 +30 -197 49 4.84	
δ_1	-9.60 -8.14	13 11.58		48 56.7							
d	-16.50 1.21748 9.90130 1.12294	4 21.8	35.9	577	4 28.85	53 19.50	52 49 07.59		25	49 13.86	+10.54 15
(8) - D) $\frac{d'}{100}$	9.78130					+13.27				-90 +11.18 +30 -20.0 49 4.01	
δ_2	-9.60 -8.14	13 11.67		48 55.9							

Date₁ = 1877 Feb. 14Observer
RecorderDate₂ = 1877 Feb. 24Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_o	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
31	12	53° 15'	9.2	5	31	13.6	31	44.3	47.8	57.4	54.6	58.1	31
29	50.6	14.1	9.4			16.5						-11.64	31
κ						19.7							31
(8) - D) κ'_{100}						16.60							31
α_1													31
			9.2	31	4.4	31	4.6	43.0	48.6	52.1	53.7	31	31
κ						7.3						-9.22	31
(8) - D) κ'_{100}						10.6							31
α_2						7.23							31
			8.7	32	4.6	33	2.3	5.8	9.4	13.0	16.5	35	35
κ			9.2			46.1						-11.67	35
(8) - D) κ'_{100}						48.8							35
α_1						45.17							35
			8.8	32	3.6	32	5.9	8.3	6.9	10.5	14.0	33	33
κ						42.2						-9.23	33
(8) - D) κ'_{100}						46.3							33
α_2						42.55							33
			8.2	34	4.0	35	9.3	12.7	16.4	18.9	23.7	35	35
κ			8.7			42.4						-11.68	35
(8) - D) κ'_{100}						45.3							35
α_1						42.85							35
			8.8	34	4.25	35	6.5	10.2	13.9	17.5	21.0	35	35
κ						43.0						-9.24	35
(8) - D) κ'_{100}						47.9							35
α_2						45.13							35
			8.9	35	5.22	35	4.80	57.4	53.0	58.6	2.2	35	35
κ			9.0			53.7						-11.67	35
(8) - D) κ'_{100}						57.0							35
α_1						55.63							35
			9.1	35	4.70	35	4.43	48.9	52.3	53.9	58.8	35	35
κ						49.9						-9.23	35
(8) - D) κ'_{100}						54.3							35
α_2						50.60							35
			6.6	37	6.8	37	3.66	40.2	43.8	47.4	50.9	37	37
κ			6.5			9.5						-11.68	37
(8) - D) κ'_{100}						13.3							37
α_1						9.87							37
			7.9	37	2.8	37	3.43	37.7	41.3	44.8	48.3	37	37
κ						6.2						-9.24	37
(8) - D) κ'_{100}						9.6							37
α_2						6.20							37

Runs

+1.40

57

-36

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	$8'$
d	+34.64 1.53958 9.90386 1.56760m	2' 43.8 9.77677 1.44051m	59.1	1029	2' 57.45	53 19'	56.90 35.80 -36.95 -27.57		0'	53 15 8.23 - .31 + .61 + 11.83 + 35 15 19.0 15 1.89	+4.26 12.66
(8) - D) $\frac{d'}{100}$											
δ_1	-9.70 -4.96	31 27.73		14 56.9	2						
d	+41.17 1.61458 9.90386 1.74260m	2 38.5 9.77677 1.51551m	53.2	917	2 45.85	53 20	2.50 43.59 -55.28 -32.77		0	53 15 10.82 - .44 + 11.68 + 35 - 19.4 15 2.10	+4.04 10.68
(8) - D) $\frac{d'}{100}$											
δ_2	-9.70 -4.96	31 29.35		14 57.1	6						
d	+23.23 1.36605 9.90906 1.39927m	1 8.0 9.76712 1.25733m	23.2	312	1 15.60	54 16	32.75 11.65 -25.08 -18.09		5	54 11 53.56 - .14 + 12.90 + 40 - 19.2 11 48.67	+12.91 14.31
(8) - D) $\frac{d'}{100}$											
δ_1	-9.82 -4.76	32 45.69		11 43.9	6						
d	+24.55 1.39005 9.90906 1.42327m	1 7.6 9.76712 1.28133m	21.8	294	1 14.70	54 16	33.65 14.74 -26.50 -19.11		5	54 11 55.63 - .16 + 12.73 + 40 - 19.6 11 48.39	+12.72 36
(8) - D) $\frac{d'}{100}$											
δ_2	-9.82 -4.76	32 45.79		11 43.6	35						
d	+33.83 1.52930 9.91185 1.56531m	0 17.8 9.76164 1.41510m	81.8	496	0 24.80	54 47	23.55 2.45 -36.75 -26.01		35	54 42 36.14 - .30 + 13.49 + 40 - 19.2 42 32.15	+13.51 14.91
(8) - D) $\frac{d'}{100}$											
δ_1											
d	+28.69 1.45473 9.91185 1.49374m	0 22.4 9.76164 1.34358m	35.1	575	0 28.75	54 47	19.60 0.69 -31.14 -22.06		35	54 42 38.63 - .21 + 13.30 + 40 - 19.7 42 38.97	+13.40 04
(8) - D) $\frac{d'}{100}$											
δ_2											
d	-0.59 9.77085m 9.91005 9.80506	0 31.8 9.76519 9.66020	46.8	786	0 39.30	54 27	9.05 4.795 +0.64 +0.46		55	54 28 28.41 - .0 + 13.13 + 40 - 19.7 42 38.97	+13.40 14.80
(8) - D) $\frac{d'}{100}$											
δ_1	-9.85 -4.28	25 31.26		22 39.8	58						
d	+1.84 0.26482 9.91005 0.29903m	0 32.1 9.76519 1.5417m	46.0	781	0 39.05	54 27	9.30 50.39 -2.05 -14.26 -1.43		55	54 22 36.13 - .13 + 12.92 + 40 - 19.6 22 42.24	+13.19 12.83
(8) - D) $\frac{d'}{100}$											
δ_2	-9.85 -4.28	35 31.05		22 37.9	57						
d	+33.91 1.53033 9.91042 1.56491m	1 13.3 9.76448 1.41897m	28.4	417	1 20.85	54 31	27.50 6.40 -26.72 -26.24		50	54 26 40.16 - .30 + 13.17 + 40 - 19.0 26 34.56	+13.00 14.40
(8) - D) $\frac{d'}{100}$											
δ_1	-9.86 -3.94	37 19.96		26 31.6	57						
d	+35.08 1.54306 9.91042 1.57964m	1 12.5 9.76448 1.43370m	26.6	391	1 19.55	54 31	28.80 9.89 -51.99 -27.15		50	54 26 42.74 - .32 + 12.00 + 40 - 19.4 26 35.50	+12.82 46
(8) - D) $\frac{d'}{100}$											
δ_2	-9.86 -3.94	37 20.05		26 31.9							

Date₁ = 1877 Feb. 14Observer
RecorderDate₂ = 1877 Feb. 20Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
40	27	53	10	9.0	5	40	39.6	41	9.6	13.1	16.4	19.9	23.5
39	15.4	8.9	8.9				43.2						-11.64
							45.9						41
							42.90						41
(8) - D	$\frac{\kappa'}{100}$												41
α_1													41
				8.6	40	30.6	41	7.0	10.5	14.0	17.5	20.8	41
						33.1							41
						36.0							41
(8) - D	$\frac{\kappa'}{100}$					33.23							41
α_2													41
43	57	52	41	8.0	43	54.4	44	81.2	34.5	38.0	41.4	44.8	44
42	38.2	40.9	8.8			57.2							44
						50.2							44
(8) - D	$\frac{\kappa'}{100}$					57.27							44
α_1													44
				8.7	44	2.8	44	28.7	32.0	35.3	38.9	42.2	44
						3.7							44
						9.6							44
(8) - D	$\frac{\kappa'}{100}$					5.83							44
α_2													44
45	19	52	57	7.5	45	21.4	45	52.5	53.8	58.4	2.9	6.4	45
43	58.2	57.0	8.0			24.9							45
						28.2							45
(8) - D	$\frac{\kappa'}{100}$					24.83							45
α_1													45
				7.8	45	17.4	45	49.9	53.4	56.8	0.3	8.7	45
						20.4							45
						22.7							45
(8) - D	$\frac{\kappa'}{100}$					20.17							45
α_2													45
52	56	53	12	9.2	53	25	53	28.6	32.0	35.3	38.8	42.4	53
51	34.2	11.9	2.1			6.5							53
						9.3							53
(8) - D	$\frac{\kappa'}{100}$					6.43							53
α_1													53
				9.1	53	0.5	53	26.2	29.5	32.9	36.2	39.7	53
						2.6							53
						5.3							53
(8) - D	$\frac{\kappa'}{100}$					2.80							53
α_2													53
54	41	54	25	9.1	54	57.0	53	15.1	18.7	22.2	25.8	29.1	55
53	12.8	25.0	9.3			54.1							55
						57.9							55
(8) - D	$\frac{\kappa'}{100}$					54.33							55
α_1													55
				9.0	54	52.0	53	12.6	16.1	19.7	23.1	26.7	55
						53.0							55
						57.6							55
(8) - D	$\frac{\kappa'}{100}$					54.87							55
α_2													55

Runs

+1.40

59

- .36

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+33.60 1.52634 9.90339 1.55389	2 0.2 1.42811w	14.4	146	2 7.80	53 15'	41.05 19.95 -35.80 -26.80		5'	53 10 53.15 - .29 + 11.76 + 30 - 18.5 10 47.38	+11.33 1273
δ_1	-9.70 -3.34	40 52.88		10 44.0							
d	+40.73 1.60991 9.90339 1.63746	1 55.1 1.51168w	8.1	1232	2 1.60	53 15'	46.75 27.84 -43.40 -32.48		5'	53 10 55.36 - .43 + 11.60 + 30 - 19.0 10 47.07	+11.07 1071
δ_2	-9.70 -3.34	40 52.91		10 43.7							
d	+40.71 1.60990 9.90063 1.63449	1 3.9 1.51632w	18.5	224	1 11.20	52 46	37.15 16.05 -43.10 -32.83		35	52 41 43.22 - .43 + 11.23 + 30 - 18.2 41 37.27	+10.85 12.25
δ_1	-9.64 -2.76	44 14.41		41 34.5							
d	+29.63 1.47173 9.90063 1.49652	1 130 1.37835w	27.5	405	1 20.25	52 46	28.10 4.19 -41.37 -23.90		35	52 41 45.29 - .23 + 11.06 + 30 - 18.7 41 37.09	+10.86 50
δ_2	-9.64 -2.76	44 14.46		41 34.4							
d	+34.39 1.53895 9.90216 1.56527	0 421 1.44291w	58.7	958	0 47.90	52 57	0.415 39.35 -36.75 -27.73		20	52 57 11.62 - .31 + 11.51 + 30 - 18.1 57 6.15	+11.33 1273
δ_1	-9.68 -2.52	45 35.79		57 3.7							
d	+36.65 1.56407 9.90216 1.59039	0 389 1.46803w	54.2	931	0 46.55	52 57	1.80 42.89 -38.47 -29.38		20	52 57 13.51 - .35 + 11.34 + 30 - 18.7 57 5.59	+11.14 1078
δ_2	-9.68 -2.52	45 35.76		57 3.1							
d	+28.09 1.46225 9.90358 1.48999	0 450 1.86369w	5.0	1050	0 52.50	53 16	55.85 34.75 -30.90 -23.10		5	53 12 11.65 - .22 + 11.78 + 30 - 17.8 12 6.92	+11.67 1304
δ_1	-9.72 -1.20	53 11.66		12 5.7							
d	+30.10 1.47857 9.90358 1.50631	0 441 1.38001w	58.9	1030	0 51.50	53 16	56.85 37.94 -36.04 -23.99		5	53 12 13.95 - .24 + 11.62 + 30 - 18.4 12 6.70	+11.51 15
δ_2	-9.72 -1.20	53 11.72		12 5.5							
d	+27.85 1.44483 9.91023 1.47922	3 241 1.3383w	37.8	619	3 30.95	54 29	17.10 56.30 -30.15 -21.57		50	54 24 34.73 - .20 + 13.14 + 40 - 18.0 24 30.73	+12.60 1400
δ_1	-9.88 -0.88	54 58.15		24 29.8							
d	+24.77 1.39393 9.91023 1.42832	3 274 1.28293w	39.5	669	3 33.45	54 29	14.90 55.99 -26.57 -19.18		50	54 24 36.81 - .16 + 12.93 + 40 - 18.6 24 30.31	+12.46 10
δ_2	-9.88 -0.88	54 58.18		24 29.4							

60

[illegible]

Runs

+ 1.40

- .36

61

	$T_m - T$	A	C	Sum	22	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+25.24 1.20209 9.91477 1.44102	2 28.5 9.75569 1.28194	41.8 1.40209 9.75931 1.28556	703	2	35.15	80 54 55	13.20 52.10 27.61 19.30		20	54 55 32.80 - .16 - .53 + 13.73 + .40 - 18.0 55 29.62	+13.42 14.82
(8) - D) $\frac{d'}{100}$												
δ_1	-9.95 -0.38	57 46.18	55 29.2									
d	+36.48 1.56205 9.91477 1.60098	2 19.1 9.75569 1.44190	33.4 1.56205 9.75931 1.44552	525	2	26.25	80 54 56	22.10 3.19 39.90 27.66 90		20	54 55 35.29 56 15 35.53 - .34 - .49 + 13.53 + .40 - 18.6 55 29.45	+13.12 12.76
(8) - D) $\frac{d'}{100}$												
δ_2	-9.95 -0.38	57 46.19	55 29.1									
d	+9.60 0.98227 9.76957 0.87600	0 16.0 9.75569 1.44190	31.4 1.56205 9.75931 1.44552	474	0	23.70	53 58	24.65 3.55 7.52		20	53 57 56.03 - .3 - .8 + 12.82 + .40 - 21.5 57 48.84	+12.94 14.31
(8) - D) $\frac{d'}{100}$												
δ_1	-9.49 -16.56	22 32.70	57 32.3									
d	-4.03 0.60531 9.90490 0.63437	1 29.9 9.75569 1.44190	44.5 1.56205 9.75931 1.44552	744	1	37.20	53 31 26	11.15 50.05 4.31 + 3.19		50	53 26 53.24 - .1 - .34 + 12.06 + .35 - 19.9 26 46.80	+12.06 13.46
(8) - D) $\frac{d'}{100}$												
δ_1	-9.68 -8.04	13 44.55	26 38.8									
d	+15.45 1.18593 9.91345 1.22654	2 25.9 9.75569 1.44190	39.2 1.56205 9.75931 1.44552	651	2	32.55	55 5	15.80 56.69 16.85 11.79		15	55 00 45.10 - .6 - .51 + 13.59 + .40 - 21.7 00 36.46	+13.42 0.6
(8) - D) $\frac{d'}{100}$												
δ_2	-9.71 -14.24	36 45.94	0 22.2									
d	+25.42 1.40518 9.91149 1.44083	4 05 9.75569 1.44190	12.8 1.56205 9.75931 1.44552	133	4	6.65	54 43 39	41.70 22.79 27.66 19.57		35	54 39 3.22 - .16 - .82 + 13.21 + .40 - 21.2 08 54.29	+12.63 27
(8) - D) $\frac{d'}{100}$												
δ_1	-9.75 -11.68	52 20.25	38 42.6									
d	+22.13 1.34498 9.90657 1.37571	3 35.5 9.75569 1.44190	49.5 1.56205 9.75931 1.44552	850	3	42.50	53 49 44	5.85 46.94 22.75 17.42		30	53 44 29.52 - .13 - .74 + 12.20 + .35 - 19.3 44 21.54	+11.68 32
(8) - D) $\frac{d'}{100}$												
δ_2	-9.77 -3.76	38 25.18	44 17.8									
d												
(8) - D) $\frac{d'}{100}$												
δ_1												
d												
(8) - D) $\frac{d'}{100}$												
δ_2												

Date₁ = 1877, Feb. 21
N = -50Observer W.A.R.
Recorder f.z.m.Date₂ = 1877, Feb. 27
N = -61 C = -05Observer W.A.R.
Recorder f.z.m.

62

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
40	37	53	10	9.0	5	40	37.0	41	6.3	9.4	13.2		
κ	39	15.4	8.9	8.9			40.5			13.2	7.66		
(S) - D							42.8			41	4.49		
α_1							40.10				2.12		
											2.67		
40	37	53	10	9.0	40	30.9	41	23	6.5	100	13.3	16.8	
κ							34.3			-5.50	+0.12	4.631	
(S) - D							37.4					.52	
α_1							34.20			41	4.45	8	
											1.962	2.52	
42	45	54	35	8.9	42	35.4	43	16.0	19.4	23.0	26.5	3.00	
κ	41	22.7	33.7	9.0			38.5			-8.35		22.98	
(S) - D							41.1					7.65	
α_1							38.33			43	14.63	.70	
											2.20	12.43	
42	45	54	35	8.8	42	44.5	43	13.0	16.4	20.0	23.5	27.2	
κ							48.1			-5.55		20.05	
(S) - D							50.3					4.631	
α_1							47.63			43	14.44	.86	
											2.03	9	
43	57	52	41	8.8	43	57.4	44	27.6	31.0	34.4	37.9	41.4	
κ	42	36.2	40.9	8.8			8.4			-8.30		34.46	
(S) - D							53					7.65	
α_1							2.77			44	26.16	.65	
											2.15	24.01	
42	8.2	52	35.5	8.3	43	52.4	43	52.6	53.8	59.4	2.6	6.0	
κ							54.8			-5.48		58.28	
(S) - D							55.8					4.631	
α_1							55.33			43	53.77	.80	
											1.99	8	
45	19	52	37	7.8	45	23.5	45	48.2	52.6	56.0	59.4	2.8	
κ	43	58.2	57.0	8.0			25.9			-8.31		56.00	
(S) - D							28.8					7.65	
α_1							25.07			45	47.69	.66	
											2.17	45.52	
45	19	52	37	7.8	45	13.4	45	46.0	49.5	53.1	56.3	59.9	
κ							16.6			-5.49		52.96	
(S) - D							20.4					4.631	
α_1							16.80			45	47.45	.81	
											2.01	8	
45	51	54	15	7.8	46	15.5	46	20.3	23.6	27.0	30.7	34.3	
κ	44	29.1	13.7	8.3			18.9			-8.35		27.18	
(S) - D							21.4					7.65	
α_1							18.60			46	18.83	.70	
											2.22	16.61	
46	30.4	46	17.0	7.9	46	30.4	46	17.0	20.6	24.3	27.7	31.2	
κ							33.4			-5.54		24.16	
(S) - D							35.60					4.631	
α_1										46	18.60	.81	
											2.06	16.55	

Add +0.12 to (A₁+m)
Feb. 27 St. has
been added to the
sum of the constants
and to final R.A.

