

N 43

Handwritten text, mostly illegible due to fading and bleed-through. Visible words include "1935", "Bureau", and "2000".

KC 11365, 326

14. 54 58.6
50.0

72 15 3 47.0
71 35.6
7 13 38 34.8

8

1

20

75

76

65

3

5

13 33 57.3

Vol 2

6

10 EPA 10 esp.

13

14

16

17

19

21

21.86

83

82

81

10

37

66

Vol 3 77

Vol 4 40

Vol 5 63

1 A

18

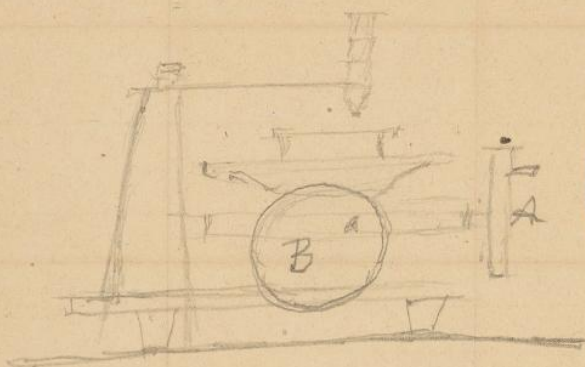
16
13

72
71
7
8
—
70
75
76
67
68
69
70
71
72

950 141
188 2
—
9248
46 22
—
141 39

Clark's Micrometer

KG 11365-326



Aurifer Sesu - above

B Jones Below

Position Circle

$37^{\circ} 46' 30''$ when the gnia
 $218^{\circ} 0$ on glass plate is
 exactly place
 for glass seal No 1

	Line 1	Line 2
A	10.000	19.994 .994
	20.000	30.024 .024
	30.000	40.0265 .0265
	40.000	49.9945 .9945

Large Clark Observer			Sesu	A	Therm.	
1st line	2nd line	3rd line	1st	2nd		Seal No 4
Rev 8.0377	23.0268	38.015	int	int	73°	
0268	2625					
1st 8.0377	23.0265	38.0155	.9888	9885		
49.9980	64.9900	79.979				
72			.9914	9890		
49.9986	64.9900	79.9790				
79.9790	94.9695	109.9570	9905	9875		
7.9998	.9885					

Sunday March 27 1870

Instrument taken to pieces by Mr. Geary
Alaska. The bull plate of Seru. A was found
to be convex upward and was corrected by putting
small lines of thin paper under it.

1st line	2 ^d line	third line	1st internal	2 ^d internal
110.0012				
110.0011	95.0402	80.0130	14.9909	.9972
83.0006	68.0085	53.0085	.9921	.0000
83.0000	68.0075	53.0075 53.0075	.9925	.0000
52.9989	38.0052	23.0058	.9937	.9994
		75		.9977
18.9989	34.0389	0.389		
9971				
9980				
3. P.M. 16.0010	30.9989	44.9923	.9979	.9934
44.9945	60.9945	75.9860	.0000	.9915
75.9995	9950	105.9870	.9955	.9920
9992	90.9960	9884	.9968	.9904
16.4995	4952	4889	.9957	.9937
45.4890	48.82	4820	.9992	.9938

Sunday March 27 1870

1 st line	2 ^d line	Interval
46.4995		
9.5020	.0010	4990
5010	5000	4990
7489	24600	477
7485	2465	
7489	2460	4971
7485	2465	4980
2470	747	5000
7470	2447	4970
2435	7447	5012

Monday March 28 1870

1 st line	2 ^d line	3 ^d line
9.9325		
9.935		
10.000		
9.9440	24.9400	
9410	9380	
9400	9360	

microscope apparently disturbed

9.9360
9355
9362

Tuesday

March

29

1870

5.0335 0325 0325 0328	20.0325 0312 0325 0321	35.0220 0210 0220 0217	14.9993	14.9896	97
10.0160 0145 0155 0153	25.0152 0132 0130 0138	40.0088 0080 0070 0079	14.9985	14.9991	44
15.0120 0130 0130 0127	30.0125 0135 0125 0132	45.0095 0078 0075 0083	15.0005	14.9951	54
15.0140 0140 0138 0139	30.0130 0135 0125 0130	45.0108 0085 0080 0091	14.9991	14.9961	30
40.0210 0190 0195 0198	55.0210 0205 0190 0202	70.0145 0145 0140 0143	15.0004	14.9921	83
45.0080 0065 0065 0070	60.0080 0085 0075 0083	75.0025-5 0005-5 9985+10 0005	15.0013	14.9922	91
50.0250 0250-5 0235+5 0245	65.0280 0265 0255 0267	80.0185 0160 0165 0170	15.0022	14.9903	119
70.0225+5 0230 0235-5 0230	85.0225-5 0210+5 0215 0217	100.0105 0080 0080 0088	lines out of focus 14.9987	14.9871	116
75.0380 0380 0380 0380	90.0370 0335 0350 0352	105.0265 0260 0250 0258	focus corrected 14.9972	14.9906	66

Thermom 57° 1/2

Thursday evening March 30

George & Elvan Clark Diners Inst cleaned Micrometer
slide made more secure

15. 9875	30. 9862	45. 9802	.9987	.9948
45. 9770	97 45 ⁵⁰ 48	9665 - focus out	.9978	9917
75. 9897	9880	9780	9983	9900
right but on one end				
14. 9280	9252	9200	9972	9948
44. 9148	9145	9060	9997	9915-
74. 8668	8625	8528	9957	9903
right on head end				
74. 8595	8680	8580	9985	9900
74. 8675	8645	8562	9970	9917
15. 1142	1130	1062	9988	9932
1170	1180	1065	0010	9885-
	1140		9970	9920-

24. 2365-	2900
4910	7440
743	995-
9922-	2452

25. 31-	7
25. 30	2
25. 20	8
25. 27	1
11.2	
25. 28	

169 45.2

50. 004	65. 9985-
65. 9985-	90. 9900
15. 9945-	9913-

50. 0045-	65. 9975-	80. 9900
.0032	9975-	.9880
.0035	9965	9885-
112	215-	2665-
50. 0037	9972	9888
	9935	9953

.0031

Thursday March 31
E. P. Austin obs.

50.0458
0.452
0.452

0.452

20.0450
0.445
0.430

0.442

14.9988

50.0030
0.020
0.025

0.025

65.0030
0.025
0.015

0.027

15.0002

90.0062
0.055
0.055

90.0135
0.0140
0.0135

0.0137

105.0140
0.0132
0.0140

0.0137

15.0000

Mean of 8 measures in middle
of ~~series~~ screw 15.0005

Thursday afternoon J. Brinklock

4.9905
9910
9895

4.9903

19.9873
9858
9856
865

19.9863

14.9960

4.5000
4.4981
4990

4.4990

14.4980
4976
4970

14.4973

14.9983

143
14.9971

55.0103

0106

0090

.0099

70.0069

70

70

700070

.9971

53

~~54.490~~

54.4920

4929

4930

4925

54.4930

4910

4906

4915

9989

60

9980

10.0005

05

15

.0008

10.5009

.5010

.505

5008

.5000

~~.4995~~~~4990~~~~80~~~~4988~~

9980

plus displaced

50

53

5.2001

1906

.9905

.5335

5260

.9925

2500

2450

0.9950

.2450

2460

~~20~~

2450

2440

2435

2435

2430

190

2438

2450

2450

2445

2450

2440

235

2447

2438

.0009

9998

1.1

Sunday April 30 1870
George & Abram Clark

00004

Interval

mean

4.9940
9945-

16.9925-
30

40
4.9942

35-
16.9930

11.99880

5.49625-

17.4945-

49575-

4950

49575-

4950

5.49592

17.49480

11.99888

11.99884

54.99650

66.9966

67

55-

71

50

.9968

66.9957

11.9989

55.5005- 4992

67.5005- 4978

.5000 4990

4995- 4990

5001 4995-

5000 4994

55.5002 4992

5000 4987

.9998

.99935-

4997

4993

9996

9992

~~99.9987~~~~86~~~~85-~~~~99.9986~~

99.9945-

.9930

50

23

50

23

.9948

9925-

.9977

out of hand

100.5032

102.5020

.5028

.10

.5025-

11

.5028

5013

.9985

.9981

Sunday April 10 1870
George and Abram Clark

99.9995

9988

95

.9993

111.9988

80

86

9985

11.9992

100.4980

82

84

4982

4980

75

71

4975

11.9993

1870 Friday April -

CIR 06

To find centre of plate.

