

KG
11366
v.653

Chronograph Record.
From 1879 June 8 to 1880 Jan 2
A2

Charles W. Sever, University Bookstore, Cambridge.

221

70 8 9 10 11

Aug 8 1879
W. A. Roes.

W ₁ =	14 45	to	16 42
2 =	11 53	to	14 58
3 =	11 7	to	15 18
4 =	22 56	to	0 57
5 =	0 58	to	2 58

Got the volume 1 rev. of the Colli-
mate seen from observations of
Polaris at 1 rev. 46.73, 47.73
48.73. By the last revolution or cir-
cle will not work to 48.73 rev. without
cranking.

Jan 5th

Continued in investigation of error
of Meridian Circle Page 2 to
Page in investigation on page 15
to investigation of Circle.

[Copy from p 15]

June 9 1879

H. R. L. S.

W. = 4^h 50^m to 5^h 45^m
 2 = 14 45 to 16 00

Evening Circle
 even of quadrant-points

June 10 1879

Thermometers removed from
 the window of the east-circle
 room to the west-hall-room
 north-east-window.

Change made at 3^h 8. P.

Oiled pivots cleaned friction rollers
 with kerosene took off the rubber caps
 from the cone to prevent-spring of the
 telescope.

Evening Circle page 24 & 2

June 12 1879

W. R. Owen,

Rev = $0^h 39^m$ to $1^h 41^m$

June 13¹² 1879

W. R. Oles

W. R. =

5-19 to 6-39

June 16 1879

W. H. Roes-

No. 1 =
2 =

Put the cover on north declination

Adjusted microscope for illumination of $2^{\circ} 3'$

Error of Circle page 40 to
Recapitulation of results page 42 & 2

June 17 1879
 H. A. Pohn.

hor =	3 ^h 22 ^m to	7 ^h 22 ^m
2 =	12 41	14 56
3 =	14 58	15 59
4 =	0 46	1 41
5 =	1 43	2 9
6 =	2 20	4 6

Ensa y Cuicla p. 52 A2

June 18 1879.

W. R. v. l. s.

No 1 =

12^h 17^m to 14^h 34^m

2 =

14 37 " 15 49

3 =

15 54 " 1 00

4 =

2 8 " 3 23

Errors of Area p. 60 A₂

June 19 1879
 W. H. Rollis

No 1 =	5 ^h 34 ^m 0 ^s	5 ^h 57 ^m
2 =	12 32 "	14 46
3 =	14 48 "	15 46
4 =	23 52 "	1 39
5 =	1 43 "	3 22

Ernst y Cicee p. 63 A2

June 20 1879

W. R. Oliver

Nov =

2 =

h ~ h ~
5 45 to 6 34

12 17 to 13 21

Jan 21 1879
 N+R. obs.

Nov = x

2 =

3 ~~4~~

h^m h^m
 13 20^m 15 46
 15 52 16 13
 0 20 11 20

June 22 1879

W. R. R. R.

W. R. R. R.	5	5	38	4	6	44
2 =	13	14	11	15	19	
3 =	15	21	11	15	47	
4 =	0	57	11	1	59	
5 =	2	49	11	3	37	

Jan 23 1879

Made the attempt to read
microscope ~~no~~ for 100 pointing
within 5 minutes.

Mr ~~W~~ did not see the head of
the screw during the entire operation
Mr. Mangle Waldo, doing the reading
and Mr. Dutton the recording.

The time of our sitting ^{was} 13 ^{min 5} 10
but fully one half of this time was occupied
in reading. The micrometer read
nearly 39.0 div. The actual recording
arranged as follows:

No. of Cores.	Reading	"
7	387	60.9
22	388	1936
20	389	1780
30	390	3700
12	391	1082
5	392	460
2	393	186
2	394	188
		38.94

Prob. err of single reading = $\pm 453 \sqrt{\frac{12.9}{100 \times 99}} = .105$

adm 23 1879

H. S. Robs.

	h -		h -	
101 =	5-56	57	12	
2 =	12 32	" 14	59	
3 =	15 5	" 16	10	
4 =	0 43	" 3		
5 =	3 6	" 5	35	

Enony Cuicee p. 66 Ar

Recapitulation of result p. 68-91 Ar
68-91

June 24 1879
H. R. Rohn.

