

KG
11366
v.570

Zone Observations & Reductions
C 8 5/10/11
June
From ~~January~~ 30, 1871 to July 27, 1871

Charles W. Sever, University Bookstore, Cambridge.

C.8

June 30 1871 to Aug 27 1871

18 th	47	27	53°	2.8
16	52	50	"	38°
17	28	07	51°	38

(8) -

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

Value of Inclination (i) till July 17 = $+5^\circ 16'$

This gives $\log 15 \tan i = 0.14073_n$ as applied to Declinations.
See also C 7.

Value of (i) from July 20, 1871 to Jan. 24, 1872 = $+5^\circ 6'$
Constant to be applied to Declinations.

$$\log \tan (-i) = 8.95060_n$$

$$\log 15 = 1.17609$$

$$\log 15 \tan (-i) = 0.12669_n$$

Continued from 67-
 Date₁ = June 27, 1971
 Observer W.R.
 Recorder A.M.
 n = -45

Date₂ = June 30, 1970
 Observer W.R.
 Recorder A.M.
 n = -39
 C = T_g + 10

Observer W.R.
 Recorder A.M.

2

1871phae.f

Star.	α	δ	Mag.	T_s	T_m	T_g	T_f	T_r	T_b	Sum	Mean	Red. to T_m	T
32	32.9	51.31	9.3	32.2.1	11.5	14.8	18.0	21.3	24.6	0.2	18.04	m	18.04
κ	31	43.7	51.33.5	9.0	3.3	4.9	10.3	3.4		-3.58		32	18.04
(S) - D	κ'											32	18.04
a_1												32	18.04
a_2												32	18.04
33	12.53.9	8.0	32.57.6	33.10.7	14.0	17.4	21.0	24.5	27.6	17.52	33	17.52	
κ	32	46.9	53.14.2	8.5	58.3	33.10.0	13.3	16.9	20.4	23.9	8.45	16.90	17.52
(S) - D	κ'											33	17.52
a_1												33	17.52
a_2												33	17.52
39	45.32	49.2											
κ	32	46.9	53.14.2	8.5	58.3	33.10.0	13.3	16.9	20.4	23.9	8.45	16.90	17.52
(S) - D	κ'											33	17.52
a_1												33	17.52
a_2												33	17.52
42	5.3	53.50	9.5	42.38.7	52.0	55.4	58.9	2.4	5.9	29.46	58.92	42	58.92
κ	42	27.9	53.51.8	9.5	2.3	4.8	1.6			-3.64		42	58.92
(S) - D	κ'											42	58.92
a_1												42	58.92
a_2												42	58.92
46	30	53.40	8.9	46.16.7	27.3	30.8	34.4	37.8	41.3	17.16	34.32	46	34.32
κ	46	5.9	53.41.5	9.0	18.0	19.8	54.8	18.2		-3.63		46	34.32
(S) - D	κ'											46	34.32
a_1												46	34.32
a_2												46	34.32
50	38	53.19	9.0	50.17.4	35.0	38.4	42.1	45.5	48.8	20.98	41.96	50	41.96
κ	50	13.8	53.20.7	9.4	18.7	20.7	56.8	18.9		-3.62		50	41.96
(S) - D	κ'											50	41.96
a_1												50	41.96
a_2												50	41.96
50	38	53.19	9.0	50.17.4	35.0	38.4	42.1	45.5	48.8	20.98	41.96	50	41.96
κ	50	13.8	53.20.7	9.4	18.7	20.7	56.8	18.9		-3.62		50	41.96
(S) - D	κ'											50	41.96
a_1												50	41.96
a_2												50	41.96
50	38	53.19	9.0	50.17.4	35.0	38.4	42.1	45.5	48.8	20.98	41.96	50	41.96
κ	50	13.8	53.20.7	9.4	18.7	20.7	56.8	18.9		-3.62		50	41.96
(S) - D	κ'											50	41.96
a_1												50	41.96
a_2												50	41.96

June 27 +0' 48.37 +.23
 " 30 +0 48.69 +.24

Runs

3

	T _m - T	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+14.6 1.16435 9.79383 1.09891 _m	1'28.4	30.0	51	29.26	51 31 32	19.15 7.52 -12.56		50	51 31 54.96 - 6 + 3.5 + 9.00 + 23 - 7.30 31 57.18	+9.52
(8) - D) $\frac{d'}{100}$											
+6.05 -0.3000 50	+18.0 1.25527 9.79383 1.18983 _m	125.9	27.0	51	26.45	51 31 32	21.90 10.59 -15.48			31 55.11 - 9 + 34 + 9.21 + 23 - 8.05 31 56.85	79 +9.67
(8) - D) $\frac{d'}{100}$											
+6.05 -0.3000 50	+19.9 1.29885 9.77761 1.21719 _m	221.1	22.5	12	24.44	53 10 11	26.55 14.92 -16.49 -15.41		10	53 10 58.43 - 10 + 33 + 10.71 + 30 - 7.40 11 24.9 10 55.80 - 7 + 58 + 10.98 + 30 - 8.15 10 59.44	10 59.51 9 + 33 + 10.71 + 30 - 7.40 11 3.58
(8) - D) $\frac{d'}{100}$											
+5.66 -0.2964 50	+15.9 1.20140 9.77761 1.11974 _m	3317.34 16.72	26.0	12	25.50	53 10 11	22.85 11.54 -15.74 -13.17			10 55.80 - 7 + 58 + 10.98 + 30 - 8.15 10 59.44	10 58.37 9 + 58 + 10.98 + 30 - 8.15 11 1.99
(8) - D) $\frac{d'}{100}$											
+5.38 -0.26.58 50	+20.2 1.30535 9.77095 1.21703 _m	328.8	31.2	33	30.00	53 49 50	19.35 6.72 -16.48		30	53 49 50.24 - 10 + 81 + 11.33 + 30 - 6.90 49 55.68	+12.34
(8) - D) $\frac{d'}{100}$											
+5.38 -0.26.58 50	+31.7 1.50106 9.77095 1.41274 _m	318.6	20.8	33	19.70	53 49 50	28.65 17.34 -25.87			49 51.47 - 26 + 79 + 11.60 + 30 - 6.75 49 56.15	+12.43
(8) - D) $\frac{d'}{100}$											
+5.38 -0.26.58 50	+16.1 1.20683 9.77285 1.12041 _m	305.4	57.1	43	56.25	53 38 39	52.10 40.47 -13.20		40	53 39 27.27 - 7 + 90 + 11.17 + 30 - 6.75 39 32.82	+12.30
(8) - D) $\frac{d'}{100}$											
+5.39 -0.25.28 50	+27.9 1.44560 9.77285 1.35918 _m	346.8	48.8	43	47.80	53 39 39	0.55 49.24 -22.87			39 26.37 - 20 + 91 + 11.45 + 30 - 7.55 39 31.28	+12.46
(8) - D) $\frac{d'}{100}$											
+5.44 -0.23.88 50	+23.1 1.36361 9.77626 1.28060 _m	420.2	22.1	4	21.16	53 18 19	27.20 15.57 -19.08		0	53 18 56.49 - 14 + 99 + 10.81 + 30 - 6.50 19 1.95	+11.96
(8) - D) $\frac{d'}{100}$											
+5.44 -0.23.88 50	+18.6 1.26957 9.77626 1.18650 _m	422.9	24.5	4	23.70	53 18 19	24.65 13.34 -15.36			18 57.98 - 9 + 106 + 11.10 + 30 - 7.30 19 3.05	+12.37
(8) - D) $\frac{d'}{100}$											

Date₁ = June 27

Observer

Recorder

Date, = June 30

Observer

Recorder

[illegible]

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+14.5 1.16137 7.77778 1.07988	247.2	49.3	12	48.25	10 53	0.10 48.47 -12.02		10	53	10 36.45 - 5 + 64 + 10.71 + 30 - 6.40 10 41.65
$((\delta) - D) \frac{d'}{100}$											+11.60
+5.46 -0.2356 δ_1		5143.29		10 18.1							
d	+6.9 0.83885 9.77770 0.75728	255.0	55.8	12	55.40	9 53	52.95 41.64 - 5.72			10	35.92 - 1 + 70 + 10.97 + 30 - 7.25 10 40.63
$((\delta) - D) \frac{d'}{100}$											+11.96
+5.46 -0.2356 δ_2		5143.26		10 17.1							
d	+18.86 1.26951 7.78428 1.19452	147.1	48.2	58	49.65	31 52	0.70 49.07 -15.65		50	52 31	33.42 - 10 + 41 + 10.00 + 28 - 9.85 52 34.16
$((\delta) - D) \frac{d'}{100}$											+10.59
+6.61 -0.4660 δ_1		38 3.69		38 47.6							
d	+17.8 1.25042 9.78592 1.17707	258.6	39.9	2	39.25	20 52	9.10 97.47 -45.03 14.53		0	52 20	42.44 - 9 + 60 + 9.85 + 27 - 8.10
$((\delta) - D) \frac{d'}{100}$											+10.63
+6.04 -0.34176 δ_2		1714.83		20 10.7						20	44.47 45.47
d	+13.0 1.11394 9.78543 1.04010	144.28	42.9	59	42.85	23 52	5.50 53.87 -10.97		58	52 23	42.90 - 5 + 1.08 + 9.90 + 27 - 8.05
$((\delta) - D) \frac{d'}{100}$											+11.20
+6.02 -0.3440 δ_1		18 29.41		23 11.6						23	46.05
d	+6.5 0.81291 7.78445 0.73809	3.2.8	5.9	53 33	43.5	49 53	44.00 32.37 - 5.47 30		50	50 30	26.90 - 1 + 74 + 11.02 + 30 - 8.10
$((\delta) - D) \frac{d'}{100}$											+12.02-32
+5.67 -0.3404 δ_2		19 31.18		49 57.2						30 50	30.82 31.29
d	+21.7 1.33646 9.78362 1.26081	319.2	20.9	48 34 28	20.05	34 52	28.30 16.67 -18.23		45	52 34	58.44 - 13 + 76 + 10.10
$((\delta) - D) \frac{d'}{100}$											+ 8.99
+5.94 -0.3348 δ_1		4352 37.2		54	36.20	28 51	12.15 0.52 -22.04		50	51 28	58.44 - 7.90 35 1.55
+6.14 -0.3240 δ_2		52 34 58.44		51 28 38.48						28	40.92
d	+21.7 0.11394 9.77677 1.11.3	252.2	54.7	9	53.40	14 53	54.90 43.27 + 1.08		5	53 15	44.35 - 0 + 67 + 10.76
$((\delta) - D) \frac{d'}{100}$											+ 9.20
+5.68 -0.3104 δ_1		2.1.0		2.8	42	40 51	46.45 34.82 - 9.69		40	51 41	34.82 - 7.69
+6.08 -0.3216 δ_2		53 15 44.35		51 41 25.13						15	48.44
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	27.21 - 3 + 92 + 11.34
$((\delta) - D) \frac{d'}{100}$											+ 30
+5.42 -0.2748 δ_1		48.38		44.7	39	43 51	46.47 57.47 -21.15 +30.23		35	51 43	27.21 - 7.10 49 32.64
+6.05 -0.31489 δ_2		53 49 27.21		51 43 36.32						43	34.24
d	+11.4 1.05690 9.77172 0.96875	357.8	62.6	33	60.20	48 53	48.15 36.52 - 9.31		30	53 48	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	-42.2	333.0	36.1	38	34.5	44	13.80		35	53	45 36.98
$((\delta) - D) \frac{d'}{100}$	1.625312 9.77164 1.53768					53 45	2.49 +34.49				- 47 + 86 + 11.49 + 30 - 11.05 45 38.11
δ_1	+6.54 -0 49.32	28 13.01		44 48.8							+12.18
d	+15.6	235.7	36.8	52	35.95	30	12.40		50	53	30 48.26
$((\delta) - D) \frac{d'}{100}$	1.19312 9.77422 1.10807					53 31	1.09 - 12.83				- 6 + 62 + 11.24 + 30 - 1.07 30 49.46
δ_2	+6.55 -0 48.80	30 10.90		30 0.7							+12.10
d	-60.3	318.7	18.8	18	18.95	4	29.60		15	52	5 19.24
$((\delta) - D) \frac{d'}{100}$	1.28032 9.78553 1.70958 9.94697					52 5	18.29 + 6.45 + 51.24				- 56 + 79 + 9.77 + 25 - 10.45 5 19.60
δ_1	+6.72 -0 46.84	37 5.98		5 22.1							6 8.53
d		3.5.9	6.1	43	6.00	39	42.35		40		
$((\delta) - D) \frac{d'}{100}$						40	31.04				
δ_2											
d		450.2	53.0	49	51.60	32	56.75		45		
$((\delta) - D) \frac{d'}{100}$											
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											

July 1 +0' 49".04 +.24
 " 3 +0 48.65 +.24

Runs

9

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+20.4 1.30963 9.76218 1.21254 _m	3' 11.0	15.6	43	13.30	39 54 40	35.05 24.09 -16.31		40	54 40 7.78 - 10 + 77 +12.55 + 30 -11.60	+13.52
((8) - D) $\frac{d'}{100}$											
+6.49 -0.5124 20 δ_1		21 11.49		39 18.5						40 9.70	
d	+27.3 1.43616 9.76218 1.33907 _m	3 5.8	7.0	43	6.40	39 54 40	41.95 30.60 -21.83			40 8.77 - 19 + 74 +12.15 + 30 -11.95	+13.00
((8) - D) $\frac{d'}{100}$											
+6.49 -0.5124 20 δ_2		21 11.42		39 18.6						40 9.82	
d	-32.1 +27.4 1.44560 9.76164 1.34797 _m	0.8.1	11.2	40	9.65	42 54 43	38.70 27.74 -22.28		40	54 43 5.46 - 20 + 2 +12.61 + 30 -11.45	+12.73
((8) - D) $\frac{d'}{100}$											
+6.39 -0.5020 18 δ_1		25 0.63		42 16.5						43 6.74	
d	-39.9 +20.1 1.30320 9.76164 1.20557 _m	0 12.4	14.2	40	13.20	42 54 43	35.05 23.70 -16.05			43 7.65 - 10 + 5 +12.20 + 30 -11.75	+12.45
((8) - D) $\frac{d'}{100}$											
+6.39 -0.5020 18 δ_2		25 0.53		42 18.8						43 8.35	
d	+20.3 1.30750 9.76007 1.21130 _m	3 20.4	21.8	48	2.60	34 54 35	27.25 16.29 -16.27		45	54 35 0.02 - 10 + 79 +12.47 + 30 -11.40	+13.46
((8) - D) $\frac{d'}{100}$											
+6.40 -0.4988 18 δ_1		26 8.69		34 12.2						35 2.08	
d	+19.7 1.29447 9.76307 1.19827 _m	3 18.2	20.7	48	19.45	34 54 35	28.90 17.55 -15.79			35 1.76 - 10 + 79 +12.10 + 30 -11.75	+13.09
((8) - D) $\frac{d'}{100}$											
+6.40 -0.4988 18 δ_2		26 8.59		34 13.2						35 3.10	
d	+19.7 1.29447 9.76501 1.20021 _m	3 50.9	56.4	58	5.15	23 54 24	55.20 44.24 -15.86		55	54 24 28.38 - 10 + 74 +12.27 + 30 -11.35	+13.41
((8) - D) $\frac{d'}{100}$											
+6.42 -0.4960 16 δ_1		27 9.05		23 40.8						24 30.44	
d	+21.5 1.33244 9.76501 1.23818 _m	3 52.1	52.1	58	5.20	23 54 24	56.25 44.80 -17.31			24 27.49 - 12 + 74 +11.90 + 30 -11.70	+13.02
((8) - D) $\frac{d'}{100}$											
+6.42 -0.4960 16 δ_2		27 8.93		23 39.2						24 28.81	
d	+22.9 1.35984 9.75967 1.26024 _m	3 50.9	53.8	28	5.235	53 54 54	56.00 45.04 -18.21		25	54 54 26.83 - 14 + 74 +12.80 + 30 -11.35	+13.90
((8) - D) $\frac{d'}{100}$											
+6.28 -0.4924 26 δ_1		28 32.00		53 40.1						54 29.38	
d	+22.0 1.34242 9.75967 1.24282 _m	3 52.8	54.2	28	51.00	53 54 54	57.35 46.00 -17.49			54 28.51 - 12 + 73 +12.41 + 30 -11.70	+13.52
((8) - D) $\frac{d'}{100}$											
+6.28 -0.4924 26 δ_2		28 31.98		53 41.1						54 30.33	

Runs

11

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+25.3 1.40312 9.80686 1.5071m	0 33.9	36.0	15	34.95	50 7 18	13.40 2.44 -22.42		15	50 7 40.02 - 17 + 14 + 7.85 + 20 - 10.55 7 37.49	+8.02
(8) - D) $\frac{a'}{100}$											
+7.19 -0 48.40 δ_1		31 29.90	6 49.1								
22	+20.7 1.31597 9.80686 1.26356m	0 37.2	38.5	15	37.85	50 7	10.50 59.15 -18.35			7 40.80 - 12 + 14 + 7.57 + 20 - 10.95 7 37.64	+7.79
(8) - D) $\frac{a'}{100}$											
+7.19 -0 48.40 δ_1		31 29.84	6 49.2								
d	+25.2 1.40140 9.80550 1.34763m	1 37.9	41.0	6	39.45	50 16 176	8.90 57.94 -22.27		5	50 16 35.67 - 17 + 38 + 8.00 + 20 - 10.55 16 33.53	+8.41
(8) - D) $\frac{a'}{100}$											
+7.14 -0 48.04 δ_1		32 47.46	15 45.5								
02	+5.8 0.76343 9.80550 0.70966m	1 55.2	55.3	6	55.25	50 15 16	53.10 41.75 -5.13			16 36.62 - 1 + 46 + 7.76 + 20 - 10.90 16 34.13	+8.41
(8) - D) $\frac{a'}{100}$											
+7.14 -0 48.04 δ_1		32 47.20	15 46.1								
d	+26.5 1.42325 9.80027 1.36425m	2 30.9	34.0	32	32.40	50 50 51	15.90 4.94 -23.13		30	50 50 41.81 - 18 + 60 + 8.59 + 20 - 10.55 50 40.47	+9.21
(8) - D) $\frac{a'}{100}$											
+7.00 -0 47.48 δ_1		34 55.24	49 53.0								
22	+20.6 1.31384 9.80027 1.25487m	2 35.7	36.0	32	35.55	50 50 51	12.80 1.45 -17.98			50 43.47 - 12 + 62 + 8.32 + 20 - 10.95 50 41.54	+9.02
(8) - D) $\frac{a'}{100}$											
+7.00 -0 47.48 δ_1		34 55.18	49 54.1								
d	+24.0 1.38021 9.80942 1.33036m	1 57.5	61.2	31	59.35	49 50 51	49.00 38.04 -21.40		30	49 51 16.64 - 15 + 48 + 7.55 + 20 - 10.30 51 14.42	+8.08
(8) - D) $\frac{a'}{100}$											
+7.13 -0 46.56 δ_1		38 54.7	50 27.9								
22	+23.4 1.36922 9.80942 1.31937m	1 58.3	59.0	31	58.65	49 50 51	49.70 38.48 -20.86			51 17.59 - 14 + 48 + 7.32 + 20 - 10.70 51 14.75	+7.86
(8) - D) $\frac{a'}{100}$											
+7.13 -0 46.56 δ_1		38 54.40	50 28.2								
d	+27.4 1.43275 9.77996 1.37844m	0 18.7	19.6	30	19.15	50 52 53	29.20 18.24 -23.90		30	50 52 54.34 - 20 + 7 + 8.62 + 20 - 10.40 52 52.63	+8.69
(8) - D) $\frac{a'}{100}$											
+6.90 -0 46.00 δ_1		39 57.54	52 6.6								
24	+24.8 1.39445 9.77996 1.33514m	0 18.7	19.2	30	18.95	50 52 53	29.40 18.05 -21.63			52 56.92 - 16 + 7 + 8.35 + 20 - 10.75 52 54.13	+8.46
(8) - D) $\frac{a'}{100}$											
+6.90 -0 46.00 δ_1		39 57.50	52 8.1								

Ru

Date₁ = Feb 24

Date₂ = July 3

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

12

[illegible]

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
+24.2 1.38382 9.77626 1.30084 (8) - D) $\frac{d}{100}$	+28.1 1.39967 9.77643 1.31683m	445.5	49.9	4	46.90	18 53 18	165 50.69 - 20.74 - 1999		0	53 18	30.40 29.75 - 16 + 1.15 + 11.12 + 30 - 10.65 18 34.71 32.46
+6.40 -0.4580 28	δ_1	40 45.98		17 46.7						18 32.88 - 7 + 1.15 + 10.78 + 30 - 11.05 18 33.99	+12.41
+16.3 1.21219 9.77643 (8) - D) $\frac{d}{100}$	+16.3 1.21219 9.77643 1.12935m	450.2	51.1	4	50.63	17 53 18	57.70 46.35 - 13.47			18 32.88 - 7 + 1.15 + 10.78 + 30 - 11.05 18 33.99	+12.16
+6.40 -0.4580 28	δ_2	40 45.98		17 48.2						18 33.99	
+24.1 1.38202 9.80656 (8) - D) $\frac{d}{100}$	+24.1 1.38202 9.80656 1.32931m	255.2	57.7	12	56.45	9 50 10	51.90 40.94 - 21.35		10	50 10	19.59 - 15 + 70 + 7.88 + 20 - 10.20 10 18.02
+7.00 -0.4524 20	δ_1	42 35.46		9 32.8						10 18.02	+8.63
+22.6 1.35411 9.80656 (8) - D) $\frac{d}{100}$	+22.6 1.35411 9.80656 1.30140m	254.5	55.2	12	54.86	9 50 10	53.50 42.15 - 20.02			10 22.13 - 14 + 70 + 7.65 + 20 - 10.60 10 19.94	+8.41
+7.00 -0.4524 20	δ_2	42 35.38		9 34.7						10 19.94	
+22.1 1.34439 9.80550 (8) - D) $\frac{d}{100}$	+22.1 1.34439 9.80550 1.29062m	127.5	30.7	6	29.10	16 50 17	19.25 8.29 - 19.52		5	50 16	48.77 - 13 + 36 + 8.00 + 20 - 10.15 16 47.05
+6.96 -0.4488 24	δ_1	43 54.87		16 2.2						16 47.05	+8.43
+22.8 1.33793 9.80550 (8) - D) $\frac{d}{100}$	+22.8 1.33793 9.80550 1.30416m	127.4	27.5	6	27.45	16 50 17	20.90 9.55 - 20.14			16 49.41 - 14 + 36 + 7.75 + 20 - 10.55 16 47.03	+6.17
+6.96 -0.4488 24	δ_2	43 54.83		16 2.2						16 47.03	
+29.1 1.46389 9.77997 (8) - D) $\frac{d}{100}$	+29.1 1.46389 9.77997 1.38459m	117.7	18.2	26	17.95	56 52 57	30.40 19.44 - 24.24 - 21.91		25	52 56	55.20 - 22 + 31 + 10.76 + 30 - 10.30 56 56.05
+6.34 -0.4344 20	δ_1	48 40.70 41.78		56 12.6 14.9						56 56.05	56 57.53 - 18 + 31 + 10.76 + 30 - 10.30 56 58.42
+23.8 1.34522 9.77997 (8) - D) $\frac{d}{100}$	+23.8 1.34522 9.77997 1.34066m	20.3	0.9	27	0.60	55 52 56	47.75 36.40 - 3.17 - 19.44			52 56	55.23 - 0 + 48 + 10.43 + 30 - 10.70 56 56.05
+6.34 -0.4344 20	δ_2	48 40.62 41.79		56 12.3 14.3						56 56.05	56 58.42 - 14 + 48 + 10.43 + 30 - 10.70 56 58.42
+24.0 1.38021 9.76501 (8) - D) $\frac{d}{100}$	+24.0 1.38021 9.76501 1.28595m	357.0	60.4	58	58.70	23 54 24	49.65 38.69 - 19.32		35	54 24	19.37 - 15 + 96 + 12.27 + 30 - 10.38 24 22.40
+5.95 -0.4244 24	δ_1	52 16.68		23 40.0						24 22.40	+13.38
+26.6 1.42488 9.76501 (8) - D) $\frac{d}{100}$	+26.6 1.42488 9.76501 1.33462m	355.0	56.6	58	55.50	23 54 24	52.55 41.20 - 21.61			24 19.59 - 19 + 95 + 11.71 + 30 - 10.75 24 21.81	+12.97
+5.95 -0.4244 24	δ_2	52 16.64		23 39.4						24 21.81	

Date₁ = July 1Observer
RecorderA.M.
H.C.Date₂ = July 3Observer
RecorderH.C.
A.M.

14

1871phae

S ₁	S ₂	Mag.	T _a	T _m	T _e	T _f	T _g	T _h	Sum	Mean	Red. to T _m	T	
5-5 11 54 11.4 κ	54.57 8.6 54.542 8.7	54.57 8.6 54.542 8.7	54.47 25.7 48.5 95.7 47.8	10.9	14.5	18.1	21.7	726	14.52	55	14.52	55	
(8) - D								-4.48				3.853 60 3	
a ₁												10.04 2.02 8.04	
9.0	54.512 8.7	54.512 8.7	53.2 104.4 52.2	11.2	14.7	18.2	21.8	738	14.76	55	14.76	55	
κ				3	5	5	6	-4.78				4.11 64 3	
(8) - D												9.98 1.98 8.00	
a ₂													
5-7 18 56 5.3 κ	54.18 7.2 54.213 7.0	54.18 7.2 54.213 7.0	56.56.6 13.9 58.5 57.0.0 115.1 57.5	17.6	21.0	24.7	28.1	1053	21.06	57	21.06	57	
(8) - D				4	7	4		-4.46				3.853 58 3	
a ₁												16.60 2.01 14.61	
58 21													
8.0	56.53.7 14.1	56.53.7 14.1	17.7	21.0	24.7	28.1	1056	21.12	57	21.12	57	4.11 62 3	
κ				3	7	4		-4.76				16.36 1.97 14.39	
(8) - D													
a ₂													
16 0 15 15 57 48.4 κ	50.50 9.0 50.537 8.8	50.50 9.0 50.537 8.8	lost.										
(8) - D													
a ₁													
9.3	59 58.0 15.4	59 58.0 15.4	18.6	21.9	25.1	28.9	1099	21.98	0	21.98	0	3.85 4.11 5.56 2	
κ								-4.68				17.30 1.89 16.47	
(8) - D													
a ₂													
9-25 0 38 0 κ 10.7	52.21 9.3 50.51 50 54.2 8.7	52.21 9.3 50.51 50 54.2 8.7	0.40.2 43.7 54.7 50.1 110.8 55.4	43.7	46.7	50.1	53.5	2342	46.84	0	46.84	0	
(8) - D				5	0	4	4	-4.38				3.853 52 2	
a ₁												42.45 1.93 40.54	
9.3	1-9.8	1-9.8	0.40.7	43.8	47.1	50.5	53.4	2355	47.10	0	47.10	0	
κ				3	4	4	4	-4.68				4.11 55 2	
(8) - D												42.42 1.90 40.52	
a ₂													
4-25 0 38 2 κ 25 1 58.0	54.43 8.0 52.21 9.3 52 23.6 9.4	54.43 8.0 52.21 9.3 52 23.6 9.4	23.3 26.8 30.1 33.6 37.0 1508 30.76	23.3	26.8	30.1	33.6	37.0	1508	30.76	2	30.76	2
(8) - D				5	3	5	4	-4.42				3.853 55 2	
a ₁												25.74 1.98 23.78	
3 12													
9.8	2 32.8	2 32.8	47.1	50.5	53.8	57.1	60.5	2090	53.80	2	53.80	2	
κ				3	3	3	3	-4.73				4.12 59 2	
(8) - D												49.07 1.95 47.70 47.70 48.12	
a ₂													

Runs

15

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+28.7 1.42657 9.76021 1.32745 _m	154.9	61.0	31	58.95	50 54 51	5040 39.44 -21.25		30	54 51 18.19 -18 +47 +12.75 +30 -10.80 51 21.23	+13.34
((8) - D) $\frac{d'}{100}$											
+5.79 δ_1 -0.4156		55 13.83		50 39.7							
d	+22.6 1.35411 9.76021 1.25505 _m	155.0	59.2	31	58.10	54 51	5125 39.90 -17.99			5 51 21.91 -13 +47 +12.37 +30 -10.70 51 24.22	+13.01
((8) - D) $\frac{d'}{100}$											
+5.79 δ_2 -0.4156		55 13.79		50 42.7							
d	+23.6 1.37291 9.76572 1.27936 _m	337.2	40.0	3	38.60	54 19	9.75 88.79 -19.03		0	54 19 39.76 -15 +86 +12.20 +30 -10.15 19 42.92 82	+13.21
((8) - D) $\frac{d'}{100}$											
+5.89 δ_1 -0.4092		57 20.50		19 1.9							
d	+27.4 1.43775 9.76572 1.34420 _m	332.8	32.7	3	32.75	54 19	15.60 4.25 -22.09			19 42.16 -19 +84 +11.82 +30 -10.55 19 44.38	+12.77
((8) - D) $\frac{d'}{100}$											
+5.89 δ_2 -0.4092		57 20.28		19 3.5							
d	2.6.7	9.0	32	7.85	50	51	40.50 29.54		30		
((8) - D) $\frac{d'}{100}$											
δ_1											
d	+24.0 1.38021 9.80012 1.32106 _m	117.1	17.9	31	17.50	50 51	30.85 19.50 -20.94		36	50 51 58.56 -15 +31 +8.35 +20 -10.05 51 57.22	+8.71
((8) - D) $\frac{d'}{100}$											
+6.60 δ_2 -0.4000		0 22.00		51 17.2							
d	-8.6 0.93450_m 9.80027 0.87550	2.6.7	9.0	32	7.85	50	51 40.50 29.54 +7.51		30	50 51 37.05 -1 +30 +8.60 +20 -9.60 51 36.74	+9.29
((8) - D) $\frac{d'}{100}$											
+6.59 δ_1 -0.3988		0 47.13									
d	-22.7 1.35603 _m 9.80027 1.29703	249.2	49.8	32	49.50	50 50	58.85 47.50 +19.82		30	51 7.32 -14 +67 +8.35 +20 -10.00 51 64.0	+9.08
((8) - D) $\frac{d'}{100}$											
+6.59 δ_2 -0.3988		0 47.11		50 26.5							
d	+28.4 1.45332 9.78576 1.37981 _m	114.3	16.4	1	15.35	52 22	33.00 22.04 -23.98		0?	52 21 58.06 -21 +29 +10.14 +27 -9.70 21 58.85	+10.49
((8) - D) $\frac{d'}{100}$											
+6.25 δ_1 -0.3936		2 30.03		21 19.5							
d	+21.0 1.32222 9.78888 1.25083 _m	4.2.9	4.3	14	3.60	52 8	44.75 33.40 -17.82		10?	9 15.58 -12 +98 +9.62 +26 -10.10 9 16.22	+10.74
((8) - D) $\frac{d'}{100}$											
δ_2											

ate₁ = July 1

[illegible]

Runs

	T _m - T	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
53.39 2.06	+9.8 0.99564 9.76164 +11.5 1.06070 9.76164 0.96307 _m	637.5 0.89801 _m 54 42 49.78 +13.00	41.9 41.9 54 42 48.50 +13.00	40	39.70	54 42 57.69 - 7.71 - 9.19	8.65 57.69 - 7.71 - 9.19		40	54 42 49.78 - 3 + 14 +12.59 + 30 - 9.90 42 6288	42 48.50 - 3 + 14 +12.59 + 30 - 9.90 42 5160
16	+20.5 1.31175 9.76182 1.21430 _m	118.2 1.31175 9.76182 1.21430 _m	19.3 19.3 41 25.6	41	18.75	54 42 29.60 18.25 - 16.38	29.60 18.25 - 16.38			42 1.87 - 10 + 31 +12.20 + 30 - 10.30 42 4.28	+12.71
45.68 -0.8872		435.47 444.8	41 25.6 48.1	19	46.45	3 3	19.0 50.94		15		
	+19.9 1.29885 9.77825 1.23783 _m	45.0 1.29885 9.77825 1.23783 _m	4.8 4.8 3 36.2	19	49.0	51 3 4	43.45 32.10 - 17.29			51 4 14.81 - 11 + 98 +8.55 + 20 - 9.85 4 1458	+9.62
+6.47 -0.8386		544.60	3 36.2								
	+28.5 1.40654 9.75877 1.30604 _m	345.0 1.40654 9.75877 1.30604 _m	49.0 49.0 58 56.5	23	47.00	54 59 59	135 50.39 - 20.23		20	54 59 30.16 - 16 + 91 +12.91 + 30 - 9.75 59 34.37	+13.96
+5.55 -0.8784		723.44	58 56.5								
18	+15.2 1.18184 9.75877 1.08134 _m	353.1 1.18184 9.75877 1.08134 _m	54.9 54.9 58 56.6	23	54.0	54 59 59	54.35 43.00 - 12.06			59 30.94 - 6 + 94 +12.51 + 30 - 10.20 59 34.43	+13.69
+5.55 -0.8784		723.32	58 56.6								
	+13.3 1.12385 9.76236 1.02694 _m	47.5 1.12385 9.76236 1.02694 _m	10.1 10.1 38 44.4	44	8.80	54 38 39	39.55 28.59 - 10.64		40	54 39 17.55 - 5 + 98 +12.59 + 30 - 9.70 39 22.02	+13.77
+5.63 -0.8764		81.71	38 44.4								
22	+14.0 -11.6 1.06446 _m 9.76236 0.96755	424.1 -11.6 1.06446 _m 9.76236 0.96755	26.4 26.4 38 46.7	44	25.25	54 38 39	23.10 11.75 + 9.28			39 21.03 - 4 + 1.06 +12.15 + 30 - 10.60 39 24.30	+13.47
+5.63 -0.8764		81.64	38 46.7								
	+22.9 1.35984 9.80443 1.30500 _m	410.4 1.35984 9.80443 1.30500 _m	13.7 13.7 23 38.4	59	12.15	50 23 24	36.20 26.24 - 20.18		55	50 24 5.06 - 14 + 1.01 + 8.12 + 26 - 9.10 24 5.15	+9.29
+6.54 -0.8680		1044.29	23 38.4								
30	+27.6 1.44091 9.80443 1.38607 _m	86.8 1.44091 9.80443 1.38607 _m	7.3 7.3 23 38.1	59	7.05	50 23 24	41.30 29.95 - 24.83			24 5.62 - 21 + 98 + 7.87 + 20 - 9.55 24 4.91	+8.84
+6.54 -0.8680		1044.29	23 38.1								