	Circle Reading	Upper Mic	Lower Mic
K spot	214° 35'	61.644	57.365
	34 35	61.441	57.634
		61.5445	57.4995

Set in K spot on

34° 35'	61.5445	57.4995
211 35'	61.5423	57.4907

Set in K

16.9930
 4.9942
 11.99880
 11.99888
 99765
 99882

12 incl. from 5 to 17 11.99884
 55 to 67 99927
 100 to 112 99930

24

24000

.0004

Centre

as

Photograph

14 54 58.6

Coordinates

64.1778
 63.7502

58.7501 inside
 67.6429

63.7000

63.8000

64.65
 64.20
 64.19
 64.09
 64.10
 65.56
 65.94
 65.94
 65.56
 65.23
 62.98
 62.78
 63.06
 62.96
 62.96

64.1744

65.646
 62.948
 26.98
 13.45
 64.297

62.948

64.297
 64.174
 12.8
 61
 64.234

1870 Friday April +

CIR 06

To find centre of plate.

Circle Reading
 Ink spot 214° 35'
 34 35

Upper Mir.

61.644
 61.441
 61.5445

Lower Mir.

57.365
 57.634
 57.4995

61

Set in K spot on

34° 35'
 214 35

61.5445
 61.5423

57.4995
 57.4907

Set in K

Centre

as

275.14
 133.14
 140.14
 100.00
 240.14

Photograph

14 54 58.6

Coordinates

64.1778
 63.7502

58.7501 inside
 67.6429

64.64
 64.20
 64.19
 64.09
 64.10

64.1744
 47

63.7000

65.56
 65.94
 65.94
 65.56
 65.23

303
 65.646
 62.948
 26.98
 13.49
 64.297

63.8000

62.98
 62.78
 63.06
 62.96
 62.96

474
 62.948

64.297
 14.174
 12.3
 61
 64.235

1870 Friday April +

CIR 06

To find centre of plate.

Circle Reading
Ink spot $214^{\circ} 35'$
 $34 \quad 35$

Upper Mic.
 61.644
 61.441
 61.5445

Lower Mic.
 57.365
 57.634
 57.4995

61

Set in K spot on

$34^{\circ} 35'$
 $214 \quad 35$

61.5445
 61.5423
 61.5434

57.4995
 57.4907
 57.4951

Set in K spot on

$214 \quad 35$
 $34 \quad 35$

61.5434
 5416
 5425

57.4951
 57.4974
 57.4963

Centre

As near as can be set

Photograph

14 54 58.6

Coordinates

 $34^{\circ} 37\frac{1}{2}'$

71.4360
 64.1778
 63.7502

58.7500
 58.7501 inside
 67.6429

$.6465$
 $.6420$
 $.6419$
 $.6409$
 $.6410$

$.641744$
 $.64$

 63.7000

$.6586$
 $.6594$
 $.6594$
 $.6556$
 $.6523$

$.65646$
 $.62948$

 63.8000

$.6298$
 $.6278$
 $.6306$
 $.6296$
 $.6296$

$.6298$
 $.6297$

$.64297$
 $.64174$
 $.123$
 $.61$
 $.64234$

Obj. of
Same contin.

Circle

Upper line
63-8000

Lower line

48.1545

1506

1487

1553

1445

1188

1169

1146

1150

1191

1240

1296

1245

1281

1318

.15072

536

1072

2144

342

.11684

.15072

.6756

.13378

581

.12762

.13378

816

.13070

7000

7500

67.64235

48.13070

19.51165

9.75582

57.88652

4845

4895

4886

4805

4888

4853

37

25

66

85

4792

4859

4796

4803

4826

9365

.8365

12.30017

7.73778

20.03795

10.018

0.9892638

8886164

0.1006474

1.0899112

51

67

37

12.30017

6.15009

7.73778

65.33767

48778

63.75

7.73778

0.9892638

0.6755749

0.3136889

64549.7

1.3029527

2.00887

4.73

216

48482

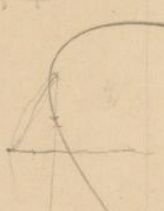
20.08878

4.73778

24.8265

12.4132

68.4878



$$\begin{array}{r}
 61.5529 \\
 59.46 \\
 \hline
 427.5 \\
 61.57425 \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 57.5326 \\
 5379 \\
 \hline
 53 \\
 265 \\
 57.53525 \\
 18.089 \\
 \hline
 67.554
 \end{array}$$

175 45
355 45

$$\begin{array}{r}
 61.552 \\
 61.436 \\
 \hline
 116 \\
 58 \\
 \hline
 61.494
 \end{array}
 \qquad
 \begin{array}{r}
 57.407 \\
 57.244 \\
 \hline
 163 \\
 81 \\
 \hline
 57.325
 \end{array}$$

$$\begin{array}{r}
 61.510 \\
 496 \\
 \hline
 14 \\
 .503
 \end{array}
 \qquad
 \begin{array}{r}
 57.309 \\
 3335 \\
 \hline
 945 \\
 385 \\
 \hline
 344 \\
 57.321
 \end{array}$$

Photo.
24 54 58.6

$$\begin{array}{r}
 61.5008 \\
 67.351 \\
 357 \\
 356 \\
 359 \\
 357 \\
 \hline
 47.414 \\
 4195 \\
 416 \\
 417 \\
 414 \\
 \hline
 70.2815 \\
 330 \\
 330 \\
 327 \\
 3305 \\
 323 \\
 \hline
 70.3281 \\
 61.5
 \end{array}
 \qquad
 \begin{array}{r}
 67.351 \\
 357 \\
 356 \\
 359 \\
 357 \\
 \hline
 47.414 \\
 4195 \\
 416 \\
 417 \\
 414 \\
 \hline
 70.2815 \\
 330 \\
 330 \\
 327 \\
 3305 \\
 323 \\
 \hline
 70.3281 \\
 61.5
 \end{array}$$

$$\begin{array}{r}
 47.414 \\
 4195 \\
 416 \\
 417 \\
 414 \\
 \hline
 70.2815 \\
 330 \\
 330 \\
 327 \\
 3305 \\
 323 \\
 \hline
 70.3281 \\
 61.5
 \end{array}
 \qquad
 \begin{array}{r}
 47.414 \\
 4195 \\
 416 \\
 417 \\
 414 \\
 \hline
 70.2815 \\
 330 \\
 330 \\
 327 \\
 3305 \\
 323 \\
 \hline
 70.3281 \\
 61.5
 \end{array}$$

$$\begin{array}{r}
 70.2815 \\
 330 \\
 330 \\
 327 \\
 3305 \\
 323 \\
 \hline
 70.3281 \\
 61.5
 \end{array}
 \qquad
 \begin{array}{r}
 57.387 \\
 47.414 \\
 4195 \\
 416 \\
 417 \\
 414 \\
 \hline
 70.2815 \\
 330 \\
 330 \\
 327 \\
 3305 \\
 323 \\
 \hline
 70.3281 \\
 61.5
 \end{array}$$

$$\begin{array}{r}
 47.4161 \\
 19.9414 \\
 \hline
 9.9707 \\
 57.3868 \\
 \hline
 0.9987256 \\
 9458672 \\
 \hline
 0528584 \\
 1.0518840 \\
 \hline
 11.26120 \\
 8.8281 \\
 \hline
 20.0893 \\
 0.04465
 \end{array}$$

60.2835

47.342

48

25

225

23

26

20

47.2333

67.420

13

16

14

17

67.4160

20.1824

10.0918

57.3246

70.242

302

301

305

307

306

70.3042

40.0205

57.3246

673
217
8894

0039471

8894

0030577

0070048

9792

256

10.1626

10.0205

20.1831

40.0915

70.3042

60.2127

60.2127

71.346

10.091

61.255

57.321

10.091

67.412

$$\begin{array}{r}
 310 \quad 61.458 \\
 \quad \quad 621 \quad \begin{smallmatrix} 263 \\ 131 \end{smallmatrix} \\
 \hline
 61.490
 \end{array}
 \quad
 \begin{array}{r}
 57.330 \\
 \quad 328 \\
 \hline
 329
 \end{array}$$

$$\begin{array}{r}
 61.490 \\
 61.615 \\
 \quad 608
 \end{array}
 \quad
 \begin{array}{r}
 57.323 \\
 57.324 \\
 \quad 305
 \end{array}$$

$$\begin{array}{r}
 61.554 \\
 \quad 556
 \end{array}
 \quad
 \begin{array}{r}
 57.488 \\
 57.144 \\
 \hline
 344 \\
 172 \\
 \hline
 57.316
 \end{array}$$

$$\begin{array}{r}
 61.5525 \\
 61.557 \quad \begin{smallmatrix} 4 \\ 5 \end{smallmatrix} \\
 \hline
 61.555 \quad \begin{smallmatrix} 3 \\ 4 \end{smallmatrix} \\
 10.05 \\
 \hline
 71.605
 \end{array}
 \quad
 \begin{array}{r}
 57.3165 \\
 \quad 321 \\
 \hline
 57.319
 \end{array}$$