W = 5^h 41^m to 6^h 53^m
 2 48 " 15 2
 3 42 " 16 42
 4 12 " 3 41

Found it feasible to use only the high power eye pieces on microscopes R & M. From this date the high power will be kept in position permanently. The order of reading between I. R. M. and purple will be the same as before.

June 25-1879

W. R. Cole.

Wt =

2 =

3 =

4 =

6^h 3^m to 7^h 32^m

13 1 " 15-4

15-18 " 46-30

0 54 " 2 8

June 26 1879

W₁ =

2 =

3 =

4 =

5 =

^h 46	^m 39	^h 15	^m 26
12	52	15	16
15	18	16	46
23	46	16	26
2	49	15	4 34

W. K. R. S.

June 30 1879

W. S. P. O. S.

W. S. =

2 =

3 =

4 =

5 =

Th 6^h 25^m to 7^h 43^m

12 45 " 15 7

15 10 " 17 17

0 54 " 3 20

3 29 " 6 57

1879. July 1

No 1 =	from 6	34	to 7	41
2 =	" 12	49	" 15	22
3 =	" 15	25	" 17	18
4 =	" 0	53	" 3	3
5 =	" 3	23	" 5	21

1879, July 2

N ^o 1 =	from	5	47	to	7	43
2 =	"	12	50	"	14	58
3 =	"	15	3	"	17	23
4 =	"	17	29	"	17	36
5 =	"	0	56	"	2	55

1879. July 3

11

1 =	from 6	37	to 7	43
2 =	" 13	28	" 15	25
3 =	" 15	29	" 16	34
4 =	" 0	52	" 2	58

After the observations of July 3
and before the sun July 4, mounted
the high power microscopes.
designated A and B.

A is set 15° from E towards
B and B 45° from E towards
A.

A and B being 30° apart, furnish
the measures of 12 align- parts of
a revolution. And A will furnish
measures of 24 align- parts of a
revolution and will also connect the dis-
tance from $E = 45^\circ$ to $E = 60^\circ$ with the 12
align- parts of revolution.
Adjusted E P G & H as usual.

1879 July 4

No 1 = from 6 21 to 6 59

1879. July 5

W. A. Rols.

$N_{11}^0 =$ from 12 ~~57~~ to 15 19
 $2 =$ 3 5

Gave up on account of bad seeing

July 6 1879

W. R. Rogers

$m_1 =$	6 50	to	h 7 ^m
$2 =$	12 51	to	15 16
$3 =$	15 20	"	15 54
$4 =$	0 58	"	2 30

After the observations of July 6
adjusted E. P. by H. and W.

Aug 8 1879
 W. R. R. R.

Nov =

2 =

3 =

4 =

to 14^h 4^m

16 18 " 17 17

3 — " 3 17

3 23 "

Errors of Circle p. 91 A₂

Aug 9 1879

W. R. Rols.

107 = 6 56 4 7 42
2 = 12 43 11 15 10

July 10 1879

~~W. R. Rols.~~
~~W. R. Rols.~~ goes on his vacation

107 =

2 =

3 =

4 =

353

Errors of circle p 107 &c
Recapitulation p 112 &c
W. R. Rols. goes on his vacation

Aug 10

Errors of circle p 128 &c
New scheme of observation

Aug 11

Errors of circle p 134 &c

Aug 12 1879

H. A. R. returning from his
vocation.

1	38-4	5:35 to 7:56
2 =	35 ~~6~~	From 8:58 to 10:14 ^m
3 =	35 ~~6~~	16 42 " 19 0
4 =	35 ~~7~~	4 16 " 5 9
5 =		

