

KG
11366
v.573

Zone Observations + Reduction

C 11

From Sept. 18, 1871 to Nov. 2, 1871

C11

Letm. 1471 to 1002 1471

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

((8) -

Runs

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

Log 15 tan i = 0.12669 for all dates in this book.

*When applied to Declinations, the sign is negative
or 0.12669u See also C 8*

Continued from C-10

Date₁ = Sept. 9, 1871

Observer A.M.

Date₂ = Sept. 14, 1871

Observer W.A.M.

Recorder W.A.R.

Recorder W.A.R.

Star.	α	Mag.	T_a	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
19	α_1 5 ^m 33 ^s 52 ^o 44 ^u	7.8	5 ^m	37.9	46.3	51.9	55.1	58.5	2.0	275.8	55.16	55.16
	κ 5 9.0 52 42.4	7.9		40.2						-22.04		21.42
				42.0								52
	(δ) - D) κ'_{100}			40.0								2
	α_2 Sept 9											5 33.12
												1.49
												31.63
19	α_1 6 ^m 19 ^s 52 ^o 05 ^u	8.6	6	23.2	37.0	40.3	43.5	46.9	50.3	21.80	43.60	43.60
	κ 5 55.6 52 3.8	9.2		24.6						-22.03		21.42
				26.6								51
	(δ) - D) κ'_{100}			24.8								8
	α_2 Sept 9											6 21.57
												1.52
												20.05
19	α_1 8 ^m 21 ^s 52 ^o 53 ^u	8.7	8	18.2	37.2	40.7	44.1	47.5	51.0	22.05	44.10	44.10
	κ 7 57.5 52 51.6	8.8		19.7						-22.05		21.42
				21.6								53
	(δ) - D) κ'_{100}			19.8								8
	α_2 Sept 9											8 22.05
												1.52
												20.51
19	α_1 10 ^m 58 ^s 52 ^o 26 ^u	9.1	10	53.0	11 14.8	18.0	21.5	24.8	28.2	10.73	21.48	21.48
	κ 10 34.4 52 24.4	9.0		54.6						-22.04		21.42
				56.3								52
	(δ) - D) κ'_{100}			54.6								8
	α_2 Sept 9											10 59.42
												1.56
												57.86
19	α_1 13 ^m 14 ^s 51 ^o 11 ^u	8.8	13	6.9	31.4	34.8	38.0	40.7	44.6	19.01	38.02	38.02
	κ 12 50.3 51 9.1	8.2		8.3						-22.01		21.42
				10.6								49
	(δ) - D) κ'_{100}			8.6								8
	α_2 Sept 9											13 16.01
												1.58
												14.43
19	α_1 14 ^m 19 ^s 51 ^o 07 ^u	7.5	14	14.5	32.4	40.4	43.6	46.8	50.3	21.55	43.70	43.70
	κ 13 55.8 51 0.7	7.4		15.8						-22.01		21.42
				17.4								49
	(δ) - D) κ'_{100}			15.9								8
	α_2 Sept 9											14 21.67
												1.58
												20.29
19	α_1 14 ^m 25 ^s 51 ^o 26 ^u	8.4										
	κ 24 52.4 51 24.4	8.2										
	(δ) - D) κ'_{100}											
	α_2 Sept 14											
19	α_1 48 ^m 03 ^s 50 ^o 37 ^u	8.0										
	κ 47 37.2 50 34.6	7.3										
	(δ) - D) κ'_{100}											
	α_2											
	κ											
	(δ) - D) κ'_{100}											
	α_2											

Sept. 7 +0' 49.03 +1.15

3

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+15.2 1.18184 9.78213 1.09066	4 29.0	28.1	39	28.55	43 52 44	19.80 8.83 -12.32		35	52 43 56.51 - 6 + 67 +10.60 + 39 -18.70 43 49.41	+11.60
d											
$((\delta) - D) \frac{d'}{100}$											
+554 δ_1 +0 22.64		5 34.14		44 12.0							
	+18.8 1.27416 9.78807 1.18922	2 53.5	52.0	17	52.75	4 52 5	55.60 44.63 -15.46		15	52 5 29.17 - 10 + 43 +9.96 + 36 -18.65 5 21.17	+10.65
d											
$((\delta) - D) \frac{d'}{100}$											
+570 δ_2 +0 22.88		6 25.75		5 44.0							
	+24.3 1.38561 9.78063 1.29293	4 53.5	52.9	29	53.20	52 53	55.15 44.18 -19.63		25	52 53 24.55 - 15 + 73 +10.80 + 39 -18.70 53 17.62	+11.74
d											
$((\delta) - D) \frac{d'}{100}$											
+553 δ_1 +0 23.56		8 26.04		53 41.2							
	+26.9 1.42975 9.78510 1.34154	2 8.2	6.3	57	7.25	52 25 26	41.10 30.13 -21.96		55	52 26 8.17 - 19 + 32 +10.32 + 37 -18.65 26 0.34	+10.82
d											
$((\delta) - D) \frac{d'}{100}$											
+566 δ_2 +0 24.44		11 3.52		26 24.8							
	+29.4 1.46835 9.77715 1.39219	2 18.1	16.1	12	17.10	51 18 11	31.25 20.28 -24.67		10	51 18 55.61 - 23 + 34 +9.03 + 35 -18.53 10 46.55	+9.49
d											
$((\delta) - D) \frac{d'}{100}$											
+598 δ_1 +0 25.24		13 20.41		11 11.8	17.10						
	+27.8 1.44404 9.77728 1.36851	12 2.3	20.2	16	20.75	51 6 7	24.60 13.63 -23.36		15	51 6 50.27 - 20 + 21 +8.92 + 35 -18.53 6 47.50 43.50	+9.28
d											
$((\delta) - D) \frac{d'}{100}$											
+6.00 δ_2 +0 25.56		14 26.01		7 9.1							
		3 52.5	50.3						35		
d											
$((\delta) - D) \frac{d'}{100}$											
δ_1											
		2 14.0	24.8						55		
d											
$((\delta) - D) \frac{d'}{100}$											
δ_2											
		1 36.4	43.8						55		
d											
$((\delta) - D) \frac{d'}{100}$											
δ_1											
d											
$((\delta) - D) \frac{d'}{100}$											
δ_2											

Do not copy in in Dr. list.

Date₁ = Sept. 18, '11
n = 60Observer W.A.R.
Recorder A.M.Date₂ = Sept. 21, 1911
n = 7.02Observer W.A.R.
Recorder A.M.

4

Star.	α	δ	Mag.	T_0	T_m	T_a	T_r	T_s	T_h	Sum	Mean	Red. to T_m	T
19 10	25 16 51 26	8.5	25	25.5	34.4	37.7	41.1	44.3	47.6	20.51	41.02	0.00	41.02
	24 52.4 51 24.0	8.2		30.1						-23.72	13.02	+0.02	23.181
	κ			29.4									2
	(8) - D) $\frac{\kappa'}{100}$												17.90
	α_1												-1.40
													16.49.51
													+6.04
													+0.29
22 29													
23 52			8.5	25	32.2	34.6	37.5	41.2	44.6	20.61	41.22	0.00	41.22
	κ				10.7					-23.47	48.02	+0.02	23.478
	(8) - D) $\frac{\kappa'}{100}$				13.0								2
	α_2				14.0								25
					11.7								17.75
													-1.31
													16.435
													6.48
19	26 16 51 53	9.0	26	32.3	23.7	27.1	30.4	33.9	37.0	15.21	30.42	0.00	30.42
	25 42.5 51 57.0	9.0								-23.12	13.02	+0.02	23.101
	κ												2
	(8) - D) $\frac{\kappa'}{100}$												26
	α_1												7.30
													-1.41
													26
													5.88
													90
													+5.9
													+0.2
			9.0	26	28.5	24.1	27.7	30.6	34.0	15.34	30.66	0.00	30.66
	κ				24					-23.46	47.02	+0.02	23.478
	(8) - D) $\frac{\kappa'}{100}$												2
	α_2												26
													7.22
													-1.31
													26
													5.902
													+5.9
													+0.2
19	28 25 50 48	9.5	28	35.1	29.4	8.4	11.5	14.9	18.1	5.78	11.56	0.00	11.56
	28 0.2 50 45.7	8.9		36.5						-23.72	13.02	+0.02	23.101
	κ			39.7									2
	(8) - D) $\frac{\kappa'}{100}$			37.2									28
	α_1												48.44
													-1.43
													28
													47.02
													+5.9
													+0.2
			9.2	28	20.7	43.4	46.5	50.1	52.1	24.92	49.54	0.00	49.54
	κ				22.3					-23.47	48.02	+0.02	23.478
	(8) - D) $\frac{\kappa'}{100}$				24.5								2
	α_2				22.6								298
													26.37
													-1.2934
													298
													26.024
													+6.3
													+0.3
19	30 14 51 45	9.2	30	17.1	33.9	37.8	40.2	43.5	47.0	20.16	40.32	0.00	40.32
	29 50.7 51 14.24	8.6		19.3						-23.12	13.02	+0.02	23.101
	κ			24.2									2
	(8) - D) $\frac{\kappa'}{100}$			19.3									30
	α_1												17.20
													-1.44
													30
													16.879
													81
													+6.0
													+0.3
			9.2	30	17.0	34.2	37.4	40.5	44.0	20.34	40.68	0.00	40.68
	κ				19.0					-23.46	47.02	+0.02	23.478
	(8) - D) $\frac{\kappa'}{100}$				21.9								2
	α_2				19.3								30
													17.22
													-1.35
													30
													16.86
													16.88
													+6.0
													+0.3
19	31 49 51 03	8.4	31	51.0	32.75	11.5	14.0	17.0	20.4	6.97	13.94	0.00	13.94
	31 24.8 51 1.3	8.1		53.3						-23.47	13.02	+0.02	23.101
	κ			54.7									2
	(8) - D) $\frac{\kappa'}{100}$			53.0									31
	α_1												50.82
													-1.406
													31
													49.357
													+6.0
													+0.3
			8.5	31	49.2	32.75	11.0	14.2	17.6	7.14	14.28	0.00	14.28
	κ				50.1					-23.47	48.02	+0.02	23.478
	(8) - D) $\frac{\kappa'}{100}$				49.6								2
	α_2												31
													50.81
													-1.37
													31
													50.43
													49.485
													+6.0
													+0.3

Sept. 18 +18' +11.22 +.01
 " 21 +0 55.05 +55 -1.02

55.05 has been used except for 18.24.44
 34.44
 19.12

Probably circle was loose during these observations
 Reject!

Runs	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke			
02	+18.6 1.06446 9.79494 0.98609m	3 12.9	22.3	58	17.60	51 24 25	30.75 12.68 9.67	55	51	24	3.01 - 4 + 3 + 9.35 + 30 - 19.85 25 50.78 + 0.24 26 0.79 - 23 - 5 + 9.44 + 30 - 20.20 25 47.76 55.24 50.84	✓ +9.64
	(8) - D $\frac{d'}{100}$											
	+60.4 +0 29.20	25 22.55		26 20.0								
02	+29.5 1.46982 9.79478 1.39129m	2 20.2	15.4	57	17.80	51 25 26	30.50 25.36 -24.62	53	26	0.79	✓ +9.51	
	(8) - D $\frac{d'}{100}$											
	+60.4 +0 29.20	25 22.49		26 26.0								
26	+8.1 -1.9 0.27875m 9.79063 0.19607	8 18.3	28.7	32 31	24.00	51 57 53	24.35 6.28 +15.77 +1.57	30	51	57	7.85 - 0 + 1 + 9.85 + 30 - 19.90 52 56.09	✓ +10.16
	(8) - D $\frac{d'}{100}$											
	+5.95 +0 29.44	26 11.85		53 25.5								
d	+1.9 0.27875 9.79063 0.19607m	2 36.3	33.0	30 31	34.65	51 52 53	13.70 8.51 -1.57	30	52	3	6.94 - 0 - 3 + 9.83 + 30 - 20.25 52 57.03	✓ +10.10
	(8) - D $\frac{d'}{100}$											
	+5.95 +0 29.44	26 11.87		53 26.5								
28	+34.4 1.53656 9.80058 1.46383m	4 42.8	52.9	34	47.85	50 48 48	0.50 42.43 -29.10	30	50	48	13.33 - 32 + 5 + 8.72 + 29 - 19.80 47 6.28	✓ +8.74
	(8) - D $\frac{d'}{100}$											
d	+27.2 1.43457 9.80074 1.36200m	1 2.6	2.7	36 36	20.5 20.5 20	50 46 47	45.70 40.51 -23.01	35	47	17.50 - 21 - 1 + 8.76 + 29 - 20.15	✓ +8.82	
	(8) - D $\frac{d'}{100}$											
	+6.22 +0 30.20	28 31.26		47 39.1								
36	+21.0 1.32222 9.79079 1.23970m	2 25.2	35.4	32 38 37	31.80	50 50 50	16.55 58.48 -17.38	30	51	50	41.11 - 12 + 3 + 9.85 + 30 - 17.90 45 29.09 45 29.09	✓ +9.93
	(8) - D $\frac{d'}{100}$											
	+6.02 +0 30.80	30 21.83		45 59.9								
d	+21.4 1.33041 9.79176 1.24886m	2 50.0	46.3	37	48.15	51 45 45	0.20 55.0480 -17.74	35	45	37.27 - 12 - 6 + 9.73 + 30 - 20.25 45 27.11	✓ +9.85	
	(8) - D $\frac{d'}{100}$											
	+6.02 +0 30.80	30 45.68		45 57.9								
34	+20.9 1.32015 9.79762 1.24446m	0 34.9	44.2	32 32	39.55	51 43 43	8.80 50.73 -17.56	15	51	43	33.17 - 12 + 1 + 9.07 + 30 - 19.85 38 20.56	✓ +9.26
	(8) - D $\frac{d'}{100}$											
	+6.20 +0 31.28	31 55.57		35 58.0								
d	+24.7 1.329270 9.79825 1.31764m	4 54.1	49.7	19 19	57.90	57 2 3	56.45 51.26 -20.78	15	57	2 3	30.48 - 16 - 10 + 8.99 + 30 - 20.20 34 19.55	✓ +9.03
	(8) - D $\frac{d'}{100}$											
	+6.20 +0 31.28	31 55.65		35 58.8								

The reduction in δ for Zone 120 is wrong except for stars - 19.24 52.4 Reg. - +0 53.60 instead of 19.34 45.4 +0 55.00; the values are correct. Note the error in Volume.

Date₁ = Sept. 18, 1871Observer W. A. R.
Recorder A. M.Date₂ = Sept. 21, 1871Observer W. A. R.
Recorder A. M.

6

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
1	32	47	51.47	8.2	33	3.4	4.8	8.1	11.3	14.7	18.0	569	11.38
	32	22.3	51.45.5	8.4								-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$												
a_1													
κ													
(8) - D	$\frac{\kappa'}{100}$												
a_2													
19	33	47	51.40	8.8	34	11.0	5.5	8.7	11.9	15.1	18.5	597	11.94
	33	22.5	51.38.0	8.9								-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$												
a_1													
κ													
(8) - D	$\frac{\kappa'}{100}$												
a_2													
				9.5	34	19.0	34.5	8.8	12.0	15.5	18.7	605	12.10
						22.4						-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$					20.7							
a_2													
19	35	10	51.53	9.2	35	23.9	27.4	31.2	34.1	37.4	40.7	1708	34.16
	34	45.4	51.54.2	9.5		27.4						-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$					34.2							
a_1						34.6							
κ						28.8							
(8) - D	$\frac{\kappa'}{100}$												
a_2													
				9.5	35	26.0	28.1	31.4	34.3	38.1	40.9	1728	34.56
						26.8						-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$					26.4							
a_2													
19	36	30	51.45	9.0	36	44.0	46.7	49.8	53.0	56.4	59.7	2656	53.12
	36	4.2	51.42.7	8.9		45.3						-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$					47.1							
a_1						45.4							
κ													
(8) - D	$\frac{\kappa'}{100}$												
a_2													
				9.0	36	49.4	46.8	50.2	53.5	56.8	60.0	2673	53.46
												-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$												
a_2													
19	38	23	51.34	9.2	38	29.0	40.5	43.5	46.9	50.4	53.8	2651	47.02
	37	57.1	51.31.6	8.9		30.7						-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$					29.8							
a_1													
κ													
(8) - D	$\frac{\kappa'}{100}$												
a_2													
				9.2	38	29.0	40.9	44.1	47.4	50.5	53.8	2667	47.34
												-23.12	13+02
(8) - D	$\frac{\kappa'}{100}$												
a_2													

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
20	+8.0 1.77815 9.79063 0.69547	0 33.4	46.3	35	39.85	51 54 49 546 50.43 49 - 4.96	8.50 48.41		30	51 57 - 2.02 47 - 45.47 + 1.013 + 2 + 9.82 + 30 - 19.90 33.689	✓ +10.13
d				✓ 35							
$(\delta) - D$											
+6.04 +0.3160		32 52.85		48 5.3 35		6			47 52 33.689		
16	+7.4 1.86923 9.79192 0.78784	0 56.1	52.8	35	54.45	51 48 43 53.90 48.71 6.14	48.71		35	43 48.57 7 - 2 - 2 + 9.71 + 30 - 20.30 43 32.48	✓ +9.97
d				25							
$(\delta) - D$											
+6.04 +0.3160		32 52.85		48 5.3 35							
16	+0.9 1.95244 9.79015 0.87108	3 37.1	49.3	28	43.20	51 54 54 5.15 47.08 39 5.15 - 7.43 - 7.47 - 7.4 - 1.75	5.15 47.08		25	51 54 48.71 - 0 + 4 + 9.90 + 30 - 19.90 40 34.33	✓ +9.96
d											
$(\delta) - D$											
+6.08 +0.3192		33 53.44		41 6.3							
16	-8.6 1.93450 9.79256 0.85375	3 12.4	15.0	43	13.90	51 39 40 36.65 29.46 + 7.14	36.65		40	40 36.60 - 2 - 6 + 9.66 + 30 - 20.30 40 26.42	✓ +9.88
d											
$(\delta) - D$											
+6.05 +0.3236		35 15.62		54 5.7							
40	+5.4 0.73239 9.78767 0.64875	0 34.2	47.4	30	40.80	51 58 57 7.58 49.48 4.45	7.58		25	51 58 45.03 - 1 + 1 + 9.95 + 30 - 19.90 58 33.36	✓ +10.25
d											
$(\delta) - D$											
+6.05 +0.3236		35 15.62		54 5.7							
40	+8.2 0.91381 9.79031 0.83081	4 40.7	48.8	29	39.75	51 53 54 8.60 3 3.44 57.00 - 6.77	8.60		25	51 53 56.64 - 2 - 9 + 9.90 + 30 - 20.30 53 46.67	✓ +10.09
d											
$(\delta) - D$											
+6.05 +0.3236		35 15.62		54 5.7							
34	+7.7 0.88649 9.79111 0.80429	4 6.8	19.2	39	13.00	51 48 49 3.535 45 17.28 - 6.07	3.535		30	51 49 10.91 - 2 + 4 + 9.78 + 30 - 19.90 49 59.09	✓ +10.10
d											
$(\delta) - D$											
+6.10 +0.3280		36 34.61		50 31.9							
34	+3.9 0.59106 9.79176 0.50951	3 35.8	33.4	38	34.60	51 44 45 13.75 8.66 - 3.23	13.75		35	45 5.33 - 0 - 7 + 9.73 + 30 - 20.30 44 55.23	✓ +9.96
d											
$(\delta) - D$											
+6.10 +0.3280		36 34.61		50 31.9							
32	+17.2 1.23553 9.79288 1.15510	0 14.9	27.2	50	21.05	51 37 38 27.30 9.23 - 14.29	27.30		45	51 38 54.94 3 - 8 + 0 + 9.60 + 30 - 19.90 38 42.84	✓ +9.82
d											
$(\delta) - D$											
+6.16 +0.3340		38 28.56		34 16.2							
11	+18.3 1.26245 9.79351 1.18265	4 38.8	36.2	49	37.50	51 33 34 10.85 5.66 0.45 - 15.23	10.85		45	33 50.42 - 9 - 9 + 9.52 + 30 - 20.30 33 40.04	✓ +9.64
d											
$(\delta) - D$											
+6.16 +0.3340		38 28.63		34 16.2							

Date₁ = Sept. 18, 1871

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

Date, = Sept. 21, 1871

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

Star.	α	δ	Mag.	T_0	T_m	T_e	T_s	T_g	T_h	Sum	Mean	Red. to T_m	T
1871phae.	40	16 51 41	8.8	40	19.7	34.7	38.0	41.2	44.5	48.0	206	41.28	40
κ	39	50.751	8.0		21.7						-23.12	13+02	40
$(\delta - D) \frac{\kappa'}{100}$					22.3							2	40
a_1					21.0							18.16	40
												1.53	40
												16.684	40
κ			9.0	40	18.1	35.0	38.2	41.5	44.8	48.2	2077	41.54	40
$(\delta - D) \frac{\kappa'}{100}$					19.5						-23.46	47+02	40
a_2					21.0							2	40
					19.5							18.08	40
												1.44	40
												16.685	40
19	42	45 51 21	8.0	42	43.0	43.27	5.9	9.2	12.6	15.5	462	9.24	43
κ	42	17.6	8.2		44.4						-23.12	13+02	43
$(\delta - D) \frac{\kappa'}{100}$					46.3							2	42
a_1					44.5							46.12	42
												1.55	42
												94.588	42
κ			7.8	42	48.3	48.28	6.2	9.2	12.8	16.1	471	9.42	43
$(\delta - D) \frac{\kappa'}{100}$					49.6						-23.47	48+02	43
a_2					51.7							2	42
					49.8							45.95	42
												1.416	42
												44.458	42
19	44	10 51 45	9.2	44	72	27.5	31.0	34.3	37.6	41.1	1715	34.30	44
κ	43	44.1	8.8		9.2						-23.12	13+02	44
$(\delta - D) \frac{\kappa'}{100}$					16.8							2	44
a_1					9.4							11.18	44
												1.56	44
												9.623	44
κ			9.0	44	12.2	27.9	31.2	34.5	37.9	41.2	1727	34.54	44
$(\delta - D) \frac{\kappa'}{100}$					13.7						-23.46	47+02	44
a_2					15.9							2	44
					13.9							11.08	44
												1.47	44
												58.62	44
												9.622	44
19	49	45 50 44	8.4	49	9.6	28.9	32.1	35.4	38.6	41.9	1769	35.38	49
κ	49	44.6	8.1		11.4						-23.12	13+02	49
$(\delta - D) \frac{\kappa'}{100}$					13.7							2	49
a_1					11.5							12.26	49
												1.60	49
												10.657	49
κ			8.4	49	11.1	29.3	32.4	35.7	38.7	42.2	1783	35.66	49
$(\delta - D) \frac{\kappa'}{100}$					11.6						-23.47	48+02	49
a_2					13.9							2	49
					11.8							12.19	49
												1.51	49
												12.69	49
												10.679	49
19	50	33 50 54	9.0	50	35.8	62.0	55.0	58.4	61.7	65.0	2921	58.42	50
κ	50	7.8	8.9		39.0						-23.13	13+02	50
$(\delta - D) \frac{\kappa'}{100}$					46.8							2	50
a_1					38.5							35.29	50
												1.61	50
												33.68	50
												.50	50
κ			9.0	50	29.8	52.2	55.3	58.6	61.9	65.1	2931	58.62	50
$(\delta - D) \frac{\kappa'}{100}$					31.5						-23.47	48+02	50
a_2					34.2							2	50
					31.8							35.15	50
												1.53	50
												33.68	50

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
26	d	+20.3 1.30750 9.79176 1.22595	2' 50.7	3.9	42	57.30	39 44 51 44	51.05 32.78 -16.82	30.96	35	51 48 ^{2.02} 16.16 -11 +9.73 +30 -17.90 4.19 4.1	✓ +995
	(8) - D) $\frac{d'}{100}$											
+6.16	δ_1		40 22.80		41	38.2					41 12.65 -13 -4 +9.68 +30 -20.30 4.1 2.40	✓ +981
+0 34.00												
	d	+22.0 1.34242 9.79240 1.26151	2 13.7	10.8	42	12.25	40 41 57 41	36.10 30.71 -18.26	31.70	40	41 12.65 -13 -4 +9.68 +30 -20.30 4.1 2.40	✓ +981
	(8) - D) $\frac{d'}{100}$											
+6.16	δ_2		40 22.81		41	36.9					41 12.65 -13 -4 +9.68 +30 -20.30 4.1 2.40	✓ +981
+0 34.00												
18	d	+24.7 1.39240 9.79478 1.31417	2 32.7	45.0	57	38.85	57 25 57 25	9.50 9.143 -20.61		55	51 28 30.82 -16 +3 +9.38 +30 -17.85 2.6 18.50	✓ +955
	(8) - D) $\frac{d'}{100}$											
+6.26	δ_1		42 50.84		21	53.3					21 26.97 -11 -4 +9.01 +30 -20.30 2.1 16.37	✓ +946
+0 34.80												
	d	+19.6 1.29226 9.79558 1.21453	2 0.7	55.9	1	59.50	57 20 57 21	48.55 43.56 -16.39	44.15	0	21 26.97 -11 -4 +9.01 +30 -20.30 2.1 16.37	✓ +946
	(8) - D) $\frac{d'}{100}$											
+6.26	δ_2		42 50.76		21	51.7					21 26.97 -11 -4 +9.01 +30 -20.30 2.1 16.37	✓ +946
+0 34.80												
24	d	+24.9 1.39620 9.79208 1.31497	4 36.8	47.3	39	42.05	57 43 57 43	6.30 48.23 -20.65		35	51 48 27.58 -17 +5 +9.69 +30 -19.90 4.8 15.53	✓ +987
	(8) - D) $\frac{d'}{100}$											
+6.19	δ_1		44 15.82		44	50.8					44 15.82 -12 -10 +9.69 +30 -20.30 4.3 10.69	✓ +977
+0 35.24												
	d	+20.6 1.31387 9.79192 1.23248	4 40.9	1.3 51.3	59	46.30	57 43 57 43	43.25 38.06 -17.08		35	43 20.98 -12 -10 +9.69 +30 -20.30 4.3 10.69	✓ +977
	(8) - D) $\frac{d'}{100}$											
+6.19	δ_2		44 15.81								43 10.69 -12 -10 +9.69 +30 -20.30 4.3 10.69	✓ +977
+0 35.24												
28	d	+23.9 1.37840 9.80182 1.30691	2 51.0	15.7	42	10.35	50 40 50 41	38.00 19.93 -20.27		40	50 48 59.66 -15 +2 +8.62 +28 -19.80 4.8 46.61	✓ +8.77
	(8) - D) $\frac{d'}{100}$											
+6.48	δ_1		49 17.15		42	23.6					48 46.61 -15 +2 +8.62 +28 -19.80 4.8 46.61	✓ +8.77
+0 37.00												
	d	+23.9 1.37840 9.80166 1.30675	1 26.2	23.9	41	25.05	50 41 50 42	23.30 18.14 -20.27	9.0	40	41 57.84 -15 -3 +8.64 +28 -20.26 4.1 46.57	✓ +8.63 +8.74
	(8) - D) $\frac{d'}{100}$											
+6.48	δ_2		49 17.17		42	24.1					41 46.57 -15 -3 +8.64 +28 -20.26 4.1 46.57	✓ +8.63 +8.74
+0 37.00												
20	d	+19.9 1.29885 9.80012 1.22566	1 32.5	41.7	31	37.10	50 51 50 51	11.25 53.18 -16.81		30	50 52 36.37 -11 +2 +8.79 +29 -19.85 5.2 23.49	✓ +8.99
	(8) - D) $\frac{d'}{100}$											
+6.46	δ_1		50 40.16		53	0.7					52 23.49 -11 +2 +8.79 +29 -19.85 5.2 23.49	✓ +8.99
+0 37.24												
	d	+26.8 1.42813 9.80058 1.35540	4 46.9	44.2	34 30	45.55	50 48 52 48	2.81 57.61 -22.67	58.40	30	48 34.94 -19 -10 +8.75 +29 -20.30 4.8 23.68	✓ +8.75 24.15
	(8) - D) $\frac{d'}{100}$											
+6.46	δ_2		50 40.09		53	1.4					48 23.68 -19 -10 +8.75 +29 -20.30 4.8 23.68	✓ +8.75 24.15
+0 37.24												

Date₁ = Sept. 18, 1871Observer M.A.R.
Recorder A.M.Date₂ = Sept. 21, 1871Observer M.A.R.
Recorder S.M.

Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
51	46	50 38	8.7	51	46.0	52 54	8.6	11.8	15.0	18.2	590	11.80	52 11.80
κ					48.0						-23.13	+02	52 23.101
					48.9								51 48.67
(δ) - D					47.9								51 47.057
a_1													
			8.4	51	46.2	52 55	8.9	12.2	15.3	18.6	605	12.10	52 12.10
κ					48.0						-23.47	+02	52 23.478
					50.3								51 48.63
(δ) - D					48.1								51 47.05
a_2													
19	53	12 50 34	6.5	53	6.8	31.8	35.0	38.0	41.6	44.7	1911	38.22	53 38.22
κ			6.2		8.7						-23.13	+02	53 23.101
(δ) - D					8.7								53 15.09
a_1													53 1.63
													53 13.488
													53 20.07
			6.5	53	11.5	32.0	35.3	38.4	41.8	45.0	1925	38.50	53 38.50
κ					13.0						-23.47	+02	53 23.47
					15.3								53 15.03
(δ) - D					13.2								53 1.55
a_2													53 13.48
													53 20.07
19	54	39 50 44	9.1	54	28.5	59.3	62.7	65.9	69.2	72.2	3293	65.86	55 65.86
κ			8.8		41.8						-23.13	+02	55 23.11
(δ) - D					42.0								54 42.73
a_1													54 1.65
													54 41.08
			8.9	54	34.9	59.6	62.7	66.0	69.3	72.6	3302	66.04	55 66.04
κ					35.0						-23.47	+02	55 23.47
					36.6								54 42.57
(δ) - D					38.8								54 1.6056
a_2					36.2								54 41.083
19	56	59 50 19	8.2	56	57.0	179	21.0	24.1	27.4	30.5	1209	24.18	57 24.18
κ			8.0		58.7						-23.13	+02	57 23.11
(δ) - D					58.7								57 1.05
a_1													56 59.99
			8.4	57	0.0	15.0	21.2	24.4	27.7	31.0	1223	24.46	57 24.46
κ					1.7						-23.47	+02	57 23.47
					3.7								57 0.99
(δ) - D					1.8								56 59.423
a_2													
19	58	26 50 12	7.8	58	26.5	45.1	48.5	50.6	54.8	58.0	2550	51.60	58 51.60
κ			7.8		22.2						-23.13	+02	58 23.11
(δ) - D					23.5								58 28.47
a_1					22.1								58 1.67
													58 26.82
			8.1	58	24.8	45.4	48.6	51.8	55.0	58.1	2589	51.78	58 51.78
κ					27.0						-23.47	+02	58 23.47
					29.6								58 28.31
(δ) - D					27.1								58 1.59
a_2													58 26.724

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
30	+23.9 1.37810 9.80244 1.30753m	1 34.0	44.3	46 5	39.15	367 36 8	920 54.13 20.30	49.11	45	50	38 2.02 38 30.83 - 15 + 2 + 8.52 + 28 - 19.80 38 17.68 38 4.24 38 29.14 - 15 - 10 + 8.58 + 28 - 20.30 38 17.74
d											✓ +8.67
(8) - D) $\frac{d'}{100}$											
+6.53 δ_1 +0.3760		51 53.60		38 55.8							38
40	+24.0 1.38021 9.80213 1.30903m	4 53.7	53.5	44	53.60	37 50 38	54.75 49.56 - 20.37		40	38 29.14 - 15 - 10 + 8.58 + 28 - 20.30 38 17.74	✓ +8.61
d											
(8) - D) $\frac{d'}{100}$											
+6.53 δ_2 +0.3760		51 53.63		38 55.9							
28	+29.5 1.46982 9.80305 1.39956m	0 24.2	34.3	50	29.25	32 50 33	19.10 1.03 - 25.09		50	50 35.94 - 23 + 0 + 8.48 + 28 - 19.80 33 22.65	✓ +8.53
d											
(8) - D) $\frac{d'}{100}$											
+6.56 δ_1 +0.3808		53 20.04		34 0.7							
40	+25.3 1.40312 9.80270 1.33271m	4 47.9	45.8	49	46.85	33 50 33	150 56.31 - 21.57	57.16	45	33 34.50 - 17 - 10 + 8.48 + 28 - 20.25 33 23.28	✓ +8.49
d											
(8) - D) $\frac{d'}{100}$											
+6.56 δ_2 +0.3808		53 20.06		34 1.9							
18	+23.9 1.37840 9.80197 1.30706m	3 30.4	42.5	43	36.45	39 50 39	11.90 53.83 - 20.28		40	50 39 33.55 - 15 + 4 + 8.58 + 28 - 19.80 40 20.48	✓ +8.75
d											
(8) - D) $\frac{d'}{100}$											
+6.56 δ_1 +0.3852		54 47.66		40 59.0							
40	+29.8 1.47422 9.80182 1.40273m	2 49.8	45.7	42	47.75	40 50 40	0.60 55.41 - 26.28	56.20	40	40 30.15 - 23 - 6 + 8.64 + 28 - 20.25 40 18.85	✓ +8.63
d											
(8) - D) $\frac{d'}{100}$											
+6.56 δ_2 +0.3852		54 47.59		40 57.8							
28	+25.5 1.40654 9.80534 1.33857m	0 44.9	55.9	5	50.40	16 50 17	57.95 39.88 - 21.81		5	50 18 18.07 - 17 + 1 + 8.21 + 26 - 19.80 18 4.56	✓ +8.31
d											
(8) - D) $\frac{d'}{100}$											
+6.66 δ_1 +0.3920		57 6.07		18 43.8							
40	+22.7 1.35603 9.80534 1.28806m	5 9.9	7.8	5	8.85	17 50 18	39.50 34.31 - 19.41	35.10	0	18 14.90 - 14 - 10 + 8.23 + 27 - 20.25 18 3.15	✓ +8.26
d											
(8) - D) $\frac{d'}{100}$											
+6.66 δ_2 +0.3920		57 6.09		18 42.9							
18	+29.5 1.46982 9.80641 1.40292m	2 13.4	24.8	12	19.10	10 50 11	29.25 11.18 - 25.29		10	50 18 45.89 - 23 + 2 + 8.10 + 26 - 19.75 11 32.27	✓ +8.15
d											
(8) - D) $\frac{d'}{100}$											
+6.71 δ_1 +0.3968		58 32.53		12 12.0							
40	+24.7 1.39270 9.80625 1.32564m	1 40.3	39.0	11	39.65	11 50 12	8.70 3.51 - 21.17	43.0	10	11 42.34 - 16 - 3 + 8.12 + 26 - 20.25 11 30.52	✓ +8.19
d											
(8) - D) $\frac{d'}{100}$											
+6.71 δ_2 +0.3968		58 33.15		12 10.7							

Date₁ = Sept-18, 1871Observer W. A. R.
Recorder A. M.Date₂ = Sept-21, 1871Observer W. A. R.
Recorder A. M.