Date₁ = July 1

[illegible]

Runs

19

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+21.5 1.33244 9.79144 1.26461m	122.8	24.4	36	23.60	51 46 51 47	24.75 13.79 -18.29		35	51 46 55.40 - 12 + 34 + 9.56 + 24 - 9.25 46 56.16	+10.01
((8) - D) $\frac{d'}{100}$											
+6.24 δ_1 -0.36.52		11 37.41		46 19.6							
d	+11.7 1.06819 9.79144 1.00036m	129.0	30.0	36	29.50	51 46 51 47	19.85 7.50 -10.01			46 57.49 - 4 + 36 + 9.27 + 24 - 9.70 46 57.62	+9.83
((8) - D) $\frac{d'}{100}$											
+6.24 δ_1 -0.36.52		11 37.39		46 21.1							
d	+21.6 1.33445 9.79015 1.26533m	3.2.3	3.0	28	2.63	51 54 51 55	45.70 34.74 -18.42		25	51 55 16.32 - 13 + 72 + 9.67 + 25 - 9.20 55 17.63	+10.51
((8) - D) $\frac{d'}{100}$											
+6.20 δ_1 -0.36.08		13 5.99		54 41.6							
d	+12.2 1.08636 9.79015 1.01724m	3.7.2	7.9	28	7.53	51 54 51 55	40.80 29.45 -10.40			55 19.05 - 4 + 74 + 9.38 + 25 - 9.65 55 19.73	+10.33
((8) - D) $\frac{d'}{100}$											
+6.20 δ_1 -0.36.08		13 5.87		54 43.6							
d	+17.7 1.24797 9.80058 1.18928m	3 48.0	52.2	33	50.50	50 48 50 49	57.85 46.89 -15.46		30	50 49 31.43 - 9 + 91 + 8.53 + 20 - 9.00 49 31.98	+9.55
((8) - D) $\frac{d'}{100}$											
+6.41 δ_1 -0.35.60		14 40.54		48 56.4							
d	+20.0 1.30103 9.80043 1.24219m	3 45.7	46.2	33	45.95	50 49 50 49	24.0 51.05 -17.47			49 33.58 - 11 + 87 + 8.30 + 20 - 9.45 49 33.41	+9.268
((8) - D) $\frac{d'}{100}$											
+6.41 δ_1 -0.35.60		14 40.54		48 57.8							
d	+24.2 1.38382 9.79746 1.32201m	3 52.6	54.9	13	53.75	51 8 51 9	54.60 43.64 -20.99		10	51 9 22.65 - 15 + 94 + 8.89 + 28 - 9.00 9 23.54	+9.89
((8) - D) $\frac{d'}{100}$											
+6.32 δ_1 -0.35.20		15 57.59		8 48.3							
d	+22.0 1.34242 9.79746 1.28061m	3 55.8	58.9	13	56.35	51 8 51 9	52.00 40.65 -19.08			9 21.57 - 13 + 74 + 8.82 + 21 - 9.45 9 21.782	+9.60
((8) - D) $\frac{d'}{100}$											
+6.32 δ_1 -0.35.20		15 57.63		8 46.5							
d	-15.6 -16.4 1.19312 9.79699 1.13084m	142.2	44.5	11	43.35	51 11 51 11	50.0 54.04 +13.52		10	51 12 40.32 7.66 - 7 + 40 + 8.89 + 21 - 9.45 12 8.15	+9.49
((8) - D) $\frac{d'}{100}$											
+6.28 δ_1 -0.34.52		18 6.34		11 33.6							
d	+2.9 0.43136 9.79699 0.36908m	1 21.1	20.9	11	21.0	51 11 51 12	27.35 16.00 -2.34			12 13.66 - 0 + 32 + 8.69 + 21 - 9.35 12 13.53	+9.22
((8) - D) $\frac{d'}{100}$											
+6.28 δ_1 -0.34.52		18 6.16		11 39.0							

Date₁ = July 1⁹¹Observer A.M.
Recorder H.G.Date₂ = July 3⁹²Observer H.G.
Recorder H.M.

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
61 18 59		51.17	9.3	lost									
κ													
$(\delta) - D) \frac{\kappa'}{100}$													
α_1													
19 18 32		51.19	9.3	9.8	19.0.8/8.59	2.0	5.2	8.5	11.7	32.64	65.28	19	5.28
κ										-4.76			-4.12
$(\delta) - D) \frac{\kappa'}{100}$												19	0.58
α_2												18	0.57
20 19 51.42		51.44.8	9.0	20.0.5	20.0	23.3	26.6	29.8	33.1	13.28	26.56	20	26.56
κ				1.9		3		2	3	-4.40			-3.86
$(\delta) - D) \frac{\kappa'}{100}$				2.4						37			5.2
α_1				1.2								20	22.16
													-2.05
												20	2.014
													-2.03
													-2.07
21 9 51.6		51.8.6	9.3	20.5.8	21.8.5	11.8	15.2	18.6	21.8	7.59	15.18	21	15.18
κ				54.2		3	4	4	2	-4.40			-3.86
$(\delta) - D) \frac{\kappa'}{100}$				117.0						37			5.2
α_1				58.5								21	10.78
													-2.04
												21	8.77
													-2.03
													-2.07
22 16 57.26		51.28.1	7.0	21.56.5	22.12.4	15.6	19.1	22.4	25.8	9.53	19.06	22	19.06
κ				57.5		2	5	3	4	-4.44			-3.86
$(\delta) - D) \frac{\kappa'}{100}$				114.0						38			5.3
α_1				57.0								22	14.65
													-2.05
												22	12.63
													-2.03
													-2.07
23 1 51.0		51.1.4	9.4	22.50.0	57.8	3.0	6.5	9.8	13.0	33.21	66.42	23	6.42
κ				51.0		2	5	3	2	-4.40			-3.86
$(\delta) - D) \frac{\kappa'}{100}$				101.0						37			5.2
α_1				50.5								23	2.02
													-2.05
												23	0.00
													-2.03
													-2.07
23 7 51.0		51.1.4	9.4	23.7.7	0.1	3.4	6.5	10.0	13.3	33.3	6.66	0.23	6.66
κ										-4.70			-4.12
$(\delta) - D) \frac{\kappa'}{100}$												23	1.96
α_2													-2.02
												22	59.94
													-2.03

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
	+4.5	1 48.7	47.1	6	47.90	51 16	0.45		5	51 16 45.21	
d	0.65321					51 16	49.10			0	+9.41
(8) - D) $\frac{d'}{100}$	9.77621						3.89			+ 43	
δ_2	0.59015m									+8.77	
	+6.26	19 4.83		16 11.1						+ 21	
-0.3420										- 9.35	
										16 45.27	
d	+25.4	1 52.7	55.7	41	54.20	51 40	54.15		40	51 41 21.42	
(8) - D) $\frac{d'}{100}$	1.40483					51 41	43.19			- 17	+9.95
δ_1	9.77240						21.77			+ 46	
	1.33796m									+ 9.46	
	+6.15	20 26.29		40 46.5						+ 23	
-0.3380										- 8.55	
d	+21.9	1 55.8	58.8	41	55.50	51 40	52.55			41 22.43	
(8) - D) $\frac{d'}{100}$	1.34044					51 41	41.20			- 13	+9.73
δ_2	9.77240						18.77			+ 46	
	1.27357m									+ 9.17	
	+6.15	20 26.22		40 49.0						+ 23	
-0.3380										- 9.35	
d	+16.7	2 2.0	5.3	17	36.5	51 5	44.70		15	51 6 19.24	
(8) - D) $\frac{d'}{100}$	1.22272					51 6	33.74			- 8	+9.47
δ_1	9.77793						14.50			+ 50	
	1.16138m									+ 8.84	
	+6.27	21 15.04		5 47.1						+ 21	
-0.3348										- 8.75	
d	+52.0	2 20.8	20.3	17	20.55	51 5	27.80			6 19.96	20.58
(8) - D) $\frac{d'}{100}$	-8.0					51 6	16.45			- 2	+9.32
δ_2	0.90309m						6.95			+ 55	
	9.77743									+ 8.58	
	0.84175									+ 21	
	+6.27	21 15.02		5 50.0						- 9.20	
-0.3348										6 23.52	
d	+22.1	2 25.3	26.7	57	26.00	51 25	22.35		55	51 25 52.34	
(8) - D) $\frac{d'}{100}$	1.34439					51 26	11.39			- 13	+9.82
δ_1	9.77478						19.05			+ 58	
	1.27990m									+ 9.15	
	+6.18	22 18.81		25 20.2						+ 22	
-0.3316										- 8.75	
d	+9.4	2 36.3	36.0	57	36.15	51 25	12.20			25 52.75	
(8) - D) $\frac{d'}{100}$	0.94313					51 26	0.85			- 2	+9.71
δ_2	9.77478						8.10			+ 62	
	0.90864m									+ 8.87	
	+6.18	22 18.86		25 20.1						+ 22	
-0.3316										- 9.20	
d	+15.9	4 15.2	16.2	24	15.70	50 58	32.65		20	50 59 7.85	
(8) - D) $\frac{d'}{100}$	1.20140					50 59	21.69			- 7	+9.90
δ_1	9.77903						13.84			+ 103	
	1.14116m									+ 8.74	
	+6.27	23 6.27		58 36.2						+ 20	
-0.3292										- 8.65	
d	-1.0	4 24.9	26.0	24	25.15	50 58	22.90			59 9.10	
(8) - D) $\frac{d'}{100}$	0.00000m					50 59	11.55			- 0	+9.74
δ_2	9.77903						0.87			+ 1.06	
	9.93976									+ 8.48	
	+6.27	23 6.21		58 40.1						+ 20	
-0.3292										- 9.15	

Date, =

Observer
Recorder

Date, =

Observer
Recorder

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[illegible]

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+29.3 +21.3 1.32838 9.79047 1.25958m	0' 44.0	44.0	30	44.00	52 51 52	435 53.39 -18.18		30	51 52 35.21 -12 +17 +9.67 +24 -870 52 3647	+9.96
d											
((8) - D) $\frac{d'}{100}$											
+6.06 -0 32.36 δ_1		24 51.87		52 4.1							
18	+19.7 1.29447 9.79047 1.22567m	0 43.9	44.0	30	43.95	52 51 52	440 53.05 -16.81			52 36.24 -11 +17 +9.37 +24 -9.15 52 36.76	+9.67
d											
((8) - D) $\frac{d'}{100}$											
+6.06 -0 32.36 δ_2		24 51.75		52 4.4							
16	+20.4 1.30963 9.79840 1.24876m	0 23.9	24.7	20	24.30	51 2 3	24.05 13.09 -17.73		20	51 2 55.36 -41 +10 +8.79 +20 -8.55 2 55.79	+8.98
d											
((8) - D) $\frac{d'}{100}$											
+6.22 -0 32.04 δ_1		25 51.49		2 23.8							
16	+18.3 1.18469 9.79840 1.12382m	0 28.0	28.2	20	28.10	51 2 3	20.25 8.90 -13.30			2 55.60 -6 +12 +8.54 +20 -9.00 2 55.40	+8.80
d											
((8) - D) $\frac{d'}{100}$											
+6.22 -0 32.04 δ_2		25 51.35		2 23.4							
46	+27.2 1.43457 9.79192 1.36722m	3 51.5	54.9	38	53.20	51 43 44	55.15 44.19 -23.29		35-4	51 44 20.90 -20 +94 +9.51 +24 -8.50 44 22.89	+10.49
d											
((8) - D) $\frac{d'}{100}$											
+6.05 -0 31.48 δ_1		27 32.70		43 51.4							
46	+17.8 1.25042 9.79192 1.18307m	3 58.1	58.2	38	58.15	51 43 44	50.20 38.85 -15.24		35-8	44 23.61 -9 +96 +9.23 +24 -9.00 44 24.95	+10.34
d											
((8) - D) $\frac{d'}{100}$											
+6.05 -0 31.48 δ_2		27 32.86		43 53.5							
52	+12.9 1.11059 9.78642 1.03774m	0 25.0	28.6	5	26.80	52 17 18	21.55 10.59 -10.91		5-2	52 17 59.68 -8 +10 +10.08 +26 -8.55 18 152	diff. # of a pair +10.36
d											
((8) - D) $\frac{d'}{100}$											
+5.91 -0 30.92 δ_1		29 21.12		16 19.0							
52	+24.4 1.38739 9.78642 1.31454m	8 26.8	28.2	56	27.50	52 17 18	20.85 9.50 -20.63		5-3	17 48.87 16 -16 +12 +9.77 +26 -9.00 17 49.88	+10.01
d											
((8) - D) $\frac{d'}{100}$											
+5.91 -0 30.92 δ_2		29 21.12		16 19.0							
51	+29.7 1.47276 9.79144 1.40493m	1 33.8	34.5	36	34.16	51 46 47	14.26 3.24 -25.41		35-4	51 46 37.83 -23 +38 +9.56 +24 -840 46 39.38	+9.95
d											
((8) - D) $\frac{d'}{100}$											
+6.01 -0 30.52 δ_1		30 40.70		46 8.9							
28	+23.4 1.36922 9.79144 1.30139m	1 30.4	30.5	36	35.46	51 46 47	12.90 1.55 -20.02		35-2	46 41.53 -14 +38 +9.27 +24 -8.90 46 42.38	+9.75
d											
((8) - D) $\frac{d'}{100}$											
+6.01 -0 30.52 δ_2		30 40.68		46 11.9							

Runs

	$T_m - T$	A	C	Sum	Mean $\times 10$	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
1	+28.5	4.16.6	19.2	14	1790	51 8	3045		10	51 9	0.74
d	1.33244 9.79746 1.27063m					51 9	19.49 -18.65			12	+10.01
((8) - D) $\frac{d'}{100}$										+103	
+6.13 δ_1										+8.89	
-0.30.12										+21	
										-8.30	
										9 2.45	
32	+21.3	16.8	18.0	14	1740	51 8	3095			9 1.13	
d	1.32838 9.79746 1.26657m					51 9	19.60 -18.47			12	+9.75
((8) - D) $\frac{d'}{100}$										+1.03	
+6.13 δ_2										+8.63	
-0.30.12										+21	
										-8.75	
										9 2.13	
20	+21.0	230.9	34.1	47	3250	51 35	15.85		45	51 35	46.85
d	1.32222 9.79319 1.25614m					51 36	4.89 -18.04			12	+10.07
((8) - D) $\frac{d'}{100}$										+60	
+6.01 δ_1										+9.36	
-0.29.36										+23	
										-8.20	
										35 48.72	
20	+10.6	241.0	41.8	47	4140	51 35	6.95			35 46.50	
d	1.02531 9.79304 0.95908m					51 35	55.60 -9.10			3	+9.93
((8) - D) $\frac{d'}{100}$										+65	
+6.01 δ_2										+7.08	
-0.29.36										+23	
										-8.70	
										35 47.73	
26	+20.5	324.2	27.5	18	2585	51 4	22.50		15	51 4	53.73
d	1.31175 9.79809 1.25057m					51 5	11.54 -17.81			11	+9.75
((8) - D) $\frac{d'}{100}$										+8.84	
+6.11 δ_1										+20	
-0.28.80										-8.05	
										4 55.43	
26	+22.2	324.2	25.0	18	2460	51 4	23.75			4 53.12	
d	1.34635 9.79809 1.28517m					51 5	12.40 -17.28			13	+9.46
((8) - D) $\frac{d'}{100}$										+82	
+6.11 δ_2										+8.57	
-0.28.80										+20	
										-8.60	
										4 53.98	
20	+19.6	001.0	+01.8	45	440	54 37	48.55		45	54 38	28.30
d	1.29226 9.76253 1.19552m					54 38	35.99 -15.69			10	+12.74
((8) - D) $\frac{d'}{100}$										+0	
+5.24 δ_1										+12.54	
-0.28.44										+30	
										-8.35	
										38 24.69	
20	+15.8	0-00.0	+01.2	45	0.60	54 37	47.75			38 23.75	
d	1.19866 9.76253 1.10192m					54 38	36.40 -12.65			07	+12.38
((8) - D) $\frac{d'}{100}$										+0	
+5.24 δ_2										+12.15	
-0.28.44										+30	
										-8.35	
										38 27.28	
14	+19.5	243.8	47.9	42	4585	54 40	2.50		40	54 40	35.95
d	1.29003 9.76200 1.19276m					54 40	51.54 -15.59			10	+13.42
((8) - D) $\frac{d'}{100}$										+65	
+5.22 δ_1										+12.57	
-0.27.92										+36	
										-8.30	
										40 41.07	
14	+19.3	244.8	45.3	42	4585	54 40	3.30			40 36.52	
d	1.28556 9.76200 1.18829m					54 40	51.95 -15.40			9	+13.06
((8) - D) $\frac{d'}{100}$										+65	
+5.22 δ_2										+12.20	
-0.27.92										+30	
										-8.80	
										40 40.78	

Date₁ = July 91Observer W.M.
Recorder H.G.Date₂ = July 92Observer K.G.
Recorder A.M.

26

Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
61 39 ^m 41	34 15.6	54 42	9.0	39 26.0	38.6	42.3	45.7	49.4	52.9	228.9	45.78	m 45.78	
κ		54 44.4	9.0	27.4						-44.8		39 45.78	
$(\delta - D) \frac{\kappa'}{100}$				53.4						5		39 41.29	
α_1				26.7								39 29.08	+5.2 -0.2
κ		8.8		39.25.0	39.1	42.7	46.1	49.5	52.9	230.3	46.06	39 46.06	
$(\delta - D) \frac{\kappa'}{100}$										-4.8		39 41.2	
α_2												39 41.28	+5.2 -0.2
42 8	41 43.2	54 27	9.0	41.44.3	42.7	10.6	14.1	17.8	21.3	70.9	14.18	42 14.18	
κ	46.1	54 28.0	9.5	46.0						-4.49		42 3.883	
$(\delta - D) \frac{\kappa'}{100}$				90.3						5		42 9.69	
α_1				45.1								42 7.48	+5.2 -0.2
κ		8.7		41.51.6	42.7	10.9	14.4	18.1	21.4	71.9	14.35	42 14.35	
$(\delta - D) \frac{\kappa'}{100}$										-4.78		42 9.60	
α_2												42 7.38	+5.2 -0.2
43 50	43 25.9	54 38	8.3	43.30.7	46.8	50.3	53.8	57.5	61.1	269.5	53.90	43 53.90	
κ		54 39.9	8.4	31.7						-44.9		43 3.883	
$(\delta - D) \frac{\kappa'}{100}$				62.4						5		43 49.41	
α_1				31.2								43 47.18	+5.1 -0.2
κ		8.4		43.34.8	47.3	51.1	54.1	57.7	61.2	271.4	54.25	43 54.25	
$(\delta - D) \frac{\kappa'}{100}$										-4.78		43 49.50	
α_2												43 47.26	+5.1 -0.2
45 11	44 46.9	54 26.3	8.9	44.53.8	45.7.8	11.0	14.7	18.3	21.8	73.6	14.72	45 14.72	
κ			9.1	54.9						-4.49		45 3.883	
$(\delta - D) \frac{\kappa'}{100}$				108.7						5		45 10.23	
α_1				54.4								45 8.00	+5.0 -0.0
κ		9.0		44.49.8	45.8.0	11.6	14.7	18.7	22.0	75.0	15.00	45 15.00	
$(\delta - D) \frac{\kappa'}{100}$				51.3						-4.78		45 10.22	
α_2				101.1								45 7.98	+5.2 -0.2
46 15	45 51.4	54 16.5	8.5	46.3.5	13.1	17.0	20.2	23.7	27.5	101.5	20.30	46 20.30	
κ				4.6						-4.49		46 3.883	
$(\delta - D) \frac{\kappa'}{100}$				8.1						5		46 15.81	
α_1				4.0								46 13.59	+5.2 -0.2
κ		8.0		46 1.0	13.6	17.1	20.7	24.1	27.9	103.4	20.68	46 20.68	
$(\delta - D) \frac{\kappa'}{100}$				2.7						-4.78		46 15.90	
α_2				3.7								46 13.64	+5.2 -0.2
				1.8									

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
1	+19.1	0 51.0	5 3.3	40	52.15	41	56.20		40	54 42 29.99	
d	1.28103 9.76164 1.18340m					54 42	45.24 - 15.25			- 9 + 22 + 12.59 + 30 - 8.25	+13.02
((8) - D) $\frac{d'}{100}$										42 34.76	
+5.20 -0.2756 δ_1		39 44.28		42 7.2							
28	+2.11	0 50.4	5 1.9	40	51.15	41	57.20			54 42 29.00	
d	1.32428 9.76164 1.22665m					54 42	45.85 - 16.85			- 11 + 22 + 12.22 + 30 - 8.70	+12.63
((8) - D) $\frac{d'}{100}$										42 32.93	
+5.20 -0.2756 δ_2		39 44.26		42 5.4							
1	+29.1	2.2.6	5.7	57	41.5	25	44.20		55	54 26 9.84	
d	1.46389 9.76466 1.36928m					54 26	33.24 - 23.40			- 22 + 50 + 12.29 + 30 - 8.05	+12.87
((8) - D) $\frac{d'}{100}$										26 14.66	
+5.23 -0.2672 δ_1		42 12.71		25 47.9							
20	+22.8	2.6.2	6.8	57	6.50	25	41.85			26 12.16	
d	1.35793 9.76466 1.26332m					54 26	30.50 - 18.34			- 14 + 50 + 11.92 + 30 - 8.60	+12.58
((8) - D) $\frac{d'}{100}$										26 16.14	
+5.23 -0.2672 δ_2		42 12.61		25 49.4							
1	+22.7	0 57.1	5 9.8	45	58.45	36	49.90		45	54 37 20.77	
d	1.35603 9.76271 1.25947m					54 37	38.94 - 18.17			- 14 + 24 + 12.50 + 30 - 8.00	+12.90
((8) - D) $\frac{d'}{100}$										37 25.67	
+5.17 -0.2616 δ_1		43 52.35		36 59.5							
38	+19.5	5 9.2	60.3	43	59.75	36	48.60			37 21.64	
d	1.29003 9.76271 1.19347m					54 37	37.25 - 15.61			- 9 + 24 + 12.13 + 30 - 8.50	+12.58
((8) - D) $\frac{d'}{100}$										37 25.72	
+5.17 -0.2616 δ_2		43 52.43		36 59.6							
1	+20.3	3 50.9	55.6	58	53.25	23	55.10		55	54 24 27.80	
d	1.30750 9.76501 1.21324m					54 24	44.14 - 16.34			- 10 + 94 + 12.27 + 30 - 7.90	+13.41
((8) - D) $\frac{d'}{100}$										24 33.31	
+5.21 -0.2572 δ_1		45 13.21		24 7.6							
28	+24.5	3 47.8	49.0	58	48.40	23	54.95			24 28.88	
d	1.38917 9.76501 1.29491m					54 24	48.60 - 19.72			- 15 + 94 + 11.70 + 30 - 8.45	+12.99
((8) - D) $\frac{d'}{100}$										24 33.92	
+5.21 -0.2572 δ_2		45 13.19		24 7.7							
1	+16.3	3 23.9	27.1	8	25.50	14	22.85		5	54 14 58.72	
d	1.21219 9.76660 1.11952m					54 15	11.89 - 13.17			- 7 + 82 + 12.11 + 30 - 7.85	+13.16
((8) - D) $\frac{d'}{100}$										15 40.3	
+5.24 -0.2536 δ_1		46 18.83		14 38.7							
38	+18.9	3 21.8	23.1	8	22.45	14	25.90			14 59.28	
d	1.27646 9.76660 1.18379m					54 15	14.55 - 15.27			- 9 + 82 + 11.75 + 30 - 8.35	+12.78
((8) - D) $\frac{d'}{100}$										15 3.71	
+5.24 -0.2536 δ_2		46 18.90		14 38.4							

Date₁ = July 91Observer
RecorderA.M.
H.C.Date₂ = July 92Observer
RecorderH.C.
A.M.

28

Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
48	28	54.0	8.9	48.17.8	27.3	30.7	34.1	37.7	41.1	170.9	34.18	48	34.18
	48	4.2	54.66	17.4						-4.48		48	3.873
			8.5	37.2						4		48	29.70
(δ) - D				18.6								48	2.26
α_1												48	27.48
		9.3	48.8.0	10.0	27.5	31.1	34.3	38.0	41.5	172.4	34.48	48	34.48
				18.0						-4.78		48	4.13
(δ) - D				9.0								48	6.2
α_2												48	29.70
												48	2.24
												48	27.46
49	10	54.33	7.5	49.59.0	5.6	9.1	12.6	16.1	19.7	63.1	12.62	49	12.62
	48	45.6	54.35.1	49.0.2						-4.48		49	3.873
			7.0	109.2						5		49	5.9
(δ) - D				59.6								49	8.13
α_1												49	2.29
												49	5.88
			7.2	49.3.9	5.8	9.5	12.7	16.5	19.7	64.2	12.84	49	12.84
				5.8						-4.79		49	4.13
(δ) - D												49	6.3
α_2												49	8.05
												49	2.26
												49	5.79
49	54	54.46	7.8	50.16.0	49.48.0	51.2	54.9	58.5	62.0	274.6	54.92	49	54.92
	49	27.7	54.49.2	17.1						-4.48		49	3.873
			8.0	33.1						5		49	5.9
(δ) - D				16.5								49	50.43
α_1												49	2.30
												49	48.19
			8.0	50.18.0	—	—	—	58.5	2.2	-4.79		49	54.99
												49	4.13
(δ) - D												49	6.3
α_2												49	50.20
												49	2.28
												49	47.92
57	37	53.11	8.9	50.54.4	31.7.6	11.0	16.1	19.7	21.4	72.5	14.50	57	14.50
	51	12.8	53.12.7	55.8			14.5	18.0		-4.48		57	3.873
			9.0	110.2						2		57	5.6
(δ) - D				55.1								57	10.03
α_1												57	2.25
												57	7.83
			9.1	57.8.3	—	11.4	14.9	18.1	22.0	-4.76		57	14.96
				8.11								57	4.13
(δ) - D				9.3								57	6.0
α_2				17.6								57	10.20
				8.8								57	2.22
												57	7.98
52	32	54.38	8.8	52.15.3	28.4	31.9	35.2	39.2	42.8	177.5	35.50	52	35.50
	52	7.6	54.39.5	16.4						-4.56		52	3.873
			8.8	31.7						4.5		52	5.9
(δ) - D				15.8								52	31.00
α_1												52	2.31
												52	28.74
			8.9	52.17.0	28.4	32.3	35.8	39.0	42.8	178.2	35.64	52	35.64
				19.0						-4.79		52	4.13
(δ) - D				36.0								52	6.0
α_2				18.0								52	30.3
												52	28.85
												52	2.28
												52	28.57

Runs

1871phae.p

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'	
	+15.8 1.19312 9.76922 1.10307 _n	3.25.0	28.9	23	26.95	59 54	21.40 10.44 -12.68		26	53	59 57.76 - 7 + 82 +11.85 + 30 - 7.75 0 2.91	+1290
d (8) - D) $\frac{d'}{100}$ +5.28 -0.2464 30	+2.55 1.40654 9.76922 1.31649 _n	3 16.2	18.0	23	17.10	59 54	31.25 19.90 - 20.72			59	59.18 - 17 + 79 +11.49 + 30 - 8.25 0 3.34	+12.41
d (8) - D) $\frac{d'}{100}$ +5.28 -0.2464 30	+13.0 1.11394 9.76342 1.01809 _n	0 49.7	53.8	50	57.75	31 54	56.60 45.64 - 10.43		50	32	32 35.21 - 5 + 22 +12.43 + 30 - 7.65 32 40.46	+1290
d (8) - D) $\frac{d'}{100}$ +5.13 -0.2440 22	+8.9 0.94436 9.76342 0.85354 _n	0 53.2	54.8	50	54.00	31 54	54.35 43.00 - 7.14		50	32	32 35.86 - 2 + 22 +12.06 + 30 - 8.25 32 40.17	+12.56
d (8) - D) $\frac{d'}{100}$ +5.06 -0.2416 7	-21.6 1.23445 _n 9.76075 1.23593	1 25.8	28.3	36	27.05	46 54	21.30 10.34 + 17.22		35	54	47 27.56 - 12 + 36 +12.70 + 30 - 7.75 47 33.05	+13.24
d (8) - D) $\frac{d'}{100}$ +5.06 -0.2416 7	-23.0 1.36173 _n 9.76075 1.26321	1 23.8	26.8	36	25.30	46 54	23.05 11.70 + 18.33			47	30.03 - 14 + 34 +12.32 + 30 - 8.25 47 34.60	+1282
d (8) - D) $\frac{d'}{100}$ +5.46 -0.2356 46	+19.4 1.28780 9.77744 1.20597 _n	1 25.9	28.1	11	27.00	11 53	21.35 10.39 - 16.07		10	53	11 54.32 - 9 + 36 +11.02 + 30 - 7.55 11 58.36	+11.59
d (8) - D) $\frac{d'}{100}$ +5.46 -0.2356 46	+6.2 0.79289 9.77744 0.71056 _n	1.37.8	38.1	11	37.96	11 53	10.40 59.05 - 5.14			11	53.91 - 1 + 38 +10.69 + 30 - 8.05 11 57.22	+11.36
d (8) - D) $\frac{d'}{100}$ +5.08 -0.2328 14	+19.7 1.29444 9.76253 1.19773 _n	0 24.5	28.2	45	26.35	37 54	22.00 11.04 - 15.77		45	54	37 55.27 - 10 + 10 +12.51 + 30 - 7.60 38 00.48	+12.81
d (8) - D) $\frac{d'}{100}$ +5.08 -0.2328 14	+17.6 1.24551 9.76253 1.14877 _n	0 26.3	27.2	45	26.75	37 54	21.60 10.25 - 14.09			37	56.16 - 8 + 10 +12.13 + 30 - 8.10 38 00.51	+12.45

pro. 13
Date₁ = July 1

Star.	α	δ	Mag.	T_{δ}	T_m	T_e	T_r	T_s	T_h	Sum	Mean	Red. to T	T
16	54.40	53.12	9.0	54.18.3	39.8	43.1	46.5	50.1	53.5	233.0	46.60	54	46.60
	54.16.5	53.13.7	9.0	20.0						-4.47		54	3.883
				38.3								54	56
				19.1								54	3
												54	42.13
												54	2.26
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3
												54	42.16
												54	2.24
												54	39.92
												54	46.92
												54	4.13
												54	60
												54	3