Coordinates of sun 14 54 58.6

1870phae.proj...326A

70.8642	51.356	70.864	55.000
51.3576	359	862	
19.5066	359	869	
9.7533	357	866	
61.1109	357	860	

71.0561	51.100	71.054	56.000
51.0946	099	056	
19.9615	089	0575	
9.98075	091	055	
61.07535	094	058	

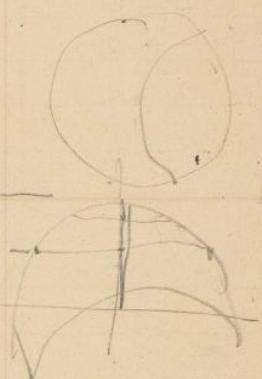
71.1468	51.032	71.137	57.000
51.0269	021	145	
20.1199	036	146	
10.05995	022	147	
61.08685	023.5	151	
		145	

71.1348	51.038	71.133	58.000
51.1035	103	138	
20.0313	102	136	
10.01565	105	1345	
61.11915	105	1325	
	1025		

71.0358	51.213	71.037	59.000
51.2047	204	034	
19.8311	2035	037	
9.91555	199	034	
61.12025	204	037	

70.8189	51.425	70.818	60.000
51.4223	4215	8145	
19.3966	423	821	
9.6983	422	820	
61.1206	420	821	

70.4970	51.7655	70.504	61
51.7662	769	4955	
18.7308	766	496	
9.3654	765	496	
61.1316	7655	498	
		500	



70.0467
 52.2064
 17.8403
 8.92015
 61.12655

52.210
 205
 204
 206
 207

70.0485
 048
 045
 048
 044

62.000

69.4590
 52.8228
 16.6362
 8.3181
 61.1409

52.830
 831
 814
 823
 816

69.456
 4625
 461
 4585
 457

63

68.6886
 53.5943
 15.0943
 7.54715
 61.14145

53.589
 601
 5915
 595
 595

68.689
 705
 6900
 677
 686
 684
 686
 688

64

67.6889
 54.5990
 13.0899
 6.54495
 61.14395

54.598
 598
 599
 606
 594

67.695
 684
 686
 6895
 690

65

66.3053
 55.9913
 10.3140
 5.1570
 61.1483

55.991
 992
 989
 9965
 988

66.312
 303
 303
 298
 3105

66

64.1210
 58.2878
 5.7832
 2.8916
 61.1294

58.232
 240
 245
 235
 237
 Tangency

64.121
 114
 1215
 1215
 127

67

61.4825

67.4515
 4445
 4435
 435
 4475

Tan

Moon

62.

60.245
 246
 248
 246
 250

63

60.151
 156
 155
 158
 155

64

59.957
 947
 960
 9485
 9535

60

60.157
 162
 161
 160
 1625

61

60.243
 242
 235
 237
 241

70

55.769
 711
 767
 773
 773

52

54.260
 2585
 272
 259
 259

Rectangularity of two screws.

221° 15' 10"
41 2' 50"
18 00
9 00

131 15- 20
311 2' 55-
17 15-
8 57

to examine acceptability
found to be satisfactory with
the lowest power

A whole 61.5645- 61.555- 61.560
B sum 56.3106 57.319 56.815-

A 61.5586
B 56.8165-

A 61.5628 .5607
B 56.7973 8.069

A 61.569
B 56 806

61.5563
8132

A 61.5706
8059

5563
8133

A 61 5626
56 807

A 5611
8094

Photographs Circle * upper lower

14^h 54^m 50.^s0

So as to run round circ. of ☉

61.5625

46.7643

Pos. of Cusp 57° 28' 05" 4 95
237 42 50

" " after 200 47 25 14 20
21 1 45

258 25 30
129 17 45
258 34 35
129 17 17½

200 38 30 13 20
20 51 50

258 12 90
129 6 35

258 39 50
129 19 35
129 18' 237 48 0 13 20

54 4 25
234 19 50

~~2000~~

Sun

46.762
7605
7755
7822
784
780
772
782
780
777

Moon

47.385
341
349
347
3495

April 18 1870

Photograph

		sun	moon
A	14 54 50.0	46.810	48.8585-
	44° 5' 05"	.807	863
	224 18 00	8045	865-
		808	866
		8025-	865-
B		290	31 65-
		mean 46.8058	48.8633-
<hr/>			
A	34° 4' 0"	46.801	50.206
	214° 17 50"	796	205-
		803	211
		803	202
		798	197
B		4001	1021
		8002	50.2042
<hr/>			
A	24° 41 5"	46.810	51.2640
	204 18 0"	820	2680
		8155-	2680
		816	2701-
		8155-	2740
B		770	3445-
		46.8134	51.2689
<hr/>			
A	14° 4' 5"	46.800	52.089
	194° 17 50"	.8005-	106
		.800	107
		800	101
		806	099
B		65-	502
		46.8013	52.1004

April 18 1870

Philipsville

Same

A

4° 3' 30"

46.807

52.712

B

184° 27' 40"

.805-

714

.806

716.5-

.812

719.5-

.813.5-

719.5-

435-

315

.8087

52.7163

724° A

354° 4' 10"

811

53.169

B

174° 18' 15"

810.5-

176

815-

173.5-

808

174.5-

817

174

615-

366.5-

46.8123

53.1733

A

344° 4' 30"

46.794

53.4455-

B

164° 18' 0"

788.5-

450

783.5-

448

785.5-

452

791.5-

452

4430

247.5-

46.7886

53.4695

A

334° 3' 55"

46.792

53.693

164° 17' 35"

770

699

771

696.5-

790.5-

701

794.5-

699

80

3488.5

46.7916

53.6997

April 18 1870

Photograph

Same

A

 $324^{\circ} 4' 20''$
 $144 18 30$
 46.796
 797
 $7915-$
 $7995-$
 786
 4700
 46.796
 53.844
 $8506-$
 848
 852
 850
 $2445-$
 53.8489
 $314^{\circ} 4' 5''$
 $134 18 5''$
 $46.7851-$
 779
 781
 781
 $7805-$
 4050
 46.7810
 $53.9045-$
 $9185-$
 $9185-$
 917
 $9185-$
 770
 53.9154
 $309^{\circ} 3' 45''$
 $129 17 30$
 46.7685
 7740
 774
 $7745-$
 770
 3610
 46.7722
 $54.9121-$
 913
 $915-$
 913
 $915-$
 $185-$
 54.9137

A

 $304 3' 55''$
 $124 17 55''$
 46.776
 $7725-$
 777
 $7765-$
 $775-$
 270
 46.7754
 53.914
 912
 912
 $9155-$
 $9125-$
 160
 53.9132

April, 18. 1870.

Photograph

Lunar

 $294^{\circ} 3' 55''$
 $114^{\circ} 18' 50''$
 46.762
 $.763$
 $.760$
 $.763$
 $.7635-$
 $115-$
 $.7623$
 53.827
 $8295-$
 838
 837
 832
 $1635-$
 83.8327
 $284^{\circ} 4' 5''$
 $104 18 0''$
 46.791
 $.7735-$
 $7745-$
 7820
 780
 4090
 46.7808
 53.701
 $7035-$
 $7025-$
 $700-$
 702
 140
 53.7028
 $274^{\circ} 3' 45''$
 $94^{\circ} 18' 0''$
 46.7585
 759
 761
 757
 758
 $2935-$
 46.7587

very slightly

 53.480
 $.486$
 $485-$
 490
 487
 428
 53.4856
 $264^{\circ} 4' 20''$
 $84 18 15''$
 46.764
 763
 $7635-$
 764
 761
 $135-$
 46.7631
 53.169
 172
 168
 171
 174
 354
 53.1708

April 18 1870

254° 4' 10"	46.767	52.703
74 17 55	763	707
	764	708
	767	712
	<u>770</u>	<u>713</u>
	331	43
	46.7662	52.7086

244 4' 10"	46.7565	52.094
64 17 55	.7565	097
	.755	097
	.750	002
	<u>.756</u>	<u>096</u>
	2840	486
	46.7568	52.0972

234° 4' 25"	46.7810	51.240
54 18 10	.782	243
	.782	245
	.7885	243
	<u>.779</u>	<u>243</u>
	4030	14
	46.7806	51.2428

224 4' 25"	46.777	50.1535
44 18 0"	.780	159
	.7805	156
	.778	155
	<u>.7785</u>	<u>1585</u>
	3940	320
	46.7788	50.164

April 18 1870

214° 4' 20"

34° 17' 50"

46.7695-

7675-

773

7725-

771

3535-

46.7707

48.858

853

860

857

857

285-

48.57

204° 3' 55"

24 18' 5"

46.798

7895-

7875-

788

783

4460

46.7892

47.3425-

355-

352

3445-

3490

2430

743486

44° 4' 5"

2 24 18 20

46.809

.8085-

.806

.809

.808

405-

46.8081

Sput
very dark

44° 4' 5"

224 18 20

sexu

X 58.9505-

.9535- .955-

B 48.526

.524 .524

was not a

A 58.9535-

.953

B 48.523

.525-

Faint spots

X 58.740

B 48.084

Sput B i?