Runs

Feb 21 - 4' 17.2562 - .20 - .95
 27 - 4' 17.0544 - .20 - 3.63

- .95
 - 3.63

63

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+33.02 1.51878 9.77761 1.42055w	1 59.2	15.0	1342	2' 7.10	53 15'	41.25 24.42 23.63 -26.34		5	53 10' 57.29 - .28 - 42 + 11.38 + 30 - 19.8 10 48.42 202	+10.98 03
(8) - D) $\frac{d'}{100}$											
-9.70 δ_1 -3.34		40 52.97		10 44.9							
d	+35.78 1.55364 9.77761 1.45541w	1 52.4	13.4	1258	2 2.90	53 15'	45.46 28.01 -28.54		5	53 10' 59.44 - 34 - 41 + 11.64 + 30 - 19.4 10 50.63 47.63	+11.19 7.56
(8) - D) $\frac{d'}{100}$											
-9.70 δ_2 -3.34		40 52.82		10 44.3							
d	+44.51 1.64846 9.776307 1.53569w	3 35.9	50.9	868	3 43.40	54 39'	4.95 44.70 1.33 -34.33		40	54 34' 13.00 - 51 - 74 + 12.88 + 40 - 19.4 34 4.68	+12.03 11.08
(8) - D) $\frac{d'}{100}$											
-9.89 δ_1 -2.98		43 2.54		34 1.7							
d	+32.39 1.51041 9.76307 1.39764w	3 41.6	0.2	418	3 20.90	54 38'	57.15 40.01 -24.98		40	54 34' 15.03 - 27 - 77 + 13.17 + 40 - 19.8 34 4.13	+12.53 8.90
(8) - D) $\frac{d'}{100}$											
-9.89 δ_2 -2.98		43 2.55		34 1.2							
d	+31.69 1.50092 9.78246 1.40754w	1 10.2	26.1	363	1 18.15	52 46'	30.70 12.45 58 -25.56		35	52 41' 17.02 - 1.26 - 26 + 10.85 + 30 - 18.8 41 37.90	+10.63 9.68
(8) - D) $\frac{d'}{100}$											
-9.64 δ_1 -2.76		44 14.37		41 35.1							
d	+3.95 0.59660 9.78529 0.50405w	1 39.1	0.2	893	1 49.65	52 40'	58.70 41.26 -4.78 -3.19		40	52 36' 38.07 - 36 - 36 + 11.11 + 30 - 19.2 41 26.28	+11.04 7.41
(8) - D) $\frac{d'}{100}$											
-9.63 δ_2 -2.84		43 42.18		36 23.4							
d	+29.93 1.47611 9.77980 1.38007w	0 43.1	59.4	1025	0 51.25	52 57'	57.10 39.84 48 -23.99		20	52 57' 15.49 - .24 - 17 + 11.12 + 30 - 18.8 57 6.75	+11.01 10.06
(8) - D) $\frac{d'}{100}$											
-9.68 δ_1 -2.52		45 35.84		57 41.2							
d	+36.16 1.55823 9.77980 1.46219w	0 34.2	55.9	901	0 45.05	53 2'	3.30 45.46 -28.99		20	52 57' 16.84 - 34 - 15 + 11.39 + 30 - 19.2 57 5.24	+11.20 7.57
(8) - D) $\frac{d'}{100}$											
-9.68 δ_2 -2.52		45 35.78		57 2.7							
d	+8.58 0.93349 9.76660 0.82425w	3 14.6	30.1	447	3 22.35	54 19'	26.00 8.75 58 -6.67		0	54 15' 1.71 - 2 - 67 + 12.53 + 40 - 19.8 14 53.60	+12.24 11.29
(8) - D) $\frac{d'}{100}$											
-9.85 δ_1 -2.42		46 6.76		14 51.1							
d	+50.54 0.97297w 0.46680 0.86573.	3 24.8	43.9	687	3 34.35	54 19'	14.00 56.56 +7.34		0	54 15' 3.90 - 71 + 12.82 + 40 - 19.5 14 53.25	+12.48 8.85
(8) - D) $\frac{d'}{100}$											
-9.85 δ_2 -2.42		46 8.71		14 50.8							

Date₁ = 1877 Feb. 21Observer
RecorderDate₂ = 1877 Feb. 27Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
47	0	52° 51'	8.9	5	47 7.9	47 28.9	32.2	35.6	39.1	42.6	47	35.68	
45	38.8	50.3	9.0		10.4					-8.31	47	7.65	
κ					13.3							6.6	
(δ) - D	$\frac{\kappa'}{100}$				10.53							27.37	
a_1												2.19	
												25.18	
			9.1	47	15.5	47 26.0	29.5	32.8	36.0	39.5	47	32.76	
κ					18.1					-5.49		4.62	
(δ) - D	$\frac{\kappa'}{100}$				20.8							.81	
a_2					18.13							8	
												27.25	
												2.03	
												25.28	
49	18	54 17	9.2	49	23.0	49 48.6	52.2	53.7	59.1	2.8	49	55.66	
47	56.2	17.2	9.3		25.3					-8.34		7.65	
κ					28.0							.69	
(δ) - D	$\frac{\kappa'}{100}$				25.43							47.32	
a_1												2.26	
												45.06	
			9.4	49	22.3	49 45.8	49.2	52.7	56.2	59.8	49	52.74	
κ					25.9					-5.53		4.62	
(δ) - D	$\frac{\kappa'}{100}$				29.0							.85	
a_2					25.73							9	
												47.18	
												2.10	
												45.12	
6	0	43 53 24	8.8	6	0 53.7	1 0.1	3.5	6.8	10.1	13.9	1	6.88	
5.59	26	5.3	30.6	9.0	58.6					-8.30		7.65	
κ					18							.65	
(δ) - D	$\frac{\kappa'}{100}$				58.67							58.58	
a_1												2.326	
												56.25	
												22	
			9.1	0	37.3	0 56.9	0.4	3.8	7.5	10.8	1	9.88	
κ					40.5					-5.47		4.60	
(δ) - D	$\frac{\kappa'}{100}$				43.2							.79	
a_2					40.33							8	
												58.41	
												2.7821	
												56.25	
												20	
1	45	54 46	8.4	1	48.4	2 16.3	19.9	23.3	27.0	30.6	2	23.42	
0	22.8	45.6	8.5		53.8					-8.36		7.65	
κ					56.5							.71	
(δ) - D	$\frac{\kappa'}{100}$				53.33							15.06	
a_1												2.44	
												12.62	
			8.5	1	47.0	2 13.1	16.8	20.4	24.0	27.6	2	20.38	
κ					50.4					-5.55		4.5960	
(δ) - D	$\frac{\kappa'}{100}$				53.9							.87	
a_2					50.43							9	
												14.83	
												2.28	
												12.545	
17	56	54 28	8.0	18	8.0	18 25.9	29.3	38.0	36.4	40.0	18	32.92	
16	84.4	28.0	8.3		11.6					-8.35		7.65	
κ					13.3							.70	
(δ) - D	$\frac{\kappa'}{100}$				11.70							24.54	
a_1												2.63	
												21.94	
			8.3	18	6.4	18 22.8	26.3	29.9	33.3	36.9	18	29.7284	
κ					10.2					-5.50		4.0757	
(δ) - D	$\frac{\kappa'}{100}$				12.7							.86	
a_2					9.77							9	
												24.21	
												2.47	
												21.7986	
												21.87	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+25.15 1.40054 9.78097 1.30564 μ	2 11.6	27.3	389	2 19.45	55 52 51	28.90 11.65 .28		25	52 50 51.07 - 16 + 46 + 11.01 + 30 - 18.6 - 50 42.21	+10.69 9.74
(8) - D) $\frac{d'}{100}$											
-9.67 δ_1 -2.22		47 15.51		50 40.0 39.9							
d	+14.63 1.16524 9.78097 1.07634 μ	2 16.0	36.7	527	2 26.35	55 52 51	22.00 4.56 -11.76		25	52 50 52.80 - 6 + 49 + 11.28 + 30 - 19.0 50 41.20	+11.03 9.40
(8) - D) $\frac{d'}{100}$											
-9.67 δ_2 -2.22		47 15.57		50 39.0							
d	+30.23 1.48044 9.76607 1.37064 μ	0 15.4	31.4	468	0 23.40	54 18	22 24.95 4.33 -23.48		0	54 17 43.85 - 23 - 8 + 12.59 + 40 - 19.0 17 36.55	+12.68 11.73
(8) - D) $\frac{d'}{100}$											
-9.86 δ_1 -1.82		49 35.20		17 34.8							
d	+27.01 1.43152 9.76607 1.32175 μ	0 14.1	34.8	489	0 24.45	54 18	22 23.90 6.46 -20.98		0	54 17 45.48 - 19 - 8 + 12.88 + 40 - 19.4 17 35.46	+13.04 9.38
(8) - D) $\frac{d'}{100}$											
-9.86 δ_2 -1.82		49 35.25		17 33.6							
d	+8.21 0.91434 9.78428 0.82248 μ	1 59.7	13.1	1328	2 6.40	58 31	35 44.95 24.74 4.33 -6.85 50		45	58 31 17.68 - 2 - 42 11.72+10.66 + 30 - 17.8 18.2 31 9.45 10.36	+10.52 10.63
(8) - D) $\frac{d'}{100}$											
-9.76 δ_1 +0.10		0 46.46		31 10.3							
d	+23.55 1.37199 9.78428 1.28024 μ	1 42.5	2.4	1049	1 52.45	58 31	35 55.90 38.46 -19.03		45	58 31 19.39 - 15 - 37 11.99+10.71 + 30 - 18.87 31 8.5887	+10.69+11.77 8.14
(8) - D) $\frac{d'}{100}$											
-9.76 δ_2 +0.10		0 46.44		31 9.0							
d	+30.09 1.47842 9.76111 1.36369 μ	2 21.8	35.9	577	2 26.85	50 46	50 19.50 2.25 1.88 -23.10		30	54 45 38.78 - 23 - 49 + 13.182 + 40 - 18.4 45 32.43 23	+12.80 11.85
(8) - D) $\frac{d'}{100}$											
-9.93 δ_1 +0.36		2 2.69		45 32.6							
d	+29.95 1.44640 9.76111 1.36164 μ	2 16.9	37.7	546	2 27.30	54 46	50 21.05 3.61 -23.00		30	54 45 40.61 - 23 - 49 + 13.41 + 40 - 18.9 45 31.17	+13.09 9.46
(8) - D) $\frac{d'}{100}$											
-9.93 δ_2 +0.36		2 2.62		45 31.5							
d	+21.22 1.32675 9.76431 1.21522 μ	0 37.2	57.7	689	0 44.45	54 27	32 3.90 46.65 2.8 -16.41		50	54 27 29.84 - 11 - 15 + 12.788 + 40 - 17.3 27 24.54	+12.92 11.97
(8) - D) $\frac{d'}{100}$											
-9.87 δ_1 +3.78		18 12.07		27 27.7							
d	+19.95 1.29994 9.76431 1.18841 μ	0 32.6	54.1	667	0 43.35	54 27	32 5.00 47.56 -15.43		50	54 27 32.18 - 10 - 14 + 13.05 + 40 - 17.9 27 23.81	+13.21 9.58
(8) - D) $\frac{d'}{100}$											
-9.87 δ_2 +3.78		18 12.00		27 26.7							

Date₁ = 1877, Feb. 21Observer
RecorderDate₂ = 1877, Feb. 27Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
6	18 17 κ	34 11.8 41.7	54 42 7.9 7.9	6	18 53.8 57.9 0.2 57.97	19 4.8	8.5	12.0	15.6	19.1 -8.36	19 - 19	12.02 1.54 7.65 7.71 3.66 2.65 1.01	
	(8) - D	$\frac{\kappa'}{100}$											
	a_1												
	κ		7.5	18 48.8 52.4 56.2 52.47	19 1.9	5.6	9.1	12.6	16.0 -5.51	19 - 19	9.04 4.57 .86 9 3.32 2.49 1.034		
	(8) - D	$\frac{\kappa'}{100}$											
	a_2												
	19 17 κ	12 49.9 52.1	54 52 8.5 8.7	19	40.6 42.1 43.8 49.4 52.9 56.5 -8.36					19 - 19	49.34 4.65 41 46.98 2.66 38.32		
	(8) - D	$\frac{\kappa'}{100}$											
	a_1												
	κ		9.0	20 4.9 8.0 11.4 8.10	19 39.2	43.0	46.3	50.0	53.6 -5.52	19 - 19	46.42 4.57 .87 9 40.89 2.50 38.3940		
	(8) - D	$\frac{\kappa'}{100}$											
	a_2												
	23 21 κ	0 38.3 34.3	54 34 8.8 9.0	22	56.8 59.5 2.8 59.70	23 30.3	34.0	37.6	41.0 44.6 -8.35	23 - 23	37.50 7.65 7.40 29.15 2.69 26.46		
	(8) - D	$\frac{\kappa'}{100}$											
	a_1												
	κ		8.8	22 53.1 59.5 2.6 59.07	23 27.5	31.0	34.5	38.0	41.8 -5.50	23 - 23	34.56-01 4.56 .86 9 29.03 2.54 26.512		
	(8) - D	$\frac{\kappa'}{100}$											
	a_2												
	25 23 κ	15 52.7 41.6	54 42 8.2 8.3	23	15.8 18.7 21.4 18.73	25 45.3	49.0	52.5	56.0 59.7 -8.35	25 - 25	52.50 7.65 7.40 44.15 2.72 41.43		
	(8) - D	$\frac{\kappa'}{100}$											
	a_1												
	κ		8.0	23 18.8 22.4 24.5 21.90	25 42.2	46.0	49.4	53.0	56.7 -5.50	25 - 25	49.46 4.56 .86 9 43.95 2.57 41.389		
	(8) - D	$\frac{\kappa'}{100}$											
	a_2												
	κ												
	(8) - D	$\frac{\kappa'}{100}$											
	a_1												
	κ												
	(8) - D	$\frac{\kappa'}{100}$											
	a_2												

Runs

-95
-363

67

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+14.05 1.14768 9.76200 1.03384m	2 6.4	18.9	253	2 12.65	521 45' 35.70	521 41' 18.08		35	521 41' 7.27	+12.75 00
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.91 +3.30	18.51.10		41 5.2						41 1.87	
d	+16.57 1.21932 9.76200 1.10548m	2 0.5	18.8	193	2 9.65	521 45' 38.70	521 41' 21.26		35	521 41' 8.51	+12.23 9.60
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.91 +3.30	18.51.13		41 3.4						41 0.11	
d	+8.74 0.94151 9.76003 0.82570m	1 34.9	48.8	837	1 41.85	521 56' 6.50	521 51' 48.88		25	521 51' 42.19	+12.27 12.32
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.93 +3.40	19.28.39		51 40.5						51 37.11	
d	+21.68 1.33606m 9.76021 1.22043	1 52.7	11.4	1241	2 2.05	521 55' 46.30	521 51' 28.86		25	521 51' 45.47	+12.44 9.77
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.93 +3.40	19.28.47		51 40.6						51 37.24	
d	+37.80 1.57749 9.76324 1.46489m	4 14.5	26.8	413	4 20.65	521 38' 27.70	521 34' 10.08		40	521 33' 40.91	+12.05 11.10
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.88 +4.06	23.16.58		33 39.0						33 34.91	
d	+35.49 1.55011 9.76324 1.43751m	4 11.4	30.6	420	4 21.00	521 38' 27.35	521 34' 6.91		40	521 33' 42.53	+12.38 8.75
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.88 +4.06	23.16.64		33 37.6						33 33.88	
d	+33.77 1.52853 9.76200 1.41469m	2 1.5	13.4	149	2 7.45	521 45' 40.90	521 41' 23.28		35	521 40' 57.30	+12.73 11.78
(δ) - D) $\frac{d'}{100}$											
δ_1	-9.89 +4.46	25.31.54		40 56.6						40 52.18	
d	+27.56 1.44028 9.76200 1.32644m	1 58.9	17.9	1378	2 8.90	521 45' 39.45	521 41' 22.01		35	521 41' 0.81	+13.10 9.47
(δ) - D) $\frac{d'}{100}$											
δ_2	-9.89 +4.46	25.31.50		40 57.2						40 52.78	
d											
(δ) - D) $\frac{d'}{100}$											
δ_1											
d											
(δ) - D) $\frac{d'}{100}$											
δ_2											

526
Date₁ = 1877 Feb. 28
Observer W.A.R.
Recorder J.T.M.
n = -69 C = -05

Mar-1 527
Date₂ = 1877 Feb. 29
Observer W.A.R.
Recorder J.T.M.
n = -59

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1877phae.