Error of ~~seeing~~ ^{seeing} p 143 & 2 Recapitulation p 161-2

Made the following changes
to the instrument before
observation of D on Aug 12,

- (a) Mr. Clark put large milled
heads on the micrometer screws.
- (b) Mr. Clark put a cap on eye
piece of telescope and fitted a
Cap for holding colored wedge
- (c) Mr. Clark fitted to the movable
microscope a slow motion for focusing
on the divisions of the circle

^d Took out tail piece and clamped
glass plate.

(A) Set microscope E. R. by N.
so that R. by N. shall read a little more
than E for every position of the circle

(B) Set the vertical lines in the vertical
plane as near as the adjustment
will allow. Clamped key from
adjusted just now. The inclination
will now differ slightly from $5^{\circ} 0'$

1879. Aug. 13

W. A. R. obs.

No 1 = 358

2 = 359

3 = 360

From 9 23 to 10 34

16 48. " 19 5

19 11 " 19 33

1879. Aug. 14

W. A. R. Ls.

N^o 1 = 361

2 = 362

3 = 363

From 9 27 to 11 0

" 12 53 " 14 3

" 17 8 " 19 11

From 7 45 to 8 16 2 A₂

1879 Aug. 15

W. A. R. obs.

• $N_{11}^R = 364$

• $N_{11}^O = 365$

7 39 " 8 16

From 9 37 to 10 22

1879. Aug. 19

W. A. R. obs.

N ^o 1 = 366	From 9	33	to 11	10
2 = 367	" "	"	13	47
3 = 368	" 16	54	" 19	17
4 = 369	"	"	2	7

Adjusted microscopes A & B
about 9^h 30^m A.M.

Ensign service p179
p. 1 A3

1879. Aug. 20

W.A.R. obs.

		h	m		h	m
N ^o 1 = 370	From	9	44	to	11	7
2 = 371	"	10	5	"	14	47
3 = 372	"	16	34	"	19	3
4 = 373	"	3		"	5	12

Adjusted micrometer S & B
 over 9^h 50^m A.M. = 6^h sidereal time.

Evening of Circles p. 184 Ar

1879 Aug. 21

W. A. P. obs.

N^o 1 = 374 From 9 43 to 11 3
 2 = 375 17 37 " 19 35

Adjusted illumination for microscope
 E at 18^h 20^m.

Errors & Ovals p. 7 ~~at 3~~
 Recapitulation p. 13 ~~at 3~~

1879 Aug. 22

W.A.R. obs.

$N^{\circ} 1 = 376$ From 9 44 to 10 53
 $2 = 377$ " 13 8 to 15 9

From 7 Cicee p 14 Az

1879. Aug. 23

W. A. R. Obs.

No 1 = 378

2 = 379

3 = 380

From 17^h 18^m to 19^h 33^m

19 37 to 20 15

4 16 to 6 20

1879 Aug. 24

W.A.R. obs.

N ^o 1 = 381	From	9 ^h 4 ^m	to	10 ^h 58 ^m
2 = 382		18 36	to	20 0
3 = 383		0 58	to	3 3
4 = 384			to	6 10

Sept. 4

W.A.R. obs.

N ^o 1 = 385	From	to	10 17
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1879, Sept. 4.9 - 5-

Before beginning observations of
this date, set microscope at
and at 45° for E and C

Adjusted E & R by ~~W. B. B. B.~~
a new both for focus and for
pointing on the North Collimator

no. 1 = 386	From	10	^h 55	to	11	^h 36
2 = 387		12	38	"	15	5
3 = 388		15	10	"	16	29

Wrote of C. C. C. p. 11 113

After obs. of 9^h 21^m, readjusted
for parallelism wires.

1879. Sept. 6

W.A.R. 1/2.