12

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
59	30	50 49	9.7	1.5	57.461	49.4	52.5	54.7	57.3	2620	52.40	59 52.40	
		59 3.8	10.0	2.9						-23.13	+02	59 -23.11	
			9.5	4.8								59 -29.27	
(8) - D				3.0								59 -1.69	
a_1												59 27.58	
a_2													
59	30	50 49	8.9	39.8	49.5	52.7	56.0	59.3		23.47	+02	59 52.75	
		59 9.6	41.0	44.5								59 -23.47	
(8) - D				40.4								59 -29.28	
a_1												59 -1.60	
a_2												59 27.68	
20	1	04	9.2	23.5	22.1	26.2	29.4	32.7	36.2	1466	29.32	1 29.32	
		20 87.9	9.2							-23.13	+02	1 -23.11	
(8) - D												1 -2	
a_1												1 6.19	
a_2												1 -1.70	
												1 4.58	
20	1	04	9.0	58.8	1 23.0	26.1	29.6	32.6	36.0	1473	29.46	1 29.46	
				60.0						-23.46	+02	1 -23.46	
(8) - D				62.0								1 -2	
a_1				0.2								1 -6.00	
a_2												1 -1.61	
												1 4.98	
20	2	08	8.8	18.9	26.3	29.6	32.8	36.1	39.5	1643	32.86	2 32.86	
		20 41.1	8.1	20.3						-23.13	+02	2 -23.11	
(8) - D				22.0								2 -2	
a_1				20.4								2 9.73	
a_2												2 -1.71	
												2 8.035	
20	2	08	8.4	13.3	26.3	29.6	33.0	36.1	39.5	1644	32.88	2 32.88	
				14.7						-23.46	+02	2 -23.46	
(8) - D				15.1								2 -2	
a_1												2 9.46	
a_2												2 -1.62	
												2 7.8587	
20	4	0	9.0	55.1	4 16.0	19.4	22.8	26.1	28.5	1128	22.56	4 22.56	
		20 32.1	8.8	56.8						-23.13	+02	4 -23.11	
(8) - D				59.3								4 -2	
a_1				57.0								4 59.43	
a_2												4 -1.73	
												4 57.73	
20	4	0	8.3	59.0	4 16.1	19.4	22.8	26.2	29.6	1141	22.82	4 22.82	
				60.7						-23.45	+02	4 -23.45	
(8) - D				62.8								4 -2	
a_1				0.8								4 59.37	
a_2												4 -1.64	
												4 57.724	
20	5	2	8.9	16.6	21.3	24.4	27.6	30.8	34.2	1383	27.66	5 27.66	
		20 35.0	8.7	18.3						-23.73	+02	5 -23.14	
(8) - D				20.0								5 -2	
a_1				18.3								5 4.53	
a_2												5 -1.73	
												5 2.8x3	
20	5	2	8.8	1.4	21.2	24.4	27.7	31.0	34.3	1386	27.72	5 27.72	
				3.6						-23.46	+02	5 -23.46	
(8) - D				6.1								5 -2	
a_1				3.7								5 4.26	
a_2												5 -1.65	
												5 5.90	
												5 2.6x2	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
35- d	+49.4 1.69373 9.80089 1.62131m	1 15.8	24.0	36 35	19.90 29.08	50 46 47	28.45 +0.38 -41.81	48 19.27 48 59.18	35	50 46 22.02 38.57 - 46 + 873 + 29 -19.80 48 25.12	✓ 48 17.87 +8.37 48 5.94
(8) - D) $\frac{d'}{100}$											
+6.60 δ_1		59 34.20		48 48.9							
+0 39.96											
d	+12.3 1.08991 9.80074 1.01734m	0 18.0	15.3	35	16.65	50 47 48	31.70 26.51 -10.41	27.30	35	48 +0.24 16.10 - 4 - 1 + 876 + 29 -20.25 48 5.09	✓ 48 17.87 +9.00
(8) - D) $\frac{d'}{100}$											
+6.60 δ_2		59 34.30		48 45.6							
+0 39.96											
d	+5.8 0.46343 9.80012 0.69024m	1 24.7	34.1	31	29.40	50 51 52	18.95 0.88 -4.90		30	50 52 56.98 - 1 + 1 + 8.79 + 29 -19.61 52 48.24	✓ 48 17.87 +9.08
(8) - D) $\frac{d'}{100}$											
+6.60 δ_1		1 11.12		53 23.7							
+0 40.48											
d	+29.3 1.46687 9.80012 1.39368m	0 28.0	25.5	30	26.75	50 52 52 3	21.60 +6.41 -24.76	17.20	30	52 51.65 - 25 - 1 + 8.81 + 29 -20.30 52 40.45	✓ 48 17.87 +8.86
(8) - D) $\frac{d'}{100}$											
+6.60 δ_2		1 11.00		53 20.1							
+0 40.48											
d	+12.5 1.09691 9.80213 1.02573m	4 21.8	35.3	44	28.55	50 38 37	19.80 1.73 -10.61		40	50 38 51.12 - 4 + 4 + 8.58 + 28 -19.80 38 38.16	✓ 48 17.87 +8.86
(8) - D) $\frac{d'}{100}$											
+6.67 δ_1		2 14.72		39 18.9							
+0 40.76											
d	+17.8 1.25042 9.80213 1.17924m	3 41.0	49.7	43	40.35	50 39 39	37.22 57.81 -15.11	57.45 5305	40	39 42.70 - 9 - 7 + 8.61 + 28 -20.25 39 34.42	✓ 48 17.87 +8.73
(8) - D) $\frac{d'}{100}$											
+6.67 δ_2		2 14.54		40 17.2							
+0 40.76											
d	+25.6 1.40824 9.78445 1.31938m	3 22.1	34.1	53	28.10	52 24 30	20.25 2.18 -20.86		50	52 24 41.32 - 18 + 3 +10.54 + 30 -19.70 24 30.09	✓ 48 17.87 +10.69
(8) - D) $\frac{d'}{100}$											
+6.31 δ_1		4 4.04		31 11.4							
+0 41.32											
d	+22.0 1.34242 9.78445 1.25356m	2 48.5	45.4	52	46.95	52 30 30	14.0 56.21 -17.93		50	30 38.28 - 13 - 6 +10.58 + 30 -20.35 30 28.83	✓ 48 17.87 +10.66
(8) - D) $\frac{d'}{100}$											
+6.31 δ_2		4 4.05		31 10.2							
+0 41.32											
d	+9.4 0.97313 9.80027 0.90009m	1 45.8	56.6	31	51.20	50 50 51	59.15 39.08 -7.95		30	50 50 31.13 - 2 + 2 + 8.79 + 29 -19.75 52 18.42	✓ 48 17.87 +9.08
(8) - D) $\frac{d'}{100}$											
+6.66 δ_1		5 9.49		53 0.1							
+0 41.68											
d	+24.0 1.38021 9.80012 1.30702m	0 55.9	52.5	30	51.35	50 51 52	54.00 48.81 -20.28		30	52 28.53 - 15 - 2 + 8.85 + 29 -20.30 52 17.44	✓ 48 17.87 +8.97
(8) - D) $\frac{d'}{100}$											
+6.66 δ_2		5 9.28		52 5.7							
+0 41.68											

Date, = Sept, 18, 1871

Observer *M. A. R.*
Recorder *A. M.*

Date, = Sep 21, 1871

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

Ru

[illegible]

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
d	+3.1 0.49136 7.80534 0.42339m	0 17.3	28.6	5	22.95	50 17	25.40 7.33 -2.65		5	50 189 4.67 0 +8.21 +27 -19.75 18 51.38	+8.48
δ_1	+6.80 +0.4200	6 15.62		19 33.4							
d	+5.3 0.72428 9.80519 0.65616m	4 35.7	36.7	4	37.70	50 18	10.65 5.46 -4.53		0	19 0.93 -1 -9 +8.22 +27 -20.25 18 49.31	+8.39
δ_2	+6.80 +0.4200	6 15.40		319 19 31.3							
d	+8.0 0.90309 9.79160 0.82138m	2 38.8	51.2	37	45.70	51 45	3.35 4.528 -6.63		35	51 48 38.65 -2 +3 +9.74 +30 -19.80 45 26.88	+10.05
δ_1	+6.52 +0.4236	7 32.36		47 9.2							
d	+22.0 1.34242 9.79160 1.26071m	2 50.2	47.4	37 6	48.50	51 45	59.55 54.26 -18.23	55.10	35	45 36.73 -13 -26 +9.75 +30 -20.30 45 25.93	+9.86
δ_2	+6.52 +0.4236	7 32.31		47 8.8 8.3							
d	+6.6 0.81954 9.80701 0.75324m	1 18.4	29.3	16	23.85	50 7	24.50 6.43 -5.67		15	50 78 0.76 -1 +1 +8.01 +26 -19.70 7 47.31	+8.27
δ_1	+6.87 +0.4284	9 11.85		8 30.2							
d	+25.9 1.41330 9.80686 1.34685m	0 24.0	21.3	13	22.65	50 7	25.70 20.51 -22.23	21.30	15	7 58.28 -18 -1 +8.02 +26 -20.20 7 46.41	+8.09
δ_2	+6.87 +0.4284	9 11.72		8 29.2							
d	+23.5 1.37658 9.80244 1.30671m	1 2.8	12.1	46	7.45	50 36	40.90 22.83 -20.22		45	50 37 2.61 -15 +1 +8.53 +28 -19.70 37 49.56	+8.67
δ_1	+6.80 +0.4328	10 40.23		38 32.8							
d	+24.7 1.39240 9.80820 1.32259m	1 22.3	19.8	51	21.05	50 32	27.30 12.11 -21.02		50	31 51.09 -16 -3 +8.45 +28 -20.25 31 39.62	+8.54
δ_2	+6.82 +0.4384	12 40.99		41 6.5							
d	+26.1 1.41664 9.80197 1.34530m	3 26.9	38.1	43	22.50	50 39	15.85 57.78 -22.15	55.76	40	50 37 35.63 -18 +4 +8.58 +28 -19.70 40 22.63	+8.72
δ_1	+6.82 +0.4384	12 40.92		41 5.7							
d	+26.0 1.41497 9.80197 1.34363m	2 48.1	47.7	42	47.90	50 40	0.45 55.26 -22.06	36.05	40	40 33.20 -18 -6 +8.66 +28 -20.25 40 24.89	+8.70
δ_2	+6.82 +0.4384	12 40.92		41 5.7							

R.D.

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

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
15 d	+18.7 1.27184 9.80151 1.20004	4 54.2 5.0		28	59.60	50 42 43	48.75 30.68 -15.85		35	50 44 -2.02 14.83 -10 +5 +8.64 +29 -19.70 45 1.97 +0.24	Ex' 11.85 +8.88
(8) - D) $\frac{a'}{100}$											
+6.83 δ_1 +0 44.28		14 1.23		44 46.8	2						
16 d	+19.6 1.29226 9.80120 1.22015	3 10.2 14.8		38	15.50	50 44 45	32.85 27.66 -16.60		35	45 11.06 -11 -7 +8.71 +29 -20.23 44 59.87	Ex' 11.85 +8.82
(8) - D) $\frac{a'}{100}$											
+6.83 δ_2 +0 44.28		14 1.14		45 44.2							
16 d	+2.0 1.30103 9.80382 1.23154	0 42.3 53.0		55	47.65 32.34	50 27 27	0.70 42.63 -17.04		55	50 28 25.59 -0 +1 +8.07 +27 -19.63 278 1.57 278	+8.65
(8) - D) $\frac{a'}{100}$											
+6.90 δ_1 +0 44.72		15 35.69 16 13.51		29 26							
d	+27.8 1.44404 9.80366 1.37439	4 42.0 39.9		54	40.95	50 28 29	7.40 2.21 -23.68		50	28 38.53 -21 -9 +8.43 +27 -20.20 28 26.97	35.32 +8.40
(8) - D) $\frac{a'}{100}$											
+6.90 δ_2 +0 44.72		15 35.58		29 11.7							
20 d	+30.4 1.48284 9.80412 1.41368	2 18.2 30.7		57	24.45	50 25 26	23.90 5.83 -25.92		55	50 25 39.91 -25 +2 +8.37 +27 -19.45 25 26.85	+8.41
(8) - D) $\frac{a'}{100}$											
+7.20 δ_1 +0 49.64		32 58.00		27 16.5							
d	+17.6 1.24551 9.80377 1.17617	1 51.7 49.8		56	50.75	50 25 26	57.60 52.41 -16.00		55	26 37.41 -9 -4 +8.39 +27 -20.05 26 26.13	38.20 +8.53
(8) - D) $\frac{a'}{100}$											
+7.20 δ_2 +0 49.64		32 57.92		27 16.3							
18 d	+13.1 1.11724 9.77778 1.04174	1 12.2 23.7		16	19.95	51 6 7	30.40 12.33 -11.01		15	51 8 132 -5 +1 +9.07 +30 -19.50 49.13	+9.33
(8) - D) $\frac{a'}{100}$											
+7.09 δ_1 +0 49.92		33 58.41		8 39.05							
d	+21.8 1.33846 9.77762 1.26277	0 25.1 24.1		15	24.60	51 7 8	23.75 18.56 -18.31		15	8 0.25 -13 -1 +9.12 +30 -20.10 7 49.67	1.04 +9.28
(8) - D) $\frac{a'}{100}$											
+7.09 δ_2 +0 49.92		33 58.32		8 39.6							
12 d	+30.8 1.48855 9.80120 1.41644	2 51.8 59.8		37	55.50	50 44 45	52.55 34.48 -26.09		35	50 46 8.39 -25 +3 +8.70 +29 -19.45 45 58.69	+5.77
(8) - D) $\frac{a'}{100}$											
+7.18 δ_1 +0 50.24		35 10.39		46 45.9							
d	+24.1 1.38202 9.80105 1.30976	2 17.1 15.0		57	16.05	50 45 46	32.30 27.11 -20.41		35	46 6.70 -15 -5 +8.78 +29 -20.05 45 58.76	7.49 +5.87
(8) - D) $\frac{a'}{100}$											
+7.18 δ_2 +0 50.24		35 10.24		46 46.6							

Rur

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

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
10 d	+25.5 1.43933 9.78296 1.34898m	4 41.2	55.0	44	48.10	52 38 38	0.25 42.18 -22.33		40	52 38 38	+10.86
(8) - D) $\frac{d'}{100}$											
+686 δ_1		37 12.30		40 0.0							
+0 50.80											
10 d	+21.8 1.33846 9.78296 1.24811m	4 10.7	6.0	44	8.35	52 38 38	40.00 34.81 -17.71		40	39 17.10 17.89 -13 -8 +1074 +30 -2010 39 8.07	+10.86
(8) - D) $\frac{d'}{100}$				59.4 39 58.9							
+686 δ_1		37 12.22									
+0 50.80											
15 d	+28.5 1.45484 9.80305 1.38468m	0 8.0	18.8	50	13.40	50 32 33	34.95 16.88 -24.24		50	50 32 32	+8.57
(8) - D) $\frac{d'}{100}$											
+728 δ_1		38 59.29		34 31.1							
+0 51.28											
10 d	+27.2 1.48457 9.80270 1.36416m	4 30.2	29.1	49	29.65	50 33 34	18.70 14.81 -23.13		45	33 50.38 51.17 -20 -9 +85.7 +28 -2000 33 39.18	+8.56
(8) - D) $\frac{d'}{100}$				31.9 34 30.5							
+728 δ_1		38 59.19									
+0 51.28											
16 d	+8.2 0.91381 9.80166 0.84216m	0 58.0	7.8	40	29.0	50 42 42	45.45 27.38 -6.95		40	50 42 42	+8.94
(8) - D) $\frac{d'}{100}$											
+727 δ_1		39 57.49		44 59.5 39							
+0 51.52											
10 d	+23.3 1.36736 9.80105 1.29610m	3 4.8	3.5	38	4.15	50 43 43	44.20 39.01 -17.73		35	44 19.28 19.28 -14 -6 +873 +29 -2000 45 8.34 44	+8.82
(8) - D) $\frac{d'}{100}$				45 0.4 44 58.9							
+727 δ_1		39 57.64									
+0 51.52											
16 d	+25.9 1.41330 9.80136 1.34135m	4 19.0	33.2	39	26.10	50 43 44	22.25 4.18 -21.95		35	50 43 43	+8.84
(8) - D) $\frac{d'}{100}$											
+730 δ_1		41 22.77		45 21.6							
+0 51.92											
10 d	+23.7 1.37475 9.80120 1.30264m	3 45.4	44.1	38	44.75	50 44 44	3.60 58.41 -20.07		35	44 38.34 38.34 -15 -7 +873 +29 -19.35 44 27.43 44	+8.80
(8) - D) $\frac{d'}{100}$				45 19.9							
+730 δ_1		41 22.65									
+0 51.92											
22 d	+20.9 1.32015 9.80274 1.24958m	2 56.9	5.1	48	2.50	50 34 35	45.85 27.78 -17.77		45	50 34 34	+8.74
(8) - D) $\frac{d'}{100}$											
+734 δ_1		42 24.12		36 49.6 47							
+0 52.20											
10 d	+7.1 0.85126 9.80259 0.78054m	2 29.0	29.0	34	29.00	50 35 36	19.35 14.16 -6.03		15 45	36 8.13 8.13 -2 -5 +808 +28 -19.25 35 57.21	+8.79
(8) - D) $\frac{d'}{100}$				50.0 36 49.4							
+734 δ_1		42 24.07									
+0 52.20											

Date₁ = Sept. 18, 1871Observer W.A.R.
Recorder A.M.Date₂ = Sept. 21, 1871Observer W.A.R.
Recorder A.M.

20

1871phae.1

Star.	α	δ	Mag.	T_s	T_m	T_a	T_b	T_c	T_d	Sum	Mean	Red. to T_m	T
43	17 58 18	9.0	43	25.4	38.2	41.5	44.7	47.8	51.2	22 32 44.64	43	44.568	
κ				30.0						-23.13	11+02	-23.1109	
(8) - D				32.6								2	
α_1				30.3								43 21.35	
α_2												-2.02	
												43 17.557	
43		8.8	43	22.4	38.5	41.7	45.2	48.3	51.4	22 51 45.02	43	40.02	
κ				24.0						-23.45	46+02	-23.486	
(8) - D				26.6								2	
α_1				24.3								43 21.57	
α_2												-1.95	
												43 19.613	
47	07 50 56	6.2	47	6.0	25.6	28.9	32.3	35.5	38.8	16 11 32.22	47	32.22	
κ				6.8						-23.13	11+02	-23.4109	
(8) - D				9.5								2	
α_1				11.1								47 9.09	
α_2				8.3								-2.06	
												47 7.057	
47		6.8	47	2.8	25.9	29.1	32.4	35.7	39.0	16 21 32.42	47	32.42	
κ				4.2						-23.45	46+02	-23.486	
(8) - D				6.0								2	
α_1				7.1								47 8.97	
α_2				5.0								-1.989	
												47 6.989	
48	17 50 09	8.8	48	17.1	37.0	40.0	43.3	46.6	49.7	21 66 43.32	48	43.32	
κ				19.0						-23.13	11+02	-23.4109	
(8) - D				21.7								2	
α_1				19.2								48 20.19	
α_2												-2.06	
												48 18.157	
48		8.8	48	14.0	37.0	40.2	43.4	46.7	49.9	21 72 43.44	48	43.44	
κ				16.2						-23.45	46+02	-23.486	
(8) - D				18.2								2	
α_1				16.1								48 19.99	
α_2												-1.99	
												48 17.99	
49	50 50 46	9.4	49	50.2	50 9.7	12.9	16.1	19.4	22.8	8 09 16.18	50	16.18	
κ										-23.13	11+02	-23.4109	
(8) - D												2	
α_1												49 53.05	
α_2												-2.08	
												49 50.99	
49		9.0	49	45.3	50 10.1	13.1	16.7	19.9	22.9	8 26 16.52	50	16.52	
κ				51.5						-23.45	46+02	-23.486	
(8) - D				54.2								2	
α_1				51.3								49 53.07	
α_2												-2.01	
												49 51.057	
54	45 50 11	9.8	54	59.4	55 1.8	9.8	12.9	15.9	19.1	6 37 12.74	55	12.74	
κ										-23.13	11+02	-23.4109	
(8) - D												2	
α_1												54 49.61	
α_2												-2.10	
												54 47.529	
54		9.6	54	2.5	55.6	9.8	12.8	16.2	19.5	6 44 12.88	55	12.88	
κ				6.7						-23.45	46+02	-23.486	
(8) - D				12.8								2	
α_1												54 49.43	
α_2												-2.01	
												54 47.57	
												47.4644	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	8 +14.4 1.15836 9.80534 1.09339~	0 36.5	48.9	5	48.70	50 17	46.5 46.58 -12.40		5	50 17	-2.02 34.18 -5 +8.45 +1 +8.23 +26 -17.30 18 21.31 +0.24 32.21 -12 +8.30 -10 +8.25 +27 -19.70 18 20.06
$(\delta) - D) \frac{d'}{100}$											
+7.41 δ_1 +0 52.48		48 26.98		19 13.8							
d	+20.7 1.31597 9.80519 1.24785~	4 54.1	54.0	4	54.05	50 17	54.30 49.14 90 -17.69		0	18	31.42 -12 -10 +8.25 +27 -19.70 18 20.06
$(\delta) - D) \frac{d'}{100}$											
+7.41 δ_2 +0 52.48		48 27.04		19 13.1							
d	+23.9 1.37840 9.79965 1.30474~	2 53.3	6.3	27	59.80	50 54	48.55 30.48 -20.17		25	50 58	10.31 -15 +3 +8.87 +29 -19.25 58 58.08
$(\delta) - D) \frac{d'}{100}$											
+7.37 δ_1 +0 53.48		47 14.44		56 51.6							
d	+27.4 1.43775 9.79950 1.36394~	2 12.8	12.0	27	12.40	50 55	35.95 30.76 31.00 -23.12		25	56	7.64 -20 -4 +8.95 +29 -19.70 55 56.78
$(\delta) - D) \frac{d'}{100}$											
+7.37 δ_2 +0 53.48		47 14.86		56 50.5							
d	+24.1 1.38202 9.80701 1.31572~	0 - 1.3	10.3	16	4.50	50 87	43.85 25.78 -20.69		15	50 89	5.09 -15 +1 +8.02 +26 -19.20 86 52.01
$(\delta) - D) \frac{d'}{100}$											
+7.53 δ_1 +0 53.76		48 25.70		9 45.8							
d	+27.3 1.43616 9.80671 1.36956~	4 17.3	16.7	14	17.00	50 8	31.35 26.16 40 -23.42		10	9	2.74 -20 -9 +8.10 +26 -19.85 8 51.20
$(\delta) - D) \frac{d'}{100}$											
+7.53 δ_2 +0 53.76		48 25.54		9 45.5							
d	+26.0 1.41497 9.80120 1.34286~	2 46.5	57.7	37	52.10	50 44	56.25 38.18 -22.02		35	50 46	16.16 -18 +3 +8.71 +29 -19.20 48 3.79
$(\delta) - D) \frac{d'}{100}$											
+7.46 δ_1 +0 54.16		49 58.47		46 58.0							
d	+25.2 1.40140 9.80782 1.32681~	2 9.0	6.8	22	4.90	50 1	40.45 35.26 46 35.26 36.05 -21.22 -21.33		20	46	1.93 -17 +8.86 +29 -12.85 46 3.18
$(\delta) - D) \frac{d'}{100}$											
+7.46 δ_2 +0 54.16		49 58.53		46 57.9							
d	+13.3 1.12885 9.80656 1.05710~	3 23.2	34.4	13	28.80	50 9	19.55 1.48 -11.41		10	50 8	50.07 -5 +3 +8.12 +26 -19.10 10 37.81
$(\delta) - D) \frac{d'}{100}$											
+7.65 δ_1 +0 55.44		54 55.26		11 32.8							
d	+10.4 1.01703 9.80641 0.95013~	2 42.1	48.3	12	48.70	50 9	59.65 54.46 70 -8.92		10	10	45.54 -3 -6 +8.11 +26 -19.75 10 34.31
$(\delta) - D) \frac{d'}{100}$											
+7.65 δ_2 +0 55.44		54 55.11		11 32.8							

Date₁ = Sept. 15, 1871Observer M.A.R.
Recorder A.M.Date₂ = Sept. 21, 1871Observer M.A.R.
Recorder A.M.

22

1871phae.p

Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
20	56	54 50 51	8.7	58	56.7	57 16.5	18.7	22.0	25.2	28.5	109921.98	21.98	21.98
	κ	26.2 50 47.7	8.7		58.3						-23.13	11+02	-23.11+09
	(8) - D	κ'_{100}			60.6								2
	a_1				58.5								56 58.85
													-2.13
													56 56.74
	κ												22
	(8) - D	κ'_{100}											+7.8
	a_2												+0.5
	8.8	56	53.7	57 15.8	19.0	22.1	25.3	28.8	111022.20	22.20	22.20	22.20	
	κ				33.2								-23.456
	(8) - D	κ'_{100}			58.1								2
	a_2												56 58.75
					55.6								-2.06
													56 16.68
													56 58.90
													+7.6
													+0.3
20	58	09 50 22	9.5	58	31.0	30.5	36.3	39.5	42.4	181936.38	36.38	36.38	36.38
	κ	57 40.0 50 17.8	9.4		30.8						-23.13	11+02	-23.11+09
	(8) - D	κ'_{100}											2
	a_1												58 13.25
													-2.13
													58 12.71
													11.20
	κ												+7.6
	(8) - D	κ'_{100}											+0.5
	a_2												
	9.4	58	16.8	29.8	33.1	36.5	39.8	42.9	182036.70	36.70	36.70	36.70	
	κ				18.4								-23.456
	(8) - D	κ'_{100}			20.8								2
	a_2												58 12.95
													-2.06
													58 10.88
													90
													+7.6
													+0
20	59	09 50 18	8.5	59	16.2	29.4	32.6	35.7	38.9	42.0	178635.72	35.72	35.72
	κ	58 40.1 50 13.8	7.7		18.0						-23.13	11+02	-23.11+09
	(8) - D	κ'_{100}			20.7								2
	a_1				18.3								59 12.59
													-2.14
													59 10.48
													10.49
	κ												+7.6
	(8) - D	κ'_{100}											+0.5
	a_2												
	8.2	59	15.0	29.4	32.7	35.8	39.0	42.3	179235.84	35.84	35.84	35.84	
	κ				16.4								-23.456
	(8) - D	κ'_{100}			18.5								2
	a_2												59 12.39
													-2.07
													59 10.3x3
													+7.6
													+0.5
21	0	21 50 17	7.8	0	16.1	41.8	45.8	48.2	51.4	54.8	241248.24	48.24	48.24
20	59	52.2 50 12.6	8.1		18.1						-23.13	11+02	-23.11+09
	κ				20.0								2
	(8) - D	κ'_{100}			21.2								0 25.11
	a_1				18.6								-2.14
													0 22.99
													25.043
	κ												+7.6
	(8) - D	κ'_{100}											+0.5
	a_2												
	8.0	0	23.8	42.1	45.4	48.7	51.8	55.0	243048.60	48.60	48.60	48.60	
	κ				25.7								-23.456
	(8) - D	κ'_{100}			27.7								2
	a_2												0 25.15
													-2.08
													0 23.088
													+7.6
													+0.5
21	2	32 50 54	7.8	2	28.0	51.5	54.8	58.0	61.2	64.5	290058.00	58.00	58.00
	κ	2 1.5 50 50.4	7.4		29.7						-23.13	11+02	-23.11+09
	(8) - D	κ'_{100}			32.1								2
	a_1				29.9								2 34.84
													-2.17
													2 32.784
	κ												+7.6
	(8) - D	κ'_{100}											+0.5
	a_2												
	8.2	2	30.5	51.6	55.0	58.3	61.4	64.8	291158.22	58.22	58.22	58.22	
	κ				32.2								-23.456
	(8) - D	κ'_{100}			34.0								2
	a_2												2 34.77
													-2.11
													2 32.657
													+7.6
													+0.5

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
22	δ_1	2 35.0	47.5	32	43.75	50	50	4.60	30	50	-2.02 26.67 -14 +3 +882 +29 -19.05 14.60 +0.24
d		+23.5				50	50	46.53			+9.00
(8) - D	$\frac{d'}{100}$	1.37107 9.80027 1.29803						-19.86			
δ_1		57 4.34		52 10.6		50	50	51.80			
d		+26.6	2 37.8	55.3	38	50	50	4.80	30	50	34.13 -19 -6 +8.85 +29 -19.75 +0.51
(8) - D	$\frac{d'}{100}$	1.42488 9.80027 1.35184						56.64			+8.89
δ_2		57 4.28		52 9.5	10.1			-22.48			
d		+5.4	2 31.3	44.0	2	50	20	10.70	0	50	48.02 -1 +3 +8.29 +27 -19.00 35.58
(8) - D	$\frac{d'}{100}$	0.73239 9.80489 0.66397						52.63			+8.58
δ_1		58 18.70		22 31.9	37.65			-4.61			
d		+17.8	1 43.8	41.7	1	50	21	5.60	0	21	45.21 -9 -3 +8.38 +27 -19.70 34.28
(8) - D	$\frac{d'}{100}$	1.25042 9.80473 1.18184						5.44			+8.53
δ_2		58 18.59		22 20.6	31.1			-15.20			
d		+17.4	1 30.2	42.3	6	50	16	12.10	5	50	39.14 -8 +2 +8.23 +26 -19.00 26.55
(8) - D	$\frac{d'}{100}$	1.24055 9.80550 1.17274						54.03			+8.43
δ_1		59 18.21		18 23.1	36.25			-14.89			
d		+19.2	0 48.2	48.7	5	50	16	59.90	5	17	38.29 -10 -2 +8.28 +26 -19.65 27.30
(8) - D	$\frac{d'}{100}$	1.28330 9.80534 1.21533						54.71			+8.42
δ_2		59 18.05		18 23.8	48.45			-16.42			
d		+29.6	2 29.4	38.7	7	50	15	14.30	5	50	30.90 -24 +3 +8.19 +26 -19.00 18.12
(8) - D	$\frac{d'}{100}$	1.47129 9.80565 1.40363						56.23			+8.24
δ_1		0 30.77		17 15.0	34.05			-25.33			
d		+22.9	1 58.2	57.2	6	50	15	51.65	5	16	26.86 -14 -4 +8.27 +26 -19.65 15.80
(8) - D	$\frac{d'}{100}$	1.35984 9.80565 1.29218						46.46			+8.35
δ_2		0 30.82		17 12.7	56.70			-17.60			
d		+28.1	4 28.2	41.5	29	50	53	23.35	25	50	41.55 -21 +4 +8.88 +29 -18.95 29.58
(8) - D	$\frac{d'}{100}$	1.44871 9.79981 1.37521						5.28			+9.00
δ_1		2 40.42		55 26.9	25.6			-23.73			
d		+26.0	3 42.2	42.5	28	50	54	6.00	25	54	27.25 -18 -7 +8.92 +29 -19.65 +8.80
(8) - D	$\frac{d'}{100}$	1.41497 9.79965 1.34131						54.57			+8.96
δ_2		2 40.35		55 26.8	42.35			-21.94			

Date₁ = Sept. 18, 1875Observer W. A. R.
Recorder A. M.Date₂ = Sept. 21, 1871Observer W. A. R.
Recorder A. M.

24

Star.	α	δ	Mag.	T_a	T_m	T_s	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
2	m 4 3 κ	07 50 14 36.2 50 9.8	9.2 9.0	m 4	9.1 2.6 4.2	26.8	29.8	33.2	36.3	39.5	16 56 33.12 -23.13 11 +02	m 4 4 4	33.12 -23.1109 2 9.99 -2.176 7.82
	(δ) - D	$\frac{\kappa'}{100}$			2.6								
	α_1												
	κ		9.2	4	8.4 10.0 12.0	26.9	30.1	33.4	36.5	39.6	16 65 33.30 -23.45 46+02	4 + 4 4	33.30 23.486 2 9.85 -2.11 7.735
	(δ) - D	$\frac{\kappa'}{100}$			10.1								
	α_2												
21	5 5 κ	47 15.7 50 57.1	9.2 8.8	5	42.2 44.4 47.5	6 5.8	9.0	12.3	15.5	18.8	6 14 12.28 -23.13 11 +02	6 5 5	12.28 -23.1109 2 49.15 -2.19 46.98 47.00
	(δ) - D	$\frac{\kappa'}{100}$			44.3								
	α_1												
	κ		8.9	5	46.6 48.3 50.4	6 5.6	9.2	12.5	15.5	18.8	6 16 12.32 -23.45 46+02	6 + 5 5	12.32 -23.456 2 48.87 -2.13 46.735
	(δ) - D	$\frac{\kappa'}{100}$			48.3								
	α_2												
21	7 7 κ	39 7.7 50 30	9.6 9.2	7	39.4 41.4 43.0	41.4 58.9	4	62.0	68.1	68.2	11.4 32 56 65.12 -23.13 11 +02	8 7 7	5.12 -23.1109 2 41.99 -2.19 39.824
	(δ) - D	$\frac{\kappa'}{100}$			41.2								
	α_1												
	κ		9.3	7	47.1 50.0 53.6	58.9	62.1	65.3	68.4	11.6	32 63 65.26 -23.45 46+02	8 + 7 7	5.26 -23.486 2 41.81 -2.13 39.689
	(δ) - D	$\frac{\kappa'}{100}$			50.2								
	α_2												
21	9 8 κ	17 46.5 50 14.9	9.0 8.7	9	8.5 10.7 12.0	37.5	40.6	43.8	48.0	50.3	21 82 43.64 -23.12 11 +02	9 9 9	43.64 -23.1109 2 20.51 -2.21 18.324
	(δ) - D	$\frac{\kappa'}{100}$			10.4								
	α_1												
	κ		8.6										
	(δ) - D	$\frac{\kappa'}{100}$											
	α_2												
Sept 18	19 18 κ	10 51 52 46.0 51 50.7	7.8 7.6	19	10.6 12.2 14.1	27.7	31.0	34.4	37.7	41.0	17 18 34.36 -23.12 13+02	19 19 19	84.36 -23.101 2 11.24 -1.35 9.88 90
	(δ) - D	$\frac{\kappa'}{100}$			12.3								
	α_1												
Sept 18	19 22 κ	29 50 35 5.3 50 33.8	7.5 7.8	22	26.4 27.7 29.8	22 47.9	51.2	54.4	57.7	60.9	27 21 54.42 -23.12 13+02	22 22 22	54.42 -23.101 2 31.30 -1.38 29.923
	(δ) - D	$\frac{\kappa'}{100}$			27.9								
	α_2												

[illegible]

Date₁ = Sept. 18, 1871Observer *W.D.R.*
Recorder *A.M.*Date₂ = Sept 18, 1871
21Observer *W.D.R.*
Recorder *A.M.*

26

Star.	α	δ	Mag.	T_0	T_m	T_s	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
18	23 52 50 35	23 27.8	9.2	23 55.4	24 11.7	14.1	17.7	21.0	24.2	892	17.84	24 17.84	17.84
	κ		8.6	56.6						-23.12	13 +02	23 18.1	23 18.1
	$(\delta - D) \frac{\kappa'}{100}$			56.0								23 54.72	23 54.72
	α_1											23 53.32	23 53.32
Sept 18													
20	44 48 50 38	44 19.6	9.2	20 44.57	45 8.2	11.4	14.6	18.0	21.1	733	14.66	45 14.66	14.66
	κ			48.0						-23.12	13 +02	45 18.1	45 18.1
	$(\delta - D) \frac{\kappa'}{100}$			47.9								44 51.54	44 51.54
	α_2											44 49.49	44 49.49
Sept 18													
20	52 18 50 34	51 37.1	6.5	52 4.6	28.4	31.7	34.8	38.0	41.3	1743	34.86	52 34.86	34.86
	κ		6.2	6.7						-23.13	11 +02	52 37.1	52 37.1
	$(\delta - D) \frac{\kappa'}{100}$			6.5								52 11.73	52 11.73
	α_1											52 9.68	52 9.68
Sept 18													
20	53 19 50 34	52 47.8	9.4	53 10.4	39.6	42.7	45.9	49.1	52.4	2297	45.94	53 45.94	45.94
	κ		9.3							-23.13	11 +02	53 22.81	53 22.81
	$(\delta - D) \frac{\kappa'}{100}$											53 20.78	53 20.78
	α_2												
Sept 21													
19	45 37 51 59	45 11.6	9.1	45 45.2	43.2	46.4	49.7	53.2	56.4	2469	49.78	45 49.78	49.78
	κ		9.0							-23.46	47 +02	45 26.32	45 26.32
	$(\delta - D) \frac{\kappa'}{100}$											45 24.82	45 24.82
	α_1												
Sept 21													
20	16 23 51 04	15 56.3	9.0	16 21.4	16 39.1	42.4	45.7	48.7	52.0	2279	45.58	16 45.58	45.58
	κ		8.8	24.4						-23.46	47 +02	16 22.12	16 22.12
	$(\delta - D) \frac{\kappa'}{100}$			23.8								16 20.37	16 20.37
	α_2												
Sept 21													
20	26 12 50 07	25 45.4	6.8	26 11.3	31.8	35.0	38.2	41.5	44.8	1913	38.26	26 38.26	38.26
	κ		8.7	13.3						-23.46	47 +02	26 14.80	26 14.80
	$(\delta - D) \frac{\kappa'}{100}$			13.5								26 12.98	26 12.98
	α_1												
Sept 21													
20	26 59 50 24	26 32.2	8.5	26 11.8	19.5	22.9	26.3	29.5	32.8	1313	26.26	27 26.26	26.26
	κ		8.3	13.2						-23.46	47 +02	27 23.47	27 23.47
	$(\delta - D) \frac{\kappa'}{100}$			13.4								27 28.0	27 28.0
	α_2											27 1.82	27 1.82
Sept 21													
20	28 05 51 52	27 28.2	8.7	28 9.8	24.3	27.7	30.9	34.5	37.7	1551	31.02	28 31.02	31.02
	κ		9.0	11.5						-23.45	46 +02	28 23.47	28 23.47
	$(\delta - D) \frac{\kappa'}{100}$			12.1								28 75.7	28 75.7
	α_1											28 1.84	28 1.84
Sept 21													
20	30 13 51 02	29 45.8	9.4	30 21.5	33.5	36.9	40.1	43.2	46.8	2005	40.12	30 40.12	40.12
	κ		9.5	24.0						-23.46	47 +02	30 16.64	30 16.64
	$(\delta - D) \frac{\kappa'}{100}$			23.9								30 1.85	30 1.85
	α_2											30 14.80	30 14.80