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_c	T_h	Sum	Mean	Red. to T_m	T
12	23	52° 37'	8.5	5	12	13.5	12	48.5	52.0	53.4	58.9	22	55.40
11	21.4	25.6	8.5			13.9							3.78
κ						19.2							90
(8) — D						16.20							12
a_1													50.69
													1.56
													48.99
													48.00
													49.089
8.5				12	35.5	12	47.9	57.4	57.8	58.1	15	54.74	
κ						39.0							3.25
(8) — D						41.3							12
a_2						38.60							50.72
													1.54
													49.18
13	29	53 27	9.0	13	26.6	13	53.5	57.0	05	4.0	7.5	14	0.50
12	8.8	25.4	8.9			30.3							3.78
κ						33.0							.93
(8) — D						29.97							13
a_1													55.76
													1.59
													54.02
													4.12
9.0				13	26.0	13	52.9	56.2	57.8	2.1	6.9	13	59.78
κ						39.2							3.25
(8) — D						42.0							13
a_2						39.07							55.73
													1.56
													54.17
14	19	52 6	8.0	14	21.9	14	40.8	44.1	47.5	50.9	54.2	14	47.50
12	08.2	5.1	7.8			23.4							3.78
κ						28.0							.88
(8) — D						25.10							14
a_1													42.81
													1.58
													41.09
													41.189
8.3				14	31.6	14	40.3	43.5	47.0	50.2	52.7	14	46.94
κ						35.0							3.25
(8) — D						37.6							14
a_2						34.73							42.93
													1.55
													41.38
20	08	54 33	9.5	21	11.3	21	22.7	26.4	29.9	32.1	36.9	21	29.80
19	36.6	21.4	7.6										3.78
κ													.96
(8) — D													21
a_1													30.52
													2.50
													25.02
													1.72
													23.16
													23.24
9.5				21	6.5	21	21.8	25.4	29.2	32.7	36.1	21	29.04
κ													3.25
(8) — D													21
a_2													24.96
													2.1
													25.78
													1.69
													24.09
22	44	52 2	8.6	22	48.2	23	7.5	11.0	14.4	17.7	21.2	23	14.36
21	23.1	0.8	8.2			50.8							3.78
κ						54.7							.88
(8) — D						51.23							23
a_1													9.66
													1.68
													7.86
													7.924
8.8				22	54.3	23	7.1	10.5	13.7	17.0	20.1	23	13.68
κ						57.3							3.25
(8) — D						57.9							23
a_2						57.17							9.67
													1.66
													8.01

Runs

Feb 28 - 4' 18.16 17.56 - .20 - 4.26
 Mar 1 16.74 - .20 - 4.78

-4.26
 -4.78

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	T _m - T	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+39.20 1.59329 9.78313 1.50058w	0' 39.2	1.9	1011	40' 50.55	52 41	57.80 37.64 40.24 -31.66		40	52 34' 8.58 40 -17 +10.87 +30 -20.3 36 54.62	+10.64 +6.34
(8) - D) $\frac{d'}{100}$											
δ_1											
d	+16.14 1.20790 9.78329 1.11535w	0 59.1	21.3	804	41 40.20	52 41	38.15 37 21.44 -13.04		40	52 37 8.37 -7 +10.82 +30 -20.3 36 54.11	+10.82 6.04
(8) - D) $\frac{d'}{100}$											
δ_2											
d	+30.53 1.48473 9.77490 1.38379w	0 55.8	17.1	1329	51 6.45	53 31	41.90 27 23.44 24.34 -24.20		50	53 27 0.14 -24 -22 +11.77 +35 -20.5 26 47.64	+11.66 7.40
(8) - D) $\frac{d'}{100}$											
δ_1	-9.68 -8.04	13 44.44		26 39.0							
d	+20.71 1.31618 9.77490 1.21524w	1 3.9	26.2	301	51 15.05	53 31	33.30 27 16.36 -16.42		50	53 27 0.14 -11 -25 +11.72 +35 -20.5 26 46.87	+11.71 6.93
(8) - D) $\frac{d'}{100}$											
δ_2	-9.68 -8.04	13 44.49		26 38.5							
d	+22.40 1.35025 9.78821 1.26262w	1 8.9	29.9	388	11 19.40	52 11	28.95 7 10.74 11.39 -18.31		10	52 6 53.08 -13 -26 +10.33 +30 -20.1 6 38.96	+10.24 5.98
(8) - D) $\frac{d'}{100}$											
δ_1	-9.51 -7.90	14 31.68		6 31.1							
d	+12.21 1.08672 9.78821 0.99909w	1 17.9	39.5	574	11 28.70	52 11	19.65 7 2.91 -9.98		10	52 6 52.93 -4 -29 +10.28 +30 -20.1 6 38.30	+10.25 5.47
(8) - D) $\frac{d'}{100}$											
δ_2	-9.51 -7.90	14 31.54		6 30.4							
d	+18.50 1.26717 9.76324 1.15454w	3 57.0	16.8	1338	44 6.90	54 38	41.45 34 23.24 23.89 -14.27		40	54 34 9.62 -8 -82 +12.99 +40 -20.6 33 57.25	15.02 -3 -8.23 +12.99 +40 -20.6 2.70
(8) - D) $\frac{d'}{100}$											
δ_1	-9.85 -6.74	21 13.40 14.00		33 50.5 33 56.0							
d	+22.04 1.35295 9.76324 1.24035w	3 55.9	14.8	1307	44 5.35	54 38	43.05 34 26.26 -17.39		40	54 34 8.84 -13 -82 +12.94 +40 -20.7 33 55.78	13.74 -7 -8.2 +12.94 +40 -20.7 0.71
(8) - D) $\frac{d'}{100}$											
δ_2	-9.85 -6.74	21 13.42 34.24		33 49.0 34.015							
d	+23.13 1.36418 9.78886 1.27720w	0 44.5	6.5	1110	0 55.50	52 6	52.85 2 34.64 35.29 -18.93		15	52 2 16.36 -14 -18 +10.24 +30 -19.8 2 2.52	+10.22 5.96
(8) - D) $\frac{d'}{100}$											
δ_1	-9.53 -6.44	22 58.41		1 56.1							
d	+16.51 1.21445 9.78402 1.13093w	0 51.4	12.8	1242	1 2.10	52 6	46.25 2 29.51 -13.52		15	52 2 15.99 -7 -21 +10.20 +30 -19.8 2 1.63	+10.22 5.44
(8) - D) $\frac{d'}{100}$											
δ_2	-9.53 -6.44	22 58.48		1 55.2							

Date₁ = 1877 Feb. 28Observer
RecorderDate₂ = 1877 Feb. 29Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
5	24 22 κ	2 414 54° 38' 267	8.9 8.8	5	24 12.8 13.7 18.6 15.70	24 28.4	82.2	35.7	39.2	42.7 -4.8 4	24 - - 24	35.64 3.74 79 30.84 1.76 28.94	
	(8) - D) κ'_{100}												
	a_1											29.034	
	κ		9.0		24 100 14.8 16.9 13.90	24 27.6	81.3	34.7	38.3	41.8 -4.05	24 - 24	34.74 3.25 8.3 30.66 1.73 28.93	
	(8) - D) κ'_{100}												
	a_2	49 06.50											
	28 27 κ	82 16.9 50 53 626	9.0 8.6	28	4.8 26.9 30.2 33.7 30.27	28 14.9	18.2	21.7	25.0	28.4 -4.78 1	28 - - 28	21.64 3.74 79 1.55 8 16.97 1.22 15.15	
	(8) - D) κ'_{100}												
	a_1											15.201	
	27 κ	8.9 50 53.4	9.4	28	34.0 37.5 40.2 37.23	28 52.0	33.3	38.7	1 2.0	5.4 -3.98	28 - 28	58.68 3.25 7.3 54.70 1.69 53.01	
	(8) - D) κ'_{100}												
	a_2												
	30 28 κ	2 40.7 54 29 27.9	9.5 9.4	30	8.4 12.4 15.5 12.10	30 30.1	33.8	37.1	40.6	44.3 -4.84 3	30 - - 30	37.18 3.74 79 9 32.16 1.84 30.48	
	(8) - D) κ'_{100}												
	a_1											30.501	
	κ		9.4		29 59.5 8.2 6.6 3.10	30 29.4	32.9	36.5	40.0	43.5 -4.05	30 - 30	36.46 3.25 8.3 32.38 1.81 30.57	
	(8) - D) κ'_{100}												
	a_2												
	31 30 κ	23 2.0 54 16 14.6	9.1 9.3	31	28.5 32.0 35.0 31.83	31 51.3	34.7	38.4	2.0	5.4 -4.84 3	31 - - 31	58.36 3.74 79 9 53.57 1.85 51.68	
	(8) - D) κ'_{100}												
	a_1											51.68	
	κ		9.3		31 10.4 14.5 18.4 14.43	31 50.8	34.3	37.8	1.0	4.4 -4.04	31 - 31	57.72 3.25 8.2 53.65 1.82 51.83	
	(8) - D) κ'_{100}												
	a_2												
	32 31 κ	28 7.2 54 11 2.7	9.0 9.2	32	30.7 32.5 36.4 33.57	32 53.0	38.8	2.6	5.7	9.4 -4.84	33 - - 32	2.30 3.75 79 9 57.50 1.86 55.58	
	(8) - D) κ'_{100}												
	a_1											.60	
	κ		9.3		32 30.5 33.0 36.3 33.27	32 54.4	38.0	1.5	4.9	8.4 -4.07	33 - 32	1.44 3.25 8.2 57.34 1.83 55.54	
	(8) - D) κ'_{100}												
	a_2												

Runs

71

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+19.94 1.29973 9.76236 11.8625m	4 1.1	21.1	222	4 11.10	43' 37.25	54 39 19.69		35	54 39 4.31	+12.54 8.28
($\delta - D$) $\frac{d'}{100}$				45.8			-15.35			+13.08 40 -20.6	
δ_1	-9.86 -6.22	24 19.18		38 46.4						38 52.62	
d	+20.84 1.31890 9.76236 12.0542m	4 1.8	21.3	231	4 11.55	43 36.80	54 39 20.06		35	54 39 4.01	+12.48 7.70
($\delta - D$) $\frac{d'}{100}$							-16.05			+13.03 40 -20.6	
δ_2	-9.86 -6.22	24 19.07		38 44.9						38 47.11	51.11
d	-8.63 0.93601 9.80043 0.86060	3 49.5	2.5	1190	3 59.50	53 48.85	50 49 30.69		25	50 49 38.54	+8.38 4.12
($\delta - D$) $\frac{d'}{100}$							+7.25			+8.95 25 -19.2	
δ_1										44 23.46	
d	+21.45 1.33143 9.76236 12.5524m	3 19.8	40.1	599	3 29.95	53 18.40	50 54 1.66		20	50 53 43.63	+8.44 3.63
($\delta - D$) $\frac{d'}{100}$							-18.08			+8.78 25 -19.3	
δ_2	-9.41 -5.44	28 43.60		54 22.5						54 27.96	
d	+25.08 1.39933 9.76413 12.8762m	3 55.4	15.7	1811	4 5.55	33 42.80	54 29 24.67		45	54 29 58.5	+12.32 8.06
($\delta - D$) $\frac{d'}{100}$							-19.39			+12.90 40 -20.3	
δ_1	-9.86 -5.18	30 20.65		28 48.4						28 53.61	
d	+33.36 1.52323 9.76395 1.41134m	3 50.5	10.2	1207	4 0.35	33 48.00	54 29 31.26		45	54 29 54.8	+12.16 7.38
($\delta - D$) $\frac{d'}{100}$							-25.78			+12.85 40 -20.3	
δ_2	-9.86 -5.18	28 20.71		28 47.4						28 52.56	
d	+26.53 1.42374 9.76625 1.31415m	1 41.4	2.1	1035	1 51.75	20 56.60	54 16 38.47		0	54 16 18.43	+12.52 8.26
($\delta - D$) $\frac{d'}{100}$							-20.61			+12.67 40 -20.2	
δ_1	-9.83 -4.94	31 41.85		16 1.6						16 6.49	
d	+43.29 1.63639 9.76625 1.52680m	1 29.0	49.2	784	1 39.10	21 9.25	54 16 52.51		0	54 16 18.87	+12.20 7.42
($\delta - D$) $\frac{d'}{100}$							-33.64			+12.62 40 -20.2	
δ_2	-9.83 -4.94	31 42.00		16 1.2						16 6.09	
d	+28.73 1.45834 9.76712 1.34962m	0 57.8	18.2	1360	0 8.00	16 40.35	54 12 22.47		5	54 12 0.42	+12.55 8.29
($\delta - D$) $\frac{d'}{100}$							-22.34			+12.59 40 -20.1	
δ_1	-9.82 -4.76	32 45.78		11 43.8						11 48.61	
d	+28.17 1.44999 9.76712 1.34107m	0 58.1	18.4	1365	1 8.25	16 40.10	54 12 23.36		5	54 12 1.43	+12.52 7.74
($\delta - D$) $\frac{d'}{100}$							-21.93			+12.55 40 -20.1	
δ_2	-9.82 -4.76	32 45.82		11 44.3						11 49.07	

Date₁ = 1877 Feb. 28Observer
RecorderDate₂ = 1877 Feb. 29Observer
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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
34	33	54° 43'	8.5	5	34 325	35 20	5.4	9.2	127	16.4	35	8.14	
33	125	42.0	8.7		35.7					-4.85		86.79	
κ					38.4					4			
(S) - D	κ'_{100}				35.53						35	4.38	
α_1												1.90	
												2.513	2.39
												40	
			8.6		34 304	35 13	4.8	8.5	120	15.7	35	8.46	
κ					82.9					-4.08		3.25	
(S) - D	κ'_{100}				35.4						35	4.38	
α_2					32.90							1.87	
												2.51	
35	10	54 22	8.8		35 347	35 408	44.2	47.7	37.4	54.8	35	47.78	
83	49.3	214	9.0		38.8					-4.85		86 80	
κ					42.8					4		.96	
(S) - D	κ'_{100}				38.77						35	42.98	
α_1												1.90	
												40.97	41.03
												4	
			9.0		35 392	35 401	43.7	47.1	50.5	54.3	35	47.14	
κ					41.8					-4.08		3.25	
(S) - D	κ'_{100}				46.0						35	43.06	
α_2					42.33							1.87	
												41.19	
37	3	54 25	6.2		37 0.6	37 28.6	33.1	36.7	40.3	43.7	37	36.68	
86	42.1	240	6.6		4.3					-4.85		86 80	
κ					6.5					4		.96	
(S) - D	κ'_{100}				3.80						37	31.88	
α_1												1.93	
												29.85	
												9.21	
			6.4		37 15	37 28.9	32.4	35.9	39.4	42.9	37	35.90	
κ					4.5					-4.08		3.25	
(S) - D	κ'_{100}				7.7						37	31.82	
α_2					4.57							1.90	
												29.92	
38	9	53 44	8.8		38 18.5	38 348	38.1	41.7	45.1	48.6	38	41.66	
86	47.4	436	8.6		21.4					-4.85		86 80	
κ					24.0					1		.94	
(S) - D	κ'_{100}				21.30						38	36.89	
α_1												1.93	
												34.66	
												9.2	
			8.7		38 98	38 33.9	37.4	40.8	44.4	47.9	38	40.88	
κ					12.7					-4.08		3.25	
(S) - D	κ'_{100}				15.5						38	36.83	
α_2					12.67							1.90	
												34.93	
40	26	54 39	8.2		40 27.8	40 52.3	56.0	59.8	3.0	6.6	40	59.54	
89	42	382	8.5		31.0					-4.85		86 80	
κ					34.0					5		.97	
(S) - D	κ'_{100}				30.93						40	54.72	
α_1												1.98	
												52.65	
												9.21	
			8.5		40 22.6	40 51.5	53.2	58.8	2.5	5.9	40	58.78	
κ					25.9					-4.08		3.25	
(S) - D	κ'_{100}				28.4						40	54.70	
α_2					40 25.63							1.95	
												52.75	

Runs

-4.26
-4.78

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1877phae: pr

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+33.61 1.52647 9.76164 1.41227w	0 11.0	31.9	429	35 21.45	47 16.90 54 43 8.77 9.34 -25.84	35	54 42 43.50 - .29 + 13.187 + 40 - 20.2 42 32.35		+13.21 8.95	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.90 -4.40	34 52.50		42 27.8	35						
d	+35.56 1.53096 9.76164 1.43676w	0 9.5	31.4	409	35 20.45	47 27.90 54 43 11.16 -27.34	35	54 42 43.82 - .32 + 13.12 + 40 - 20.2 42 31.97		+13.13 8.35	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.90 -4.40	34 52.61		42 27.6	35						
d	+9.01 0.95472 9.76519 0.84407w	0 17.6	38.9	565	35 28.25	27 20.10 54 23 7.94 2.54 -6.98	35	54 22 55.56 - 2 + 9 + 12.80 + 40 - 20.1 22 44.29		+13.09 8.83	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.85 -4.28	35 31.19		22 40.0	35						
d	+4.81 0.68215 9.76519 0.57150w	0 21.4	42.8	642	35 32.10	27 16.25 54 22 59.51 - 3.73	35	54 22 55.78 - 1 + 11 + 12.76 + 40 - 20.1 22 43.74		+13.04 8.26	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.85 -4.28	35 31.34		22 39.7	35						
d	+32.88 1.51693 9.76448 1.40557w	1 8.0	28.1	361	35 18.05	31 30.30 54 27 12.44 7.4 -25.44	35	54 26 47.30 - .28 + 26 + 12.88 + 40 - 20.1 26 35.78		+12.74 8.48	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.86 -3.94	37 20.05		26 31.89	35						
d	+31.33 1.49596 9.76448 1.38460w	1 9.9	30.5	404	35 20.20	31 28.15 54 27 11.41 -24.24	35	54 26 47.17 - .26 + 27 + 12.84 + 40 - 20.1 26 35.10		+12.71 7.93	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.86 -3.94	37 20.06		26 31.2	33						
d	+20.36 1.30878 9.77181 1.20475w	3 30.1	50.4	805	33 40.25	49 8.10 53 44 49.94 50.54 -16.02	30	53 44 34.52 - .10 - 73 + 12.10 + 35 - 19.7 44 22.18		+11.62 7.36	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.77 -3.76	38 25.15		44 18.4	33						
d	+28.21 1.45040 9.77181 1.34637w	3 24.7	44.2	689	33 34.45	49 13.90 53 44 57.16 -22.20	30	53 44 34.96 - .20 + 871 + 12.06 + 35 - 19.8 44 21.88		+11.50 6.72	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.77 -3.76	38 25.16		44 18.1	39						
d	+28.61 1.45652 9.76236 1.34304w	3 56.6	16.3	1329	39 6.45	43 41.90 54 39 23.74 24.34 -22.03	35	54 39 2.31 - .21 + 82 + 13.08 + 40 - 19.9 38 50.60		+12.45 8.19	
(8) - D) $\frac{d'}{100}$											
δ_1	-9.90 -3.36	40 42.81		38 47.2	39						
d	+33.15 1.52048 9.76236 1.40700w	3 54.0	13.0	1270	39 3.50	43 44.85 54 39 28.11 -25.53	35	54 39 2.58 - .28 + 81 + 13.04 + 40 - 20.0 38 50.18		+12.35 7.57	
(8) - D) $\frac{d'}{100}$											
δ_2	-9.90 -3.36	40 42.85		38 46.8	39						