No 1 = 389

2 = 390

3 = 391

From 12 51 to 13 46

" 17 54 " 20 "

0 47 to 1 25

1879, Sept 7

W.A.R. obs.

N^o 1 = 392

2 = 393

From 11 **Q** to 11 58

15 52 17 38

1879, Sept. 8

W.A.R. obs.

No 1 = 394	From 10 ^h 56 ^m to 12 ^h 9 ^m
2 = 395	13 8 to 15 33
3 = 396	15 44 to 17 53
4 = 397	17 59 to 20 18
5 = 398	to 3 35
6 = 399	3 46 to 4 5

Snow & Cicee p24 Az

1879, Sept. 9

N.A.R. obs.

No. 1 = 400 From $10^h 53^m$ to $12^h 4^m$

Error of twice p. 30 A3

Sept. 10

W.A.R. obs.

N ^o . 1 = 404	From	^h 11	^m 8	to	^h 12	^m 37.
2 = 405	"	12	47	"	13	38
3 = 406	"	4	28	"	6	22
4 = 407	"	7	17	"		

Ernst y. Grace p. 32 #7 A₃

Sept - 11

W.A. R. Obs.

N ^o 1 = 408	From	h m	h m
2 = 409	"	11 9	to 12 31
3 = 410	"	"	16 33
4 = 411	"	4 43	" 6 23
	"	7 18	" 9 13

Erring twice p. 34 AB

In adjusting microscope B
at 9h 23^m ST it is probable
that the position of the other microscopes
was disturbed.

1879. Sept. 12

W.A.R. obs.

N ^o 1 = 412	From	^h 11	^m 18	to	^h 13	^m 39
2 = 413	"			"	16	29

Mounting piece p. 38 A3

1879. Sept. 14

W.A.R. Ls.

No. 1 = 414	From	to 3 ^h 18 ^m
2 = 415	" 3 24	" 5 44
3 = 416	"	" 7 52

1879. Sept. 15

W.A.R. obs.

N ^o 1 = 417	From	to	h	m
2 = 418	" 14 59	" 15	40	50

Sept-15-1879

Error of twice
p 48

Obs

1879. Sept 16

W.A.R. obs.

N ^o 1=419	From	5 ^h	59 ^m	to	6 ^h	43 ^m
2=420	"	6	47	"	8	56

Error of twice p. 50 #3

1879, Sept. 17

W.A.R. obs.

N ^o 1=421	From	to 12 ^h 27 ^m
2=422	" 12 51	" 14 16
3=423	" 18 27	" 20 0
4=424	"	" 7 16
5=425	" 7 26	" 7 41

From of twice p. 58 A3

1879, Sept. 18

W.A.R. obs.

N^o. 1 = 426 From 11^h 37^m to 13^h 54^m

Group of lines p 68 A3

Sept. 19

W. A. R. obs.

N ^o 1 = 427	From	h	m	to	h	m
2 = 428	"	14	9	"	16	15
3 = 429	"	16	20	"	17	39

Enoury Cuccer p 70 AB

1879. Sept. 20

W. A. R. obs.

N^o. 1 = 430 From 19 ^h 22 ^m to 20 ^h 21 ^m
 2 - 431 " 5 7 " 7 20

Sept. 21

W. A. R. obs.

No. 1 = 432 From $12^{\text{h}} 0^{\text{m}}$ to $13^{\text{h}} 57^{\text{m}}$

Sept-22 ~~18~~

Error of bubble p. 78 AB

Value of 1 div of screw p 98 AB

The discussion of the chief observations are found in "B, Investigation of circle"

Sept. 23

W.A.R. Obs.