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+21.8 1.33846 9.80274 1.26789~	3' 39.2	82.7	48	24.95 45.95	50 34 35	20.40 2.53 42.31	45	50	34 5 - 2.02 43.46 - 13 + 3 + 8.51 + 28 - 19.75 34 30.72	23.78 +8.69 35 12.72.
(8) - D) $\frac{d'}{100}$											
δ_1	+6.21 +0 28.72	23 59.55		35 41.4							
d	+26.8 1.42813 9.80274 1.35710~	0 48.0	57.2	45	52.60	50 36 37	55.75 37.68 22.76	45	50	38 9 - 2.02 14.92 - 19 + 1 + 8.53 + 28 - 19.30 38 2.25	48.65
(8) - D) $\frac{d'}{100}$											
δ_2	+7.38 +0 52.84	44 56.89		38 55.1							
d	+28.4 1.45332 9.80290 1.38291~	4 0.8	11.7	49	6.25	50 33 34	42.10 24.03 - 24.15	45	50	38 4 - 2.02 59.88 - 21 + 4 + 8.55 + 28 - 19.15 38 47.37	8.66
(8) - D) $\frac{d'}{100}$											
δ_1	+7.03 +0 54.76	52 17.21		35 42.1							
d	+5.5 0.74036 9.80305 0.67010~	0 8.7	18.6	50	13.65	50 32 33	34.70 16.63 - 4.68	50	50	38 4 - 2.02 11.95 - 1 0 + 8.50 + 28 - 19.15 38 59.55	+8.77
(8) - D) $\frac{d'}{100}$											
δ_2	+7.56 +0 55.08	53 28.31		34 54.6							
d	+4.6 0.66276 9.79079 0.58024~	3 10.2	7.1	33	8.65	51 49 50	39.70 24.63 - 3.80	80	51	50 30.71 - 1 - 6 + 9.86 + 30 - 20.35 50 20.69	+10.09
(8) - D) $\frac{d'}{100}$											
δ_1											
d	+21.8 1.33846 9.79872 1.26387~	2 5.3	4.7	22	57.0	51 0 1	43.35 38.16 95 - 18.36	20	51	1 19.80 - 13 - 4 + 8.98 + 30 - 20.25 1 8.90	20.59 +9.11
(8) - D) $\frac{d'}{100}$											
δ_2	+6.81 +0 45.00	16 27.20		54.4 1 53.7							
d	+24.8 1.39445 9.80686 1.32800~	0 34.0	32.1	18	33.05	50 7 8	18.30 18.11 10.90 - 21.28	15	50	7 48.83 - 16 - 1 + 8.04 + 26 - 20.10 7 37.10	49.62 +8.13
(8) - D) $\frac{d'}{100}$											
δ_1	+7.14 +0 47.80	26 20.13		25.4 8 24.9							
d	+12.9 1.11059 9.80428 1.04156~	4 5.1	4.2	59	4.65	50 23 24	43.70 38.51 39.30 - 11.01	55	50	24 27.50 - 5 - 8 + 8.55 + 27 - 20.10 24 16.13	28.29 +8.49
(8) - D) $\frac{d'}{100}$											
δ_2	+7.10 +0 48.00	27 8.09		25 4.7							
d	+18.9 1.27646 9.79047 1.19362~	1 9.0	6.2	31	7.62 2.15	51 51 52	40.75 35.66 36.25 - 15.62	30	51	52 19.74 - 10 - 2 + 9.92 + 30 - 20.20 52 10.08	20.73 +10.10 16.08
(8) - D) $\frac{d'}{100}$											
δ_1	+6.85 +0 42.32	28 12.19		52 58.4							
d	+16.2 1.20952 9.79856 1.13477~	1 39.1	35.5	21	37.30	51 1 2	11.05 6.86 6.65 - 13.64	20	51	1 52.22 - 7 - 3 + 8.99 + 30 - 20.15 1 41.50	53.01 +9.19
(8) - D) $\frac{d'}{100}$											
δ_2	+7.04 +0 48.92	30 21.84		310 2 30.4							

Date₁ = Sept. 21, 1871

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

Date₂ = Sept. 21, 1871

Observer *W. A. P.*
Recorder *A. M.*

28

[illegible]

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+28.4 1.45332 9.80641 1.38642m	2 54.3	53.3	12	53.80	50 9 10 54.55 -24.35	50.15	10	50 10	25.01 -22 -6 +814 +26 -2005 13.32	+8.12
(8) - D) $\frac{d'}{100}$				32							
+7.23 δ_1 +0 49.36		31 56.96		11 27						10	
d	+2.5 0.39794 9.80228 0.32691m	0 25.3	24.1	45	24.70	50 37 38 23.65 -2.12	19.25	45	50 38	16.34 -0 -1 +861 +28 -1965 5.81	17.13 +5.88
(8) - D) $\frac{d'}{100}$				34							
+7.70 δ_2 +0 57.00		1 12.61		39 28						38	
d	+24.2 1.38882 9.80428 1.31479m	3 57.9	59.0	58	58.45	50 23 24 49.90 -20.64	45.50	55	50 24	24.07 -16 -8 +837 +27 -20.20 2.4 12.51	+5.40
(8) - D) $\frac{d'}{100}$				58.5							
+6.95 δ_1 +0 45.40		17 55.43		24 47.9						24	
d	+15.2 1.18184 9.80610 1.11463m	0 22.0	22.5	10	22.25	50 12 13 26.10 -13.02	21.70	10	50 13	2.89 -6 -1 +814 +26 -2015 12 56.31	8.68 +5.33
(8) - D) $\frac{d'}{100}$											
+7.01 δ_2 +0 45.72		19 28.0		13 42.6						12	
d	+25.7 1.40993 9.80641 1.34303m	2 3.2	2.5	12	2.85	50 10 11 45.50 -22.03	41.10	10	50 11	18.28 -18 -4 +814 +26 -2015 11 6.55	15.07 +5.18
(8) - D) $\frac{d'}{100}$				53.5							
+7.05 δ_1 +0 46.36		21 11.44		11 52.9						11	
d	+7.5 0.57506 9.80686 0.80861m	0 33.0	32.2	18	33.60	50 7 8 15.75 -6.44	11.35	15	50 8	4.12 -2 -1 +805 +26 -2015 7 52.49	4.91 +5.28
(8) - D) $\frac{d'}{100}$											
+7.07 δ_2 +0 46.56		22 01.6		8 39.6						7	
d	+4.4 0.64345 9.80731 0.57745m	0 22.9	21.7	18	33.20	50 4 5 15.75 -3.78	10.75	15	50 5	6.18 -1 -7 +803 +26 -2015 4 54.47	6.97 +5.20
(8) - D) $\frac{d'}{100}$				41.9							
+7.10 δ_1 +0 46.84		22 54.76		5 41.3						4	
d	+24.6 1.39094 9.80610 1.32373m	0 21.9	21.7	10	22.30	50 12 13 26.05 -21.07	21.65	25	50 12	27.79 -16 -1 +815 +26 -2016 12 48.17	0.58 +5.24
(8) - D) $\frac{d'}{100}$				9							
+7.09 δ_2 +0 47.20		24 16.46		13 35.8						12	
d	+17.7 1.24797 9.79484 1.17400m	0 34.0	32.1	26	47.80	50 56 56 0.55 -14.70	56.15	25	50 56	40.43 -9 -4 +894 +20 -2015 56 29.63	41.22 +9.11
(8) - D) $\frac{d'}{100}$											
+6.98 δ_1 +0 47.52		25 19.64		57 17.8						56	
d		0 34.0	32.1						15		
(8) - D) $\frac{d'}{100}$											
δ_2											

Prob. error for this Sept. 18-21 = ± 0.61 unadjusted to rigidity
 $= \pm 0.49$ reduced. $\Delta T_m = +2.0$

Date ₁ = <i>Sept. 23, 1871</i> <i>n = +.11</i>		Observer <i>W.A.R.</i>	Date ₂ = <i>Oct. 5, 1871</i> <i>n = +.09</i>		Observer <i>W.A.R.</i>	Recorder <i>A. M.</i>											
Star.	α	δ	Mag.	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T					
0	6	5	0	1	8.1	5.1	8.4	6	18.5	21.0	24.6	28.1	32.6	12	28	24.56	24.56
	κ	35.8	54	32.8	8.3	5.2	50.2									23.60	23.60
						52.7										1.5	1.5
						50.4										7.13	7.13
						30.0	59.9	3.3	7.0	10.5	14.0	33	47	66.94		5.97	5.97
						31.7										11	11
						34.6										3	3
						32.1										1.05	1.05
						34.0	6	0.0	3.5	7.0	10.6	14.2	3	53	7.06	6.84	6.84
						40.5										6.39	6.39
						41.8										13	13
						46.5										3	3
						41.2										0.77	0.77
																1.20	1.20
																5.59	5.59
																12.03	12.03
20	6	55	54	34	8.2	6	52.3	7	7.0	14.6	18.1	21.4				23.48	23.48
	κ	28.5	54	32.6	8.3		54.0									23.48	23.48
							56.6									5.97	5.97
							54.3									11	11
							34.8	53.0	56.8	0.3	3.8	7.4	301	3	60.26	6.26	6.26
							36.7									5.97	5.97
							38.4									3	3
							36.6									54.37	54.37
							38.1	53.3	56.9	0.6	8.9	7.5	30	22	60.44	0.44	0.44
							35.0									6.39	6.39
							37.5									3	3
							35.2									54.15	54.15
																1.21	1.21
																52.94	52.94
20	7	59	53	51	9.0	7	49.8	8	14.6	18.3	21.5	25.0	28.6	10	80	21.60	21.60
	κ	32.5	53	47.3	8.9		51.7									23.60	23.60
							51.6									1.5	1.5
							52.0									58.17	58.17
							35.7	56.9	0.4	3.6	7.1	10.8	31	88	63.76	3.76	3.76
							38.1									5.97	5.97
							40.0									11	11
							48.7	56.8	0.4	4.4	7.4	10.8	31	94	63.88	3.88	3.88
							50.4									6.39	6.39
							52.5									12	12
							50.5									3	3
																57.58	57.58
																1.22	1.22
																56.36	56.36
20	9	09	53	31	8.2	9	0.0	25.7	29.2	32.7	36.0	39.5	16	131	32.62	32.62	32.62
	κ	42.7	53	25.2	8.0		0.8									23.60	23.60
							4.6									1.5	1.5
							1.8									32.15	32.15
							47.9	9	8.1	11.5	15.0	18.3	21.9	7	48	14.96	14.96
							50.4									5.97	5.97
							51.1									11	11
							49.8									9.97	9.97
							44.7	9	8.1	11.7	15.0	18.4	22.0	7	52	15.04	15.04
							46.8									6.39	6.39
							49.5									12	12
							47.0									3	3
																8.74	8.74
																1.24	1.24
																7.50	7.50
20	10	17	53	16	5.0	10	14.8	34.0	37.2	40.8	44.1	47.6	20	37	40.74	40.74	40.74
	κ	50.7	53	13.3	6.6		16.7									23.60	23.60
							15.2									1.5	1.5
							16.5									17.26	17.26
							57.0	10	16.1	19.5	23.0	26.4	29.9	11	49	22.98	22.98
							58.9									5.97	5.97
							60.6									11	11
							58.8									17.03	17.03
							54.6	10	16.3	19.6	23.2	26.6	30.7	11	58	23.16	23.16
							1.7									6.39	6.39
							4.5									3	3
							1.9									16.86	16.86
																1.25	1.25
																15.61	15.61

Sept. 23 +1' 18.36 -0.04
 " 28 1 18.42 -0.07
 Runs Oct. 5 1 2.86 -0.10

add 29.2 to Sept 23 + 28.

31

	$T_m - T$	A	C	Sum	Mean X	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
7.52	1.534103 9.76271 1.43403 +34.8 1.54158 9.76271 1.43098	2' 5.5	25.9	47	15.85	35 54 36	32.50.44 50.86 37 20.00 -0.78 26.57		45	54 36	24.23 53.43 36 24.84 54.04 -31 +12.57 -32 +12.41 -9 -15 +12.27 +40 +40 -20.80 -21.55 36 41.58 36 15.70 57.70 44.90 44.90
2.6x	+5.87 10 41.92 +25.9 1.41330 9.76271 1.30270	1 25.2	34.5	46	35.80	36 54 37	13.35 16.21 -20.08		45	36 56.13 -17 -16 +12.26 +40 -22.35 36 46.11 +5.34	+12.33
(8) - D	$\frac{d'}{100}$										
+5.87 10 41.92	δ_2	23.7	6 5.44	37 28.0							
52.94 49.38	1.21 +5.50 10 42.16 1.18	0 28.0	49.3	50	38.65	32 54 33	9.70 28.106 -15.68		50	54 33	12.38 33 10.27 -10 +12.50 -15 +12.63 -2 -4 +12.22 +12.42 +40 +40 -20.80 -21.55 33 4.08 33 1.55 33.28 30.55
(8) - D	$\frac{d'}{100}$										
+5.50 10 42.16	δ_1	+2.37	0 27.4 46.5	50	38.10	32 54 33	10.25 28.67 -15.40		50		
2.92x	+5.90 10 42.16	4 52.8	51.9	49	52.35	32 54 33	56.00 58.86 -19.56		45	33 39.30 -16 -49 +12.21 +40 -22.35 33 28.71	+11.96
(8) - D	$\frac{d'}{100}$										
+5.90 10 42.16	δ_2	6 58.84	34 11.1								
17.84	1.44129 9.77095 1.36893	3 42.1	11.1	34	8.10	48 53 50	48.25 6.61 -23.39		30	53 49	43.22 49 43.66 -23 +11.46 -18 +11.58 -16 -28 +11.47 +11.66 +38 +38 -20.75 -21.50 49 33.73 49 33.74 50 3.13 50 2.94
(8) - D	$\frac{d'}{100}$										
+6.08 10 42.52	δ_1	+2.59	3 52.1 13.2	34	2.65	48 53 50	45.70 4.12 -20.46		30		
46.08 10 42.52	δ_2	3 28.1	25.8	33	25.95	49 53 50	22.40 25.26 -10.58		30	50 14.68 -5 -34 +11.48 +38 -22.30 50 3.85	+11.47
(8) - D	$\frac{d'}{100}$										
+6.08 10 42.52	δ_2	8 2.44	50 46.4								
17.66	1.48855 9.77422 1.38946	2 58.8	13.0	53	2.40	29 53 31	43.45 1.81 -24.52		50	53 30	37.29 30 42.21 -24 +11.12 -17 +11.30 -12 -21 +11.13 +11.33 +35 +35 -20.75 -21.45 30 27.46 30 32.06 56.56 31 1.26
(8) - D	$\frac{d'}{100}$										
+6.17 10 42.88	δ_1	+2.52	2 54.0 15.0	53	4.50	29 53 31	43.85 2.27 -20.06		50		
46.17 10 42.88	δ_2	2 16.7	16.8	52	16.75	30 53 31	31.60 34.46 -22.29		50	31 12.17 -21 -23 +11.13 +35 -22.30 31 0.71	+11.04
(8) - D	$\frac{d'}{100}$										
+6.17 10 42.88	δ_2	9 13.67	31 43.8								
7.76	1.28382 9.77677 1.28728	2 47.3	8.8	7	58.05	14 53 16	50.30 8.66 -19.38		5	53 15	49.28 15 53.83 -15 +10.94 -15 +11.05 -12 -21 +10.88 +10.98 +33 +33 -20.70 -21.45 15 38.52 15 48.48 16 8.72 16 12.63
(8) - D	$\frac{d'}{100}$										
+6.25 10 43.20	δ_1	+2.42	2 47.2 7.9	7	57.55	14 53 16	50.80 9.22 -15.39		5		
46.25 10 43.20	δ_2	2 13.2	13.0	7	13.10	15 53 16	35.25 38.11 -17.05		5	16 21.06 -12 -22 +10.92 +33 -22.30 16 9.67	+10.91
(8) - D	$\frac{d'}{100}$										
+6.25 10 43.20	δ_2	10 21.86	16 52.9								

Date₁ = Sept. 23, 1871
Sept. 25, 1871Observer W.A.R.
Recorder A.M.Date₂ = Oct. 5, 1871Observer W.A.R.
Recorder A.M.

1871pae.1

Star.	α	δ	Mag.	T_m	T_a	T_f	T_r	T_h	Sum	Mean	Red. to T_m	T		
κ	11	58 53.45 11 31.6 53 42.5	7.7 7.0	11	45.6 45.3 47.1	12 13.4	16.8	20.3	23.8	27.0	10 13 -23.48	20.26 23.60 15 20.26		
((8) - D) κ'_{100}			7.0	11	45.3	25.0	55.5	59.1	2.5	6.0	9.6	31 27 -5.90	62.54	
a_1					27.0 29.0							+ 11	32	
κ			8.2	11	30.5 32.6 34.5	56.0	59.4	2.9	6.2	9.8	31 43 -6.39	2.86 6.39 12 3	55.14 +6.16 +0.4	
((8) - D) κ'_{100}					32.6							11 56.56 -1.26	+6.16 +0	
a_2												11 55.30	+6.16 +0	
κ	14	29 53 06 14 2.6 53 3.4	8.8 8.6	14	23.7 26.0 28.7	46.4	50.0	53.2	56.6	8.2	26 64 -23.48	3.28 23.60 15 28.12		
((8) - D) κ'_{100}			8.8	13	26.1 57.3 59.7 1.9	28.7	32.1	35.6	39.0	42.4	17 78 -5.90	35.56 5.98 11 3	14 28.12 +6.3 +0.4	
a_1					58.6							14 29.62 -6.39	14 28.14 +6.3 +0.4	
κ			9.0	14	8.2 11.0 12.4	28.9	32.2	35.7	39.0	42.6	17 84 -6.30	35.68 6.39 12 3	14 28.09 +6.3 +0.4	
((8) - D) κ'_{100}					10.5							14 29.38 -1.29	14 28.09 +6.3 +0.4	
a_2													+6.3 +0.4	
κ	17	07 53 11 16 40.3 53 7.7	6.2 6.5	16	23.3 0.6 3.0	27.0	30.2	33.6	37.0	15 11 -23.48	30.22 23.60 15 5.04			
((8) - D) κ'_{100}			5.5	16	0.8 37.5 39.2 40.7	17 5.7	9.1	12.6	15.8	19.3	6 25 -5.90	12.50 5.98 11 3	17 5.04 +6.3 +0.4	
a_1					39.1							17 4.60 -6.39	17 5.05 +6.3 +0.4	
κ			6.0	16	60.8 52.7 65.1	17 6.8	9.2	12.7	16.0	19.5	6 32 -6.30	12.64 6.39 12 3	17 5.02 +6.3 +0.4	
((8) - D) κ'_{100}					62.8							17 6.34 -1.32	17 5.02 +6.3 +0.4	
a_2													+6.3 +0.4	
κ	18	55 53 13 18 28.6 53 10.2	9.2 9.0	18	47.1 49.5 52.1	19 13.0	16.4	19.8	23.1	26.6	9 89 -23.48	19.78 23.60 15 5.58		
((8) - D) κ'_{100}			9.0	18	49.5 28.0 30.0 32.1	55.3	58.5	2.1	5.5	8.9	31 03 -5.91	62.06 5.97 11 3	18 54.58 +6.4 +0.4	
a_1					30.0							18 56.15 -6.39	18 54.58 +6.4 +0.4	
κ			9.5	18	37.2 37.3 41.8	55.5	58.8	2.2	5.7	9.0	31 12 -6.30	62.24 6.39 12 3	18 54.58 +6.4 +0.4	
((8) - D) κ'_{100}					39.4							18 55.94 -1.34	18 54.60 +6.4 +0.4	
a_2													+6.4 +0.4	
κ	20	33 53 55 20 6.4 53 52.1	8.8 8.5	20	27.2 29.7 32.6	49.2	52.6	56.3	59.6	3.3	28 10 -23.48	56.20 23.60 15 32.72		
((8) - D) κ'_{100}			8.8	20	29.8 5.1 6.9 8.9	31.6	35.1	38.5	42.0	46.5	19 27 -5.91	38.54 5.97 11 3	20 30.98 +6.2 +0.4	
a_1					6.9							20 32.63 -6.39	20 31.05 +6.2 +0.4	
κ			9.8	20	7.6 9.5 11.1	31.7	35.1	38.7	42.1	45.6	19 32 -6.30	38.64 6.39 12 3	20 32.34 -1.35	20 30.99 +6.2 +0.4
((8) - D) κ'_{100}					9.4									+6.2 +0.4
a_2														+6.2 +0.4

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	S'
		+38.0	3 35.3	11"	38	320"	44	45.75	0.15	35	53 45 35.81	45 1.27
		1.54407				4420	53 46	45.75	45.777		- 32	- 32
		9.77164						-27.70			- 12	- 25
55.14	.72 d	1.44240									+1137	+1142
	(8) - D $\frac{d'}{100}$	+35.5	2 34.4	3.4	38		44	45.75	0.15	35	+1143	+1161
		1.55023					53 45	45.777			+ 38	+ 38
		9.77181	12 1.28		45 54.4	4820		-28.10	47.77		-20.70	-21.60
	δ_1	1.44873	1.30		53.3						45 24.48	44 51.17
		+30.3	3 7.1	6.4	38	575	44	41.60		35	45 20.48	45 20.39
		1.48144					53 45	44.46			- 24	+11.20
		9.77181						-23.98			- 31	- 31
	(8) - D $\frac{d'}{100}$	1.37994									+1137	+ 38
											-23.52	22.35
	δ_2	12 1.46			45 54.0						45 10.33	10.33
		+27.2	2 39.1	0.2	19	49.65	4	58.70		15	53 5 55.20	5 38.18
		1.43457				5005	53 6	17.06			- 20	+10.72
28.72	.72 d	9.77846						-21.86			- 11	- 20
	(8) - D $\frac{d'}{100}$	1.33972									+1072	
		+36.0			17	49.65	4	58.70			+ 31	
		1.55630			6 58.9		53 6	7.12			-20.70	-21.50
	δ_1	9.77846	14 34.44					-28.94			5 48.72	
		1.46145	34.44								6 14.42	
		+28.2	2 51.1	4.2	19	46.5	5	43.70		15	6 26.30	
		1.40110					53 6	46.56			- 17	+106.4
		9.77846						-20.26			- 21	- 21
	(8) - D $\frac{d'}{100}$	1.30655									+1071	+ 31
											-22.85	-22.85
	δ_2	14 34.44			6 59.0						6 14.59	
		+29.4	2 39.3	1.1	12	5920	9	58.15		10	53 10 52.92	
		1.46835					53 11	16.51			- 23	+10.50
	.72 d	9.77761						-23.57			- 11	- 20
5.04	(8) - D $\frac{d'}{100}$	1.37265						-26.80			+1082	
		+33.4									+ 32	
		1.52375									-20.70	-21.30
	δ_1	9.77761	17 11.42		11 57.4						10 43.02	
		1.42805	11.42								11 12.22	
		+19.8	2 10.2	11.5	12	11.05	10	37.30		10	11 24.28	
		1.29667					53 11	40.16			- 10	+10.83
		9.77761						-15.88			- 22	- 22
	(8) - D $\frac{d'}{100}$	1.20097									+1083	+ 32
											-22.40	-22.40
	δ_2	17 11.40			11 57.9						11 12.71	
		+30.3	0 37.2	59.4	110	4830	12	0.05		10	53 12 54.12	
		1.48144					53 13	18.41			- 24	+10.89
54.58	.72 d	9.77728						-24.29			- 3	- 27
	(8) - D $\frac{d'}{100}$	1.38541						-25.73			+1084	
		+32.1									+ 32	
		1.50651									-20.65	-21.45
	δ_1	9.77728	19 0.99		13 59.3						12 44.36	
		1.41048	0.99								13 13.56	
		+22.8	0 7.5	7.2	10	7.50	152	40.85		10	13 25.48	
		1.35793					53 73	43.71			- 14	+11.00
		9.77728						-18.28			- 1	- 1
	(8) - D $\frac{d'}{100}$	1.26190									+1083	+ 32
											-22.40	-22.40
	δ_2	19 1.01			13 59.8						13 14.03	
		+26.4	3 49.0	11.2	29	0.10	53	48.25		25	53 54 45.79	54 46.55
		1.42160					53 55	6.61			- 18	+11620
		9.77009						-20.82			- 16	- 27
32.72	(8) - D $\frac{d'}{100}$	1.31838									+1153	+1176
		+31.6	3 45.3	5.3	28	5530	53	53.05		25	+ 39	+ 39
		1.49969					53 55	11.47			-20.70	-21.50
	δ_1	9.77009	20 37.26		55 52.0			-24.92			54 36.64	54 36.64
		1.39647	37.26		52.0						55 5.89	55 5.89
		+29.2	3 9.5	10.1	28	9.95	54	38.40		25	55 18.25	
		1.46538					53 55	41.26			- 22	+11.41
		9.76991						-23.01			- 31	- 31
	(8) - D $\frac{d'}{100}$	1.36198									+1153	+ 39
											-22.45	-22.45
	δ_2	20 37.27			55 53.4						55 7.21	
		21 17.16										

121

Date₁ = Sept. 23, 1971

Observer W. A. R.

Recorder A. M.

123

Date₂ = Oct. 5, 1971

Observer W. A. R.

Recorder A. M.

34

Star.	α	δ	Mag.	T_m	T_a	T_r	T_g	T_b	Sum	Mean	Red. to T_m	T
22	22	51	5.1	23	11.3	14.2	17.3	20.6	24.1	27.6	10.38	20.76
			8.5		12.3						-23.48	
(8) - D	κ'_{100}			22	11.8	31.2	56.1	59.6	8.1	6.5	10.0	31.53
						32.6					-5.91	63.06
a_1						35.1						
						32.9						
κ			8.5	22	32.7	56.4	59.8	3.2	6.6	10.1	31.61	63.22
					34.8						-6.30	
					36.8							
(8) - D	κ'_{100}					34.7						
a_2												
20	23	45	5.6	24	4.2	2.1	5.7	9.0	12.5	16.0	4.55	9.06
			9.0								-23.49	
(8) - D	κ'_{100}			23	36.1	44.5	48.0	51.4	54.9	58.3	25.71	51.42
					38.6						-5.91	
a_1					40.8							
					38.5							
κ			8.9	23	38.6	44.5	48.0	51.5	55.0	58.4	25.74	51.48
					40.5						-6.30	
					42.9							
(8) - D	κ'_{100}					40.6						
a_2												
20	25	47	5.8	25	40.6	26.4	7.6	11.1	14.6	18.1	5.57	11.14
			8.5		42.7						-23.49	
					45.4							
(8) - D	κ'_{100}			25	42.9	18.0	46.7	50.0	53.5	56.9	0.2	26.73
					20.3						-5.91	53.46
a_1					22.6							
					20.3							
κ			8.9	25	20.7	46.8	50.3	53.5	56.8	0.3	26.77	53.54
					22.6						-6.30	
					23.6							
(8) - D	κ'_{100}											
a_2												
20	26	42	5.4	26	56.1	32.2	35.9	39.4	42.8			
			9.4		59.9						-23.49	
(8) - D	κ'_{100}			26	57.9	15.8	57.2	8.8	12.3			
					29.0	18.1	21.5	25.0	28.3		-5.91	
a_1					37.7							
					28.6							
κ			9.8	26	28.0	41.4	45.0	48.6	51.7	55.4	24.21	46.14
					31.0						-6.30	
					33.5							
(8) - D	κ'_{100}					30.8						
a_2												
20	25	00	9.6	27	56.4	28.16	19.6	23.3	26.6	30.0	11.58	23.16
			9.3		58.3						-23.49	
					59.9							
(8) - D	κ'_{100}			27	58.2	33.5	58.4	1.8	5.3	8.8	12.3	32.66
					35.9						-5.91	65.32
a_1					37.5							
					35.5							
κ			9.4	27	46.5	55.7	58.6	2.0	5.7	9.0	12.4	
					49.10						-6.30	
					47.7							
(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'
		+9.0	3' 1.2	21.9	48	1155	34	36.80		45	53 35 48.01	35 49.88
7.28	76	d	0.95424				53 35	55.16			- 2	+11.45 - 24
1.75			0.77336					7.15			- 13	- 20
5.53			0.85429								+11.24	+11.47
	(8) - D	$\frac{d'}{100}$	+30.2	2 43.8	4.0	47	53 36	54.45		45	+ 36	+ 36
			1.48001					12.87			-20.65	-21.50
7.25	16	δ_1	9.77336	23 1.93	36 54.8			-23.27			35 38.41	35 34.77
1.60			1.38006	1.95	36 55.8						36 8.01	36 8.01
5.55			+28.5	2 8.3	8.0	47	53 35	40.20		45	36 20.43	36 20.43
	d		1.45484					43.06			- 21	- 21
			9.77319					-22.63			- 21	- 21
	(8) - D	$\frac{d'}{100}$	1.35472								+11.23	+11.23
											+ 36	+ 36
	δ_2		23 1.94		36 56.0						-24.45	-24.45
											36 9.35	36 9.35
											15	15
	64	d	+4.9	4 21.1	43.9	59	53 23	15.85		55	53 24 30.30	24 31.57
			0.69020					34.21			- 1	- 5
			9.77541					3.91			- 18	- 31
1.76			0.59230								+11.03	+11.26
3.81	(8) - D	$\frac{d'}{100}$	+12.9	4 14.0	85.8	59	53 24	23.45		55	+ 34	+ 34
			1.11059					41.87			-20.65	-21.50
	δ_1		9.77541	23 50.26	25 37.2			-10.30			24 20.83	24 21.81
5.51			1.01269	50.35	37.6						50.03	50.51
1.61			+10.9	3 40.1	39.3	58	53 24	8.65		55	25 2.81	25 2.81
3.90			1.03743					11.51			- 3	- 3
	d		9.77524					8.70			- 36	- 36
	(8) - D	$\frac{d'}{100}$	0.93936								+11.02	+11.02
											+ 34	+ 34
	δ_2		23 50.24		25 38.4						-24.45	-24.45
											24 51.33	24 51.33
	68	d	28.2	1 46.9	9.0	16	53 5	50.40		15	53 6 46.10	6 51.09
			1.45025					8.76			- 21	- 29
7.65			9.77829					-22.64			- 8	- 13
1.77			1.35523								+10.72	+10.95
5.88	(8) - D	$\frac{d'}{100}$	+33.2	1 34.2	13.8	16	53 5	58.35		15	+ 31	+ 31
			1.52114					12.77			-20.64	-21.45
	δ_1		9.77829	25 52.43	7 53.1			-26.68			6 36.24	6 40.48
7.56			1.42612	52.48	52.41						7 5.44	7 8.68
1.62			+29.9	1 10.7	10.2	16	53 6	37.90		15	7 16.75	7 16.75
15.93			1.47567					40.76			- 24	- 24
	d		9.77812					-24.01			- 12	- 12
	(8) - D	$\frac{d'}{100}$	1.38048								+10.71	+10.71
											+ 31	+ 31
	δ_2		25 52.38		7 52.6	8 33.6					-22.45	-22.45
											7 49.76	7 49.76
	6	d	+37.9	3 57.8	19.2	44	53 38	39.85		40	53 40 15.74	41 14.15
			-22.1					58.21			- 13	- 2
10.57			1.34439					+17.53			- 16	- 21
	(8) - D	$\frac{d'}{100}$	9.77268	1.24376							+11.28	+11.57
			+52.9	2 47.5	9.0	42	53 39	50.10		40	+ 37	+ 37
	δ_1		-7.1					8.52			-20.65	-21.50
			0.85126		26.17.02	42	53 41	+ 5.63			40 6.45	40 6.45
15.57			9.77250	0.75045							1 35.66	1 35.66
1.63			+17.6	3 38.3	37.7	43	53 39	10.35		40	39 59.25	39 59.25
13.94			1.24551					13.21			- 8	- 8
	d		9.77268					-13.96			- 36	- 36
	(8) - D	$\frac{d'}{100}$	1.14488								+11.31	+11.31
											+ 37	+ 37
	δ_2		26 47.16		40 35.9						-22.62	-22.62
											39 47.99	39 47.99
	64	d	+25.0	1 11.7	32.5	36	53 46	26.25		35	53 47 24.84	47 26.35
			1.39794					44.61			- 16	- 24
9.67			9.77447					-19.77			- 5	- 9
1.80			1.29610								+11.44	+11.68
5.87	(8) - D	$\frac{d'}{100}$	+29.8	1 6.5	2.12	36	53 46	31.50		35	+ 38	+ 38
			1.47422					49.92			-20.65	-21.50
	δ_1		9.77147	28 4.32	48 39.3			-23.57			47 15.80	47 16.58
9.41			1.37238	4.23	34.1						45.00	45.78
1.65			+17.9	0 39.7	40.8	35	53 47	8.10		35	47 56.81	47 56.81
5.778			1.25285					10.96			- 8	- 8
	d		9.77130					-14.15			- 7	- 7
	(8) - D	$\frac{d'}{100}$	1.15084								+11.43	+11.43
											+ 38	+ 38
	δ_2		28 4.31		48 34.2						-22.50	-22.50
											47 45.77	47 45.77

Date ₁ = Sept. 23, 1871		Observer	Recorder	Date ₂ = Oct. 5, 1871	Observer	Recorder											Ru
Star.	α	Mag.	T_m	T_s	T_e	T_g	T_h	Sum	Mean	Red. to T_m	T						
28	51 53 43	7.5	28	50.4	29 6.5	10.0	13.3	16.9	20.4	6 71	13.42	29	12.42	-23.61	+15		
	28 23.0 53 59.7	7.0		52.0						-23.49			+3	28 49.93	-1.81		
(8) - D	κ'_{100}		28	38.6	48.6	52.0	55.6	59.1	2.7	27 8.0	55.60	28	55.60	-5.99	+11		
				40.6						-5.91				28 48.12	-3		+6.48
29 45	α_1			42.3										28 49.69	-3		+0.48
				40.5													
		8.0	28	47.5	48.9	52.4	55.6	59.2	2.8	27 8.9	55.78	28	55.78	-6.39	+12		+6.48
				49.6						-6.30				28 48.02	-3		+6.48
(8) - D	κ'_{100}			51.0								28	49.48	-1.43			+0.48
	α_2			49.3								28	48.05				+6.48
20	31 10 53 23	8.8	30	52.2	31 18.6	22.0	25.5	28.8	32.3	21 55	43.10	31	43.10	-23.61	+15		
	30 49.9 53 17.5	8.8		18.9	38.3	39.5	43.1	46.4	50.2	-23.49			+3	31 19.61	-1.82		
(8) - D	κ'_{100}		30	21.0	31 18.6	22.0	25.5	28.8	32.3	12 72	25.44	31	25.44	-6.00	+11		
				23.2						-5.92				31 17.79	-3		+6.60
	α_1			51.6										31 19.52	-1.46		+0.48
				53.4													
		9.3	30	55.2	31 18.7	22.3	25.7	29.8	32.6	12 8.6	25.72	31	25.72	-6.39	+12		+6.60
				57.2						-6.30				31 17.84	-3		+0.48
(8) - D	κ'_{100}			59.2								31	19.42	-1.46			+6.60
	α_2			57.2								31	17.96				+6.60
20	32 16 53 54	9.0	32	20.0	31.1	35.61	38.0	41.5	45.0	-23.49		32	38.04	-23.61	+15		
	31 45.5 53 50.6	8.5		22.3									+3	32 14.55	-1.84		
(8) - D	κ'_{100}		32	24.7	13.3	17.0	20.4	23.8	27.3	10 18	20.36	32	20.36	-6.00	+11		
				22.3						-5.92				32 12.71	-3		+6.51
	α_1			1.6										32 14.44	-1.76		+0.48
				2.8													
		9.2	31	41.2	32 13.6	17.1	20.4	24.0	27.5	10 2.6	20.52	32	20.52	-6.39	+12		+6.51
				49.2						-6.30				32 12.76	-3		+0.48
(8) - D	κ'_{100}			51.6								32	14.22	-1.47			+6.51
	α_2			49.3								32	12.75				+0.48
20	33 58 54 04	9.0	33	53.2	34 15.0	15.5	22.1	25.5	29.4	-23.49		34	21.98	-23.61	+15		
	33 30.1 53 54.7	9.0		57.0									+3	33 58.49	-1.85		
(8) - D	κ'_{100}		33	35.0	37.3	1.0	4.3	7.7	11.4	32 1.7	64.34	34	4.34	-6.00	+11		
				36.7						-5.92				33 56.64	-3		+6.5
	α_1			39.7										33 58.42	-1.71		+0.48
				37.1													
		9.5	33	34.0	37.4	1.1	4.5	8.0	11.5	32 2.5	64.50	34	4.50	-6.39	+12		+6.52
				35.0						-6.30				33 56.71	-3		+0.48
(8) - D	κ'_{100}			36.0								33	58.20	-1.49			+6.52
	α_2											33	56.71				+0.48
20	35 48 53 22	9.0	35	40.3	36 6.5	4.8	13.8	16.6	20.1	6 63	13.26	36	13.26	-23.61	+15		
	35 20.0 53 15.3	9.0		42.6						-23.49			+3	35 49.77	-1.86		
(8) - D	κ'_{100}		35	45.0	48.6	52.1	55.7	59.0	2.5	27 7.9	55.58	35	55.58	-6.00	+11		
				42.6						-5.92				35 47.91	-3		+6.70
	α_1			25.8										35 49.66	-1.72		+0.50
				25.1													
				26.0													
		9.2	35	19.5	45.8	52.4	55.5	59.0	2.7	27 8.4	55.68	35	55.68	-6.39	+12		+6.70
				24.6						-6.30				35 47.94	-3		+0.50
(8) - D	κ'_{100}			22.2								35	49.38	-1.51			+6.70
	α_2											35	47.87				+0.50

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
		+21.4	0 58.2	16.6	41	9.18	41	41.25		40'	53 42 42.66	42 42.91
		1.33041					53 42	59.61			- 12	+11.54
		9.77216						- 16.75			- 4	- 8
9.93	62	1.22926						+11.33			+11.58	+11.51
1.81		+15.1	1 11.0	22.8	41	11.90	41	36.45		40	+ 37	+ 37
5.12		1.17898					53 42	54.87			- 20.70	- 21.50
		9.77216	28 54.60		43 51.2			- 11.86			42 53.50	42 53.22
2.69		1.07783	54.60		50.9						43 2.70	43 2.42
1.67		+6.5	0 32.4	30.9	40	3.65	42	16.70		40	43 14.41	
8.02		0.81291					53 43	19.56			- 1	+11.63
		9.77216						- 5.15			- 5	
		0.71176									+11.32	
											+ 37	
											- 22.50	
											43 3.54	
			28 54.53		43 54.1							
		+22.1	0 58.2	12.5	1	1.33	21	47.00		0	53 22 47.71	22 48.02
		1.34439					53 23	5.36			- 13	+11.20
		9.77558						- 17.65			- 4	- 6
2.61		1.24666						+11.03			+11.26	+11.27
1.82		+32.0	0 42.6	3.5	0	53.20	21	55.15		0	+ 34	+ 34
7.79		1.50515					53 23	13.57			- 20.60	- 21.45
		9.77558	31 24.39		23 56.7			- 25.55			22 38.31	22 37.94
2.52		1.40742	24.44		56.2						23 7.57	23 7.04
1.68		+28.5	0 9.1	8.8	0	8.95	202	39.40		0	243 19.47	
7.84		1.45484					53 24	42.26			- 21	+11.08
		9.77575						- 22.77			- 1	
		1.35728									+10.96	
											+ 34	
											- 22.50	
											243 8.07	
			31 24.56		23 57.3							
		+15.7	4 45.0	5.0	29	5.80	52	53.35		25	53 53 59.33	53 59.48
		1.19590					53 54	11.71			- 7	+11.67
		9.77026						- 12.38			- 20	- 34
2.55		1.09285						+11.53			+11.78	+11.75
1.84		+17.8	4 43.3	3.2	29	5.825	52	55.10		25	+ 37	+ 37
2.71		1.25042					53 54	13.52			- 20.60	- 21.50
2.64		9.77026	32 19.22		55 9.1			- 14.04			53 50.40	53 49.73
		1.14737	19.26		8.4						54 19.60	54 18.93
1.69		+31.2	3 55.7	55.1	28	53.40	53	52.95		25	54 31.21	
2.65		1.49415					53 54	55.81			- 26	+11.28
12.76		9.77009						- 24.60			- 37	
		1.39093									+11.54	
											+ 37	
											- 22.55	
											54 19.94	
			32 19.26		55 9.4							
		+25.0	0 40.1	3.0	20	5.55	54	56.80		20	54 2 55.51	2 54.47
		1.29794						15.16			- 16	+11.82
8.49		9.76870						- 19.65			- 3	- 19
1.85		1.29333						+11.70			+11.93	+12.08
6.64		+27.2	0 40.7	1.1	20	50.90	54	57.45		20	+ 31	+ 40
		1.43457						15.87			- 20.60	- 21.50
2.42		9.76870	34 8.16		4 5.9			- 21.38			2 46.72	2 45.07
1.71		1.32996	3.23		4.12						3 15.93	3 14.27
6.71		+28.5	0 1.4	2.2	20	1.80	54	46.55		20	3 27.02	
		1.45484						49.41			- 21	+11.88
		9.76852						- 22.37			- 0	
		1.35005									+11.69	
											+ 40	
											- 22.53	
											3 16.35	
			34 3.23		4 6.3							
		+30.7	1 43.0	4.2	1	53.60	20	54.75		0	53 28 48.59	21 49.97
		1.48714					53 22	13.11			- 25	+11.02
9.77		9.77575						- 24.52			- 8	- 13
1.86		1.38958						+11.01			+11.24	+11.22
7.91		+29.6	1 43.1	3.2	1	53.15	20	55.20		0	+ 34	+ 34
		1.47129					53 22	13.62			- 20.65	- 21.45
2.66		9.77575	35 54.81		22 58.7			- 23.65			24 39.06	24 39.74
1.72		1.37373	54.64		59.14						22 8.26	22 8.94
7.94		+33.5	1 2.8	3.0	1	2.90	21	45.45		0	22 21.55	
		1.52504					53 22	48.31			- 29	+10.97
		9.77575						- 26.76			- 10	
		1.42748									+11.02	
											+ 34	
											- 22.50	
											22 10.02	
			35 54.54		23 0.5							

Date₁ = Sept. 23, 1971

Sept 28, 1871

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

W.A.R.
A.T.