Date₁ = Feb. 28Observer
RecorderDate₂ = Feb. 29Observer
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
42	45	54° 35'	9.0	5	42	44.0	43	12.1	15.7	19.2	22.9	26.3	43	19.28
41	22.7	33.7	9.0			47.1						-4.86	5	18.76
κ						50.9						5		85.80
						47.33								.97
(δ) - D) $\frac{\kappa'}{100}$												43	14.46	
a_1													20.0	
													12.35	-9.8
													42.3	-2.3
			8.9		42	51.3	43	11.2	14.9	18.5	22.0	26.0	43	18.52
κ						54.5						-4.08		3.25
						57.4								83
(δ) - D) $\frac{\kappa'}{100}$						54.40						43	14.44	
a_2													1.98	
													12.46	
45	8	54 50	9.0		45	12.7	45	37.4	41.0	44.7	48.2	51.8	45	44.62
43	46.3	48.9	9.0			15.6						-4.87		3.76
κ						19.0								85.80
						15.77								.98
(δ) - D) $\frac{\kappa'}{100}$												45	39.79	
a_1													20.5	
													37.65	-9.8
													40.1	-2.3
			8.8		45	16.5	45	36.7	40.2	43.8	47.5	51.1	45	43.86
κ						19.9						-4.09		3.25
						22.4								84
(δ) - D) $\frac{\kappa'}{100}$						19.60						45	39.77	
a_2													20.2	
													57.75	-9.9
45	52	54 24	8.6		46	11.8	46	18.4	22.0	25.6	29.0	32.4	46	25.48
44	29.8	23.4	9.0			14.0						-4.85		3.76
κ						17.4								85.80
						14.50								.96
(δ) - D) $\frac{\kappa'}{100}$												46	20.67	
a_1													20.4	
													18.54	-9.8
													57.18	-2.3
			8.8		46	15.3	46	17.7	21.3	24.7	28.2	31.8	46	24.74
κ						18.3						-4.08		3.25
						22.0								83
(δ) - D) $\frac{\kappa'}{100}$						18.53						46	20.66	
a_2													20.2	
													18.64	-9.8
6	0	53 39	8.0		6	0	26.8	1	4.0	7.6	11.1	14.5	1	11.08
5	59	19.1	8.0				29.9					-4.88		3.77
κ							33.2							84.81
							29.97							.94
(δ) - D) $\frac{\kappa'}{100}$												1	6.29	
a_1													22.0	
													4.02	-9.7
													.056	+0.1
			8.0		0	44.0	7	3.5	6.8	10.3	13.8	17.3	1	10.34
κ						47.0						-4.05		3.25
						49.3								80
(δ) - D) $\frac{\kappa'}{100}$						46.77						1	6.29	
a_2													2.17	
													4.12	-9.7
18	29	54 50	8.2		18	40.0	18	58.0	1.7	5.3	8.9	12.5	79	5.28
17	7.4	50.5	8.0			44.5						-4.89		3.74
κ						46.7								83.82
						43.73								.98
(δ) - D) $\frac{\kappa'}{100}$												19	0.42	
a_1													24.6	
													57.92	-9.9
													4.8	+8.2
			8.0		18	42.5	18	57.4	1.0	4.7	8.2	11.8	19	4.62
κ						44.8						-4.09		3.25
						47.6								84
(δ) - D) $\frac{\kappa'}{100}$						44.97						19	0.53	
a_2													2.44	
													58.09	-9.9
														+8.2

Runs

-4.26

75

-4.78

	$T_m - T_j$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	$8'$
d	+31.95 1.50447 9.76304 1.39170m	3 40.8	0.9	1017 43	50.85	38' 57.50	54 34 37.87		40	54 34 15.30	+12.36 8.10
((8) - D) $\frac{d'}{100}$											
-9.89 δ_1		43 2.54		34 0.6	43					34 3.60	
d	+24.12 1.38238 9.76307 1.26901m	3 47.3	6.4	1137 3	56.85	38 51.50	54 34 34.76		40	54 34 16.16	+12.44 7.66
((8) - D) $\frac{d'}{100}$											
-9.89 δ_2		43 2.57		34 0.9	29					34 3.92	
d	+28.85 1.46015 9.76054 1.34488m	3 53.0	12.2	1252 4	2.60	53 45.75	54 49 27.54		25	54 49 6.07	+12.66 8.40
((8) - D) $\frac{d'}{100}$											
-9.93 δ_1		45 27.78		48 52.1	29					48 54.67	
d	+24.26 1.38489 9.76054 1.26962m	3 56.9	16.1	1330 4	6.50	53 41.85	54 49 25.11		25	54 49 6.51	+12.68 7.90
((8) - D) $\frac{d'}{100}$											
-9.93 δ_2		45 27.82		48 52.1	63					48 54.61	
d	+10.98 1.04060 9.76484 0.92960m	3 31.5	51.5	830 3	41.50	29 6.85	54 24 48.69		50	54 24 40.79	+12.48 8.22
((8) - D) $\frac{d'}{100}$											
-9.87 δ_1		46 8.73		24 27.0	53					24 27.91	
d	+6.21 0.79309 9.76484 0.68209m	3 36.6	57.2	938 3	46.90	29 1.45	54 24 44.71		50	54 24 39.90	+12.44 7.66
((8) - D) $\frac{d'}{100}$											
-9.87 δ_2		46 8.77		24 25.4	39					24 27.86	
d	+41.11 1.61395 9.77285 1.51096m	4 18.9	38.1	570 4	28.50	43 19.85	53 39 1.69		35	53 38 29.86	+11.01 6.75
((8) - D) $\frac{d'}{100}$											
-9.78 δ_1		0 54.28		38 18.1	39					38 17.91	
d	+23.57 1.37236 9.77285 1.26937m	4 35.2	55.2	904 4	45.20	43 3.15	53 38 46.41		35	53 38 27.82	+11.21 6.43
((8) - D) $\frac{d'}{100}$											
-9.78 δ_2		0 54.34		38 15.6	27					38 15.45	
d	+21.55 1.33345 9.76021 1.21782m	2 35.6	55.5	911 2	45.50	55 2.80	54 50 44.64		25	54 50 28.73	+13.04 8.78
((8) - D) $\frac{d'}{100}$											
-9.93 δ_1		18 48.01		50 22.7	27					50 17.41	
d	+19.65 1.29336 9.76021 1.14773m	2 38.2	59.3	975 2	46.75	54 54.60	54 50 42.86		25	54 50 27.80	+13.02 8.24
((8) - D) $\frac{d'}{100}$											
-9.93 δ_2		18 48.16		50 21.1						50 17.84	

Date₁ = 1877 Feb. 28Observer
RecorderDate₂ = 1877 Feb. 29Observer
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				
6	32	0	53° 2'	9.0	6	31	500	32	25.2	28.7	32.2	35.6	320	32	34.14	3	
	30	38.2	16	9.0			53.5						-4.88	-	3.88		
	κ						56.0						2	-	.92		
	(δ) - D	$\frac{\kappa'}{100}$					53.17							32	27.34		
	a_1													-	12.54		
														-	24.78		
														-	7.78		
				9.0	32	9.3	82	24.4	28.0	31.3	34.7	38.2	32	31.32			
	κ						12.0						-4.03	-	3.25		
	(δ) - D	$\frac{\kappa'}{100}$					16.3							32	27.29		
	a_2						12.53							-	2.52		
														-	24.77		
	32	45	53 1	8.4	32	46.5	33	9.7	13.0	16.5	20.0	23.5	33	16.54	3		
	31	23.2	16	8.5			50.0						-4.88	-	3.88		
	κ						52.6						2	-	.92		
	(δ) - D	$\frac{\kappa'}{100}$					49.70							33	11.74		
	a_1													-	2.55		
														-	9.11		
														-	16.7		
				8.6	32	52.0	33	8.9	12.3	15.8	19.3	22.8	33	15.82			
	κ						54.0						-4.03	-	3.25		
	(δ) - D	$\frac{\kappa'}{100}$					56.0							33	11.79		
	a_2						54.00							-	2.52		
														-	9.27		
	56	29	54 41	8.8	56	47.8	56	58.3	1.8	5.2	9.0	12.5	57	5.36	84		
	53	8.4	42.2	8.2			56.8						-4.90	-	3.88		
	κ						58.8							-	.97		
	(δ) - D	$\frac{\kappa'}{100}$					50.80							57	0.98		
	a_1													-	2.90		
														-	57.60		
														-	56		
				8.8	56	34.4	56	57.7	1.3	5.0	8.3	11.9	57	4.84			
	κ						37.3						-4.08	-	3.25		
	(δ) - D	$\frac{\kappa'}{100}$					39.3							57	0.76		
	a_2						37.20							-	2.88		
														-	57.88		
7	0	43	53 24	9.0	7	0	86.2	1	10.0	13.4	16.9	20.3	24.0	1	16.92	4	
	59	22.5	25.3	9.0			88.6							-4.88	-	3.88	
	κ						41.4							4	.93		
	(δ) - D	$\frac{\kappa'}{100}$					38.73							1	8		
	a_1													-	12.08		
														-	2.87		
														-	9.24		
														-	20.1		
	58	53.8	53 28.5	8.5	0	19.4	0	40.7	44.4	48.0	51.1	54.7	0	47.78	1	16.22	
	κ						23.0						-4.05	-	3.25		
	(δ) - D	$\frac{\kappa'}{100}$					25.0							-	8.0		
	a_2						22.47							0	43.73		
				9.0	1	5.5	1	9.4	12.7	16.3	19.7	23.0	1	16.22	1	12.17	
							9.4						-4.05	-	2.85		
							5.50							-	40.88		
														-	9.32		
	3	51	52 15	9.4	3	36.7	4	17.5	20.9	24.3	27.7	31.0	4	24.28	5		
	2	32.1	16.7	9.5			39.8						-4.88	-	3.88		
	κ						41.9						1	-	.89		
	(δ) - D	$\frac{\kappa'}{100}$					39.47							-	8		
	a_1													4	19.48		
														-	2.84		
														-	16.67		
														-	62.3		
				9.3	3	48.2	4	16.7	20.1	23.5	26.7	30.2	4	23.44			
	κ						50.8						-4.01	-	3.25		
	(δ) - D	$\frac{\kappa'}{100}$					53.8							-	7.6		
	a_2						50.93							4	19.43		
														-	2.82		
														-	16.61		

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Runs

-4.26
-4.78

77

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+38.97 1.59073 9.77913 1.49402w	1' 15.4	36.4	518	16' 25.90	53 6' 22.45	15' 53' 1' 33.70				
(S) - D	$\frac{d'}{100}$					53 2' 4.29	-31.19			+10.94 6.68	
δ_1	-9.66 +5.62		32 15.12	1 29.2	16						
d	+18.79 1.27393 9.77913 1.17722w	1 30.9	52.4	833	16 41.65	53 6' 6.70	15' 53' 1' 34.92				
(S) - D	$\frac{d'}{100}$					53 1' 49.96	-15.04			+11.19 6.41	
δ_2	-9.66 +5.62	32 15.11		1 30.0	14						
d	+26.64 1.42878 9.77930 1.33224w	2 3.1	23.9	270	2 13.50	53 5' 34.65	15' 53' 0' 55.80				
(S) - D	$\frac{d'}{100}$					53 1' 18.69	-21.49			+14.99 6.73	
δ_1	-9.66 +5.76	32 59.51		0 51.6	14						
d	+21.82 1.33885 9.77930 0.24231w	2 5.4	26.4	318	2 15.90	53 5' 32.45	15' 53' 0' 58.24				
(S) - D	$\frac{d'}{100}$					53 1' 15.71	-17.47			+11.04 6.26	
δ_2	-9.66 +5.76	32 59.61		0 53.5	37						
d	+14.56 1.16316 9.76200 1.04932w	2 47.7	6.8	1145	2 57.25	54 44' 51.10	35' 54' 40' 22.34				
(S) - D	$\frac{d'}{100}$					54 40' 32.74	-11.20			+12.87 8.61	
δ_1	-9.80 +9.82	56 57 47.76		40 25.2	37						
d	+27.64 1.44152w 9.76200 1.32770w	2 87.2	57.3	945	2 47.25	54 45' 1.10	35' 54' 40' 23.09				
(S) - D	$\frac{d'}{100}$					54 40' 44.36	-21.27			+12.82 7.04	
δ_2	-9.80 +9.82	56.8 57 48.08		40 25.2	52						
d	+38.19 1.58195 9.77541 1.48152w	4 30.2	9.2	1194	4 59.70	53 27' 48.65	50' 53' 23' 0.78				
(S) - D	$\frac{d'}{100}$					53 23' 30.44	-30.31			+10.70 6.44	
δ_1	-9.62 +10.54	0 59.59		23 2.9	50 55.18						
d	+25.31 1.40329 9.77443 1.30218w	0 39.9	0.9	1008	0 50.40	53 31' 54.95	50' 53' 27' 24.16				
(S) - D	$\frac{d'}{100}$					53 27' 21.21-47x	-20.05			+11.82 3	+12.06 7.28
δ_2	-9.62 +10.54	10.72 0 10.8	31.4	422	0 21.10	53 27' 27.25	50' 53' 27' 24.16				
d	+10.72 1.03019 9.77558 0.52993w	0 10.8				53 23' 10.51	-25.10 8.51				
(S) - D	$\frac{d'}{100}$									+11.81 + 3.5	
δ_1	-9.46 +11.08	4 7.14		14 53.1	13.95						
d	+44.81 1.65137 9.78691 1.56244w	2 53.3	13.5	1268	2 3.40	52 19' 44.95	0 52' 14' 50.88				
(S) - D	$\frac{d'}{100}$					52 15' 26.79	-36.57			+9.66 5.40	
δ_2	-9.46 +11.08	4 7.15		14 53.0							
d	+32.51 1.51202 9.78691 1.42309w	3 3.0	24.9	279	3 12.45	52 19' 34.40	0 52' 14' 51.14				
(S) - D	$\frac{d'}{100}$					52 15' 17.66	-26.49			+9.93 5.15	
δ_3	-9.46 +11.08										

Date₁ = 1877, Feb. 28Observer
RecorderDate₂ = 1877, Feb. 29Observer
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
7	4 27 3 5.9	53° 49' 50.9	9.0 9.3	7 4 45.9 48.8 51.6 48.77	4 52.8	56.4	59.9	3.4	6.9 -4.88 7	4 - - 4	59.88 3.88 1.95 8 55.02 2.93 52.18 0.78	5	
	$(\delta - D) \frac{\kappa'}{100}$												
a_1													
κ			8.9	4 47.8 50.2 52.9 50.30	4 52.2	55.7	59.1	2.7	6.0 -4.06	4 - - 4	59.14 3.25 1.81 55.08 2.91 52.17		
	$(\delta - D) \frac{\kappa'}{100}$												
a_2													
5	48 4 33.8	50 1 2.5	8.7 9.0	5 49.4 52.2 54.7 52.10	6 16.6	19.9	23.3	26.4	29.6 -4.75 4	6 - - 6	23.16 3.88 1.82 8 18.43 2.75 15.78 6.67	5	
	$(\delta - D) \frac{\kappa'}{100}$												
a_1													
κ			9.2	5 52.0 54.9 58.6 55.17	6 15.9	19.1	22.3	25.6	28.8 -3.95	6 - - 6	22.34 3.25 1.70 18.39 2.73 15.66		
	$(\delta - D) \frac{\kappa'}{100}$												
a_2													
8	21 7 7.0	50 18 20.0	9.4 9.4	8 22.8 25.2 28.0 25.33	8 49.8	53.0	56.3	59.5	3.0 -4.705	8 - - 8	56.32 3.88 1.83 8 51.58 2.79 48.88 7.78	5	
	$(\delta - D) \frac{\kappa'}{100}$												
a_1													
κ			9.5	8 22.1 25.7 29.1 25.63	8 49.2	52.4	55.8	59.0	3.0 -3.96	8 - - 8	55.68 3.25 1.71 51.72 2.77 48.95		
	$(\delta - D) \frac{\kappa'}{100}$												
a_2													
9	18 8 4.1	51 43 44.6	7.2 7.7	9 21.7 24.3 27.2 24.40	9 47.6	50.9	54.3	57.5	0.9 -4.88 0	9 - - 9	54.24 3.84 1.88 8 49.44 2.87 46.57 5.87	5	
	$(\delta - D) \frac{\kappa'}{100}$												
a_1													
κ			7.8	9 29.2 32.0 35.0 32.07	9 46.7	50.0	53.4	56.8	0.2 -4.00	9 - - 9	53.42 3.25 1.75 49.42 2.85 46.57		
	$(\delta - D) \frac{\kappa'}{100}$												
a_2													
κ													
	$(\delta - D) \frac{\kappa'}{100}$												
a_1													
κ													
	$(\delta - D) \frac{\kappa'}{100}$												
a_2													