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+2.5 1.43933 9.77761 1.35767 _m	1'58.9	52.5	11	57.0	53 10 11	56.65 45.69 -22.77		10	53 11 22.70 - 19 + 46 +11.02 + 30 - 7.35 11 27.14	+11.59
((8) - D) $\frac{d'}{100}$											
+5.43 δ_1	-0.2252	54 45.35		11 4.6							
32	+2.51 1.39964 9.77761 1.31801 _m	1.49.8	49.3	11	49.53	53 10 11	58.80 47.45 -20.80			11 26.65 - 16 + 43 +10.69 + 30 - 7.90 11 30.01	+11.26
d											
((8) - D) $\frac{d'}{100}$											
+5.43 δ_2	-0.2252	54 45.35		11 7.5							
26	+2.14 1.33041 9.75949 1.24063 _m	3.9.7	12.3	28	11.0	54 54 55	37.35 26.39 -17.40		26	54 55 8.99 - 11 + 77 +12.80 + 30 - 7.40 55 15.35	+13.76
d											
((8) - D) $\frac{d'}{100}$											
+4.96 δ_1	-0.2200	56 18.31		54 53.4							
26	+2.27 1.35603 9.75949 1.25625 _m	3.6.8	8.0	28	9.40	54 54 55	40.95 29.60 -18.04			55 11.56 - 13 + 74 +12.42 + 30 - 7.95 55 16.94	+13.33
d											
((8) - D) $\frac{d'}{100}$											
+4.96 δ_2	-0.2200	56 18.31		54 54.9							
24	+14.2 1.16229 9.77711 1.07013 _m	4 29.5	33.0	9	31.25	53 13 14	17.10 6.14 -11.75		5	53 13 54.39 - 5 + 108 +11.05 + 30 - 7.25 13 59.52	+12.38
d											
((8) - D) $\frac{d'}{100}$											
+5.40 δ_1	-0.2172	57 14.33		13 37.8							
24	+15.8 1.19866 9.77711 1.11650 _m	4.27.8	28.5	9	28.15	53 13 14	20.20 8.85 -13.08			13 55.78 - 7 + 108 +10.69 + 30 - 7.25 14 0.03	+12.00
d											
((8) - D) $\frac{d'}{100}$											
+5.40 δ_2	-0.2172	57 14.25		13 38.3							
10 + 13.6	+23.0 1.36173 9.77353 1.27599 1.30520 _m	2 56.0	58.4	47	57.20	53 34 35	51.15 40.19 -20.19 18.88		45	53 35 20.00 - 16 + 72 +11.43 + 30 - 7.20 35 25.09 26.40	21.31 +12.29
d											
((8) - D) $\frac{d'}{100}$											
+5.30 δ_1	-0.2128	58 28.22		35 5.1							
10 + 13.6	+15.0 1.13606 9.77353 1.09035 _m	3.2.1	5.5	48	27.0	53 34 35	45.65 34.30 -18.71 11.76			35 21.09 23.14 - 6 + 72 +11.09 + 30 - 7.25 35 25.39 27.44	23.14 +12.05
d											
((8) - D) $\frac{d'}{100}$											
+5.30 δ_2	-0.2128	58 28.01		35 6.2							
28	+9.6 0.98227 9.77592 0.99892 _m	2.4.3	6.8	2	5.53	53 20 21	42.80 31.84 -7.92		0	53 21 23.92 - 3 + 50 +11.17 + 30 - 7.15 21 28.71	+11.94
d											
((8) - D) $\frac{d'}{100}$											
+5.35 δ_1	-0.2100	59 16.05		21 7.7							
28	+11.3 1.05308 9.77592 0.96973 _m	2.1.2	2.2	2	1.70	53 20 21	46.65 35.30 -9.33			21 25.97 - 3 + 48 +10.84 + 30 - 7.20 21 29.86	+11.59
d											
((8) - D) $\frac{d'}{100}$											
+5.35 δ_2	-0.2100	59 16.02		21 8.9							

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+21.9 1.34044 9.77285 1.25402m	453.3	56.6	44	54.95	37 53 38 52 -	53.40 42.44 47.95 18.37		40	38 24.49 52 - 13 + 118 + 14.43 + 30 - 10.40 38 26.87	24.07 10.40 25.52
((δ) - D) $\frac{d'}{100}$											
+6.43 -0.43.84 δ_1		4782.14		37 41.7							
d	+19.5 1.29003 9.76660 1.19736m	250.8	53.8	7	53.30	14 54 15	55.05 6.04 44.09 -15.75		5	54 15 28.34 - 9 + 70 + 12.11 + 30 - 10.40 15 30.91	+13.02
((δ) - D) $\frac{d'}{100}$											
+6.02 -0.43.16 δ_2		4953.89		14 47.8							
d	-12.2 1.08636m 9.80213 1.02922	4,22.8	26.0	44	24.40	38 50 39	23.95 12.79 + 10.70		40	50 39 23.69 - 4 + 106 + 8.38 + 20 - 9.40 39 23.79	+9.60
((δ) - D) $\frac{d'}{100}$											
+6.68 -0.40.56 δ_1		5748.81		38 43.2							
d	+13.4 1.12710 9.78494 1.05277m	48.7	57.0	56	49.85	25 52 26	58.50 47.54 - 11.27		55	52 26 36.25 - 5 + 43 + 10.33 + 27 - 9.65 26 37.58	+10.98
((δ) - D) $\frac{d'}{100}$											
+6.22 -0.39.12 δ_2		8 18.18		25 58.5							
d	+15.6 1.14312 9.79510 1.12895m	4.0.5	2.2	59	1.35	23 51 24	47.00 36.04 - 13.46		55	51 24 22.58 - 7 + 96 + 9.15 + 22 - 8.95 24 23.89	+10.26
((δ) - D) $\frac{d'}{100}$											
+6.25 -0.34.72 δ_1		1725.12		23 49.2							
d	+0.9 -1.91 1.28103m 9.78197 1.20373	3.49.8	49.1	38	49.45	43 52 44	58.90 47.74 47.55 + 15.99		35	52 45 3.54 - 10 + 91 + 10.22 + 29 - 11.40 45 3.46	+11.32
((δ) - D) $\frac{d'}{100}$											
+6.73 -0.49.08 δ_2		29 9.50		44 14.4							
d	+4.94 0.67210 9.76360 0.57643m	43.3	43.9	51	43.60	31 54 31	4.75 53.40 - 43.77		50	54 31 49.63 - 1 + 40 + 12.03 + 30 - 10.75 31 5.60	+12.72
((δ) - D) $\frac{d'}{100}$											
+5.91 -0.42.24 δ_1		52 54.93		31 9.36							
d											
((δ) - D) $\frac{d'}{100}$											
δ_2											
d											
((δ) - D) $\frac{d'}{100}$											
δ_1											
d											
((δ) - D) $\frac{d'}{100}$											
δ_2											

93
Date₁ = July 5, 1871
n = -0.45

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

95
Date₂ = July 12,
n = -0.54

Observer W.A.R.
Recorder am.

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Star.	α	δ	Mag.	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Sum	Mean	Red. to T_m	T
52	32 24	51 50	7.0	32 31.0	50.6	57.1	57.6	1.2	47					
	39 4.3	51 53.7	6.5	39 10.3	31.5	34.9	38.2	41.5	45.0	19 11	38.22	39	38.22	
	(8) - D) κ'_{100}			22.1						-5.70			-5.70	
32	54			22.1						67			58	
34	37			11.0									2	
			9.2	39 44.1	39 49.2	52.4	56.0	59.4	6.0				39	32.52
				39 49.0									39	30.69 30.79
				39 16.6	35.6	39.0	42.3	45.6	49.0	21 15	42.30	39	42.30	
	(8) - D) κ'_{100}									-9.81			9.10	
	α_2												69	
													2	
15	41 4	53 23	8.0	40 45.6	59.6	29	6.5	9.9	13.4	33 23	66.46	39	30.88 39	39.49
	110 34.7	53 25.8	7.0	40 46.8						-5.74		41	6.46	
				42.4						1			-5.70	
	(8) - D) κ'_{100}			46.2									61	
	α_1												3	
			8.0	40 48.5	41 3.7	7.1	10.5	14.0	17.4	5 27	10.54	41	10.54	
				50.1						-9.86			57.1	
				98.6									70	
	(8) - D) κ'_{100}			49.3									3	
	α_2												41	0.72
													40	1.80
													40	58.95
15	42 34	54 16	9.0	42 15.7	32.9	36.4	39.8	43.5	46.9	19 9 5	39.90	42	39.90	
	43 6.3	54 18.0	9.0	17.2						576			-5.70	
	(8) - D) κ'_{100}			17.0						2			62	
	α_1			51.3									3	
				17.1									42	34.14
			9.5	43 2.4	42								42	1.84
			8.1	42 23.0	37.0	40.3	43.8	47.4	50.9	21 9 4	43.88	42	43.88	
				25.0						19.87			9.10	
	(8) - D) κ'_{100}			48.0									74	
	α_2			24.0									3	
													42	34.01
													42	1.68
15	44 52	54 15	8.5	43 20.0	37.7	41.5	44.8	48.7	52.1	22 4 8	44.96	43	44.96	
	43 39	54 11	9.1	24.6						-5.70			5.70	
	113 10.8	54 4.3	8.8	23.1						7.2			62	
	(8) - D) κ'_{100}			64.7									3	
	α_1			21.6									43	39.20
													43	1.84
													43	37.40
			8.2	43 28.0	42.0	45.6	48.9	52.6	56.3	24 3 9	49.08	43	49.08	
			9.4	43 20.6	42.0	00	00	00	00	-9.87			43	49.08
													9.10	
	(8) - D) κ'_{100}												74	
	α_2												3	
15	52 26	54 17	8.5	49 26.3	48.6	57.9	55.5	59.1	2.5	27 7 6	55.52	49	55.52	
	40 52	54 15	8.5	28.0						-5.80			5.70	
	47 22.3	54 18.0	8.3	30.2						78			62	
	(8) - D) κ'_{100}			84.5									3	
	α_1			28.2									49	49.75
													49	1.89
			8.0	49 11.0	49 49.0	52.4	56.0	59.5	63.0	29 7 4	59.48	49	59.48	
				49 49.0	52.4	56.0	59.5	63.0	66.5	-9.87			9.10	
													74	
	(8) - D) κ'_{100}												3	
	α_2												49	49.61
													49	1.73
													49	47.88

July 5 +0' 48.33 +.24
 " 12 +0' 48.62 +.25

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	0	3' 28.1	30.9	33	2950	51 49	18.85		30	51 49 43.94	
(8) - D	$\frac{d'}{100}$					50	7.18			- 20	+10.18
δ_1	+27.2	1.43454	37.51				-23.24			+ 84	
	1.43454	9.77095								+ 9.30	
	1.36625	39.8924		48 56.7						+ 24	
										-11.30	
										49 42.82	
d	3	32.2	32.3	33	3225	51 49	16.10		30	49 42.93	+10.16
(8) - D	$\frac{d'}{100}$					50	4.72			- 17	
δ_2	+25.5	1.40654	37.60				-21.79			+ 87	
	1.40654	9.77095								+ 9.12	
	1.33822	39.8921		48 54.5						+ 34	
										-12.50	
										49 40.59	
d	0	7.7	10.4	0	905	53 23	39.30		0	53 23 10.89	+11.10
(8) - D	$\frac{d'}{100}$					23	27.63			- 11	
δ_1	+20.3	1.30700					-16.74			+ 2	
	1.30700	9.77558								+10.87	
	1.22381									+ 30	
										-11.45	
										23 10.54	
d	0	7.8	7.3	0	753	53 23	40.80		0	23 11.74	+11.00
(8) - D	$\frac{d'}{100}$					23	27.42			- 12	
δ_2	+21.2	1.32634					-17.48			+ 2	
	1.32634	9.77558								+10.70	
	1.24265									+ 40	
										-12.70	
										23 10.24	
d	2	35.7	38.0	7	3685	54 15	11.50		5	54 15 41.41	+12.52
(8) - D	$\frac{d'}{100}$					15	59.83			- 14	
δ_1	+22.8	1.35493					-18.42			+ 62	
	1.35493	9.76660								+11.74	
	1.26526									+ 30	
										-11.50	
										15 42.43	
d	2	36.4	38.2	7	3730	54 15	11.05		5	54 15 43.59	+12.49
(8) - D	$\frac{d'}{100}$					15	59.67			- 10	
δ_2	+19.9	1.29885					-16.08			+ 65	
	1.29885	9.76460								+11.54	
	1.20618									+ 40	
										-12.75	
										15 43.33	
d	2	3.0	5.7	22	435	54 00	44.00		20	54 00 34.22	See orig. record
(8) - D	$\frac{d'}{100}$					00	5.33			- 14	+12.16
δ_1	+23.4	1.36922					-17.01			+ 50	To probably mean
	1.36922	9.76904								+11.50	of 43 28.00
	1.27899									+ 30	of 43 30.6
										-11.45	
										1 14.03	
d	1	58.8	59.0	21	5890	54 00	49.45		20	54 00 20.93	1 14.92
(8) - D	$\frac{d'}{100}$					00	38.07			- 11	+12.09
δ_1	+27.1	1.32428					-17.14			+ 50	+11.99
	1.32428	9.76904					-23.15			+11.30	
	1.23405	54.1 20.93	54 1 14.92							+ 40	
										-12.80	
										1 20.22	1 14.11
d	2	42.9	45.1	7	4400	54 15	43.35		5	54 15 30.64	+12.52
(8) - D	$\frac{d'}{100}$					15	52.68			- 19	
δ_1	+27.3	1.43616					-22.04			+ 67	
	1.43616	9.76642								+11.74	
	1.34331									+ 30	
										-11.25	
										15 31.91	
d	2	54.8	57.2	7	5600	54 15	52.35		5	54 15 32.49	+12.63
(8) - D	$\frac{d'}{100}$					15	40.77			- 3	
δ_1	+10.5	1.02119					-8.48			+ 72	
	1.02119	9.76642								+11.54	
	0.92834									+ 40	
										-12.63	
										15 32.57	

Date₁ = ⁹³ July 5, 1871Observer A. M.
Recorder W. A. R.Date₂ = ⁹⁵ July 12Observer M. R.
Recorder A. M.

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Run

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
14	52	24	8.6	51.53.1	52 11.3	15.0	18.4	22.0	25.5	9 22	18.44	52	18.44
	52	36	8.5	55.3						-5.78		52	-5.78
	52	47	9.0	108.4						4		52	4
	(8) - D	$\frac{\kappa'}{100}$		54.2								52	12.66
	55	3										52	-1.91
												52	10.79
	52	9.7	300	8.3	53.2.3	52. —	—	48.8	52.2	55.9	-9.89	52	48.75
	κ			8.5								52	-9.10
	(8) - D	$\frac{\kappa'}{100}$										52	-76
	α_2											52	-3
												52	38.86
												52	-1.76
												52	37.10
15	56	24	8.6	56.9.7	22.8	26.0	29.2	32.4	35.7	14 61	29.22	56	29.22
	55	56.7	9.0	11.7						-5.68		56	-5.68
	κ			13.0						4		56	-54
	(8) - D	$\frac{\kappa'}{100}$		34.4								56	-2
	α_1			11.5								56	23.53
												56	-1.82
												56	21.8076
			8.3	56 14.8	27.1	30.3	33.5	36.4	39.8	16 71	33.42	56	33.42
	κ									-9.76		56	-9.10
	(8) - D	$\frac{\kappa'}{100}$										56	-64
	α_2											56	-2
												56	23.66
												56	-1.69
												56	21.97
15	57	21	8.5	57.0.3	15.9	19.4	23.1	26.7	30.5	11 56	23.12	57	23.12
	56	53.6	7.7	2.3						-5.60		57	-5.60
	κ			3.6						75		57	-64
	(8) - D	$\frac{\kappa'}{100}$		6.2								57	-3
	α_1			2.1								57	17.32
												57	-1.95
												57	15.42
			8.2	57 10.9	20.0	23.5	27.1	30.7	34.3	13 56	27.12	57	27.12
	κ									-9.90		57	-9.10
	(8) - D	$\frac{\kappa'}{100}$										57	-77
	α_2											57	-3
												57	17.22
												57	-1.80
												57	15.42
15	58	21	9.0	58.0.5	—	—	49.8	53.1	56.2	—	—	58	49.78
	57	54.3	9.3	2.3						-5.70		58	-5.70
	κ			2.8						65		58	-55
	(8) - D	$\frac{\kappa'}{100}$		1.4								58	-2
	α_1											58	44.08
												58	-1.84
												58	42.29
16	0 16											58	32.84
	132											58	-9.10
	15	57.5	54.3	40.3	9.2	58.21.1	26.4	29.4	32.8	36.2	39.4	16 42	32.84
	2 48											58	-6.5
	5 16											58	-2
	(8) - D	$\frac{\kappa'}{100}$										58	23.07
	α_2											58	-1.71
												58	21.36
16	7	54	9.2	7 58.0	53.5	56.7	59.8	63.1	66.3	29 94	59.88	7	59.88
	7	27.0	50 18.0	9.2	39.7					-5.70		7	-5.70
	κ				77.7					64		7	-54
	(8) - D	$\frac{\kappa'}{100}$			38.8							7	-2
	α_1											7	54.18
												7	-1.88
												7	52.36
			9.0	7.33.8	57.4	6.6	3.8	7.1	10.3	31 92	63.84	8	3.84
	κ									-9.76		8	-9.10
	(8) - D	$\frac{\kappa'}{100}$										8	-64
	α_2											8	-2
												8	54.08
												8	-1.76
												8	52.32

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+24.2 1.38382 9.76501 1.28956m	3' 55.3	57.9	58	56.60	54 23 24	51.75 40.08 - -17.48		55	54 24 20.60 - 15 + 94 + 11.90 + 30 - 11.15 24 22.44	+12.99 Another #
(8) - D) $\frac{d'}{100}$	+5.95 -0.4232	52 16.74	23 40.1								
d	+13.6 1.13354m 9.76431 1.03858	1 19.1	19.2	56	19.15	54 26 27	29.20 17.82 +10.93		55	27 28.75 - 5 + 32 + 11.74 + 40 - 12.50 27 28.66	+12.41
(8) - D) $\frac{d'}{100}$	+5.93 -0.4232	52 48.03	26 46.3								
d	+17.7 1.24794 9.80625 1.19495m	1 11.3	12.6	11	11.95	50 11 12	36.40 24.73 - 15.67		10	50 12 9.06 - 9 + 29 + 7.68 + 20 - 10.50 12 6.64	+8.08
(8) - D) $\frac{d'}{100}$	+6.78 -0.4116	56 28.54	11 25.5 12 2.2								
d	+18.6 1.26951 9.80625 1.21649m	1 11.1	11.0	17	11.05	50 11 12	37.30 25.92 - 16.46		10	12 9.46 - 10 + 30 + 7.55 + 30 - 11.80 12 5.44 71	+8.05
(8) - D) $\frac{d'}{100}$	+6.78 -0.4116	56 28.75	11 24.6								
d	+21.0 1.32222 9.75985 1.22280m	0 20.1	23.0	30	21.55	54 52 53	26.80 15.13 - 16.70		30	54 52 58.43 - 11 + 10 + 12.41 + 30 - 11.05 53 50.8	+12.70
(8) - D) $\frac{d'}{100}$	+5.75 -0.4092	57 21.17	52 19.2								
d	+16.2 1.20952 9.75985 1.11010m	0 24.2	24.3	30	24.25	54 52 53	24.10 12.72 - 12.88		30	52 59.84 - 7 + 10 + 12.20 + 40 - 12.40 53 00.7	+12.63
(8) - D) $\frac{d'}{100}$	+5.75 -0.4092	57 21.17	52 19.2								
d	+48.4 1.68485 9.80213 1.62771m	4 20.6	22.9	44 45	21.75 25.0	50 38 39	26.60 14.93 - 42.43		40	50 38 32.50 - 63 + 103 + 8.11 + 20 - 10.45 38 30.76 55 23.86	See Orig. record. +8.51 +8.71
(8) - D) $\frac{d'}{100}$	+6.66 -0.4056	57 48.95	38 42.8 34 50.2								
d	+11.7 1.06810 9.80228 1.01120m	0 30.8	49.6	41	50.20	50 36 37	58.15 46.77 - 10.26		45	37 36.51 - 4 + 12 + 7.95 + 40 - 11.85 37 33.09	+8.43
(8) - D) $\frac{d'}{100}$	+6.66 -0.4056	58 28.02	36 52.5								
d	+21.1 1.32428 9.80595 1.27096m	4 17.3	19.3	9	18.30	50 13 14	30.05 18.58 - 18.66		5	50 13 59.72 - 12 + 103 + 7.71 + 20 - 10.20 13 58.34	+8.82
(8) - D) $\frac{d'}{100}$	+6.61 -0.3764	7 58.97	13 20.7								
d	+30.0 1.47412 9.80595 1.42380m	4 11.3	11.8	9	11.55	50 13 14	36.80 25.42 - 26.53		5	13 58.89 - 24 + 103 + 2.57 + 40 - 11.50 13 56.17	+8.78
(8) - D) $\frac{d'}{100}$	+6.61 -0.3764	7 58.93	13 18.5								

Date₁ = July 5, 1871Observer A. M.
Recorder W. A. R.Date₂ = July 12Observer W. A. R.
Recorder A. M.

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_s	T_h	Sum	Mean	Red. to T_m	T
11 ^m	13	50.53	9.4	17.1.0	17.9	21.0	24.2	27.5	30.7	12 13	24.26	11	24.36
10	45.2	50 55.2	9.5	2.9						-5.72			5.74 08
κ				3.9						66			56
(δ) - D) $\frac{\kappa'}{100}$				1.9								11	18.54
α_1												11	1.92
												11	1668
			9.5	11.3.0	21.7	24.9	28.2	31.3	34.7	14 08	28.16	11	28.16
κ										-979			9.10
(δ) - D) $\frac{\kappa'}{100}$												11	67
α_2												11	2
												11	18.37
												11	1.80
												11	1657
16	45	50.17	9.5	12 31.9	45.8	49.0	52.1	55.5	58.6	26 10	52.20	12	52.20
12	17.9	50 19.3	9.5	32.8						-5.74		12	5.15 08
κ				35.5						64			54
(δ) - D) $\frac{\kappa'}{100}$				100.2								12	2
α_1				33.4								12	46.49
												12	-1.92
												12	4464
			9.5	12.24.3	lost								
κ													
(δ) - D) $\frac{\kappa'}{100}$													
α_2													
16	47	50.20	8.9	13.34.2	49.0	52.1	55.2	58.6	61.8	27 67	55.34	13	55.34
13	24.0	50 22.4	9.1	36.3						-5.72		13	5.75 09
κ				70.5						66			55
(δ) - D) $\frac{\kappa'}{100}$				35.2								13	2
α_1												13	49.62
												13	-1.92
												13	4776
			8.5	13 33.5	53.1	56.2	59.3	62.7	65.8	29 71	59.42	13	59.42
κ										77			9.10
(δ) - D) $\frac{\kappa'}{100}$													65
α_2												13	2
												13	49.65
												13	-1.80
												13	4785
16	17	51.38	9.0	14.57.8	15.15.8	18.3	21.8	25.1	28.8	10 59	21.78	15	21.78
14	47.9	51 40.5	9.0	59.8						-5.74		15	5.75 09
κ				117.6						68			57
(δ) - D) $\frac{\kappa'}{100}$				58.8								15	2
α_1												15	1604
												15	-1.96
												15	1444 20
			9.2	15. 6.8	19.4	22.8	26.1	29.4	32.7	13 04	26.68	15	26.68
κ										-986			9.10
(δ) - D) $\frac{\kappa'}{100}$													68
α_2												15	2
												15	16.28
												15	-1.84
												15	14.44
16	41	54.6	9.0	16.24.8	40.4	43.5	47.8	50.5	54.1	23 5 0	47.00	16	47.00
16	14.9	54 8.1	9.0	26.1						-5.84		16	5.76 09
κ				50.9						74			62
(δ) - D) $\frac{\kappa'}{100}$				25.4								16	3
α_1												16	41.19
												16	-2.06
												16	39.22 30
			8.6	16.24.1	44.2	47.7	51.2	54.7	58.1	25 59	51.18	16	51.18
κ										-987			9.10
(δ) - D) $\frac{\kappa'}{100}$													74
α_2												16	3
												16	41.31
												16	-1.91
												16	39.40

Runs

1871 phone: proj. 1514

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+22.4 1.35025 9.79996 1.29094	4 51.3	53.9	29	52.60	52 50 53	55.75 44.08		25	50 53	24.84 - 13 + 1.18 + 8.38 + 20 - 10.05
((δ) - D) $\frac{d'}{100}$							- 19.54				+9.63
δ_1	+6.44 -0.3664 3.90	11 23.12		52 47.5						53	24.12
d	+25.2 1.40140 9.79996 1.34209	4 48.3	48.0	29	49.15	52 50 53	59.28 47.82		25	53	25.84 - 17 + 120 + 8.24 + 30 - 11.50
((δ) - D) $\frac{d'}{100}$							- 21.98				+9.57
δ_2	+6.44 -0.3664	11 23.01		52 47.3						53	23.91
d	+18.8 1.27416 9.80565 1.22054	2 26.3	27.7	9	27.00	15 50 16	21.35 9.68		5	50 15	53.06 - 10 + 60 + 7.73 + 20 - 9.90
((δ) - D) $\frac{d'}{100}$							- 16.62				+8.43
δ_1	+6.55 -0.3616	12 57.19		15 15.4						15	51.59
d		2 12.8	12.3	7	12.53	15 50 16	35.80 24.42		5		- + 55 + 8.60 +
((δ) - D) $\frac{d'}{100}$											
δ_2											
d	+20.1 1.30320 9.80504 1.24897	3 44.7	47.3	13	46.00	19 50 19	2.35 50.68		0	50 19	32.94 - 11 + 91 + 7.80 + 20 - 9.85
((δ) - D) $\frac{d'}{100}$							- 17.74				+8.80
δ_1	+6.52 -0.3584	13 54.28		18 56.0						19	31.88
d	+5.9 0.74085 9.80504 0.71662	3 57.2	58.3	3	57.45	18 50 19	50.60 39.22		0	19	34.01 - 1 + 97 + 7.66 + 30 - 11.35
((δ) - D) $\frac{d'}{100}$							- 5.21				+8.92
δ_2	+6.52 -0.3584	13 54.37		18 55.7						19	31.58
d	+23.0 1.36173 9.79272 1.29518	4 40.1	41.8	44	40.95	38 51 38	9.40 95.73		40	51 38	36.00 - 14 + 113 + 9.10 + 23 - 9.95
((δ) - D) $\frac{d'}{100}$							- 17.73				+10.32
δ_1	+6.23 -0.3536	15 20.43		38 1.01						38	36.37
d	+19.3 1.28556 9.79272 1.21901	4 44.3	43.8	44	44.05	38 51 38	4.30 52.92		40	38	36.36 - 10 + 117 + 8.97 + 33 - 11.45
((δ) - D) $\frac{d'}{100}$							- 16.56				+10.37
δ_2	+6.23 -0.3536	15 20.67		37 59.9						38	35.28
d	+21.5 1.33445 9.76835 1.24353	3 26.2	29.8	18	28.20	4 54 5	20.35 8.68		15	54 4	51.16 - 12 + 84 + 11.59 + 30 - 10.20
((δ) - D) $\frac{d'}{100}$							- 17.52				+12.61
δ_1	+5.64 -0.3496	16 44.94		4 18.6						4	53.57
d	+27.0 1.43136 9.76835 1.34044	3 21.9	21.8	18	21.85	4 54 5	26.50 15.12		15	4	53.22 - 19 + 85 + 11.41 + 40 - 11.65
((δ) - D) $\frac{d'}{100}$							- 21.90				+12.47
δ_2	+5.64 -0.3496	16 45.04		4 19.1						4	54.04

Date₁ = ⁹³ July 5, 1871Observer *A. M.*
Recorder *W. A. R.*Date₂ = ⁹⁵ July 12Observer *W. K.*
Recorder *J. M.*

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Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
17 ^m 50	51.49	7.8	17.37.5	50.3	53.7	56.9	6.3	3.6	24.48	56.96	17	56.96	
17	24.5	51.56.4	8.0	39.7					-5.75		17	57.09	
κ			40.8						68			57	
((δ) - D) $\frac{\kappa'}{100}$			118.0								17	51.21	
a_1			39.3								17	1.98	
											17	49.30	
			7.7	17.48.4	54.4	57.6	1.0	4.4	7.7	30.51	61.02	18	1.02
κ										-9.80		18	9.10
((δ) - D) $\frac{\kappa'}{100}$											17	51.22	
a_2											17	1.86	
											17	49.36	
116	19 28	51.4	8.7	19 13.4	29.6	32.7	36.0	39.4	42.6	18.63	36.06	19	36.06
κ	17 2.4	51 6.2	8.4	14.8						-5.74		19	57.09
((δ) - D) $\frac{\kappa'}{100}$				28.2						67		19	56
a_1				14.1								19	2
											19	30.32	
											19	1.97	
											19	28.42	
			8.7	19.9.1	33.6	36.8	40.1	43.5	46.8	20.09	40.18	19	40.18
κ										-9.79		19	9.10
((δ) - D) $\frac{\kappa'}{100}$											19	67	
a_2											19	2	
											19	30.39	
											19	1.85	
											19	28.54	
116	22 3	53.25	8.5	21.43.8	22.08	4.3	7.8	11.3	14.8	39.0	7.80	22	7.80
κ	21 36.9	53 27.4	7.9	45.2						5.81		22	57.09
((δ) - D) $\frac{\kappa'}{100}$				89.0						73		22	61
a_1				44.5								22	3
											22	1.99	
											22	2.06	
											22	0.01	
			8.5	21.2.3	22.5.0	8.3	11.9	15.3	18.7	59.2	11.84	22	11.84
κ				54.3						19.86		22	9.10
((δ) - D) $\frac{\kappa'}{100}$											22	73	
a_2											22	3	
											22	1.98	
											22	1.92	
											22	0.06	
116	24 48	54.31	9.2	24.25.5	43.7	47.1	50.7	54.4	57.8	253.7	50.74	24	50.74
κ	24 21.8	54 34.0	9.0	27.0						-5.83		24	57.09
((δ) - D) $\frac{\kappa'}{100}$				52.5						75		24	63
a_1				26.2								24	3
											24	44.91	
											24	2.11	
											24	42.88	
			9.3	24 21.9	47.9	51.4	54.9	58.4	62.0	274.6	54.92	24	54.92
κ										-9.89		24	9.10
((δ) - D) $\frac{\kappa'}{100}$											24	76	
a_2											24	3	
											24	45.03	
											24	1.97	
											24	43.06	
116	25 24	50.57	9.0	25.17.0	24.6	27.8	31.3	34.5	37.7	155.9	31.18	25	31.18
κ	24 58.1	50 54.0	9.3	18.5						-5.75		25	57.09
((δ) - D) $\frac{\kappa'}{100}$				20.0						67		25	56
a_1				55.5								25	2
				18.5							25	25.43	
											25	2.00	
											25	23.51	
			9.2	25.26.4	28.8	32.0	35.2	38.5	41.7	176.2	35.24	25	35.24
κ										-9.79		25	9.10
((δ) - D) $\frac{\kappa'}{100}$											25	67	
a_2											25	2	
											25	25.45	
											25	1.88	
											25	23.57	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+17.7 124794 9.79128 1.17998m	0' 42.8 47.5 46.1	44.3 46.1	33-	43.53-	51 47 47	480 53.13 -15.13		35	51 47 38.00 - 9 + 17 + 9.28 + 24 - 9.70 47 37.70	+9.60
(8) - D) $\frac{d'}{100}$											
+6.16 δ_1		17 55.46	47 3.1	47 3.1							
-0.3456											
d	-47.4 +12.6 1.10034 9.79128 1.03238m	0 47.8 46.8		33-	47.30	51 47 47	105 49.67 -10.77		35	47 38.90 - 5 + 20 + 9.14 + 34 - 11.40 47 37.13	+9.63
(8) - D) $\frac{d'}{100}$											
+6.16 δ_2		17 55.52	47 2.6	47 2.6							
-0.3456											
d	+22.0 1.34242 9.79840 1.28155m	4 45.7 46.3		19	46.00	51 3 3	2.35 50.68 -17.12		15	51 3 31.56 - 13 + 115 + 8.53 + 20 - 9.75 3 31.56	+9.75
(8) - D) $\frac{d'}{100}$											
+6.30 δ_1		19 34.72	2 57.5	2 57.5							
-0.3404											
d	+31.1 1.49246 9.79840 1.43189m	4 38.1 38.2		19	38.16	51 3 3	10.20 58.82 -27.03		15	3 31.79 - 26 + 115 + 8.40 + 30 - 11.25 3 30.13	+9.59
(8) - D) $\frac{d'}{100}$											
+6.30 δ_2		19 34.84	2 56.1	2 56.1							
-0.3404											
d	+23.3 1.36436 9.77524 1.28333m	3 11.5 13.9		58	12.70	53 24 25	35.65 23.98 -17.20		55	53 25 4.78 - 14 + 77 + 10.91 + 30 - 9.90 25 6.72	+11.84
(8) - D) $\frac{d'}{100}$											
+5.73 δ_1		22 5.74	24 33.5	24 33.5							
-0.3324											
d	+17.5 1.24304 9.77524 1.15901m	3 15.6 16.7		58	16.15	53 24 25	32.20 20.82 -14.42		55	25 6.40 - 8 + 82 + 10.71 + 40 - 11.40 25 6.85	+11.85
(8) - D) $\frac{d'}{100}$											
+5.73 δ_2		22 5.79	24 33.6	24 33.6							
-0.3324											
d	+24.5 1.38914 9.76360 1.29350m	1 28.1 28.8	30.8	51	29.45	54 31 32	18.90 7.23 -19.66		50	54 31 47.57 - 15 + 36 + 12.00 + 30 - 9.90 31 50.18	+12.51
(8) - D) $\frac{d'}{100}$											
+5.42 δ_1		24 48.30	31 17.8	31 17.8							
-0.3236											
d	+33.0 1.51851 9.76360 1.42284m	1 19.9 21.1		57	20.50	54 31 32	27.85 16.47 -26.47		50	31 50.00 - 28 + 32 + 11.83 + 40 - 11.40 31 52.87	+12.27
(8) - D) $\frac{d'}{100}$											
+5.42 δ_2		24 48.48	31 18.5	31 18.5							
-0.3236											
d	+12.7 1.10350 9.79950 1.04403m	1 54.9 57.3		26	56.10	50 55 56	52.25 40.58 -11.07		25	50 55 28.51 - 5 + 46 + 8.43 + 20 - 9.50 56 29.05	+9.04
(8) - D) $\frac{d'}{100}$											
+6.25 δ_1		25 29.76	55 56.9	55 56.9							
-0.3216											
d	+8.8 0.94448 9.77950 0.88471m	1 58.3 59.2		26	58.45	50 55 56	49.60 38.22 -7.67		25	56 30.55 - 2 + 50 + 8.31 + 30 - 11.05 56 28.59	+9.09
(8) - D) $\frac{d'}{100}$											
+6.25 δ_2		25 29.82	57 2.8	57 2.8							
-0.3216											

Date₁ = ⁹³ July 5Observer
RecorderA.M.
W.A.R.Date₂ = ⁹⁵ July 12Observer
RecorderW.A.R.
A.M.