N ^o 1 = 433	From	h	m	to	h	m
2 = 434	"	12	8	"	13	10
3 = 435	"	17	20	"	19	33
4 = 436	"	19	37	"	20	22
	"			"	2	10

Sept. 24

W. A. R. obs.

N ^o . 1 = 437	From	11 ^h 59 ^m	to	13 ^h 25 ^m
2 = 438	"	"	"	7 24
3 = 439	"	"	"	8 22
4 = 440	"	"	"	11 35

Sept. 25

W.A.R. Obs.

No		From		to	
		h	m	h	m
1 =	441	12	6	13	35
2 =	442	"		17	39
3 =	443	19	14	20	12
4 =	444	5	29	"	
5 =	445	5	~~29~~	11	16

1879. Sept. 26

W.A.R. obs.

N ^o 1 = 446	From	h	m	to	h	m
2 = 447	"	12	7	"	13	36
3 = 448	"			"	16	38
	"	16	59	"	18	42

1879. Sept. 27

W.A.R. Ls.

N ^o 1=449	From	h	m	to	h	m
2=450	"	6	27	"	7	48

1879. Sept. 28

W.A.R. obs.

N ^o 1 = 451	From	h	m	to	h	m
2 = 452		12	27		13	29
		9	46	"	10	18

1879. Sept. 29

W. A. R. obs.

N ^o . 1 = 453	From	12 ^h 15 ^m	to	13 ^h 56 ^m
2 = 454	"		"	20 29
3 = 455	"		"	2 9
4 = 456	"		"	9 50
5 = 457	"		"	10 19

1879. Sept. 30

W.A. P. obs.

No. 1 = 458	From	h	m	to	h	m
		12	20		13	24
2 = 459	"	16	20	to	17	17
3 = 460	"	18	12	to	18	59
4 = 461	"	7	27	"	7	52
5 = 462	"	9	48	"	10	30

1879. Oct. 1

W.A.R. obs.

N ^o		From	^h	^m	to	^h	^m
1	= 463		12	25		13	40
2	= 464	"	16	6	"	16	55
3	= 465	"	16	58	"	17	48
4	= 466	"	7	6	"	8	6
5	= 467	"	9	36	"	10	18

1879. Oct. 2

W.A.R. obs.

N ^o 1=468	From	h	m	to	h	m
		12	26		13	39
2=469	"	15	3	"	17	17
3=470	"	17	21	"	19	10

1879. Oct. 3

W. A. R. obs.

N^o 1-471 From ^{h m} 12 33 to ^{h m} 13 38

1879, Oct. 4

W.A.R. obs

N ^o 1 = 472	From		to	14	25	J. F. M. obs
2 = 473	"	19	1	20	57	W.A.R. "
3 = 474	"	21	2	22	10	" "
4 = 475	"	6	40	8	18	" " "

Sent Frodsham chronometer
N^o 3451 to Bond & Son for cleaning
and lengthening the break

1879 ~~W.A.R.~~ obs. Oct. 5

W.A.R. obs.

		h	m	to	h	m
No. 1 = 476	From	12	36	to	14	19
2 = 477	"	17	17	to	19	11

1879. Oct. 7

W.A. R. Obs.

N ^o 1 = 478	From	h 12	m 49	to	h 14	m 47
2 = 479	"	16	15	"	17	58
3 = 480	"	18	2	"	19	22
4 = 481	"	20	22	"	22	11
5 = 482	"			"	7	37
6 = 483	"	7	43	to	9	47
7 = 484	"	9	51	"		

1879. Oct. 7-8

W.A.R. obs.

N ^o 1 = 485	From				λ	m
2 = 486	"				14	42
3 = 487	"	18	4	"	17	37
4 = 488	"	9	30	"	19	37
					10	46

1879 Oct. 12

W. A. R. Obs.

N ^o 1-489	From 19	11 to 20	47
2-490	" 20	52 " 22	9
3-491	" "	" 11	26

1879 Oct. 12 - 13

W. A. Robs.

N ^o 1=492	From	11	14	&		
2=493	"			&	14	42
3=494	"	19	36	"	21	58
4=495	"	22	1	"	22	17
5=496	"	6	14	"	8	7
6=497	"			"	11	31

1879. Oct. 13 - 14

W.A. R. obs.