Runs

-426

-478

79

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+11.11 1.04541 9.77112 0.94099w	4 14.9	34.0	489	29 24.45	53 49	23.90		25	53 48' 57.61	+11.69 7.43
((δ) - D) $\frac{d'}{100}$							57.74 6.34 -8.73			= 88 + 12.20 + 40 - 14.7 48 50.34	
δ_1	-9.65 +11.16	4 42.43		49 1.5	29						
d	+8.84 0.94645 9.77112 0.84173w	4 16.1	36.2	523	4 26.15	53 49	22.20		25	53 48' 58.51	+11.76 6.92
((δ) - D) $\frac{d'}{100}$							54.6 -6.95			= 2 - 89 + 12.21 + 40 - 14.8 48 50.63	
δ_2	-9.65 +11.16	4 42.52		49 1.8	19						
d	+31.06 1.49220 9.80792 1.42428w	2 42.1	2.2	1043	2 52.15	50 4	56.20		15	50 00' 12.08	+7.45 3.19
((δ) - D) $\frac{d'}{100}$							38.07 38.64 -26.56			= .26 - 57 + 80.8 + 25 - 13.2 0 1.67	
δ_1	-9.20 +11.40	6 6.47		0 13.1	19						
d	+27.17 1.43409 9.80792 1.36617w	2 45.8	5.6	1114	2 55.70	50 4	52.65		15	50 00' 12.67	+7.49 2.71
((δ) - D) $\frac{d'}{100}$							35.91 -23.24			= .20 - 58 + 80.7 + 25 - 13.2 0 1.68	
δ_2	-9.20 +11.40	6 6.46		0 13.1	0						
d	+30.99 1.49122 9.80534 1.42072w	4 53.9	15.1	1310	5 5.50	50 22	42.85		35	50 17' 58.94	+7.32 3.06
((δ) - D) $\frac{d'}{100}$							24.69 25.29 -26.35			= .26 - 10.2 + 84.0 + 25 - 13.2 17 49.50	
δ_1	-9.22 +11.82	8 39.56		18 0.3	0						48.50
d	+30.05 1.47764 9.80534 1.40734w	4 56.6	14.9	1315	5 5.75	50 22	42.60		35	50 18' 0.31	+7.33 2.55
((δ) - D) $\frac{d'}{100}$							25.86 -25.55			= .24 - 10.2 + 83.9 + 25 - 13.6 17 49.26	
δ_2	-9.22 +11.82	8 39.73		18 1.1	35						
d	+29.84 1.47480 9.79208 1.39104w	4 57.4	18.5	1359	5 7.95	51 43	40.40		30	51 42' 58.23	+8.97 4.71
((δ) - D) $\frac{d'}{100}$							22.24 84 -24.61			= .24 - 10.2 + 99.3 + 30 - 13.8 42 49.14	
δ_1	-9.38 +11.98	9 37.19		43 1.1	35						
d	+21.35 1.32940 9.79208 1.24564w	0 3.1	25.6	287	0 14.35	51 43	34.00		35	51 42' 59.65	+10.06 5.28
((δ) - D) $\frac{d'}{100}$							17.26 -17.61			= .12 - 5 + 7.93 + 30 - 13.9 42 51.03	
δ_2	-9.38 +11.98	9 37.19		43 3.0							
d											
((δ) - D) $\frac{d'}{100}$											
δ_1											
d											
((δ) - D) $\frac{d'}{100}$											
δ_2											

March 4 - 4' 15.32" - .20 - 5.94
6 15.45 - .20
16

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+12.39 1.09307 9.80074 1.01429w	0 8.5	30.4	389	0 19.45	52 28.90 50 48 13.58 -10.33			30	50 48' 3.25 - 4 + 6 + 8.81 + 25 - 17.5 47 48.77 + 0.29	+8.96 +3.02
((8) - D) $\frac{d'}{100}$											
-9.42 δ_1 +2.36		13 33.01		47 51.1	30 7						
d	+29.35 1.46761 9.80074 1.38883w	4 54.1	13.6	1277	5 3.85	52 44.50 50 48 29.05 -24.48			25	50 48 45.7 - 23 - 101 + 913 + 25 - 17.6 47 55.40 49.91	+8.14 2.65
((8) - D) $\frac{d'}{100}$											
-9.42 δ_2 +2.36		13 33.02		47 52.3	12						
d	-14.13 1.15014 9.80716 1.07778 -19.43 1.28847 9.80716 -26.69 + 4.25 1.42635w 1.35414 + 20.72 + 15.25 1.31639 9.80731 1.24418w	2 44.0	4.4	1084	2 54.20	50 9 54.15 5 38.83 + 11.96 8 46.90 50 4 31.58 + 16.45			10	50 5 50.79 - 58 + 80.5 + 20 - 17.3 5 35.17 + 0.29 42.28 - 52.09 - 69 + 83.4 + 20 - 17.3 * 27.47 5 37.21	4 48.03 - .10 + 7.35 + 1.68 - 80 + 80.5 + 20 - 17.3 4 32.14 + 7.46 + 7.81 2.17 2.32 + 1.41
((8) - D) $\frac{d'}{100}$											
-9.33 δ_1 +2.50		3 51.5	11.4	1229	4 1.45				10		
d	+32.85 1.57654 9.78246 1.41948w	0 55.4	17.9	1333	1 6.65	52 46 41.70 52 42 26.38 -26.27			35	52 42 1.11 - .28 - 22 + 10.83 + 30 - 17.8 41 47.00	+10.63 46.9
((8) - D) $\frac{d'}{100}$											
-9.64 δ_1 +3.30		18 54.13		41 50.3	36						
d	+23.65 1.37383 9.78246 1.27677w	1 3.5	25.7	292	1 14.60	52 46 33.75 52 42 18.30 -18.91			35	52 41 59.39 - .15 - 25 + 11.23 + 30 - 17.9 41 47.42	+14.13 5.64
((8) - D) $\frac{d'}{100}$											
-9.64 δ_2 +3.30		18 54.07		41 50.7	14						
d	+32.51 1.51202 9.77930 1.41180w	1 57.3	19.1	1364	2 8.20	53 5 40.15 53 1 24.83 -25.81			15	53 0 59.02 - 27 + 43 + 11.18 + 30 - 17.1 0 46.76	+10.78 4.84
((8) - D) $\frac{d'}{100}$											
-9.66 δ_1 +5.76		32 59.52		0 52.5	14						
d	+37.67 1.57600 9.77930 1.47578w	1 54.9	15.4	1303	2 5.15	53 5 43.20 53 1 27.75 -29.91			15	53 0 57.84 - .37 - 42 + 11.57 + 30 - 17.2 0 46.52	+10.68 5.59
((8) - D) $\frac{d'}{100}$											
-9.66 δ_2 +5.76		32 59.52		0 52.3	10						
d	+33.47 1.52466 9.77812 1.42326w	0 22.2	44.1	663	0 33.15	53 12 15.20 53 7 59.88 -26.50			10	53 7 33.38 - .29 - 11 + 11.30 + 30 - 16.6 7 22.04	+14.20 5.26
((8) - D) $\frac{d'}{100}$											
-9.65 δ_1 +7.10		40 50.54		7 29.1	10						
d	+11.55 1.06258 9.77812 0.96118w	0 40.9	1.9	1028	0 51.40	53 11 56.95 53 7 41.50 -9.14			10	53 7 32.36 - 4 - 17 + 11.72 + 30 - 16.8 7 22.17	+14.81 6.32
((8) - D) $\frac{d'}{100}$											
-9.65 δ_2 +7.10		40 50.67		7 29.3							

Date₁ = 1877 March 4Observer
RecorderDate₂ = 1877 March 6Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_o	T_e	T_g	T_h	Sum	Mean	Red. to T_m	T
6	45 43	10 56.5	50 44 8.5 8.2	6	45 14.1 17.2 20.2 17.17	45 87.4	40.6	44.0	47.1	50.5 -2.69	45 43.92 1.91 .76 41.23 2.49 38.74		
	(8) - D	κ'_{100}											
	a_1												
			8.0	45	8.0 11.0 13.4 10.80	45 89.4 36.0	39.4	42.5	45.9	48.1 -1.33	45 42.58 0.49 .84 41.25 2.44 38.81		
	(8) - D	κ'_{100}											
	a_2												
			8.3	52	29.3 32.2 34.8 32.10	53 0.3	2.6	6.8	10.0	13.4 -2.70	53 6.82 1.91 .79 41.2 2.57 1.56		
	(8) - D	κ'_{100}											
	a_1												
			8.0	52	20.7 23.0 28.0 24.57	52 58.9	2.2	5.4	8.6	11.9 -1.34	53 5.40 0.49 .85 4.06 2.52 1.54		
	(8) - D	κ'_{100}											
	a_2												
			8.3	56	28.3 31.7 34.0 31.33	56 56.0	59.6	3.3	6.8	10.4 -2.81	57 3.22 1.91 9.0 0.41 2.80 57.61		
	(8) - D	κ'_{100}											
	a_1												
			8.8	56	26.5 30.4 32.9 33.27 29.93	56 54.9	58.3	1.8	5.6 5.6	9.0 -1.46	57 2.52 1.92 0.49 .97 0.46 2.75 57.71		
	(8) - D	κ'_{100}											
	a_2												
7	3 2	37 32.1	52 15 9.5 9.5	7	3 41.8 44.0 48.0 44.60	4 15.3	18.5	22.0	25.8	28.8 -2.74	4 22.02 1.91 .83 19.28 2.75 16.53		
	(8) - D	κ'_{100}											
	a_1												
			9.6	3	54.0 57.3 0.8 57.37	4 14.0	17.3	20.5	24.0	27.4 -1.38	4 20.64 0.49 .89 19.26 2.70 16.56		
	(8) - D	κ'_{100}											
	a_2												
			9.0	4	43.0 45.6 48.2 45.60	4 50.6	54.1	57.7	1.2	4.7 -2.79	4 57.66 1.91 .88 54.87 2.84 52.03		
	(8) - D	κ'_{100}											
	a_1												
			9.4	5	13.0 17.6 20.1 17.57	4 49.2	53.3	—	58.9	3.3 -1.44	4 56.42 0.49 .95 54.98 2.49 52.19		
	(8) - D	κ'_{100}											
	a_2												

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+26.75 1.42732 9.80136 1.34916w	4 26.0	47.1	731	34 36.55	50 48	11.80 56.48 -22.34		30	50 43 34.14	+7.96 +1.96
(δ) - D) $\frac{d'}{100}$											
-9.35 δ_1 +7.92		45 29.39		43 28.3						43 20.40 + 0.29	
d	+31.78 1.50215 9.80136 1.42399w	4 21.7	42.8	645	4 32.25	50 48 44 16.10 0.65 -26.55			30	50 43 34.10	+8.13 2.64
(δ) - D) $\frac{d'}{100}$											
-9.35 δ_2 +7.92		45 29.46		43 29.X						43 21.23	
d	+34.72 1.52058 9.80043 1.46149w	3 18.4	39.6	580	3 29.00	50 54 50 19.35 4.03 -26.94			25	50 49 35.09	+8.09 2.15
(δ) - D) $\frac{d'}{100}$											
-9.34 δ_1 +7.16		52 52.21		49 31.2						49 22.04	
d	+40.83 1.61098 9.80058 1.53204w	3 15.2	35.9	571	3 25.55	50 54 50 22.80 7.35 -34.04			25	50 48 33.31	+8.29 2.80
(δ) - D) $\frac{d'}{100}$											
-9.34 δ_2 +7.16		52 52.20		49 30.2						49 21.00	
d	+31.89 1.50365 9.76200 1.38613w	2 32.0	53.4	854	2 42.70	54 45 40 5.65 50.33 -24.33			35	54 40 26.00	+12.62 6.68
(δ) - D) $\frac{d'}{100}$											
-9.80 δ_1 +9.82		56 47.81		40 26.5						40 16.68	
d	+31.99 1.50501 9.76200 1.38749w	2 33.9	54.9	888	2 44.40	54 45 40 3.95 48.50 -24.41			35	54 40 24.09	+13.04 7.55
(δ) - D) $\frac{d'}{100}$											
-9.80 δ_2 +9.82		57 47.91		40 25.6						40 15.73	
d	+37.42 1.57310 9.78691 1.48049w	2 59.2	21.1	803	2 40.15	52 19 15 38.20 22.88 -30.23			0	52 14 52.65	+9.70 3.76
(δ) - D) $\frac{d'}{100}$											
-9.46 δ_1 +11.08		4 8.07		14 52.7						14 41.61	
d	+23.27 1.36680 9.78691 1.27419w	3 11.1	82.6	437	3 21.85	52 19 15 26.50 11.05 -18.80			0	52 14 52.25	+10.24 4.75
(δ) - D) $\frac{d'}{100}$											
-9.46 δ_2 +11.08		4 7.10		14 53.4						14 42.29	
d	+12.06 1.08135 9.77112 0.97295w	4 12.1	33.0	451	4 22.55	53 53 49 25.80 10.48 -9.40			25	53 49 1.08	+11.58 5.64
(δ) - D) $\frac{d'}{100}$											
-9.65 δ_1 +11.16		4 42.38		49 2.7						48 51.52	
d	21.15 1.32531 9.77095 1.21674	4 41.1	1.5	1026	4 51.30	53 52 48 57.05 41.60 16.47			25	53 48 58.07	+11.76 6.27
(δ) - D) $\frac{d'}{100}$											
-9.65 δ_2 +11.16		4 42.54		49 0.3						48 49.13	

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Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+41.45 1.61752 9.75658 1.52458m	2 35.8	5.2	930	2 46.50	20' 1.85	15 - 33.46		0	52 16 13.04	
(δ) - D	$\frac{d'}{100}$									- 46 + 10.42 + 30 - 13.6 + 3.23 + 1.85 + 0.29	+ 9.76 + 3.46
δ_1	-9.38 +13.92	21 12.87		15 17.2						16 15 11.87	
d	+29.53 1.47026 9.75658 1.34237m	2 46.6	7.9	1145	2 57.25	21.9 52 15 35.65	15 - 23.87		0	52 46 12.08	
(δ) - D	$\frac{d'}{100}$									- 23 + 10.47 + 11.33 + 30 - 13.8 + 3.06	+ 10.25 4.76
δ_2	-9.38 +13.92	21 12.92		15 17.0						16 15 11.87	
d	+24.09 1.38184 9.75658 1.27756m	2 59.6	21.3	1409	3 10.45	29 37.90	25 - 22.58		50	53 25 3.63	
(δ) - D	$\frac{d'}{100}$									- 15 - 63 + 11.66 + 33 - 13.9 + 55.02 + 0.19 + 3.11	+ 11.23 5.29
δ_1	-9.51 +14.16	22 42.49		25 9.2						24 55.02	
d	+5.01 0.69984 9.75658 0.59556m	3 15.3	36.4	517	3 25.85	29 22.50	25 - 7.05		50	53 25 27.64	
(δ) - D	$\frac{d'}{100}$									- 1 - 68 + 12.06 + 30 - 14.0 + 55.58	+ 11.67 6.18
δ_2	-9.51 +14.16	22 42.61		25 9.7						24 55.58	
d	+37.04 1.56867 9.75658 1.46045m	1 46.4	7.4	1138	1 56.90	51 51.45	45 - 36.13		25	53 44 72.6	
(δ) - D	$\frac{d'}{100}$									- 36 - 39 + 12.07 + 40 - 13.87 + 55.34	+ 11.72 5.78
δ_1	-9.56 +14.42	24 22.15		51 13.8						50 55.34	
d	+23.03 1.36229 9.74078 1.25355m	1 59.1	19.4	1385	2 9.25	55 39.10	51 - 23.65		25	53 51 5.72	
(δ) - D	$\frac{d'}{100}$									- 14 - 43 + 12.34 + 35 - 13.8 + 14.0 + 55.64	+ 12.32 6.83
δ_2	-9.56 +14.42	24 22.22		51 13.3						50 55.64	
d											
(δ) - D	$\frac{d'}{100}$										
δ_1											
d	-41.04 1.61321m 9.74250 1.50619	2 25.9	46.0	719	2 35.95	45 12.40	40 - 56.95		35	53 41 29.03	
(δ) - D	$\frac{d'}{100}$									- 44 - 52 + 12.35 + 35 - 15.7 + 15.70 + 20.76	+ 11.74 6.25
δ_2	-9.68 +10.42	0 16.64		41 30.6						41 25.56	
d											
(δ) - D	$\frac{d'}{100}$										
δ_1											
d											
(δ) - D	$\frac{d'}{100}$										
δ_2											

Date₁ = 1877, March 15
n = -63Observer W.A.R.
Recorder J.F.M.Date₂ = 1877, March 20
n = -53Observer W.A.R.
Recorder J.F.M.