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Star.	α	δ	Mag.	T_s	T_m	T_o	T_r	T_e	T_h	Sum	Mean	Red. to T_m	T
27	59	51.24	8.0	27.44.0	59.6	3.1	6.2	9.7	12.9	33 15.6	6.30	m 28	6.30
27	33.6	51 26.5	8.0	45.1						-5.76			-5.17 09
K				89.1						68			-57
(δ) - D	$\frac{\kappa'}{100}$			44.6								28	0.54
a_1												29	-2.03
													58.59
			8.5	27. 37.0	3.8	7.0	10.4	13.7	17.0	5 19	11.38	28	10.38
K										-9.80			-9.10
(δ) - D	$\frac{\kappa'}{100}$											28	-6.8
a_2													-2
												28	0.58
												27	-1.91
													58.67
16	29	37	54.36	8.5	29 28.6	35.3	39.0	42.4	46.0	49.5	21 22	42.44	29 42.44
29	12.4	54 38.0	9.0	31.1						-5.83			-5.17 09
K				59.7						75			-63
(δ) - D	$\frac{\kappa'}{100}$			29.8								29	-3
a_1												29	36.61
													-2.14
			8.8	29. 22.1	39.5	43.0	46.5	53.2	53.7	23 29	46.58	29	34.55
K										-9.89			-9.10
(δ) - D	$\frac{\kappa'}{100}$											29	-7.0
a_2													-3
												29	36.69
												29	-2.00
													34.69
16	30	49	51.14	8.0	30. 35.3	52.0	55.2	58.4	1.7	4.9	29 2.5	56.44	30 56.44
30	23.8	51 16.1	7.5	36.6						-5.76			-5.18 09
K				71.9						67			-56
(δ) - D	$\frac{\kappa'}{100}$			35.9								30	-2
a_1												30	52.68
													-2.04
			7.8	30 36.8	56.0	59.2	2.6	5.7	9.0	31 2.5	62.50	31	50.73
K										-9.79			-9.10
(δ) - D	$\frac{\kappa'}{100}$											30	-67
a_2													-2
												30	52.71
													-1.92
												30	50.79
16	32	9	54.45	9.0	32. 3.0	6.8	10.4	14.0	17.4	21.0	6 9.6	13.92	32 13.92
31	42.9	54 45.1	9.1	4.9						-5.64			-5.18 09
K		47.3		9.3						75			-63
(δ) - D	$\frac{\kappa'}{100}$			3.1								32	-3
a_1												32	8.08
													-2.16
			8.3	32. 16.0	11.0	14.5	18.1	21.5	25.1	9 0.2	18.04	32	6.01
K										-9.89			-9.10
(δ) - D	$\frac{\kappa'}{100}$											32	-76
a_2													-3
												32	8.15
													-2.03
												32	6.12
16	33	14	53.11	5.0	32 54.3								33 18.84
32	46.9	53 13.4	7.0	50.5						-5.84			-5.18 09
K		46.9	11.2	5.0	54.6					-5.84			-60
(δ) - D	$\frac{\kappa'}{100}$				32 54.6	12.0	15.5	18.7	22.3	25.7	9 4.2	18.84	-3
a_1													-60
													-3
												32	46.43 13.57
												33	11.48
												33	22.92
													-2.10
												33	23.58
													-9.10
													-72
													-3
												33	13.73
													-1.48
												33	11.09
													33 11.75

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+21.7 1.33846 9.77494 1.27213 _m	3 23.3	26.1	58	25.0	51 24 25	22.65 10.98 -18.71		55	51 24 52.27 - 13 + 82 + 8.88 + 22 - 9.45 24 52.61	+9.79
(δ) - D) $\frac{d'}{100}$											
+6.12 -0.3132 5.08 δ_1		28 4.71		24 21.3							
d	+33.4 1.52375 9.77494 1.45942 _m	3 13.6	14.1	68	13.85	51 24 25	34.50 23.12 -28.80		55	24 54.32 - 30 + 80 + 8.74 + 32 - 11.00 24 52.88	+9.56
(δ) - D) $\frac{d'}{100}$											
+6.12 -0.3132 δ_2		28 4.79		24 21.6							
d	+12.6 1.10034 9.76287 1.00399 _m	1 58.8	60.4	46	59.60	54 35 36	48.75 37.08 -10.07		45	54 36 26.99 - 5 + 48 +12.10 + 30 - 2.70 36 30.12	+12.83
(δ) - D) $\frac{d'}{100}$											
+5.34 -0.3080 5.14 δ_1		29 39.89		35 59.3							
d	+24.5 1.38914 9.76287 1.29279 _m	1 47.8	48.9	46	48.35	54 36 36	00.00 48.62 -17.62		45	36 29.00 - 15 + 45 +11.90 + 40 - 11.25 36 30.35	+12.60
(δ) - D) $\frac{d'}{100}$											
+5.34 -0.3080 δ_2		29 40.03		35 59.6							
d	+22.5 1.35218 9.79668 1.28959 _m	4 3.8	5.8	9	4.50	51 13 14	43.55 31.88 -17.48		5	51 14 12.40 - 13 + 98 + 8.72 + 21 - 9.30 14 12.88	+9.70
(δ) - D) $\frac{d'}{100}$											
+6.13 -0.3040 4.06 δ_1		30 56.86		13 42.5	x30						
d	+24.3 1.40993 9.79668 1.34734 _m	3 58.9	58.9	8	38.90	51 13 14	49.45 38.07 -22.25		5	14 15.52 - 18 + 100 + 8.589 + 31 - 10.85 14 14.39	+9.72
(δ) - D) $\frac{d'}{100}$											
+6.13 -0.3040 δ_2		30 56.92		13 44.0							
d	+10.8 1.03342 9.76111 0.93526 _m	2 28.5	30.9	37	29.70	54 45 46	18.65 6.98 - 8.62		35	54 45 58.36 - 4 + 60 +12.24 + 30 - 9.60 45 1.86	+13.10
(δ) - D) $\frac{d'}{100}$											
+5.27 -0.3000 4.12 δ_1		32 11.28		45 31.9							
d	+21.0 0.30103 9.76111 0.20287 _m	2 34.8	36.3	37	35.35	54 45 46	12.80 1.42 -15.95 - 1.60		35	45 45.47 59.82 - 0 + 65 +12.08 + 40 - 11.20 46 1.75	+13.13
(δ) - D) $\frac{d'}{100}$											
+5.27 -0.3000 δ_2		32 11.39		45 31.8							
d	+24.2 1.38382 9.77761 1.30216 _m	2 14.1	15.9	12	25.0	53 10 11	33.35 21.68 - 20.05 - 21.87		10	53 11 1.63 - 15 + 53 +10.69 + 30 - 9.45 11 3.55	10 59.81 - 18 + 53 +10.69 + 30 - 9.45 11 1.70
(δ) - D) $\frac{d'}{100}$											
+5.65 -0.2964 9.08 4.20 δ_1		33 16.67		10 33.9							
d	+14.9 1.17319 9.77761 1.24551 _m	2 21.3	21.0	12	21.15	53 10 11	27.20 15.82 - 12.35 - 14.58		10	11 3.47 - 6 + 58 +10.51 + 40 - 11.06 11 3.85	11 1.24 - 8 + 58 +10.51 + 40 - 11.05 11 1.60
(δ) - D) $\frac{d'}{100}$											
+5.65 -0.2964 δ_2		33 17.40		32.0							

Date₁ = July 5⁹³Observer
RecorderA.M.
W.A.R.Date₂ = July 12⁹⁵Observer
RecorderW.A.R.
A.M.

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Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
16 34 15	33 50.2	54 54.1	9.0	33 55.7	34 10.4	13.8	17.4	21.0	24.6	87.2	17.44	34	17.44
κ				56.2	13.8					-5.85			-5.85
				111.2						76			64
(8) - D				55.6								34	11.59
α_1												34	-2.17
35 30 47 17			9.5	lost.									9.01
36 44													
37 40													
38 46													
40 24													
42 50													
44 51													
46 27	48 35	54 11	9.3	48 19.7	31.5	38.9	39.4	42.7	46.3	193.6	39.16	48	39.16
κ	48 10.7	54 13.1	9.3	21.0						-5.85			-5.2010
				23.1						75			-62
(8) - D				63.8								48	33.31
α_1				21.3								48	-2.23
												48	31.18
				48 32.0	36.1	39.8	43.2	46.8	50.4	216.3	43.26	48	43.26
κ										9.87			-9.10
(8) - D												48	33.39
α_2												48	-2.11
												48	31.38
16 50 24	49 55.7	54 19.9	9.4	50 4.2	22.0	28.3	28.9	32.6	36.3	145.12	29.02	50	29.02
κ				5.7						-5.85			-5.2010
				9.9						75			-62
(8) - D				4.9								50	23.17
α_1												50	-2.23
												50	21.04
				50. 26.0	—	29.5	33.0	36.7	40.0	-9.87		50	33.23
κ													-9.10
(8) - D												50	23.16
α_2												50	-2.12
												50	21.04
16 51 52	51 38.0	52 11.9	7.5	51. 39.7	52.1	55.4	58.8	62.1	65.6	294.0	58.80	51	58.80
κ			8.0	41.0						-5.80			-5.2010
				80.7						70			-58
(8) - D				40.3								51	53.00
α_1												51	-2.17
												51	50.93
				51. 32.7	56.2	59.5	62.9	66.4	69.6	314.6	62.92	52	62.92
κ				33.4						-9.81			-9.10
(8) - D				66.4								51	53.11
α_2				33.2								51	-2.07
												51	51.04
16 52 50	52 24.7	50 1	7.0	52. 35.0	49.8	52.9	56.1	59.3	62.6	250.7	56.14	52	56.14
κ				36.0						-5.76			-5.2010
				71.0						66			-54
(8) - D				35.5								52	50.38
α_1												52	-2.11
												52	48.37
				52 43.4	53.9	57.0	60.2	63.4	66.8	301.3	60.26	53	0.26
κ										-9.76			-9.10
(8) - D												52	50.50
α_2												52	-2.02
												52	48.48

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+21.8 1.33846 9.76003 1.23922 _m	1' 28.9	31.8	31	30.35	51	18.00		30	54 51 48.98	
d						54 52	29.67 6.33			- 12	+12.90
((δ) - D) $\frac{d'}{100}$							- 17.35			+ 36	
+5.22 δ_1		34 14.73		51 23.1						+12.36	
-0.29.28										+ 30	
										- 9.50	
										51 52.38	
d		1 58.8	34.0	31	33.90	54 51	54.45 43.07		30	-	
((δ) - D) $\frac{d'}{100}$										+ 48	
δ_2										+12.18	
	+17.9 1.25285 9.76730 1.16088 _m	1 58.4	57.8	11	57.10	54 10	51.25 39.68		10	54 11 25.10	
d						54 11	- 14.48			- 8	+12.39
((δ) - D) $\frac{d'}{100}$										+ 48	
+5.24 δ_1		48 36.42		11 4.1						+11.69	
-0.24.60										+ 30	
										- 8.50	
										11 28.69	
d	+11.3 1.05308 9.76730 0.96111 _m	2 3.0	3.0	12	3.00	54 10	45.35 33.97		10	11 24.83	
((δ) - D) $\frac{d'}{100}$						54 11	- 7.14			- 3	+12.44
+5.24 δ_2		48 36.52		11 2.2						+ 52	
-0.24.60										+11.54	
										+ 40	
										-10.50	
										11 26.77	
d	+24.1 1.38202 9.76625 1.28900 _m	1 26.7	28.6	6	27.65	54 16	20.70 9.03		5	54 16 49.58	
((δ) - D) $\frac{d'}{100}$						54 17	- 17.45			- 15	+12.30
+5.18 δ_1		50 26.22		16 29.2						+ 36	
-0.24.00										+11.77	
										+ 30	
										- 8.70	
										16 53.18	
d	+7.0 0.84510 9.76625 0.75208 _m	1 39.9	41.1	6	40.50	54 16	7.85 56.47		5	16 50.82	
((δ) - D) $\frac{d'}{100}$						54 16	- 5.65			- 2	+12.45
+5.18 δ_2		50 26.22		16 28.8						+ 43	
-0.24.00										+11.64	
										+ 40	
										-10.45	
										16 52.82	
d	+18.5 1.26714 9.78772 1.19562 _m	3 10.5	12.0	13	11.25	52 9	37.10 25.43		10	52 10 9.74	
((δ) - D) $\frac{d'}{100}$						52 10	- 15.69			- 9	+10.62
+5.70 δ_1		51 56.63		9 48.4						+ 77	
-0.23.48										+7.68	
										+ 26	
										- 8.50	
										10 11.56	
d	+29.7 1.44276 9.78772 1.40121 _m	3 0.3	0.6	18	0.45	52 9	47.90 36.52		10	10 11.33	
((δ) - D) $\frac{d'}{100}$						52 10	- 25.19			- 23	+10.44
+5.70 δ_2		51 56.74		9 48.1						+ 75	
-0.23.48										+ 9.56	
										+ 36	
										-10.20	
										10 11.57	
d	+20.6 1.31387 9.80595 1.26055 _m	3 48.9	50.4	8	49.65	50 13	58.70 47.03		5	50 14 28.81	
((δ) - D) $\frac{d'}{100}$						50 14	- 18.22			- 12	+8.62
+6.13 δ_1		52 54.50		14 6.1						+ 91	
-0.23.12										+7.63	
										+ 20	
										- 8.25	
										14 29.18	
d	+16.9 1.22789 9.80595 1.17457 _m	3 50.6	50.3	8	50.45	50 13	57.90 46.52		5	14 31.57	
((δ) - D) $\frac{d'}{100}$						50 14	- 14.95			- 8	+8.78
+6.13 δ_2		52 54.61		14 7.3						+ 95	
-0.23.12										+7.61	
										+ 30	
										- 7.95	
										14 30.40	

Date, =

Observer
Recorder

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

Date, =

Date₂ = July 12 ⁹⁵

Observer

Observer *W. A. R.*
Recorder *Don.*

46

Ru

[illegible]

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+19.5 ⁰ 1.29003 9.79715 1.22791 ^m	1 51.3	53.7	11	52.50	10 51 11	55.85 44.18 -16.70		10	51 11 27.28 - 10 + 46 + 8.68 + 21 - 8.30 11 28.23	+9.25
d											
((8) - D) $\frac{d'}{100}$											
+5.92 δ_1		54 56.4		11 5.5							
-0 22.76											
414											
	+24.0 1.38021 9.79715 1.31809 ^m	1 46.6	45.8	11	46.20	11 51 11	2.15 50.77 -20.80		10	11 29.97 - 15 + 45 + 8.57 + 31 -10.00 11 29.15	+9.18
d											
((8) - D) $\frac{d'}{100}$											
+5.92 δ_2		54 57.2		11 6.4							
-0 22.76											
	+16.6 1.22011 9.78163 1.14247 ^m	0 58.8	59.8	35	59.30	46 52 47	49.05 37.38 -13.91		35	52 47 23.47 - 8 + 24 +10.28 + 29 - 8.25 47 25.95	+10.73
d											
((8) - D) $\frac{d'}{100}$											
+5.50 δ_1		58 22.04		47 4.6							
-0 21.32											
412											
	+26.9 1.42975 9.78163 1.35211 ^m	0 49.4	49.8	35	49.60	46 52 47	58.75 47.37 -22.50		35	47 24.87 - 19 + 20 +10.15 + 39 -10.00 47 25.42	+10.55
d											
((8) - D) $\frac{d'}{100}$											
+5.50 δ_2		58 22.15		47 4.1							
-0 21.32											
	+23.2 1.36549 ^m 9.80351 1.30973	4 25.3	27.1	54	26.20	28 50 29	22.15 10.48 +20.40		50	50 29 30.88 - 19 + 106 + 7.78 + 20 - 8.00 29 31.98	+9.10
d											
((8) - D) $\frac{d'}{100}$											
+6.03 δ_1		59 7.54		29 10.9							
-0 21.04											
4128											
	+17.1 1.23300 9.80360 1.17733 ^m	3 50.7	51.6	53	51.13	28 50 29	57.20 45.82 -15.04		50	29 30.78 - 8 + 97 + 7.88 + 30 - 9.75 29 30.10	+9.07
d											
((8) - D) $\frac{d'}{100}$											
+6.03 δ_2		59 7.71		29 9.1							
-0 21.04											
	+21.2 1.32634 9.79494 1.26201 ^m	2 48.5	49.9	57	49.20	24 51 25	59.15 47.48 -18.28		55	51 25 29.20 - 12 + 67 + 8.90 + 22 - 8.00 25 30.87	+9.67
d											
((8) - D) $\frac{d'}{100}$											
+5.81 δ_1		0 43.38		25 10.3							
-0 20.56											
416											
	+29.1 1.46389 9.79494 1.39956 ^m	2 40.8	40.1	57	40.45	25 51 26	7.90 56.52 -25.09		55	25 31.43 - 22 + 68 + 8.79 + 32 - 9.75 25 31.25	+9.57
d											
((8) - D) $\frac{d'}{100}$											
+5.81 δ_2		0 43.52		25 10.7							
-0 20.56											
	+14.8 1.14026 9.78609 1.09708 ^m	3 14.6	16.8	3	15.40	19 52 20	32.65 20.98 -12.50		0	52 20 8.48 - 6 + 79 + 9.83 + 27 - 8.05 20 11.26	+10.83
d											
((8) - D) $\frac{d'}{100}$											
+5.59 δ_1		1 36.81		19 51.0							
-0 20.24											
414											
	+21.6 1.33445 9.78609 1.26127 ^m	3 7.9	7.3	3	7.60	19 52 20	40.75 29.37 -18.25		0	20 11.12 - 13 + 77 + 9.68 + 37 - 9.80 20 12.01	+10.69
d											
((8) - D) $\frac{d'}{100}$											
+5.59 δ_2		1 36.94		19 51.8							
-0 20.24											

Date₁ = July 5⁹³Observer
RecorderA.M.
W.A.R.Date₂ = July 12⁹⁵Observer
RecorderW.A.R.
A.M.

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
17	5 58	50.27	8.8	5.44.9	58.1	1.6	4.8	8.1	11.4	32.40	64.80	3 4.80	4.80
	2 31.9	50.28.4	8.3	46.4						-5.79		3 -5.2211	
	K			91.3						68		-5.5	
	(δ) - D) $\frac{\kappa'}{100}$			43.7								2 -2	
353												2 59.01	
	a_1											-2.16	
												2 56.86	+6.0
	K												-0.19
	(δ) - D) $\frac{\kappa'}{100}$											3 8.94	
	a_2											-9.10	
												6.5	
												2 59.17	
												-2.07	
												2 57.10	+6.0
													-0.19
17	5 34	50.31	8.7	5.19.4	34.5	37.8	40.9	44.2	47.3	20.47	40.94	5 40.94	
	5 9.7	50.56.7	9.0	20.8						-5.80		5 5.2211	
	K			40.2						69		-5.6	
	(δ) - D) $\frac{\kappa'}{100}$			20.1								2 -2	
75												5 35.14	
749												-2.19	
827												5 33.06	+5.9
	a_1 18.6												-0.19
98												5 45.02	
1040												-9.10	
1127												6.7	
1242												2 -2	
1328												5 35.23	
1418												-2.10	
1552												5 33.13	+5.9
1656													-0.18
17	19 28	50.31	9.1	19.10.4	29.0	32.1	35.2	38.4	41.7	17.64	35.28	19 35.28	
	19 3.5	50.32.1	8.8	12.4						-5.81		19 -5.2411	
	K			14.7						68		-5.5	
	(δ) - D) $\frac{\kappa'}{100}$			37.5								2 -2	
	a_1			12.5								19 29.47	
												-2.22	
												19 27.38	+5.9
													-0.14
												19 39.54	
	K											-9.10	
	(δ) - D) $\frac{\kappa'}{100}$											6.5	
	a_2											2 -2	
												19 29.78	
												-2.15	
												19 27.63	+5.9
													-0.14
17	20 12	51.39	8.6	20 2.0	12.8	16.0	19.2	22.6	26.0	9.66	19.32	20 19.32	
	19 45.6	51.41.4	8.3	5.2						-5.83		20 -5.2411	
	K			2.6						70		-5.7	
	(δ) - D) $\frac{\kappa'}{100}$											2 -2	
	a_1											20 13.49	
												-2.17	
												20 11.35	+5.6
													-0.13
												20 23.40	
	K											-9.10	
	(δ) - D) $\frac{\kappa'}{100}$											6.5	
	a_2											2 -2	
												20 13.61	
												-2.19	
												20 11.42	+5.6
													-0.13
17	21 30	50.49	6.8	21.12.5	31.6	34.7	38.0	41.3	44.6	19.02	38.04	21 38.04	
	21 6.4	50.49.8	7.0	13.6						-5.81		21 -5.2411	
	K			26.1						68		-5.5	
	(δ) - D) $\frac{\kappa'}{100}$			13.0								2 -2	
	a_1											21 32.23	
												-2.24	
												21 30.12	+5.82
													-0.13
												21 42.12	
	K											-9.09	
	(δ) - D) $\frac{\kappa'}{100}$											6.5	
	a_2											2 -2	
												21 32.36	
												-2.16	
												21 30.20	+5.82
													-0.13

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
	+19.1 1.28103 9.80382 1.22558 _m	0 7.9	9.5	55-	8.40	50 27 28	39.65 27.98 -16.81		55	50 28 11.17 - 10 + 2 + 7.95 + 20 - 7.85 28 11.329	+8.07
d											
((δ) - D) $\frac{d'}{100}$											
+6.01 -0.1976 4.81	+22.3 1.34830 9.80382 1.29285 _m	0 3.8	4.3	53-	4.03	50 27 28	44.30 32.92 -19.63		55	28 13.29 - 13 + 2 + 7.86 + 30 - 9.60 28 11.74	+8.05
d											
((δ) - D) $\frac{d'}{100}$											
+6.01 -0.1976	+20.8 1.31806 9.80027 1.25906 _m	2 4.6	5.3	32	4.93	50 50 51	43.40 31.73 -18.16		30	50 51 13.57 - 12 + 50 + 8.33 + 20 - 7.75 51 14.73	+8.91
d											
((δ) - D) $\frac{d'}{100}$											
+5.91 -0.1884 4.05	+12.2 1.08636 9.80027 1.02736 _m	2 10.2	10.4	32	10.30	50 50 51	38.05 26.67 -10.65		30	51 16.02 - 4 + 55 + 8.22 + 30 - 9.50 51 15.55	+9.03
d											
((δ) - D) $\frac{d'}{100}$											
+5.91 -0.1884	+22.8 1.35793 9.80336 1.30202 _m	2 38.2	40.7	52	39.45	30 30 30	8.90 57.23 -20.05		50	50 30 37.18 - 14 + 62 + 7.98 + 20 - 7.05 30 38.79	+8.66
d											
((δ) - D) $\frac{d'}{100}$											
+5.90 -0.1408 4.26	+18.5 1.26717 9.80336 1.21126 _m	2 40.7	41.2	52	40.93	30 30 30	7.40 56.02 -16.27		50	30 39.75 - 9 + 68 + 7.88 + 30 - 8.90 30 39.62	+8.77
d											
((δ) - D) $\frac{d'}{100}$											
+5.90 -0.1408	+16.7 1.22272 9.79256 1.15601 _m	3 2.3	2.8	43	2.53	39 39 51 40	45.80 34.13 -14.32		40	51 40 19.81 - 8 + 72 + 9.16 + 23 - 7.10 40 22.74	+10.03
d											
((δ) - D) $\frac{d'}{100}$											
+5.63 -0.1384 4.05	+2.6 0.41497 9.79256 0.34826 _m	3 14.3	14.1	43	14.20	39 39 51 40	34.15 22.77 -2.23		40	40 20.54 - 0 + 80 + 9.05 + 38 - 9.02 40 21.72	+10.18
d											
((δ) - D) $\frac{d'}{100}$											
+5.63 -0.1384	+25.0 1.39794 9.80087 1.33956 _m	0 59.7	60.0	(33)	59.83	48 48 50 47	46.58 36.83 -21.86		35	50 47 14.97 - 17 + 24 + 8.28 + 20 8 - 7.00 47 16.52	+8.55
d											
((δ) - D) $\frac{d'}{100}$											
+5.82 -0.1336 4.08	+24.3 1.38561 9.80074 1.32708 _m	4 59.7	59.8	(34)	59.75	47 47 50 48	48.60 37.22 -21.24		30	48 15.98 - 16 + 125 + 8.17 + 30 8 - 8.55 48 16.69	+8.56
d											
((δ) - D) $\frac{d'}{100}$											
+5.82 -0.1336											

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+25.1 1.39967 9.79319 1.33359 _m	1 54.2	56.1	46	55.15	35 51 36	53.20 41.53 -21.56		45	51 36 19.97 - 17 + 46 + 9.08 + 23 - 7.00	+9.60
((δ) - D) $\frac{d'}{100}$										36 22.57	
+563 -0.13.04 δ ₁		22 33.22		36 9.5							
d	+171 1.23300 9.79319 1.16692 _m	1 59.5	58.9	46	59.20	35 51 36	49.15 37.77 -14.69		45	36 23.08 - 8 + 50 + 8.96 + 33 - 8.90	+9.71
((δ) - D) $\frac{d'}{100}$										36 23.89	
+563 -0.13.04 δ ₂		22 33.29		36 10.8							
d	+140 1.27875 9.79447 1.21395 _m	1 25.1	28.0	55	26.55	27 51 28	21.80 10.13 -16.37		55	51 27 53.76 - 10 + 10 + 8.93 + 22 - 6.85	+9.15
((δ) - D) $\frac{d'}{100}$										27 56.06	
+565 -0.11.96 δ ₁		25 38.95		27 44.1							
d	+16.1 1.20683 9.79447 1.14203 _m	0 28.1	28.0	55	28.05	27 51 28	20.30 8.92 -13.87		55	27 54.05 - 7 + 12 + 8.83 + 32 - 8.70	+9.20
((δ) - D) $\frac{d'}{100}$										27 54.85	
+565 -0.11.96 δ ₂		25 38.98		27 42.6							
d	+248 1.39445 9.76607 1.30125 _m	0 24.2	26.1	55	25.75	17 54 18	23.20 11.53 -20.01		55	54 17 51.52 - 16 + 10 + 11.79 + 30 - 11.85	+12.03
((δ) - D) $\frac{d'}{100}$										17 51.70	
+6.33 -0.48.00 δ ₁		32 56.50		17 3.7							
d	+289 1.46090 9.77963 1.38126 _m	3 43.0	44.4	23	43.90	59 52 59	46.5 52.98 -24.07		20	52 59 28.91 - 22 + 89 + 10.49 + 30 - 11.60	+11.46
((δ) - D) $\frac{d'}{100}$										59 28.77	
+6.57 -0.47.44 δ ₂		35 0.78		58 41.3							
d	+22.8 1.35793 9.80228 1.30094 _m	0 27.8	30.0	45	28.90	37 50 38	19.45 7.78 -17.99		45	50 37 47.79 - 14 + 12 + 8.10 + 20 - 10.60	+8.28
((δ) - D) $\frac{d'}{100}$										37 45.47	
+6.72 -0.41.56 δ ₁		55 13.34		37 3.9							
d	+18.7 1.27154 9.78346 1.19603 _m	2 35.3	38.7	47	39.00	35 52 35	11.35 59.68 -15.70		45	52 35 43.98 - 10 + 62 + 10.08 + 28 - 10.65	+10.88
((δ) - D) $\frac{d'}{100}$										35 44.21	
+6.23 -0.40.00 δ ₂		0 19.95		35 4.2							
d	+13.7 1.13672 9.76111 1.03856 _m	2 2.7	5.1	39	3.90	45 54 46	44.45 32.78 -10.93		35	54 46 21.85 - 5 + 48 + 12.29 + 30 - 10.85	+13.02
((δ) - D) $\frac{d'}{100}$										46 24.02	
+5.72 -0.39.68 δ ₁		1 33.66		45 44.3							
d	+21.2 1.32634 9.76111 1.22818 _m	2 2.7	5.1	39	3.90	45 54 46	44.45 32.78 -16.91		35	54 46 15.87 - 12 + 50 + 12.29 + 30 - 10.85	+12.97
((δ) - D) $\frac{d'}{100}$										46 27.99	
+5.70 -0.39.48 δ ₂		2 6.36		45 38.8							

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date₁ = July 5

Observer
Recorder

A.M.
N.R.