Date₂ = Oct. 5. 1871

Observer *W.A.D.*

Recorder *A. M.*

38

Run

	Star.	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	aa	ab	ac	ad	ae	af	ag	ah	ai	aj	ak	al	am	an	ao	ap	aq	ar	as	at	au	av	aw	ax	ay	az	ba	bb	bc	bd	be	bf	bg	bh	bi	bj	bk	bl	bm	bn	bo	bp	bq	br	bs	bt	bu	bv	bw	bx	by	bz	ca	cb	cc	cd	ce	cf	cg	ch	ci	cj	ck	cl	cm	cn	co	cp	cq	cr	cs	ct	cu	cv	cw	cx	cy	cz	da	db	dc	dd	de	df	dg	dh	di	dj	dk	dl	dm	dn	do	dp	dq	dr	ds	dt	du	dv	dw	dx	dy	dz	ea	eb	ec	ed	ee	ef	eg	eh	ei	ej	ek	el	em	en	eo	ep	eq	er	es	et	eu	ev	ew	ex	ey	ez	fa	fb	fc	fd	fe	ff	fg	fh	fi	fj	fk	fl	fm	fn	fo	fp	fq	fr	fs	ft	fu	fv	fw	fx	fy	fz	ga	gb	gc	gd	ge	gf	gg	gh	gi	gj	gk	gl	gm	gn	go	gp	gq	gr	gs	gt	gu	gv	gw	gx	gy	gz	ha	hb	hc	hd	he	hf	hg	hh	hi	hj	hk	hl	hm	hn	ho	hp	hq	hr	hs	ht	hu	hv	hw	hx	hy	hz	ia	ib	ic	id	ie	if	ig	ih	ii	ij	ik	il	im	in	io	ip	iq	ir	is	it	iu	iv	iw	ix	iy	iz	ja	jb	jc	jd	je	jf	jj	jk	jl	jm	jn	jo	jp	jq	jr	js	jt	ju	jv	jw	jx	ky	kz	la	lb	lc	ld	le	lf	lg	lh	li	lj	lk	ll	lm	ln	lo	lp	lq	lr	ls	lt	lu	lv	lw	lx	ly	lz	ma	mb	mc	md	me	mf	mg	mh	mi	mj	mk	ml	mm	mn	mo	mp	mq	mr	ms	mt	mu	mv	mw	mx	my	mz	na	nb	nc	nd	ne	nf	ng	nh	ni	nj	nk	nl	nm	nn	no	np	nq	nr	ns	nt	nu	nv	nw	nx	ny	nz	oa	ob	oc	od	oe	of	og	oh	oi	oj	ok	ol	om	on	oo	op	oq	or	os	ot	ou	ov	ow	ox	oy	oz	pa	pb	pc	pd	pe	pf	pg	ph	pi	pj	pk	pl	pm	pn	po	pp	pq	pr	ps	pt	pu	pv	pw	px	py	pz	qa	qb	qc	qd	qe	qf	qg	qh	qi	qj	qk	ql	qm	qn	qo	qp	qq	qr	qs	qt	qu	qv	qw	qx	qy	qz	ra	rb	rc	rd	re	rf	rg	rh	ri	rj	rk	rl	rm	rn	ro	rp	rq	rr	rs	rt	ru	rv	rw	rx	ry	rz	sa	sb	sc	sd	se	sf	sg	sh	si	sj	sk	sl	sm	sn	so	sp	sq	sr	ss	st	su	sv	sw	sx	sy	sz	ta	tb	tc	td	te	tf	tg	th	ti	tj	tk	tl	tm	tn	to	tp	tq	tr	ts	tt	tu	tv	tw	tx	ty	tz	ua	ub	uc	ud	ue	uf	ug	uh	ui	uj	uk	ul	um	un	uo	up	uq	ur	us	ut	uu	uv	uw	ux	uy	uz	va	vb	vc	vd	ve	vf	vg	vh	vi	vj	vk	vl	vm	vn	vo	vp	vq	vr	vs	vt	vu	vv	vw	wx	wy	wz	xa	xb	xc	xd	xe	xf	xg	xh	xi	xj	xk	xl	xm	xn	xo	xp	xq	xr	xs	xt	xu	xv	xw	xx	xy	xz	ya	yb	yc	yd	ye	yf	yg	yh	yi	yj	yk	yl	ym	yn	yo	yp	yq	yr	ys	yt	yu	yv	yw	yx	yy	yz	za	zb	zc	zd	ze	zf	zg	zh	zi	zj	zk	zl	zm	zn	zo	zp	zq	zr	zs	zt	zu	zv	zw	zx	zy	zz	aa	ab	ac	ad	ae	af	ag	ah	ai	aj	ak	al	am	an	ao	ap	aq	ar	as	at	au	av	aw	ax	ay	az	ba	bb	bc	bd	be	bf	bg	bh	bi	bj	bk	bl	bm	bn	bo	bp	bq	br	bs	bt	bu	bv	bw	bx	by	bz	ca	cb	cc	cd	ce	cf	cg	ch	ci	cj	ck	cl	cm	cn	co	cp	cq	cr	cs	ct	cu	cv	cw	cx	cy	cz	da	db	dc	dd	de	df	dg	dh	di	dj	dk	dl	dm	dn	do	dp	dq	dr	ds	dt	du	dv	dw	dx	dy	dz	ea	eb	ec	ed	ee	ef	eg	eh	ei	ej	ek	el	em	en	eo	ep	eq	er	es	et	eu	ev	ew	ex	ey	ez	fa	fb	fc	fd	fe	ff	fg	fh	fi	fj	fk	fl	fm	fn	fo	fp	fq	fr	fs	ft	fu	fv	fw	fx	fy	fz	ga	gb	gc	gd	ge	gf	gg	gh	gi	gj	gk	gl	gm	gn	go	gp	gq	gr	gs	gt	gu	gv	gw	gx	gy	gz	ha	hb	hc	hd	he	hf	hg	hh	hi	hj	hk	hl	hm	hn	ho	hp	hq	hr	hs	ht	hu	hv	hw	hx	hy	hz	ia	ib	ic	id	ie	if	ig	ih	ii	ij	ik	il	im	in	io	ip	iq	ir	is	it	iu	iv	iw	ix	iy	iz	ja	jb	jc	jd	je	jf	jj	jk	jl	jm	jn	jo	jp	jq	jr	js	jt	ju	jv	jw	jx	ky	kz	la	lb	lc	ld	le	lf	lg	lh	li	lj	lk	ll	lm	ln	lo	lp	lq	lr	ls	lt	lu	lv	lw	lx	ly	lz	ma	mb	mc	md	me	mf	mg	mh	mi	mj	mk	ml	mm	mn	mo	mp	mq	mr	ms	mt	mu	mv	mw	mx	my	mz	na	nb	nc	nd	ne	nf	ng	nh	ni	nj	nk	nl	nm	nn	no	np	nq	nr	ns	nt	nu	nv	nw	nx	ny	nz	oa	ob	oc	od	oe	of	og	oh	oi	oj	ok	ol	om	on	oo	op	oq	or	os	ot	ou	ov	ow	ox	oy	oz	pa	pb	pc	pd	pe	pf	pg	ph	pi	pj	pk	pl	pm	pn	po	pp	pq	pr	ps	pt	pu	pv	pw	px	py	pz	qa	qb	qc	qd	qe	qf	qg	qh	qi	qj	qk	ql	qm	qn	qo	qp	qq	qr	qs	qt	qu	qv	qw	qx	qy	qz	ra	rb	rc	rd	re	rf	rg	rh	ri	rj	rk	rl	rm	rn	ro	rp	rq	rr	rs	rt	ru	rv	rw	rx	ry	rz	sa	sb	sc	sd	se	sf	sg	sh	si	sj	sk	sl	sm	sn	so	sp	sq	sr	ss	st	su	sv	sw	sx	sy	sz	ta	tb	tc	td	te	tf	tg	th	ti	tj	tk	tl	tm	tn	to	tp	tq	tr	ts	tt	tu	tv	tw	tx	ty	tz	ua	ub	uc	ud	ue	uf	ug	uh	ui	uj	uk	ul	um	un	uo	up	uq	ur	us	ut	uu	uv	uw	ux	uy	uz	va	vb	vc	vd	ve	vf	vg	vh	vi	vj	vk	vl	vm	vn	vo	vp	vq	vr	vs	vt	vu	vv	vw	wx	wy	wz	xa	xb	xc	xd	xe	xf	xg	xh	xi	xj	xk	xl	xm	xn	xo	xp	xq	xr	xs	xt	xu	xv	xw	xx	xy	xz	ya	yb	yc	yd	ye	yf	yg	yh	yi	yj	yk	yl	ym	yn	yo	yp	yq	yr	ys	yt	yu	yv	yw	yx	yy	yz	za	zb	zc	zd	ze	zf	zg	zh	zi	zj	zk	zl	zm	zn	zo	zp	zq	zr	zs	zt	zu	zv	zw	zx	zy	zz	aa	ab	ac	ad	ae	af	ag	ah	ai	aj	ak	al	am	an	ao	ap	aq	ar	as	at	au	av	aw	ax	ay	az	ba	bb	bc	bd	be	bf	bg	bh	bi	bj	bk	bl	bm	bn	bo	bp	bq	br	bs	bt	bu	bv	bw	bx	by	bz	ca	cb	cc	cd	ce	cf	cg	ch	ci	cj	ck	cl	cm	cn	co	cp	cq	cr	cs	ct	cu	cv	cw	cx	cy	cz	da	db	dc	dd	de	df	dg	dh	di	dj	dk	dl	dm	dn	do	dp	dq	dr	ds	dt	du	dv	dw	dx	dy	dz	ea	eb	ec	ed	ee	ef	eg	eh	ei	ej	ek	el	em	en	eo	ep	eq	er	es	et	eu	ev	ew	ex	ey	ez	fa	fb	fc	fd	fe	ff	fg	fh	fi	fj	fk	fl	fm	fn	fo	fp	fq	fr	fs	ft	fu	fv	fw	fx	fy	fz	ga	gb	gc	gd	ge	gf	gg	gh	gi	gj	gk	gl	gm	gn	go	gp	gq	gr	gs	gt	gu	gv	gw	gx	gy	gz	ha	hb	hc	hd	he	hf	hg	hh	hi	hj	hk	hl	hm	hn	ho	hp	hq	hr	hs	ht	hu	hv	hw	hx	hy	hz	ia	ib	ic	id	ie	if	ig	ih	ii	ij	ik	il	im	in	io	ip	iq	ir	is	it	iu	iv	iw	ix	iy	iz	ja	jb	jc	jd	je	jf	jj	jk	jl	jm	jn	jo	jp	jq	jr	js	jt	ju	jv	jw	jx	ky	kz	la	lb	lc	ld	le	lf	lg	lh	li	lj	lk	ll	lm	ln	lo	lp	lq	lr	ls	lt	lu	lv	lw	lx	ly	lz	ma	mb	mc	md	me	mf	mg	mh	mi	mj	mk	ml	mm	mn	mo	mp	mq	mr	ms	mt	mu	mv	mw	mx	my	mz	na	nb	nc	nd	ne	nf	ng	nh	ni	nj	nk	nl	nm	nn	no	np	nq	nr	ns	nt	nu	nv	nw	nx	ny	nz	oa	ob	oc	od	oe	of	og	oh	oi	oj	ok	ol	om	on	oo	op	oq	or	os	ot	ou	ov	ow	ox	oy	oz	pa	pb	pc	pd	pe	pf	pg	ph	pi	pj	pk	pl	pm	pn	po	pp	pq	pr	ps	pt	pu	pv	pw	px	py	pz	qa	qb	qc	qd	qe	qf	qg	qh	qi	qj	qk	ql	qm	qn	qo	qp	qq	qr	qs	qt	qu	qv	qw	qx	qy	qz	ra	rb	rc	rd	re	rf	rg	rh	ri	rj	rk	rl	rm	rn	ro	rp	rq	rr	rs	rt	ru	rv	rw	rx	ry	rz	sa	sb	sc	sd	se	sf	sg	sh	si	sj	sk	sl	sm	sn	so	sp	sq	sr	ss	st	su	sv	sw	sx	sy	sz	ta	tb	tc	td	te	tf	tg	th	ti	tj	tk	tl	tm	tn	to	tp	tq	tr	ts	tt	tu	tv	tw	tx	ty	tz	ua	ub	uc	ud	ue	uf	ug	uh	ui	uj	uk	ul	um	un	uo	up	uq	ur	us	ut	uu	uv	uw	ux	uy	uz	va	vb	vc	vd	ve	vf	vg	vh	vi	vj	vk	vl	vm	vn	vo	vp	vq	vr	vs	vt	vu	vv	vw	wx	wy	wz	xa	xb	xc	xd	xe	xf	xg	xh	xi	xj	xk	xl	xm	xn	xo	xp	xq	xr	xs	xt	xu	xv	xw	xx	xy	xz	ya	yb	yc	yd	ye	yf	yg	yh	yi	yj	yk	yl	ym	yn	yo	yp	yq	yr	ys	yt	yu	yv	yw	yx	yy	yz	za	zb	zc	zd	ze	zf	zg	zh	zi	zj	zk	zl	zm	zn	zo	zp	zq	zr	zs	zt	zu	zv	zw	zx	zy	zz	aa	ab	ac	ad	ae	af	ag	ah	ai	aj	ak	al	am	an	ao	ap	aq	ar	as	at	au	av	aw	ax	ay	az	ba	bb	bc	bd	be	bf	bg	bh	bi	bj	bk	bl	bm	bn	bo	bp	bq	br	bs	bt	bu	bv	bw	bx	by	bz	ca	cb	cc	cd	ce	cf	cg	ch	ci	cj	ck	cl	cm	cn	co	cp	cq	cr	cs	ct	cu	cv	cw	cx	cy	cz	da	db	dc	dd	de	df	dg	dh	di	dj	dk	dl	dm	dn	do	dp	dq	dr	ds	dt	du	dv	dw	dx	dy	dz	ea	eb	ec	ed	ee	ef	eg	eh	ei	ej	ek	el	em	en	eo	ep	eq	er	es	et	eu	ev	ew	ex	ey	ez	fa	fb	fc	fd	fe	ff	fg	fh	fi	fj	fk	fl	fm	fn	fo	fp	fq	fr	fs	ft	fu	fv	fw	fx	fy	fz	ga	gb	gc	gd	ge	gf	gg	gh
--	-------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
		+24.7	4 0.0	21.3	39	10.65	43	37.70		35	53 44 36.51	43 48.64
	d	392.70					53 44	56.06			- 16	+11.42 - 18
		1.77181						17.55			- 17	- 35
		1.29120	5		40		43	11.00			+11.38	+11.60
	(8) - D	+26.5	4 84.8	19.5	39	10.15	42	5.20		35	+ 37	+ 37
		1.42325					53 44	9.62			-20.55	- 21.45
	δ_1	9.77181	37 57.50		45 47.6			-20.98			44 27.38	43 38.63
		1.32175	57.48		45 48.5						56.58	44 57.83
		+31.3	3 18.7	18.8	38	18.75	44	29.60		35	45 7.68	
	d	1.49554					53 45	32.46			- 26	+11.17
		9.77181						-24.78			- 33	
	(8) - D	1.39404									+11.38	
											+ 38	
	δ_2		37 57.53		45 47.3	46.90					-22.55	
											44 56.30	
		+25.2	1 36.0	32.8	46	46.88	35	1.45		45	53 57 19.50	29.00 37 0.71
	d	1.40140					53 37	39.81			- 17	+11.36 - 18
		9.77181						-20.01			- 6	- 12
	(8) - D	1.30128									+11.23	+11.49
		+26.2	1 34.5	56.0	46	45.25	36	3.10		45	+ 36	+ 36
	δ_1	1.41830					53 37	21.52			-20.50	- 21.45
		9.77181	39 8.15		38 11.2			-20.51			37 0.56	36 50.81
		1.31818	8.06		11.3						37 0.86	37 0.86
		+22.6	1 2.0	2.0	46	2.00	36	46.35		45	37 31.26	
	d	1.35411					53 37	49.21			- 14	+11.36
		9.77181						-17.95			- 10	
	(8) - D	1.25399									+11.24	
											+ 36	
	δ_2		39 8.11		38 11.4						-22.55	
											37 20.07	
		+26.2	2 21.8	45.9	59	33.83	25	14.50		55	53 26 11.96	
	d	1.41830					53 26	32.86			- 18	+11.14
		9.77507						-20.90			- 10	
	(8) - D	1.32006									+11.08	
											+ 34	
	δ_1		46 1.82		27 7.4						-20.75	
											26 2.35	
											31.55	
	d	40.4	0 40.4	4.2	23	52.80	56	55.55		45	53 58 5.72	
		1.01703					53 58	13.91			- 3	+11.97
		9.76957						- 8.17			- 3	
	(8) - D	0.91329									+11.63	
											+ 40	
	δ_2		47 2.50		59 2.2						-20.80	
											57 56.89	
											58 26.09	
	d	+11.8	0 4.5	28.7	53	10.60	27	31.75		55	53 28 40.74	
		1.02788					53 28	50.11			- 4	+11.42
		9.77473						- 7.40			- 1	
	(8) - D	0.97330									+11.12	
											+ 35	
	δ_1		47 54.88		29 39.9						-20.75	
											28 31.38	
											29 0.58	
	d	+13.1	3 39.4	2.8	58	57.10	23	57.25		55	53 25 5.16	53 57 0.61
		1.11727					53 25	15.61			- 5	+11.18 - 12 +11.94
		9.77524	1.01920					-10.45			- 15	- 14
	(8) - D	+2.4	1 37.8	0.8	26	49.30	55	59.05		25	+11.04	+11.84
		1.33041					53 57	17.47			+ 34	+ 40
	δ_1	1.33041	1 37.8	2.0	21	59.90	0	48.45		20	-20.75	-21.40
		1.39794	1.29350		48.44 20	26.14	54 2	6.87			24 55.59	56 51.15
		9.76887	54.3472		57 45.05			-17.66			25 24.79	57 20.35
	d	+29.9	2 31.8	54.3472	57	45.05	25	5.30		55	53 25 59.81	25 57.61
		1.47567					53 26	23.66			- 24	+11.07 - 7
		9.77507						-23.85			- 11	- 20
	(8) - D	1.37743									+11.08	+11.25
		+16.5	2 44.4	7.6	57	56.00	24	52.35		55	+ 34	+ 34
	δ_1	1.21748					53 26	10.77			-20.75	-21.40
		9.77507	53 26.24		26 57.4			-13.16			25 50.43	25 47.53
		1.11924	26.22		54.8						26 19.33	26 16.73
	d	+26.6	4 27.2	50.1	49	38.65	33	9.70		45	53 34 10.09	34 8.87
		1.35411					53 34	28.06			- 14	+11.26 - 23
		9.77520						-17.97			- 18	- 32
	(8) - D	1.25450									+11.22	+11.40
		+29.3	4 23.3	45.9	49	34.60	33	13.75		45	+ 36	+ 36
	δ_2	1.46687	54 58.74		35 8.4		53 34	32.17			-20.75	-21.40
		9.77520	54 58.74		6.5			-23.00			34 0.60	34 58.68
		1.36726	54 58.61								29.82	34 27.88

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
17.84	d	+24.7 1.39270 9.77744 1.29683	1 36.2	2.9	11	50.95	53 10 12 15.76 17.81	57.40		10	53 11 55.95	11 56.67
+603	(8) - D	$\frac{d^2}{100}$										
+03888	δ_1	+28.0 1.44476 9.77744 1.35129	1 36.2	5.9.1	11	47.65	53 11 12 19.81	0.70		10	- 15 - 7 +1182 + 32 -20.70	+1192 - 21 - 13 +1101 + 32 -21.40
+603	δ_2	+28.5 1.45484 9.77078 1.35231	2 38.1	0.3	32	49.20	53 51 51 17.51 - 22.57	59.15		30	+ 47.77 + 46.26 12 16.37 50 55.00	+ 46.26 12 15.46 50 53.16
+03888	d	+26.3 1.41996 9.77078 1.31743	2 40.7	5.0	32	52.85	53 51 51 13.42 - 20.77	55.50		30	- 21 - 11 +1149 + 38 -20.75	+1155 - 18 +1169 + 39 -21.45
+591	(8) - D	$\frac{d^2}{100}$										
+03940	δ_1	+21.0 1.32222 9.77268 1.22159	3 52.8	20.3	44	9.05	53 39 39 57.66 - 16.66	39.30		40	+ 45.80 57 15.00 51 11.00	50 43.59 51 12.39 59 41.27
+5.91	d	+22.5 1.35218 9.77268 1.25155	3 57.0	18.3	44	7.65	53 39 39 59.88 - 17.85	40.70		40	- 12 - 16 +1148 + 36 -20.75	+11.36 - 13 +11.48 + 37 -21.40
+03940	δ_2	+24.8 1.38917 9.77405 1.28991	2 2.2	25.0	52	13.60	53 31 31 53.11 - 19.49	34.75		50	+1148 + 36 -20.75 37 31.30 40 0.81	+11.36 - 13 +11.48 + 37 -21.40 37 31.30 40 0.81
+5.94	(8) - D	$\frac{d^2}{100}$										
+03968	d	+32.2 1.40860 9.77405 1.40860	1 56.3	17.5	52	7.05	53 31 31 59.88 - 25.62	41.30		50	- 15 - 15 +1114 + 35 -20.75	+11.25 - 27 +11.25 + 35 -21.40
+601	(8) - D	$\frac{d^2}{100}$										
+03996	δ_1	+25.5 1.40654 9.77877 1.31202	4 40.3	1.8	19	51.05	53 4 4 15.66 - 20.57	57.30		15	+1114 + 35 -20.75 34 24.42 31 58.32	3 54.19 3 54.19 - 20 - 34 +1091
+601	d	+27.7 1.414248 9.77877 1.34796	4 39.6	1.0	19	50.30	53 4 4 16.47 - 22.28	58.05		15	+1091 + 31 -20.70 3 45.12 4 14.32	+ 31 + 31 -21.40 3 43.77 4 12.67
+04028	δ_2	+30.7 1.48714 9.77387 1.38770	0 22.3	44.8	50	33.53	53 33 33 33.16 - 24.42	14.80		50	- 25 - 25 +1118 + 36 -20.75	+11.27 - 21 +11.58 + 36 -21.45
+606	(8) - D	$\frac{d^2}{100}$										
+04100	d	+28.7 1.45788 9.77587 1.35844	0 25.1	47.2	50	36.15	53 33 33 12.20 - 22.83	12.20		50	+1118 + 36 -20.75 32 54.26 33 28.46	+11.27 - 21 +11.58 + 36 -21.45 32 57.92 33 27.12
+606	δ_1	+30.4 1.45332 9.77019 1.35320	2 0.3	22.1	47	11.20	53 37 37 24.14 - 24.14	24.77		45	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+04152	d	+30.4 1.45332 9.77019 1.35320	2 0.3	22.1	47	11.20	53 37 37 24.14 - 24.14	24.77		45	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+608	(8) - D	$\frac{d^2}{100}$										
+04152	δ_2	+4.9 0.69020 9.77250 0.58739	2 36.1	58.9	37	42	53 41 41 19.21 - 3.87	0.85		40	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+608	d	+11.8 1.04188 9.77250 0.97107	2 30.0	51.3	42	40.65	53 41 41 26.82 - 9.36	7.70		40	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+04880	δ_1	+25.3 1.40312 9.76922 1.29903	4 13.5	36.8	24	25.16	53 59 59 41.56 - 17.91	23.20		20	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+651	(8) - D	$\frac{d^2}{100}$										
+04880	d	+19.6 1.29226 9.76922 1.18817	4 18.9	34.8	24	26.85	53 59 59 41.56 - 17.91	21.60		20	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+658	δ_2	+48.4 1.18817 9.76922 1.18817	36 48.11		0	32.7	59 41.56 41.56 - 15.42	40.62		59	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+05072	d	+48.4 1.18817 9.76922 1.18817	36 48.11		0	32.7	59 41.56 41.56 - 15.42	40.62		59	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58
+658	(8) - D	$\frac{d^2}{100}$										
+05072	δ_2	+48.4 1.18817 9.76922 1.18817	36 48.11		0	32.7	59 41.56 41.56 - 15.42	40.62		59	+1118 + 36 -20.75 36 20.70 36 49.90	+11.29 - 24 +11.40 36 41.43 37 0.58

Date₁ = Sept. 26, 1871
n = 1.08Observer A.M.
Recorder M.A.R.Date₂ = Oct. 9
n = 1.04Observer A.M.
Recorder M.A.R.

42

Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
1	27	52	53 27	7.5	26	26.3	52.0	55.3	56.8	2.2	6.0	29 43	58.86
	κ	27 17.0	53 22.5		26	26.3						-597	58.86
	(S) - D) $\frac{\kappa'}{100}$				26	26.3							58.86
	a_1				26	26.3							58.86
1	27	52	53 27	7.5	27	27.5	52.3	55.9	59.2	2.7	6.2	29 63	59.26
	κ	27 17.0	53 22.5		27	27.5						-683	59.26
	(S) - D) $\frac{\kappa'}{100}$				27	27.5							59.26
	a_2				27	27.5							59.26
21	28	52	53 33	8.5	28	40.6	52.6	56.3	59.8	3.2	6.6	29 65	59.70
	κ	28 19.4	53 28.3		28	40.6						-597	59.70
	(S) - D) $\frac{\kappa'}{100}$				28	40.6							59.70
	a_1				28	40.6							59.70
1	28	52	53 33	8.5	28	40.6	52.6	56.3	59.8	3.2	6.6	29 65	59.70
	κ	28 19.4	53 28.3		28	40.6						-682	59.70
	(S) - D) $\frac{\kappa'}{100}$				28	40.6							59.70
	a_2				28	40.6							59.70
2	29	53	53 20	9.2	29	42.2	54.2	57.6	6.0	4.6	8.1	30 55	61.10
	κ	29 20.9	53 15.7		29	42.2						-597	61.10
	(S) - D) $\frac{\kappa'}{100}$				29	42.2							61.10
	a_1				29	42.2							61.10
2	29	53	53 20	9.2	29	42.2	54.2	57.6	6.0	4.6	8.1	30 55	61.10
	κ	29 20.9	53 15.7		29	42.2						-683	61.10
	(S) - D) $\frac{\kappa'}{100}$				29	42.2							61.10
	a_2				29	42.2							61.10
2	30	54	53 06	8.2	30	52.6	51.6	59.2	22.6	26.2	29.6	11 36	22.72
	κ	30 42.7	53 1.8		30	52.6						-597	22.72
	(S) - D) $\frac{\kappa'}{100}$				30	52.6							22.72
	a_1				30	52.6							22.72
2	30	54	53 06	8.2	30	52.6	51.6	59.2	22.6	26.2	29.6	11 36	22.72
	κ	30 42.7	53 1.8		30	52.6						-683	22.72
	(S) - D) $\frac{\kappa'}{100}$				30	52.6							22.72
	a_2				30	52.6							22.72
2	31	54	53 06	8.2	31	52.6	51.6	59.2	22.6	26.2	29.6	11 36	22.72
	κ	31 42.7	53 1.8		31	52.6						-683	22.72
	(S) - D) $\frac{\kappa'}{100}$				31	52.6							22.72
	a_1				31	52.6							22.72
2	31	54	53 06	8.2	31	52.6	51.6	59.2	22.6	26.2	29.6	11 36	22.72
	κ	31 42.7	53 1.8		31	52.6						-683	22.72
	(S) - D) $\frac{\kappa'}{100}$				31	52.6							22.72
	a_2				31	52.6							22.72
2	32	54	53 06	8.2	32	52.6	51.6	59.2	22.6	26.2	29.6	11 36	22.72
	κ	32 42.7	53 1.8		32	52.6						-683	22.72
	(S) - D) $\frac{\kappa'}{100}$				32	52.6							22.72
	a_1				32	52.6							22.72
2	32	54	53 06	8.2	32	52.6	51.6	59.2	22.6	26.2	29.6	11 36	22.72
	κ	32 42.7	53 1.8		32	52.6						-683	22.72
	(S) - D) $\frac{\kappa'}{100}$				32	52.6							22.72
	a_2				32	52.6							22.72

Runs

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

44

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

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
30	d	$+27.2$ 1.43454 9.77812 $1.33938m$	$0 \ 26.2$	47.9	$15-$	37.05	$53 \ 7$ 18	11.30 29.72 21.85		$15-$	$53 \ 8$ 7.87 -20 -4 $+1104$ $+31$ -2060 $7 \ 58.58$ $8 \ 27.58$	$+11.11$
$+8.05$ $+1.456$	δ_1		$34 \ 22.23$	$9 \ 32.1$							-22 $+253$ $+1071$ $+31$ -2290 $8 \ 26.21$	
	d	$+28.7$ 1.45788 9.77795 $1.36252m$	$0 \ 7.2$	-15.0	14	48.90	$53 \ 7$ 9	59.45 1.13 -23.04		$15-$	$8 \ 38.09$ -22 $+253$ $+1071$ $+31$ -2290 $8 \ 26.21$	$+11.02$
$+8.05$ $+1.458$	δ_2		$34 \ 22.00$	$9 \ 30.8$								
46	d	$+32.5$ 1.35218 9.76887 $1.24774m$	$1 \ 26.8$	47.4	21	37.10	$54 \ 1$ 2	11.25 29.67 -17.69		20	$54 \ 2$ 11.98 -13 -11 $+1201$ $+40$ -2060 $2 \ 3.55$ 32.75	$+12.17$
$+7.93$ $+1.476$	δ_1		$35 \ 20.66$	$3 \ 37.5$							-2060 $2 \ 3.55$ 32.75	
	d	$+15.9$ 1.20140 9.76870 $1.09679m$	$0 \ 52.9$	50.9	20	57.90	$54 \ 1$ 2	56.45 58.13 -12.50		20	$2 \ 45.63$ -7 -10 $+1184$ $+40$ -2295 $2 \ 34.75$	$+12.07$
$+7.93$ $+1.476$	δ_2		$35 \ 20.55$	$3 \ 39.5$								
42	d	$+27.1$ 1.43294 9.77191 $1.33168m$	$4 \ 34.0$	53.2	39	43.60	$53 \ 43$ 44	4.75 23.17 -21.46		35	$53 \ 44$ 1.71 -19 -33 $+1169$ $+37$ -2060 $43 \ 52.65$ $44 \ 21.85$	$+11.54$
$+8.01$ $+1.500$	δ_1		$36 \ 26.59$	$45 \ 26.8$							-2060 $43 \ 52.65$ $44 \ 21.85$	
	d	$+22.8$ 1.35793 9.77181 $1.25643m$	$3 \ 58.9$	52.2	38	58.55	$53 \ 43$ 44	49.80 51.48 -18.05		35	$44 \ 33.43$ -14 -44 $+1154$ $+37$ -2290 $44 \ 21.86$	$+11.33$
$+8.01$ $+1.500$	δ_2		$36 \ 26.44$	$45 \ 26.9$								
56	d	$+30.6$ 1.48572 9.77473 $1.38714m$	$0 \ 4.9$	25.2	$56-$	15.05	$53 \ 27$ 28	33.30 51.72 -24.39		55	$53 \ 28$ 27.33 -25 -1 $+1142$ $+35$ -2055 $28 \ 48.29$ 47.49	$+11.51$
$+8.09$ $+1.532$	δ_1		$37 \ 56.94$	$29 \ 52.8$							-2055 $28 \ 48.29$ 47.49	
	d	$+28.5$ 1.45484 9.77473 $1.35626m$	$4 \ 26.7$	26.9	54	29.80	$53 \ 28$ 29	20.55 22.23 -22.71		50	$28 \ 57.52$ -21 -47 $+1127$ $+35$ -2285 $28 \ 47.59$	$+10.89$
$+8.09$ $+1.532$	δ_2		$37 \ 56.92$	$29 \ 50.9$								
48	d	$+15.6$ 1.19312 9.76957 $1.08938m$	$0 \ 43.2$	3.3	$26-$	53.25	$53 \ 56$ 58	55.10 13.52 -12.26		25	$53 \ 58$ 1.26 -7 -6 $+1194$ $+40$ -2055 $57 \ 52.72$ $58 \ 22.12$	$+12.21$
$+8.03$ $+1.544$	δ_1		$38 \ 44.27$	$59 \ 27.6$ $58 \ 34.6$							-2055 $57 \ 52.72$ $58 \ 22.12$	
	d	$+17.8$ 1.25042 9.76957 $1.14668m$	$0 \ 4.0$	1.7	$26-$	28.5	$53 \ 57$ 58	45.50 47.18 -14.02		25	$58 \ 33.16$ -8 -0 $+1178$ $+40$ -2285 $58 \ 22.41$	$+12.10$
$+8.03$ $+1.544$	δ_2		$38 \ 44.17$	$59 \ 27.8$								

Date₁ = ¹²²Sept. 28, 1871Observer ^{A.M.}
Recorder ^{M.A.R.}Date₂ = ¹²⁴Oct. 9, 1871Observer ^{A.M.}
Recorder ^{M.A.R.}