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1877phae.p

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T			
52	40	54° 20'	8.5	6	52	395	52	53.3	58.8	23	6.0	9.4	53	2.36	3.56	Add +0.58 to (AP+m)
51	19.4	21.7	7.8									+6.85	+0.08	7.82	+7.82	Mar 15. 21-
κ																has been added
(δ) - D) κ'_{100}			9.4		52	463	52	56.4	59.9	3.6	7.2	10.7	53	9.28	10.48	to sum of the
α_1												+6.85		5.56	-2.44	constants and
														2.44	7.96	to final R.A.
														6.76		
κ			8.4		52	35.4	52	50.0	53.5	57.0	0.6	4.2	52	57.06	58.16	
(δ) - D) κ'_{100}			9.3		52	41.7	52	57.2	54.4	58.0	1.7	5.5	+	12.69	+12.69	
α_2												+11.95		7.4	10.11	
														5.56	-2.30	
												+11.95		53	9.01	7.81
														6.71		
7	4	26	54 51	9.1	7	4	21.0	4	43.8	47.4	57.0	54.5	4	50.96		
3	5.1	52.8	9.0				24.5							+	7.82	7.82
κ							28.4							-	8.9	
(δ) - D) κ'_{100}							24.63						4	57.88		
α_1														2.61	55.19	20
κ			9.2		4	48.7	4	38.8	42.3	45.8	49.3	53.4	4	45.92		
(δ) - D) κ'_{100}							50.3					+11.95		+	12.70	
α_2							52.5							-	7.5	
							50.50						4	57.87		
														2.47	55.40	
13	22	54 20	8.0	13	15.3	13	37.7	41.2	44.7	48.4	52.0	13	44.80			
12	2.4	21.6	8.0				18.8					+6.87	+	7.82	7.82	
κ							20.9							-	8.8	
(δ) - D) κ'_{100}							18.33						13	51.73		
α_1														2.69	48.97	8
κ			7.8		13	57.0	13	82.4	36.0	39.6	43.1	46.6	13	39.54		
(δ) - D) κ'_{100}							53.5					+11.97		+	12.71	
α_2							56.7							-	7.4	
							53.73						13	57.51		
														2.55	48.96	
14	33	54 55	9.0	14	32.2	14	48.8	52.5	56.0	59.7	8.2	14	56.04			
13	12.9	56.8	8.7				35.2					+6.85	+	7.82	7.82	
κ							38.1							-	8.9	
(δ) - D) κ'_{100}							35.17						15	2.96		
α_1														2.73	0.16	
κ			8.6		14	29.7	14	43.7	47.1	50.6	54.1	57.9	14	50.68		
(δ) - D) κ'_{100}							33.0					+11.96		+	12.71	
α_2							37.4							-	7.5	
							33.37						14	2.64		
														2.59	0.05	
17	4	53 2	9.2	16	57.1	17	16.4	20.0	23.4	26.9	30.2	17	23.38			
15	42.8	28	9.2				54.2					+6.91	+	7.82	7.82	
κ							57.2							-	8.4	
(δ) - D) κ'_{100}							54.17						17	30.35		
α_1														2.66	27.62	3
κ			9.0		16	54.6	17	11.2	14.4	18.0	21.4	25.0	17	18.00		
(δ) - D) κ'_{100}							57.0					+12.02		+	12.72	
α_2							59.7							-	7.0	
							57.10						17	30.02		
														2.53	27.49	

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Runs

Mar 15 - 1' 13.34 - .19 - 6.77
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	T _m - T	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
0.08 +m) 21 adul the -and R.A.	+22.86 1.35908 9.76554 1.24510m +1726 1.237041 9.76554 52 57.00 11.12306m 58.20	2 8.9	28.6	375	2 18.75	25 29.60 521 21 16.26 -17.58	25 29.60 521 21 16.26 -13.28		55	54 20 58.68 - .14 +12.56 - 44 +5.79 + 12.79 + 35 - 17.2 20 47.27	21 29.8 7 44 12.79 35 -17.2 20 51.68
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_1										
-9.77 +9.18	d	+21.66 1.33666 9.76554 1.22168m	2 9.8	30.7	405 2 20.25	25 28.10 54 21 13.93 -16.66	25 28.10 54 21 13.93 -12.66		55	20 57.27 - .12 +12.80 - 44 + 130.1 + 35 - 17.5 20 45.49	21 1.27 12.80 44 13.01 35 -17.5 20 49.54
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_2										
-9.77 +9.18	d	+26.33 1.42045 9.76554 1.30114m	1 57.2	178	1350 2 7.50	55 40.85 54 51 27.51 -20.00	55 40.85 54 51 27.51 -20.00		25	54 51 7.51 - .18 +13.15 + 40 + 10.83 + 40 - 16.6 50 57.29	51 7.51 13.15 40 10.83 40 16.6 57.29
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_1										
-9.77 +9.18	d	-4.58 55.42 0.6608m 9.76554 0.54156	2 19.4	40.3	597 2 29.65	55 18.50 521 51 4.33 -34.80 +3.48	55 18.50 521 51 4.33 -34.80 +3.48		25	51 7.81 - .11 +13.48 - 50 + 13.59 + 40 - 16.9 50 57.31	51 7.81 13.48 50 13.59 40 16.9 57.31
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_2										
-9.77 +9.18	d	+26.47 1.42275 9.76554 1.30913m	3 29.4	49.0	784 3 39.20	54 23.4 9.15 189 55.81 -20.38	54 23.4 9.15 189 55.81 -20.38		55	54 19 35.43 - .18 +12.25 - 29 + 12.77 + 35 - 15.9 19 25.61 25	19 35.43 12.25 29 12.77 35 15.9 25.61 25
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_1										
-9.77 +9.18	d	+20.87 1.31952 9.75949 1.19949m	3 11.8	31.3	431 3 21.55	54 59 26.80 55 13.46 -15.83	54 59 26.80 55 13.46 -15.83		20	54 54 57.63 - .11 +13.07 - 16.8 + 13.41 + 40 - 16.0 54 47.93	54 57.63 13.07 16.8 13.41 40 16.0 47.93
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_1										
-9.77 +9.18	d	+17.31 1.23830 9.75949 1.11824m	3 12.9	32.6	455 3 22.75	54 59 25.60 55 11.43 -13.13	54 59 25.60 55 11.43 -13.13		20	54 58.30 - .11 +13.34 - 16.6 + 13.67 + 40 - 16.4 54 48.16	54 58.30 13.34 16.6 13.67 40 16.4 48.16
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_2										
-9.77 +9.18	d	+29.21 1.46553 9.74896 1.36497m	0 24.9	46.2	711 0 35.55	53 7 12.80 2 59.46 -23.17	53 7 12.80 2 59.46 -23.17		15	53 2 36.29 - .22 +14.34 - 11 + 11.37 + 30 - 15.3 2 25.56	2 36.29 14.34 11 11.37 30 15.3 25.56
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_1										
-9.77 +9.18	d	+20.90 1.32015 9.74896 1.21959m	0 30.1	51.9	820 0 41.00	53 7 7.35 2 53.18 -16.58	53 7 7.35 2 53.18 -16.58		15	2 36.60 - .12 +14.64 - 12 + 11.58 + 30 - 15.7 2 25.46	2 36.60 14.64 12 11.58 30 15.7 25.46
-9.77 +9.18	(8) - D) $\frac{d'}{100}$										
-9.77 +9.18	δ_2										

Date₁ = 1877, March 15

Observer
Recorder

Date₂ = 1877, March 20

Observer
Recorder

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1877phae. p.

Star.	α	δ	Mag.	T_0	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T		
19	18	49° 55'	9.0	7	19	15.3	19	36.2	39.3	42.5	45.8	49.1	19	42.58	
κ		45	36.6			17.8						+7.01	+	7.87	74
(δ) — D						19.9							—	.74	
a_1						17.67							19	44.65	
													—	2.55	4
														43.08	

Runs

-6.77

-7.08

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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	+24.91 1.39637 9.80897 1.33160m	3 38.8	58.0	968	31 48.40	58 18' 59" 95	49 54' 16.61		20	49 54' 25.15	+7.28
((δ) - D) $\frac{d'}{100}$							-21.46			-7.92	+0.51
δ_1	-9.13 +13.66	19 37.91		54 25.4	23					+7.97	
d	+37.64 1.57565 9.80882 1.50495m	3 26.4	46.1	725	3 36.25	59 12.10	54 57.93		20	54 25.94	+7.26
((δ) - D) $\frac{d'}{100}$							-31.99			+8.12	+0.18
δ_2	-9.13 +13.66	19 37.88		54 25.2	22					+2.0	
d	+11.52 1.06145 9.79950 0.98143m	2 12.1	34.4	465	2 23.25	0 25.10	56 12.76		20	56 8.18	+8.83
((δ) - D) $\frac{d'}{100}$							-9.58			+9.08	+2.06
δ_1	-9.23 +13.94	21 25.87		56 2.8	22					+2.5	
d	+6.12 0.78675 9.79950 0.70673m	2 19.1	41.9	610	2 30.50	0 17.85	56 3.68		20	56 58.59	59.86
((δ) - D) $\frac{d'}{100}$							-5.09			+4.8	+9.01
δ_2	-9.23 +13.94	21 25.78		56 0.9	22		3.82			+7.25	+1.93
d	+24.24 1.38453 9.77541 1.28042m	4 31.6	51.6	832	4 41.60	28 6.75	53 23 53.41		50	53 23 34.34	
((δ) - D) $\frac{d'}{100}$							-19.07			+11.76	+11.5
δ_1	-9.51 +14.16	3 39.8	57.8	996	3 49.80	28 58.55	53 24 15.21		50	+3.0	+4.25
d	+33.20 1.52114 9.77541 1.41703m	4 21.4	42.6	640	4 32.00	28 16.35	53 24 2.18		50	+15.0	+4.38
((δ) - D) $\frac{d'}{100}$							-26.12			+11.76	
δ_2	-9.51 +14.16	3 5.9	26.9	328	3 16.40	29 31.95	53 25 19.78		50	+3.0	
d	+27.65 1.44140342m	0 46.9	6.8	1137	0 56.85	1 51.50	52 57 38.16		20	+2.0	+11.58
((δ) - D) $\frac{d'}{100}$							-21.78			+11.27	4.42
δ_1	-9.42 +15.36	30 3.25		57 21.6	20		22.06			+3.0	
d	+28.76 1.415879 9.77980 1.35907m	0 42.9	4.1	1070	0 53.50	1 54.86	52 57 40.68		20	+17.82	+11.39
((δ) - D) $\frac{d'}{100}$							-22.86			+11.48	4.31
δ_2	-9.42 +15.36	30 3.30		57 22.7	6					+3.0	
d	+34.07 1.53237 9.80626 1.45910m	1 2.2	22.1	243	1 12.15	16 36.20	50 12 22.86		5	50 11 54.08	+7.97
((δ) - D) $\frac{d'}{100}$							-28.78			+2.3	1.20
δ_1	-9.00 +18.34	48 50.04		12 1.4	6					+8.20	
d	+29.45 1.46909 9.80625 1.39582m	1 5.6	25.9	315	1 15.75	16 36.60	50 12 18.43		5	50 11 53.56	+8.20
((δ) - D) $\frac{d'}{100}$							-24.88			+2.3	+1.12
δ_2	-9.00 +18.34	48 50.11		12 0.3	6					+2.0	

Date₁ = 1877, March 15Observer
RecorderDate₂ = 1877, March 20Observer
Recorder

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1877phase: p

Star.	α	δ	Mag.	T_0	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T	
49 48 K	14 2.1	57 22 25.0	8.7 9.0	7	49 27.7 36.4 33.5 30.53	49 32.2	35.5	38.5	41.9	45.3 +7.00	49 + - 49	35.68 7.84 78 .79 45.70 2.91 42.767		
(8) — D														
α_1														
49 K			8.7	49	20.2 23.0 25.4 22.87	49 26.8	30.0	33.4	36.6	40.0 +12.08	49 + - 49	33.36 12.75 .67 45.14 2.79 42.65		
(8) — D														
α_2														
49 48 K	52 33.3	53 42 44.9	8.5 8.7	50	4.9 8.4 10.8 8.03	50 6.9	10.3	13.6	17.2	20.7 +6.92	50 + - 50	13.74 7.84 78 .86 20.69 3.03 17.63		
(8) — D														
α_1														
49 K			8.8	49	55.7 52.5 51.2 59.00	50 15	4.9	8.3	11.8	15.3 +12.03	50 + - 50	8.36 12.75 .72 20.39 2.91 17.48		
(8) — D														
α_2														
51 49 K	3 46.1	52 3 6.1	8.9 8.9	50	57.3 1.4 4.7 1.80	57 16.0	19.4	22.6	26.0	29.3 +6.98	51 + - 51	22.66 7.84 78 .81 29.66 2.95 27.68 26.69		
(8) — D														
α_1														
51 K			8.8	50	47.8 57.7 54.4 51.33	57 10.7	14.1	17.3	20.8	24.1 +12.07	51 + - 51	17.40 12.75 .68 29.47 2.83 26.64		
(8) — D														
α_2														
52 51 K	45 28.2	52 15 17.7	9.1 9.0	52	57.8 53.3 53.4 53.50	52 58.3	1.7	4.9	8.3	11.6 +6.98	53 + - 53	4.96 7.84 78 .81 11.96 2.98 8.956		
(8) — D														
α_1														
52 K			9.2	52	15.7 18.3 20.6 18.20	52 53.0	56.4	59.8	28	6.3 +12.08	52 + - 53	59.66 12.76 .68 11.74 2.87 8.87		
(8) — D														
α_2														
Single Observation														
March 15														
7 K	1.2 1.0	03 46.3	52 31 828	9.1 9.2	7	12 38 5.9 9.4 6.37	11 48.7	52.1	55.6	59.0	26 +6.93	11 + - 12	55.60 7.84 74 .82 2.59 2.58 58 59.945	
(8) — D														
α_2														

Runs

-6.77

-7.08

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
d	+8.15 0.91116 9.79542 0.82706m	1 4.0	25.3	293	14.65	26	33.70	1	0.5	51 22 13.65	
((δ) - D) $\frac{d'}{100}$						51 22	20.36			- 23	+9.56
-9.11 δ ₁							-6.71			+9.56	2.79
+18.44		49 33.66		22 22.4	86					+25	
d	+10.49 1.02078 9.79542 0.93668m	1 1.1	22.3	234	11.65	26	36.65		55	51 22 13.84	
((δ) - D) $\frac{d'}{100}$						51 22	22.48			- 23	+9.72
-9.11 δ ₂							-8.64			+9.72	2.64
+18.44		49 33.54		22 21.9	36					+25	
d	+5.71 0.75664 9.79542 0.64945m	1 3.1	24.0	271	13.58	46	34.80		35	53 42 17.00	
((δ) - D) $\frac{d'}{100}$						53 42	21.46			- 23	+12.15
-9.37 δ ₁							-4.46			+12.09	5.38
+18.54		50 8.26		42 27.8	36					+30	
d	+9.36 0.97128 9.79542 0.86409m	0 58.9	20.1	390	9.50	46	38.85		35	53 42 17.37	
((δ) - D) $\frac{d'}{100}$						53 42	24.68			- 23	+12.37
-9.37 δ ₂							-7.31			+12.33	5.29
+18.54		50 8.11		42 27.5	36					+30	
d	+20.86 1.31931 9.79542 1.22848m	4 24.8	44.0	688	34.40	8	13.95		10	52 3 43.69	
((δ) - D) $\frac{d'}{100}$						52 4	0.61			- 87	+9.62
-9.18 δ ₁							-16.92			+10.31	2.85
+18.72		51 17.51		3 52.8	14					+30	
d	+26.87 1.41614 9.79542 1.32531m	4 18.9	39.1	580	29.00	8	19.35		10	52 3 44.03	
((δ) - D) $\frac{d'}{100}$						52 4	5.18			- 86	+9.77
-9.18 δ ₂							-21.15			+10.51	2.69
+18.72		51 17.46		3 52.3	14					+30	
d	+11.46 1.05918 9.79542 0.96857m	3 43.6	34	1070	53.50	18	54.85		0	52 14 32.25	
((δ) - D) $\frac{d'}{100}$						52 14	41.51			- 3	+10.02
-9.18 δ ₁							-9.26			-74	3.25
+18.98		52 59.78		14 42.1						+10.49	
d	+41.46 1.61763 9.79542 1.52502m	3 17.3	37.6	549	27.45	19	20.90		0	52 14 33.23	
((δ) - D) $\frac{d'}{100}$						52 15	6.73			- 46	+9.91
-9.18 δ ₂							-33.50			+65	2.83
+18.98		52 59.69		14 42.0						+10.72	
d	-10.77 1.03222m 9.79542 0.93731	4 35.0	55.5	905	45.25	33	3.10		45	52 28 41.10	
((δ) - D) $\frac{d'}{100}$						52 28	49.76			- 3	+10.12
-9.45 δ ₁							+8.66			+10.74	3.35
+12.36		11 50.50		28 58.6						+30	
										-15.5	
										28 28.75	
										44.27	

Date₁ = 1877 March 24
N = -62Observer W.A.R.
Recorder J.F.M.Single Observations.
Date₂ =Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
14	33	54 53	9.0	7	14 11.7	14 40.0	43.7	47.4	50.9	54.5	14	47.30	
18	12.9	54 53	8.7		13.4					+15.38	+	16.26	
κ					17.9						-	.88	
(8) - D	κ'				15.00						15	26.8	
α_1											-	2.48	
												0.20	
17	4	53 06.52	9.4	16	43.8	16 59.3	24	6.0	9.5	12.9	17	6.02	
15	42.8	53 06.52	9.2		47.7					+15.47	+	16.26	
κ					50.4						-	.79	
(8) - D	κ'				47.30						17	21.49	
α_2											-	2.38	
												19.11	
22	44	54 53	9.1	22	21.1	22 53.8	57.2	0.6	4.0	7.7	23	0.66	
21	24.4	54 53	9.0		23.6					+15.38	+	16.26	
κ					27.0						-	.88	
(8) - D	κ'				23.90						23	16.04	
α_1											-	2.57	
												13.47	
8	10	42 53 58	7.5	8	10 21.6	10 46.7	50.1	53.6	57.2	0.5	10	53.62	
9	23.4	42 53 58	6.9		23.3					+15.42	+	16.28	
κ					28.0						-	.86	
(8) - D	κ'				24.97						11	9.04	
α_2											-	3.04	
												6.00	
13	4	53 29	8.8	12	43.9	13 12.6	16.0	19.4	22.9	26.6	13	19.50	
11	46.3	53 29	8.6		46.4					+15.44	+	16.28	
κ					49.0						-	.84	
(8) - D	κ'				46.43						13	34.94	
α_1											-	3.04	
												31.90	
13	59	53 24	8.5	13	57.6	13 59.4	2.8	6.4	9.8	13.1	14	6.30	
12	40.8	53 24	8.8		54.3					+15.44	+	16.28	
κ					57.8						-	.84	
(8) - D	κ'				54.57						14	21.74	
α_2											-	3.04	
												18.70	
15	16	54 53	8.3	14	54.8	15 21.4	25.1	28.7	32.2	35.8	15	28.66	
13	59.0	54 53	8.4		57.5					+15.40	+	16.28	
κ					0.3						-	.88	
(8) - D	κ'				57.53						15	47.06	
α_1											-	3.14	
												40.92	
19	16	53 24	8.7	8	18 43.4	19 20.5	23.9	27.4	31.1	34.4	19	27.46	
17	59.3	53 24	8.7		46.9					+15.45	+	16.29	
κ					49.5						-	.84	
(8) - D	κ'				46.60						19	42.91	
α_2											-	3.09	
												39.82	
κ													
(8) - D	κ'												
α_1													
κ													
(8) - D	κ'												
α_2													