Date₂ =

Observer
Recorder

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Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
16	2 ^m 48	52.26	9.2	34.5	24.0	49.5	52.7	56.0	59.6	263.8	52.76	2	52.76
	2 21.0	52 28.5	9.4	48.5						-5.74			-5.1308
	κ			2 35.7						69			-5.9
	(8) - D			37.2								2	47.02
	a_1			72.9								2	-1.72
				36.4									45.15
July 5	5 16	54.52	8.9	4.52.8	5.11.4	14.8	18.4	22.2	25.7	9.25	18.50	5	18.50
	4 49.3	54 55.1	9.2	54.5						-5.80			-5.1408
	κ			36.7						74			-1.63
	(8) - D			164.0								5	12.70
	a_2			54.7								5	-2.00
"	31 23	50.42	9.2	31 40.4	25.0	28.3	31.4	34.6	37.8	15.71	31.42	31	31.42
	30 59.0	50 44.2	9.2	42.0						-5.75			-5.1809
	κ			82.4						66			-5.5
	(8) - D			41.2								31	25.67
	a_1												2.02
"	35 30	50.12	9.1	35.9.7	31.0	34.2	37.4	40.7	43.7	16.70	37.40	35	37.40
	35 4.3	50 44.3	9.1	11.3						-5.74			-5.1809
	κ			20.0						65			-5.4
	(8) - D			10.5								35	31.66
	a_2											35	2.03
"	36 44	50.58	9.3	36 29.4	44.6	47.7	51.0	54.1	57.5	25.49	50.95	36	50.98
	36 18.4	50 57.4	9.4	31.0						-5.76			-5.1809
	κ			60.4						67			-5.6
	(8) - D			30.2								36	45.22
	a_1												2.06
"	37 40	50.33	9.4	37.23.8	40.4	43.7	46.8	50.1	53.5	23.45	46.90	37	46.90
	37 14.1	50 34.4	9.3	25.6						-5.75			-5.1810
	κ			27.7						67			-5.5
	(8) - D			77.1								37	41.15
	a_2			25.7									2.05
"	38 46	53.19	7.8	38.28.6	48.4	48.9	52.3	55.8	59.3	26.77	52.34	38	52.34
	38 21.2	53 20.7	8.3	29.8						-5.84			-5.1810
	κ			58.4						73			-6.0
	(8) - D			29.2								38	46.53
	a_1												2.14
"	40 24	50.54	8.5	40.10.0?	26.4	29.6	32.8	36.1	39.5	16.44	32.88	40	32.88
	39 58.9	50 56.4	8.2							-5.76			-5.1810
	κ									68			-5.6
	(8) - D											40	27.12
	a_2												2.08
"	42 50	50.34	9.0	42.33.6	37.3	34.5	37.661.0	64.4	28.88	57.76	57.76	42	57.76
	42 24.9	50 35.5	9.0	35.3						-5.76			-5.1810
	κ			37.0						67			-5.5
	(8) - D			105.9								42	52.00
	a_1			35.3									2.08
"	44 51	50.32	8.8	44.34.8	37.8	35.1	38.3	61.6	64.8	29.16	58.32	44	58.32
	44 25.5	50 34.2	8.4	36.2						-5.76			-5.1810
	κ			71.0						67			-5.5
	(8) - D			35.5								44	52.56
	a_2												2.09
												44	50.56

Runs

53

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+16.4 1.21484 9.78494 1.14051m	1 48.0	49.5	56	48.5	25 52 26	59.60 47.93 -13.82		55	52 26 34.11	
(8) - D) $\frac{d'}{100}$										- 7 + 43 + 9.93 + 27 - 10.55 26 34.12	+10.56
+6.23 -0.3924 δ_1		2 57.38		25 54.9							
d	+23.8 1.37658 9.76003 1.27734m	1 12.9	16.1	31	14.50	51 54 52	33.85 22.18 -18.74		30	54 52 3.24	
(8) - D) $\frac{d'}{100}$										- 1.5 + 29 + 12.37 + 30 - 10.75 52 5.32	+12.83
+5.62 -0.3852 δ_2		5 16.38		57 26.8							
d	-9.8 0.99123m 9.80166 0.93362	2 3.8	6.3	42	50.6	40 50 41	43.30 31.63 + 8.58		40	50 41 40.21	
(8) - D) $\frac{d'}{100}$										- 3 + 50 + 8.18 + 20 - 9.20 41 39.86	+8.85
+6.24 -0.3020 δ_1		31 29.98		41 9.7							
d	+26.9 1.42975 9.80625 1.37673m	0 49.8	51.5	10	50.40	11 50 12	57.95 46.28 -23.81		10	50 12 22.47	
(8) - D) $\frac{d'}{100}$										- 19 + 19 + 7.68 + 20 - 9.00 12 21.35	+7.88
+6.30 -0.2888 δ_2		35 36.02		11 52.5							
d	+20.8 1.31806 9.79918 1.25797m	0 19.2	20.3	25	19.45	54 50 58	28.60 16.93 -18.11		25	50 57 58.82	
(8) - D) $\frac{d'}{100}$										- 12 + 7 + 8.46 + 20 - 9.05 57 58.88	+8.61
+6.12 -0.2848 δ_1		36 49.37		57 29.9							
d	+21.2 1.32634 9.80305 1.27012m	0 18.0	20.1	50	19.05	32 50 33	29.30 17.63 -18.63		50	50 32 59.00	
(8) - D) $\frac{d'}{100}$										- 12 + 7 + 8.03 + 20 - 8.95 32 58.23	+8.18
+6.20 -0.2816 δ_2		37 45.38		32 30.1							
d	+23.1 1.36361 9.77626 1.28060m	4 18.9	21.3	4	20.10	18 53 19	28.25 16.58 -19.08		0	53 18 57.50	
(8) - D) $\frac{d'}{100}$										- 14 + 103 + 10.77 + 30 - 9.15 18 60.33 19 0.33	+11.98
+5.56 -0.2780 δ_1		38 50.03		18 32.5							
d	+22.9 1.35984 9.79981 1.30038m	3 58.0	60.9	28	59.95	53 50 54	48.40 36.73 -19.77		25	50 54 16.76	
(8) - D) $\frac{d'}{100}$										- 14 + 96 + 8.38 + 20 - 8.85 54 17.31	+9.40
+6.10 -0.2728 δ_2		40 31.22		53 50.0							
d	+22.5 1.35218 9.80290 1.29581m	4 31.0	33.3	49	32.18	3 50 34	16.20 4.53 -19.76		45	50 33 44.77	
(8) - D) $\frac{d'}{100}$										- 13 + 108 + 8.38 + 20 - 8.70 33 45.60	+9.53
+6.15 -0.2648 δ_1		42 56.16		33 19.1							
d	+22.8 1.35793 9.80305 1.30171m	0 30.8	32.9	30	31.88	32 50 33	16.50 4.83 -20.03		50	50 32 44.80	
(8) - D) $\frac{d'}{100}$										- 14 + 12 + 8.03 + 20 - 8.60 32 44.36	+8.21
+6.14 -0.2580 δ_2		44 56.70		32 18.6							

Date₁ = July 5Observer
RecorderA. M.
W. A. R.Date₂ =Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
46	40 ^m 27	53.9	6.8	46.9.8	26.1	29.5	32.8	36.4	39.8	164.6	32.92	46	32.92
	46	2.9	53.9.6	7.0	11.8					-5.83		46	-5.8010
	κ			21.6						73		46	60
	(δ) - D			10.8								46	27.09
	a_1											46	-2.17
												46	25.12
47	47 17	52.22	9.0	46 57.3	47.15.5	18.7	22.1	25.4	28.7	110.4	22.08	47	22.08
	47	57.5	52.24.2	9.2	57.2					-5.80		47	-5.8010
	κ			116.5						70		47	58
	(δ) - D			58.2								47	2
	a_2											47	16.28
												47	-2.20
												47	14.18
49	49 29	50.5	8.8	48.19.7	48.8	35.9	39.4	42.7	46.3			49	36.78
	49	4.3	50.6.8	8.8	48.1							49	-5.8010
	κ			49.14.7	30.4	33.6	36.7	40.0	43.2	183.9	36.78	49	54
	(δ) - D			16.0						-5.76		49	2
	a_1			30.7						66		49	31.02
				15.3								49	-2.09
54	54 37	50.5	9.4	54 33.4	41.4	44.5	47.9	50.7				54	29.03
	54	11.5	50.7.2	9.2	38.2					-5.77		54	-5.7710
	κ			68.6						66		54	54
	(δ) - D			34.3								54	2
	a_2											54	38.74
												54	-2.12
												54	36.73
55	55 19	50.23	9.3	55.19.0	—	22.5	27.4	30.5	33.5			55	44.51
	54	54.6	50.24.2	9.4	20.7					-5.78		55	-5.7810
	κ			33.5						67		55	55
	(δ) - D			19.8								55	2
	a_1											55	21.46
												55	-2.13
												55	19.44
53	53 53	51.3	9.2	3.40.8	53.8	56.8	60.0	63.6	66.7			4	0.18
	3	29.0	51.5.1	8.8	42.0					-5.80		3	-5.8010
	κ			82.8						68		3	56
	(δ) - D			41.4								3	2
	a_2											3	54.38
												3	-2.18
												3	52.32
7	7 5	50.4	9.8	6 48.6	7.6.6	9.6	12.9	16.1	19.3	64.5	12.90	7	12.90
	6	40.7	50.4.7	9.4	57.0					-5.78		7	-5.7811
	κ			62.8						67		7	54
	(δ) - D			152.4								7	2
	a_1			50.8								7	7.12
												7	-2.17
												7	50.6
49	49 49	51.28	9.0	7.43.6	49.7	52.9	56.1	59.5	63.0	281.2	56.24	7	56.24
	7	25.4	51.29.5	8.4	44.9					-5.81		7	-5.8111
	κ			88.5						70		7	57
	(δ) - D			44.2								7	2
	a_2											7	50.43
												7	-2.21
												7	48.33
8	8 27	51.31	9.0	8.26.0	28.0	31.4	34.7	37.9	41.1	173.1	34.62	8	34.62
	8	3.1	51.33.1	8.8	26.9					-5.81		8	-5.8111
	κ			42.9						70		8	57
	(δ) - D			26.4								8	2
	a_1											8	28.81
												8	-2.22
												8	26.70
9	9 8	52.11	9.0	9.3.6	7.3	10.8	14.1	17.5	20.6	70.3	14.06	9	14.06
	8	44.5	52.12.9	9.0	5.2					-5.82		9	-5.8211
	κ			8.8						71		9	58
	(δ) - D			4.4								9	2
	a_2											9	8.24
												9	-2.24
												9	6.11

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+22.1 1.34439 9.77812 1.26324 _m	0' - 0.7 + 0.7		15	6.0	53 7 8	48.35 36.68 -18.33		15	53 8 18.35 - 13 + 0 +10.64 + 30 - 8.80 8 20.36	+10.61
((8) - D) $\frac{d'}{100}$											
+552 -0.2528 δ_1		46 30.54	7 55.1								
d	+23.9 1.34840 9.78576 1.30489 _m	0 44.3 45.8		0	45.05	52 22 22	330 51.63 -20.18		0	52 22 31.45 - 15 + 17 +9.86 + 27 - 8.70 22 32.90	+10.15
((8) - D) $\frac{d'}{100}$											
+570 -0.2500 δ_2		47 19.88	22 7.9								
d	+21.5 1.33244 9.80746 1.28063 _m	4 35.1 38.0		19	36.50	50 3 4	11.80 0.13 -17.08		15	50 3 41.05 - 12 + 1.10 + 7.53 + 20 - 8.40 3 41.36	+8.71
((8) - D) $\frac{d'}{100}$											
+620 -0.2424 δ_1		49 35.23	3 17.1								
d	+10.2 1.00860 9.80716 0.95649 _m	2 48.6 51.3		17	49.95	50 4 5	58.40 46.73 - 9.05		15	50 5 37.68 - 3 + 67 + 7.58 + 20 - 8.15 5 37.95	+8.42
((8) - D) $\frac{d'}{100}$											
+615 -0.2256 δ_2		54 42.88	5 15.4								
d	+7.4 0.80923 9.80458 0.81484 _m	0 48.6 51.5		0	50.05	50 21 22	58.30 46.63 - 6.52 - 3.26		0	50 22 40.11 - 1 + 19 + 7.86 + 20 - 8.15 22 40.20 43.34 +8.24	+8.24
((8) - D) $\frac{d'}{100}$											
+608 -0.2228 δ_1		55 25.52	22 21.2								
d	+18.8 1.27416 9.79825 1.21314 _m	4 43.7 45.6		19	44.65	51 3 43	3.70 52.03 -16.34		15	51 3 35.49 - 10 + 113 + 8.53 + 20 - 7.85 3 37.30 43.46 +9.76	+9.76
((8) - D) $\frac{d'}{100}$											
+587 -0.1936 δ_2		3 58.19	3 18.2								
d	+22.1 1.34439 9.79825 1.28337 _m	4 46.1 48.0		19	47.05	50 3 3	1.30 47.63 -19.20		15	50 3 30.43 - 13 + 115 + 8.53 + 20 - 7.40 3 31.63	+8.80
((8) - D) $\frac{d'}{100}$											
+607 -0.1832 δ_1		7 11.13	3 13.3								
d	+12.0 1.07918 9.79447 1.01438 _m	4 57.4 60.1		54	58.75	51 27 28	49.60 37.93 -10.33		50	51 28 27.60 - 4 + 120 + 8.78 + 22 - 7.70 28 30.26	+10.36
((8) - D) $\frac{d'}{100}$											
+574 -0.1808 δ_2		7 54.07	28 12.2								
d	+8.2 0.91381 9.79383 0.84837 _m	1 38.0 39.0		51	38.50	51 31 31	9.85 58.18 - 7.05		50	51 31 51.13 - 2 + 38 + 8.98 + 23 - 7.65 31 53.05	+9.57
((8) - D) $\frac{d'}{100}$											
+573 -0.1788 δ_1		8 32.43	31 35.2								
d	+9.7 0.92677 9.78756 0.91506 _m	2 7.1 12.2		12	9.65	52 10 11	38.70 27.03 - 8.22		10	52 11 18.81 - 3 + 50 + 9.68 + 26 - 7.70 11 24.62 24.62	+10.41
((8) - D) $\frac{d'}{100}$											
+556 -0.1764 δ_2		9 11.67	11 6.4								

Runs

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+23.3 1.36736 9.78867 1.29678 _m	4 33.1	35.1	19	34.10	52 3 4	14.25 2.58 -17.81		15	52 3 42.77 - 14 + 1.10 + 7.53 + 2.5 - 7.66 3 45.66	+10.74
((δ) - D) $\frac{d'}{100}$											
+5.59 δ_1 -0.1712		10 43.06		3 28.7							
d	+20.8 1.31806 9.80641 1.26520 _m	2 21.6	24.8	12	23.20	50 10 11	25.15 13.48 -18.42		10	50 10 55.06 - 12 + 5.8 + 7.68 + 2.0 - 7.40 10 57.00 56.00	+8.34
((δ) - D) $\frac{d'}{100}$											
+6.02 δ_2 -0.1684		11 33.46		10 39.2							
d	+18.4 1.26482 9.77147 1.17702 _m	1 4.9	7.0	36	59.5	53 46 47	42.40 30.73 -15.03		35	53 47 15.70 - 8 + 2.6 + 11.30 + 3.0 - 7.65 47 19.83	+11.78
((δ) - D) $\frac{d'}{100}$											
+5.14 δ_1 -0.1640		12 45.12		47 3.4							
d	+14.0 1.15534 9.80136 1.09743 _m	3 52.4	54.4	38	53.40	50 43 44	54.95 43.28 -12.51		35	50 44 30.77 - 5 + 7.4 + 8.23 + 2.0 - 7.35 44 32.74	+9.32
((δ) - D) $\frac{d'}{100}$											
+5.88 δ_2 -0.1616		13 35.33		44 16.6							
d	-21.4 1.33041 _m 9.77405 1.24519	2 14.5	17.8	52	16.15	53 30 31	32.20 20.53 +17.59		50	53 31 38.12 - 12 + 6.5 + 11.01 + 3.0 - 7.53 31 42.31	+11.74
((δ) - D) $\frac{d'}{100}$											
+5.20 δ_1 -0.1592		14 10.58		31 26.4							
d	+15.4 1.18752 9.77302 1.10127 _m	0 18.5	20.2	41.5	19.35	53 37 38	29.00 17.33 -12.63		45	53 38 4.70 - 6 + 7 + 11.13 + 3.0 - 7.45 38 8.69	+11.44
((δ) - D) $\frac{d'}{100}$											
+5.16 δ_2 -0.1532		15 55.65		37 53.4							
d	+18.7 1.19590 9.80120 1.13783 _m	3 46.3	48.8	38	47.55	50 44 44	0.80 49.13 -13.74		35	50 44 35.39 - 7 + 9.1 + 8.23 + 2.0 - 7.15 44 37.51	+9.27
((δ) - D) $\frac{d'}{100}$											
+5.86 δ_1 -0.1496		17 2.29		44 22.6							
d	+18.9 1.24646 9.79918 1.21637 _m	4 52.9	55.1	24	54.00	50 54 58	54.35 42.68 -16.46		20	50 58 26.22 - 10 + 1.18 + 8.45 + 2.0 - 7.15 58 28.80	+9.73
((δ) - D) $\frac{d'}{100}$											
+5.80 δ_2 -0.1456		18 11.85		58 14.2							
d	+23.4 1.36922 9.80182 1.31177 _m	2 22.8	24.8	42	23.80	50 40 41	24.55 12.88 -20.50		40	50 40 52.38 - 14 + 5.8 + 8.18 + 2.0 - 6.80 40 54.40	+8.82
((δ) - D) $\frac{d'}{100}$											
+5.84 δ_1 -0.1228		24 47.51		40 42.1							
d											
((δ) - D) $\frac{d'}{100}$											
δ_2											

Date₁ = July 17 1871
 $n = -1.52$

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

Date₂ = July 17-
 $n = -1.59$

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

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Run

Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_a	T_h	Sum	Mean	Red. to T_m	T
7 ^m 46	51.09	9.4	7.32.3	47.4	50.5	50.5	57.360.87	269.5	5390	703	53.98	53.98	53.98
7 19.3	51.12.0	9.6	34.6										6.2637
κ			66.9										64
5 42			33.4										2
(δ) - D) $\frac{\kappa'}{100}$													46.98
17 10													1.88
19 28													44.99
a_1													45.01
													59.28
κ	10	42	17.7	7.52.7	50.7	59.0	62.6	66.1	29.6	15922			11.5962
(δ) - D) $\frac{\kappa'}{100}$	19	28											73
a_2	21	46											2
													46.88
													1.68
													45.15
16 25 30	52.03	7.8	25.15.3	31.0	34.5	37.9	41.1	44.4	15.89	37.78	25	27.78	6.2437
25 4.4	52.5.0	7.2	16.8										67
κ			32.1										2
(δ) - D) $\frac{\kappa'}{100}$			10.0										30.85
24 23													2.00
a_1													2872
lost.													
κ													
(δ) - D) $\frac{\kappa'}{100}$													
a_2													
16 31 38	54.13	8.2	30.57.0	31.1.3	4.9	8.2	11.7	15.2	4.13	8.26	31	8.26	6.2358
31 13.0	54.15.7	9.0	52.1										72
κ			123.1										3
(δ) - D) $\frac{\kappa'}{100}$			51.5										128
a_1													2.10
													89.03
8.8			30.57.3	31.6.4	14.0	13.4	17.2	20.5	6.75	13.50	31	13.50	11.6063
κ													81
(δ) - D) $\frac{\kappa'}{100}$													3
a_2													1.06
													1.90
													89.13
16 38 45	54.30	8.8	38.31.0	46.6	50.3	53.5	57.2	60.7	26.8	353.66	38	53.66	6.2239
38 20.4	54.32.0	9.0	32.3										73
κ			63.3										3
(δ) - D) $\frac{\kappa'}{100}$			31.6										46.68
a_1													2.15
													44.36
9.0			38.30.3	52.0	55.3	58.8	62.4	66.2	29.47	58.94	38	58.94	11.603
κ													83
(δ) - D) $\frac{\kappa'}{100}$													3
a_2													46.48
													1.876
													44.49
16 42 10	54.28	8.6	42.3.6	9.7	13.1	16.8	20.4	23.8	8.38	16.76	42	16.76	6.2239
41 46.1	54.28.0	8.8											73
κ													3
(δ) - D) $\frac{\kappa'}{100}$													9.78
a_1													2.17
													7.44
8.8			41.56.6	42.14.8	18.4	22.0	25.6	29.1	10.99	21.98	42	21.98	11.603
κ													83
(δ) - D) $\frac{\kappa'}{100}$													3
a_2													9.52
													1.97
													7.52

July 7 +0' 48.10 +.25
 " 17 +0 49.41 +.26
 Runs

59

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+20.5 1.31145 9.79746 1.24994 _m	3' 49.0	48.3	13'	48.65	51 8 9	54.70 47.80 -17.78		10'	51 9 30.02 - 11 + 95 + 8.52 + 21 - 7.94 10.64 9 28.95	+9.57
((8) - D) $\frac{d'}{100}$											
+643 δ_1 -037.72		7 51.50		8 51.2							
532	-18.5 1.26717 _m 9.79746 1.20536	4 19.7	20.8	14	20.25	51 8 9	28.10 17.51 +16.05		10	5 9 33.56 - 9 + 1.12 + 8.65 + 26 - 12.50 9 31.00	+9.94
d											
((8) - D) $\frac{d'}{100}$											
+643 δ_2 -037.72		7 51.58		8 53.3							
d	+21.8 1.33846 9.78902 1.28821 _m	1 15.3	15.8	21	15.53	52 1 2	32.80 20.90 -18.54		20	52 2 2.36 - 13 + 30 + 9.99 + 25 - 7.33 10.03 2 214	+9.81
((8) - D) $\frac{d'}{100}$											
+601 δ_1 -032.76		25 34.73		1 30.0							
d		1 6.2	6.9	21	6.55	1 2	41.80 31.21		20		
((8) - D) $\frac{d'}{100}$											
δ_2											
d	+16.8 1.22531 9.76712 1.13316 _m	1 19.3	19.1	11	19.20	54 11 12	29.15 17.25 -13.59		10	54 12 3.66 - 7 + 82 +11.53 + 30 - 7.52 12 18.05 5.71	+12.10
((8) - D) $\frac{d'}{100}$											
+543 δ_1 -030.36		31 4.46		11 35.4							
d	+16.2 1.20952 9.76712 1.11737 _m	1 17.6	19.8	11	18.70	54 11 12	29.65 19.06 -13.10		10	12 5.96 - 7 + 32 +11.73 + 30 -12.20 12 6.04	+12.28
((8) - D) $\frac{d'}{100}$											
+543 δ_2 -030.36		31 4.56		11 35.7							
d	+22.1 1.34439 9.76413 1.24925 _m	4 16.7	17.7	54	19.20	54 28 29	31.15 19.25 -17.75		50	54 29 1.50 - 13 +107 +11.86 + 30 - 7.20 9.70 29 4.90	+13.10
((8) - D) $\frac{d'}{100}$											
+526 δ_1 -027.88		38 49.62		28 37.0							
d	+28.6 1.45637 9.76413 1.36123 _m	4 10.5	11.8	54	11.05	54 28 29	37.30 26.71 -22.98		50	29 3.73 - 21 +109 +12.04 + 30 -11.95 29 4.79 500	+13.27 ²
((8) - D) $\frac{d'}{100}$											
+526 δ_2 -027.88		38 49.75		28 37.1							
d	+13.2 1.12057 9.76466 1.02596 _m	2 12.0	13.0	59	12.50	54 25 26	35.85 23.95 -10.14		55	54 26 13.81 - 5 + 25 +11.81 + 30 - 7.08 9.46 26 16.82	+12.61
((8) - D) $\frac{d'}{100}$											
+524 δ_1 -026.72		42 12.68		25 50.1							
d	+25.4 1.40483 9.76466 1.31422 _m	2 06.3	5.7	59	20.0	54 25 26	46.35 35.76 -20.62		55	26 15.14 - 17 + 52 +11.97 + 30 -11.85 26 15.91	+12.62
((8) - D) $\frac{d'}{100}$											
+524 δ_2 -026.72		42 12.76		25 49.2							

Date₁ = July 94Observer A.M.
Recorder A.M.Date₂ = July 96Observer W.B.R.
Recorder W.B.R.

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_z	T_h	Sum	Mean	Red. to T_m	T
44	54	50.15	8.5	44.40.8	56.4	57.5	62.8	66.1	69.3	3141	62.82	45	2.88
		50.16.8	8.1	42.4						-6.86		45	-6.2239
				43.7						7.03		44	55.96
				126.9								44	-2.05
				42.3								44	53.74
(δ) - D) $\frac{\kappa'}{100}$												45	8.14
a_1			8.8	44.40.2	56.1.8	4.9	8.1	11.3	14.6	407	8.14	45	11.683
										-12.32		45	7.0
κ			4.8	41						5		44	55.82
(δ) - D) $\frac{\kappa'}{100}$												44	1.89
a_2												44	53.90
16	50	12	54.57	9.5	50.0.5	7.6	11.8	15.1	18.8	224	7.57	50	15.14
			54.59.2	8.7						7.16		50	-6.2439
κ												50	7.4
(δ) - D) $\frac{\kappa'}{100}$												50	3
a_1												50	8.16
												50	-2.22
												50	57.6
κ			9.5	50.9.6	16-	16.9	20.3	23.8	27.8	-12.48		50	20.33
(δ) - D) $\frac{\kappa'}{100}$										51		50	-11.624
a_2												50	8.4
												50	3
												50	7.85
												50	2.04
												50	57.8
16	53	14	54.43	8.3	52.44.9	53.4.9	8.3	11.9	15.5	19.0	596	53	11.92
			54.44.5	9.0	51.3						-6.46	53	-6.2439
κ					52.7					7.15		53	7.3
(δ) - D) $\frac{\kappa'}{100}$					153.4							53	3
a_1					51.3							53	4.99
												53	-2.23
												53	2.54
κ			8.6	52.49.8	53.10.0	13.4	17.0	20.6	24.1	551	17.02	53	17.02
(δ) - D) $\frac{\kappa'}{100}$										-12.47		53	-11.624
a_2										50		53	8.3
												53	3
												53	4.55
												53	-2.05
												53	2.47
16	55	19	50.23	9.4	55.10.0	22.3	25.5	28.7	31.9	35.2	143	55	28.72
			50.24.2	9.4	11.9						-6.86	55	-6.2439
κ					13.8						7.04	55	6.3
(δ) - D) $\frac{\kappa'}{100}$					35.7							55	2
a_1					11.9							55	21.84
												55	-2.10
												55	19.58
κ			9.6	55.6.1	27.2	30.6	33.9	37.1	40.3	1691	33.82	55	33.82
(δ) - D) $\frac{\kappa'}{100}$				8.3						-12.32		55	-11.624
a_2				14.4						8		55	7.2
				7.2								55	2
												55	21.47
												55	-1.95
												55	19.49
16	59	0.8	54.47	7.5	58.54.3	59.5.0	8.6	12.1	15.7	19.3	607	59	12.14
			54.48.3	8.2	55.4						-6.46	59	-6.2439
κ					56.6					7.16		59	7.3
(δ) - D) $\frac{\kappa'}{100}$					166.3							59	3
a_1					55.4							59	5.18
												59	-2.26
												59	27.2
κ			7.8	59.0.3	10.1	13.8	17.4	20.9	24.5	867	17.34	59	17.34
(δ) - D) $\frac{\kappa'}{100}$										-12.44		59	-11.624
a_2										50		59	8.3
												59	3
												59	4.84
												59	-2.09
												59	27.5

Runs

18719pac,proj:1574

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
	+20.5	3' 22.9	23.2	8'	23.05	14	2530		5	50 14 55.28	
d	1.31145					50 15	13.40			- 11	+8.58
	9.80580						- 18.12			+ 85	
(8) - D) $\frac{d'}{100}$	1.25828m									+ 7.64	
+6.20 δ_1		45 00.00		14 28.4						+ 20	
-0.2580										- 4.90	
532										14 54.16	
	27.9	3 16.8	18.9	8	17.85	14	3050		5	14 55.24	
d	1.44560					50 15	19.91			- 21	+8.61
	9.80580						- 24.67			+ 86	
(8) - D) $\frac{d'}{100}$	1.39213m									+ 7.73	
+6.20 δ_1		45 0.10		14 26.7						+ 21	
-0.2580										- 11.35	
519										14 52.50	
	+14.6	3 32.4	33.7	28	33.05	54 55	1530		25	54 54 51.80	
d	1.16435					54 55	3.40			- 6	+13.37
	9.75949						- 11.60			+ 87	
(8) - D) $\frac{d'}{100}$	1.06457m									+ 12.26	
+5.02 δ_1		50 10.78		54 31.8						+ 30	
-0.2408										- 6.75	
519										54 55.87	
	+10.7	3 35.4	36.9	28	36.15	54 55	12.20		25	54 53.11	
d	1.02938					54 55	1.61			- 3	+13.66
	9.75949						- 8.50			+ 94	
(8) - D) $\frac{d'}{100}$	0.92960m									+ 12.45	
+5.02 δ_1		50 10.80		54 31.1						+ 30	
-0.2408										- 11.55	
519										54 55.22	
	+20.6	0 29.5	24.2	40	24.35	42	24.00		40	54 42 55.65	
d	1.31384					54 43	12.10			- 11	+12.36
	9.76164						- 16.45			+ 10	
(8) - D) $\frac{d'}{100}$	1.21624m									+ 12.07	
+5.05 δ_1		53 7.59		42 35.8						+ 30	
-0.2308										- 6.60	
510										42 58.91	
	+27.2	0 18.1	19.0	40	18.55	42	29.80		40	42 57.49	
d	1.43454					54 43	19.21			- 17	+12.43
	9.76164						- 21.72			+ 8	
(8) - D) $\frac{d'}{100}$	1.33694m									+ 12.24	
+5.05 δ_1		53 7.52		42 35.4						+ 30	
-0.2308										- 11.45	
510										42 58.47	
	+16.8	0 37.0	38.0	0	37.60	22	10.75		0	50 22 43.87	
d	1.22531					50 22	58.85			- 8	+8.06
	9.80458						- 14.98			+ 15	
(8) - D) $\frac{d'}{100}$	1.17562m									+ 7.79	
+6.08 δ_1		55 25.66		22 21.0						+ 20	
-0.2228										- 5.80	
480										22 43.13 23	
	+26.6	0 27.3	28.2	0	27.75	22	20.60		0	22 46.01	
d	1.42488					50 23	10.01			- 19	+8.06
	9.80458						- 24.00			+ 13	
(8) - D) $\frac{d'}{100}$	1.38019m									+ 7.90	
+6.08 δ_1		55 25.57		22 20.7						+ 22	
-0.2228										- 11.05	
480										22 43.02	
	+16.7	1 37.9	38.8	36	38.35	46	10.00		35	54 46 44.78	
d	1.22272					54 46	58.10			- 7	+12.50
	9.76093						- 13.82			+ 40	
(8) - D) $\frac{d'}{100}$	1.12438m									+ 12.67	
+4.98 δ_1		59 7.70		46 27.7						+ 30	
-0.2104										- 6.20	
520										46 44.78	
	+17.0	1 37.7	38.6	36	38.15	46	10.20		35	46 46.05	
d	1.23045					54 46	59.61			- 7	+12.98
	9.76093						- 13.56			+ 42	
(8) - D) $\frac{d'}{100}$	1.13211m									+ 12.83	
+4.98 δ_1		59 7.73		46 26.7						+ 30	
-0.2104										- 11.25	
520										46 47.78	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
	+24.0	456.0	57.6	44	56.50	37	51.55		40	54 38 20.44	38 23.80
d	1.38021	54 38 20.44		54 38 23.80		38	59.65			- 15	- 10
	9.76253	+13.37		+13.42			-19.21			+123	+123
(8) - D) $\frac{d'}{100}$	1.28347m						-15.85			+11.99	+11.99
+4.99	+19.8									+30	+30
-0.1984	1.29667									-6.16	-6.16
5.14	9.76253	244.86		38 5.3						8.70	8.70
δ_1	1.19993m	44.86		8.7						38 25.11	38 28.52
	+30.4	450.0	52.8	44	51.40	37	56.95		40	38 22.03	38 28.63
d	+25.9	54 38 22.03		54 38 25.63		38	46.36			- 24	- 17
	1.45287	+13.51		+13.58			-24.35			+127	+127
(8) - D) $\frac{d'}{100}$	9.76253						-20.73			+12.18	+12.18
	1.38613m									+30	+30
+4.99	1.41330									-11.10	-11.10
-0.1984	9.76253	244.83		38 4.6						38 24.44	38 28.11
δ_2	1.31656m			8.3							
	+22.4	3 38.0	39.3	58	38.65	24	9.70		55	54 24 39.78	
d	1.35025					24	87.80			- 13	+12.83
	9.76484						-18.02			+90	
(8) - D) $\frac{d'}{100}$	1.25582m									+11.786	
+5.03										+30	
-0.1880	δ_1	5 31.75		24 25.3						-6.50	
5.14										24 44.11	
	+6.3	3 58.7	55.2	58	54.45	23	53.90		55	24 38.34	25 24.25
d	-14.0	4 12.4	13.7	59	13.55	24	43.31			- 1	24 35.97
	0.79034	54 24 38.34		54 24 35.97			-4.97			+107	-14.55
(8) - D) $\frac{d'}{100}$	9.76484	+13.31		+13.27						+11.93	+11.93
+4.99	0.69591m									+30	+30
-0.1984	1.14613m									-11.00	-11.00
5.14	9.76484	5 31.71		24 21.8						24 40.65	24 38.24 25.15
δ_1	1.05170	55.66		25 6.4							
	+23.2	2 5.3	7.1	7	6.20	15	42.15		5	54 16 11.52	
d	1.36549					16	30.26			- 14	+12.34
	9.76642						-18.73			+53	
(8) - D) $\frac{d'}{100}$	1.27264m									+11.65	
+5.02										+30	
-0.1688	δ_1	10 20.98		15 58.7						-5.20	
5.12										8.50	
	+44.5	48.0	49.1	56	48.55	15	59.80		5	17 13.29	17 9.63
d	1.64836	48.0	49.1	6	48.55	176	49.21			- 52	- 17
	9.76625	54 17 13.29		54 17 9.63			-35.92			+47	+47
(8) - D) $\frac{d'}{100}$	1.55534m	+12.08		+12.43						+11.83	+11.83
+5.02	-25.3									+30	+30
-0.1688	1.40312m									-10.80	-10.80
5.12	9.76625	10 20.92		15 57.7						17 14.57	17 11.26
δ_2	1.31010	28.86		16 54.14							
	+25.2	2 16.9	20.2	42	19.50	40	28.80		40	54 40 40.76	
d	1.40140					41	98.90			- 17	+12.77
	9.76200						-20.14			+58	
(8) - D) $\frac{d'}{100}$	1.30413m									+12.06	
+4.89										+30	
-0.1604	δ_1	13 53.86		40 55.4						-5.20	
5.36										8.10	
	+15.1	2 27.3	27.8	42	28.55	40	19.80		40	40 57.14	
d	1.17895					41	9.21			- 6	+13.08
	9.76200						-12.07			+65	
(8) - D) $\frac{d'}{100}$	1.08171m									+12.19	
+4.89										+30	
-0.1604	δ_2	13 53.83		40 43.5						-10.70	
5.14										40 59.52	
	+24.3	1 3.8	4.3	12	4.05	18	44.30		10	50 18 10.88	
d	1.38561					42	32.40			- 16	+8.16
	9.80641						-21.52			+53	
(8) - D) $\frac{d'}{100}$	1.33275m									+7.57	
+5.98										+20	
-0.1468	δ_1	17 52.43		11 56.7						-4.90	
5.14										12 7.70	
	+16.0	1 9.3	11.6	12	10.45	18	37.90		10	12 13.14	+8.41
d	1.20412					18	27.31			- 7	
	9.80641						-14.17			+57	
(8) - D) $\frac{d'}{100}$	1.15126m									+7.70	
+5.98										+21	
-0.1468	δ_2	17 52.36		11 56.7						-10.20	
										12 11.35	