52 139

59 1495-

1355-

144 .1325- .1340 135-

149 .1480 .1455- 1445-

shot a

157.758 .758 .764 .764 .771
 B54 908 903 .904 .903 .908

h

157.398 403 .407
 B55.497 503 502

f

52.645 .675 682 687 .682
 60.834 .835 830 828.8285

72)

April 19 1870

Photograph No 72 15 3 47.0

E. P. X

Spirited revision

correcting the plate

.220°	61.5623	61.8225-	5923	5870
	56.7615-	56.871-	8190	7990

accurately contrast A 61.5895 =
B 56.8090

April 19

Cusps

A 341° 59' 10"

71.593

.598

.591

.599

.589

470

71.594

102°

102° 28' 40"

71.552

.551

.545-

.558

.552

258

71.552

~~162 43 25~~

42 13 55

angle between cusps

120° 29' 30"

60 14 45

42 14

60

352° 0' 0"

02

60 15

162 44

62.178

.179

.176

.181

.171

332°

71.594

67.382

.595

.370

601

.377

.591

382

.585407

2966

1918

71.593

67.384

322

71.564

.583

.573

.573

.571

364

71.573

∞

312°

71.566

.574

.573

.568

.571

358

.572

∞

302

71.538

.547

.535

.539

.534

193

71.539

April 19 1870

272	292 ⁰	71.547	60.224
		547	240
		540	211
		550	212
		546	198
		<u>230</u>	<u>1085</u>
		71.546	60.217

282	71.562	60.683
	.558	60.698
	.557	680
	.560	705
	<u>.565</u>	<u>687</u>
	302	3453
	71.560	60.691

272	71.545	60.866
	.549	.894
	.546	.897
	.543	.889
	<u>.546</u>	<u>.902</u>
	29	4442
	71.546	60.8896

262	71.532	61.007
	.545	.010
	.535	.022
	.541	.042
	<u>.546</u>	<u>.038</u>
	199	119
	71.540	61.024

252

71.547

.548

.548

.547

.548

38

71.5476

61.098

.097

.095

.098

.099

487

61.0974

242

71.548

.547

.545

.538

.539

217

71.5434

61.120

.121

.117

.116

.114

48

61.1176

232°

71.568

.570

.577

.560

.566

341

71.5662

61.136

.135

.129

.134

.137

31

61.1362

222°

71.596

.596

.591

.592

.594

19

71.5938

61.164

.162

.157

.162

.161

306

61.1612

~~212~~

212°

71.587

.590

.590

.591

.590

448

71.5896

61.157

.153

.151

.150

.158

259

61.1518

202°

71.604

.603

.605

.606

.613

31

71.6062

61.148

.135

.130

.136

.133

182

1364

192°

71.588

.585

.597

.592

.598

460

71.592

61.108

.104

.099

.099

.000

.510

61.102

182°

71.611

.611

.612

.607

.610

51

71.6102

61.062

.058

.057

.060

.054

291

61.0582

058

172

172

71.611

60.953

.618

.975

.603

.960

.607

.950

.604

.968

43

306

71.648

60.9612

162°

71.609

60.737

.609

729

.608

729

.604

725

.604

725

34

145

71.668

60.7290

152

71.614

60.246

.611

.253

.608

.258

.617

.256

.622

.253

7.2

261

71.144

60.2522

142

71.595

.595

.598

.593

.592

473

71.5946

April 19. 1870.

photograph No 72 15^h 3^m 47^s.0

132

71.578

 $\frac{0}{0} \infty$

.584

.583

.588

.582

415

.5830

122°

71.572

.576

.566

.568

.567

34.9

71.5698

 ∞

112°

71.563

.561

.582

.583

.579

36.8

71.5736

67.758

.789

.775

.782

.761

36.3

67.7726

busp

102° 26' 30"

342° 2'

239 36

119 48

220 14

Lower Level

71.604

56.808

April 29

Photostatic 71

E.P.B

Centering 61. 5925- 6022
56 8095- 8770

Center cut 61. 5912
56 8415-

61. 5925-	6022
56 8095-	8770
61. 5912	
56 8415-	
15 2'	51. 5680
14 58	.5910
14 57 30	.5860
14 55 20	.5830
14 54 0	.5780
24 46 50	4060
14 59 22	51. 5812

61. 5925-	6022
56 8095-	8770
61. 5912	
56 8415-	
15 2'	51. 5680
14 58	.5910
14 57 30	.5860
14 55 20	.5830
14 54 0	.5780
24 46 50	4060
14 59 22	51. 5812

Sum 072032

25°	51. 591	55. 5670
	.593	5810
	.582	5780
	.589	5800
	.592	5620
	447	3640
	51 5894	55. 5736

35°	51. 6000
	6000
	5960
	5950
	5980
	29890
	51 5978

45°

51. 6180

6200

6220

6170

6210

980

51. 6196

5-5°

51. 6210

6410

6340

6370

6360

1730

51. 6346

65°

51. 6470

6420

6450

648

640

220

51. 6444

62. 539

555-

560

547

5380

75°

51. 6380

6390

6390

6370

6340

1880

51. 6376

62. 221

219

220

216

218

94

622188

85-

85-

51.659

62.065-

.663

.066

.664

.065-

.667

.058

.659.066

32

.320

51.6624

62.0640

95-

51.634

61.9860

.630

.980

.633

.980

.635-

.986

.633.989

.15-

210

51.6330

61.942

105-

51.6130

61.9420

.613

.9400

.600

.9460

.608

.943

.609.947

.430

180

51.6086

61.9436

115-

51.598

61.9150

.599

41.919

.598

910-

.599

916

.598922

.42

870

51.5984

61.9174

125°

51.576
 .581
 .579
 .588
 .580

 40.4
 51.5808

61.906
 .907
 .907
 .911
 .912

 43
 61.9086

135°

51.581
 .583
 .585
 .583
 .585

 287
 51.5874

61.910
 .910
 .912
 .908
 .914

 14
 61.9108

145°

51.536
 .532
 .531
 .536
 .533

 18
 51.536

61.912
 .917
 .914
 .915
 .914

 22
 61.9144

155°

51.537
 .535
 .533
 .539
 .530

 22
 51.5344

61.919
 .922
 .923
 .923
 .928

 115
 61.9230

~~168~~

165-

J7.543

61.967

.539

.960

.542

.957

.544

.962

.536

.960

204306

J7.5408

61.9612

175-

J1.515

62.006

J17

62.000

J14

61.999

J19

62.005

J16

62.004

3118 0.14

J7.5162

62.0028

185-

J1.532

62.103

.528

.099

.534

.101

.532

.090

.530

.101

156494

J1.5312

62.0988

195-

J1.531

62.239

.529

.250

.530

.217

.531

.252

.531

.239

152197

J1.5304

62.2394

208⁰

51.508
 .512
 .507
 .520
.507
 54
 51.5708

62.727
 .760
 .760
 .754
.745
 246
 62.7492

215⁰

51.545
 .544
 .544
 .538
.538
 209
 51.5418

225⁰

51.538
 .541
 .538
 .550
.541
 209
 51.5416

235⁰

51.570
 .570
 .565
 .569
.564
 338
 51.5676

71

15^h 3 35.6

C

245^o

51.578

55.881

.575-

.871

.576

.868

.575-

.876

.575-

.868

-29

384

51.5758

55.8728

bush

25-3^h 41

51.597

25-3 45-

.593-

12

51.5924

These measures have been taken with the
 Collodion Side up - The preceding were taken
 with it down

April 22 1870

Photograph 7 13 38 34.8

E. P. A

Centred 615-98
56834

Lense

5° 11'

14

13

51. 545

. 533

. 545

123

~~51. 545~~

. 514

. 510

. 491

~~51. 545~~

51. 505-2

Lense

5° 20' 3"

2'