Mar. 24 - 4' 13.52 - ".18 - 7.70

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Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+32.30 1.50920 9.75949 1.38947m	3' 0.5	21.4	219	23 3	59' 54	37.40 55 23.88 -24.50		20	54 54 59.38 - .27 - .58 +13.21 + .40 -16.7 54 47.79	+12.76 5.06
((8) - D) $\frac{d'}{100}$		14 50.4 15 0.45		55 0.6	16						
δ_1	-9.75 +12.86										
d	+18.72 1.27231 9.75902 1.18181m	1 15.4	37.2	526	1	52 6	22.05 2 8.53 -15.20		15	52 1 53.33 - .9 - .25 +10.11 + .30 -15.2 15.60 1 40.10	+4.07 2.37
((8) - D) $\frac{d'}{100}$											
δ_2											
d	+36.76 1.56538 9.76021 1.44607m	2 31.3	53.5	848	2	55 55	5.95 50 52.43 -27.93		25	54 50 24.50 - .35 - .47 +13.12 + .40 -16.1 50 13.38	+12.68 4.98
((8) - D) $\frac{d'}{100}$											
δ_1	-9.70 +14.22	23 3.77		50 27.6 49 59.2	20						
d	+28.65 1.45712 9.76957 1.34717m	0 16.1	37.8	539	0	53 58	21.10 58 7.88 -22.24		20	53 57 45.64 - .21 - .7 +12.21 + .30 -12.6 57 37.57	+12.23 4.53
((8) - D) $\frac{d'}{100}$											
δ_2	-9.24 +21.68	10 56.76		59.2 57 15.9	50						
d	+33.07 1.51943 9.77473 1.41464m	0 19.1	41.7	608	0	53 32	17.95 28 4.43 -25.98		50	53 27 38.45 - .28 - .9 +11.67 + .30 -12.2 27 30.15	+4.60 3.90
((8) - D) $\frac{d'}{100}$											
δ_1	-9.16 +22.04	13 22.74		27 52.77 35	35						
d	+11.73 1.06930 9.77558 0.96536m	0 12.6	34.9	475	0	53 27	24.60 23 11.08 -9.23		55	53 23 1.85 - .4 - .7 +11.59 + .30 -12.2 22 53.73	+11.78 4.08
((8) - D) $\frac{d'}{100}$											
δ_2	-9.14 +22.16	14 9.56		23 15.9	22						
d	+31.13 1.49318 9.75931 1.34297m	2 37.1	59.0	961	2	54 55	0 0.30 55 46.78 -23.60		20	54 55 23.18 - .25 - .50 +13.26 + .40 -12.5 55 15.89	+12.91 5.21
((8) - D) $\frac{d'}{100}$											
δ_1	-9.30 +22.36	15 31.62		55 38.2	55						
d	+40.86 1.61130 9.77558 1.50736m	0 41.6	3.2	1048	0	53 26	55.95 22 42.43 -32.16		55	53 22 10.27 - .44 - .16 +11.58 + .30 -11.7 22 2.15	+4.28 3.58
((8) - D) $\frac{d'}{100}$											
δ_2	-9.09 +22.94	19 30.78		22 25.1							
d											
((8) - D) $\frac{d'}{100}$											
δ_1											
d											
((8) - D) $\frac{d'}{100}$											
δ_2											

Date ₁ = 1877, Apr. 12										Date ₂ = 1877, April 15									
Observer W.A.R.										Observer W.A.R.									
Recorder J.F.M.										Recorder J.F.M.									
Star.	α	δ	Mag.	T_e	T_m	T_s	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T						
17	4	54	21	9.4	9	16	213	16	527	56.2	59.8	34	71	16	59.84	Add +0.56 to (22+m) Apr. 12. It has been added to sum of the constants and final R.T.			
15	50.4	246	9.3				244			+25.38	+1005	+	29.39	40	29.39				
(8) - D	κ'						274						17	28.20	3.16				
a_1							24.37							25.15	2506				
9.2							23.7						16	57.76					
κ							26.8			+30.45			+	31.41					
(8) - D	κ'						23.70						17	28.21	3.09				
a_2														25.12					
26	52	53	53	8.5															
25	38.6	57.2	8.2																
(8) - D	κ'																		
a_1																			
9.3							26	9.6	26	359	39.6	42.9	46.6	50.1	26	43.02			
κ							12.8							+30.46	+	31.41			
(8) - D	κ'						12.70												
a_2							26	17.8	26	36.5	40.1	43.4	47.0	50.5	26	43.02			
26	1.9	53	57.2	8.7			26	17.8	26	36.5	40.1	43.4	47.0	50.5	26	43.02			
43	30	53	33	8.9			27	18.2	26	58.9	23	5.9	9.4	12.7	27	13.98			
42	31.2	27.9	9.2				43	45.7	43	29.6	33.4	36.8	40.1	43	36.72				
(8) - D	κ'						48.2							+	29.39	40			
a_1							52.3												
8.8							49.07							44	5.10				
κ															3.35				
(8) - D	κ'														1.86				
a_2																			
43	3.2	43	27.5	8.12			43	3.2	43	27.5	8.12	34.8	38.0	41.7	43	34.64			
κ							6.3							+30.47	+	31.41			
(8) - D	κ'						9.7												
a_2							6.40							44	5.11				
50	31	53	53	8.3			49	46.6	50	20.9	24.4	28.0	31.4	35.0	50	27.94			
49	22.1	57.5	8.3				50.2							+28.38	+	29.39	40		
(8) - D	κ'						52.4												
a_1							49.73												
8.5																			
κ																			
(8) - D	κ'																		
a_2																			
51	0	54	0	8.9			57	21.4	50	44.5	48.0	51.9	54.9	58.4	50	51.54			
49	57.0	57.1	9.3				25.0							+28.38	+	29.39	40		
(8) - D	κ'						28.0												
a_1							24.80												
50	11.7	54	41	9.4			50	57.9	51	6.9	10.3	13.8	17.0	20.7	51	13.74			
κ							1.6							+30.46	+	31.41			
(8) - D	κ'						4.0												
a_2							1.17												

April 12 - 4 24.40 25.33 -17 -6.61
 15 26.49 46 -17 -6.65

-6.61
 -6.65

95

Runs

-8.57
 +30.42

-8.41
 +31.50

-8.41
 +31.50

-8.17
 +33.24

-8.17
 +33.24

-8.10
 +33.90

-8.10
 +33.90

-8.10
 +33.94

-8.10
 +33.94

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+35.47 1.521986 9.76572 1.436064	3 43.9	1.9	10.58	3 58 52.90	23' 52.19	55" 15		55	54 19 2.83	+12.04 5.43
((δ) - D) $\frac{d'}{100}$											
δ_1		1649 17 38.63		19 29.1	58 5						
d	+34.06 1.53224 9.76590 1.418624	3 43.4	0.4	4.38	3 58 21.90	23 54 19	56.15		55	54 19 3.77	+11.78 5.13
((δ) - D) $\frac{d'}{100}$											
δ_2		1655 17 33.69		19 29.3							
d											
((δ) - D) $\frac{d'}{100}$											
δ_1											
d	+22.45 1.35122 4.77078 1.242484	2 14.2	32.8	470	2 27 23.50	55 53	24.85		25	53 50 40.91	3441 50 44.7 50 45.41
((δ) - D) $\frac{d'}{100}$											
δ_1		37.0	55.4	924	2 46.20	55 53	24.85		25	53 50 40.91	3441 50 44.7 50 45.41
d	+30.80 1.48855 9.77078 1.374814	27 21.91		51 8.3	51 1.6	55 53	24.85		25	53 50 40.91	3441 50 44.7 50 45.41
((δ) - D) $\frac{d'}{100}$											
δ_1		12.35	2 24.9	440	689	2 34.45			45	53 30 58.26	+11.64 5.03
d	+28.24 1.45086 9.77422 1.345564	1 50.3	8.9	1192	1 59.60	35 53	118.75		45	53 31 0.13	+11.33 4.68
((δ) - D) $\frac{d'}{100}$											
δ_2		43 53.66		31 30.4							
d	+38.21 1.58218 9.77422 1.473442	1 43.5	3.2	1067	1 53.35	55 53	55.00		25	53 50 59.92	+11.78 5.17
((δ) - D) $\frac{d'}{100}$											
δ_1		50 44.81		51 32.3							
d	+34.33 1.53567 9.77078 1.426932	1 45.3	4.5	1098	1 54.90	55 53	53.45		25	53 51 0.27	+11.58 4.93
((δ) - D) $\frac{d'}{100}$											
δ_2		50 44.91		51 32.0							
d	-33.26 1.521924 9.76974 1.41214	0 19.9	40.3	602	0 30.10	53 56	18.25		20	53 56 25.23	+12.18 5.54
((δ) - D) $\frac{d'}{100}$											
δ_1		51 8.39		58 51.6							
d	+12.57 1.09934 9.76974 0.989564	1 36.4	54.7	911	1 45.55	53 56	2.80		20	53 56 26.58	+12.00 5.35
((δ) - D) $\frac{d'}{100}$											
δ_2		51 32.71		56 5.88							

Date₁ = 1877 April 12Observer
RecorderDate₂ = 1877 April 15Observer
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
52	22	53	44	7.5	9	51	53.1	52	9.7	13.2	16.7	20.2	23.7
51	13.1	49.2	7.5	51	53.1	52	9.7	13.2	16.7	20.2	23.7	+28.40	52
κ													16.70
(δ) - D	κ'												29.39
a_1													45.08
													3.43
													41.66
8.0	57	44.3	52	7.6	11.2	14.6	18.0	21.7	52	14.62			
κ													31.41
(δ) - D	κ'												45.09
a_2													3.36
													41.73
53	27	53	58	8.8	53	29	53	30.0	33.6	37.0	40.4	44.1	53
52	29.6	54	58	8.9	53	29	53	30.0	33.6	37.0	40.4	44.1	53
κ													37.02
(δ) - D	κ'												29.39
a_1													45.09
													3.43
													41.66
9.2	53	14	53	28.0	31.5	34.7	38.4	42.0	53	34.92			
κ													31.41
(δ) - D	κ'												45.09
a_2													3.36
													41.73
10	2	40	53	55	9.3	10	2	20.5	2	29.3	32.7	36.2	39.6
1	38.8	54	55	9.3	10	2	20.5	2	29.3	32.7	36.2	39.6	39.6
κ													43.3
(δ) - D	κ'												29.39
a_1													45.09
													3.43
													41.66
9.4	2	54.4	2	27.0	30.6	34.2	37.7	41.3	2	34.16			
κ													31.41
(δ) - D	κ'												45.09
a_2													3.36
													41.73
3	52	54	51	8.6	3	34.3	3	41.7	45.2	48.9	52.6	55.8	3
2	45.6	53.9	8.8	3	34.3	3	41.7	45.2	48.9	52.6	55.8	55.8	3
κ													48.84
(δ) - D	κ'												29.39
a_1													45.09
													3.43
													41.66
8.9	3	43.9	3	38.7	43.2	47.0	50.5	54.2	3	47.00			
κ													31.41
(δ) - D	κ'												45.09
a_2													3.36
													41.73
5	36	53	11	8.9	4	57.0	5	26.3	29.7	33.2	36.7	40.0	5
4	29.5	18.1	8.2	4	57.0	5	26.3	29.7	33.2	36.7	40.0	40.0	5
κ													33.18
(δ) - D	κ'												29.39
a_1													45.09
													3.43
													41.66
9.1	4	48.4	5	24.3	27.9	31.2	34.6	38.2	5	31.30			
κ													31.41
(δ) - D	κ'												45.09
a_2													3.36
													41.73

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	$8'$
d	+18.57 1.26881 9.44216 1.161452w	0 5.6	25.1	307 35 0	15.35	47' 33.00 53 43 5.60 7.67 -14.50	33.00 5.60 7.67 -14.50		35	53 42 53.17 - 4 + 12.04 + 30 - 6.5 42 52.27	+12.21 5.60
(8) - D) $\frac{d'}{100}$											
-8.07 δ_1 +34.06		52 33.60		43 26.3 35 13							
d	+27.29 1.43600 9.44216 1.32864w	4 56.6	14.8	714 2 2	35.70	47 42.65 53 43 16.16 19 -21.31	42.65 16.16 19 -21.31		30	53 42 54.88 - 19 + 11.81 + 30 - 6.9 42 52.38	+14.05 4.40
(8) - D) $\frac{d'}{100}$											
-8.07 δ_2 +34.06		52 33.66		43 26.4 20 20							
d	+31.42 1.49721 9.44216 1.38426w	0 3.7	22.5	262 0 0	13.10	2 35.25 53 58 49.85 9.92 -24.39	35.25 49.85 9.92 -24.39		20	53 57 45.53 - 26 + 12.31 + 30 - 6.5 57 44.74	+12.32 5.71
(8) - D) $\frac{d'}{100}$											
-8.06 δ_1 +34.18		53 53.89		58 18.9 57 10.6							
d	+30.35 1.48216 9.44216 1.34221w	0 3.2	21.5	247 0 0	12.35	53 58 36.00 9.51 54 -23.56	36.00 9.51 54 -23.56		20	53 57 45.98 - 24 + 12.08 + 30 - 6.9 57 44.54	+12.11 5.46
(8) - D) $\frac{d'}{100}$											
-8.06 δ_2 +34.18		53 53.94		58 18.7 24 24							
d	+12.35 1.09167 9.44216 0.98241w	3 54.9	13.4	1283 4 4	4.15	58 44.20 53 54 14.80 18.84 -9.60	44.20 14.80 18.84 -9.60		20	53 54 9.27 - 4 + 12.25 + 30 - 5.6 54 8.87	+11.87 5.20
(8) - D) $\frac{d'}{100}$											
-7.94 δ_1 +34.98		2 53.16		54 43.8 24 24							
d	-22.91 1.36003w 9.44216 1.25694	4 21.3	38.1	594 4 4	29.70	58 18.65 53 53 52.16 19 +18.07	18.65 52.16 19 +18.07		20	53 54 10.26 - 14 + 12.00 + 30 - 6.1 54 8.90	+14.39 4.74
(8) - D) $\frac{d'}{100}$											
-7.94 δ_2 +34.98		2 53.24		54 43.9 29 29							
d	+11.34 1.05461 9.44216 0.93566w	3 57.9	16.2	1241 4 4	2.05	53 48.30 54 49 21.40 15 24.97 - 8.62	48.30 21.40 15 24.97 - 8.62		25	54 49 12.35 - 7 3 + 13.26 + 35 - 5.8 49 12.847	+12.90 6.29
(8) - D) $\frac{d'}{100}$											
-7.98 δ_1 +35.08		4 5.72		49 42.9 29 29							
d	-0.43 9.63547w 9.44216 9.51452	4 6.6	22.4	290 4 4	14.50	53 33.85 54 49 7.36 1.36 + 0.33	33.85 7.36 1.36 + 0.33		25	54 49 7.72 - 0 + 12.98 + 35 - 6.3 49 7.39	+12.62 5.97
(8) - D) $\frac{d'}{100}$											
-7.98 δ_2 +35.08		4 5.86		49 42.5 9 9							
d	+32.48 1.51162 9.44216 1.41005w	4 22.6	42.1	647 4 4	32.35	13 16.00 53 8 5.60 50.64 -25.71	16.00 5.60 50.64 -25.71		5	53 8 24.96 - 27 + 11.42 + 30 - 5.2 8 23.83	+10.68 4.07
(8) - D) $\frac{d'}{100}$											
-7.85 δ_1 +35.24		5 50.27		8 59.1 9 9							
d	+39.30 1.59439 9.44216 1.49382w	4 15.7	33.1	488 4 4	24.40	13 23.45 53 8 57.46 49 -31.18	23.45 57.46 49 -31.18		5	53 8 26.31 - 41 + 11.18 + 30 - 5.6 8 24.38	+14.32 3.67
(8) - D) $\frac{d'}{100}$											
-7.85 δ_2 +35.24		5 50.42		8 59.6							

Date₁ = 1877 April 12Observer
RecorderDate₂ = 1877 April 15Observer
Recorder

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1877pae.pr

Star.	α	δ	Mag.	T_a	T_m	T_s	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
10	24	54	8.6	10	9	10	14.9	18.3	21.8	25.3	28.8	10	21.82
κ	12.6	12.8	9.0	54.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9	+	29.3940
$(\delta) - D$												10	50.19
α_1												-	3.56
												-	46.64
8.8	9	43.1	10	12.6	16.2	19.7	23.2	26.7	10	19.68	+	31.40	
κ												-	.88
$(\delta) - D$												10	50.73
α_2												-	3.50
												-	46.63
11	57	54	26	6.8	11	5.2	11	46.9	50.4	54.0	57.4	11	53.98
κ	10	52.1	22.9	7.0	8.1	11.0	8.10	12	22.34	+	29.3940		
$(\delta) - D$												-	.93
α_1												-	3.60
												-	18.75
6.9	11	14.7	11	44.9	48.3	52.1	53.5	58.0	11	51.96	+	31.40	
κ												-	.89
$(\delta) - D$												12	22.40
α_2												-	3.53
												-	18.87

Single Observations

Apr. 15	a_1	9	33	2	58	46	8.4	9	32	51.0	33	3.0	6.5	10.0	13.5	17.0	33	10.00
			31	48.1	50.3	9.0	54.5			57.2						+30.46	+	31.41
			32	5.1	53.1		54.23										-	.88
			$((\delta) - D) \frac{\kappa'}{100}$															
	a_2																33	40.46
																	-	7
																		3.21
																		37.25
Apr. 15	a_2	34	55	53	35	8.2	34	14	34	14.2	17.9	21.5	24.7	28.3	34	21.32		
		33	19.1	46.5	8.3	5.3	7.8	4.83						+30.47	+	31.41		
	κ														-	.87		
															-	7		
															34	51.79		
															-	3.22		
																		48.57
	$((\delta) - D) \frac{\kappa'}{100}$																	
Apr. 15	a_1	35	22	54	22	9.3	-	35	5.8	9.3	13.0	16.5	20.2	35	12.96			
		34	7.9	25.6	9.0	-	-	-	-	-	-	-	+30.45	+	31.41			
	κ													-	.89			
														-	7			
														35	43.11			
														-	3.26			
																		40.15
	$((\delta) - D) \frac{\kappa'}{100}$																	
	a_2																	
	κ																	
																</		