Date₁ = July 7⁹⁴Observer A.M.
Recorder A.M.Date₂ = July 17⁹⁶Observer
Recorder

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
7	21 ^m 20 ^s	54.29	8.6	21.70	20.1	23.6	27.1	30.8	34.4	13.60	27.20	21.70	20
	20 57.5	54.29.8	8.6	21.65						-4.93			6.17 41
	κ			15.5						7.17			3
	((S) - D) $\frac{\kappa'}{100}$			7.7									21 20.27
	a_1												-2.35
													21 17.68
			8.8	21.60	20.4	29.0	32.4	36.1	39.6	16.25	32.50	21 32.50	
	κ									-12.48			11.62 5
	((S) - D) $\frac{\kappa'}{100}$.51			83
	a_2												3
													21 20.06
													21 2.20
													21 17.83
17	25 15	54.27	8.0	25.48	20.2	23.5	27.1	30.5	34.4	11.99	23.58	25 23.58	
	24 52.3	54.27.9	8.4	25.4						-6.93			6.17 41
	κ			5.8	16.6					7.17			73
	((S) - D) $\frac{\kappa'}{100}$			10.6									3
	a_1			5.3									25 16.65
													-2.87
													25 14.04
			8.0	25.40	22.0	25.4	29.1	32.2	35.9	14.46	28.92	25 28.92	
	κ									-12.48			11.62 5
	((S) - D) $\frac{\kappa'}{100}$.51			83
	a_2												3
													25 16.44
													-2.22
													25 14.19
17	28 53	54.27	7.5	28.39.2	52.2 (55.6)	59.0	2.7	6.2				28 59.14	
	28 29.7	54.27.9	8.0	41.0						-6.92			6.17 41
	κ		7.5	38.2						7.17			73
	((S) - D) $\frac{\kappa'}{100}$			29 37.1	55.134	17.1	20.6	24.0	27.5	10.26	20.52	28 52.22	
	a_1			38.8						-6.92			2.88
				75.7						7.17			6.17 41
				37.9									73
													28 49.59
													-2.28
													29 13.60
			7.5	28.41.3	—	29 1.0	4.0	7.9	11.3			29 10.97	
	κ		8.0	30.2						-12.48			4.28
	((S) - D) $\frac{\kappa'}{100}$			29.38.9		18.6	22.0	25.7	29.0	32.65		29 25.58	
	a_2					transferred				5th wire		-11.62 6	
												83	
												3	
17	30 32	54.10	8.6	33.28.8	39.4	42.7	46.1	49.3	52.6	23.01	46.02	33 46.02	
	33 13.8	54.10.6	7.9	30.0						-6.82			6.17 41
	κ			58.8						7.07			64
	((S) - D) $\frac{\kappa'}{100}$			29.4									2
	a_1												33 39.20
													-2.28
													33 36.45
			8.4	33.22.8	44.6	47.8	51.0	54.3	57.4	25.52	51.04	33 51.04	
	κ									-12.34			11.62 6
	((S) - D) $\frac{\kappa'}{100}$.41			73
	a_2												2
													33 38.67
													-2.17
													33 36.46
													50
17	36 09	54.10	9.2	35.56.6	36.8	12.4	16.0	19.4	22.7	7.94	15.88	36 15.88	
	35 48.6	54.10.2	9.0	57.8						-6.90			6.17 41
	κ			11.44						7.16			72
	((S) - D) $\frac{\kappa'}{100}$			57.2									3
	a_1												36 8.98
													-2.39
													36 6.33
			9.5	35.54.0	36.14.2	17.6	24.0	24.4	28.2	10.44	20.88	36 20.88	
	κ									-12.48			11.62 6
	((S) - D) $\frac{\kappa'}{100}$.50			81
	a_2												3
													36 8.62
													-2.80
													36 7.63
													6.31

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Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+19.35 1.29003 9.76413 1.19489m	4 33.7	35.1	54	34.40	28 54 29	13.95 2.05 -15.66		50	54 28 46.59 - 9 + 1.13 + 11.85 + 30 - 5.20 7.80 28 51.78	+13.19
((8) - D) $\frac{d'}{100}$											
δ_1	+4.90 -0.1344	21 22.58		28 38.3							
d	+26.5 1.42325 9.76413 1.32811m	4 27.8	30.3	54	29.05	28 54 29	19.30 8.71 -21.29		50	28 47.42 - 18 + 1.17 + 12.03 + 30 - 10.35 28 57.39	+13.32
((8) - D) $\frac{d'}{100}$											
δ_2	+4.90 -0.1344	21 22.73		28 37.0							
d	+18.3 1.26245 9.76448 1.16766m	1 3.3	4.3	56	3.80	26 54 27	44.55 32.65 -14.71		55	54 27 17.74 - 8 + 25 + 11.81 + 30 - 6.70 7.60 27 22.62	+12.28
((8) - D) $\frac{d'}{100}$											
δ_1	+4.89 -0.1208	25 18.93		27 10.5							
d	+24.9 1.39620 9.76448 1.30141m	0 57.7	69.3	55	58.50	26 54 27	49.86 39.26 -20.02		55	27 19.24 - 16 + 26 + 11.98 + 30 - 10.20 27 21.42	+12.38
((8) - D) $\frac{d'}{100}$											
δ_2	+4.89 -0.1208	25 19.08		27 9.3							
d	+19.0 1.27875 9.76448 1.18396m	131.8	33.0	56	32.40	26 54 27	15.95 4.05 -15.27 + 13.99		55	54 26 48.78 - 9 + 37 + 11.82 + 30 - 4.58 7.40 26 53.78	27 18.04 - 7 + 37 + 11.82 + 30 - 4.58 7.40 27 23.06
((8) - D) $\frac{d'}{100}$											
δ_1	+4.87 -0.1084	28 54.46 29 15.84		26 44.9 29 15.8 27 12.2							
d	+23.0 1.36173 9.76448 1.26694m	127.8	28.9	56	28.35	26 54 27	20.00 9.41 -18.49 + 10.69		55	26 50.92 - 14 + 39 + 11.97 + 30 - 10.88 7.00 26 53.46	27 20.10 - 5 + 39 + 11.97 + 30 - 10.88 7.00 27 22.73
((8) - D) $\frac{d'}{100}$											
δ_2	+4.87 -0.1084	28 54.39 29 15.69		26 42.6 29 11.9							
d	+16.6 1.22011 9.79731 1.15815m	3 32.0	32.8	13	32.40	9 51 10	15.95 4.05 -14.39		10	51 9 49.76 - 8 + 87 + 8.54 + 21 - 4.25 7.00 9 54.30	+9.54 4262
((8) - D) $\frac{d'}{100}$											
δ_1	+5.68 -0.920	33 42.33		9 43.1 10 1.5							
d	+28.7 1.45788 9.79731 1.39592m	3 20.4	22.1	13	31.25	9 51 10	27.10 16.51 -24.88		10	9 51.63 - 22 + 88 + 8.65 + 26 - 9.68 9 51.55	+9.57
((8) - D) $\frac{d'}{100}$											
δ_2	+5.68 -0.920	33 42.18		9 42.4							
d	+18.7 1.27184 9.76747 1.18004m	3 8.0	7.8	13	7.90	9 54 10	40.45 28.55 -14.14		10	54 10 14.41 - 9 + 77 + 11.56 + 30 - 4.45 7.48 10 19.98	+12.54
((8) - D) $\frac{d'}{100}$											
δ_1	+4.92 -0.832	36 11.25		10 11.6							
d	+27.1 1.43299 9.76747 1.34117m	2 60.0	63.5	13	61.75	9 54 10	41.60 36.01 -21.94		10	10 14.07 - 19 + 78 + 11.72 + 30 - 9.20 10 16.98	+12.61
((8) - D) $\frac{d'}{100}$											
δ_2	+4.92 -0.832	36 11.23		10 8.7							

Date₁ = July 7⁹⁴Observer A.M.
Recorder A.M.Date₂ = July 17⁹⁶Observer N.R.
Recorder N.R. 66

Ru

Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
1871bae	38 ^m 27 ^s	59.51	6.3	38 ^m 14.1	27.1	30.4	32.8	37.1	40.6	1690	33.80	38	33.80
	38 4.1	51 53.3	6.0	15.8						-6.84		38	-6.7541
	K			29.9						7.10		38	-6.7
	(δ - D)	$\frac{\kappa'}{100}$		14.9								38	-2.31
	α_1											38	24.39
426				38.10.0	32.3	35.6	39.0	42.4	45.8	1951	39.02	38	39.02
	K									-12.48		38	-11.626
	(δ - D)	$\frac{\kappa'}{100}$								4		38	-26.622
	July 7 -											38	-38.38
	10 0.51 12	50.07 19.0	5 32.5	44.2	47.5	50.7	53.8	57.2	2534	50.68	5	50.68	
	8 15.1	50 9.6	8.5	34.0					-6.90		5	-6.2537	
	K			66.5					7.01		5	-6.2	
	(δ - D)	$\frac{\kappa'}{100}$		33.3							5	-43.78	
	July 17 -											5	-1.84
	10 10 42	50.08 9.1	10 57.1	52.4	55.6	58.7	1.9	5.3	2939	58.78	10	58.78	
	11 15.5	50 11.3	8.9						-6.89		10	-16.622	
	K								12.34		10	-7.0	
	(δ - D)	$\frac{\kappa'}{100}$									10	-5.189	
	July 7 -											10	-1.68
	16 17 70	50.06 9.0	16 57.3	17.13.0	16.4	19.5	22.6	25.9	974	19.48	17	19.48	
	16 44.4	50 8.8	8.6	56.5					-6.88		17	-6.2538	
	K			110.8					7.02		17	-6.2	
	(δ - D)	$\frac{\kappa'}{100}$		55.4							17	-12.60	
	July 7 -											17	-1.90
	15 19 28	51.04 9.2	19 17.1	39.0	42.5	45.7	48.9	52.5	2286	45.72	19	45.72	
	19 24.1	51 6.2	8.4	18.6					-6.90		19	-6.2538	
	K			38.2					7.04		19	-6.4	
	July 17 -											19	57.46
	19 17 51	51.04	19 37.4	52.9	54.2	57.4	0.8	4.0	2873	57.46	19	57.46	
	19 24.1	51 6.2	8.4						-12.38		19	-11.602	
	K								7		19	-1.94	
	(δ - D)	$\frac{\kappa'}{100}$									19	19 36.74	
	July 17 -											19	-45.17
	18 21 46	52.01 8.0	21 36.0	57.8	55.3	58.6	1.9	5.2	2928	58.56	21	58.56	
	21 20.2	52 3.6	6.9						-12.38		21	-11.602	
	K								40		21	-7.6	
	(δ - D)	$\frac{\kappa'}{100}$									21	-2	
	July 7 -											21	46.18
	16 29 23	52.19 8.0	29 5.7	17.5	20.9	24.1	27.6	31.0	1211	24.22	29	24.22	
	28 57.3	52 21.4	8.5	8.6					-12.29		29	-11.602	
	K			13.7					7.07		29	-6.7	
	(δ - D)	$\frac{\kappa'}{100}$		6.8							29	-2	
	July 7 -											29	11.93
	16 35 15	54.05 9.2	34 50.0	54 7.6	9.0						29	-2.03	
	K										29	15.12	
	(δ - D)	$\frac{\kappa'}{100}$									29	-15.12	
	July 17 -											29	-15.12
	16 48 41	54.15 8.5	48 28.5	46.0	49.8	53.2	56.8	0.3	2661	53.22	48	53.22	
	48 16.6	54 16.9							-12.44		48	-11.604	
	K								50		48	-8.3	
	(δ - D)	$\frac{\kappa'}{100}$									48	-3	
	July 17 -											48	40.75
	16 48 41	54.15 8.5	48 28.5	46.0	49.8	53.2	56.8	0.3			48	-2.01	
	K										48	38.71	
	(δ - D)	$\frac{\kappa'}{100}$									48	-2.01	
	July 17 -											48	38.71

Runs

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	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+18.9 1.27646 9.79047 1.20766m	0' 30.2	30.2	30'	30.20	52 51	18.15 6.25 -16.13		30	51 52 50.12 - 10 + 12 + 9.50 + 25 - 4.70 6.80 52 52.87	+9.55
(8) - D) $\frac{d'}{100}$											
δ_1	+550 -0.752	38 29.89		52 45.4							
d	+29.0 1.46240 9.79047 1.39360m	0 19.7	21.0	30	20.35	52 51	28.00 17.41 -24.75		30	52 52.66 - 22 + 8 + 9.40 + 29 - 9.50 52 52.71	+9.55
(8) - D) $\frac{d'}{100}$											
δ_2	+550 -0.752	38 29.87		52 45.2							
d	+17.4 1.24055 9.80701 1.18829m	1 18.5	18.4	16	18.45	50 6	29.90 18.00 -15.43		15	50 7 2.57 - 8 + 32 + 7.48 + 20 - 7.25 10.50 59.99	+7.92
(8) - D) $\frac{d'}{100}$											
δ_1	661 +550 -0.3832	548.50		6 21.7							
d	+7.7 0.88649 9.80686 0.83408 0.82024m	not seen 4 50.9	52.3	42 14	10.10 51.60	50 8	38.25 27.66 6.64 -68.2		10	8 21.05 - 1 + 57 + 1.60 + 21 - 12.30 41 17.12	50.8 39.39 - 1 + 1.27 + 7.60 + 12.30 8 36.15
(8) - D) $\frac{d'}{100}$											
δ_2	+660 -0.3680	10 51.36		7 59.4							
d	+24.1 1.38202 9.80716 1.22991m	2 14.9	15.7	17	15.30	50 5	33.05 21.15 -21.38		15	50 5 59.77 - 15 + 58 + 7.48 + 20 - 7.35 10.10 5 57.78	+8.11
(8) - D) $\frac{d'}{100}$											
δ_1	+652 -0.3476	17 17.08		5 23.0							
d	+27.9 1.44560 9.79778 1.38401m	1 4.2	3.8	16	4.00	51 6	44.35 32.45 -24.21		15	51 7 8.24 - 21 + 28 + 8.47 + 21 - 7.45 7 18.20 6.79	51 2 32.23 - 11 + 21 + 8.50 + 25 - 12.20 2 28.88
(8) - D) $\frac{d'}{100}$											
δ_2	+630 -0.3404	51 7 8.24	51 2 32.23	20 48.06					20		
d	+22.6 1.35411 9.78918 1.28402m	2 39.9	41.8	22	40.85	52 0	7.50 56.91 -19.23		20	52 0 37.68 - 14 + 70 + 9.50 + 30 - 12.25 0 35.79	+10.36
(8) - D) $\frac{d'}{100}$											
δ_1	+606 -0.3332	21 50.44		0 2.5							
d	+17.4 1.24055 9.78658 1.16786m	1 31.0	31.8	6	31.40	52 16	16.95 5.05 -19.72		5	52 16 50.33 - 8 + 37 + 9.65 + 26 - 7.25 4.90 16 50.63	+10.20
(8) - D) $\frac{d'}{100}$											
δ_2	+5.91 -0.3088	29 21.03		16 19.8							
d	+24.7 1.39270 9.76660 1.30003m	3 23.4	26.2	8	24.80	54 15	23.55 12.96 -19.95		5	54 14 53.01 - 16 + 11.78 + 30 - 11.60 14 54.21	+12.50
(8) - D) $\frac{d'}{100}$											
δ_1	+5.22 -0.2456	48 43.93		14 29.6							

Date, =

Observer
Recorder

Date, =

Observer
Recorder

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[illegible]

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
	+29.7	0 45.8	44.9	10	45.35	12	3.00		10	54 12 27.08	54 12 36.87
d	1.47276	54 12 27.08				54 12	51.10			- 23	- 8
	9.76712	54 12 27.08		54 12 36.87			- 24.02			+ 18	+ 18
(8) - D) $\frac{d'}{100}$	1.38061	+ 11.81		+ 11.64			- 14.23			+ 11.56	+ 11.56
δ_1	+17.6									+ 30	+ 30
	1.24551	7 38.63		12 12.4						- 5.40	- 8.40
	9.76712	74773		12 22.3						8.40	12 40.43
	1.15336									12 30.49	
	-5.1	4 49.3	51.4	4	50.35						
d	0.70757					54 17	58.00		0	54 18 51.55	
(8) - D) $\frac{d'}{100}$	9.76590					54 18	47.41			- 1	+13.37
δ_2	0.61420						+ 4.14			+ 125	
										+ 11.83	
										+ 30	
										- 10.00	
		30 10.21		18 44.5						18 54.92	
	+21.6	0 55.8	56.0	45	56.90	36	52.45		45	54 37 23.26	
d	1.33445					54 37	40.55			- 12	+12.38
(8) - D) $\frac{d'}{100}$	9.76271						- 17.29			+ 22	
δ_1	1.23789									+ 11.98	
										+ 30	
										- 4.15	
										6.60	
		48 8.19		37 23.1						37 29.04	
d											
(8) - D) $\frac{d'}{100}$											
δ_2											
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
d											
(8) - D) $\frac{d'}{100}$											
δ_2											
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
d											
(8) - D) $\frac{d'}{100}$											
δ_2											
d											
(8) - D) $\frac{d'}{100}$											
δ_1											
d											
(8) - D) $\frac{d'}{100}$											
δ_2											

Date₁ = July 20, 11
 $n = -1.52$

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

Date₂ = July 22
 $n = -42$

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

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1871phae

Star	'a	δ	Mag.	T_m	T_m	T_3	T_4	T_5	T_6	Sum	Mean	Red. to T_m	T	
31 ^m	25	50.42	9.1	31 23.4	32.3	35.6	39.0	42.0	45.4	194.3	38.86	31 38.86		
κ				24.4						-13.30		31 12.05		
(δ) - D)				47.8								31 2		
a_1				23.9								31 25.56		
												31 1.76	+6.2	
												31 23.60	-0.30	
			9.0	31 9.2	32.9	36.0	39.2	42.4	45.9	196.4	39.28	31 39.28		
κ				10.6						-13.82		31 13.29		
(δ) - D)				13.2						3		31 2		
a_2				33.0								31 25.46		
				11.0								31 1.73	+6.2	
												31 23.72	-0.30	
16	35	30	50.12	9.1	35 18.6	38.5	41.7	45.0	48.5	51.5	224.9	44.98	35 44.98	
κ											-13.29	35 12.65		
(δ) - D)												35 2		
a_1												35 31.69		
												35 1.78	+6.3	
												35 29.48	-0.28	
			8.9	35 16.0	39.0	42.2	45.2	48.5	51.8	226.5	45.30	35 45.30	+0.4	
κ				17.2						-13.88		35 13.29		
(δ) - D)				20.0						4		35 50		
a_2				53.2								35 2		
				17.7								35 31.49	+6.30	
												35 1.74	-0.28	
												35 29.76	+6.30	
													-0.28	
16	40	24	50.54	8.6	40 29.0	33.8	37.0	40.2	43.6	47.0	201.6	40.32	40 40.32	
κ											-13.32	40 12.66		
(δ) - D)												40 64		
a_1												40 2		
												40 27.00		
												40 1.82	+6.10	
												40 25.18	-0.27	
			8.5	40 13.1	34.3	37.4	40.7	44.0	47.2	203.6	40.72	40 40.72		
κ				14.5						-13.84		40 13.38		
(δ) - D)				15.8								40 52		
a_2				17.7								40 2		
				61.1								40 26.88		
				15.3								40 1.78	+6.10	
												40 25.10	-0.27	
16	42	50	50.34	8.8	42 42.5	58.6	1.9	5.13	8.4	11.6	32.58	65.16	43 6.16	
κ					43.4						-13.31	43 12.66		
(δ) - D)					45.7							43 63		
a_1					131.6							43 2		
					43.9							43 51.85		
												43 1.83	+6.1	
												43 50.02	-0.26	
			8.9	42 39.1	59.1	2.3	5.7	9.0	12.1	32.8	65.164	43 6.64		
κ				40.9						-13.83		43 13.30		
(δ) - D)				42.2								43 51		
a_2				43.2								43 2		
				145.4								43 51.81	+6.13	
				41.3								43 1.79	-0.26	
												43 50.02		
16	44	50	50.32	8.3	44 42.2	59.2	2.4	5.7	8.9	12.2	32.54	65.68	45 5.68	
κ					44.2						-13.31	45 12.66		
(δ) - D)					46.2							45 63		
a_1					132.6							45 2		
					44.2							45 52.34		
												45 1.84	+6.14	
												45 50.53	-0.26	
			8.5	44 42.0	59.7	2.4	6.0	9.3	12.7	33.06	66.12	45 6.12		
κ				43.8						-13.88		45 13.38		
(δ) - D)				46.0						4		45 51		
a_2				131.8								45 2		
				43.9								45 52.29	+6.14	
												45 1.80	-0.23	
												45 50.48	+6.14	

Runs

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July 20 +0' 46.81 +.26
 22 +0 47.26 +.26
 46.38

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+15.0 1.17609 9.80166 1.10444 _m	1 37.0	40.5	41	39.05	50 41	9.30 56.11 -12.72		40 50	41 43.39 - 6 + 42 + 8.22 + 23 - 10.35 12.40 41 39.80	+8.81
(8) - D $\frac{d'}{100}$											
+6.24 δ_1		31 30.04		42 9.6							
-0.3020											
d	+28.3 +28.3 1.45179 9.80166 1.38014 _m	1 25.7	28.2	41	26.95	50 42	21.40 8.66 -24.00		40	41 44.66 - 23 + 36 + 8.32 + 23 - 12.65 41 40.69 37.81	+8.68
(8) - D $\frac{d'}{100}$											
+6.24 δ_2		31 29.96		41 9.6							
-0.3020											
d	+26.4 1.42160 9.80625 1.35454 _m	0 45.1	48.3	10	46.70	50 12	16.5 48.46 -22.62		10	50 12 25.84 - 17 + 21 + 7.72 + 21 - 10.15 12.20 12 21.59	+7.95
(8) - D $\frac{d'}{100}$											
+6.30 δ_1		35 36.19		11 52.7							
-0.2888											
d	+27.6 1.44091 9.80625 1.37385 _m	0 42.0	45.1	10	43.55	50 12	4.80 52.06 -23.65		10	12 28.41 - 21 + 18 + 7.81 + 21 - 12.50 12 23.90 23.02	+7.99
(8) - D $\frac{d'}{100}$											
+6.30 δ_2		35 36.06		11 54.1							
-0.2888											
d	+11.3 1.05308 9.79981 0.97958 _m	4 1.3	4.4	29	28.5	50 53	45.50 32.31 - 9.54		25 50	54 22.77 - 3 + 104 + 842 + 24 - 10.10 12.10 54 20.34	+9.67
(8) - D $\frac{d'}{100}$											
+6.10 δ_1		40 31.28		53 53.1							
-0.2728											
d	+25.4 1.40483 9.79981 1.33133 _m	8 47.4	50.9	28	49.15	50 54	59.20 46.46 -21.45		25 50	54 25.01 - 17 + 99 + 8.52 + 24 - 12.45 54 22.44 21.26	+9.58
(8) - D $\frac{d'}{100}$											
+6.10 δ_2		40 31.20		53 54.0							
-0.2728											
d	+21.3 1.32838 9.80290 1.25797 _m	4 26.8	30.2	49	28.50	50 33	19.65 6.66 -18.11		45 50	33 48.55 - 12 + 117 + 8.09 + 23 - 10.00 12.50 33 45.92 45.92	+9.37
(8) - D $\frac{d'}{100}$											
+6.15 δ_1		42 56.17		33 19.4							
-0.2648											
d	+24.3 1.38561 9.80290 1.31520 _m	4 23.7	28.1	49	25.90	50 33	22.45 9.71 -20.66		45 50	33 49.05 - 16 + 114 + 8.17 + 23 - 12.35 33 46.05 45.20	+9.38
(8) - D $\frac{d'}{100}$											
+6.15 δ_2		42 56.17		33 18.7							
-0.2648											
d	+21.5 1.33244 9.80305 1.26218 _m	0 26.2	30.3	50	28.25	50 33	26.10 6.91 -18.29		50 50	32 48.62 - 12 + 13 + 8.07 + 23 - 9.90 11.90 32 45.03	+8.31
(8) - D $\frac{d'}{100}$											
+6.14 δ_1		44 56.67		32 19.2							
-0.2580											
d	+22.2 1.34635 9.80305 1.27609 _m	0 25.9	28.3	50	27.10	50 33	21.25 8.51 -18.88		50 50	32 49.63 - 13 + 13 + 8.17 + 23 - 12.25 32 46.70 44.70	+8.40
(8) - D $\frac{d'}{100}$											
+6.14 δ_2		44 56.62		32 18.8							
-0.2580											

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+2.70 1.43136 9.80746 1.36551m	4'26.7	31.2	19	28.45	50 3 4	19.90 6.71 -23.20		15	50 3 43.51 - 20 + 117 + 7.57 + 20 - 7.75 17.80 40.45 40.45	+6.74
d											
((\delta) - D) $\frac{d'}{100}$											
+6.20 δ_1		49 35.44		3 16.2						3 46.81 - 19 + 114 + 7.66 + 20 - 12.10	
-0 24.24											
32	+26.3 1.41996 9.80746 1.35411m	0 14.2 15.4 4 25.0 25.9		19	26.95	50 3 4	21.40 8.66 - 22.60		15	3 46.81 - 19 + 114 + 7.66 + 20 - 12.10	-0.88 +8.81
d											
((\delta) - D) $\frac{d'}{100}$											
+6.20 δ_2		49 35.27		3 17.6						3 46.81 - 19 + 114 + 7.66 + 20 - 12.10	
-0 24.24											
32	+20.5 1.31175 9.79367 1.13211m	0 24.2 25.6		50	25.40	51 32 33	22.95 9.76 - 13.56		50	51 32 56.20 - .11 + 10 + 9.07 + 28 - 9.90 17.90 53.64	+9.34
d											
((\delta) - D) $\frac{d'}{100}$											
+5.86 δ_1		51 17.77		32 29.9						32 55.92 - 24 + 5 + 9.19 + 28 - 12.20	
-0 23.72											
38	+29.9 1.47564 9.79367 1.39603m	0 14.2 15.4		50	14.80	51 32 33	-33.55 20.81 - 24.89		50	32 55.92 - 24 + 5 + 9.19 + 28 - 12.20	+9.28
d											
((\delta) - D) $\frac{d'}{100}$											
+5.86 δ_2		51 17.67		32 28.4						32 53.40 52.12	
-0 23.72											
38	+30.6 1.48542 9.79367 1.40608m	0 18.7 16.4		30	15.05	51 52 53	33.30 20.11 - 25.47		30	51 52 54.64 - 25 + 5 + 9.43 + 29 - 9.20 17.90 52 52.26	+9.52
d											
((\delta) - D) $\frac{d'}{100}$											
+7.20 δ_1		53 16.63		52 23.5						52 52.26	
-0 28.80											
32	+20.7 1.31594 9.79367 1.23633m	0 22.0 23.1		30	22.05	51 52 53	26.30 13.56 - 17.23		30	52 56.33 - 12 + 10 + 9.53 + 29 - 12.15	+9.82
d											
((\delta) - D) $\frac{d'}{100}$											
+7.20 δ_2		53 16.49		52 24.3						52 54.09 53.12	
-0 28.80											
32	+25.1 1.39969 9.79365 1.32601m	4 37.0 41.3		29	39.45	50 53 54	8.90 55.71 - 21.19		25	50 53 34.52 - 17 + 16 + 8.42 + 25 - 9.20 17.90 53 31.48	+8.66
d											
((\delta) - D) $\frac{d'}{100}$											
+5.98 δ_1		55 4.77		53 9.0						53 31.48	
-0 22.44											
46	+30.5 1.48430 9.79365 1.41064m	4 32.0 35.8		29	33.90	50 53 54	14.55 1.71 - 25.74		25	53 35.77 - 25 + 120 + 8.53 + 24 - 12.03	+9.72
d											
((\delta) - D) $\frac{d'}{100}$											
+5.98 δ_2		55 4.74		53 10.3						53 33.44 32.76	
-0 22.44											
46	+18.9 1.11059 9.80565 1.04293m	2 24.7 27.9		7	26.30	50 15 16	22.05 8.86 - 11.04		5	50 15 57.82 - 5 + 62 + 7.77 + 21 - 9.20 17.90 15 54.87	+8.55
d											
((\delta) - D) $\frac{d'}{100}$											
+6.09 δ_1		59 32.73		15 34.1						15 54.87	
-0 20.76											
26	+20.9 1.32015 9.80565 1.25249m	2 25.3 28.4		7	26.83	50 15 16	21.50 8.76 - 17.84 12.57		5	15 50.87 - 12 + 62 + 7.87 + 21 - 11.85	+5.19 +8.58
d											
((\delta) - D) $\frac{d'}{100}$											
+6.09 δ_2		59 32.51		15 31.3						15 47.60 52.92 52.04	
-0 20.76											

Date₁ = July 20, 71Observer W.A.R.
Recorder W.A.R.Date₂ = July 22, 71Observer W.A.R.
Recorder W.A.R.

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Star.	α	δ	Mag.	T_s	T_m	T_o	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
5	08	57.60	6.8	4	52.8	5	5	5	5	11.31	22.62	5	22.62
	4	43.9	6.5		54.1	19.4	22.7	25.9	29.1	-13.32			-12.66
					55.8								-64
					162.7								-2
					54.2								9.30
(8) - D													-1.97
a_1													7.33
													23.22
													-13.301
													-52
													-2
(8) - D													9.38
a_2													-1.93
													7.44
													20.40
													-12.67
													-62
													-2
(8) - D													7.09
a_1													-1.96
													5.13
													21.00
													-13.301
													-50
													-2
(8) - D													7.18
a_2													-1.93
													5.24
													42.74
													-12.67
													-62
													-2
(8) - D													29.43
a_1													-1.78
													27.45
													43.14
													-13.301
													-50
													-2
(8) - D													29.31
a_2													-1.95
													27.35
													44.80
													-12.67
													-64
													-2
(8) - D													31.47
a_1													-2.01
													29.46
													45.20
													-13.301
													-52
													-2
(8) - D													31.35
a_2													-1.97
													29.37
													11.82
													-12.67
													-63
													-2
(8) - D													58.50
a_1													-2.03
													56.47
													12.18
													-13.301
													-57
													-2
(8) - D													58.34
a_2													-1.97
													56.34

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+28.4 1.45332 9.79887 1.37888m	2 42.7	46.3	22	44.50	51 0	3.85 50.66 -23.93		20'	51 0	26.73 -21 +9.26 +70 +8.52 +25 -7.40 17.40 0 24.59
((δ) - D) $\frac{d'}{100}$											
δ_1	+5.87 -0 19.00	5 13.20		0 5.6							
d	+33.2 1.52114 9.79887 1.44670m	2 38.2	41.4	22	39.80	51 0	8.55 55.81 -27.97		20'	0 27.84	+9.27 -27 +68 +8.63 +25 -17.90 0 25.41 24.53
((δ) - D) $\frac{d'}{100}$											
δ_2	+5.87 -0 19.00	5 13.31		0 5.5							
d	+24.4 1.38739 9.80746 1.32154m	4 38.2	42.7	19	40.40	50 3	7.90 54.71 -20.97		15'	50 3 33.74	+8.83 -16 +122 +7.57 +20 -9.20 16.30 3 31.27
((δ) - D) $\frac{d'}{100}$											
δ_1	+6.07 -0 18.32	7 11.20		3 13.0							
d	+10.2 1.00860 9.80746 0.94285m	4 52.2	55.4	19	52.80	50 2	55.55 42.81 -8.77		15'	3 34.04	+9.11 -3 +127 +7.67 +20 -11.60 3 31.53 30.67
((δ) - D) $\frac{d'}{100}$											
δ_2	+6.07 -0 18.32	7 11.31		3 12.4							
d	+26.0 1.41497 9.80641 1.34807m	2 11.9	16.6	12	14.25	50 10	34.10 20.91 -22.29		10'	50 10 58.62	+8.32 -18 +57 +7.72 +21 -9.05 14.10 10 55.84
((δ) - D) $\frac{d'}{100}$											
δ_1	+6.02 -0 16.84	11 33.47		10 39.0							
d	+25.5 1.40654 9.80641 1.33964m	2 12.0	18.0	12	13.50	50 10	34.85 22.11 -21.86		10'	5 11 0.25	+8.43 -17 +57 +7.82 +21 -11.45 10 57.23 56.35
((δ) - D) $\frac{d'}{100}$											
δ_2	+6.02 -0 16.84	11 33.37		10 39.5							
d	+16.3 1.21216 9.80120 1.14008m	3 45.7	49.3	38	47.50	50 44	0.85 47.66 -13.81		35'	50 44 33.85	+9.43 -7 +99 +8.27 +24 -9.05 11.10 44 32.18
((δ) - D) $\frac{d'}{100}$											
δ_1	+5.88 -0 16.16	13 35.34 13 23.58		44 16.0							
d	+26.5 1.42325 9.80120 1.35114m	3 35.7	38.8	38	37.20	50 44	11.10 58.36 -22.45		35'	44 35.91	+9.37 -19 +94 +8.38 +24 -11.43 44 33.83 32.95
((δ) - D) $\frac{d'}{100}$											
δ_2	+5.88 -0 16.16	13 35.25		44 16.8							
d	+23.8 1.35793 9.80120 1.28682m	3 34.3	37.8	38	36.05	50 44	12.30 59.11 -19.31		35'	50 44 39.80	+9.31 -14 +94 +8.27 +24 -11.43 44 38.11
((δ) - D) $\frac{d'}{100}$											
δ_1	+5.86 -0 14.96	17 2.33		44 23.2							
d	+30.3 1.48144 9.80120 1.40933m	3 26.3	30.1	38	28.20	50 45	20.15 7.41 -25.66		35'	44 41.75	+9.28 -25 +91 +8.38 +24 -11.05 44 37.68 38.80
((δ) - D) $\frac{d'}{100}$											
δ_2	+5.86 -0 14.96	17 2.20		44 23.8							

Date₁ = July 20Observer
RecorderW.A.R.
W.A.R.Date₂ = July 22Observer
RecorderW.A.R.
W.A.R.