46

1871 phase. p

Star.	α	δ	Mag.	T_s	T_m	T_e	T_p	T_g	T_h	Sum	Mean	Red. to T_m	T
20	^m 39	^s 43	⁰ 53 42	7.0	^m 39	21.9	42.0	45.4	45.8	47.1	58.0	244.3	48.86
	^s 39	⁰ 53 37.5	8.2			23.0						-5.98	
	κ					25.4							
	(δ) - D	$\frac{\kappa'}{100}$				23.4							
	a_1												
	κ												
	(δ) - D	$\frac{\kappa'}{100}$				20.4							
	a_2												
	7.8	39	18.7	42.3	46.0	49.4	52.8	56.3	246.8	49.36	39	49.36	
	κ					20.0							
	(δ) - D	$\frac{\kappa'}{100}$				22.7							
	a_2												
21	40	52	53 55	8.9	40	33.9	67.1	64.7	68.0	1.4	5.1	29.03	58.06
	^s 40	⁰ 53 50.7	8.0			35.5						-5.98	
	κ					37.5							
	(δ) - D	$\frac{\kappa'}{100}$				35.6							
	a_1												
	κ												
	(δ) - D	$\frac{\kappa'}{100}$											
	a_2												
	8.7	40	26.6	51.4	55.0	58.6	2.1	5.6	29.24	58.54	40	58.54	
	κ					28.5							
	(δ) - D	$\frac{\kappa'}{100}$				31.5							
	a_2												
21	42	03	53 31	9.5	41	41.0	42.3	6.8	10.4	13.8	17.05	23	10.46
	^s 41	⁰ 53 26.9	9.4			43.0						-5.98	
	κ					45.9							
	(δ) - D	$\frac{\kappa'}{100}$				43.3							
	a_1												
	κ												
	(δ) - D	$\frac{\kappa'}{100}$											
	a_2												
	9.2	41	34.7	42.4	7.5	11.1	14.5	18.1	5.53	11.06	42	11.06	
	κ					36.1							
	(δ) - D	$\frac{\kappa'}{100}$				38.2							
	a_2												
21	43	10	54 01	9.3	42	52.8	43.9	13.4	17.0	20.3	23.8	8	16.84
	^s 42	⁰ 53 57.1	9.4			54.5						-5.98	
	κ					58.7							
	(δ) - D	$\frac{\kappa'}{100}$				54.7							
	a_1												
	κ												
	(δ) - D	$\frac{\kappa'}{100}$											
	a_2												
	9.0	42	47.7	43.10.4	13.8	17.2	20.8	24.4	6.6	17.32	43	17.32	
	κ					49.3							
	(δ) - D	$\frac{\kappa'}{100}$				52.7							
	a_2												
21	46	58	53 41	8.0									
	^s 46	⁰ 53 36.8	8.6										
	κ												
	(δ) - D	$\frac{\kappa'}{100}$											
	a_1												
	κ												
	(δ) - D	$\frac{\kappa'}{100}$											
	a_2												
	9.3	46	31.2	57.5	1.1	41.6	8.1	11.6	32.3	2	64.64	46	4.64
	κ					33.3							
	(δ) - D	$\frac{\kappa'}{100}$				35.8							
	a_2												
	46	55	53 41	8.6									
	^s 46	⁰ 53 36.8	8.6										
	κ												
	(δ) - D	$\frac{\kappa'}{100}$											
	a_1												
	κ												
	(δ) - D	$\frac{\kappa'}{100}$											
	a_2												

lost.
got wrong stars

lost.
got wrong stars

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
50	$\frac{d}{100}$	2 25.6	46.1	42	35.85	53 40	12.50		40	53 41 10.70	
	$(\delta) - D$					53 41	30.92			- 17	+11.67
	δ_1	39 46.69		42 36.8			20.22			- 17	
	δ_2									+11.64	
	δ_3									+ 37	
	δ_4									-20.50	
	δ_5									41 31.07	
	δ_6									41 42.70	
	δ_7									- 22	+11.46
	δ_8									- 19	
	δ_9									+11.56	
	δ_{10}									+ 37	
	δ_{11}									-22.80	
	δ_{12}									41 31.56	
2	$\frac{d}{100}$	4 51.0	25.2	29	15.10	53 54	33.25		25	53 54 33.73	
	$(\delta) - D$					53 54	51.67			- 13	+11.52 ³
	δ_1	40 57.88		56 0.4			17.74			- 29	
	δ_2									+11.86	
	δ_3									+ 37	
	δ_4									-20.45	
	δ_5									54 26.21	
	δ_6									54 56.64	
	δ_7									- 23	+11.52
	δ_8									- 36	
	δ_9									+11.72	
	δ_{10}									+ 37	
	δ_{11}									-22.80	
	δ_{12}									54 45.56	
	δ_{13}									55.36	
40	$\frac{d}{100}$	2 33.5	54.4	52	43.95	53 30	4.40		50	53 31 1.17	
	$(\delta) - D$					53 31	22.82			- 20	+11.40
	δ_1	42 10.36		32 27.5			21.65			- 17	
	δ_2									+11.44	
	δ_3									+ 35	
	δ_4									-20.40	
	δ_5									30 52.17	
	δ_6									31 21.37	
	δ_7									- 31	+11.16
	δ_8									- 20	
	δ_9									+11.32	
	δ_{10}									+ 35	
	δ_{11}									-22.80	
	δ_{12}									31 19.68	
2	$\frac{d}{100}$	2 42.3	2.3	22	52.30	54 59	56.05		20	54 0 57.07	
	$(\delta) - D$					54 1	14.47			- 13	+12.04
	δ_1	43 16.67		2 24.3			17.38			- 20	
	δ_2									+11.97	
	δ_3									+ 40	
	δ_4									-20.40	
	δ_5									0 48.78	
	δ_6									1 17.93	
	δ_7									1 28.38	
	δ_8									- 19	+11.79
	δ_9									- 22	
	δ_{10}									+11.80	
	δ_{11}									+ 40	
	δ_{12}									-22.80	
	δ_{13}									1 17.37	
	δ_{14}									4	
	δ_{15}										
	δ_{16}										
	δ_{17}										
	δ_{18}										
	δ_{19}										
	δ_{20}										
	δ_{21}										
	δ_{22}										
	δ_{23}										
	δ_{24}										
	δ_{25}										
	δ_{26}										
	δ_{27}										
	δ_{28}										
	δ_{29}										
	δ_{30}										
	δ_{31}										
	δ_{32}										
	δ_{33}										
	δ_{34}										
	δ_{35}										
	δ_{36}										
	δ_{37}										
	δ_{38}										
	δ_{39}										
	δ_{40}										
	δ_{41}										
	δ_{42}										
	δ_{43}										
	δ_{44}										
	δ_{45}										
	δ_{46}										
	δ_{47}										
	δ_{48}										
	δ_{49}										
	δ_{50}										
	δ_{51}										
	δ_{52}										
	δ_{53}										
	δ_{54}										
	δ_{55}										
	δ_{56}										
	δ_{57}										
	δ_{58}										
	δ_{59}										
	δ_{60}										
	δ_{61}										
	δ_{62}										
	δ_{63}										
	δ_{64}										
	δ_{65}										
	δ_{66}										
	δ_{67}										
	δ_{68}										
	δ_{69}										
	δ_{70}										
	δ_{71}										
	δ_{72}										
	δ_{73}										
	δ_{74}										
	δ_{75}										
	δ_{76}										
	δ_{77}										
	δ_{78}										
	δ_{79}										
	δ_{80}										
	δ_{81}										
	δ_{82}										
	δ_{83}										
	δ_{84}										
	δ_{85}										
	δ_{86}										
	δ_{87}										
	δ_{88}										
	δ_{89}										
	δ_{90}										
	δ_{91}										
	δ_{92}										
	δ_{93}										
	δ_{94}										
	δ_{95}										
	δ_{96}										
	δ_{97}										
	δ_{98}										
	δ_{99}										
	δ_{100}										

Date₁ = *122* Sept 25, 1871Observer *A.M.*
Recorder *M.A.R.*Date₂ = *124* Oct 9, 1871Observer *A.M.*
Recorder *M.A.R.*

48

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
21	<i>m</i> 47 47 K	<i>s</i> 56 20.8 53 1.9	<i>s</i> 0 0 8.8 9.0	<i>m</i> 47 28.0 29.6 31.2	56.1	57.4	2.7	6.6	10.0	3149 -598	62.98	<i>m</i> 48 2.28 3.00 -6.06 + 11 - 3	
	(S) - D	$\frac{\kappa'}{100}$		29.6								47 57.02 - 2.34 47 54.68	+8. +1
	α_1											47 57.02 - 2.34 47 54.68	+8. +1
	κ		8.8	47 39.8 41.1 44.8	57.0	0.3	3.8	7.0	10.6	3187 -683	63.74	48 3.44 - 6.85 + 5 - 3	
	(S) - D	$\frac{\kappa'}{100}$		41.9								47 56.91 - 2.10 47 54.81	+8. +1
	α_2											47 56.91 - 2.10 47 54.81	+8. +1
21	48 48 K	51 15.8 53 15.7	6.5 6.5	48 37.0 37.0	50.2	53.7	57.1	0.5	4.2	2857 -599	57.14	48 57.14 - 6.07 + 11 - 3	
	(S) - D	$\frac{\kappa'}{100}$		37.2								48 57.15 - 2.36 48 48.79	+8. +1
	α_1											48 57.15 - 2.36 48 48.79	+8. +1
	κ		6.5	48 27.0 29.5 32.1	57.0	54.1	57.7	1.2	4.6	2886 -683	57.72	48 57.72 - 6.85 + 5 - 3	
	(S) - D	$\frac{\kappa'}{100}$		29.6								48 50.89 - 2.11 48 48.78	+8. +1
	α_2											48 50.89 - 2.11 48 48.78	+8. +1
21	50 47 K	23 47.8 53 27.9	9.0 9.2	50 2.6 4.3 6.3	23.1	26.6	30.0	33.4	36.9	1500 -599	30.00	50 30.00 - 6.07 + 11 - 3	
	(S) - D	$\frac{\kappa'}{100}$		4.4								50 24.01 - 2.37 50 21.64	+8. +1
	α_1											50 24.01 - 2.37 50 21.64	+8. +1
	κ		9.0	49 55.5 57.9 6.6	50 23.6	27.2	30.5	34.0	37.5	1528 -682	30.56	50 30.56 - 6.85 + 6 - 3	
	(S) - D	$\frac{\kappa'}{100}$		58.0								50 23.74 - 2.12 50 21.62	+8. +1
	α_2											50 23.74 - 2.12 50 21.62	+8. +1
21	52 51 K	00 24.0 53 58.8	9.0 8.9	51 30.7 32.1 34.7	59.6	2.9	6.5	10.1	13.4	3325 -599	66.50	52 6.00 - 6.07 + 11 - 3	
	(S) - D	$\frac{\kappa'}{100}$		32.5								52 0.51 - 2.40 51 58.02	+8. +1
	α_1											52 0.51 - 2.40 51 58.02	+8. +1
	κ		8.6	57 30.2 31.6 34.6	52 0.1	3.7	7.1	10.6	14.1	356 -682	7.12	52 7.12 - 6.85 + 6 - 3	
	(S) - D	$\frac{\kappa'}{100}$		32.1								52 0.30 - 2.15 52 58.15	+8. +1
	α_2											52 0.30 - 2.15 52 58.15	+8. +1
21	53 53 K	57 21.2 53 47.2	8.8 8.8	53 30.1 31.7 34.2	57.7	1.3	4.7	8.2	11.7	3236 -599	64.72	54 4.72 - 6.07 + 11 - 3	
	(S) - D	$\frac{\kappa'}{100}$		32.0								53 58.73 - 2.41 53 56.32	+8. +1
	α_1											53 58.73 - 2.41 53 56.32	+8. +1
	κ		8.9	53 34.1 35.6 39.0	58.3	1.7	5.2	8.7	12.3	3262 -682	65.24	54 5.24 - 6.85 + 6 - 3	
	(S) - D	$\frac{\kappa'}{100}$		36.2								53 58.42 - 2.16 53 56.26	+8. +1
	α_2											53 58.42 - 2.16 53 56.26	+8. +1

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+33.4 1.52375 9.77846 (8) - D) $\frac{d'}{100}$ 1.42890m	2 28.0	48.0	19	38.00	53 5 6	10.35 28.77 -26.85		15	53 6 1.92 -29 -18 +1102 +31 -2025 5 52.53 6 21.73	+10.86
δ_1	+8.41 +1 7.28	48 3.09		7 29.0							
d	+21.8 1.33846 9.77840 (8) - D) $\frac{d'}{100}$ 1.24355m	2 1.0	58.1	16	59.55	53 5 6	48.80 50.48 -17.52		15	6 32.96 -15 -22 +1088 +31 -2270 6 21.10	+10.84
δ_2	+8.41 +1 7.28	48 3.22		7 28.4							
d	+19.9 1.29885 9.77558 (8) - D) $\frac{d'}{100}$ 1.20112m	0 36.7	-3.0	0	46.85	53 22 23	1.50 19.92 -15.89		0	53 23 4.03 -10 -6 +1133 +34 -2025 22 56.29 23 24.49	+11.51
δ_1	+8.39 +1 7.48	48 57.18		24 32.0							
d	+28.1 1.44871 9.77541 (8) - D) $\frac{d'}{100}$ 1.350881m	0 -6.7	-12.1	59	50.60	53 22 23	57.75 59.43 -22.43		0	23 37.00 -21 -53 +1117 +34 -2270 23 25.09	+10.79
δ_2	+8.39 +1 7.48	48 57.17		24 32.6							
d	+25.6 1.40824 9.77387 (8) - D) $\frac{d'}{100}$ 1.30880m	1 0.6	21.0	57	10.80	53 31 32	37.55 55.77 -20.36		50	53 32 35.61 -17 -8 +1148 +35 -2020 32 26.49 56.19	+11.58
δ_1	+8.41 +1 7.76	50 30.05		34 4.0							
d	+32.6 1.51322 9.77387 (8) - D) $\frac{d'}{100}$ 1.41378m	0 17.5	15.6	50	16.55	53 32 33	31.80 33.48 -25.93		50	33 7.55 -28 -3 +1134 +36 -2265 32 56.29	+11.39
δ_2	+8.41 +1 7.76	50 30.03		34 4.0							
d	+34.0 1.53148 9.76922 (8) - D) $\frac{d'}{100}$ 1.42739m	3 52.7	17.5	24	7.60	53 58 59	40.75 59.17 -26.75		20	53 59 32.42 -30 -29 +1197 +40 -2415 59 24.05 53.25	+11.78
δ_1	+8.38 +1 8.04	52 6.49		1 1.3							
d	+35.0 1.54407 9.76922 (8) - D) $\frac{d'}{100}$ 1.43998m	3 19.5	16.8	23	18.30	54 59 0	30.05 31.73 -27.54		20	0 4.19 -32 -36 +1181 +40 -2265 59 53.07	+11.53
δ_2	+8.38 +1 8.04	52 6.53		1 1.1							
d	+32.7 1.51455 9.77061 (8) - D) $\frac{d'}{100}$ 1.41185m	1 44.2	4.2	31	54.20	53 50 52	54.15 12.57 -25.81		30	53 51 46.76 -28 -13 +1186 +39 -2016 51 38.50 52 77.0	+11.84
δ_1	+8.46 +1 8.40	54 4.78		53 16.1							
d	+29.0 1.46240 9.77061 (8) - D) $\frac{d'}{100}$ 1.35970m	1 9.3	7.2	31	8.25	53 51 52	40.10 41.78 -22.80		30	52 18.98 -22 -12 +1168 +39 -2260 52 8.11	+11.73
δ_2	+8.46 +1 8.40	54 4.72		53 16.5							

Date₁ = Sept. 28, 1871Observer A.M.
Recorder W.D.R.Date₂ = Oct. 9, 1871Observer A.M.
Recorder W.D.R.

50

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
55	07	53 34	9.0	54	54.1	55.5	8.6	12.0	15.5	19.0	60.2	12.04	55 12.04
					44.1						-5.99		55 6.07
					45.8								55 1.1
					47.7								55 3
(8) - D					45.8								55 6.05
a_1													55 2.41
													55 3.64
													55 12.70
					51.7								55 6.85
					55.0								55 1.6
(8) - D					52.4								55 3
a_2													55 5.88
													55 2.17
													55 3.71
21	56 21	53 32	9.0	55	57.1	56.20.4	23.8	27.8	31.2	34.5	137.3	27.146	56 27.46
					58.6						-5.99		56 6.07
					60.3								56 1.1
(8) - D					58.6								56 3
a_1													56 21.47
													56 2.42
													56 19.05
													56 28.18
					53.2								56 6.85
					57.6								56 1.6
(8) - D					55.2								56 3
a_2													56 21.36
													56 2.18
													56 19.18
21	57 00	53 10	8.2	56	52.3	59.8	3.3	6.7	10.1	13.7	333.6	66.72	57 6.72
					54.2						5.99		57 6.07
					55.8								57 1.1
(8) - D					54.1								57 3
a_1													57 0.73
													57 2.42
													56 58.31
													57 7.22
					57.4								57 6.85
					59.2								57 1.5
(8) - D					57.6								57 3
a_2													57 0.39
													57 2.18
													56 58.21
21	58 46	54 15	7.5	58	21.1	45.8	49.5	53.0	56.5	0.0	264.8	52.96	58 5.296
					22.7						-6.00		58 6.08
					25.0								58 1.1
(8) - D					22.9								58 3
a_1													58 46.96
													58 2.46
													58 44.50
													58 53.62
					22.8								58 6.85
					24.4								58 1.6
(8) - D					22.8								58 3
a_2													58 46.80
													58 2.22
													58 44.58
22	00 05	53 18	8.8	59	37.3	0 4.0	7.3	10.8	14.4	17.6	5.41	10.82	59 10.82
21	59 28.2	53 13.5	8.5		38.9						-6.00		59 6.08
					40.7								59 1.1
(8) - D					38.9								59 3
a_1													9 4.82
													9 2.45
													90 2.37
													90 11.44
					42.3								90 6.85
					43.9								90 1.5
					46.1								90 3
(8) - D					44.1								90 4.61
a_2													90 2.21
													90 2.40

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
46	δ +26.2 1.41830 9.77370 1.31869m	0' 10.2	28.7	50	19.45	53 32 33	28.90 47.32 20.83		50	53 33 26.47 - 18 - 2 +1150 + 36 -20.05 33 18.10 47.30	+11.66
δ_1 +8.53 +1 8.60		55 12.17		34 55.9							
46	δ +20.3 1.30750 9.77370 1.20789m	4 36.9	34.1	49	35.50	53 33 34	12.85 14.53 -16.14		45	34 58.37 3 - 11 - 51 +1139 + 36 -2255 34 46.97	+11.13
δ_2 +8.53 +1 8.60		55 12.24		34 55.6							
72	δ +28.9 1.46090 9.77405 1.36164m	1 29.2	49.9	51	39.55	53 31 32	8.80 27.22 -22.99		50	53 32 4.23 - 22 - 11 +1150 + 35 -2000 31 55.75 82 24.95	+11.52
δ_1 +8.57 +1 8.84		56 24.66		33 33.8							
50	δ +33.0 1.51851 9.77387 1.41907m	0 49.3	46.6	50	47.95	53 32 33	0.40 2.08 -26.25		50	32 35.83 - 28 - 9 +1155 + 36 -2253 32 24.62	+11.34
δ_2 +8.57 +1 8.84		56 27.75		33 33.5							
50	δ +12.6 1.10037 9.77778 1.00484m	3 31.8	52.7	13	42.25	53 9 10	6.10 24.52 -10.11		10	53 10 14.41 - 5 - 26 +1114 + 32 -2000 10 55.66 34.76	+11.15
δ_1 +8.64 +1 8.96		57 6.95		11 43.7							
66	δ 9.6 0.95227 9.77761 0.88657m	2 58.7	55.6	12	57.15	53 9 10	51.20 52.88 -77.70		10	10 45.18 - 3 - 33 +1099 + 32 -2252 10 33.63	+10.95
δ_2 +8.64 +1 8.96		57 6.85		11 42.6							
66	δ +30.1 1.47857 9.76660 1.37186m	3 33.0	53.0	8	43.00	54 14 15	5.35 23.77 -23.54		5	54 15 0.23 - 23 - 26 +1226 + 40 -1995 14 52.44 15 21.64	+12.16
δ_1 +8.54 +1 9.28		58 53.04		16 30.9							
66	δ +30.8 1.48855 9.76646 1.38170m	2 54.6	50.5	7	52.70	54 14 15	55.65 57.33 -24.08		5	15 33.25 - 24 - 32 +1209 + 40 -2250 15 22.68	+11.93
δ_2 +8.54 +1 9.28		58 53.12		16 32.0							
62	δ +31.9 1.50379 9.77643 1.40691m	0 29.5	50.0	5	39.90	53 14 18	8.45 26.87 -25.52		5	53 18 1.35 - 26 - 4 +1125 + 33 -17.80 17 52.73 18 21.93	+11.28
δ_1 +8.70 +1 9.48		0 11.07		19 31.4							
62	δ +27.3 1.43616 9.77626 1.33911m	4 56.6	53.5	4	50.20	53 17 18	52.15 54.83 -21.83		0	18 38.00 - 20 - 54 +1110 + 33 -2245 18 21.24	+10.69
δ_2 +8.70 +1 9.48		0 11.10		19 30.7							

Date₁ = Sept. 28, 1871Observer W.A.M.
Recorder W.A.R.Date₂ = Oct. 8, 1871Observer A.M.
Recorder W.A.R.

52

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
1	59 53 53	21.5 53 48.4	9.0	1 ^m	37.7 39.0 40.8	58.8	0.1	3.6	7.1	10.8	31.8463.68	-6.00	2 ^h 3.68 -6.08 + 11 - 3 1 57.68 -2.47 55.21
(8) - D					39.1								
α_1													
2	54 03	53 58.3	9.0	1	39.1 40.4 42.6 44.1	57.3	0.8	4.4	7.8	11.3	32.16 -6.82	64.32	2 4.32 -6.85 + 6 - 3 1 57.50 -2.24 55.26
(8) - D					41.5								
α_2													
22	3 28	54 03	9.0	3	6.2 9.1 11.8	26.8	30.4	33.9	39.3	41.0	16.94 -6.00	33.88	3 33.88 -6.08 + 11 - 3 3 27.88 -2.51 25.37
(8) - D					9.0								
α_1													
3	39	53 32	9.0	3	8.4 7.0 9.3	27.6	31.1	34.5	38.0	41.5	17.27 -6.82	34.54	3 34.54 -6.85 + 6 - 3 3 27.72 -2.26 25.46
(8) - D					7.2								
α_2													
22	4 39	53 32	9.0	4	19.6 20.9 22.1	38.6	42.0	45.7	49.3	52.6	22.82 -6.00	45.64	4 45.64 -6.08 + 11 - 3 4 39.64 -2.48 37.16
(8) - D					20.8								
α_1													
4	53 32	53 27.1	9.0	4	21.6 23.6 26.6	39.3	42.8	46.1	49.6	58.3	23.11 -6.82	46.22	4 46.22 -6.85 + 6 - 3 4 39.40 -2.26 37.14
(8) - D					23.9								
α_2													
22	6 07	54 04	9.1	5	41.7 43.0 45.0	6 6.8	10.4	13.7	17.0	20.6	6.85 -6.00	13.70	6 13.70 -6.08 + 11 - 3 6 7.70 -2.51 5.19
(8) - D					43.2								
α_1													
5	54 04	53 57.7	9.3	5	50.1 57.6 54.7	6 7.2	10.7	14.1	17.7	21.3	7.11 -6.82	14.22	6 14.22 -6.85 + 6 - 3 6 7.40 -2.28 5.12
(8) - D					52.1								
α_2													
22	7 33	53 14	9.2	7	8.7 9.8 11.1	32.9	36.4	39.8	43.2	46.5	19.88 -6.00	33.76	7 33.76 -6.08 + 11 - 3 7 27.76 -2.150 25.61
(8) - D					9.8								
α_1													
7	53 14	53 9.5	9.0	7	12.1 14.0 17.0	33.7	37.1	40.3	43.7	47.3	20.21 -6.83	40.42	7 40.42 -6.85 + 5 - 3 7 33.59 -2.28 31.31
(8) - D					14.3								
α_2													

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'	
64	d	+24.6 1.39094 9.77043 1.28806m	0 31.9	52.5	30	42.55	53 52 53	6.15 24.57 -19.41		30	53 53	5.16 -16 -5 +1189 +39 -1785 52 57.88 53 26.58	+12.07
	((8) - D) $\frac{d'}{100}$												
+8.68 +1.980	δ_1		2 3.89		54 36.4							52 57.88 53 26.58	
	d	+22.8 1.35793 9.77043 1.25505m	4 52.3	55.8	29	56.55	53 52 53	51.80 53.48 -17.99		25	53	35.49 -14 -54 +1173 +39 -2245 53 24.48	+11.44
	((8) - D) $\frac{d'}{100}$												
+8.68 +1.980	δ_2	-1	2 3.94		54 34.3							53 24.48	
66	d	+24.9 1.39620 9.76870 1.29159m	1 2.7	22.1	21	12.40	54 1 54 2	35.95 54.37 -19.57		20	54 2	34.80 -16 -8 +1204 +40 -1780 2 27.26 56.40	+12.20
	((8) - D) $\frac{d'}{100}$												
+8.90 +1.008	δ_1		3 34.07		4 6.5							2 27.26 56.40	
	d	+27.3 1.43616 9.76870 1.33155m	0 22.1	20.0	20	24.05	54 2 54 3	27.30 28.98 -21.46		20	3	7.52 -19 -3 +1188 +40 -2240 2 57.18	+12.06
	((8) - D) $\frac{d'}{100}$												
+8.90 +1.008	δ_2		3 34.16		4 7.3							2 57.18	
68	d	+24.8 1.39445 9.77387 1.29501m	1 20.8	42.1	51	31.45	53 31 53 32	16.90 35.32 -19.72		50	53 32	15.60 -16 -11 +1151 +36 -19.75 32 7.45 36.65	+11.60
	((8) - D) $\frac{d'}{100}$												
+8.80 +1.028	δ_1		4 45.96		33 46.9							32 7.45 36.65	
	d	+22.3 1.34830 9.77387 1.24886m	0 46.9	44.3	50	45.60	53 32 53 33	2.75 4.43 -17.74		50	32	46.67 -13 -8 +1135 +36 -22.35 32 35.84	+11.50
	((8) - D) $\frac{d'}{100}$												
+8.80 +1.028	δ_2		4 45.94		33 46.1							32 35.84	
72	d	+30.5 1.48430 9.76852 1.37951m	4 31.1	50.5	19	40.80	54 3 54 4	7.55 25.97 -23.76		15	54 4	2.01 -24 -33 +12.05 +40 -19.70 3 54.49 4 23.39	+11.88
	((8) - D) $\frac{d'}{100}$												
+8.77 +1.052	δ_1		6 13.96		5 33.9							3 54.49 4 23.39	
	d	+22.1 1.34439 9.76852 1.23943m	4 0.7	57.1	18	58.90	54 3 54 4	49.45 51.13 -17.36		15	4	33.77 -13 -44 +1190 +40 -22.35 4 23.15	+11.73
	((8) - D) $\frac{d'}{100}$												
+8.77 +1.052	δ_2		6 13.89		5 33.7							4 23.15	
66	d	+30.0 1.47712 9.77711 1.38092m	4 27.0	46.7	9	36.85	53 13 53 14	11.50 29.92 -24.04		5	53 14	5.88 -24 -32 +1121 +32 -19.65 13 57.20 14 26.40	+10.87
	((8) - D) $\frac{d'}{100}$												
+8.91 +1.076	δ_1		7 40.17		15 37.2							13 57.20 14 26.40	
	d	+26.1 1.41664 9.77694 1.32027m	3 53.1	51.2	8	52.15	53 13 53 14	56.20 57.88 -20.91		5	14	36.77 -18 -43 +1104 +32 -22.30 14 25.42	+10.75
	((8) - D) $\frac{d'}{100}$												
+8.91 +1.076	δ_2		7 40.22		15 36.2							14 25.42	

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'	
56	d	+28.0 1.44716 9.77677 1.35062	2 41.0	1.0	7	51.00	53 14 16	57.35 15.77 -22.42		5	53 15	53.35 -21 -20 +1121 +33 -19.65 15 44.83 16 14.03	+11.13
	$((\delta) - D) \frac{d'}{100}$				24.9								
+8.94	δ_1	+1 10.92	8 39.73		17 25.0								
	d	+20.2 1.30535 9.77677 1.20881	2 8.9	5.8	7	7.35	53 15 16	41.00 42.68 -16.17		5	16	26.51 -11 -23 +1108 +33 -22.25 16 15.33	+11.07
	$((\delta) - D) \frac{d'}{100}$												
+8.94	δ_2	+1 10.92	8 39.68		17 26.2								
34	d	+11.0 1.04139 9.77913 0.94721	1 40.7	0.6	21	50.65	53 0 2	57.70 16.12 -8.86		20	53 2	7.26 -3 -13 +1100 +30 -19.60 +58.20 2 28.08	+11.14
	$((\delta) - D) \frac{d'}{100}$												
	δ_1												
	d	+24.9 1.17319 9.77879 1.07857	4 01.0	57.2	19	59.10	53 2 3	49.25 50.93 -11.98		15	3	38.95 -6 -53 +1083 +31 -22.25 3 27.23	+10.53
	$((\delta) - D) \frac{d'}{100}$												
+8.98	δ_2	+1 11.08	9 40.65		4 38.3								
64	d	+31.4 1.49693 9.77541 1.39903	0 21.7	42.0	0	31.85	53 22 23	16.50 34.92 -28.06		0	53 23	9.86 -26 -4 +1136 +34 -19.55 23 30.91 30.91	+11.40
	$((\delta) - D) \frac{d'}{100}$												
+9.00	δ_1	+1 11.40	11 34.39		24 42.3								
	d	+29.6 1.47129 9.77541 1.37339	4 47.3	44.9	59	46.10	53 23 24	2.25 3.93 -23.63		55	23	40.30 -23 -53 +1121 +34 -22.80 23 28.89	+10.79
	$((\delta) - D) \frac{d'}{100}$												
+9.00	δ_2	+1 11.40	11 34.43		24 40.3								
62	d	+20.1 1.30320 9.77061 1.20050	2 12.2	33.0	32	22.60	53 50 51	25.75 44.17 -15.87		30	53 51	28.30 -10 -17 +1083 +39 -19.50 51 20.76 20.76 49.95	+11.95
	$((\delta) - D) \frac{d'}{100}$												
+8.97	δ_1	+1 11.52	12 25.55		53 1.5								
	d	+19.4 1.28780 9.77062 1.18511	1 36.2	33.6	31	34.90	53 51 52	13.45 15.13 -15.31		30	51	59.62 -8 -18 +1174 +39 -22.20 51 49.28	+11.86
	$((\delta) - D) \frac{d'}{100}$												
+8.97	δ_2	+1 11.52	12 25.77		53 0.8								
74	d	+30.2 1.448001 9.77095 1.37765	3 13.7	35.0	33	24.65	53 49 50	23.70 42.12 -23.86		30	53 50	18.26 -23 -121 +1083 +38 -19.45 50 10.55 10.55 39.75	+11.78
	$((\delta) - D) \frac{d'}{100}$												
+9.01	δ_1	+1 11.72	13 40.15		51 51.5								
	d	+27.0 1.43136 9.77078 1.32883	2 38.9	35.9	32	37.40	53 50 51	10.95 12.63 -21.32		30	50	51.31 -19 -29 +1168 +39 -22.20 50 40.70	+11.59
	$((\delta) - D) \frac{d'}{100}$												
+9.01	δ_2	+1 11.72	13 40.32		51 52.4								

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+26.4 1.42160 9.77778 1.32607~	3' 58.7'	18.9'	124	8.86	53 8 39.55 57.97 -21.19			10'	53 9 36.78 -18 -29 +1111 +31 -17.40 9 28.33 57.53	+10.95
(8) - D) $\frac{d'}{100}$											
+9.15 δ_1 +1 12.08		15 48.42	11 9.6								
d	+30.5 1.48430 9.77778 1.38877~	3 16.6	14.0	13	15.30	50 9 33.05 34.73 -24.42			10	10 10.31 -24 -36 +1100 +32 -22.10 9 58.93	+10.72
(8) - D) $\frac{d'}{100}$											
+9.15 δ_2 +1 12.08		15 48.32	11 11.0								
d	+29.0 1.46240 9.77456 1.36365~	4 34.0	53.3	54	43.65	53 28 29 23.12 -23.10			50	53 29 0.02 -22 -33 +1148 +35 -19.35 28 54.95 29 21.15	+11.28
(8) - D) $\frac{d'}{100}$											
+9.15 δ_1 +1 12.28		17 9.96	30 33.4								
d	+31.8 1.50243 9.77456 1.40368~	3 53.7	51.3	53	52.50	53 28 29 55.85 57.53 -25.33			50	29 32.20 -26 -43 +1132 +35 -22.05 29 21.13	+10.98
(8) - D) $\frac{d'}{100}$											
+9.15 δ_2 +1 12.28		14 10.01	30 33.4								
d	+32.9 1.51720 9.77268 1.41657~	3 26.1	46.8	43	36.45	53 39 40 11.90 30.32 -26.10			40	53 40 4.22 -28 -25 +1168 +37 -19.30 39 56.44 40 25.64	+11.52
(8) - D) $\frac{d'}{100}$											
+9.17 δ_1 +1 12.48		18 36.91	41 38.1								
d	+24.6 1.39094 1.37074 9.77250 1.29185~	2 54.5	51.4	52	52.95	53 29 30 55.40 57.08 -19.58	39 55.40 40 57.08 -19.50		50	40 37.58 -14 -32 +1152 +37 -22.00 40 26.99	+11.41
(8) - D) $\frac{d'}{100}$											
+9.17 δ_2 +1 12.48		15 37.11	41 39.5								
d	+25.5 1.40654 9.76957 1.30277~	0 42.3	2.2	25	52.25	53 56 58 56.10 14.52 -20.08			25	53 57 54.44 -17 -6 +1195 +40 -20.35 57 46.21 58 15.41	+12.12
(8) - D) $\frac{d'}{100}$											
+8.20 δ_1 +1 6.72		45 5.02	59 22.1								
d											
(8) - D) $\frac{d'}{100}$											
δ_2											
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
d											
(8) - D) $\frac{d'}{100}$											
δ_2											

Date₁ = 80pt-22, 1871Observer A.M.
Recorder A.M.Date₂ =Observer
Recorder

58

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
19	51 14	52 1	—										
	50	45.2	51 55.8	8.9									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_1												
19	54 50	51.5	8.9										
	54	24.7	51 2.5	9.0									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_2												
19	57 10	51 35	9.0										
	56	44.4	51 33.0	9.0									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_1												
19	59 55	51 22	8.0										
	59	28.7	51 18.9	8.0									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_2												
20	4 37	51 21	8.5										
	4	10.6	51 15.1	8.6									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_1												
20	6 59	51 25	9.3										
	6	32.5	51 22.5	9.2									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_2												
20	9 25	51 52	8.8										
	8	58.1	51 49.0	8.9									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_1												
20	15 16	51 49	—										
	14	43.2	51 45.1	9.1									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_2												
20	17 40	52 00	7.5										
	17	13.1	51 56.7	7.5									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_1												
20	20 11	52 06	8.1										
	19	14.3	52 2.5	8.7									
	κ												
	$((\delta) - D) \frac{\kappa'}{100}$												
	a_2												

Sept 8th been read & copied down in C. 12

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d ($\delta - D$) $\frac{d'}{100}$ δ_1		1 46.2	44.0						20		
d ($\delta - D$) $\frac{d'}{100}$ δ_2		3 4.6	2.5						15		
d ($\delta - D$) $\frac{d'}{100}$ δ_1		2 29.3	27.7						45		
d ($\delta - D$) $\frac{d'}{100}$ δ_2		0 37.1	34.8						0		
d ($\delta - D$) $\frac{d'}{100}$ δ_1		1 44.1	42.0						0		
d ($\delta - D$) $\frac{d'}{100}$ δ_2		2 17.4	16.9						55		
d ($\delta - D$) $\frac{d'}{100}$ δ_1		4 21.5	19.8						25		
d ($\delta - D$) $\frac{d'}{100}$ δ_2		0 3.7	1.2						35		
d ($\delta - D$) $\frac{d'}{100}$ δ_1		3 10.0	8.1						20		
d ($\delta - D$) $\frac{d'}{100}$ δ_2		1 15.9	14.1						15		

Date₁ = Sept. 5, 1871Observer A.M.
Recorder A.M.Date₂ =Observer
Recorder

60

Ru

	Star.	α	δ	Mag.	T_{δ}	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
20	24	39 51 15	8.6											
	κ	24 12.2 51 12.3	8.8											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_1													
20	27	19 51 32	8.87											
	κ	27 52.0 51 28.9	8.5											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_2													
20	30	04 51 08	9.2											
	κ	29 36.5 51 4.9	8.9											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_1													
20	33	48 51 08	8.5											
	κ	33 20.1 51 4.7	8.5											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_2													
20	38	51 50 34	8.6											
	κ	38 22.7 50 36.3	7.9											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_1													
20	41	14 50 44	9.4											
	κ	40 46.1 50 40.5	9.0											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_2													
20	43	39 50 17	8.6											
	κ	43 10.9 50 13.3	8.2											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_1													
20	45	31 50 18	7.8											
	κ	45 2.7 50 14.4	7.3											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_2													
20	48	02 50 48	9.5											
	κ	47 32.7 50 44.7	9.4											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_1													
20	50	30 51 01	9.3											
	κ	50 0.5 50 57.5	9.0											
		$(\delta) - D) \frac{\kappa'}{100}$												
	a_2													

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d		2	34.7	33.4					5		
$((\delta) - D) \frac{d'}{100}$											
δ_1											
d		1	10.9	9.3					50		
$((\delta) - D) \frac{d'}{100}$											
δ_2											
d		0 15.0	12.7						15		
$((\delta) - D) \frac{d'}{100}$		0	4.9	3.9							
δ_1											
d		4 26.9	27.2						45		
$((\delta) - D) \frac{d'}{100}$		0	15.0	12.7					15		
δ_2											
d		3 37.4	37.1						35		
$((\delta) - D) \frac{d'}{100}$		4	26.9	27.2					45		
δ_1											
d		0 43.7	42.6						35		
$((\delta) - D) \frac{d'}{100}$		3	37.4	37.1							
δ_2											
d		0 40	54.9						5		
$((\delta) - D) \frac{d'}{100}$		0	43.7	42.6							
δ_1											
d		4 50.4	50.7						30		
$((\delta) - D) \frac{d'}{100}$		0	1.0	54.9					5		
δ_2											
d		2 44.5	10.0						20		
$((\delta) - D) \frac{d'}{100}$		4	50.4	50.7					30		
δ_1											
d		4 6.3	5.8						45		
$((\delta) - D) \frac{d'}{100}$		2	11.5	10.0					20		
δ_2											

Date₁ = Sept. 6, 1971Observer A.M.
Recorder A.M.Date₂ =Observer
Recorder

62

Run

	Star.	α	δ	Mag.	T_{δ}	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
20	53	19	50 34	9.3										
	52	47.8	50 30.4	9.3										
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_1													
20	56	54	50 51	8.8										
	56	26.2	50 47.7	8.7										
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_2													
20	59	09	50 15	8.2										
	58	40.1	50 13.8	7.7										
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_1													
21	2	32	50 54	8.5										
	2	1.5	50 50.4	7.4										
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_2													
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_1													
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_2													
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_1													
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_2													
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_1													
	κ													
	$((\delta) - D)$	$\frac{\kappa'}{100}$												
	a_2													