51 58

62°

51. 463

481

481

480

470

37 5-

51. 4750

72°

51. 496

. 497

. 505-

. 500

. 502

2500

51. 500

82

51. 480

. 485

. 480

. 487

483

15

4830

April 22 1870

Photograph No 7

92

51.496
.497
.497
.495-
.495-
00
51.4960

102

51.479
.478
.483
.490
.476
406
51.4812

112

51.488
.498
.498
.496
.490
470
4940

122

51.491
51.498
.489
.497
.495-
470
494

132

51.510
.507
.519
.513
.511
60
51.5120

April 22 1870

107

57.593

142

.485-

.490

.498

.501

2467

4934

152

57.517

.520

.516

.515-

.522

90

57.5180

162

.522

.535-

.528

.526

.526

137

57.5274

172

57.511

.516

.523

.520

.520

90

57.5180

182

57.536

.543

.538

.531

.528

176

57.5352

April 22

No. 7

192

51. 542

. 535

. 531

. 529

. 537

174

51. 5348

202

51. 525

. 542

. 531

. 535

. 525

158

51. 5316

212

57. 572

. 526

. 519

. 518

. 521

96

51. 5192

222

51. 520

. 524

. 518

. 525

. 528

145

5230

232

51. 529

. 529

. 532

. 530

. 536

158

51. 5312

April 22

No 7

242

57.549

.550

.548

.551

.554

252

51.5504

252

57.545

.546

.548

.547

.545

-28

51.5456

262

57.540

.540

.546

.541

.540

-7

51.5414

272

57.562

.556

.552

.562

.560

292

51.5584

282

57.541

.542

.545

.545

.545

18

51.5436

April 22

292

51. 5-5-5-
5-46
5-50
5-59
5-51
251
51. 5-522

302

51. 5-5-2
5-54
5-51
5-55
5-54
-16
51. 5-532

312

51. 5-25-
5-35-
5-36
5-38
5-32
-166
51. 5332

322

51. 5-24
5-23
5-22
5-21
5-18
108
51. 5216

332

51. 5-08
5-17
5-14
5-11-
5-15-
69
51. 5138

April 22

No 7

342

J1. J27

. J20

. J20

. J20

. J23

. J10

J1. J22

352

J1. J28

. J22

. J32

. J30

. J30

. J142

J1. J284

36 2

J1. J18

J1. J20

. J21

. J15-

. J14

88

J1. J176

Cusp

J10 J1
6'

J1. J28

. J24

1052

J1. J26

From

100

J2. 212

. 230

. 208

. 210

. 205-

65-

J2. 2130

April 22

No. 7

15°

52.685

.683

.684

.685

.677

.414

52.6828

20

52.962

.960

.958

.962

.958

.300

52.960

25

53.132

.118

.125

.120

.120

.115

53.1230

30

53.134

.125

.124

.127

.132

.142

53.284

35°

53.030

53.034

53.037

53.031

53.027

159.218

22

10.7

40°

52. 805

807

807

807

813

39

52. 8078

52. 434

45

425

431

438

434

162

52. 4324

50

57. 825

823

830

828

833

139

57. 8278

To Center the plate

split 38°

218

A 61. 699

56. 988

61. 502

56. 688.

61. 600

56. 838

232 5
 183 29
 48 36
 24 18
 207 47



April 26

Since last measured the illuminating mirror
has been changed by Clark

Center 61.475 - 61.698
53.681 53.649 Center at 61.586
53.639

Photograph No. 8

lens 23° 2' 5"
31.58
32 11

51.490
.493
.484
267
51.489

very irregular edge

lens 183 31
28
27

51.508
508
510
26

231 58
183 28
48 30
24 15
183 28
207 43

242

51.5087
51.532
.523
.523
.526
.531
135
51.527

252

51.512
511
.514
.515
.508
60
51.512

April 26

No. 8

262

57.576
 $.575$
 $.520$
 $.514$
 $.515$

 80
 57.576

272

51.488
 $.492$
 $.494$
 $.487$
 $.490$

 451
 51.4902

282

51.486
 $.480$
 $.483$
 $.482$
 $.490$

 426
 51.4812

page 2

282 6'

51.523
 $.517$
 $.517$
 $.618$

 512
 $.87$
 51.5174

April 26

No 8

292

51.515

.513

.521

.517

.526

92

51.5184

302

51.497

.487

.492

.489

.492

487

51.4914

312

51.491

.488

.484

.486

.485

434

51.4868

322

51.492

.491

.493

.491

.492

9

51.4918

April 26

No. 8

332

$$\begin{array}{r}
 51.494 \\
 .499 \\
 .501 \\
 .497 \\
 \hline
 .497 \\
 2488 \\
 51.494
 \end{array}$$

342

$$\begin{array}{r}
 51.508 \\
 .513 \\
 .505 \\
 .512 \\
 \hline
 .509 \\
 47 \\
 51.5094
 \end{array}$$

352

$$\begin{array}{r}
 51.497 \\
 .497 \\
 .493 \\
 .496 \\
 \hline
 .496 \\
 -29 \\
 51.4958
 \end{array}$$

362

$$\begin{array}{r}
 51.507 \\
 .502 \\
 .508 \\
 .503 \\
 \hline
 .500 \\
 20 \\
 51.5040
 \end{array}$$

108

12

50.500

.493

.488

.501

.490

2472

51.4944

22

51.491

.494

.490

.488

.493

366

51.4732

32

51.483

.488

.484

.491

.484

430

51.4860

42

51.489

.487

.491

.490

.480

-437

51.4874

Photographs of Eclipses

Missouri

50.880

71.004

20.124 = approximate diameter of image

52

51.484

.488

.485-

.487

.486

-30

51.4860

62

51.479

.475-

.477

.472

.478

-31

51.4762

rough

72

51.465-

.461

.465-

.464

.462

-17

51.4634

82

51.487

.488

.482

.489

.489

-31

51.4870

April 26

No 8

92

$$\begin{array}{r}
 51.480 \\
 .473 \\
 .476 \\
 .478 \\
 .479 \\
 \hline
 .386 \\
 51.4772
 \end{array}$$

102

$$\begin{array}{r}
 51.493 \\
 .496 \\
 .498 \\
 .500 \\
 .493 \\
 \hline
 .2480 \\
 51.496
 \end{array}$$

112

$$\begin{array}{r}
 51.497 \\
 .501 \\
 .499 \\
 .503 \\
 .501 \\
 \hline
 .2501 \\
 51.5002
 \end{array}$$

122

$$\begin{array}{r}
 51.497 \\
 .498 \\
 .502 \\
 .497 \\
 .498 \\
 \hline
 .2492 \\
 51.4984
 \end{array}$$

April 26

no 8-

132

51.499

.499

.503

.501

.500

21.02

51.5004

142

51.510

.510

.509

.514

.516

.59

51.5118

152

51.510

.507

.510

.513

.511

.51

51.5102

162

51.507

.515

.513

.510

.514

.59

51.5118

172

51.503

.498

.499

.498

.498

24.96

51.4992

April 26

108

182

17-528

1523

1522

1524

1526

23

51.5246

in a hollow

lens

183.29

183.21

50.504

503

1003

51.0015

187

52.044

.049

.046

.053

.046

238

52.0476

192

52.587

.594

.587

.585

.590

443

52.5886

197

52.936

.936

.933

.934

.936

25

52.9350

April 26

208

$$\begin{array}{r}
 53.139 \\
 .137 \\
 .137 \\
 .135 \\
 \hline
 .137 \\
 -35 \\
 \hline
 \end{array}$$

53.7370

207

$$\begin{array}{r}
 53.207 \\
 .207 \\
 .210 \\
 .206 \\
 .209 \\
 .208 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 47 \\
 51.2094
 \end{array}$$

212

$$\begin{array}{r}
 53.175 \\
 .172 \\
 .176 \\
 .174 \\
 .179 \\
 \hline
 26
 \end{array}$$

53.7252

217

$$\begin{array}{r}
 53.005 \\
 .005 \\
 .006 \\
 .005 \\
 .003 \\
 \hline
 034 \\
 53.0368
 \end{array}$$