Runs

-6.61
-6.65

99

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+27.05 1.43217 9.46800 1.32065w	1' 14.9	34.5	494	1' 24.70	11'	23.65		16	54' 6' 37.40	
(8) - D) $\frac{d'}{100}$						54 6	59.25 58.32 -20.92			-19 -24 +12.50 +30 -50 6 38.16	+12.37 5.76
δ_1	-7.84 +35.62	10 38.80		7 13.8	11						
d	+33.65 1.52699 9.46800 1.41547w	1 8.7	25.6	343	1 17.15	11	31.20		10	54 6 38.71	
(8) - D) $\frac{d'}{100}$						54 7	4.74 -26.03			-29 -22 +12.23 +30 -5.5 6 38.58	+12.02 5.37
δ_2	-7.84 +35.62	10 38.79		7 14.2	50						
d	+45.88 1.66162 9.46501 1.547112	4 2.3	19.4	217	4 10.85	28	37.50		50	54 23 36.92	
(8) - D) $\frac{d'}{100}$						54 24	13.10 12.17 -35.25			-55 -71 +12.80 +35 -50 23 37.20	+14.89 5.28
δ_1	-7.84 +35.76	12 10.92		24 13.0	54						
d	+34.33 1.53567 9.46501 1.42116w	4 10.0	26.4	364	4 16.20	28	30.15		50	54 23 37.32	
(8) - D) $\frac{d'}{100}$						54 24	3.66 69 -26.37			-31 -73 +12.51 +35 -5.5 23 36.99	+14.82 5.17
δ_2	-7.84 +35.76	12 11.03		24 12.8							
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
d	+15.77 1.19483 9.47130 1.08961w	0 40.1	58.9	990	0 49.50	51	58.85		30	53 47 20.10	
(8) - D) $\frac{d'}{100}$						53 47	32.36 39 -12.29			-7 -14 +11.884 +30 -8.6 47 16.78	+14.93 5.28
δ_2	-8.32 +22.16	33 28.93		47 48.9	37						
d	+16.49 1.21722 9.47250 1.11020w	2 30.5	48.1	786	2 39.30	45	9.05		35	53 40 29.70	
(8) - D) $\frac{d'}{100}$						53 40	4.256 59 -12.56			-7 -49 +11.782 +30 -8.4 40 26.16	+14.51 4.86
δ_1	-8.30 +22.34	34 40.27		40 58.5	59						
d	9.46590	3 56.1	13.6	1297	4 4.85	23	43.50		55		
(8) - D) $\frac{d'}{100}$		14.1				54 19	17.04 04			-70 +12.41 +30 -8.5	
δ_2	-8.34 +32.40	35 31.81									
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
d											
(8) - D) $\frac{d'}{100}$											
δ_2											

535
Date₁ = 1877, Apr. 16
n = -70

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

536
Date₂ = 1877, Apr. 22 n = -67
Apr. 23 n = -82

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

100

1.877phae

Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
9	33 32 κ	18 5.1	53 49 52.1	9.0 9.0	9	32 28.3 31.8 35.3 31.80	33 2.2	5.8	9.2	12.9	16.3 +31.05	33 + - 33 -	9.28 32.01 .96 40.33 3.18 37.15
	(8) - D	$\frac{\kappa'}{100}$											
22	a_1												
	κ			8.8	33	23.5 26.3 29.4 26.40	32 59.9	8.7	71	106	141 +33.17	33 + 33 -	7.08 34.1408 .92 40.30 3.03 37.22
	(8) - D	$\frac{\kappa'}{100}$											
23	a_2												
	κ			8.8	33	24.2 27.4 31.4 27.67	32 59.3	2.0	64	100	134 +33.64	33 + 33 -	6.46 34.76 1.12 40.10 3.01 37.09
	(8) - D	$\frac{\kappa'}{100}$											
16	a_1												
	43 42 κ	22 13.6	54 41 45.1	5.8 5.0	42	26.7 30.1 32.1 29.63	43 8.8	12.1	15.8	19.4	23.0 +31.02	43 + - 43 -	15.82 32.01 .99 46.84 3.32 43.52
	(8) - D	$\frac{\kappa'}{100}$											
22	a_2												
	κ			5.4	42	38.5 42.6 45.5 42.53	43 6.6	10.2	13.5	17.1	20.6 +33.15	43 + - 43 -	13.60 34.1308 .94 46.79 3.16 43.589
	(8) - D	$\frac{\kappa'}{100}$											
23	a_1												
	κ			5.3	42	42.5 45.4 49.1 45.67	43 5.9	9.4	13.0	16.5	20.1 +33.60	43 + - 43 -	12.98 34.76 1.16 46.58 3.14 43.44
	(8) - D	$\frac{\kappa'}{100}$											
16	a_2												
	51 49 κ	0 57.0	54 0 5.1	9.1 9.3	51	32.3 35.7 40.7 36.03	50 4.6	45.0	—	—	— 48.5 48.6 +31.04	50 + - 51 -	48.55 32.01 .97 19.59 3.34 16.25
	(8) - D	$\frac{\kappa'}{100}$											
22	a_1												
	κ			9.2	50	20.3 24.1 27.4 9.7 12.9 16.3 12.97	50 39.4	42.8	46.3	49.9	53.6 +33.16	50 + - 51 -	46.40 34.208 .92 19.60 3.19 16.37
	(8) - D	$\frac{\kappa'}{100}$											
23	a_2												
	κ			9.2	50	20.3 24.1 27.4 23.93	50 38.8	42.2	45.6	49.3	52.9 +33.63	50 + - 51 -	45.76 34.76 1.13 19.39 3.16 16.23
	(8) - D	$\frac{\kappa'}{100}$											
16	a_1												
	59 58 κ	19 10.6	53 50 55.0	8.0 8.0	58	32.0 32.00	59 4.1	7.6	11.0	14.4	17.8 +31.05	59 + - 59 -	10.98 32.01 .96 42.03 3.29 38.74
	(8) - D	$\frac{\kappa'}{100}$											
	a_2												

Apr. 23 $n = -82$

Add +.007 to
($a_1 + m$) Apr 22.
It has been added
to sum of the com-
parisons and
final R.A.

Add +.007 to
(8) + m) Apr 22.
It has been added
to sum of the com
stants and
final R.A.

Runs		$T_m - T_S$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
April 16 - 4' 26.42											-6.67	
22 27.03											-6.97	
23 27.07											-6.73	
d		+37.48	0 23.2	41.2	644	0' 32.20	53 52	16.15		30	53 47 20.52	
(8) - D		1.54380					47	49.73			-37	+11.59
δ_1		9.77130						-29.21			-10	4.92
δ_2		1.48558									+11.76	
δ_3			33 28.83		47 49.0						+30	
δ_4											-8.6	
δ_5											47 16.84	
d		-10.32	1 5.9	25.8	317	1 15.55	53 51	32.50		30	53 47 20.53	
(8) - D		1.28601					47	5.47			-9	+11.91
δ_1		9.77144						+15.06			-21	4.94
δ_2		1.17496									+11.91	
δ_3			33 28.90		47 48.4						+30	
δ_4											-9.3	
δ_5											47 16.17	
d		-21.21	1 7.9	25.4	333	1 16.65	53 51	31.70		30	53 47 21.17	
(8) - D		1.32654					47	4.63			-11	+11.66
δ_1		9.77144						+16.54			-22	4.93
δ_2		1.21849									+11.69	
δ_3			33 28.77		47 48.9						+30	
δ_4											-9.4	
δ_5											47 16.70	
d		+16.19	4 18.4	33.9	523	4 26.15	54 43	22.20		35	54 38 26.44	20.51
(8) - D		1.66455					38	5.578			-55	+11.72
δ_1		9.76236						-25.77			-75	5.05
δ_2		1.54739						-35.27			+12.67	
δ_3			43 35.26		38 50.7						+35	
δ_4											-8.1	
δ_5											38 17.46	
d		+31.07	4 28.5	46.6	757	4 37.55	54 43	10.80		35	54 38 20.05	
(8) - D		1.49234					38	43.77			-25	+12.14
δ_1		9.76236						-23.72			-78	5.17
δ_2		1.37518									+12.82	
δ_3			43 35.33		38 49.6						+35	
δ_4											-8.8	
δ_5											38 16.42	
d		+27.31	4 31.9	48.2	801	4 40.05	54 43	8.30		35	54 38 20.38	
(8) - D		1.43632					38	41.23			-19	+11.94
δ_1		9.76236						-20.85			-80	5.21
δ_2		1.31916									+12.68	
δ_3			43 35.18		38 49.9						+35	
δ_4											-8.9	
δ_5											38 16.69	
d		-41.18	0 29.6	47.5	771	0 38.55	53 2	4.80		20	53 58 20.24	
(8) - D		1.67651					57	43.38			-58	+11.62
δ_1		9.76954						+36.86			-10	4.95
δ_2		1.56656									+11.95	
δ_3			51 8.15		58 51.8						+35	
δ_4											-7.3	
δ_5											53 58 17.89	
d		+33.43	4 23.8	42.8	666	4 33.30	53 3	15.05		15	53 58 22.08	
(8) - D		1.52111					58	48.02			-29	+11.34
δ_1		9.76939						-25.94			-78	4.37
δ_2		1.41401									+12.11	
δ_3			51 8.27		58 52.4						+30	
δ_4											-80	
δ_5											58 18.45	
d		+21.83	4 33.7	50.2	839	4 41.95	53 3	6.40		15	53 58 22.39	
(8) - D		1.33905					58	39.33			-13	+11.25
δ_1		9.76939						-16.94			-80	4.52
δ_2		1.22892									+11.88	
δ_3			51 8.13		58 52.8						+30	
δ_4											-8.1	
δ_5											58 18.81	
d		+38.98	4 57.2	13.9	1311	5 55.52	52	42.80		25	53 47 45.99	
(8) - D		1.59084					48	52.82			-40	+10.81
δ_1		9.77144						56.41			-87	4.14
δ_2		1.48279						30.39			+11.78	
δ_3			59 30.76		48 18.4						+30	
δ_4											-6.5	
δ_5											47 43.63	

Date₁ = 1877 Apr. 16 #Observer
RecorderDate₂ = 1877 Apr. 22 #Observer
Recorder

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2	Star.	α	δ	Mag.	T_a	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
9	59	19	53 50	8.4	9	58 34.8	58 1.8	5.0	8.7	12.2	15.7	59	8.68	-04
	58	106	53.0	8.0		38.2					+33.17	+	34.74	
	κ					40.4						-	.96	
	(S) - D	$\frac{\kappa'}{100}$				37.80						59	41.87	
	a_1											-	3.14	
													38.667	
23				8.0	58	29.4	59 1.1	4.6	8.1	11.6	15.0	59	8.08	
	κ					32.9					+33.65	+	34.77	
	(S) - D	$\frac{\kappa'}{100}$				35.6						59	41.73	
	a_2					32.63						-	3.12	
													38.61	
16	4	5	54 7	8.2	10	3 21.8	3 57.0	54.6	58.0	1.4	5.2	3	58.04	
10	2	08.1	12.3	8.0		24.0					+31.04	+	32.01	
	κ					27.5						-	.97	
	(S) - D	$\frac{\kappa'}{100}$				24.43						4	29.08	
	a_1											-	3.44	
													26.64	
22				8.2	3	22.7	3 48.8	52.3	53.8	59.3	2.8	3	55.80	
	κ					25.4					+33.17	+	34.74	
	(S) - D	$\frac{\kappa'}{100}$				29.4						4	.92	
	a_2					25.83						-	28.98	
													3.29	
													25.67	
23				8.3	4	3.8	3 48.2	51.9	53.4	58.9	2.5	3	55.38	
	κ					7.1					+33.64	+	34.77	
	(S) - D	$\frac{\kappa'}{100}$				10.1						-	1.13	
	a_1					7.00						4	29.02	
												-	3.27	
													25.75	
16	21	23	53 84	8.8	20	28.4	21 10.1	13.5	17.0	20.4	23.9	21	16.98	
	20	18.6	28.6	9.0		31.7					+31.06	+	32.01	
	κ					34.4						-	.95	
	(S) - D	$\frac{\kappa'}{100}$				31.50						21	48.04	
	a_2											-	3.52	
													44.52	
22				8.8	20	38.0	21 7.8	11.3	14.9	18.3	21.9	21	14.84	
	κ					40.6					+33.17	+	34.08	
	(S) - D	$\frac{\kappa'}{100}$				42.8						-	.91	
	a_1					40.47						21	48.02	
												-	3.38	
													44.63	
23				9.0	20	49.3	21 7.2	10.7	14.1	17.7	21.1	21	14.16	
	κ					57.0					+33.66	+	34.77	
	(S) - D	$\frac{\kappa'}{100}$				54.3						-	1.11	
	a_2					51.53						21	47.82	
												-	3.36	
													44.46	
16	25	29	53 23	9.0	24	40.2	25 12.7	16.0	19.6	23.0	26.5	25	19.56	
	24	23.7	28.2	9.0		43.0					+31.06	+	32.01	
	κ					45.8						-	.95	
	(S) - D	$\frac{\kappa'}{100}$				43.00						25	50.62	
	a_1											-	3.54	
													47.08	
22				9.5	24	49.3	25 10.6	14.2	17.4	20.9	24.5	25	17.52	
	κ					52.1					+33.19	+	34.08	
	(S) - D	$\frac{\kappa'}{100}$				55.1						-	.90	
	a_2					57.34						25	50.70	
						2.23						-	3.40	
													47.38	
23				8.7	24	44.4	25 10.1	13.4	16.8	20.3	23.8	25	16.88	
	κ					47.3					+33.68	+	34.78	
	(S) - D	$\frac{\kappa'}{100}$				47.3						-	1.10	
	a_2												47.19	
													50.56	
													- 3.37	

See 639 for continuation of

Runs

-6.67

-6.97

-6.73

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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	+3088 1.48968 9.74130 1.38146w	0 0.5	200	205	30 10.25	52 53 48	38.10 -11.68 11.07 -24.07		30	53 47 47.00 -25 -3 +11.93 +30 -7.8 47 44.68	+4.95 4.98
(δ) - D) $\frac{d'}{100}$											
-7.98 δ_1 +34.70		59 30.69		48 19.4	30 6						
d	+35.45 1.524962 9.74130 1.44140w	4 5.6	149	1225	5 12.25	52 53 48	49.10 14.44 12.53 -27.63		25	53 47 48.40 -33 -87 +11.72 +30 -7.4 47 45.09 4409	+10.82 4.09
(δ) - D) $\frac{d'}{100}$											
-7.98 δ_2 +34.70		59 30.63		48 16.8	12						
d	+33.61 1.52647 9.746814 1.41512w	2 11.5	278	393	2 19.65	10 54 6	28.70 +6.8 2.28 -26.01		10	54 5 36.27 -29 -39 +12.10 +30 -6.2 5 35.12	+14.72 5.05
(δ) - D) $\frac{d'}{100}$											
-7.93 δ_1 +35.08		4 17.71		6 10.2	12						
d	+29.97 1.47669 9.746814 1.36534w	2 12.4	307	431	2 21.55	10 54 5	26.80 6 59.77 -23.19		10	54 5 36.58 -23 -40 +12.27 +30 -7.0 5 34.75 55	+14.94 4.97
(δ) - D) $\frac{d'}{100}$											
-7.82 δ_2 +35.08		4 17.75		6 9.6	12						
d	-11.62 1.06521w 9.76835 0.95404	2 45.0	18	1068	2 53.40	54 9 5	54.95 27.92 27.88 +9.00		10	54 5 36.88 -4 -49 +12.04 +30 -7.1 5 34.86	+4.81 5.08
(δ) - D) $\frac{d'}{100}$											
-7.93 δ_1 +35.08		4 17.82		6 9.9	44						
d	+45.48 1.65782 9.74370 1.55200w	4 29.5	45.5	750	4 37.50	53 38 33	10.85 48.78 44.43 -35.65		40	53 33 8.78 -154 -78 +11.53 +30 -4.5 33 8.12	+10.51 3.84
(δ) - D) $\frac{d'}{100}$											
-7.65 δ_2 +36.48		21 36.87		33 44.6	44						
d	+34.37 1.53618 9.77370 1.43636w	4 34.7	529	876	4 43.80	53 38 33	4.55 37.52 -26.94		40	53 33 10.58 -31 -80 +11.69 +30 -5.5 33 8.99	+10.88 3.91
(δ) - D) $\frac{d'}{100}$											
-7.65 δ_1 +36.48		21 36.98		33 45.5	44						
d	+22.63 1.35468 9.77384 1.24983w	4 45.0	15	1068	4 53.25	53 37 33	55.10 28.03 -17.74		40	53 33 10.29 -14 -83 +11.46 +30 -5.6 33 8.75	+4.79 4.06
(δ) - D) $\frac{d'}{100}$											
-7.65 δ_2 +36.48		21 36.81		33 45.2	56						
d	+36.56 1.56301 9.77575 1.45924w	1 26.5	44.5	710	1 35.50	53 26 21	12.85 46.43 -28.79		55	53 21 17.64 -35 -27 +11.34 +30 -4.1 21 17.89	+11.02 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.50		21 54.6	56						
d	+25.29 1.40295 9.77575 1.29918w	1 32.5	51.7	842	1 42.10	53 26 21	6.25 39.22 -19.91		55	21 19.31 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_2 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35
(δ) - D) $\frac{d'}{100}$											
-7.58 δ_1 +36.76		25 39.73		21 55.8	56						
d	+29.75 1.47349 9.77575 1.26823w	1 28.7	46.5	752	1 37.60	53 26 21	16.75 42.68 -23.43		55	21 19.25 -17 -29 +11.48 +30 -5.1 21 18.86	+11.32 4.35

Date₁ =Observer
RecorderDate₂ =Observer
Recorder

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

1877mae.proj.1603R