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d		4 6.3	5.8						45		
$(\delta) - D) \frac{d'}{100}$											
δ_1											
d		154.3	54.0						30		
$(\delta) - D) \frac{d'}{100}$											
δ_2											
d		0 49.2	49.2						5		
$(\delta) - D) \frac{d'}{100}$											
δ_1											
d		3 45.0	44.7						25		
$(\delta) - D) \frac{d'}{100}$											
δ_2											
d											
$(\delta) - D) \frac{d'}{100}$											
δ_1											
d											
$(\delta) - D) \frac{d'}{100}$											
δ_2											
d											
$(\delta) - D) \frac{d'}{100}$											
δ_1											
d											
$(\delta) - D) \frac{d'}{100}$											
δ_2											
d											
$(\delta) - D) \frac{d'}{100}$											
δ_1											
d											
$(\delta) - D) \frac{d'}{100}$											
δ_2											

Date₁ = Oct 16, 1871
 $\mu = +0.5$

Observer W. A. R
 Recorder A. M

Date₂ = Oct 17, 1871
 $\mu = +0.6$

Observer W. A. R
 Recorder A. M

64

Star.	α	δ	Mag.	T_0	T_m	T_s	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
20	59	12 54 02	9.2	58	50.59	14.3	17.9	21.3	24.9	28.4	106.8	21.36	
	κ	58 43.6 53 57.1	9.0		52.4						-7.60		
					54.2								
	(8) - D				52.5								
	α_1												
2			8.5	58	47.2	59 14.7	18.3	21.8	25.3	28.9	10.90	21.80	
	κ	57 25			49.2						-8.20		
					51.3								
	(8) - D				49.2								
	α_2												
220	59	57 53 49	7.8	58	50.8	59.3	2.8	6.5	9.9	13.3	33.18	6.6.36	
	κ	57 28.3 53 48.9	7.1		53.3						-7.60		
					56.6								
	(8) - D				53.5								
	α_1												
2			7.8	0	0.9	0 0.0	2.4	6.8	10.3	13.8	3.43	6.86	
	κ				2.1						-8.20		
					4.5								
	(8) - D				2.5								
	α_2												
21	1 22	53 43	9.2	0	57.8	22.6	26.0	29.8	33.0	36.7	14.81	29.62	
	κ	0 57.8 53 37.7	8.8		61.1						-7.60		
					62.8								
	(8) - D				0.5								
	α_1												
			9.2	1	1.1	23.2	26.6	30.0	33.7	37.2	15.07	30.14	
	κ				3.7						-8.20		
					6.5								
	(8) - D				3.7								
	α_2												
21	2 2.6	53 30	8.6	2	2.6	27.2	30.6	34.1	37.6	41.0	17.85	34.10	
	κ	1 58.8 53 26.8	8.3		4.0						-7.60		
					6.7								
	(8) - D				4.4								
	α_1												
			8.7	2	7.7	27.7	31.1	34.5	38.0	41.5	17.28	34.56	
	κ				8.6						-8.20		
					8.1								
	(8) - D												
	α_2												
21	3 31	54 29	7.7	3	8.4	30.8	34.3	37.9	41.4	45.1	18.95	37.90	
	κ	3 0.6 54 25.0	7.8		10.4						-7.60		
					12.0								
	(8) - D				10.2								
	α_1												
			8.1	3	18.7	31.4	34.9	38.3	42.0	45.5	19.21	38.42	
	κ				20.7						-8.20		
					22.8								
	(8) - D				20.7								
	α_2												

Oct. 16 +1' 3.06 -11
 " 17 +1 2.69 -11

65

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
44 d	$\frac{s}{100}$ +28.9 1.46090 9.76904 (8) - D $\frac{d'}{100}$ 1.35663~	2 42.0	42.5	22	42.25	54 0 1	6.10 9.16 -22.73		20	54 0 46.43 - 22 - 30 +1202 + 40 -2403 0 34.28	+11.90
+706 δ_1 +0.56.52		59 19.42		1 30.5							
d	+32.6 1.51322 9.76904 (8) - D $\frac{d'}{100}$ 1.40895~	2 40.1	38.1	22	39.10	54 0 1	9.25 11.94 -25.64		20	0 46.30 - 28 - 30 +1180 + 40 -2420 0 33.72	+11.62
+796 δ_2 +0.56.52		59 19.30		1 30.2							
d	+12.9 1.11059 9.77095 (8) - D $\frac{d'}{100}$ 1.00823~	3 34.0	33.6	33	33.80	49 53 50	14.58 17.61 -10.19		30	53 50 7.42 - 5 - 39 +1186 + 38 -2405 49 55.17	+11.50
+711 δ_1 +0.56.72		0 4.46 [44.7]		50 51.9	41.50						
d	+4.4 0.64345 9.77095 (8) - D $\frac{d'}{100}$ 0.54109~	3 4.7	38.3	33	21.50	49 53 50	16.85 17.54 -3.48		30	50 16.06 - 1 - 37 +1163 + 38 -2420 49 63.49	+11.63
+711 δ_2 +0.56.72		0 4.40		50 51.2							
d	29.1 1.46389 9.77179 (8) - D $\frac{d'}{100}$ 1.36257~	4 45.5	46.3	39	46.05	43 53 44	2.30 5.36 -23.04		35	53 43 42.32 - 22 - 53 +1175 + 37 -2405 43 29.64	+11.34
+716 δ_1 +0.57.08		1 27.76		44 26.7							
d	+26.4 1.42160 9.77199 (8) - D $\frac{d'}{100}$ 1.32028~	4 48.4	47.2	39	47.80	43 53 44	0.58 3.24 -20.91		35	43 42.33 - 18 - 53 +1152 + 37 -2420 43 29.31	+11.18
+716 δ_2 +0.57.08		1 27.70		44 26.4							
d	+29.7 1.44276 9.77422 (8) - D $\frac{d'}{100}$ 1.37367~	2 57.2	58.7	52	57.95	29 53 30	50.40 53.46 -23.64		50	53 30 29.82 - 23 - 33 +1149 + 35 -2405 30 17.05	+11.28
+723 δ_1 +0.57.36		2 32.30		31 14.4							
d	+26.5 1.42325 9.77422 (8) - D $\frac{d'}{100}$ 1.32416~	3 17	0.0	53	0.85	29 53 30	47.50 50.19 -21.09		50	30 29.10 - 18 - 33 +1128 + 35 -2410 30 16.12	+11.12
+723 δ_2 +0.57.36		2 32.19		31 13.5							
d	+27.7 1.44248 9.76395 (8) - D $\frac{d'}{100}$ 1.33312~	4 12.0	11.9	54	11.95	28 54 29	36.40 39.46 -21.63		50	54 29 17.93 - 20 - 46 +1255 + 40 -2415 29 6.07	+12.29
+707 δ_1 +0.57.60		3 35.93		30 3.7							
d	+17.7 1.24797 9.76395 (8) - D $\frac{d'}{100}$ 1.13861~	4 21.0	18.5	54	19.90	28 54 29	28.45 31.14 -13.76		50	29 17.38 - 8 - 47 +1231 + 40 -2420 29 5.34	+12.16
+707 δ_2 +0.57.60		3 35.58		30 2.9							

Date₁ = 002-16, 1871Observer W.A.R.
Recorder A.M.Date₂ = Oct. 17, 1871Observer W.A.R.
Recorder A.M.

66

Run

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_s	T_h	Sum	Mean	Red. to T_m	T
2	4	36 53 16	8.7	8.2	12.1	38.0	41.3	44.8	48.2	57.6	22.39	44.78	44.78
	4	5.5 5.3 11.9	8.5		13.3						-7.60	-7.64	-7.64
					15.1							+3	+3
					17.2							-1.46	-1.46
	(δ) - D	κ'_{100}			14.4							4	37.18
	α_1											4	35.72
												4	40.216
	κ		8.2	5	9.1	38.2	41.7	45.8	48.8	52.1	22.56	45.12	45.12
					11.2						-8.20	-8.25	-8.25
					14.4							+3	+3
	(δ) - D	κ'_{100}			11.5							4	36.92
	α_2											4	35.4458
												4	35.4458
21	5	44 54 47	8.8	5	19.4	30.7	34.2	37.6	55.5	59.0	25.97	51.94	51.94
	5	13.5 54 43.0	9.0		20.8	44.8	48.4	52.0			-7.60	-7.64	-7.64
	κ				22.5							+7	+7
	(δ) - D	κ'_{100}			21.0							-3	-3
	α_1											5	44.34
												-1.46	-1.46
												5	42.88
												5	42.88
												5	42.36
	κ		8.4	5	46.7	45.2	48.8	52.3	56.0	59.5	26.18	52.36	52.36
					48.3						-8.20	-8.25	-8.25
					50.4							+3	+3
	(δ) - D	κ'_{100}			48.4							5	44.16
	α_2											5	42.73
												5	42.73
21	7	17 54 48	8.6	6	47.8	11.2	14.9	18.3	21.9	25.5	9.18	18.36	18.36
	6	46.2 54 44.4	7.3		47.2						-7.60	-7.64	-7.64
	6	40.1 10.7			51.3							+7	+7
	(δ) - D	κ'_{100}			49.4							-3	-3
	α_1											7	18.76
												-1.48	-1.48
												7	9.28
												7	9.28
												7	22.42
	κ		7.7	7	0.1	15.2	18.9	22.5	26.0	29.5	11.21	22.42	22.42
					1.1						-8.20	-8.25	-8.25
					2.0							+3	+3
	(δ) - D	κ'_{100}			1.0							7	14.22
	α_2											7	12.77
												7	12.77
21	8	25 54 48	8.8	7	51.7	8	25.6	29.2	32.8	36.4	16.40	32.80	32.80
	7	54.8 54 44.6	9.0		58.4						-7.60	-7.64	-7.64
	κ				61.2							+7	+7
	(δ) - D	κ'_{100}			57.7							-3	-3
	α_1											8	25.20
												-1.49	-1.49
												8	23.71
												8	23.71
												8	33.24
	κ		9.0	8	26.8	25.9	29.6	33.7	36.9	40.4	16.62	33.24	33.24
					28.5						-8.20	-8.25	-8.25
					31.8							+3	+3
	(δ) - D	κ'_{100}			29.0							8	25.04
	α_2											8	23.58
												8	23.58
21	9	16 54 52	8.1	9	8.5	15.0	18.6	22.2	25.7	29.3	11.08	22.16	22.16
	8	45.2 54 48.5	8.3		10.8						-7.60	-7.64	-7.64
	κ				13.0							+7	+7
	(δ) - D	κ'_{100}			10.7							-3	-3
	α_1											9	14.56
												-1.50	-1.50
												9	13.06
												9	13.06
												9	22.76
	κ		8.0	9	11.1	15.6	19.2	22.8	26.3	29.9	11.38	22.76	22.76
					12.8						-8.20	-8.25	-8.25
					14.5							+3	+3
	(δ) - D	κ'_{100}			12.8							9	14.56
	α_2											9	13.08
												9	13.08

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
66	d	+38.4 1.48284 9.77694 1.38650	56.7 2	57.7	8 7	57.20	53 13 14 5	51.15 54.21 -24.05	5	53	14 29.86 - 24 - 44 + 11.22 + 32 -24.05 45 16.67	✓ +10.86
	$((8) - D) \frac{d'}{100}$											
+7.32	δ_1		4 43.04		16 14.6							
+0 57.88												
	d	+33.6 1.52634 9.77694 1.42997	3 42.1 -26.4 1.42160 1.32523	41.2	8	41.65	53 14 15	6.70 9.39 -26.91 + 21.15	5		44 42.18 15 30.84 - 18 - 41 + 11.04 + 32 -24.20 15 17.11	✓ +10.77
	$((8) - D) \frac{d'}{100}$											
+7.32	δ_2		4 42.85		16 15.0							
+0 57.88												
	d	+30.9 1.48996 9.76075 1.37740	1 4.9	3.8	36	4.35	54 46 47	44.07 47.06 -23.85	35	54	47 23.21 - 25 - 11 + 12.87 + 40 -24.15 47 11.97	+ 12.91
	$((8) - D) \frac{d'}{100}$											
+7.06	δ_1		5 49.94		48 10.1							
+0 58.12												
	d	+4.0 0.60206 9.76075 0.48950	1 25.2	22.2	36	23.70	54 46 47	24.60 27.29 - 3.09	35		47 24.20 - 1 - 15 + 12.63 + 40 -24.30 47 12.77	+12.87
	$((8) - D) \frac{d'}{100}$											
+7.06	δ_2		5 49.79		48 10.9							
+0 58.02												
	d	+29.0 1.46240 9.76129 1.35038	3 32.6	32.0	38	32.30	54 44 45	16.05 19.11 -22.41	35	54	44 56.70 - 22 - 38 + 12.83 + 40 -24.15 44 45.18	✓ +12.63
	$((8) - D) \frac{d'}{100}$											
+7.10	δ_1		7 16.38		45 43.7							
+0 58.52												
	d	+21.4 1.33041 9.76075 1.21785	0 6.7	5.4	35	6.05	54 47 48	42.30 44.99 - 16.51	35		48 28.48 - 11 - 1 + 12.64 + 40 -24.30 48 17.10	✓ +12.92
	$((8) - D) \frac{d'}{100}$											
+7.10	δ_2		7 19.87		49 15.6							
+0 58.52												
	d	+35.1 1.54531 9.76075 1.43275	0 -2.8	- 3.0	34	57.10	54 47 48	51.25 54.31 -27.09	35	54	48 27.22 - 32 - 0 + 12.88 + 40 -24.20 48 15.98	+ 12.96
	$((8) - D) \frac{d'}{100}$											
+7.12	δ_1		8 30.83		49 14.8							
+0 58.80												
	d	+4.2 0.62325 9.76075 0.51069	0 20.0	15.0	35	19.00	54 47 48	29.35 32.04 - 3.24	35		48 28.80 - 1 - 3 + 12.65 + 40 -24.30 48 17.51	+13.01
	$((8) - D) \frac{d'}{100}$											
+7.12	δ_2		8 30.70		49 16.3							
+0 58.80												
	d	+11.5 1.06070 9.76073 0.94742	1 20.6	19.7	31	20.15	54 51 52	28.20 31.26 - 8.86	30	54	52 22.40 - 3 - 14 + 12.95 + 40 -24.20 52 11.38	+13.18
	$((8) - D) \frac{d'}{100}$											
+7.13	δ_1		9 20.19		53 10.4							
+0 59.00												
	d	+10.0 1.00000 9.76003 0.88672	1 21.2	19.3	31	20.25	54 51 52	28.10 30.79 - 7.70	30		52 23.07 - 3 - 14 + 12.72 + 40 -24.30 52 11.74	+12.95
	$((8) - D) \frac{d'}{100}$											
+7.13	δ_2		9 20.21		53 10.7							
+0 59.00												

68

Run

Star.	α	δ	Mag.	T_0	T_m	T_e	T_s	T_h	Sum	Mean	Red. to T_m	T
21	10	29 54 08	7.8	10 ^m	5	29.7	33.9	36.6	40.1	43.7	18 31	36.62
	κ	7 53.6 54 4.0	7.0		5.0						-7.60	
	$((\delta) - D) \frac{\kappa'}{100}$				6.9							
	a_1				4.4							
	κ		7.5	10	7.1	30.1	33.7	37.2	40.7	44.2	18 59	37.18
	$((\delta) - D) \frac{\kappa'}{100}$				8.8						-8.21	
	a_2				11.0							
21	11	21 54 59	8.0	10	58.8	11 20.3	24.0	27.5	31.3	34.8	13 79	27.58
	κ	10 53.4 54 54.7	7.8		0.4						-7.60	
	$((\delta) - D) \frac{\kappa'}{100}$				3.0							
	a_1				0.7							
	κ		7.7	11	2.4	21.0	24.6	28.2	31.8	35.4	14 10	28.20
	$((\delta) - D) \frac{\kappa'}{100}$				4.2						-8.21	
	a_2				6.4							
21	12	37 54 51	9.3	12	16.8	38.0	41.5	45.1	48.6	52.4	22 56	45.12
	κ	12 6.3 54 46.8	9.2		18.2						-7.60	
	$((\delta) - D) \frac{\kappa'}{100}$				21.4							
	a_1				18.8							
	κ		9.2	12	13.8	38.4	41.8	45.8	49.3	52.8	22 81	45.62
	$((\delta) - D) \frac{\kappa'}{100}$				15.8						-8.21	
	a_2				18.8							
21	14	09 54 44	8.4	13	33.1	14 8.7	12.1	15.6	19.3	23.0	7 57	15.74
	κ	13 38.0 54 38.8	7.7		34.7						-7.59	
	$((\delta) - D) \frac{\kappa'}{100}$				38.0							
	a_1				35.2							
	κ		8.3	13	46.7	14 8.2	12.8	16.3	19.8	23.6	8 47	16.34
	$((\delta) - D) \frac{\kappa'}{100}$				44.0						-8.21	
	a_2				46.1							
21	15	42 54 22	9.2	15	20.4	42.8	46.5	50.0	53.6	57.2	25 01	50.02
	κ	15 7.8 54 18.2	9.0		21.9						-7.59	
	$((\delta) - D) \frac{\kappa'}{100}$				24.9							
	a_1				22.4							
	κ		9.1	15	14.0	43.4	47.0	50.6	54.1	57.6	25 27	50.54
	$((\delta) - D) \frac{\kappa'}{100}$				17.0						-8.21	
	a_2				17.0							

Runs

69

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+32.2 1.50786 9.76782 1.40237~	6 12.7	13.4	15	13.65	54 7	35.30 38.36 -25.26		15	54 8 13.10 - 27 - 2 +12.16 + 40 -24.15 8 1.22	+12.27
56 ((8) - D) $\frac{d'}{100}$											
+7.30 δ_1 +0.5928		10 34.80		9 0.5							
d	+28.3 1.45179 9.76782 1.34630~	0 17.7	15.8	10	16.78	54 7	31.60 34.29 -22.20		15	8 12.09 - 21 - 3 +11.96 + 40 -24.30 7 59.71	+12.12
56 ((8) - D) $\frac{d'}{100}$											
+7.30 δ_2 +0.5928		10 34.78		8 59.2							
d	+26.9 1.42975 9.75877 1.31521~	4 52.8	56.0	24	56.80	54 57 54 58	51.55 54.61 -20.66		20	54 58 53.95 - 19 - 54 +1308 + 40 -24.20 58 22.50	+12.75
12 ((8) - D) $\frac{d'}{100}$											
+7.16 δ_1 +0.5948		11 25.62		59 22.0							
d	+23.9 1.37840 9.75877 1.26386~	0 - 0.7 - 2.1		24	58.60	54 57 54 58	49.75 52.44 -18.36		25	58 34.08 - 15 - 0 +12.86 + 40 -24.30 58 22.87	+13.11
56 ((8) - D) $\frac{d'}{100}$											
+7.16 δ_2 +0.5948		11 25.66		59 22.4							
d	+26.3 1.41996 9.76021 1.30686~	2 31.1	30.9	32	31.07	54 50 54 51	17.35 20.41 -20.27		30	54 51 0.14 - 18 - 27 +12.93 + 40 -24.20 50 48.82	+12.78
50 ((8) - D) $\frac{d'}{100}$											
+7.22 δ_1 +0.5976		12 43.20		51 48.6							
d	+29.5 1.46982 9.76021 1.35672~	2 28.1	26.3	32	27.80	54 50 54 51	21.15 23.84 -22.74		30	51 1.10 - 23 - 27 +12.72 + 40 -24.30 50 49.42	+12.62
56 ((8) - D) $\frac{d'}{100}$											
+7.22 δ_2 +0.5976		12 43.13		51 49.2							
d	+40.5 1.60746 9.76146 1.49561~	4 28.6	28.5	39	28.55	54 43 54 44	19.80 22.86 -31.81		35	54 43 51.55 - 42 - 49 +12.81 + 40 -24.20 43 39.65	+12.30
60 ((8) - D) $\frac{d'}{100}$											
+7.28 δ_1 +1.012		14 13.57		44 39.8							
d	+32.4 1.51055 9.76146 1.39870~	4 44.9	32.8	89	38.55	54 43 54 44	45.50 47.19 -26.04		35	43 47.15 - 27 - 51 +12.87 + 40 -24.30 43 38.06	+12.21
56 ((8) - D) $\frac{d'}{100}$											
+7.28 δ_2 +1.012		14 13.59		44 39.2							
d	+27.6 1.44091 9.76519 1.33279~	1 47	4.6	1	4.65	54 21 54 22	43.70 46.76 -21.02		0	54 22 25.24 - 17 - 12 +12.41 + 40 -24.20 22 13.54	+12.50
5 ((8) - D) $\frac{d'}{100}$											
+7.38 δ_1 +1.048		15 48.23		23 14.0							
d	+33.5 1.52504 9.76519 1.41692~	1 11	59.0	1	0.05	54 21 54 22	48.30 50.99 -26.12		0	22 24.87 - 29 - 11 +12.21 + 40 -24.30 22 12.78	+12.21
56 ((8) - D) $\frac{d'}{100}$											
+7.38 δ_2 +1.048		15 48.17		23 13.3							

Date₁ = Oct 16, 1871Observer W.A.R.
Recorder A.M.Date₂ = Oct 17, 1871Observer W.A.R.
Recorder A.M.

70

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
17	00 54 58	9.2	16	32.7	59.8	3.3	6.9	10.6	14.1	33.47	66.94	m	17
	16 22.4 54 54.2	9.0		34.6						-7.59			17
				37.0									17
	(δ - D) κ'_{100}			34.7									16
	a_1												16
			9.2	16	50.0	17.01	8.9	7.5	11.0	37.0	7.40		17
	κ			52.2						-8.21			17
	(δ - D) κ'_{100}			54.8									16
	a_2			52.3									16
21	18 16 54 20	8.9	17	50.2	18 16.5 19.6	22.8	26.7	30.3	11.59	23.18			18
	17 43.7 54 16.7	9.0		53.0					-7.59				18
				55.0									18
	(δ - D) κ'_{100}			52.7									18
	a_1												18
			9.0	17	52.7	18 16.7	20.1	23.8	27.3	11.58	23.76		18
	κ			55.5						-8.21			18
	(δ - D) κ'_{100}			58.5									18
	a_2			55.5									18
21	19 11 54 44	8.5	18	50.8	19 10.8 14.3	17.8	21.4	25.0	8.93	17.86			19
	18 38.2 54 39.9	7.8		53.2					-7.59				19
				55.5									19
	(δ - D) κ'_{100}			53.1									19
	a_1												19
			8.1	18	52.6	19 14.6	14.6	18.3	21.9	9.17	18.34		19
	κ			53.1						-8.21			19
	(δ - D) κ'_{100}			57.7									19
	a_2			55.1									19
21	20 26 55 03	8.9	20	10.0	36.3 39.8	43.2	46.6	50.0	21.59	43.18			20
	19 52.5 54 59.1	8.7		11.7					-7.59				20
				14.0									20
	(δ - D) κ'_{100}			11.9									20
	a_1												20
			8.8	20	3.5	26.1	29.7	33.1	36.9	16.65	33.30		20
	κ			5.0						-8.21			20
	(δ - D) κ'_{100}			8.0									20
	a_2			5.5									20
21	23 09 55 02	7.5	22	41.6	23 6.8 10.6	13.9	17.6	21.2	7.01	14.02			23
	22 36.3 54 58.0	8.1		43.6					-7.59				23
				45.6									23
	(δ - D) κ'_{100}			43.6									23
	a_1												23
			7.5	22	34.0	23 7.4	11.0	14.7	18.3	7.33	14.66		23
	κ			35.4						-8.22			23
	(δ - D) κ'_{100}			35.8									23
	a_2			36.0									23

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
46	+32.2 1.50786 9.75877 1.39332m	4 51.3	50.9	24	5110	54 57 57 25 0.31 -24.74	20	54 58 35.57 - 27 - 54 +1308 + 40 -2420 58 24.04			+12.67
d (8) - D) $\frac{d'}{100}$											
δ_1	+7.31 +1 0.76	17 5.07		59 24.8							
58	+15.1 1.17898 9.75877 1.06444m	0 6.7	4.5	26	560	54 58 57 42.75 45.44 - 11.60	25	58 33.84 - 6 - 1 +1286 + 40 -2440 58 22.63			+13.19
d (8) - D) $\frac{d'}{100}$											
δ_2	+7.31 +1 0.76	17 4.95		59 23.4							
58	+30.5 1.48430 9.76572 1.37671m	3 24.1	23.5	3	2395	54 19 57 20 24.40 27.46 - 23.81	0	54 20 3.65 - 24 - 37 +1238 + 40 -2415 19 51.67			+12.17
d (8) - D) $\frac{d'}{100}$											
δ_1	+7.45 +1 1.08	18 21.44		20 52.8							
58	+28.3 1.45779 9.76572 1.34420m	3 27.4	24.7	3	2605	54 19 57 20 22.30 24.97 - 22.07	0	20 2.90 - 21 - 37 +1217 + 40 -2430 19 50.59			+11.99
d (8) - D) $\frac{d'}{100}$											
δ_2	+7.45 +1 1.08	18 21.43		20 51.7							
48	+24.8 1.39445 9.76146 1.28360m	4 21.2	21.2	39	2120	54 43 57 44 27.15 30.21 - 19.21	35	54 44 11.00 - 16 - 48 +1281 + 40 -2420 43 59.37			+12.57
d (8) - D) $\frac{d'}{100}$											
δ_1	+7.40 +1 1.28	19 16.06		45 0.6							
58	+23.2 1.36549 9.76146 1.25364m	4 23.7	21.3	39	2250	54 43 57 44 25.85 28.54 - 17.93	35	44 10.61 - 14 - 47 +1259 + 40 -2440 43 58.59			+12.38
d (8) - D) $\frac{d'}{100}$											
δ_2	+7.40 +1 1.28	19 15.94		44 59.9							
2	+31.3 1.49554 9.75769 1.37992m	3 44.4	44.5	18	4460	55 4 57 5 3.75 6.81 - 23.98	15	55 4 42.83 - 25 - 41 +1319 + 40 -2420 4 31.56			+12.93
d (8) - D) $\frac{d'}{100}$											
δ_1											
58	+27.5 1.44404 9.75805 1.32878m	0 14.9	12.2	20	1355	55 2 57 3 34.80 37.49 - 21.32	20	3 16.17 - 20 - 2 +1293 + 40 -2440 3 41.89			+13.11
d (8) - D) $\frac{d'}{100}$											
δ_2	+7.38 +1 1.56	20 30.57		4 6.4							
64	+30.4 1.48287 9.77823 1.38779m	1 5.4	8.3	21	835	55 1 57 2 40.00 43.06 - 24.42	20	55 2 18.64 - 24 - 12 +1314 + 40 -2420 2 7.62			+13.18
d (8) - D) $\frac{d'}{100}$											
δ_1	+7.45 +1 2.16	23 12.22		3 9.8							
58	+38.7 1.58771 9.77823 1.49263m	1 3.2	1.1	21	215	55 1 57 2 46.20 48.89 - 31.09	20	2 17.80 - 38 - 11 +1293 + 40 -2440 2 6.24			+12.84
d (8) - D) $\frac{d'}{100}$											
δ_2	+7.45 +1 2.16	23 12.29		3 8.4							

Date₁ = Oct 16, 1871

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

Date, = Oct- 17, 1871

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

72

Ru

1871pdae.p

Star.	α	δ	Mag.	T_0	T_m	T_e	T_s	T_g	T_h	Sum	Mean	Red. to T_m	T
20	24	52 54 51	6.5	24	17.1	57.5	55.1	58.7	62.3	65.8	29.24	58.68	24
	κ	19.8	54 46.2	6.1	16.9						-7.59		24
					21.4								24
	$(\delta) - D$				19.1								24
	a_1												24
													24
	κ		6.4	24	21.1	52.2	55.7	59.2	62.8	66.5	29.64	59.28	24
					22.4						-8.22		24
	$(\delta) - D$				21.7								24
	a_2												24
													24
21	25	52 54 05	7.5	25	24.6	52.4	56.0	59.3	62.9	66.3	29.69	59.38	25
	κ	19.8	54 16.0	7.9	26.7						-7.59		25
					28.0								25
	$(\delta) - D$				26.7								25
	a_1												25
													25
	κ		7.7	25	30.3	53.0	56.3	59.7	63.4	66.9	29.93	59.66	25
					31.7						-8.22		25
	$(\delta) - D$				33.5								25
	a_2				31.9								25
													25
21	26	46 54 50	7.5	26	29.0	45.6	49.2	52.9	56.4	60.0	26.41	52.82	26
	κ	13.5	54 46.2	7.7	30.7						-7.59		26
					32.8								26
	$(\delta) - D$				30.8								26
	a_1												26
													26
	κ		7.5	26	24.6	46.2	49.6	53.2	56.8	60.6	26.64	53.28	26
					25.8						-8.22		26
	$(\delta) - D$				27.3								26
	a_2				25.9								26
													26
21	27	25 54 26	8.9	27	15.5	25.2	28.5	32.3	35.6	39.4	16.13	32.26	27
	κ	52.2	54 22.3	8.7	17.4						-7.59		27
					19.0								27
	$(\delta) - D$				17.3								27
	a_1												27
													27
	κ		8.7	27	22.0	25.8	29.1	32.8	36.1	39.7	16.34	32.68	27
					23.2						-8.22		27
	$(\delta) - D$				26.3								27
	a_2				23.8								27
													27
21	28	36 54 07	9.2	28	26.9	37.3	40.9	44.3	47.8	51.3	22.16	44.32	28
	κ	3.8	54 3.1	8.9	29.2						-7.59		28
					30.8								28
	$(\delta) - D$				28.9								28
	a_1												28
													28
	κ		9.0	28	29.2	37.8	41.6	44.8	48.4	51.9	22.45	44.90	28
					30.7						-8.22		28
	$(\delta) - D$				32.9								28
	a_2				30.9								28
													28

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
50	+38.6 1.54770 9.76103 1.48442m	1' 53.0	51.3	31	54.15	54 50 51	56.20 57.26 -30.51		36	54 51 28.75 - 40 - 21 +1273 + 40 -24.20 51 17.27	+12.72
d (8) - D) $\frac{d'}{100}$											
+7.53 +1 2.52		24 56.94		52 19.8							
51	+37.6 1.57519 9.76003 1.46191m	1 55.1	53.1	31	54.10	54 50 51	54.25 56.94 -28.97		30	51 27.97 - 36 - 21 +1274 + 40 -24.40 51 16.14	+12.57
d (8) - D) $\frac{d'}{100}$											
+7.53 +1 2.52		24 56.95		52 18.7							
48	+32.7 1.51455 9.76835 1.40959m	3 4.0	3.9	18	4.25	54 4 5	44.10 47.16 -20.68		15	54 5 21.48 - 28 - 34 +1213 + 40 -24.15 5 9.24	+11.91
d (8) - D) $\frac{d'}{100}$											
+7.69 +1 2.76		25 57.79		6 12.0							
46	+28.0 1.44716 9.76885 1.34220m	3 8.2	7.2	18	7.70	54 4 5	40.65 43.34 -21.97		15	5 21.35 - 20 - 34 +1193 + 40 -24.30 5 8.84	+11.79
d (8) - D) $\frac{d'}{100}$											
+7.69 +1 2.76		25 57.67		6 11.6							
46	+22.0 1.34242 9.76021 1.22932m	2 38.0	38.9	32	37.45	54 50 51	10.90 13.96 -16.96		30	54 50 57.00 - 12 - 29 +1274 + 40 -24.20 50 45.73	+12.93
d (8) - D) $\frac{d'}{100}$											
+7.58 +1 2.96		26 57.11		51 46.7							
46	+27.4 1.43775 9.76021 1.32465m	2 35.2	32.5	32	33.85	54 50 51	14.50 17.19 -21.12		30	50 56.07 - 19 - 28 +1274 + 40 -24.40 50 44.34	+12.67
d (8) - D) $\frac{d'}{100}$											
+7.58 +1 2.96		26 50.98 27 46.36		51 47.3							
42	+15.0 1.17609 9.76466 1.06744m	2 58.9	58.2	57.6	57.53	54 24 25	49.80 52.86 -11.68		55	54 25 41.18 - 6 - 33 +1249 + 40 -24.15 25 29.53	+12.50
d (8) - D) $\frac{d'}{100}$											
+7.66 +1 3.12		27 30.63		27 32.6							
42	+9.9 0.94939 9.76466 0.84074m	2 6.8	3.8	57	5.30	54 25 26	43.05 45.74 -6.93		55	26 38.81 - 2 - 23 +1233 + 40 -24.30 26 26.77	+12.48
d (8) - D) $\frac{d'}{100}$											
+7.66 +1 3.12		27 30.55		27 30.1							
58	+15.4 1.18752 9.76800 1.08221m	1 9.0	8.5	16	8.90	54 6 7	39.45 42.51 -12.08		15	54 7 30.43 - 6 - 12 +1217 + 40 -24.15 7 18.67	+12.39
d (8) - D) $\frac{d'}{100}$											
+7.75 +1 3.36		28 42.76		8 22.0							
58	+14.0 1.14613 9.76800 1.04082m	1 11.7	10.0	16	10.83	54 6 7	37.50 40.19 -10.99		15	7 29.20 - 5 - 13 +11.98 + 40 -24.30 7 17.10	+12.20
d (8) - D) $\frac{d'}{100}$											
+7.75 +1 3.36		28 42.78		8 20.5							

76

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

Runs

1871phae.proj.1577R

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
45	+28.5 1.42325 9.76448 1.31442~	1 28.3	28.7	56	28.50	26 54 27	19.85 22.71 -20.63		55	54 27 2.28 - 18 - 16 +12.57 + 40 -24.15 26 50.70	+12.58
d (8) - D) $\frac{a'}{100}$											
δ_1	+7.73 +1 3.64	30 3.44		27 54.3							
46	+29.9 1.47567 9.76448 1.36684~	1 27.1	25.5	56	26.45	26 54 27	21.90 24.59 -23.27		55	27 1.32 - 23 - 16 +12.53 + 40 -24.30 26 49.36	+12.34
d (8) - D) $\frac{a'}{100}$											
δ_2	+7.73 +1 3.64	30 3.33		27 53.0							
43	+4.8 0.68124 9.76800 0.57593~	2 4.7	4.2	17	4.45	5 54 6	43.90 46.96 -3.77		15	54 6 43.19 - 1 - 23 +12.14 + 40 -24.15 6 31.34	+12.31
d (8) - D) $\frac{a'}{100}$											
δ_1	+7.80 +1 3.80	30 48.46		7 35.1							
47	+16.2 1.20952 9.76800 1.10421~	1 57.4	55.5	176	56.60	5 54 4 56	51.75 54.44 -12.71		15	5 41.73 6 - 7 - 23 +11.95 + 40 -24.30 5 29.29 6 51	+12.08
d (8) - D) $\frac{a'}{100}$											
δ_2	+7.80 +1 3.80	30 48.37		7 33.3							
48	+13.3 1.12385 9.76413 1.01467~	0 2.0	1.3	55	1.65	27 54 28	46.70 49.76 -10.04		55	54 28 39.42 - 5 0 +12.54 + 40 -24.15 28 28.16	+12.89
d (8) - D) $\frac{a'}{100}$											
δ_1	+7.77 +1 4.00	31 41.49		29 32.2							
49	+13.0 1.11394 9.76413 1.00476~	0 3.7	2.2	55	2.93	27 54 28	45.40 48.09 -10.11		55	28 37.98 - 5 0 +12.36 + 40 -24.30 28 26.39	+12.71
d (8) - D) $\frac{a'}{100}$											
δ_2	+7.77 +1 4.00	31 41.37		29 30.4							
46	+24.5 1.38917 9.75857 1.27445~	3 37.7	36.9	23	37.30	59 55 0	11.05 14.11 -18.81		20	54 59 55.30 - 15 - 40 +13.09 + 40 -24.20 59 44.04	+12.94
d (8) - D) $\frac{a'}{100}$											
δ_1	+7.71 +1 4.24	32 51.74		0 48.3							
50	+24.2 1.38882 9.75859 1.26910~	3 39.6	36.7	23	38.15	59 55 0	10.20 12.89 -18.58		20	59 54.31 - 15 - 40 +12.90 + 40 -24.20 59 42.66	+12.75
d (8) - D) $\frac{a'}{100}$											
δ_2	+7.71 +1 4.24	32 51.60		0 46.9							
51	+9.3 0.96848 9.76093 0.85610~	8 51.2	50.2	38 5	50.70	45 54 478	57.65 0.71 -7.18		35	54 48 53.53 - 2 - 20 +12.86 + 40 -24.20 48 42.37	+13.04
d (8) - D) $\frac{a'}{100}$											
δ_1	+7.44 +1 1.72	21 14.62		48 44.1							
52	+9.8 0.99123 9.76289 0.88081~	2 31.1	30.0	47	30.55	35 54 36	17.80 20.49 -7.60		45	54 36 12.89 - 3 - 28 +12.43 + 40 -24.10 36 1.31	+12.52
d (8) - D) $\frac{a'}{100}$											
δ_2	+6.90 +0 56.08	57 34.67		36 54.4							