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
17	19 28	50 31	9.3	19 20.3	36.5	39.8	42.9	46.0	49.3	21 45 -13.32	42.90	19	42.90
	19 3.5	50 32.1	8.8										12.67 63 2
	(8) - D	κ'_{100}										19	29.58
	a_1											19	2.04
												19	27.54
													+5.8 -0.1
			9.1	19 14.6	36.8	40.0	43.3	46.4	49.7	21 62 -13.84 5	43.24	19	43.24
	κ			16.3									13.312
	(8) - D	κ'_{100}		18.2									57 2
	a_2			49.1								19	29.40
				16.4								19	2.00
												19	27.39
													+5.8 -0.1
17	21 21	50 14	9.6	21 11.1	30.3	33.5	36.6	39.9	43.0	18 33 -13.31	36.66	21	36.66
	20 57.0	50 15.1	9.4										12.67 62 2
	(8) - D	κ'_{100}										21	23.35
	a_1											21	2.04
												21	21.31
													+5.8 -0.1
			9.7	21 9.0	30.7	33.9	37.0	40.4	43.4	18 54 -13.84 5	37.08	21	37.08
	κ												13.312
	(8) - D	κ'_{100}										21	23.24
	a_2											21	2.00
												21	21.23
													+5.8 -0.1
17	24 41	50 40	8.7	24 29.4	50.7	54.0	57.0	0.4	3.9	28 60 -13.32	57.20	24	57.20
	24 17.9	50 41.0	8.8	30.8									12.67 63 2
	(8) - D	κ'_{100}		33.2								24	43.88
	a_1			9 3.4								24	2.07
				31.1								24	41.81
													+5.8 -0.1
			8.6	24 32.2	51.0	54.4	57.5	0.8	3.9	28 74 -13.84 5	57.48	24	57.48
	κ			34.0									13.312
	(8) - D	κ'_{100}		36.0								24	43.64
	a_2			10 2.2								24	2.03
				34.0								24	41.68
													+5.8 -0.1
17	26 27	50 40	8.3	26 16.4	37.1	40.3	43.6	46.9	50.3	21 82 -13.32	43.64	26	43.64
	26 3.5	50 41.1	8.4	20.1									12.67 63 2
	(8) - D	κ'_{100}		22.2								26	30.32
	a_1			60.7								26	2.07
				20.2								26	28.25
													+5.8 -0.1
			8.5	26 15.4	37.6	40.9	44.0	47.3	50.7	22 05 -13.84 5	44.10	26	44.10
	κ			17.1									13.312
	(8) - D	κ'_{100}		19.6								26	30.26
	a_2			52.1								26	2.04
				17.4								26	28.21
													+5.8 -0.1
17	29 00	50 29	8.9	29 8.5	12.1	15.0	18.3	21.5	24.7	9 16 -13.32	18.32	29	18.32
	28 39.3	50 29.7	8.9										12.67 63 2
	(8) - D	κ'_{100}										29	5.00
	a_1											29	2.08
												29	27.2
													+5.8 -0.1
			8.9	29 58.5	12.3	15.6	18.0	22.0	25.2	9 41 -13.84 5	18.82	29	18.82
	κ			58.1			18.9						13.312
	(8) - D	κ'_{100}		0.1								29	4.98
	a_2			17.47								29	2.05
				58.2								29	27.2
													+5.8 -0.1

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+22.6 1.35411 9.80336 1.28416 _m	2 33.4	37.5	52	35.45	30 50 30	12.90 59.71 -19.24		50	30 40.47 -14 +68 +8.02 +23 -8.85 10.90 30 38.36	+8.79
((δ) - D) $\frac{d'}{100}$											
+5.90 δ_1 -0.1408		19 33.44		30 24.3						30 43.40 -0.84 -19 +65 +8.13 +23 -11.25 30 40.97 40.09	
d	+26.8 1.42813 9.80336 1.35818 _m	2 27.7	31.1	52	29.40	30 50 31	18.95 6.21 -22.81		50	30 43.40 -0.84 -19 +65 +8.13 +23 -11.25 30 40.97 40.09	+8.82
((δ) - D) $\frac{d'}{100}$											
+5.90 δ_2 -0.1408		19 33.29		30 26.0							
d	+25.6 1.40824 9.80595 1.34088 _m	4 1.7	4.9	9	3.30	13 50 14	45.05 31.86 -21.92		5	50 14 9.74 -18 +104 +7.75 +21 -8.70 10.80 14 7.96	+8.82
((δ) - D) $\frac{d'}{100}$											
+5.95 δ_1 -0.1344		21 27.26		13 54.5							
d	+28.1 1.44871 9.80595 1.38135 _m	3 58.9	60.8	8	59.83	13 50 14	48.50 35.76 -24.06		5	14 11.70 -21 +104 +7.86 +21 -11.15 14 9.48 8.57 1344 5.3	+8.90
((δ) - D) $\frac{d'}{100}$											
+5.95 δ_2 -0.1344		21 28.18		13 54.6							
d	+26.1 1.41664 9.80182 1.34515 _m	2 14.3	18.7	42	16.50	40 50 41	31.88 18.66 -22.14		40	50 40 56.82 -18 +60 +8.22 +23 -8.65 10.70 40 54.69	+8.87
((δ) - D) $\frac{d'}{100}$											
+5.84 δ_1 -0.1228		24 47.65		40 42.4							
d	+23.5 1.37107 9.80182 1.29958 _m	2 17.4	20.0	42	18.70	40 50 41	29.65 16.91 -17.73		40	40 56.78 -14 +60 +8.34 +23 -11.10 40 54.91 54.03	+9.03
((δ) - D) $\frac{d'}{100}$											
+5.84 δ_2 -0.1228		24 47.52		40 42.2							
d	+23.4 1.36922 9.80197 1.29748 _m	2 16.7	22.5	42	20.00	39 50 40	57.75 44.56 -19.86		40	50 40 24.70 -14 +73 +8.21 +23 -8.60 10.60 40 23.13	+9.03
((δ) - D) $\frac{d'}{100}$											
+5.83 δ_1 -0.1168		26 34.08		40 11.4							
d	+26.7 1.42651 9.80197 1.35517 _m	2 44.7	48.4	42	47.05	40 50 40	1.30 48.56 -22.66		40	40 25.90 -19 +73 +8.32 +23 -11.00 40 23.99 23.11	+9.09
((δ) - D) $\frac{d'}{100}$											
+5.83 δ_2 -0.1168		26 34.04		40 11.4							
d	+9.8 0.99123 9.80366 0.92158 _m	4 65.2	28.2	54	26.70	28 50 29	21.65 8.46 -8.35		50	50 29 0.11 -3 +114 +8.02 +22 -8.56 10.60 28 58.96	+9.35
((δ) - D) $\frac{d'}{100}$											
+5.86 δ_1 -0.1076		29 8.78		28 48.2							
d	+20.6 1.31387 9.80366 1.24422 _m	4 14.4	18.1	54	16.25	28 50 29	32.10 19.36 -17.55		50	29 1.81 -12 +112 +8.12 +22 -10.70 29 0.28 59.37	+9.34
((δ) - D) $\frac{d'}{100}$											
+5.86 δ_2 -0.1076		29 8.78		28 48.6							

Date₁ = July 20⁹⁷Observer
RecorderW.A.R.
W.A.R.Date₂ =July 22⁹⁸Observer
RecorderW.A.R.
W.A.R.

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Star.	α	δ	Mag.	T_s	T_m	T_p	T_r	T_h	Sum	Mean	Red. to T_m	T
72 31	31	52.47	9.0	31	44.9	56.8	0.2	8.5	7.0	10.5	32.60	63.60
		27.1	52	46.5							-13.37	
κ				91.4								
$((\delta) - D) \frac{\kappa'}{100}$				45.7								
a_1												
			8.8	31	34.5	57.1	0.7	4.0	7.4	10.8	32.00	64.00
κ				36.5							-13.89	
$((\delta) - D) \frac{\kappa'}{100}$				109.5								
a_2				36.5								
17 33	33	50.12	8.7	33	34.1	54.8	58.2	1.3	4.7	7.8	30.68	61.36
		21.4	50	42.1							-13.32	
κ			8.6	42.2								
$((\delta) - D) \frac{\kappa'}{100}$				141.4								
a_1				47.1								
			8.8	33	37.2	55.4	58.5	61.8	65.0	68.2	30.89	61.78
κ				38.3							-13.81	
$((\delta) - D) \frac{\kappa'}{100}$				40.3								
a_2				115.8								
				38.6								
17 36	36	51.45	8.5	35	45.1	36.6	10.0	13.3	16.6	19.9	6.64	13.28
		35.0	51	42.1							-13.35	
κ			8.3	42.2								
$((\delta) - D) \frac{\kappa'}{100}$				141.4								
a_1				47.1								
			8.4	35	48.2	36.7	10.4	13.7	17.0	20.4	6.85	13.70
κ				48.6							-13.87	
$((\delta) - D) \frac{\kappa'}{100}$				51.6							8	
a_2				149.4								
				49.8								
17 38	38	51.33	7.8	38	7.8	31.0	34.3	37.4	41.2	44.5	18.84	37.68
		51.32	7.9	9.0							-13.35	
κ				10.8								
$((\delta) - D) \frac{\kappa'}{100}$				27.3								
a_1				9.1								
			7.5	38	7.8	31.4	34.8	38.0	41.4	44.7	19.03	38.06
κ				9.5							-13.87	
$((\delta) - D) \frac{\kappa'}{100}$				12.0							8	
a_2				29.3								
				9.8								
17 40	40	50.07	9.1	40	20.3	40.9	44.0	47.2	50.4	53.8	23.63	47.26
		50.80	9.2	21.5							-13.32	
κ				23.1								
$((\delta) - D) \frac{\kappa'}{100}$				64.9								
a_1				21.6								
			9.0	40	15.8	41.3	44.4	47.6	51.0	54.1	23.84	47.68
κ				17.6							-13.82	
$((\delta) - D) \frac{\kappa'}{100}$				19.9							5	
a_2				52.3								
				17.4								

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+17.9 1.25285 9.78163 1.16117m	0' 59.0	61.8	35	60.40	46 52 47	47.95 34.76 -14.49		35	52 47 20.27	
(δ) - D) $\frac{d'}{100}$										- 9 + 26 +10.34 + 30 - 8.35 10.60 47 20.48	+10.81
+530 δ_1 -0.984 40		31 53.37		47 10.6							
d	+27.5 1.43933 9.78163 1.34765m	0 58.6	54.1	35	52.35	46 52 47	56.00 43.26 -22.27		35	47 20.77	
(δ) - D) $\frac{d'}{100}$										- 20 + 23 +10.48 + 30 -10.96	+10.81
+530 δ_2 -0.984 40		31 53.29		47 10.1						47 20.85	19.97
d	+27.3 1.43616 9.80625 1.36910m	1 12.7	12.8	11	22.70	11 50 12	25.65 12.46 -23.37		35	50 11 49.07	
(δ) - D) $\frac{d'}{100}$										- 20 + 36 +7.72 + 21 - 8.30 10.40 11 46.76	+8.09
+591 δ_1 -0.912 42		33 51.85		11 37.6							
d	+23.2 1.36544 9.80625 1.29843m	1 22.9	26.8	11	24.83	11 50 12	23.50 10.76 -19.88		35	11 50.88	
(δ) - D) $\frac{d'}{100}$										- 14 + 36 +7.84 + 21 -10.75	+8.27
+591 δ_2 -0.912 42		33 51.76		11 38.4						11 46.40	47.52
d	+26.2 1.41830 9.79144 1.33643m	1 10.7	12.8	36	11.75	46 51 47	36.60 23.41 -21.70		35	51 47 1.71	
(δ) - D) $\frac{d'}{100}$										- 18 + 31 +9.82 + 29 - 8.25 10.30 47 1.15	+9.74
+554 δ_1 -0.836 42		36 3.32		46 52.8							
d	+23.9 1.37840 9.79144 1.29653m	1 11.9	14.9	36	13.40	46 51 47	34.95 22.21 -19.77		35	47 2.42	
(δ) - D) $\frac{d'}{100}$										- 15 + 31 +9.46 + 29 -10.75	+9.91
+554 δ_2 -0.836 42		36 3.24		46 52.3						47 1.58	0.70
d	+28.6 1.45637 9.78738 1.37689m	1 6.9	9.1	51	8.00	31 51 32	40.35 27.16 -23.82		50	51 32 3.34	
(δ) - D) $\frac{d'}{100}$										- 22 + 29 +9.04 + 28 - 8.20 10.20 32 2.53	+9.39
+559 δ_1 -0.752 38		38 27.77		31 55.0							
d	+28.3 1.45179 9.79383 1.37231m	1 5.7	8.9	51	7.20	31 51 32	41.05 28.31 -23.57		50	32 4.74	
(δ) - D) $\frac{d'}{100}$										- 21 + 29 +10.23 + 28 -10.65	+10.59
+559 δ_2 -0.752 38		38 27.65		31 56.3						32 4.67	3.80
d	+25.7 1.40993 9.80701 1.34363m	1 38.0	40.3	16	39.15	6 50 6	9.20 56.01 -22.06		15	50 6 33.95	
(δ) - D) $\frac{d'}{100}$										- 18 + 42 + 7.62 + 20 - 8.20 10.10 6 31.91	+8.06
+591 δ_1 -0.676 42		40 37.72		6 25.2							
d	+30.3 1.48144 9.80701 1.41514m	1 31.2	35.4	16	33.30	6 50 7	15.25 23.1 -26.01		15	6 36.30	
(δ) - D) $\frac{d'}{100}$										- 25 + 42 + 7.74 + 20 -10.50	+8.11
+591 δ_2 -0.676 42		40 37.64		6 26.3						6 38.91	33.03

Date₁ = July 20⁹⁷Observer *W.R.R.*
Recorder *W.R.R.*Date₂ = July 22⁹⁸Observer *W.R.R.*
Recorder *W.R.R.*

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Star.	α	δ	Mag.	T_s	T_m	T_g	T_f	T_e	T_h	Sum	Mean	Red. to T_m	T
17 ^a	45 32	50.13	9.4	45 22.3	45 22.3	45.4	48.9	52.2	55.4	2445	48.90	45 48.80	
	45 9.3	50 14.2	9.21	23.7	52.1			2		-13.32		-12.68	
κ				46.0								-6.2	
$((\delta) - D) \frac{\kappa'}{100}$				23.0								-2.16	
a_1												45 33.32	
		9.2		45 31.4	42.7	46.0	49.1	52.3	55.7	2458	49.16	45 49.16	
κ										-13.84		-13.32	
$((\delta) - D) \frac{\kappa'}{100}$										5		-6.0	
a_2												-2	
												45 35.32	
												-2.12	
												45 33.19	
17	48 08	51.14	9.3	48 17.7	17.0	20.2	23.3	26.7	29.8	1170	23.40	48 23.40	
	47 45.3	51 15.5	9.0							-13.34		-12.68	
κ												-6.4	
$((\delta) - D) \frac{\kappa'}{100}$												-2	
a_1												48 10.06	
												-2.34	
												48 7.86	
												-13.32	
κ												-5.2	
$((\delta) - D) \frac{\kappa'}{100}$												-2	
a_2												48 10.00	
												-2.16	
												48 7.83	
17	52 55	50.29	8.7	52 41.05	34.8	8.0	11.3	14.6	18.0	567	11.34	53 11.34	
	52 32.3	50 30.0	8.6	43.2						-13.33		-12.68	
κ				45.4								-6.3	
$((\delta) - D) \frac{\kappa'}{100}$				47.2								-2	
a_1				176.8								52 58.01	
				44.2								-2.19	
												52 55.82	
κ													
$((\delta) - D) \frac{\kappa'}{100}$													
a_2													
17	57 27	50.59	9.3	57 21.4	22.8	35.3	38.6	41.9	44.9	48.4	209.10	41.80	
	57 3.8	50 0.9	9.3	22.8								-12.68	
κ				24.7								-6.4	
$((\delta) - D) \frac{\kappa'}{100}$				68.9								-2	
a_1				23.0								57 28.48	
												-2.23	
												57 26.25	
												-13.34	
κ												-5.2	
$((\delta) - D) \frac{\kappa'}{100}$												-2	
a_2												57 28.31	
												-2.20	
												57 26.11	
17	59 20	51.36	7.3	59 10.3	27.0	30.1	33.8	37.0	40.3	1682	33.64	59 33.64	
	58 56.8	51 35.3	7.0	11.4						-13.35		-12.68	
κ				12.4								-6.5	
$((\delta) - D) \frac{\kappa'}{100}$				34.1								-2	
a_1				11.4								59 20.29	
												-2.25	
												59 18.04	
κ													
$((\delta) - D) \frac{\kappa'}{100}$													
a_2													
17	59 20	51.36	7.3	59 12.2	27.3	30.7	34.0	37.3	40.6	1699	33.95	59 33.98	
				14.0						-13.38		-13.32	
κ				15.6								-5.3	
$((\delta) - D) \frac{\kappa'}{100}$				41.8								-2	
a_2				1.3.9								59 20.10	
												-2.22	
												59 17.88	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
	+25.8 1.41162 9.80578 1.34426m	3' 55.1	54.3	8'	5870	50 13 14	55.65 42.46 -22.09		5	50 14 20.37 -18 +101 +7.75 +21 -7.25 -8.90 14 19.26	+8.79
d											
(8) - D) $\frac{d'}{100}$											
+5.88 -0.500 δ_1		45 39.20		14 14.3						14 19.26	
36 0	+17.7 1.24794 9.80596 1.18061m	3 58.0	60.0	8	5800	50 13 14	50.35 37.61 -15.16		5	14 22.45 -9 +104 +7.87 +21 -10.30	+9.05
d											
(8) - D) $\frac{d'}{100}$											
+5.88 -0.500 δ_2		45 39.07		14 15.3						14 52.20 20.32	
46	+5.7 0.75587 9.79652 0.67908m	3 36.0	39.0	8	3750	51 14 14	10.85 57.66 -4.78		5	51 14 52.88 -1 +94 +8.77 +27 -7.80 14 53.05	+9.97
d											
(8) - D) $\frac{d'}{100}$											
+5.63 -0.416 δ_1		48 13.49		14 48.9						14 53.05	
46	+20.2 1.30535 9.79652 1.22856m	3 21.6	25.0	8	2330	51 14 15	25.05 12.31 -16.93		5	14 55.38 -11 +88 +8.90 +27 -10.25 14 55.38	+9.94
d											
(8) - D) $\frac{d'}{100}$											
+5.63 -0.416 δ_2		48 13.46		14 50.0						14 55.38	
38	+27.1 1.43207 9.80366 1.36332m	3 41.6	45.1	53	4335	50 29 29	5.00 51.81 -23.09		50	50 29 28.72 -20 +96 +8.02 +22 -7.60 29 28.12	+9.00
d											
(8) - D) $\frac{d'}{100}$											
+5.80 -0.244 δ_1		53 1.62		29 25.7						29 28.12	
38	+15.0 1.14608 9.80366 1.10644m	3 56.0	54.8	53	5290	50 29 29	55.45 42.71 -12.78		50	29 29.93 -6 +101 +8.15 +22 -10.05 29 29.93	+9.32
d											
(8) - D) $\frac{d'}{100}$											
+5.80 -0.244 δ_2		53 1.50		29 25.9						29 29.93	
38	+18.8 1.27416 9.79887 1.2669 1.19972	2 58.8	62.0	42 22	6040	50 39 40	47.95 34.76 -15.64		40	51 10 18.92 -10 +78 +8.00 8.52 +24 -24.5 9.45 0.40 9.50 18.91	+9.44
d											
(8) - D) $\frac{d'}{100}$											
+5.68 -0.088 δ_1		57 31.93		0 18.0						0.40 9.50	
36	+23.9 1.37840 9.79887 1.2669 1.30396	2 53.3	57.3	42 22	5530	50 39 40	53.05 40.31 -20.04		40	51 10 18.92 -15 +75 +8.12 8.67 +9.51 +24 -2.90	+9.51
d											
(8) - D) $\frac{d'}{100}$											
+5.68 -0.088 δ_2		57 31.79		0 19.0						0.40 18.91	
34	+22.2 1.34635 9.79288 1.26592m	0 3.3	6.1	45	4.70	51 37 38	43.65 30.46 -18.45		45	51 38 12.01 -13 +2 +9.16 +28 -7.40 38 11.94	+9.33
d											
(8) - D) $\frac{d'}{100}$											
+5.53 -0.920 δ_1		59 23.57		38 11.7						38 11.94	
34	+20.1 1.30320 9.79288 1.22277m	4 64.4	67.7	44	66.05	51 37 38	42.30 29.56 -16.70		40	38 12.86 -11 +132 +9.31 +28 -9.80	+10.50
d											
(8) - D) $\frac{d'}{100}$											
+5.53 -0.020 δ_2		59 23.41		38 12.8						38 12.86	

Date₁ = July 20⁹⁷Observer *W.H.R.*
Recorder *W.H.R.*Date₂ = July 22⁹⁸Observer *W.H.R.*
Recorder *W.H.R.*

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_z	T_h	Sum	Mean	Red. to T_m	T
18	1 m 58	59.50	8.6	1 m 39.8	57.0	0.0	3.3	6.7	10.3	367.3	63.46	2	3.46
	1 26.5	51 56.6	8.2	4.7						-13.37			-12.69
	κ			44.1									66
	(δ) - D) $\frac{\kappa'}{100}$			46.8									2
	α_1			172.4								1	50.09
				43.1								1	2.27
												1	47.52
			8.6	1 08.0	57.1	0.5	3.9	7.1	10.5	31.91	63.82	2	3.82
	κ			39.5						-13.89			-13.33
	(δ) - D) $\frac{\kappa'}{100}$			41.9									54
	α_2			42.7								1	2
				16.21								1	49.93
				48.5								1	2.24
												1	47.69
18	4 52	51.58	8.2	4 41.8	58.8	2.2	5.7	9.1	12.3	328.1	65.62	5	5.62
	4 29.3	51 57.9	7.7							-13.38			-12.69
	κ												67
	(δ) - D) $\frac{\kappa'}{100}$												2
	α_1											4	52.24
													2.28
												4	49.94
													47.69
			7.9	4 39.5	59.2	2.8	5.9	9.3	12.4	329.3	65.86	5	5.69
	κ			42.0						-13.89			-13.33
	(δ) - D) $\frac{\kappa'}{100}$			43.7						90			54
	α_2			123.2									2
				41.7								4	8.03
													2.26
													47.70
18	7 18	57.53	7.9	7 26.8	26.0	29.5	32.7	36.3	39.9	16.44	32.88	7	32.88
	6 55.9	51 52.9	7.5							-13.38			-12.69
	κ												67
	(δ) - D) $\frac{\kappa'}{100}$												2
	α_1											7	19.50
													2.29
												7	17.21
			8.0	6 59.4	7 26.5	29.8	33.8	36.5	39.9	16.57	33.14	7	33.14
	κ			61.4						-13.69			-13.33
	(δ) - D) $\frac{\kappa'}{100}$			63.8						90			54
	α_2			184.6									2
				61.5								7	19.25
													2.26
												7	16.98
													17.02
18	9 26	50.26	9.0	9 27.0	35.8	39.0	42.1	45.6	48.9	21.14	42.28	9	42.28
	9 3.9	50 26.8	9.0							-13.34			-12.69
	κ												63
	(δ) - D) $\frac{\kappa'}{100}$												2
	α_1											9	28.94
													2.26
												9	26.68
			8.8	9 25.0	36.1	39.4	42.7	45.9	49.0	21.31	42.62	9	42.62
	κ									-13.88			-13.33
	(δ) - D) $\frac{\kappa'}{100}$									7			57
	α_2												2
												9	28.76
													2.23
												9	26.52
													26.52
18	11 33	50.12	7.5	11 23.4	41.9	45.0	48.1	51.4	54.7	24.11	48.22	11	48.22
	11 10.1	50 12.1	8.0							-13.33			-12.69
	κ												62
	(δ) - D) $\frac{\kappa'}{100}$												2
	α_1											11	34.89
													2.26
												11	32.63
			8.4	11 24.0	42.1	45.3	48.6	51.8	55.1	24.28	48.56	11	48.56
	κ			25.5						-13.85			-13.33
	(δ) - D) $\frac{\kappa'}{100}$			28.5						6			50
	α_2			78.0									2
				26.0								11	34.71
													2.24
												11	32.46
													50

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
	+20.4	0' 48.8	51.7	30	49.95	51 51	58.40		30	51 52 28.35	
d	1.30963					51 52	45.21			- 11	+9.79
	9.79063						16.86			+ 21	
(8) - D) $\frac{d'}{100}$	1.22695 _m									+ 9.40	
+5.48		1 53.30		52 28.2						+ 29	
-0.064										- 7.35	
36										52 28.84	
d	+23.3	0 45.9	48.3	30	47.10	51 52	1.25		30	52 27.25	
	1.36736					51 52	48.51			- 14	+9.95
	9.79063						19.26			+ 21	
(8) - D) $\frac{d'}{100}$	1.28468 _m									+ 9.59	
+5.48		1 53.17		52 27.9						+ 29	
-0.064										- 8.80	
24										52 27.48	28.52
d	+23.8	2 50.4	52.0	22	51.20	59 0	57.15		20	52 0 24.34	
	1.37658					52 0	43.96			- 15	+10.41
	9.78934						19.62			+ 73	
(8) - D) $\frac{d'}{100}$	1.29261 _m									+ 7.53	
+5.44		4 55.38		0 27.3						+ 30	
+0.172										- 7.20	
24										0 25.55	
d	+24.2	2 48.8	51.1	22	49.95	59 0	58.40		20	0 25.71	
	1.38382					52 0	45.66			- 15	+10.57
	9.78934						19.95			+ 73	
(8) - D) $\frac{d'}{100}$	1.29985 _m									+ 9.69	
+5.44		4 55.18		0 27.4						+ 30	
+0.172										- 10.00	
26										0 26.58	25.70
d	+6.1	1 10.4	12.2	31	11.50	51 52	37.05		30	51 52 18.82	
	0.78533					51 52	13.86			- 1	+9.97
	9.79063						5.04			+ 31	
(8) - D) $\frac{d'}{100}$	0.70265 _m									+ 7.38	
+5.48		7 22.69		52 22.2						+ 29	
+0.256										- 7.10	
26										52 19.69	
d	+31.6	0 48.2	51.2	30	49.70	51 52	58.65		30	52 19.79	
	1.49669					51 52	45.91			- 26	+9.82
	9.79063						26.12			+ 21	
(8) - D) $\frac{d'}{100}$	1.41701 _m									+ 9.58	
+5.48		7 22.50		52 21.7						+ 29	
+0.256										- 10.10	
26										52 20.87	19.13
d	+15.3	2 43.1	46.6	57	44.85	50 25	3.50		55	50 25 37.26	
	1.18469					50 25	50.31			- 6	+8.80
	9.80412						13.05			+ 70	
(8) - D) $\frac{d'}{100}$	1.11550 _m									+ 7.74	
+5.82		9 32.50		25 40.5						+ 22	
+0.332										- 6.70	
34										25 37.04	16
d	+17.6	2 39.8	43.2	57	41.50	50 25	6.85		55	25 39.10	
	1.24551					50 25	54.11			- 9	+8.89
	9.80412						15.01			+ 70	
(8) - D) $\frac{d'}{100}$	1.17632 _m									+ 8.06	
+5.82		9 32.34		25 41.0						+ 22	
+0.332										- 9.45	
34										25 38.54	37.66
d	+24.8	1 1.7	4.6	11	3.15	50 11	45.20		10	50 12 10.76	
	1.39445					50 12	32.01			- 16	+8.03
	9.80625						21.25			+ 26	
(8) - D) $\frac{d'}{100}$	1.32739 _m									+ 7.72	
+5.88		11 38.51		12 14.0						+ 21	
+0.408										- 6.50	
34										12 7.59	
d	+22.6	1 2.3	5.7	11	4.00	50 11	44.35		10	12 12.24	
	1.35411					50 12	31.61			- 14	+8.22
	9.80625						19.07			+ 29	
(8) - D) $\frac{d'}{100}$	1.28705 _m									+ 7.86	
+5.88		11 38.38		12 14.3						+ 21	
+0.408										- 8.30	
34										12 12.24	12.23

Date₁ = July 20⁹⁷Observer
RecorderMAR
W.R.Date₂ = July 22⁹⁸Observer
RecorderM. P. R.
W. R.