N ^o 1 = 498	From	to 18	53
2 = 499		" 19	26
3 = 500	"	" 22	22
4 = 501	"	" 8	13
5 = 502	" 8	56	" 11 47

1879. Oct. 14 - 15

W. A. R. obs.

N ^o		From	^h 12	^m 56	to	^h 14	^m 15
1	= 503	"	17	52	"	20	52
2	= 504	"	20	56	"	23	10
3	= 505	"	23	57	"	0	57
4	= 506	"	1	2	"	1	34
5	= 507						

1879, Oct. 15-16

W. A. R. Obs.

N^o 1 = 508. From 13^h 0^m to 14^h 49^m

1879, Oct. 18

W. A. P. A. S.

N^o 1 = 509 From 19 58 to 21 42

Frodsham Chronometer N^o 3451
returned from Bond & Son after
cleaning and lengthening the break.

1879. Oct. 19

W. S. R. Obs.

N ^o 1= 510	From			to 18	51
2= 511	"	19	57	" 21	57
3= 512	"	22	9	" 0	17
4= 513	"	0	55	" 1	31
5= 514	"	9	29		

1879. Oct. 19-20

W. A. R. obs.

		h	m		h	m
No 1 = 515	From	12	59	To	14	50
2 = 516	"	15	25	"	15	52
3 = 517	"	21	3	"	22	17
4 = 518	"	9	56	"		
5 = 519	"			"	10	22
6 = 520	"	10	25	"	13	30

1879. Oct. 20- 21

W. A. R. Obs.

N ^o 1-521	From	^h 13	^m 35	to	^h 15	^m 42
2-522	"			"	20	1

Set chronometer 3851 38^{sec} fast.

1879. Oct. 22

W. A. R. obs.

		<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>
N ^o 1 = 523	From 11	53	to 13	46	

1879 Oct 23

W. A. R. obs.

			h	m		
N ^o 1	= 524	From 20	51	to		
2	= 525	"	"	"	11	34
3	= 526	"	11	37	"	13 41

1879. Oct. 24

p. f. m. obs. Polaris

			h	m		h	m
No. 1 = 526	From	12	41	to	15	2	

1879. Oct. ²⁵~~27~~

W.A.R. Obs

			h	m		h	m
N ^o 1 = 527	From	19	25	to	20	24	
2 = 528	"	23	53	"	1	32	
3 = 529	"			"	11	48	

1879. Oct. 25-26

W. A. Roberts.

			h	m		h	m
N ^o 1 = 530	From	12	46	to	15	3	
2 = 531	"	15	9	"	15	48	
3 = 532	"	21	8	"	23	8	
4 = 533		23	58	"	1	27	
5 = 534				"	10	25	
6 = 536							

1879 Oct. 26 - 27

W. A. R. obs.

			h	m		h	m
No. 536	From	12	56	to			
2 = 537	"	21	49	"	23	48	
3 = 538	"	23	3	"	1	14	

1879. Oct. 28

W. A. R. Obs.

No. 1-539 From 12 11. to 13 27

x

1879 Oct. 28 - 29

W. A. R. obs.

		h	m		h	m
N ^o 1 = 540	From	13	34	to	15	48
2 = 541		20	56	"	23	6
3 = 542		23	59	"	1	29?
4 = 543		10	31	"	11	34
5 = 544		11	42	"	13	56

1879 Oct. 29-30

W.A.R. ds

			h	m		h	m
N ^o . 1=545	From	14	0	To	15	45	
2=546	"	21	23	"			
3=547	"	0	19	"	1	26	
4=548	"			"	11	53	

1879. Oct. 30-31

W.A.R. obs.