April 26

No 8

222⁰

52.708

.703

.699

.698

1710

3518

52.7036

227

52.207

.209

.200

.215

.209

35-

52.2070

232

51.491

498

498

496

495

-28

51.4956

centering

0.1K

April 27

No 1

Cantoring

61.536	13.639
61.620	.662
<u>.578</u>	<u>.650</u>

40

Cantona at

61.565

53.645

0

51.491
.496
.492
.491
.491
<u>.481</u>
51.492

10

51.503
.501
.504
.502
.503
<u>.48</u>
51.5026

20

51.492
.489
.491
.484
.494
<u>.480</u>
51.490

30

51.495
.495
.495
.490
.490
<u>.485</u>
51.4930

April 27

No 1

40

51.499
 .499
 .493
 .492
.502
 2485
 51.497

90

51.477
 .484
 .485
 .482
 .481
2409
 51.4818

50

51.485
 .482
 .487
 .489
.484
 27
 51.4854

100

51.525
 .522
 .524
 .528
.525
 24
 51.5248

60

51.508
 .511
 .500
 .510
.508
 .37
 51.5074

110

51.514
 .511
 .509
 .515
.508
 .57
 51.5114

70

51.496
 .495
 .494
 .494
.493
 22
 51.4944

120

51.500
 .503
 .511
 .501
.508
 27
 51.5044

80

51.501
 .496
 .506
 .506
 .495
 2504
 51.5008

130

51.501
 .503
 .503
 .505
 .497
 2509
 51.5018

April 27

No. 1

140

51-491

.495

.492

.490

.506

2474

51.4948

190

51.485

.478

.480

.482

.481

.406

.4812

150

50.516

.509

.515

.507

.510

.517

50.5114

200

51.491

.489

.488

.492

.490

.450

51.490

160

51.515

.511

.511

.515

.510

.12

51.5124

210

51.472

.475

.476

.475

.470

.18

51.4736

170

51.523

.531

.525

.521

.530

.130

51.5260

220

51.483

.476

.483

.484

.482

.408

51.4816

180

51.482

.482

.481

.479

.477

.400

51.480

230

51.471

.473

.475

.472

.476

.17

51.4734

April 27

No. 1

240

51. 464
 . 457
 . 464
 . 463
 . 467
315
 51. 463

290

51. 484
 . 491
 . 485
 . 490
 . 487
437
 51. 4874

250

51. 479
 51. 480
 . 478
 . 480
 . 481
398
 51. 4796

300

51. 497
 . 495
 . 497
 . 496
 . 498
33
 51. 4966

260

51. 468
 . 471
 . 465
 . 469
 . 471
344
 51. 4688

310

51. 503
 . 502
 . 509
 . 501
17
 51. 5034

270

51. 475
 . 476
 . 475
 . 482
 . 480
388
 51. 4776

320

51. 499
 . 503
 . 504
 . 504
 . 506
2516
 51. 5032

280

51. 490
 . 497
 . 494
 . 497
 . 495
23
 51. 4946

330

51. 503
 . 495
 . 496
 . 503
 . 502
2499
 51. 4999

April 27

No. 1

340

51. 513

. 516

. 515-

. 513

. 515

22

51. 5144

350

51. 505-

. 508

. 507

. 503

. 505-

28

51. 5056

00

51. 495

. 499

. 495-

. 501

. 499

2487

51. 4977

266.° 48'

51. 972

. 991

. 1983

11 481

262.14

51. 836

X¹⁰

Sept

Sept

Sept 14

April 27th ~~28th~~

Do 20

Center

61.607

53.657

cusp

78° 11'

16'

13'

40

78 13 20

51.523

.527

523

13

51.52433

cusp

180 39'

39

39

27

180 39

51.535-

.534

.540

.109

51.536

Spd f

288.24

288 32

288 22

78

26

52.144

52.141

52.136

121

52.1403

apert

73 7

73 5

73 12

54.834

.816

.827

77

54.8256

May April

28 1870

W 0 20

13 55 31.6

E. P. A

enap

180° 40'

51.536

220°

51.540

180° 42'

.547

.543

34'

.550

.540

.541

~~180°~~ 46'

.541

.543

174

7

51.5348

51.5414

190°

51.518

230°

51.548

.522

.549

.519

.544

.525

.545

.520

.547

104

33

51.5208

51.5466

200°

51.538

240°

51.543

.535

.548

.538

.544

.531

.545

.531

.549

23

29

51.5348

51.5458

210°

51.533

250°

51.543

.543

.542

.543

.538

.541

.549

.537

.541

197

213

51.5394

51.5426

April 28 1870

260°

51.539
.539
.541
.538
.540
197
51.5394

300°

51.547
.547
.545
.551
.546
236
51.5472

270°

51.546
.546
.556
.550
.550
248
51.5496

310°

51.539
.540
.539
.540
.542
200
51.540

280°

51.550
.551
.551
.552
.555
9
51.5518

320°

51.532
.536
.537
.536
.535
26
51.5322

290°

51.540
.548
.552
.545
.546
731
51.5462

330°

51.534
.530
.533
.532
.532
11
51.5322

April 28 1870

340°

51.529
 .528
 .528
 .530
.533
 148
 51.5296

20°

51.525
 .530
 .524
 .524
.526
~~.531~~
 129
 51.5258

350°

51.530
 .528
 .527
 .532
 .528
145
 51.5290

30°

51.531
 .543
 .532
 .537
.537
 179
 51.5358

360°

51.530
 .528
 .526
 .529
.528
 141
 51.5282

40°

51.522
 .523
 .521
 .527
.525
 12
 51.5224

(370°) 10°

51.525
 .526
 .528
 .534
.531
 144
 51.5288

50°

51.508
 .514
 .515
 .520
.517
 74
 51.5148

April 28 1870

60°

51.501
.502
.509
.511
.504

27
51.5054

90°

57.520
.527
.507
.510
.509
73
57.5146

70°

51.482
.486
.491
.489
.491

439
51.4878

100°

58.174
.183
.182
.174
.169
382
58.1764

cusp

78° 39'
10'
20'

51.493
.507
.527

1527
51.509

110°

58.560
.561
.565
.563
.555
304
58.5668

80°

55.561
.575
.570
.574
.545
325
55.5650

120°

58.741
.742
.700
.741
.740
191
58.739

April 28 1870

20

C.P.X

130°

58.763

.772

.772

.770

.775

382

58.7704

170°

57.402

.405

.401

.410

.411

29

57.458

140°

58.735

.727

.720

.721

.727

130

58.726

180°

55.190

.218

.224

.227

.208

1047

55.2094

Spot near edge of limb

150°

58.533

.528

.529

.538

.524

152

58.5304

288° 30'

52.144

288° 34'

.138

282

52.141

160°

58.137

.138

.150

.145

.157

217

58.434

Large spot

73° 9'

73° 30'

54.823

.819

1642

54.821

April

28

1870

No 75-

A. Seale observer

enap

194 5-1

194 5-2

194 47

194 47

194 50

247

194 49

enap

295 15-

295 15

295 12

295 0

295 4

36

72

305-

315-

325-

51.657

646

643

650

649

51.649

51.555-

531

543

51.542

527

198

51.5396

51.516

521

524

533

527

121

51.5242

51.530

525-

528

521

530

134

51.5268

51.540

530

533

536

533

172

51.5344

335-

345-

355-

5-

15-

51.543

548

545-

538

535-

209

51.5418

51.532

547

540

547

542

208

51.5416

51.513

521

521

528

526

109

51.5218

51.529

538

531

538

540

176

51.5352

51.536

529

525

538

541

169

51.5338

April

28

1870

250

51.491
 .500
 .505
 .512
 .500
 25.08
 51.5016

75

51.464
 .454
 .486
 .464
 .464
 332
 51.4604

35

51.503
 .502
 .506
 .511
 .500
 22
 51.5044

85

51.491
 .500
 .502
 .499
 .490
 2482
 51.4996

45

51.508
 .521
 .518
 .512
 .514
 73
 51.5146

95

51.480
 .479
 .483
 .476
 .488
 386
 51.477

55

51.507
 .507
 .499
 .518
 .503
 25.34
 51.5068

105

51.496
 .510
 .510
 .491
 .504
 25.11
 51.502

65

51.476
 .485
 .473
 .495
 .474
 403
 51.4808

115

51.494
 .486
 .490
 .494
 .487
 451
 51.4902

125-

51.528
 .523
 .515
 530
 .520

 176
 51.5232

135-

51.556
 .551
 560
 .563
 .557

 287
 51.5574

145-

51.551
 .551
 .553
 553
 553

 201
 51.5522

155-

51.570
 .580
 578
 .565
 .571

 364
 51.5728

165-

51.576
 581
 578
 578
 581

 394
 5788

175-

51.590
 591
 595
 598
 582

 456
 51.5912

185-

51.627
 .625
 623
 .640
 632

 147
 51.6294

on) limb
195-

53.847
 .908
 .846
 .885
 .890

 4576
 53.8752

205-

56.927
 .924
 .925
 .928
 .930

 134
 56.9268

215-

57.792
 .786
 .781
 .781
 .778

 418
 57.7856

April 28 1870

No 75

A. Seale observer

2250

58.197
 .203
 .197
 202
 .207

 1006
 58.2012

275

57.818
 800
 .809
 809
 805

 41
 57.8082

235

58.394
 .393
 391
 .389

 .393
 400
 58.3920

285

56.966
 .974
 967
 .967

 .970
 384
 56.9688

245

58.460
 .448
 458
 453

 456
 277
 58.4554

295

54.091
 .083
 .052
 108

 .068
 402
 54.0804

255

~~58.357~~
 .378
 .374
 .371
 369

 371
 363
 58.3726

Large spot

9° 2 54.789
 8 54 54.792

 17 56 15.81
 8 58 54.790

265

58.189
 189
 182
 .184

 176
 420
 58.180

Centro
 61.598 a
 53640 b

April 29

76

Observer

E. P. Austin

Center

61.605-

53. ~~838~~ 623

228

51.586

.591

.594

.589

.596

45.6

51.5912

Cush

95 17

51.562

95 17

.567

16

.566

.563

51.514

.524

.514

.52

51.5704

Cush

188

188. 7

188.