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Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T	
13 ^m	20	50.49	9.1	13 ^m	8.0	30.6	34.0	37.0	40.4	43.7	18.57	37.14	73	
κ	56.3	50.49	8.7								-13.34			
(8) - D	κ'_{100}												13	
a_1													13	
		9.1		13	10.0	30.9	34.3	37.4	40.8	44.0	18.72	37.44	13	
κ					11.6						-13.86			
(8) - D	κ'_{100}				14.0						7		13	
a_2					35.6								13	
					11.9								13	
16	45	50.57	9.4	16	37.5	55.4	58.4	61.7	65.0	68.4	308.9	61.78	17	
κ	22.9	50.57	9.3		38.4						-13.35			
(8) - D	κ'_{100}				41.1								16	
a_1					11.80								16	
					39.3								16	
		9.4		16	36.7	55.7	58.9	62.0	65.3	68.5	310.4	62.08	17	
κ					38.6						-13.87			
(8) - D	κ'_{100}				41.3						8		16	
a_2					11.66								16	
					38.9								16	
July 20						53.0							16	
16	28	46	50.05	9.8	28	53.0	51.9	55.1	59.0	62.4	65.8	29.44	56.88	28
κ	19.6	50.05	9.5		51.9	59.4	—	59.3	59.2	59.4	-13.29			
(8) - D	κ'_{100}												28	
a_1													28	
20													28	
16	37	40	50.33	9.6	37	31.5	47.9	51.1	54.2	57.2	60.6	27.10	54.20	37
κ	14.1	50.33	9.3								-13.31			
(8) - D	κ'_{100}												37	
a_2													37	
20													37	
16	47	17	52.22	9.2	47	45.0	23.0	26.4	29.7	33.2	36.4	14.67	29.74	47
κ	51.5	52.22	9.2		47.0						-13.36			
(8) - D	κ'_{100}				49.0								47	
a_1					21.0								47	
					7.0								47	
20													47	
17	42	41	50.13	7.7	41	56.7	53.8	56.8	60.0	63.1	66.4	30.01	60.02	41
κ	18.2	50.13	7.8								-13.32			
(8) - D	κ'_{100}												41	
a_2													41	
20													41	
17	50	23	50.22	8.8	50	13.0	11.6	15.4	18.2	21.4	24.5	9.11	18.22	50
κ	0.3	50.22	9.0								-13.33			
(8) - D	κ'_{100}												50	
a_1													50	
20													50	
18	19	03	50.58	8.4	18	56.1	19.127	15.9	19.3	22.6	25.9	9.64	19.28	19
κ	40.3	50.58	8.5		58.0						-13.35			
(8) - D	κ'_{100}				59.5								19	
a_2					173.6								19	
					57.9								19	

Runs

85

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
	+28.1 1.46358 9.80058 1.39116m	3' 58.9	59.9	33	59.90	48 50 49	50.45 37.26 -24.61		30	50 49 12.65 - .23 + 1.01 + 8.33 + 2.4 - 6.75 8.80 49 13.20	+9.35
d (8) - D) $\frac{d'}{100}$											
+5.74 δ_1 +0 4.68		13 27.26		49 17.9							
	+25.5 1.40654 9.80058 1.33381m	3 58.0	62.5	33	60.25	48 50 49	48.10 35.36 -21.57		30	49 73.77 - 18 + 10.4 + 8.47 + 2.4 - 9.30 49 19.06	+9.57
d (8) - D) $\frac{d'}{100}$											
+5.74 δ_2 +0 4.68		13 27.07		49 17.9							13.18
	+22.5 1.35218 9.79918 1.27805m	0 21.5	23.3	25	22.45	57 50 58	25.90 12.71 -18.97		25	57 53.74 - 13 + 10 + 8.47 + 2.5 - 6.60 8.60 57 53.83	+8.69
d (8) - D) $\frac{d'}{100}$											
+5.71 δ_1 +0 5.88		16 51.84		57 59.7							
	+23.2 1.36540 9.79918 1.29136m	0 19.4	23.1	25	21.25	57 50 58	27.10 14.36 -19.56		25	57 54.80 - 14 + 10 + 8.64 + 2.5 - 9.20 57 84.48	+8.85
d (8) - D) $\frac{d'}{100}$											
+5.71 δ_2 +0 5.88		16 51.65		57 59.4							53.57
7.32 0.86923 9.80777 0.80369m	+7.4 +5.9 0.74085 9.80777 0.70531m	1 34.7	37.7	21	36.20	1 50 1	12.15 58.76 -5.07 -6.36		20	50 1 53.89 - 1 + 4.2 + 7.53 + 2.0 - 10.20 12.40 1 44.65	+2.60 +8.16
6.03 0.80369m											
4.29 +6.40 -0 3.08		28 50.69		1 17.3							48.36
d (8) - D) $\frac{d'}{100}$											
+6.20 δ_1 -0 2.816		37 45.29		32 30.0							
	+22.7 1.35603 9.78560 1.26832m	0 12.2	15.1	50	13.65	32 50 33	34.70 21.51 -19.31		50	50 33 2.20 - 14 + 5 + 8.07 + 2.3 - 10.15 12.10 22 34.36	+8.21
d (8) - D) $\frac{d'}{100}$											
+6.20 δ_2 -0 2.816		37 45.29		32 30.0							
	+22.7 1.35603 9.78560 1.26832m	0 39.2	41.0	0	40.40	22 52 22	7.95 54.76 -18.53		0	52 22 36.21 - 14 + 18 + 9.91 + 3.0 - 10.15 12.10 22 34.36	+10.25
d (8) - D) $\frac{d'}{100}$											
+5.70 δ_1 -0 2.500		47 20.19		22 9.4							
	+1.3 0.11384 9.80737 0.04794	2 42.3	46.8	17	44.55	5 50 5	3.80 50.61 -1.12		15	50 5 49.49 - 0 + 7.0 + 7.62 + 3.0 - 8.20 10.10 5 48.01	+8.62
d (8) - D) $\frac{d'}{100}$											
+5.92 δ_2 -0 6.36		41 50.48		5 41.6							
	+5.2 0.71600 9.80534 0.64803m	0 9.01	1.0	5	5.35	17 50 18	43.00 29.81 -4.45		5	50 18 25.36 - 1 + 3 + 7.82 + 2.1 - 7.20 9.80 18 23.61	+8.05
d (8) - D) $\frac{d'}{100}$											
+5.92 δ_1 +0 6.72		19 9.84		57 57.0							
	+21.4 1.33041 9.79918 1.25628m	0 25.7	28.3	25	27.00	57 50 58	21.35 8.16 -18.04		25	50 57 50.12 - 12 + 10 + 8.47 + 2.5 - 6.50 8.50 57 50.32	+8.70
d (8) - D) $\frac{d'}{100}$											

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+26.9	4 58.8	3.0	59	60.00	22	48.35		55	52 23	-0.85
(8) - D	1.41330					52 23	35.61				-14.95
δ_1	9.78560						21.16				+11.46
	1.32559										+10.04
											+12.40
											12.63
d	+21.0	4 6.2	10.0	9	8.10	13	40.25		5	50 14	-8.85
(8) - D	1.32222	4 6.2	10.0	9	8.10	50 14	27.51		5		-12
δ_1	9.80595	50 14	9.53	50 14	4.32		17.98				+1.07
	1.25486		+9.04		+8.96		23.12				+7.88
	+21.0										+21
	1.43136										-10.40
	9.80595	42 47.61		141	1.2						14 2.88
	1.36400	47.87		13	56.0						2.00
d		4 6.2	10.0								
(8) - D		4 6.2	10.0								
δ_1											
d		0 52.4	56.0						0		
(8) - D											
δ_2											
d	+4.9	1 39.2	42.3	26	40.75	56	7.60		25	51 56	-0.85
(8) - D	0.60020					51 56	54.86				+10.39
δ_1	9.78983						4.04				+44
	0.60672										+9.66
											+30
											-10.05
d	+27.6	0 13.9	17.1	50	15.50	32	32.85		50	51 32	-0.85
(8) - D	1.44091					51 33	20.11				+9.37
δ_1	7.29367						22.98				+5
	1.36127										+9.24
											+28
											-11.85
d		2 46.45		32	33.9						32 54.65
(8) - D											53.77
δ_1											
d											
(8) - D											
δ_1											
d											
(8) - D											
δ_1											
d											
(8) - D											
δ_1											

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Runs

July 23 +0' 47.49 +".26
 " 27 +0 47.28 +.27

89

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+19.0 1.27875 9.79144 1.19688 m	1 25.9	28.3	36	27.10	46 51 47	21.25 8.44 -15.74		35	51 46 52.70 - 10 + 36 + 9.50 + 29 -12.80 46 49.72	+10.05
(8) - D) $\frac{d'}{100}$											
δ_1	+5.90 -0.2720	40 40.83		46 22.5							
d	+5.2 0.71600 9.79144 0.63413 m	1 39.3	39.6	36	39.45	46 51 46	8.90 56.18 - 4.31		35	46 51.87 - 1 + 43 + 9.27 + 29 -13.50 46 48.59	+9.98
(8) - D) $\frac{d'}{100}$											
δ_2		40 40.71		46 22.4							
d	+21.9 1.34044 9.79965 1.26678 m	3 16.7	30.1	28	18.40	54 50 55	29.95 17.14 - 18.48		25	50 54 58.66 - 13 + 86 + 8.58 + 24 -12.55 54 55.45	+9.55
(8) - D) $\frac{d'}{100}$											
δ_1	+6.05 -0.2564	45 28.72		54 29.8							
d	+9.9 0.99564 9.79965 0.92198 m	3 28.2	31.2	28	29.70	54 50 55	18.65 5.93 - 8.36		25	54 57.57 - 3 + 95 + 8.37 + 24 -13.25 54 54.09	+9.53
(8) - D) $\frac{d'}{100}$											
δ_2		45 28.58		54 28.4							
d	+18.6 1.26951 9.79668 0.19288 m	3 45.7	46.7	8	47.20	14 51 14	1.15 48.34 - 15.59		5	51 14 32.75 - 10 + 99 + 8.93 + 26 -12.45 14 30.15	+10.08
(8) - D) $\frac{d'}{100}$											
δ_1	+5.93 -0.2384	50 52.74		14 6.3							
d	+10.6 1.02531 9.79668 0.94868 m	3 52.0	55.0	8	53.50	13 51 14	54.85 42.13 - 8.89		5	14 33.24 - 3 + 105 + 8.70 + 26 -13.15 14 30.31	+9.98
(8) - D) $\frac{d'}{100}$											
δ_2		50 52.73		14 6.5							
d	+10.8 1.03342 9.79762 0.95773 m	0 50.8	53.7	15	52.15	6 51 7	56.20 45.39 - 9.07		15	51 7 34.32 - 3 + 23 + 8.78 + 26 -12.20 7 31.13	+9.24
(8) - D) $\frac{d'}{100}$											
δ_1	+5.89 -0.2100	59 35.49		7 10.1							
d	+11.7 1.06819 9.79762 0.99250 m	0 50.8	50.9	15	50.75	6 51 7	57.60 44.88 - 9.83		15	7 35.05 - 4 + 22 + 8.58 + 26 -12.95 7 31.36	+9.02
(8) - D) $\frac{d'}{100}$											
δ_2		59 35.51		7 10.4							
d	+27.0 1.43136 9.78461 1.34466 m	4 58	9.7	54	7.75	28 52 29	40.60 27.79 - 22.11		50	52 29 56.8 - 19 + 107 + 10.21 + 30 -12.15 29 55.46	+11.39
(8) - D) $\frac{d'}{100}$											
δ_1	+5.52 -0.1904	56.40		28 45.6							
d	+20.1 1.30320 9.78461 1.21450 m	4 13.0	15.9	54	14.45	28 52 29	33.90 21.18 - 16.39		50	29 4.79 - 11 + 107 + 9.89 + 36 -12.95 29 55.37	+9.55
(8) - D) $\frac{d'}{100}$											
δ_2		5 6.34		28 44.3							

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Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	s'
$+25.8$ 1.41162 9.79326 1.33357 (8) - D) $\frac{d'}{100}$ $+5.77$ δ_1 -0.1828	$+45.8$ 1.66084 9.79526 1.58282 -32.2 27.8 1.44404 9.79447 1.36520 $+5.74$ δ_2 -0.1808	0' 3.2	5.5	0'	4.35	22 51 23	44.00 31.19 -38.27 -22.57		0	51 23 22 52.72 -17.55 +2 +9.09 +27 -12.00 22 49.52 23 +0.24 28 33.30 -20 +12.85 +8.96 +27 -12.80 28 31.02	8.62 +6.63 9.21 5.60 +10.28 9.18
d (8) - D) $\frac{d'}{100}$ $+5.79$ δ_1 -0.1416	$+25.1$ 1.39964 9.79903 1.32539 $+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	3 51.0	53.5	23	52.25	58 50 59	56.10 43.29 -21.15		20	50 59 22.14 -17 +101 +8.68 +25 -11.60 59 20.28 59 24.14 -22 +103 +8.47 +25 -12.40 59 21.51 51 35 59.03 -13 +60 +9.27 +28 -11.40 35 57.42 35 59.53 -36 +67 +9.07 +28 -12.30 35 57.03 50 46 30.14 -16 +44 +8.47 +24 -11.25 46 27.65 46 30.16 -20 +46 +8.27 +24 -12.15 46 27.02 50 44 44.86 -3 +96 +8.47 +24 -11.05 44 42.72 44 45.55 -13 +95 +8.27 +24 -11.75 44 43.17	+9.77 +9.53 +10.02 +9.56 +8.99 +8.77 +9.64 9.33
d (8) - D) $\frac{d'}{100}$ $+5.62$ δ_1 -0.1180	$+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	3 40.5	49.0	23	47.75	59 51 59	0.60 47.88 -23.74		20	59 24.14 -22 +103 +8.47 +25 -12.40 59 21.51 51 35 59.03 -13 +60 +9.27 +28 -11.40 35 57.42 35 59.53 -36 +67 +9.07 +28 -12.30 35 57.03 50 46 30.14 -16 +44 +8.47 +24 -11.25 46 27.65 46 30.16 -20 +46 +8.27 +24 -12.15 46 27.02 50 44 44.86 -3 +96 +8.47 +24 -11.05 44 42.72 44 45.55 -13 +95 +8.27 +24 -11.75 44 43.17	+9.53 +10.02 +9.56 +8.99 +8.77 +9.64 9.33
d (8) - D) $\frac{d'}{100}$ $+5.62$ δ_1 -0.1180	$+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	2 17.0	20.1	47	18.35	35 51 36	29.80 16.99 -17.96		45	51 35 59.03 -13 +60 +9.27 +28 -11.40 35 57.42 35 59.53 -36 +67 +9.07 +28 -12.30 35 57.03 50 46 30.14 -16 +44 +8.47 +24 -11.25 46 27.65 46 30.16 -20 +46 +8.27 +24 -12.15 46 27.02 50 44 44.86 -3 +96 +8.47 +24 -11.05 44 42.72 44 45.55 -13 +95 +8.27 +24 -11.75 44 43.17	+10.02 +9.56 +8.99 +8.77 +9.64 9.33
d (8) - D) $\frac{d'}{100}$ $+5.80$ δ_1 -0.1096	$+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	2 04.8	6.9	47	5.75	35 51 36	42.60 29.88 -30.35		45	35 59.53 -36 +67 +9.07 +28 -12.30 35 57.03 50 46 30.14 -16 +44 +8.47 +24 -11.25 46 27.65 46 30.16 -20 +46 +8.27 +24 -12.15 46 27.02 50 44 44.86 -3 +96 +8.47 +24 -11.05 44 42.72 44 45.55 -13 +95 +8.27 +24 -11.75 44 43.17	+9.56 +8.99 +8.77 +9.64 9.33
d (8) - D) $\frac{d'}{100}$ $+5.80$ δ_1 -0.1096	$+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	1 40.5	43.7	36	42.10	46 50 46	6.25 53.53 -23.07		35	46 30.16 -20 +46 +8.27 +24 -12.15 46 27.02 50 44 44.86 -3 +96 +8.47 +24 -11.05 44 42.72 44 45.55 -13 +95 +8.27 +24 -11.75 44 43.17	+8.77 +9.64 9.33
d (8) - D) $\frac{d'}{100}$ $+5.78$ δ_1 $-0.8.92$	$+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	3 40.7	45.9	28 38	43.30	44 50 44	5.06 52.24 -7.88		25 35	50 44 44.86 -3 +96 +8.47 +24 -11.05 44 42.72 44 45.55 -13 +95 +8.27 +24 -11.75 44 43.17	+9.64 9.33
d (8) - D) $\frac{d'}{100}$ $+5.78$ δ_1 $-0.8.92$	$+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	3 31.0	31.9	28 38	31.45	44 50 45	16.90 4.18 -18.63		25 35	44 45.55 -13 +95 +8.27 +24 -11.75 44 43.17	+9.33
d (8) - D) $\frac{d'}{100}$ $+5.78$ δ_1 $-0.8.92$	$+28.8$ 1.45936 9.78950 1.37558 $+21.6$ 1.33445 9.79319 1.25433 $+36.5$ 1.56229 9.79319 1.48217 $+34.4$ 1.38736 9.80089 1.31497 $+27.6$ 1.44091 9.80105 1.36865 $+9.3$ 0.96846 9.80120 0.89637 $+22.0$ 1.34242 9.80120 1.27031	3 23.90		44 34.0						44 43.17	

ate₁ = July 23Observer
Recorder

W.R.R.

Date₂ =

July 27

Observer
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Star.	α	δ	Mag.	T_s	T_m	T_a	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
17	37 49	50 03	9.3	37	44.3	59.7	3.0	6.1	9.4	12.5	33.07	66.14	38 6.14
	37	25.8	50 4.0	9.4	46.1						-13.91		38 13.32
					47.8								37 52.23
					138.2								37 2.07
					46.1								37 50.16
	(8) - D	κ'_{100}											
	α_1												
			9.5	37	36.7	38 0.5	3.5	6.8	9.9	13.3	34.0	6.80	38 6.80
					39.9						-14.49		38 13.90
					76.6								37 52.23
	(8) - D	κ'_{100}			38.3								37 52.23
	α_2												37 50.31
17	39 48	50 18	9.5	39	42.5	58.1	59.5	62.5	65.8	69.3	313.2	62.64	40 2.64
	39	22.8	50 15.7	9.0	44.5						-13.91		40 13.32
					46.5								39 52.23
	(8) - D	κ'_{100}			133.5								39 2.07
	α_1				44.5								39 48.73
													39 2.08
													39 46.65
			9.5	39	46.1	58.1	59.7	62.5	66.1	69.3	314.7	62.94	40 2.94
					48.2						-14.49		40 13.90
					94.3								39 52.23
	(8) - D	κ'_{100}			47.1								39 52.23
	α_2												39 50.31
17	41 45	50 05	7.8	41	25.0	54.2	57.2	60.4	63.8	66.8	30.24	60.48	42 0.48
	41	22.1	50 6.0	7.5	27.3						-13.91		42 13.32
					29.3								41 52.23
	(8) - D	κ'_{100}			81.6								41 52.23
	α_1				27.2								41 46.57
													41 2.09
													41 44.48
			7.0	42	55.0	55.0	57.9	61.0	64.3	67.3	30.55	61.10	42 1.10
					57.2						-14.49		42 13.90
					20.2								41 52.23
	(8) - D	κ'_{100}			22.1								41 52.23
	α_2				23.7								41 46.61
					66.0								41 2.02
					22.0								41 44.59
17	49 20	50 24	7.5	49	11.2	29.7	33.0	36.0	39.3	42.6	18.06	36.12	49 36.12
	49	56.6	50 25.1	6.0	12.7						-13.92		49 13.32
					14.3								49 52.23
	(8) - D	κ'_{100}			38.2								49 52.23
	α_1				12.7								49 22.20
													49 2.13
													49 20.07
			8.0	49	9.8	30.2	33.4	36.0	39.8	43.0	18.24	36.48	49 36.48
					12.0						-14.50		49 13.90
					13.6								49 52.23
	(8) - D	κ'_{100}			35.4								49 21.98
	α_2				11.8								49 2.07
													49 19.21
17	52 46	50 58	9.3	52	36.9	56.6	59.9	63.1	66.4	69.7	3.57	63.14	53 3.14
	52	22.9	50 59.0	9.2	38.5						-13.93		53 13.32
					40.2								52 52.23
	(8) - D	κ'_{100}			115.6								52 49.21
	α_1				38.5								52 2.16
													52 47.05
			9.8	59	48.4	49.8	53.2	56.0	59.6	62.2	28.08	56.16	57 56.16
					49.8						-14.51		57 13.90
					98.2								57 52.23
	(8) - D	κ'_{100}			49.1								57 41.65
	α_2												57 2.09
													57 39.56

Runs

	$T_m - T$	A	C	Sum	Mean ⁺	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+26.0 1.30103 9.80746 1.23518 _m	4 26.3	36.7	19	28.50	50 3 19.85 4 7.04 -12.19			15	50 3 -0.23 49.85 -11 +1.17 +7.72 +20 -10.88 3 46.70 +0.24	+8.98
((8) - D) $\frac{d'}{100}$											
δ_1	+5.93 -0.768	37 56.09		3 39.0							
d	+28.5 1.45264 9.80746 1.38899 _m	4 28.0	32.8	19	21.90	50 3 26.45 4 13.73 -24.47			15	3 49.24 -22 +116 +7.53 +20 -11.80 3 46.35	+8.67
((8) - D) $\frac{d'}{100}$											
δ_2		37 56.24		3 38.7							
d	+18.1 1.25768 9.80534 1.18971 _m	1 20.8	25.2	5-	23.01	50 17 25.35 18 12.54 -15.48			5	50 17 57.06 -9 +10 +7.98 +21 -10.85 17 54.218	+8.20
((8) - D) $\frac{d'}{100}$											
δ_1	+5.87 -0.704	39 52.52		17 47.1							
d	+15.8 1.19866 9.80534 1.13069 _m	1 26.3	26.9	5-	26.60	50 14 21.75 18 9.03 -13.51			5	17 55.53 -7 +11 +7.78 +21 -11.75 17 52.95	+8.03
((8) - D) $\frac{d'}{100}$											
δ_2		39 52.38		17 45.0							
d	+33.3 1.52244 9.80716 1.45629 _m	2 4.2	16.8	17	15.50	50 5 32.85 6 20.04 -28.57			15	50 5 51.45 -30 +60 +7.77 +20 -10.75 5 48.74	+8.27
((8) - D) $\frac{d'}{100}$											
δ_1	+5.92 -0.636	41 50.40		5 42.4							
d	-20.9 1.32015 _m 9.80716 1.25400	2 57.7	61.8	17	60.75	50 4 47.60 5 34.88 +17.95			15	5 52.83 -12 +81 +7.58 +20 -11.70 5 49.84	+8.47
((8) - D) $\frac{d'}{100}$											
δ_2		41 50.51		5 43.5							
d	+23.4 1.36922 9.80428 1.30019 _m	2 57.8	62.0	37	60.20	50 24 48.15 25 35.34 -17.96			55	50 25 15.38 -14 +78 +8.08 +22 -10.50 25 13.59	+8.94
((8) - D) $\frac{d'}{100}$											
δ_1	+5.83 -0.368	49 25.90		25 9.9							
d	+24.7 1.39240 9.80428 1.32367 _m	2 56.5	59.0	57	57.75	50 24 50.60 25 37.88 -21.07			55	25 16.81 -16 +81 +7.87 +22 -11.45 25 14.36	+8.76
((8) - D) $\frac{d'}{100}$											
δ_2		49 25.74		25 10.7							
d	+24.6 1.39094 9.79718 1.31681 _m	0 17.3	19.8	25-	16.55	50 57 29.80 58 16.99 -20.74			25	50 57 56.25 -16 +8 +8.68 +25 -10.40 57 54.47	+8.85
((8) - D) $\frac{d'}{100}$											
δ_1	+5.70 -0.252	52 52.75		57 52.0							
d	+7.0 0.84510 9.79918 0.77097 _m	0 17.0	17.1	25-	17.05	50 57 31.30 58 18.58 -5.90			25	58 12.68 -2 +8 +8.46 +25 -11.40 58 10.29	+8.77
((8) - D) $\frac{d'}{100}$											
δ_2											

Date₁ = 99 July 23Observer W.A.R.
Recorder W.A.R.Date₂ = 100 July 27Observer R.G.
Recorder R.G.

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Star.	α	δ	Mag.	T_s	T_m	T_e	T_r	T_g	T_h	Sum	Mean	Red. to T_m	T
58	01 57 10	8.7	58	53.8	59 11.5	14.7	17.8	21.1	24.5	6.96	17.92	59 17.92	
				55.0						-1393		13.32	
				55.8								59	
				164.6								59	
				54.9								59	
(8) - D												59	
α_1												59	
			9.0	58 45.5	59 11.7	15.1	18.6	21.7	25.1	9.22	18.44	59 18.44	
				47.6						-1451		13.90	
				93.1								59	
(8) - D				46.5								59	
α_2												59	
18	1 21 51 35	8.8	1	13.0	30.0	33.4	36.5	39.9	43.1	18.29	36.58	1 36.58	
	0 58.2	51 34.7	8.8	14.8						-13.94		13.32	
				16.0								60	
				43.8								2	
(8) - D				14.6								1	
α_1												1	
			8.9	1 25.8	30.3	33.8	37.0	40.3	43.9	18.53	37.06	1 37.06	
				26.8						-1452		13.90	
				29.0								60	
				81.6								2	
(8) - D				27.2								1	
α_2												1	
July 23	43 02 50 58	9.7	42	53.0	10.9	14.5	17.6	20.8	24.1	8.79	17.58	43 17.58	
	42 37.3	50 59.8	9.3							-10.94		13.32	
												59	
												2	
(8) - D												43	
α_1												43	
												43	
10	47 45 51 21	7.7	47	31.7	53.0	56.1	59.4	62.9	66.0	29.74	59.48	47 59.48	
	47 20.7	51 22.8	7.9	32.2						-13.95		13.33	
				84.0								60	
				85.8								2	
(8) - D				133.7								47	
α_2				33.4								47	
10	52 48 51 19	8.5	52	44.0	59.1	2.3	5.7	9.0	12.3	32.84	65.68	53 56.68	
	52 24.4	51 20.5	8.7	45.5						-13.95		13.33	
				47.7								60	
				137.2								2	
(8) - D				45.7								52	
α_1												52	
16	54 37 50 05	9.6	54	36.4	46.3	49.0	52.3	55.6	58.9	26.21	52.42	54 52.42	
	54 11.5	50 7.2	9.2	37.5						-13.92		13.33	
				39.1								57	
				113.0								2	
(8) - D				37.7								54	
α_2												54	
17	2 41 51 32	9.8	2	27.2	50.0	53.6	56.7	60.0	63.3	28.36	56.72	2 56.72	
	2 17.1	51 34.3	9.4	28.9						-13.94		13.32	
				30.3								60	
				86.4								2	
(8) - D				28.8								2	
α_1												2	
17	11 29 50 30	9.3	11	25.0	40.5	43.7	46.8	50.0	53.5	23.45	46.90	11 46.90	
	11 5.7	50 36.0	9.3	26.2						-13.92		13.32	
				27.7								58	
				78.9								2	
(8) - D				26.3								11	
α_2												11	

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	8'
d	+23.0 1.36173 9.79731 1.28573 _m	3 0.9	1.8	13	1.25	51 9	47.10 34.29 -19.31		10	51 10 -0.23 14.98 -14 +7.8 +8.88 +26 -10.20 10 14.33	+9.78
$(\delta) - D) \frac{d'}{100}$											
δ_1	+5.64 -0.32	59 7.43		10 14.0							
d	+31.9 1.50379 9.79731 1.42779 _m	2 54.2	55.7	12	54.95	51 9	53.40 40.68 -26.78		10	10 13.90 -27 +7.8 +8.67 +26 -11.20 10 12.38	+9.44
$(\delta) - D) \frac{d'}{100}$											
δ_2	+5.64 -0.32	59 7.44		10 12.1	-23						
d	+22.0 1.34242 9.79735 1.26246 _m	3 30.3	33.7	48	32.00	51 34	16.35 3.54 -18.30		45	51 34 45.24 -13 +9.1 +9.29 +28 -10.10 34 45.49	+10.35
$(\delta) - D) \frac{d'}{100}$											
δ_1	+5.55 +0.048	1 25.97		34 46.0							
d	+9.9 0.99564 9.79735 0.91568 _m	3 40.4	43.1	48	41.75	51 34	6.60 53.88 -8.24		45	34 45.64 -3 +1.00 +9.07 +28 -11.10 34 45.10	+10.32
$(\delta) - D) \frac{d'}{100}$											
δ_2		1 25.93		34 45.6							
d	+24.6 1.34094 9.79718 1.31681 _m	0 51	8.7	23	6.90	50 57	41.45 28.64 -20.74		25	50 58 -0.23 7.90 -16 +3 +8.65 +25 -12.65 58 3.79	+8.77
$(\delta) - D) \frac{d'}{100}$											
δ_1	+6.06 -0.2640	43 7.92		57 37.4							
d	+26.1 1.41664 9.79558 1.33891 _m	2 18.3	21.1	2	19.40	51 20	28.65 15.84 -21.82		0	51 20 54.02 -18 +6.0 +9.03 +27 -12.55 20 50.54 96	+9.72
$(\delta) - D) \frac{d'}{100}$											
δ_2	+5.93 -0.2484	47 49.65		20 26.1	+1						
d	+20.0 1.30103 9.79589 1.22361 _m	4 26.2	32.3	4	30.25	51 18	18.10 5.22 -16.73		0	51 18 -0.23 48.56 -11 +117 +9.00 +27 -12.40 18 45.26	+10.33
$(\delta) - D) \frac{d'}{100}$											
δ_1	+5.90 -0.2316	52 53.78		18 22.1							
d	+14.7 1.16732 9.80716 1.10117 _m	2 35.0	39.5	17	39.25	50 5	11.10 58.29 -12.62		15	50 5 -0.23 45.67 -6 +6.8 +7.76 +20 -12.20 5 41.82	+8.58
$(\delta) - D) \frac{d'}{100}$											
δ_2	+6.15 -0.2256	52 42.82		5 19.3							
d	+27.9 1.44560 9.79367 1.36596 _m	0 12.8	15.9	50	14.35	51 32	34.00 21.19 -23.23		50	51 32 -0.23 57.76 -21 +5 +9.24 +28 -12.15 32 54.94	+9.36
$(\delta) - D) \frac{d'}{100}$											
δ_1	+5.76 -0.1984	2 46.63		32 35.1							
d	+20.6 1.31387 9.79415 1.23471 _m	3 37.0	40.0	53	38.80	50 29	4.58 56.74 -17.17		50	50 29 -0.23 39.57 -12 +9.4 +8.17 +2.2 -11.80 29 36.94 75	+9.21
$(\delta) - D) \frac{d'}{100}$											
δ_2	+5.94 -0.1680	11 36.95		29 20.0							

Date₁ = July 23Observer
RecorderM.S.R.
M.S.R.Date₂ = July 27Observer
RecorderH.C.
H.C.

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Star.	α	δ	Mag.	T_s	T_m	T_o	T_f	T_g	T_h	Sum	Mean	Red. to T_m	T
13	14	50 34	7.5	13	25.0	38.8	42.0	45.3	48.5	51.8	226.4	45.28	13
12	34.4	50 41.2	9.3		27.0						-13.93		13
13	53	50 46.2			28.7								13
(8) - D					80.7								13
α_1					26.9								13
17	14	59 50 01	8.8	15	8.2	9.1	12.4	15.7	18.9	22.0	78.1	15.62	15
14	35.3	50 1.6	8.8								-13.91		15
κ													15
(8) - D													15
α_2													14
17	17	10 51 47	8.0	17	2.7	3.8	11.4	24.2	27.6	30.8	80.9	23.98	17
16	46.9	51 41.4	8.0		3.8						-13.94		17
κ					5.3								17
(8) - D					11.8								17
α_1					3.9								17
17	23	01 51 58	8.0	23	53.4	24 14.7	18.0	21.5	24.8	28.1	107.1	21.42	24
22	44.2	52 0.0			53.2						-13.95		24
23					57.0								24
(8) - D					165.6								24
α_2					55.2								24
17	30	31 50 54	10.0	30	31.0	41.1	44.5	47.7	51.0	54.3	238.6	47.72	30
30	8.6	50 53.3	9.4		33.7						-13.93		30
κ					35.7								30
(8) - D					100.4								30
α_1					33.5								30
17	43	20 50 42	9.6	43	18.3	28.6	32.0	35.1	38.6	41.6	175.9	35.18	43
42	56.9	50 43.1	9.0								-13.92		43
κ													43
(8) - D													43
α_2													43
17	14	59 50 01	9.0	15	21.0	43.9	47.2	50.3	53.6	57.0	258.0	50.40	15
14	35.3	50 1.6	8.8		22.6						-14.50		15
κ					24.5								15
(8) - D					68.1								15
α_1					22.7								15
17	23	10 51 09	8.8	21	50.8	22 20.0	23.5	26.9	29.9	33.1	133.4	26.68	22
21	46.7	51 11.1	8.8		53.8						-14.57		22
κ					56.9								22
(8) - D					161.5								22
α_2					53.8								22
κ													22
(8) - D													22
α_1													22
κ													22
(8) - D													22
α_2													22

Runs

	$T_m - T$	A	C	Sum	Mean	Red. to m. wire	Red. to h. wire	Red. runs	Stroke	z	δ'
d	+18.4 1.26482 +391.57 _m 9.80136 _m 1.19287 _m	3 42.8	46.3	38	44.55	50 44 44	3.80 50.99 -24.63 -15.59	35	35	50 44 44 +0.23 -26.50 +96 +84.5 +24 -11.75 44 23.75	35.90 +7.56 32.98
((δ) - D) $\frac{d'}{100}$				4							
δ_1	+5.88 -0.1628	13 35.28		48 16.7							
d	+7.4 0.86923 9.80807 0.80399 _m	3 29.8	33.1	23	31.35	50 59 0	17.00 4.19 -6.37	20	20	49 59 59 +0.23 -1 +91 +7.46 +20 -11.65 59 54.70	+6.76
((δ) - D) $\frac{d'}{100}$											
δ_2	+6.04 -0.1560	15 5.80		59 39.1							
d	+20.3 1.30750 9.79128 1.22547 _m	0 - 1.8	+0.8	34	59.50	57 47 48	18.85 36.04 -16.81	35	35	51 48 48 +0.23 -11 +0 +9.50 +29 -11.75 48 16.93	+9.68
((δ) - D) $\frac{d'}{100}$											
δ_1	+5.61 -0.1488	17 13.85		48 2.0							
d	+26.2 1.41830 9.78750 1.33449 _m	3 48.7	30.3	23	50.53	51 58 59	57.80 44.99 -21.60	10 20	10	51 57 57 +0.23 -23.39 -18 +99 +9.70 +30 -11.50 57 22.47	+10.81
((δ) - D) $\frac{d'}{100}$											
δ_2	+5.53 -0.1248	24 10.96		-							
d	+14.2 1.15229 9.77950 1.07848 _m	3 35.7	39.3	28	37.45	50 54 55 4	10.90 58.09 -11.98	25	25	50 55 55 +0.23 -46.11 +94 +8.60 +25 4 11.20 55 44.42	+9.74
((δ) - D) $\frac{d'}{100}$											
δ_1	+5.76 -0.1024	30 37.50		54 34.2							
d	+16.9 1.22789 9.80166 1.15624 _m	1 5.7	8.7	41	7.20	50 41 42	41.15 28.34 -14.33	40	40	50 42 42 +0.23 -14.01 +27 +8.38 +24 -10.75 42 11.86	+8.83
((δ) - D) $\frac{d'}{100}$											
δ_2	+5.77 -0.580	43 24.92		42 6.1							
d	+27.7 1.44248 9.80777 1.37694 _m	0 47.8	48.0	20	47.90	50 2 2	0.45 47.73 +23.82	20	20	50 3 3 +0.24 -1.65 -20 +22 +7.52 +20 -12.45 3 7.18	+7.74
((δ) - D) $\frac{d'}{100}$											
δ_1											
d	+32.9 1.51720 9.79715 1.44104 _m	2 29.2	30.3	12	29.75	57 10 11	18.60 5.88 -27.61	10	10	57 10 10 +0.24 -38.27 -29 +67 +8.66 +26 -12.85 10 35.46	+9.30
((δ) - D) $\frac{d'}{100}$											
δ_2	+5.74 -13.12	22 15.98		10 22.3							
d											
((δ) - D) $\frac{d'}{100}$											
δ_1											
d											
((δ) - D) $\frac{d'}{100}$											
δ_2											

ate₁ =Observer
RecorderDate₂ =Observer
Recorder

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

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											

Date ₁ =		Observer Recorder		Date ₂ =		Observer Recorder									
Star.	α	δ	Mag.	T_s	T_m	T_e	T_f	T_g	T_h	Sum	Mean	Red. to T_m		T	
κ															
$((\delta) - D) \frac{\kappa'}{100}$															
α_1															
κ															
$((\delta) - D) \frac{\kappa'}{100}$															
α_2															
κ															
$((\delta) - D) \frac{\kappa'}{100}$															
α_1															
κ															
$((\delta) - D) \frac{\kappa'}{100}$															
α_2															
κ															
$((\delta) - D) \frac{\kappa'}{100}$															
α_1															
κ															
$((\delta) - D) \frac{\kappa'}{100}$															
α_3															
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_3															