1 AT + 0.00 = +.51 ± 0.56

+5.1 + 0.340 = 54

Date₁ = Oct 16, 1871
 $n = +.07$

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

Date₂ = Oct 17, 1871
 $n = +.10$

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

76

Star.	α	δ	Mag.	T_s	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
22	38	30	54 40	9.1	38	2.2	29.9	33.5	37.1	40.5	44.1	18.51	37.02
	κ			8.7		4.3						-7.68	
						6.3							
	$(\delta) - D$					4.2							
	a_1												
				9.2	38	7.3	20.1	33.5	37.1	40.6	44.0	18.53	37.06
	κ					8.8						-7.69	
						11.3							
	$(\delta) - D$					9.1							
	a_2												
22	39	56	54 18	8.8	39	42.7	55.6	59.1	62.5	65.9	69.7	31.28	62.56
	κ			9.0		45.0						-7.68	
						46.7							
	$(\delta) - D$					44.8							
	a_1												
				8.9	39	38.0	55.4	59.0	62.8	66.0	69.7	31.29	62.58
	κ					37.7						-7.69	
						39.6							
	$(\delta) - D$					37.7							
	a_2												
262	40	51	54 29	8.9	40	40.1	51.2	54.9	58.3	61.9	65.4	29.17	58.34
	κ			8.8		41.8						-7.68	
						43.6							
	$(\delta) - D$					41.8							
	a_1												
				8.8	40	39.0	51.6	55.0	58.5	61.7	65.4	29.22	58.44
	κ					40.8						-7.69	
						42.7							
	$(\delta) - D$					40.8							
	a_2												
22	43	07	54 17	9.0	42	51.0	43.8	12.0	15.7	19.1	22.8	7.80	15.60
	κ			9.0		52.6						-7.68	
						54.2							
	$(\delta) - D$					52.6							
	a_1												
				9.0	42	43.7	43.8	12.3	15.7	19.2	22.9	-7.69	
	κ					45.6							
						46.1							
	$(\delta) - D$					46.1							
	a_2												
22	44	30	54 09	6.8	44	6.2	30.0	33.4	37.1	40.5	44.1	18.51	37.02
	κ			8.0		8.0						-7.68	
						9.8							
	$(\delta) - D$					8.0							
	a_1												
				7.0	44	4.4	30.1	33.3	37.2	40.6	44.1	18.53	37.06
	κ					6.0						-7.70	
						8.2							
	$(\delta) - D$					6.2							
	a_2												

Runs

Oct. 16 +1' 1" 22
" 17 +1 1.71

For used - 219 171
 Sum M

171
Port in winter

for ver-16 +9

49
Went 3.06
Head of 122

2-1, 14
Oct-16

6/20/79

77

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	$\frac{w}{z}$	Sub for Red. for
d	+32.8 1.51587 9.76218 1.40474m	3 19.5	16.7	43	18.10	39 54 40	30.25 33.31 -25.39		40	54 40 7.92 -27 -36 +1273 +40 -29.06 39 59.37	6.08 +12.50 53.53
(8) - D) $\frac{d'}{100}$											
δ_1	+9.66 +1.520	38 36.54		41 12.6							
d	+28.0 1.44716 9.76218 1.33603m	3 24.0	20.3	43	22.15	39 54 40	26.20 28.89 -21.68		40	40 7.21 -20 -37 +1256 +40 -23.20 39 56.40	+12.39
(8) - D) $\frac{d'}{100}$											
δ_2	+9.66 +1.520	38 36.59		41 10.6							
d	+17.8 1.25042 9.76607 1.14318m	0 58.7	55.5	5	57.10	16 54 17	51.25 54.31 -13.91		5	54 17 40.40 -8 -11 +1234 +40 -24.05 17 29.95	38.56 +12.55 28.11
(8) - D) $\frac{d'}{100}$											
δ_1	+9.74 +1.536	40 2.16		18 45.3							
d	+24.9 1.39620 9.76607 1.28896m	0 54.2	50.2	5	52.20	16 54 17	56.15 58.84 -19.45		5	17 39.39 -16 -10 +1218 +40 -23.20 17 28.46	+12.32 27.48
(8) - D) $\frac{d'}{100}$											
δ_2	+9.94 +1.536	40 2.19		18 42.8							
d	+16.5 1.21748 9.76413 1.10830m	4 23.9	22.1	54	22.00	28 54 29	25.35 28.41 -12.83		50	54 29 15.58 -7 -48 +1254 +40 -24.05 29 4.97	13.74 +12.39 4.97
(8) - D) $\frac{d'}{100}$											
δ_1	+9.75 +1.548	40 57.99									
d	+17.6 1.24551 9.76413 1.13633m	4 23.8	20.3	54	22.05	28 54 29	26.30 28.99 -13.69		50	29 15.30 -8 -48 +1237 +40 -23.20 29 4.31	14.32 +12.21 2.645 3.33
(8) - D) $\frac{d'}{100}$											
δ_2	+9.75 +1.548	40 58.09		30 18.8							
d	+23.0 1.36173 9.76625 1.25467m	1 14.1	10.9	6	12.50	16 54 17	35.85 38.91 -17.98		5	54 17 20.93 -14 -13 +1234 +40 -24.05 17 10.50	+12.47
(8) - D) $\frac{d'}{100}$											
δ_1	+9.84 +1.576	43 15.27		118 26.3							
d	+29.7 1.44726 9.76625 1.36570m	1 10.5	2.0	6	8.75	16 54 17	39.60 42.29 -23.21		5	17 19.08 -23 -12 +1218 +40 -23.15 17 8.16	18.10 +12.23 7.18
(8) - D) $\frac{d'}{100}$											
δ_2	+9.84 +1.576	43 15.38		18 22.9							
d	+29.0 1.446240 9.76747 1.35656m	3 24.2	21.5	13	22.85	9 54 10	25.50 28.56 -22.73		10	54 10 5.83 -22 -37 +1221 +40 -24.15 9 55.00	3.99 +12.02 53.16
(8) - D) $\frac{d'}{100}$											
δ_1	+9.89 +1.592	44 36.72									
d	+30.9 1.45996 9.76747 1.38412m	3 23.2	19.4	13	21.30	9 54 10	27.05 29.74 -24.22		10	10 5.52 -25 -37 +1205 +40 -23.10 9 54.25	4.54 +11.82 53.27
(8) - D) $\frac{d'}{100}$											
δ_2	+9.89 +1.592	44 36.77		11 9.2							

Date₁ = Oct-16, 1871Observer W.A.R. & M. insp.
Recorder A.M.Date₂ = Oct-17, 1871Observer W.A.R. & M. 78
Recorder A.M. insp.

Run

Star.	α	δ	Mag.	T_s	T_m	T_a	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
22	46	0.4	54 49	9.0	46	25.5	46.0	49.4	53.0	56.7	60.1	26 52	53.04
	κ					25.6						-7.68	
						30.0							
	(S) - D					28.0							
	a_1												
	κ					24.2							
	(S) - D					24.4							
	a_2												
22	48	0.5	54 57	8.5	47	39.1	48.0	10.0	13.4	16.9	20.5	6 6 8	13.36
	κ					40.9						-7.68	
	(S) - D					40.9							
	a_1												
	κ					42.9							
	(S) - D					42.9							
	a_2												
22	48	0.5	54 44	8.5	48	42.6	56.9	8.07	4.0	7.7	11.0	32 03	64.06
	κ					44.4						-7.68	
	(S) - D					44.8							
	a_1												
	κ					55.1							
	(S) - D					55.1							
	a_2												
22	51	2.5	54 32	9.0	51	50 10.3	27.1	30.8	34.4	37.7	41.4	17 14	34.28
	κ					78 4.2						-7.68	
	(S) - D					63 10.7							
	a_1												
	κ					25.1							
	(S) - D					26.2							
	a_2												
22	52	4.4	54 21	8.6	52	29.1	43.9	47.5	51.0	54.4	58.0	25 48	50.96
	κ					30.7						-7.68	
	(S) - D					32.4							
	a_1					33.1							
	κ					27.0							
	(S) - D					25.9							
	a_2												

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+25.8	4 16.4	14.3	34	15.35	48	33.00		30	54 49 16.78	14.94
d	1.39794					54 49	34.06	34.22		- 16	+12.70
(8) - D) $\frac{d'}{100}$	1.76057						- 17.28			+ 46	
	1.28520									+12.72	
										+ 40	
										-22.80	
+9.91 δ_1		46 52.73								49 6.68	4.84
+1 16.16											
	+28.7	4 14.9	11.9	34	13.40	48	34.95		30	49 18.50	14.52
d	1.45788					54 49	37.64	36.66		- 21	+12.47
(8) - D) $\frac{d'}{100}$	1.76057						- 22.14			- 46	
	1.34514									+12.74	
										+ 40	
										-23.05	
+9.91 δ_2		46 52.75		50 20.1						49 4.94	3.94
+1 16.16											
	+32.5	2 1.0	59.1	24	0.05	55	48.30		25	54 56 26.36	24.52
d	1.67188					54 56	51.36	49.52		- 27	+12.95
(8) - D) $\frac{d'}{100}$	1.75901						- 25.00			- 22	
	1.39788									+13.04	
										+ 40	
										-22.80	
+9.94 δ_1		48 13.06								56 16.84	14.67
+1 16.32											
	+30.4	2 3.2	59.8	27	1.50	55	46.85		25	56 26.16	25.18
d	1.48287					54 56	49.54	48.56		- 24	+12.79
(8) - D) $\frac{d'}{100}$	1.75931						- 23.38			- 22	
	1.36887									+12.85	
										+ 40	
										-23.00	
+9.94 δ_2		48 13.02		57 31.3						56 15.95	14.97
+1 16.32											
	+19.3	0 14.3	6.7	40	8.50	42	39.85		40	54 43 27.99	26.15
d	1.28556					54 43	42.71	41.07		- 9	+13.11
(8) - D) $\frac{d'}{100}$	1.76164						- 14.72			- 1	
	1.17389									+12.81	
										+ 40	
										-22.76	
+9.98 δ_1		49 3.80								43 18.35	16.51
+1 16.40											
	+8.8	0 19.0	16.4	40	17.70	42	30.65		40	43 26.58	25.55
d	0.94448					54 43	33.34	32.36		- 2	+12.98
(8) - D) $\frac{d'}{100}$	1.76164						- 6.81			- 3	
	0.83281									+12.63	
										+ 40	
										-23.00	
+9.98 δ_2		49 3.66		44 31.9						43 16.54	15.53
+1 16.40											
	+23.6	2 24.2	20.8	52	22.50	30	25.85		50	54 34 10.57	
d	1.37291					54 31	28.91	27.07		- 15	+12.59
(8) - D) $\frac{d'}{100}$	1.76378						- 18.34			- 26	
	1.26338									+12.60	
										+ 40	
										-22.65	
+10.08 δ_1		51 34.16		32 11.9						31 0.51	50 55.6
+1 16.44											
	+9.2	2 39.2	36.2	52	29.90	30	10.65		50	31 6.19	5.21
d	0.96379					54 31	13.34	12.36		- 2	+12.52
(8) - D) $\frac{d'}{100}$	1.76378						- 7.15			- 28	
	0.85426									+12.92	
										+ 40	
										-22.90	
+10.08 δ_2		51 33.96		32 11.5						30 55.81	54.83
+1 16.44											
	+17.9	2 52.3	54.3	2	58.80	19	52.55		0	54 20 41.64	39.80
d	1.25285					54 20	55.61	53.77		- 8	+12.42
(8) - D) $\frac{d'}{100}$	1.76554						- 13.97			- 32	
	1.14508									+12.42	
										+ 40	
										-22.60	
+10.13 δ_1		52 50.82								20 31.46	29.62
+1 16.80											
	+25.1	2 51.0	47.2	2	49.10	19	59.25		0	20 42.36	41.38
d	1.39967					54 21	1.94	0.96		- 16	+12.19
(8) - D) $\frac{d'}{100}$	1.76584						- 19.58			- 31	
	1.29190									+12.26	
										+ 40	
										-22.85	
+10.13 δ_2		52 50.90		21 47.5						20 31.70	30.72
+1 16.80											

Date₁ = Oct 16, 1871Observer
RecorderH.A.R. Am.
A.M. H.R.Date₂ =

Oct 17, 1871

Observer
RecorderH.A.R. Am.
A.M. H.R.

80

Run

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
22	54	37	54 48	8.8	54	10.4	34 36.8	41.2	44.7	48.2	51.9	22 28	44.56
			54 53.5	8.9		12.1						-7.68	
			54 46.1			14.8							
	(δ - D)					12.4							
	a_1												
				8.8	54	16.3	54 37.6	41.2	44.7	48.0	51.7	22 32	44.64
						18.0						-7.70	
						20.8							
	(δ - D)					18.3							
	a_2												
22	55	39	54 17	8.7	55	27.2	39.0	42.5	46.0	49.4	53.0	22 99	45.98
			54 58.8	8.8		29.1						-7.68	
			54 11.5			31.7							
	(δ - D)					29.3							
	a_1												
				8.5	55	22.1	38.0	42.5	46.0	49.3	52.9	22 57	45.94
						24.0						-7.70	
						26.3							
	(δ - D)					24.1							
	a_2												
22	56	34	54 13	8.8	56	31.3	36.8	40.1	43.2	47.2	50.5	21 78	43.56
			54 58.7			32.8						-7.68	
			54 8.1			34.8							
	(δ - D)					32.9							
	a_1												
				8.9	56	21.2	36.6	40.1	43.6	47.1	50.8	21 82	43.64
						23.1						-7.70	
						24.9							
	(δ - D)					23.0							
	a_2												
22	57	25	54 50	8.8	57	18.0	26.0	29.4	32.9	36.5	40.4	16 52	33.04
			54 41.8	8.7		13.8						-7.68	
			54 44.2			16.0							
	(δ - D)					13.9							
	a_1												
				8.5	57	22.3	25.9	29.6	33.0	36.6	40.2	16 53	33.06
						24.3						-7.70	
						25							
	(δ - D)					23.3							
	a_2												
22	58	33	54 35	8.7	58	28.3	32.5	35.8	39.3	42.8	46.5	19 69	39.38
			54 47.3	9.0		29.8						-7.68	
			54 29.8			31.2							
	(δ - D)					32.5							
	a_1					29.7							
				9.0	58	16.5	32.3	35.7	39.2	42.6	46.6	19 64	39.28
						18.5						-7.70	
						20.4							
	(δ - D)					18.4							
	a_2												

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
+8 d	+32.2 1.50786 9.76057 1.39512m	0 7.6	4.8	35	6.30	54 47	42.05 45.11 43.27	35	54	48 20.4 26.54 27 +12.90 +40 -22.55 48 15.85 10.74	+13.02
(8) - D) $\frac{d'}{100}$											
+10.15 δ_1		54 44.41									
+117.00											
d	+26.3 1.41996 9.76057 1.30722m	0 11.2	9.2	35	7.90	54 47	32.65 37.34 41.36	35	54	48 18.05 18 2 +12.73 +40 -22.80 48 18 12	+12.93
(8) - D) $\frac{d'}{100}$											
+10.15 δ_2		54 44.49		49 26.2							
+117.00											
-4 d	+16.7 1.22272 9.76625 1.11566m	1 15.8	13.5	6	14.80	54 16	33.55 36.64 34.75	5	54	17 23.56 7 13 +12.55 +40 -22.50 17 13.61	+12.55
(8) - D) $\frac{d'}{100}$											
+10.23 δ_1		55 45.92									
+117.08											
d	+21.8 1.33846 9.76625 1.23140m	1 14.0	10.2	6	12.10	54 16	36.25 38.94 37.96	5	54	17 21.90 12 13 +12.19 +40 -22.75 17 11.49	+12.34
(8) - D) $\frac{d'}{100}$											
+10.23 δ_2		55 45.87		18 27.6							
+117.08											
+ d	+10.7 1.02938 9.76695 0.92302m	0 19.9	16.9	10	18.40	54 12	29.95 32.01 31.17	10	54	13 24.63 3 3 +12.27 +40 -22.45 13 14.79	+12.61
(8) - D) $\frac{d'}{100}$											
+10.26 δ_1		56 43.52									
+117.16											
d	+20.6 1.31384 9.76645 1.20751m	0 10.8	6.0	10	8.40	54 12	39.95 42.64 41.66	10	54	13 26.51 11 1 +12.12 +40 -22.70 13 16.21	+12.40
(8) - D) $\frac{d'}{100}$											
+10.26 δ_2		56 43.60		14 32.4							
+117.16											
+2 d	+19.1 1.28103 9.76039 1.16811m	3 50.2	46.3	33	48.25	54 49	0.10 2.14 14.73	30	54	49 48.43 9 42 +12.93 +40 -22.45 49 38.80	+12.52
(8) - D) $\frac{d'}{100}$											
+10.24 δ_1		57 32.96									
+117.24											
d	+9.8 0.99123 9.76039 0.87831m	3 58.0	54.0	33	56.00	54 48	52.35 55.04 54.06	30	54	49 47.48 3 43 +12.77 +40 -22.70 49 37.49	+12.71
(8) - D) $\frac{d'}{100}$											
+10.24 δ_2		57 32.97		50 53.7							
+117.24											
-10 d	+9.7 0.98677 9.76324 0.87670m	4 11.1	15.8	49	19.45	54 33	30.90 33.46 32.12	45	54	34 26.43 3 47 +12.65 +40 -22.40 34 16.58	+12.55
(8) - D) $\frac{d'}{100}$											
+10.30 δ_1		58 39.35									
+117.36											
d	+20.9 1.32015 9.76324 1.21008m	4 11.2	6.7	49	8.95	54 33	39.40 42.09 41.11	45	54	34 25.87 11 45 +12.47 +40 -22.65 34 15.53	+12.33
(8) - D) $\frac{d'}{100}$											
+10.30 δ_2		58 39.24		35 31.9							
+117.36											

Date₁ = Oct. 16, 1871Observer ~~W.A.R.~~ *W.A.R.*
Recorder ~~A.A.~~ *W.A.R.*Date₂ = Oct. 17, 1871Observer ~~W.A.R.~~ *W.A.R.*
Recorder ~~A.A.~~ *W.A.R.*

Run

Star.	α	δ	Mag.	T_s	T_m	T_a	T_e	T_g	T_h	Sum	Mean	Red. to T_m	T
22	^m 59	^s 49	54 43	8.9	^m 59	50.1	53.7	57.3	60.6	64.5	286.2	57.24	^m 59
	^k 57	^s 54	54 38.1	9.0		27.5	29.4	31.8			-7.68		^s 57.24
													+ 10
													+ 3
	(δ) - D)	κ'_{100}				29.5							59 49.56
		a_1											- 2.66
													59 46.90
													+ 0.3
													+ 1.72
			8.8	59	33.0	50.2	53.7	57.4	60.7	64.3	286.3	57.26	59 57.26
	κ					35.0					-7.71		- 7.82
	(δ) - D)	κ'_{100}				37.2							+ 14
		a_2				35.0							- 3
													59 49.55
													- 2.64
													59 46.91
													+ 10.3
													+ 1.72
23	1	49	54 10	9.0	1	21.6	49.9	53.4	56.9	60.3	63.7	286.25	56.84
	^k 1	^s 47	54 4.2	8.6		24.1						-7.69	1 56.84
						27.2							- 7.74
													+ 10
													- 3
	(δ) - D)	κ'_{100}				24.3							1 49.15
		a_1											- 2.67
													1 46.48
													+ 10.4
													+ 1.72
			8.7	1	23.3	49.7	53.3	56.8	60.4	63.7	283.9	56.78	1 56.78
	κ					25.0					-7.71		- 7.82
	(δ) - D)	κ'_{100}				26.7							+ 14
		a_2				25.0							- 3
													1 49.07
													- 2.65
													1 46.42
													+ 10.4
													+ 1.72
23	3	48	53 48	9.0	3	18.7	43.7	47.0	50.5	54.1	57.6	252.9	50.58
	^k 2	^s 57.6	53 43.4	9.2		20.2						-7.69	3 50.58
						23.1							- 7.76
													+ 10
													- 3
	(δ) - D)	κ'_{100}				20.6							3 42.89
		a_1											- 2.68
													3 40.21
													+ 10.5
													+ 1.72
			9.1	3	18.9	43.8	47.1	50.5	54.0	57.5	252.9	50.58	3 50.58
	κ					20.5					-7.71		- 7.82
	(δ) - D)	κ'_{100}				23.0							+ 14
		a_2				20.8							- 3
													3 42.87
													- 2.66
													3 40.21
													+ 10.5
													+ 1.72
23	6	06	54 36	9.2	5	47.0	8 7.8	11.0	14.7	18.4	22.0	73.9	14.78
	^k 5	^s 21.0	54 30.7	8.9		48.9						-7.69	6 14.78
						57.3							- 7.76
													+ 10
													- 3
	(δ) - D)	κ'_{100}				49.0							6 7.09
		a_1											- 2.72
													6 4.37
													+ 10.5
													+ 1.72
			9.0	5	43.0	8 7.7	11.1	14.8	18.3	21.9	73.8	14.76	6 14.76
	κ					45.3					-7.71		- 7.82
	(δ) - D)	κ'_{100}				45.0							+ 14
		a_2				45.4							- 3
													6 7.05
													- 2.70
													6 4.35
													+ 10.5
													+ 1.72
23	8	48	54 45	8.8	8	24.8	48.6	51.8	55.5	59.2	62.7	27.78	55.56
	^k 8	^s 3.7	54 39.7	8.9		26.8						-7.69	8 55.56
						28.8							- 7.76
													+ 10
													- 3
	(δ) - D)	κ'_{100}				26.8							8 47.67
		a_1											- 2.75
													8 45.12
													+ 10.6
													+ 1.72
			8.9	8	8.6	8 46.5	51.9	55.4	59.0	62.6	27.74	55.48	8 55.48
	κ					10.2					-7.71		- 7.82
	(δ) - D)	κ'_{100}				9.4							+ 14
		a_2											- 3
													8 47.77
													- 2.73
													8 45.04
													+ 10.6
													+ 1.72

1871 phase proj. 15778

Runs		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
+2	d	+27.7 1.44248 9.76164 1.33081	0 5.9	2.8	40	4.35	54 42 43	44.00 47.06 -21.42	45.22	40	54 43 -20 +12.81 +40 -22.35 43 16.29	23.80 +13.00 14.45
+10.32 +1 17.48	δ_1	59 57.22										
+2	d	+22.3 1.34830 9.76164 1.23663	0 10.8	6.7	40	8.75	54 42 43	39.60 42.29 -17.24	41.31	40	43 25.05 -13 -1 +12.65 +40 -22.60 43 15.36	24.07 +12.91 14.38
+10.32 +1 17.48	δ_2	59 57.23			44 31.9							
-6	d	+32.5 1.51188 9.76747 1.40604	4 3.2	59.0	14	1.10	54 8 9	47.25 50.31 -25.47	48.47	10	54 9 24.84 -27 -44 +12.20 +40 -22.25 9 14.48	23.00 +11.59 12.64
+10.43 +1 17.64	δ_1	1 56.91										
	d	+31.8 1.50243 9.76747 1.39659	4 1.2	58.0	13	59.60	54 8 9	48.75 51.44 -24.72	50.46	10	9 26.52 -26 -44 +12.05 +40 -22.50 9 15.22	25.54 +11.75 14.79
+10.43 +1 17.64	δ_2	1 56.85			10 32.4							
+0	d	+30.0 1.44412 9.77112 1.37493	4 4.2	39.2	34	41.00	53 48 49	7.35 10.41 -23.71	8.57	30	53 48 46.70 -24 -52 +11.85 +38 -22.20 48 35.97	44.86 +11.47 34.13
+10.51 +1 17.80	δ_1	3 50.72										
	d	+29.8 1.44422 9.77112 1.37203	4 4.7	39.0	34	40.35	53 48 49	8.00 10.69 -23.55	9.71	30	48 47.14 -23 -52 +11.71 +38 -22.40 48 36.08	46.16 +11.34 35.10
+10.51 +1 17.80	δ_2	3 50.72			49 52.9							
-2	d	+25.8 1.41162 9.76289 1.30120	2 31.5	35.2	47	37.85	54 35 36	18.50 14.56 -20.01	19.72	45	54 36 26.55 -17 -29 +12.68 +40 -22.15 35 47.02 82	✓35 59.71 +12.62 50.18
+10.54 +1 18.04	δ_1	6 14.91										
	d	+29.4 1.46835 9.76289 1.35793	2 27.8	24.4	47	26.10	54 35 36	22.25 24.74 -22.80	23.96	45	36 2.14 -22 -27 +12.55 +40 -22.40 35 52.20	✓1.16 +12.46 51.22
+10.54 +1 18.04	δ_2	6 14.89			37 9.3							
-8	d	28.8 1.45939 9.76146 1.34754	4 50.6	47.2	39	48.90	54 42 44	59.45 2.51 -22.26	0.67	35	54 43 40.25 -21 -53 +12.83 +40 -22.05 43 30.69	38.41 +12.49 28.85
+10.61 +1 18.24	δ_1	8 55.73										
	d	+46.1 1.66370 9.76146 1.55185	0 23.1	15.4	40	20.75	54 42 43	27.60 30.29 -35.63 +10.74	29.31	40	43 54.66 43 44.03 -5 -3 +12.69 +40 -22.30 43 31.74	40.05 +13.01 30.76
+10.61 +1 18.24	δ_2	8 55.65			44 49.0							

Date, = Oct. 16, 1871

Observer W. A. R. & M.
Recorder A. M. Z. & R.

Date₂ = Oct. 17, 1871

Observer *H.A.R. & M.*
Recorder *A.M. Zieg*

[illegible]

Runs

1871phaseproj.1577R

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+29.6 1.47129 9.76413 1.36211~	4 8.0	4.9	54	6.45	28 54 29	41.90 44.74 -23.02	43.12	50	54 29	20.10 +12.39
((8) - D) $\frac{d'}{100}$											
+1069 δ_1 +11836		10 53.78								29 12.28	10.44
d	+29.6 1.47129 9.76413 1.36211~	4 7.7	3.6	54	6.65	28 54 29	42.70 45.59 -23.02	44.41	50	29 22.37	21.39 +12.15
((8) - D) $\frac{d'}{100}$											
+1069 δ_2 +11836		10 53.78		30 29.7						29 12.32	11.34
d	+18.4 1.26482 9.76519 1.15670~	0 21.8	18.7	0	20.25	22 54 23	28.10 31.16 -14.35	29.32	0	54 23 16.81	14.97 +12.72
((8) - D) $\frac{d'}{100}$											
+1073 δ_1 +11844		11 53.77								23 7.63	5.79
d	+20.4 1.30963 9.76519 1.20151~	0 20.2	17.0	0	18.60	22 54 23	29.75 32.44 -15.70	31.46	0	23 16.54	15.56 +12.59
((8) - D) $\frac{d'}{100}$											
+1073 δ_2 +11844		11 53.69		24 24.4						23 6.98	6.00
d	+20.8 1.31806 9.76078 1.20853~	2 36.5	35.2	52	24.85	30 54 31	18.50 16.56 -16.16	19.72	50	54 31 5.40	3.56 +12.60
((8) - D) $\frac{d'}{100}$											
+1076 δ_1 +11852		12 56.47								30 56.10	54.26
d	+26.2 1.41830 9.76378 1.30877~	2 27.5	23.4	52	25.45	30 54 31	22.90 25.59 -20.36	24.61	50	31 5.23	4.25 +12.43
((8) - D) $\frac{d'}{100}$											
+1076 δ_2 +11852		12 56.33		32 13.0						30 55.51	54.53
d	+24.6 1.39094 9.77824 1.29287~	3 9.6	6.1	58	7.85	24 53 25	40.50 43.06 43.19 -19.63	42.21	55	53 25 22.56	22.58 +11.17
((8) - D) $\frac{d'}{100}$											
+950 δ_1 +11400		29 10.48		26 24.2						25 11.23	10.25
d	+23.9 1.37840 9.77558 1.28067~	0 31.1	27.7	0	29.40	22 53 23	18.95 21.64 -19.08	20.66	0	53 23 2.56	1.58 +13.45
((8) - D) $\frac{d'}{100}$											
+946 δ_2 +11428		31 6.49		24 5.9						22 52.61	51.63
d	+13.1 1.11724 9.76607 1.01003~	1 9.2	6.5	56	7.85	24 54 27	40.50 43.56 -10.25	42.21	53	54 27 32.53	31.98 +12.38
((8) - D) $\frac{d'}{100}$											
+949 δ_1 +11444		32 23.05		28 35.0						27 21.51	20.96
d	+9.7 0.98677 9.76570 0.87936~	4 16.1	13.0	4	14.55	18 54 19	33.80 36.49 -7.58	35.51	0	54 19 28.91	27.93 +12.20
((8) - D) $\frac{d'}{100}$											
+953 δ_2 +11452		33 17.61		20 31.2						19 17.71	16.73

Date₁ = Oct. 17, 1871Observer W.A.R. A.M.
Recorder H.M. ZickDate₂ = Oct. 17, 1871Observer W.A.R. A.M.
Recorder H.M. Zick

86

Star.	α	δ	Mag.	T_0	T_m	T_e	T_r	T_s	T_h	Sum	Mean	Red. to T_m	T
22	34	15	54	8.5	34	2.2	19.1	22.6	26.0	29.6	33.2	13 05 -7.69	26.10 34 26.10 -7.80 + 14 - 3 34 18.41 - 2.41 34 16.02
	κ				4.1								
	$((\delta) - D) \frac{\kappa'}{100}$				4.1								
	α_1												
22	35	11	54	8.0	35	1.0	11.1	14.6	18.2	21.8	25.4	9 11 -7.69	18.22 35 18.22 -7.80 + 14 - 3 35 10.53 - 2.43 35 8.12
	κ					2.8							
	$((\delta) - D) \frac{\kappa'}{100}$					3.0							
	α_2												
22	36	17	54	9.0	36	3.4	15.3	21.0	25.4	28.9	32.6	12 68 -7.69	25.36 36 25.36 -7.80 + 14 - 3 36 17.67 - 2.49 36 15.27
	κ					8.6							
	$((\delta) - D) \frac{\kappa'}{100}$					6.0							
	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												

Runs

1871 phase proj. 15778

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	δ	0' 45.6	43.0	0	44.30	22	41.05		0	54 22 48.57	48.61
(8) - D	$\frac{a'}{100}$	1.23430				54 23	6.74	5.76		- 13	+12.56
δ_1		34 25.59		23 52.4			- 17.15			- 8	
δ_2										+12.37	
d	δ	1 21.7	18.0	26	19.85	56	28.50		25	54 57 19.30	18.52
(8) - D	$\frac{a'}{100}$	1.06766				54 57	3.14	30.21		- 24	+13.06
δ_1		35 17.65		58 22.9			- 11.69			+12.96	
δ_2										+ 40	
d	δ	4 38.8	35.0	39	36.90	43	11.45		35	54 43 59.44	58.16
(8) - D	$\frac{a'}{100}$	1.17595				54 44	14.14	13.16		- 51	+12.54
δ_1		36 24.86		45 22			- 15.00			+12.74	
δ_2										+ 40	
d	δ									- 23.30	
(8) - D	$\frac{a'}{100}$									43 48.28	47.30
δ_1											
δ_2											
d	δ										
(8) - D	$\frac{a'}{100}$										
δ_1											
δ_2											
d	δ										
(8) - D	$\frac{a'}{100}$										
δ_1											
δ_2											
d	δ										
(8) - D	$\frac{a'}{100}$										
δ_1											
δ_2											

Oct 16-17 $\Delta m. = -0.1(15.6) + 0.3 = +0.2$ ± 0.05

88

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

Oct. 21 +1' 2.12 - .11
 Nov. 2 +1 2.75 - .11

89

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
1.30 d	+18.0 1.20412 9.76395 1.09476m	4 0.0	53.2	53	5660	28 54 29	51.75 53.87 -12.44		50	54 29 41.43 - 7 - 43 +1261 + 40 -2490 29 29.04	+12.51
((8) - D) $\frac{d'}{100}$											
+7.85 δ_1 +1 4.68		34 53.88		30 33.7							
d	+14.7 1.16732 9.76395 1.05796m	4 0.0	52.7	53	5635	28 54 29	52.00 54.75 -11.17		50	29 43.58 - 6 - 43 +1272 + 485 -2610 29 30.16	+12.68
((8) - D) $\frac{d'}{100}$											
+7.85 δ_2 +1 4.68		34 53.86		30 34.8							
44 d	+25.7 1.40993 -34.3 9.76324 1.29986m	0 5.0	57.2	50	110	32 54 33	47.25 47.37 -17.95 +26.62		50	54 33 29.42 34 15.99 - 31 0 +1268 + 40 -2490 34 3.86	+12.77
((8) - D) $\frac{d'}{100}$											
+7.86 δ_1 +1 4.88		35 54.58		35 8.7							
d	+25.0 1.39794 9.76324 1.28787m	4 18.2	10.8	49	1450	33 54 34	33.85 36.60 -19.40		45	34 17.20 - 16 - 46 +12.79 + 46 -2615 34 3.68	+12.63
((8) - D) $\frac{d'}{100}$											
+7.86 δ_2 +1 4.88		35 54.70		35 8.6							
30 d	+24.2 1.38382 9.75931 1.26982m	2 20.8	13.2	27	1700	55 54 56	31.35 33.47 -18.61		25	54 56 14.86 - 15 - 25 +1307 + 40 -2490 56 3.03	+13.07
((8) - D) $\frac{d'}{100}$											
+7.88 δ_1 +1 5.48		38 47.33		57 8.5							
d	+32.1 1.50651 9.75931 1.39251m	2 14.8	6.0	27	1040	55 54 56	37.95 40.70 -24.69		25	56 16.01 - 26 - 24 +13.19 + 49 -2620 56 2.99	+13.18
((8) - D) $\frac{d'}{100}$											
+7.88 δ_2 +1 5.48		38 47.31		57 8.5							
28 d	+34.1 1.53245 9.76271 1.42215m	1 5.6	1.3	46	495	36 54 37	43.40 45.52 -26.43		45	54 37 19.09 - 30 - 122 +1273 + 40 -2490 37 6.90	+12.71
((8) - D) $\frac{d'}{100}$											
+7.97 δ_1 +1 5.72		40 3.70		38 12.6							
d	+26.9 1.42975 9.76271 1.31915m	1 13.3	5.8	46	955	36 54 37	38.80 41.55 -20.85		45	37 20.70 - 19 - 122 +1286 + 46 -2620 37 7.50	+13.00
((8) - D) $\frac{d'}{100}$											
+7.97 δ_2 +1 5.72		40 3.66		38 13.2							
34 d	34.7 1.54033 9.75913 1.42615m	1 57.7	53.8	26	5675	55 54 56	51.60 53.72 -26.68		25	54 56 27.04 - 31 - 21 +1307 + 40 -2490 56 15.09	+12.92 ⁵
((8) - D) $\frac{d'}{100}$											
+7.96 δ_1 +1 6.08		41 48.46		57 21.2							
d	-32.7 1.57455m 9.75913 1.40037m	2 52.8	42.8	27	4680	55 54 56	1.55 4.30 +25.14		25	56 29.44 - 27 - 31 +1320 + 40 -2625 56 16.30	+13.11
((8) - D) $\frac{d'}{100}$											
+7.96 δ_2 +1 6.08		41 48.47		57 22.4							

Date₁ = 1871, Oct. 21.Observer W.A.R.
Recorder A.M.Date₂ = 1871, Nov. 2.Observer W.A.R.
Recorder A.M.

90

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
42	42	54 16	9.1	42	17.6	44.9	48.2	51.8	55.1	58.5	25 85	51.70	42
κ		8.7 54 12.0	8.8		19.5						-7.57		42
					21.0								42
(8) - D					19.3								42
α_1													42
			8.6	42	58.0	46.2	49.6	53.0	56.4	60.1	26 53	53.06	42
κ					60.7						-9.26		42
					62.3								42
(8) - D					0.3								42
α_2													42
21	43	44 53 31	8.8	43	26.0	49.7	53.2	58.7	60.1	63.2	28 29	56.55	43
κ		14.2 53 26.5	8.8		28.7						-7.57		43
					31.1								43
(8) - D					28.6								43
α_1													43
			8.6	43	45.5	51.2	54.6	58.0	61.4	64.9	29 01	58.02	43
κ					47.6						-9.26		43
					49.8								43
(8) - D					47.6								43
α_2													43
21	44	59 53 58	8.4	44	37.8	59.4	2.9	6.3	9.9	13.4	33 19	66.88	45
κ		24.2 53 54.1	9.1		39.4						-7.87		45
		50.6			42.6								45
(8) - D					39.8								45
α_1													45
			8.5	44	40.8	45 0.8	4.4	7.9	11.2	14.8	39 1	7.82	45
κ					42.2						-9.26		45
					44.8								45
(8) - D					42.6								45
α_2													45
21	46	06 54 07	8.5	45	45.1	46 7.1	10.5	13.9	17.4	21.1	7 00	14.00	46
κ		32.4 54 30	8.8		47.6						-7.57		46
					50.4								46
(8) - D					47.7								46
α_1													46
			8.8	45	47.1	48 8.4	11.8	15.4	18.8	22.4	7 08	15.30	46
κ					51.5						-9.28		46
					49.2								46
(8) - D													46
α_2													46
21	47	25 54 57	9.5	47	69	27.1	30.6	34.2	37.7	41.4	17 10	34.20	47
κ		52.5 54 52.8	9.4		9.6						-7.56		47
					12.4								47
(8) - D					9.6								47
α_1													47
			9.8	47	81.4	28.6	32.1	35.5	38.9	42.8	17 80	35.60	47
κ					10.7						-9.26		47
					13.3								47
(8) - D					10.8								47
α_2													47

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
136	d	+32.4 1.51055 9.76642 1.40366m	2 19.3	12.7	7	16.08	54 15 16	32.35 34.47 -26.33		5	54 16 9.14 -27 -25 +1286 +40 -2485 15 56.53	+12.24
	(8) - D) $\frac{d'}{100}$											
+8.10 +1 6.28	δ_1		42 50.51		17 2.8							
	d	+52.8 -7.2 0.85733m 9.76642 0.75044	2 50.1	43.8	7	46.95	54 15 16	14.0 4.15 +5.63		5	16 9.78 -2 -31 +1247 +40 -2620 15 56.15	+12.57
	(8) - D) $\frac{d'}{100}$											
+8.10 +1 6.28	δ_2		42 50.54		17 2.4							
44	d	+28.0 1.44716 9.77422 1.34807m	2 15.2	9.3	52	12.25	53 30 31	36.10 38.22 -22.29		50	53 31 15.93 -21 -24 +1156 +35 -2480 31 2.59	+11.46
	(8) - D) $\frac{d'}{100}$											
+8.24 +1 6.48	δ_1		43 55.52		32 9.1							
	d	+10.4 1.01703 9.77422 0.91794m	2 28.7	22.0	52	25.35	53 30 31	23.00 25.75 -8.28		50	31 17.47 -3 -26 +1168 +40 -2615 31 3.11	+11.79
	(8) - D) $\frac{d'}{100}$											
+8.24 +1 6.48	δ_2		43 55.62		32 9.6							
44	d	+26.6 1.42488 9.77009 1.32166m	3 16.0	115.9	28	12.45	54 54 55	35.90 38.02 -20.97		25	53 55 17.05 -19 -35 +1199 +39 -2485 55 4.04	+11.84
	(8) - D) $\frac{d'}{100}$											
+8.20 +1 6.72	δ_1		45 5.26		56 10.8							
	d	+25.2 1.40140 9.77009 1.29818m	3 15.2	7.8	28	11.50	53 54 55	36.85 39.60 -17.87		25	55 19.73 -17 -35 +1211 +40 -2620 55 5.52	+11.99
	(8) - D) $\frac{d'}{100}$											
+8.20 +1 6.72	δ_2		45 5.37		56 12.2							
36	d	+26.3 1.41996 9.76782 1.31447m	0 57.7	50.3	15	54.00	54 6 7	54.35 56.47 -20.63		15	54 7 35.84 -18 -10 +12.21 +40 -2485 7 23.32	+12.33
	(8) - D) $\frac{d'}{100}$											
+8.21 +1 6.92	δ_1		46 12.88		8 30.2							
	d	+26.3 1.41830 9.76782 1.31281m	0 56.0	48.8	15	52.40	54 6 7	55.95 58.70 -20.55		15	7 38.15 -18 -10 +1233 +41 -2620 7 24.41	+12.436
	(8) - D) $\frac{d'}{100}$											
+8.21 +1 6.92	δ_2		46 12.89		8 31.3							
40	d	+24.6 1.39094 9.75895 1.27658m	0 57.8	51.7	25	54.75	54 56 57	53.60 55.72 -18.90		25	54 57 36.82 -16 -10 +13.12 +40 -2490 57 25.18	+13.26
	(8) - D) $\frac{d'}{100}$											
+8.12 +1 7.20	δ_1		47 32.99		58 32.4							
	d	+24.8 1.39445 9.75895 1.28009m	0 56.8	49.5	25	53.15	54 56 57	55.20 57.95 -19.06		25	57 38.89 -16 -10 +1323 +50 -2635 57 26.01	+13.47
	(8) - D) $\frac{d'}{100}$											
+8.12 +1 7.20	δ_2		47 33.05		58 33.2							

Date₁ = 1871 Oct. 21.Observer W.A.R.
Recorder A.M.Date₂ = 1871 Nov. 2Observer W.A.R.
Recorder A.M.