92.50

46.25

95.17

141.42

198

51.556

238

51.598

.599

.597

.598

.596

48.8

51.5976

95 17

188 2

92.45

46.22

141.39

95 17

188 2

92.45

46.22

141.39

.551

.553

.555

.548

.263

51.5526

208

51.567

248

51.619

.622

.624

.627

.625

117

51.6232

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

.564

218

51.572

258

51.636

.636

.632

.631

.633

18

51.6336

.578

.571

.574

.570

15

51.573

April 29

No 75

2. P. A

268

51.632
 $.632$
 $.633$
 $.640$
 $.634$

 174
 51.635

318

51.608
 $.608$
 $.615$
 $.612$
 $.601$

 42
 51.6084

278

51.839
 $.649$
 $.653$
 $.655$
 $.651$
 $.656$

 264
 51.6528

328

51.590
 $.588$
 $.592$
 $.585$
 $.591$

 446
 51.892

288

51.632
 $.638$
 $.633$
 $.635$
 $.641$

 179
 51.6358

338

51.581
 $.583$
 $.564$
 $.563$
 $.572$

 323
 51.1846

298

51.595
 $.602$
 $.594$
 $.597$
 $.598$

 2986
 51.5972

348

51.552
 $.547$
 $.545$
 $.554$
 $.545$

 243
 51.5486

308

51.621
 $.623$
 $.622$
 $.631$
 $.615$

 112
 51.6224

358

$.518$
 $.524$
 $.526$
 $.521$
 $.523$

 112
 51.5224

April 29

No 76- E. P. A

368

$$\begin{array}{r}
 51.548 \\
 535 \\
 550 \\
 536 \\
 531 \\
 \hline
 200 \\
 51.540
 \end{array}$$

48

$$\begin{array}{r}
 51.525 \\
 529 \\
 526 \\
 528 \\
 532 \\
 \hline
 140 \\
 51.5280
 \end{array}$$

18

$$\begin{array}{r}
 51.546 \\
 543 \\
 553 \\
 540 \\
 540 \\
 \hline
 222 \\
 51.544
 \end{array}$$

58

$$\begin{array}{r}
 51.547 \\
 559 \\
 552 \\
 552 \\
 549 \\
 \hline
 259 \\
 51.5518
 \end{array}$$

28

$$\begin{array}{r}
 51.532 \\
 536 \\
 537 \\
 536 \\
 537 \\
 \hline
 28 \\
 51.5356
 \end{array}$$

68

$$\begin{array}{r}
 51.556 \\
 554 \\
 560 \\
 555 \\
 559 \\
 \hline
 284 \\
 51.5568
 \end{array}$$

38

$$\begin{array}{r}
 51.540 \\
 540 \\
 545 \\
 548 \\
 535 \\
 \hline
 208 \\
 51.5416
 \end{array}$$

78

$$\begin{array}{r}
 51.572 \\
 572 \\
 575 \\
 572 \\
 569 \\
 \hline
 360 \\
 51.5720
 \end{array}$$

April

29

No 76

E. P. 8

88

11.559

.558

.568

.567

.570

.322

11.5644

128

57.449

.452

.447

.447

.445

240

57.448

98

54.312

314

316

301

310

.53

54.3106

138

57.582

.584

.579

.585

.583

413

57.5826

108

56.289

.302

.300

.297

.298

.1486

56.32972

148

57.558

.558

.552

.553

.550

21

57.5542

118

57.095

.086

.090

.089

.085

.435

57.087

158

57.332

.331

.328

.336

.328

155

57.331

168

56.906
 .899
 .897
 .898
 .905

 56.901

No 75- & 76
 are very black

178

55.978
 .983
 .971
 .976
 .974

 .382
 55.9764

Cusp

188 8
5-

51.529
 .530

 10.5-8
 51.529

Cusp

95- 15
13

51.172
 .590

 16.2
 51.15-81

Spot large

265° 47'

265-050

265 47

265 43

88

272 27

54 874
 .881
 .871

 22.6
 54.8753
 51.588

 6.713

Center

51.588

53 650

The preceding measures were made with the lower screw
 out of the center at 53.623

May 2

No ~~7500~~ 65-

E. P. A.

Centre on moon

Centre at 61.55-6 5-65-
53.618 615-

Cush

135-0 5-4' 51.001

135-55' .001

5-8' .002

131-58.5- 51.001

35-3° 27' 50.992

28 .997

27 .999

31-3.27.3 18

50.996

23

48.707

51.013

.709 .049

.708 .046

.706 .043

.712 .050

.42 241

48.7084 51.048

33

48.105-

51.031

.103 .038

.101 .036

.106 .036

.101 .035-

.18 20

48.1032 51.032

3°

50.221

51.037

224 .040

218 .036

223 .036

217 .039

103 .188

50.2515- 51.0376

43°

47.640

51.017

.638 .019

.633 .018

.640 .021

.636 .020

.187 45-

47.6374 51.019

13°

49.413

51.047

.416 .051

.412 .050

.417 .052

.418 .050

26 250

49.4152 51.050

5-3

47.329

51.024

.330 .024

.330 .026

.327 .020

.331 .013

.147 107

47.3294 51.0214

Peak of mountain

50.996

992

995-

50.9926

Sub^o at

	⊙	☾		⊙	☾
63°	47.165	50.017	113	49.176	51.012
	.178	.021		.174	.009
	.167	.020		.165	.011
	.174	.022		.171	.013
	.170	.020		.171	.011
	<u>384</u>	<u>100</u>		<u>357</u>	<u>51.016</u>
	47.1708	51.020		49.1714	51.0112

73	47.227	50.997	123	49.930	51.040
	.223	51.000		.934	.041
	.222	51.003		.930	.038
	.226	.998		.933	.036
	.225	.999		.929	.040
	<u>23</u>	<u>4997</u>		<u>156</u>	<u>195</u>
	47.2246	50.9994		49.9312	51.0390

83	47.467	50.998	133	50.752	51.019
	.467	50.998		.753	.021
	.468	51.000		.755	.021
	.465	50.998		.753	.025
	.469	51.000		.748	.019
	<u>36</u>	<u>4994</u>		<u>261</u>	<u>4096</u>
	47.4672	50.9989		50.7522	51.0192

93	47.907	50.992	encl.	135-57	51.006
⊙ out prod on	.907	.991		135-57	.004
account of	.910	.984			<u>51.005</u>
defect in glass	.909	.989		353 27	51.002
	.908	.990		28	50.994
	<u>41</u>	<u>446</u>			<u>1996</u>
	47.9082	50.9892			50.998

103	48.462	51.001			
	.460	.999			
	.458	.999			
	.461	51.000			
	.458	.999			
	<u>297</u>	<u>4998</u>			
	48.4594	50.9996			

May 4 1870

No 3

arrived at

61.647
53.656

afterwards against focus

0

51.588

40

51.594

582

.590

581

.592

598

.592

581

.596

10

51.590

50

51.600

.592

.604

.597

.602

.595

.601

.596

.607

20

51.595

60

51.604

.595

.597

.596

.598

.595

.605

.596

.605

30

51.586

70

51.600

.592

.599

.584

.610

.591

.610

.590

.600

80

51.588

130

51.598

.593

.602

.592

.598

.595

.598

.590

.598

90

51.619

140

51.567

.620

.572

.620

.572

.622

.566

.619

.567

.8

100

51.574

150

51.592

.570

.591

.580

.593

.580

.596

.584

.601

110

51.591

160

51.584

.589

.590

.594

.581

.597

.593

.584

.589

120

51.612

170

51.608

.601

.605

.610

.601

.607

.611

.607

.611

180

51. 555
 .556
 .561
 .560
 .561

230

51. 596
 .599
 .599
 .603
 .600

190

51. 573
 .570
 .570
 .570
 .577

240

51. 552
 .555
 .555
 .553
 .558

200

51. 578
 .576
 .580
 .576
 .576

250

51. 602
 .600
 .612
 .606
 .616

210

51. 583
 .586
 .586
 .587
 .586

260

51. 612
 612
 613
 612
 618

220

51. 568
 .572
 .570
 .569
 .573

270

51. 609
 .617
 .618
 .621
 .618

280

51. 634

330

51. 608

. 640

. 604

. 633

. 606

. 636

. 600

. 638

. 611

290

51. 615

340

51. 594

. 623

. 593

. 622

. 597

. 624

. 602

. 624

. 599

300

51. 629

350

51. 605

. 639

. 605

. 637

. 610

. 638

. 607

. 633

. 611

310

51. 626

Start

61. 679

. 620

Continue

53. 666

. 625

. 622

. 621

no shot visible

the measures
were made

picture very poor

with low beam
at 53. 656

320

51. 623

. 621

. 632

. 622

. 621

May 5th 1890

68 P

Observer

No 5

13 33 57.3

190

57. 571

Centre 61. 65.4 Breads 53. 640

53. 65.2

574

580

573

573

574

cusp

134 57

51. 636

135 1

.630

135 16

.628

134 58

633

135 21

631

200

57. 571

580

572

577

577

cusp

121 50

51. 683

121 38

.689

121 41

692

121 13

689

121 49

685

210

57. 552

551

550

551

551

on moon

130

51. 772

160

51. 594

220

51. 572

773

593

570

771

594

578

769

593

573

770

600

573

on Sun

140

51. 646

170

51. 592

230

51. 588

645

593

585

643

591

592

644

591

584

645

594

592

240

51. 594

604

592

601

597

150

57. 617

180

51. 572

616

580

619

586

621

582

617

581

May 5-0 1870

250

51.591
586
588
589
585-

310

51.572
575
573
572
574

10

51.529
537
530
530
531

260

51.584
586
585-
584
588

320

51.553
551
553
552
556

20

51.549
545
545
543
549

270

51.613
617
619
614
608

330

51.544
544
545
543
546

30

51.561
561
560
557
559

280

~~51.614~~
51.607
609
612
609
608

340

51.538
541
540
542
538

40

51.586
582
582
577
588

290

51.610
606
613
607
609

350

51.522
522
522
521
527

50

51.600
600
594
598
593

300

51.581
581
584
581
586

0

51.522
518
527
523
525

60

51.600
600
604
607
600

+28.37

~~76~~
70

57. 633 130 51. 773
 641 771
 633 773
 634 773
 635-

80

57. 633
 631
 632
 633
 633

Spot near
limb

2.86. 18
 286 21

52. 211
 218

90

57. 642
 642
 643
 640
 644

Large spot

70. 26
 70 20

54. 869
 .863

100

57. 659
 661
 655
 658
 657

110

57. 665
 669
 668
 662
 663

120

~~122~~

57. 671
 672
 670
 673
 673

EPA 08 Nov

Cusp

121° 47

121° 22

121° 88

51.697

684

698

170°

51.604

04

08

03

.11

Other

180

51.592

599

594

596

596

Other cusp

135° 27

135° 22

135° 23

51.634

641

632

190

51.576

570

580

578

576

576

130

moon

51.790

781

781

785

785

140

200

51.652

47

51

54

57

51.889

584

587

589

581

150

210

51.634

33

31

31

30

51.564

67

68

70

64

160

220

51.644

19

13

16

20

51.588

83

85

80

86

230

51.592
87
89
96
93

290

51.610
08
11
07
00

240

51.607
03
03
01
06

300

51.586
86
83
93
81

250

51.589
93
83
90
88

310

51.585
80
81
91
84

260

51.570
99
94
80
79

320

51.557
52
51
58
53

270

51.619
21
19
18
17

330

51.537
543
539
538
541

mahole

340

51.541
48
42
43
46

280

51.613
13
07
09
04

350 51.531
526
533
538
523

0° 51.534
530
537
538
531

10° 51.521
527
530
529
523

20 51.550
546
549
548
552

30 51.568
571
568
572
568

40 51.578
75
76
75
67

50 51.585
884
87
86
90

60 51.596
592
588
588
590

70 51.630
631
630
630
637

80 51.617
626
626
627
627

90 51.609
627
626
609
636

100 51.650
644
649
648
645

116	51.656 655 656 657 659	248	51.598 Inside 531 585	Outside 51.531 .541
		249	51.588 .588	51.572 .588
120	51.662 664 667 665 664	250	51.593 .587	51.530 .521
		251	51.590 .594	51.524 .523
130	51.780 775 780 777 780	252	51.601 .604	51.521 .525
		centre	61 664 53 668	
10' Cuof 135° 00' 135 16 +2	51.649 634			
2' Cuof 120 50 121 00	51.678 671			
Spot on edge 286 16 286 20	52.190 202			
Great spot 170° 20' 13	54.939 .943			

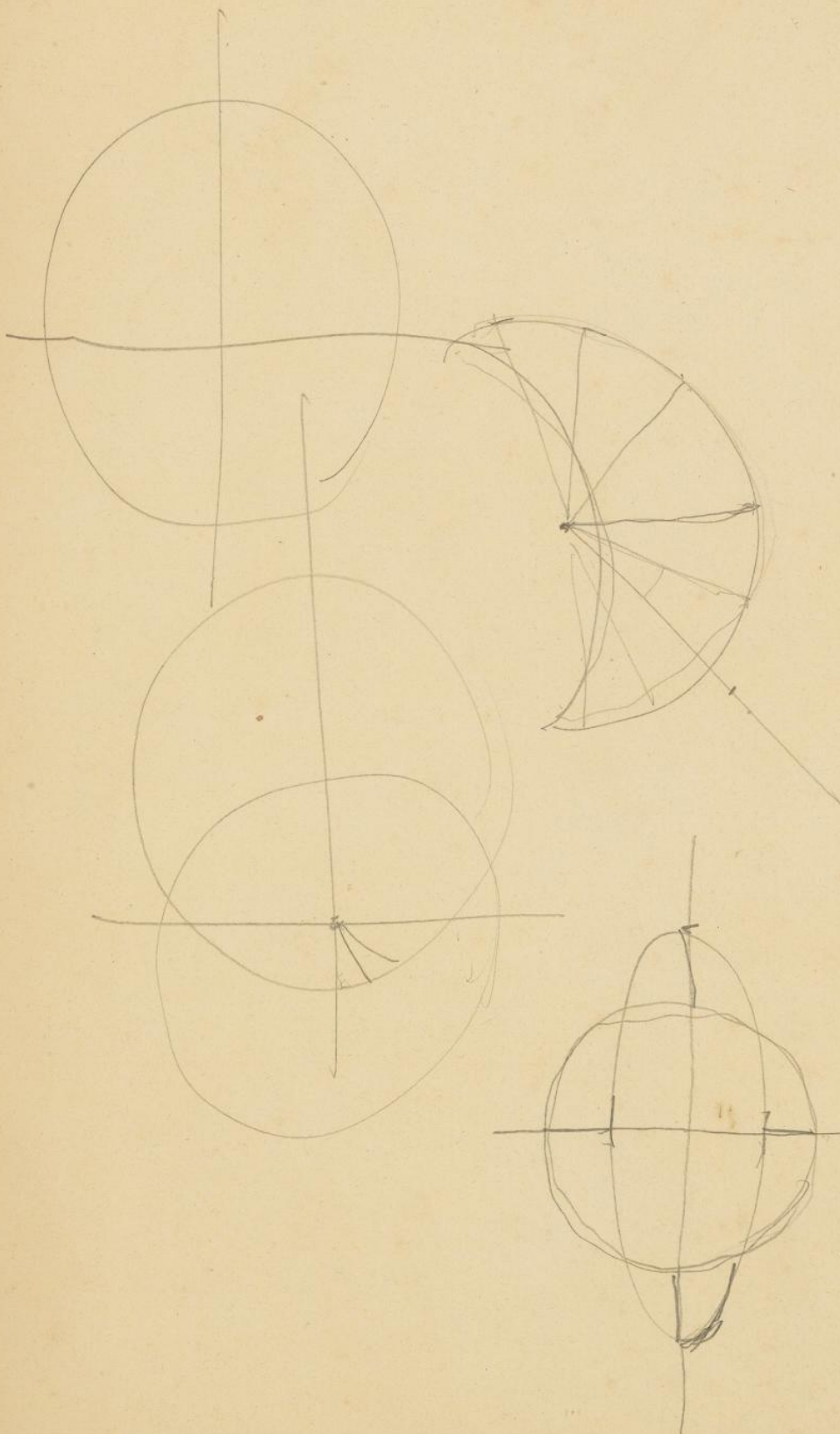
$$\begin{array}{r} 128 \ 84 \\ 70 \ 14 \\ \hline 58 \ 20 \end{array}$$

$$\begin{array}{r} 286 \ 18 \\ 128 \ 37 \\ \hline 157 \ 41 \\ 295 \ 35 \\ \hline 493 \ 16 \end{array}$$

$$y = aA + bB + cC + \dots$$

$y = \text{radius vector}$

$$= a + b \cos 2\theta + c \sin 2\theta + d \cos \theta + e \sin \theta$$



1870phat-proj-3263