92

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
129	48	54 26	6.9	48	8.0	7.3	10.8	14.4	17.9	21.4	71.8	14.36	48
	47	54 21.9	7.0		3.7						-7.57		48
	κ				5.4								48
	(δ) - D				3.9								48
	a_1												48
			5.0	48	8.5	8.5	12.0	15.6	19.2	22.7	7.80	15.60	48
	κ				12.0						-9.26		48
	(δ) - D				23.1								48
	a_2				24.6								48
					24.6								48
21	49	53 14	8.8	49	3.7	26.6	30.1	33.6	37.0	40.5	16.78	33.56	49
	48	53 9.8	9.1		5.8						-7.58		49
	κ				8.7								49
	(δ) - D				6.0								49
	a_1												49
			8.9	49	7.0	28.0	31.5	34.9	38.3	41.9	17.46	34.92	49
	κ				8.9						-9.28		49
	(δ) - D				11.1								49
	a_2				9.0								49
													49
21	50	53 58	8.9	50	8.0	27.3	30.7	34.2	37.7	41.2	17.11	34.22	50
	49	53 54.0	9.0		10.3						-7.57		50
	κ				13.3								50
	(δ) - D				10.5								50
	a_1												50
			9.0	50	8.1	28.6	32.1	35.8	39.1	42.6	17.92	35.64	50
	κ				9.7						-9.27		50
	(δ) - D				12.0								50
	a_2				9.9								50
													50
21	52	54 00	8.5	51	32.1	52.04	4.0	7.5	11.0	14.5	3.74	7.48	52
	51	54 55.8	8.9		34.1						-7.57		52
	κ				36.6								52
	(δ) - D				34.2								52
	a_1												52
			8.8	51	40.3	52.19	5.4	8.8	12.3	15.9	4.43	8.86	52
	κ				41.9						-9.27		52
	(δ) - D				44.6								52
	a_2				42.2								52
													52
21	54	54 12	9.0	54	59.0	21.7	25.1	28.8	32.3	35.8	14.37	28.74	54
	53	54 7.5	9.2		61.1						-7.58		54
	κ				65.0								54
	(δ) - D				1.7								54
	a_1												54
			9.4	53	58.3	54.23	26.6	30.0	33.5	37.0	15.02	30.04	54
	κ				59.9						-9.27		54
	(δ) - D				62.4								54
	a_2				0.2								54
													54

1871phae.proj.157R

Runs

		$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
		+18.5	2' 32.1	26.0	57	29.65	54 25	19.30		55	54 26 13.24	
	d	1.02119					54 26	21.42			- 3	+12.64
	(8) - D	9.76466						8.18			- 27	
	$\frac{d'}{100}$	0.91254									+12.54	
24	δ_1	+8.22	48 13.23		27 8.4						+ 40	
		+1 7.32									-24.85	
											26 1.03	
	d	-9.0	2 48.0	39.7	57	43.85	54 25	4.50		55	26 14.26	
	(8) - D	0.95424					54 26	7.25			- 3	+12.71
	$\frac{d'}{100}$	9.76466						7.01			- 35	
	δ_2	+8.22	48 13.14		27 8.0						+12.65	
		+1 7.32									+ 44	
											-26.25	
											26 0.72	
	d	+27.6	3 58.4	58.0	8	58.70	53 13	52.65		5	53 14 32.66	
	(8) - D	1.44091					53 14	54.77			- 20	+10.98
	$\frac{d'}{100}$	9.77694						22.11			- 43	
36	δ_1	+8.42	49 32.61		15 26.4						+11.29	
		+1 7.56									+ 32	
											-24.75	
											14 18.89	
	d	+25.9	4 1.2	52.2	8	58.20	53 13	52.15		5	14 34.15	
	(8) - D	1.41330					53 14	54.70			- 18	+11.18
	$\frac{d'}{100}$	9.77694						20.75			- 43	
	δ_2	+8.42	49 32.60		15 26.7						+11.39	
		+1 7.56									+ 40	
											-26.15	
											14 19.18	
	d	+23.7	0 3.0	56.8	24	59.90	53 57	48.45		25	53 58 31.91	
	(8) - D	1.37475					53 58	50.57			- 15	+12.32
	$\frac{d'}{100}$	9.76737						18.66			- 560	
42	δ_1	+8.35	50 33.19		59 27.2						+1208	
		+1 7.76									+ 40	
											-24.80	
											58 17.36	43
	d	+25.7	0 0.2	52.7	24	58.45	53 57	51.90		25	58 34.42	
	(8) - D	1.40993					53 58	54.65			- 17	+12.41
	$\frac{d'}{100}$	9.76737						20.23			0	
	δ_2	+8.35	50 33.26		59 28.3						+1218	
		+1 7.76									+ 40	
											-26.25	
											58 20.58	
	d	+33.3	3 19.4	13.4	23	16.40	54 59	31.95		20	54 0 7.87	
	(8) - D	1.52244					54 0	34.07			- 29	+11.83
	$\frac{d'}{100}$	9.76922						26.20			- 36	
38	δ_1	+8.38	52 6.46		1 2.9						+1208	
		+1 8.04									+ 40	
											-24.80	
											59 54.90	
	d	+26.7	3 25.4	17.0	23	21.20	54 59	27.15		20	0 8.89	
	(8) - D	1.42651					54 0	29.90			- 17	+12.04
	$\frac{d'}{100}$	9.76922						21.01			- 36	
	δ_2	+8.38	52 6.49		1 2.7						+1219	
		+1 8.04									+ 40	
											-26.25	
											59 54.78	68
	d	+27.0	1 17.4	11.5	11	14.45	54 11	33.90		10	54 12 14.88	
	(8) - D	1.43136					54 12	36.02			- 19	+12.37
	$\frac{d'}{100}$	9.76712						21.14			- 13	
30	δ_1	+8.42	54 27.73		13 10.9						+1229	
		+1 8.48									+ 40	
											-24.80	
											12 2.45	
	d	+29.8	1 14.7	7.0	11	19.85	54 11	37.50		10	12 16.91	
	(8) - D	1.47422					54 12	40.25			- 23	+12.47
	$\frac{d'}{100}$	9.76712						23.34			- 13	
	δ_2	+8.42	24 27.59		13 11.6						+12.41	
		+1 8.48									+ 42	
											-26.30	
											12 3.08	

129
Date₁ = 1871, Oct. 21.

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

131
Date₂ = 1871, Nov. 2.

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

94

Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
h	55	34 54 24	6.9	55	8.0	34.5	38.1	41.6	45.1	48.6	20.79	41.58	55
	54	58.354	7.8		10.1						-7.58		55
	κ				12.7								55
	(δ - D) $\frac{\kappa'}{100}$				10.2								55
	a_1												55
			7.5	55	13.7	35.9	39.6	43.1	46.6	50.1	21.53	43.06	55
	κ				15.6	8					-9.26		55
	(δ - D) $\frac{\kappa'}{100}$				17.3								55
	a_2				15.5								55
21	56	43 54 45	9.0	56	16.2	43.8	47.3	51.0	54.5	58.0	25.46	50.92	56
	56	7.0 54 41.0	9.0		18.3						-7.58		56
	κ				20.7								56
	(δ - D) $\frac{\kappa'}{100}$				18.4								56
	a_1												56
			8.9	56	19.2	21.2	23.0	25.1	26.7	28.4	26.18	52.32	56
	κ				21.2	45.1	48.8	52.4	55.8	59.5	-9.26		56
	(δ - D) $\frac{\kappa'}{100}$				23.0								56
	a_2				21.1								56
21	58	46 54 15	7.3	58	20.7	46.8	50.4	54.0	57.5	61.1	26.98	53.96	58
	58	10.3 54 10.8	7.2		22.6						-7.58		58
	κ				24.7								58
	(δ - D) $\frac{\kappa'}{100}$				22.6								58
	a_1												58
			7.5	58	27.8	48.3	51.9	55.3	59.0	62.4	27.69	55.38	58
	κ				29.8						-9.26		58
	(δ - D) $\frac{\kappa'}{100}$				32.0								58
	a_2				29.8								58
22	0	23 54 27	9.2	59	56.1	0 24.0	24.6	31.2	34.8	38.2	15.58	31.16	00
21	57	47.6 54 22.9	9.1		58.2						-7.58		00
	κ				61.5								00
	(δ - D) $\frac{\kappa'}{100}$				58.6								00
	a_1												00
			9.0	59	57.7	0 25.4	29.1	32.5	36.0	39.5	16.25	32.50	00
	κ				53.1						-9.26		00
	(δ - D) $\frac{\kappa'}{100}$				55.8								00
	a_2				63.5								00
22	1	44 54 37	7.4	1	15.3	42.9	46.4	49.8	53.6	57.1	24.98	49.96	1
	1	6.2 54 32.8	8.0		17.7						-7.58		1
	κ				20.0								1
	(δ - D) $\frac{\kappa'}{100}$				17.6								1
	a_1												1
			8.2	1	19.2	44.1	47.8	51.3	55.0	58.5	25.67	51.34	1
	κ				20.3						-9.26		1
	(δ - D) $\frac{\kappa'}{100}$				18.7								1
	a_2												1

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
148 d	+31.4 1.49693 9.76484 1.38846m	4 11.5	5.0	59	840	23 54 24	39.45 42.07 -24.46		55	54 24 17.61 - 26 - 45 +12.51 + 40 -24.80 24 5.01	+12.20
(8) - D $\frac{d'}{100}$											
+8.43 δ_1		55 40.56		25 13.7							
+1 8.68											
d	+27.6 1.44091 9.76484 1.33244m	4 14.1	5.8	59	995	23 54 24	38.40 41.15 -21.60		55	24 19.65 - 20 - 45 +12.63 + 44 -26.80 24 5.77	+12.42
(8) - D $\frac{d'}{100}$											
+8.43 δ_2		55 40.71		25 14.4							
+1 8.68											
40 d	+32.5 1.51188 9.76466 III 1.40323m 1.39768m	2 50.8	43.5	59	4690	85 54 26 4	145 3.57 -28.84 10		85	54 26 38.26 - 27 - 31 +12.54 + 40 -24.80 45 25.82 26.57	+12.86 70
(8) - D $\frac{d'}{100}$											
+8.40 δ_1		56 49.86		46 35.3							
+1 8.92											
d	+31.2 1.49415 9.76640 III 1.2665	2 51.4	43.2	57	4730	85 26 4	1.05 3.80 -24.84 10		85	45 39.32 - 26 - 31 +12.46 + 44 -26.85 25 26.13	+12.63 83
(8) - D $\frac{d'}{100}$											
+8.40 δ_2		56 49.93		46 35.05							
+1 8.92											
42 d	+31.4 1.49693 9.76660 1.39022m	2 53.7	47.8	87	5075	14 54 14 15	57.60 59.72 -24.56		5	54 14 35.16 15 - 31.26 - 42 +12.35 + 40 15 - 24.75 14 22.48	+12.052
(8) - D $\frac{d'}{100}$											
+8.54 δ_1		58 53.01		16 31.7							
+1 9.28											
d	+25.6 1.40824 9.76660 1.30153m	2 58.7	49.7	7	5420	14 54 15	54.15 56.90 -20.02		5	15 36.88 - 17 - 32 +12.48 + 42 -26.35 15 22.94	+12.41
(8) - D $\frac{d'}{100}$											
+8.54 δ_2		58 53.10		16 32.2							
+1 9.28											
34 d	+32.6 1.51322 9.76448 1.40439m	1 5.9	59.7	56	250	26 54 27	45.55 47.67 -25.37		55	54 27 22.30 - 27 - 11 +12.56 + 40 -24.75 27 10.13	+12.58
(8) - D $\frac{d'}{100}$											
+8.56 δ_1		00 30.22		28 19.7							
+1 9.56											
d	+39.0 1.59106 9.76431 1.48206m	1 0.0	52.0	55	5600	26 54 27	52.35 55.10 -30.34		55	27 24.76 - 40 - 10 +12.68 + 45 -26.35 27 11.04	+12.63
(8) - D $\frac{d'}{100}$											
+8.56 δ_2		00 30.22		28 20.6							
+1 9.56											
38 d	+32.4 1.51055 9.76271 1.39995m	1 8.7	2.2	46	545	36 54 37	42.90 45.02 -25.12		45	54 37 19.90 - 27 - 12 +12.74 + 40 -24.75 37 7.90	+12.75
(8) - D $\frac{d'}{100}$											
+8.57 δ_1		1 49.01		38 17.7							
+1 9.80											
d	+32.6 1.51322 9.76271 1.40262m	1 9.1	0.2	46	465	36 54 37	43.70 46.45 -25.27		45	37 21.18 - 27 - 12 +12.86 + 46 -26.40 37 7.71	+12.93
(8) - D $\frac{d'}{100}$											
+8.57 δ_2		1 49.06		38 17.5							
+1 9.80											

Date, = 1871, Oct-21

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

Date, = 1871, Nov-2

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

Ru

18712hae.

Star.	α	δ	Mag.	T_0	T_m	T_s	T_p	T_g	T_h	Sum	Mean	Red. to T_m	T
21	m 3	25 54 19	8.6	2	50.2	3 24.1	27.6	31.1	34.8	38.2	15 58	31.16	3 31.16
	κ	47.2 54 14.3	8.9		52.1						-7.58		3 31.16
	$(\delta - D) \frac{\kappa'}{100}$				54.7								3 23.58
	a_1				52.3								3 21.63
	κ		8.8	2	58.8	3 25.5	29.1	32.6	36.0	39.6	16 28	32.56	3 32.56
	$(\delta - D) \frac{\kappa'}{100}$				61.1						-9.26		3 23.30
	a_2				63.1								3 21.68
					1.0								
22	4	46 53 33	8.5	4	37.6	45.9	49.4	52.9	56.4	59.8	26 44	52.85	4 52.85
	κ	4 8.8 53 26.4	8.9		39.9						-7.58		4 45.30
	$(\delta - D) \frac{\kappa'}{100}$				41.8								4 43.34
	a_1				39.7								
	κ		8.1	4	23.7	49.5	51.0	54.1	57.7	61.1	27 04	54.26	4 54.26
	$(\delta - D) \frac{\kappa'}{100}$				25.2						-9.27		4 45.01
	a_2				26.7								4 43.38
					25.2								
22	5	30 53 55	8.0	5	23.1	29.9	33.3	37.0	40.4	43.9	16 45	36.90	5 36.90
	κ	4 52.8 53 50.7	7.7		25.6						-7.58		5 29.32
	$(\delta - D) \frac{\kappa'}{100}$				28.0								5 27.35
	a_1				25.5								
	κ		7.8	5	19.1	31.1	34.7	38.2	41.7	45.1	19 08	38.16	5 38.16
	$(\delta - D) \frac{\kappa'}{100}$				20.6						-9.27		5 28.89
	a_2				22.5								5 27.25
					20.7								
22	6	56 54 37	8.9	6	27.0	56.3	59.6	63.1	67	70.4	30 41	60.82	7 01.22
	κ	6 16.8 54 33.0	9.0		29.1						-7.58		7 3.22
	$(\delta - D) \frac{\kappa'}{100}$				31.4								6 53.24
	a_1				29.1								6 51.25
													6 53.65
	κ		8.5	6	33.0	56.4	59.9	63.5	67	70.4	32 15	64.30	7 4.30
	$(\delta - D) \frac{\kappa'}{100}$				34.8						-9.26		7 3.47
	a_2				36.2								6 55.04
					34.6								6 53.38
22	8	24 54 16	9.2	8	1.4	24.3	27.8	31.3	34.9	38.6	15 69	31.36	8 31.38
	κ	7 46.6 54 11.8	9.4		4.4						-7.59		8 23.79
	$(\delta - D) \frac{\kappa'}{100}$				7.3								8 21.79
	a_1				4.3								
	κ		8.9	7	54.7	8 25.7	29.2	32.7	36.4	39.9	16 39	32.78	8 32.78
	$(\delta - D) \frac{\kappa'}{100}$				56.4						-9.26		8 23.52
	a_2				58.7								8 21.85
					56.6								

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
40 (8) - D) $\frac{d'}{100}$	+38.9 1.58995 9.76572 1.48236	4 16.8	10.3	4	18.55	54 18 19 36.92 -30.37	34.80 36.92 -30.37		0 -	54 19 36.55 - 40 - 46 +1242 + 40 -2470 18 53.81	+11.96
+866 δ_1 +110.08		3 30.29		20 3.9							
40 (8) - D) $\frac{d'}{100}$	+31.6 1.49969 9.76572 1.39210	4 21.9	13.8	4	17.85	54 18 19 33.25 -24.67	30.50 33.25 -24.67		0	19 8.58 - 26 - 47 +1254 + 43 -2635 18 54.47	+12.24
+866 δ_2 +110.08		3 30.34		20 4.6							
40 (8) - D) $\frac{d'}{100}$	+13.2 1.12057 9.77405 1.02131	1 24.8	18.3	51	21.30	53 31 32 29.17 -10.50	27.05 29.17 -10.50		50	53 32 18.67 - 5 - 14 +1587 + 35 -2465 32 5.77	+11.75
+880 δ_1 +110.32		4 52.14		33 16.1							
40 (8) - D) $\frac{d'}{100}$	+39.1 1.46389 9.77405 1.36463	1 12.3	64.3	51	8.30	53 31 32 42.80 -23.15	40.05 42.80 -23.15		50	32 19.65 - 22 - 12 +1171 + 40 -2630 32 5.12	+11.75
+880 δ_2 +110.32		4 52.18		33 15.4							
26 (8) - D) $\frac{d'}{100}$	+11.4 1.05690 9.76991 0.95350	3 5.4	59.2	28	2.30	53 54 55 48.17 - 8.99	46.05 48.17 - 8.99		25	53 58 39.18 - 3 - 33 +1202 + 39 -2465 55 26.88	+12.05
+877 δ_1 +110.44		5 36.12		56 37.0							
40 (8) - D) $\frac{d'}{100}$	+17.5 1.24304 9.76991 1.13964	3 10	52.0	27	56.50	53 54 55 41.85 -13.79	40.81 41.85 -13.79		25	55 40.81 - 7 - 32 +1214 + 40 -2630 55 26.66	+12.15
+877 δ_2 +110.44		5 36.02		56 37.1							
364 (8) - D) $\frac{d'}{100}$	+31.7 1.53273 9.76253 1.42197	0 19.6	13.2	45	16.40	54 37 38 34.07 -24.36 -26.42	31.95 34.07 -24.36 -26.42		45	54 38 9.51 - 3026 - 3 +1276 + 40 -2465 37 57.73	+12.83
+872 δ_1 +110.68		7 2.37		39 6.5							
40 (8) - D) $\frac{d'}{100}$	+29.79 1.44276 9.76253 1.36198	0 21.7	13.4	45	17.55	54 37 38 33.55 -23.04 17	30.80 33.55 -23.04 17		45	38 10.54 - 23 - 3 +1288 + 46 -2640 37 57.22 57.06	+13.08
+872 δ_2 +110.68		7 2.32		39 7.7							
40 (8) - D) $\frac{d'}{100}$	+27.1 1.43297 9.76625 1.32591	1 44.9	39.1	6	42.00	54 16 17 8.47 -21.18	6.35 8.47 -21.18		5	54 16 47.27 - 19 - 19 +1239 + 40 -2465 16 35.05	+12.41
+881 δ_1 +110.92		8 30.60		17 46.0							
40 (8) - D) $\frac{d'}{100}$	+36.2 1.55841 9.76625 1.45165	1 36.4	29.0	6	32.70	54 16 17 15.65 -28.29	15.65 18.40 -28.29		5	16 50.11 - 35 - 17 +1250 + 43 -2635 16 36.17	+12.41
+881 δ_2 +110.92		8 30.66		17 47.1							

Date₁ = 1871, Oct. 21. 127Observer *W.A.R.*
Recorder *A.M.*Date₂ = 1871, Nov. 2 131Observer *W.A.R.*
Recorder *A.M.*

98

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
9	38 54 49	8.7	9 ^m	16.7	38.6	42.1	45.9	49.2	52.9	22.87	45.74	9	45.74
κ	9	0.6	54 44.1	18.3						-7.59		9	-7.78
				21.0									+ 22
				18.6									- 3
$((\delta) - D) \frac{\kappa'}{100}$												9	38.15
a_1												9	-2.02
												9	36.13
													+8.9
													+1.11
8.5	9			25.6	40.0	43.6	47.1	50.7	54.3	25.57	47.14	9	47.14
κ				27.6						-9.26		9	-9.47
				30.0									+ 24
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												9	37.88
a_2												9	-1.69
												9	36.19
													+8.9
													+1.11
22	10 28 54 47	9.1	10	28.8	27.7	31.3	34.7	38.1	41.7	17.35	34.70	10	34.70
κ	9	50.5	54 42.8	30.0						-7.59		10	-7.78
													+ 22
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												10	27.11
a_1												10	-2.03
												10	25.08
													+8.8
													+1.11
8.9	10			21.1	28.8	32.4	36.0	39.6	43.1	17.99	35.98	10	35.98
κ				22.9						-9.26		10	-9.47
				25.4									+ 24
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												10	26.72
a_2												10	-1.70
												10	25.02
													+8.8
													+1.11
22	11 15 54 30	8.5	11	46.1	11 18.6	22.2	25.8	29.3		-7.59		11	22.21
κ	10	37.5	54 25.9	48.7								11	-7.78
				51.1									+ 22
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												11	14.62
a_1												11	-2.04
												11	12.58
													+8.8
													+1.11
8.5	11			8.4	16.6	20.1	23.5	27.2	30.0	11.74	23.48	11	23.48
κ				8.2						-9.26		11	-9.47
				11.2									+ 24
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												11	14.22
a_2												11	-1.71
												11	12.51
													+8.8
													+1.11
22	12 15 54 10	8.8	12	46.8	16.5	20.0	23.6	27.1	30.6	11.98	23.56	12	23.56
κ	11	37.8	54 5.8	48.8						-7.59		12	-7.78
				51.5									+ 22
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												12	15.97
a_1												12	-2.04
												12	13.93
													+8.8
													+1.11
8.8	12			3.4	17.7	21.2	24.8	28.2	31.8	12.37	24.74	12	24.74
κ				4.7						-9.27		12	-9.47
				7.3									+ 23
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												12	15.47
a_2												12	-1.72
												12	13.75
													+8.9
													+1.11
22	13 19 54 38	8.5	13	10.9	18.6	22.1	25.7	29.1	32.9	12.84	25.68	13	25.68
κ	12	41.7	54 33.2	13.1						-7.59		13	-7.78
				16.7									+ 22
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												13	18.09
a_1												13	-2.06
												13	16.03
													+8.9
													+1.11
9.1	12			54.0	13 20.0	23.6	27.1	30.8	34.0	13.53	27.06	13	27.06
κ				53.7						-9.26		13	-9.47
				58.6									+ 24
													- 3
$((\delta) - D) \frac{\kappa'}{100}$												13	17.80
a_2												13	-1.74
												13	16.06
													+8.9
													+1.11

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
40 d	+2.21 1.43297 9.76057 1.32025	4 45.2	36.3	34	40.75	54 48 49	4.60 9.72 -20.90		30	54 48 48.82 - 19 - 51 +12.76 + 40 -24.65 48 36.83	+12.66
(8) - D) $\frac{a'}{100}$				47.9							
+8.77 +1/11.12 δ_1		9 44.90		49 46.0							
d	+19.4 1.28780 9.76057 1.17506	4 45.9	40.0	34	44.45	54 48 49	3.90 6.65 -14.96		30	48 51.69 - 9 - 52 +13.08 + 48 -26.40 48 38.24	+12.95
(8) - D) $\frac{a'}{100}$											
+8.77 +1/11.12 δ_2		9 44.96		49 49.4							
28 d	+5.3 0.72428 9.76075 0.61172	1 0.8	54.1	35	57.45	54 46 47	50.90 53.02 -4.09		35	54 47 48.73 - 1 - 11 +12.94 + 40 -24.65 47 37.50	+13.22
(8) - D) $\frac{a'}{100}$											
+8.80 +1/11.24 δ_1		10 33.88		48 48.7							
d	+13.9 1.12059 9.76075 0.99803	0 54.0	45.9	35	49.95	54 46 48	58.40 1.15 -7.96		35	47 51.19 - 5 - 10 +13.08 + 48 -26.40 47 38.20	+13.41
(8) - D) $\frac{a'}{100}$											
+8.80 +1/11.24 δ_2		10 33.82		48 49.4							
27 d	+26.4 1.42160 9.76378 1.51207	3 12.6	6.0	53	9.30	54 29 30	39.05 41.17 +20.57		50	54 31 1.68 - 18 - 34 +12.64 + 40 -24.60 30 49.60	+12.52
(8) - D) $\frac{a'}{100}$											
+8.86 +1/11.36 δ_1		11 21.44		32 1.0							
d	+14.9 1.17319 9.76378 1.06366	2 40.7	32.8	52	36.75	54 30 31	11.60 14.35 -11.58		50	51 2.77 - 6 - 29 +12.75 + 45 -26.40 30 49.22	+12.55
(8) - D) $\frac{a'}{100}$											
+8.86 +1/11.36 δ_2		11 21.37		32 0.6							
16 d	-25.4 1.40483 9.76730 1.27882	3 16.2	11.0	13	12.85	54 9 10	34.50 36.62 +19.70		10	54 10 16.72 - 56.52 - 17 - 35 +12.28 + 40 -24.55 10 44.13	+12.16
(8) - D) $\frac{a'}{100}$											
+8.93 +1/11.52 δ_1		12 22.86		11 55.6							
d	+19.6 1.29226 9.76730 1.18625	2 42.8	34.3	12	37.55	54 10 11	10.80 13.55 -15.36		10	10 58.19 - 10 - 29 +12.39 + 42 -26.35 10 44.26	+12.42
(8) - D) $\frac{a'}{100}$											
+8.93 +1/11.52 δ_2		12 22.68		11 55.6							
38 d	+12.5 1.09691 9.76253 0.98613	0 21.4	13.9	45	17.65	54 37 38	30.70 32.82 -9.69		45	54 38 23.13 - 4 - 3 +12.76 + 40 -24.55 38 11.67	+13.09
(8) - D) $\frac{a'}{100}$											
+8.90 +1/11.72 δ_1		13 24.93		39 23.4							
d	+31.0 1.49136 9.76253 1.38058	0 6.4	57.1	45	17.65	54 37 38	46.60 47.35 -24.02		45	38 25.33 - 25 - 0 +12.88 + 46 -24.40 38 12.02	+13.09
(8) - D) $\frac{a'}{100}$											
+8.90 +1/11.72 δ_2		13 24.96		39 23.7							

100

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

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+87.4	2 57.8	45.3	22	48.55	59	59.80		20	53 0 39.85	
d	1.43 775 9.77 930 1.34 374m					53 1	1.92 -22.07			- 20 - 31 + 11.04 + 30 -24.45 0 26.23	+10.83
(8) - D) $\frac{d'}{100}$											
+8.96 δ_1		16 55.64		1 38.5							
+1 12.24											
	+31.3	2 56.1	47.8	22	57.95	59	56.40		20	0 42.00	
d	1.32 838 9.77 930 1.23 437m					53 0	59.15 -17.15			- 12 - 32 + 11.85 + 40 -26.23 0 26.86	+11.11
(8) - D) $\frac{d'}{100}$											
+8.96 δ_2		16 55.70		1 39.1							
+1 12.24											
	+26.4	4 30.9	25.0	14	27.95	8	20.40		10	54 9 1.82	
d	1.42 160 9.76 765 1.31 594m					54 9	22.52 -20.70			- 18 - 49 + 12.24 + 40 -24.40 8 49.37	+11.97
(8) - D) $\frac{d'}{100}$											
+9.14 δ_1		19 31.53		10 2.0							
+1 12.64											
	26.2	4 30.7	22.8	14	26.75	8	21.60		10	9 3.81	
d	1.41 830 9.76 765 1.31 264m					54 9	24.35 -20.54			- 18 - 48 + 12.36 + 42 -26.35 8 49.58	+12.12
(8) - D) $\frac{d'}{100}$											
+9.14 δ_2		19 31.52		10 2.2							
+1 12.64											
	+28.2	3 43.9	86.3	48	40.10	34	8.25		45	54 34 48.49	
d	1.45 025 9.76 307 1.34 001m					54 35	10.37 -21.88			- 21 - 40 + 12.73 + 40 -24.40 34 36.61	+12.52
(8) - D) $\frac{d'}{100}$											
+9.13 δ_1		20 55.91		35 49.4							
+1 12.84											
	+31.4	3 40.2	82.0	48	36.10	34	12.25		45	34 50.64	
d	1.49 693 9.76 307 1.38 669m					54 35	15.00 -24.36			- 26 - 40 + 12.83 + 46 -26.40 34 36.87	+12.63
(8) - D) $\frac{d'}{100}$											
+9.13 δ_2		20 56.04		35 49.7							
+1 12.84											
	+25.2	2 40.2	32.8	32	36.50	50	11.85		30	53 50 54.07	
d	1.40 140 9.77 078 1.29 887m					53 51	13.77 -19.90			- 17 - 29 + 11.76 + 38 -24.30 50 41.65	+11.88
(8) - D) $\frac{d'}{100}$											
+9.25 δ_1		21 54.75		51 54.6							
+1 13.00											
	+26.1	4 16.0	6.0	34	35.25	50	13.10		30	50 49 19.48	
d	1.41 664 9.77 078 1.31 428m	2 39.9	(30.6)		11.00	53 49	37.35 40.70 15.85 51 -20.62		30	- 18 - 46 + 12.01 + 40 -26.30 45 4.95 50 40.70	+11.77
(8) - D) $\frac{d'}{100}$											
+9.25 δ_2		21 54.74		51 53.7							
+1 13.00											
	-40.9	1 9.8	2.7	51	6.25	31	42.10		50	54 32 29.37	
d	+19.1 1.28 103 9.76 350 1.17 122m					54 32	44.22 -14.83			- 7 - 12 + 12.68 + 40 -24.83 32 17.41	+12.87
(8) - D) $\frac{d'}{100}$											
+9.79 δ_1		33 2.00		33 21.7							
+1 14.28											
	+14.7	1 22.0	15.8	21	18.90	1	29.45		20	55 2 20.72	
d	1.16 732 9.75 823 1.05 224m					55 2	32.20 -11.28			- 6 - 14 + 13.22 + 40 -24.50 2 9.84	+13.42
(8) - D) $\frac{d'}{100}$											
+8.92 δ_2		15 46.21		3 21.9							
+1 12.08											

Ru

Star.	δ	Mag.	T_a	T_m	T_s	T_r	T_g	T_b	Sum	Mean	Red. to T_m	T
1871bnae.p												
18	07 54 54	9.2	17m	40.7	18 8.0	11.7	15.3	18.9	22.3	762	15.24	78
	17 27.254 41.6	9.2		43.1						-7.58		15.24
	κ			45.6								7.78
	$((\delta) - D) \frac{\kappa'}{100}$			43.1								2.3
	a_1											18
	Nov 2											18
	33 41	8.5	83	26.5	42.2	15.8	49.4	52.8	56.4	24.66	49.32	33
	33 7.1 54 22.0	8.5		29.2						-9.25		49.32
	κ			31.7								9.46
	$((\delta) - D) \frac{\kappa'}{100}$			29.2								2.4
	a_2											3
	Nov 2											33
	36 41	8.5	36	31.6	43.1	46.7	49.8	54.0	57.3	25.09	50.18	36
	36 7.4 54 24.5	8.5		32.0						-9.25		50.18
	κ			34.8								9.46
	$((\delta) - D) \frac{\kappa'}{100}$			37.0								2.4
	a_1			34.1								3
	Nov 2											36
	15 35	8.5	15	38.6	51.2	54.6	58.5	62.0	65.5	29.18	58.36	15
	15 11.2 54 33.7	8.5		40.5						-9.26		58.36
	κ			41.8								9.47
	$((\delta) - D) \frac{\kappa'}{100}$			40.3								2.4
	a_2											3
	Nov 2											15
	15 35	8.5	15	38.6	51.2	54.6	58.5	62.0	65.5	29.18	58.36	15
	15 11.2 54 33.7	8.5		40.5						-9.26		58.36
	κ			41.8								9.47
	$((\delta) - D) \frac{\kappa'}{100}$			40.3								2.4
	a_2											3
	Nov 2											15
	15 35	8.5	15	38.6	51.2	54.6	58.5	62.0	65.5	29.18	58.36	15
	15 11.2 54 33.7	8.5		40.5						-9.26		58.36
	κ			41.8								9.47
	$((\delta) - D) \frac{\kappa'}{100}$			40.3								2.4
	a_2											3
	Nov 2											15
	15 35	8.5	15	38.6	51.2	54.6	58.5	62.0	65.5	29.18	58.36	15
	15 11.2 54 33.7	8.5		40.5						-9.26		58.36
	κ			41.8								9.47

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+32.1	4 18.2	3.0	29	660	54 53	41.75		25	54 54	19.16
d	1.50651					54 54	43.87				- 2.6
	9.75967						- 24.71				- 4.5
$((\delta) - D) \frac{d'}{100}$	1.39287 _m										+13.07
+9.02											+ 4.0
δ_1		18.14.57		55 19.9							- 24.45
+112.44										54	7.47
	+20.1	2 11.2	2.2	57	670	54 25	41.65		55	54	26 28.76
d	1.30320					54 26	44.40				- 1.0
	9.76448						- 15.64				- 2.3
$((\delta) - D) \frac{d'}{100}$	1.19437 _m										+12.66
+7.83											+ 4.4
δ_2		33 46.65		27 19.9							- 26.10
+114.44										26	15.43
	+16.1	4 37.3	30.2	54	3375	54 28	14.60		50	54	29 4.83
d	1.20683					54 29	17.35				- 7
	9.76413						- 12.52				- 5.0
$((\delta) - D) \frac{d'}{100}$	1.09765 _m										+12.72
+9.90											+ 4.5
δ_1		36 47.55		29 56.3							- 26.15
+150.4										28	51.28
	+18.1	4 36.6	29.8	44	3320	54 38	15.15		40	54	39 3.88
d	1.25768					54 39	17.90				- 8
	9.76236						- 14.02				- 5.0
$((\delta) - D) \frac{d'}{100}$	1.14673 _m										+12.90
+8.98											+ 4.7
δ_2		15 56.31		40 2.4							- 26.40
+1120.8										38	50.27
d											
$((\delta) - D) \frac{d'}{100}$											
δ_1											
d											
$((\delta) - D) \frac{d'}{100}$											
δ_2											
d											
$((\delta) - D) \frac{d'}{100}$											
δ_1											
d											
$((\delta) - D) \frac{d'}{100}$											
δ_2											

Oct 21 - Nov 2 $\Delta T = 1.39 \pm .049 + 32 + 7 = 1.78$

Date₁ =Observer
RecorderDate₂ =Observer
Recorder

Star.	α	δ	Mag.	T_{δ}	T_m	T_a	T_r	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													