h m L m

No 1 = 549 From 12 56 to 14 46

1879. Nov. 4

J. F. M. Obs. Polaris

N ^o			h	m	to	h	m
1=	550	From	12	45			
2=	551	"	19	32	"	21	38
3=	552	"			"	1	39

1879. Nov. 6-7

W. A. R. obs.

		h	m	h	m
N ^o 1 = 553	From	13	6	to	15 24

1879. Nov. 7-8

W. A. R. obs.

N^o 1 = 554 From

to ^h15 ^m37

1879, Nov. 9

W. A. R. Obs.

		h	m		h	m
No. 1-555	From	10	11	to	11	23
2-556	"			"		

1879. Nov. 9-10

W.A.P. obs.

		h	m		h	m
N ^o 1-557	From	13	50	h		
2-558	"	20	12	"	22	9
3-559	"			"	1	24
4-560	"	9	23	"	10	45

Nov. 10-11, 1879.

W. A. R. Obs.

		h	m	h	m
No 1 = 561	From	13	11	to 15	13
~~2 = 562~~	"	~~13~~	~~43~~	~~to 15~~	~~27~~

Nov. 11-12, 1879

W. A. R. obs.

		h	m	h	m
N ^o . 1 = 562	From 13	43	to 15	27	

1879. Nov. 15

W.A.R. obs.

		h	m		h	m
N ^o . 1 = 563	From	21	20	to	23	3
2 = 564	"	9	56	"	11	38
3 = 565	"	13	42	"	15	34

1879, Nov. 16

W.A. R. obs.

		h	m		h	m
No. 1 = 566	From	21	12	to		
2 = 567	"	23	57	"	1	26
3 = 568	"	11	33	"	13	53

1879, Nov. 16 - 17

W. A. R. obs.

		h	m		h	m
N ^o 1 = 569	From			to	16	11
2 = 570	"	22	29	"	0	34
3 = 571	"	0	39	"	1	43

1879. Nov. 21

J. H. M. obs. Polaris

h m

N^o 1-572 From

* 15 25

Nov. 23, 1879

J. F. M. obs. Polaris

N^o₇₁ = 573

From

h m
to 14 34

1879. Nov. 23-24

W.A. R. obs.

		h	m	to	h	m
N ^o 1=574	From	15	57	to	17	27
2=575	"	21	20	to	23	37
3=576	"	23	41	to	1	24
4=577	"	9	57	to	11	10

1879, Nov. 25

W.A. R. obs.

		h	m		h	m
N ^o 1 = 578	From	21	40	*	22	38
2 = 579	"	22	43	"	1	31
3 = 580	"	12	4	"	14	2
4 = 581	"	✓		*	16	15

1879. Nov. 26

W.A.R. obs.

				h	m
N ^o 1 = 582	From		to	0	13
2 = 583	"	0	13	"	1
					30

1879 Nov. 27

W.A.R. Sts

No. = 584 From

to h m
16 20

52

27

1879. Nov. 29

W. A. R. Obs.

				h	m
No. 1 = 585	From		to	1	46
2 = 586	" 11	28	" 13		27
3 = 587	"		" 16		42

1879. Nov. 30

W. A. R. obs.

N ^o 1=588	From	21	35	to	
2=589	"	0	2	~~to~~	1 43
3=590	"	10	14	"	
4=591	"	0	12	"	13 58

1879 Dec. 1

W.A.R. obs.

N^o. 1 = 592 From 16 22 to 17 55

2 = 593 " " 3 4

3 = 594 " 14 11 "

1879 Dec. 1-2

W.A. Roberts

		h	m	h	m
N ^o 1=595	From	16	26	to 17	14
2=596	"	12	44	"	

1879 Dec. 2-3

W. A. Roberts.

			h	m
No 1 = 597	From	to	17	13
2 = 598	"			

From 16.^h to 17.^h

Cleaned circle & micrometer

Adjusted illumination of micrometer

Removed micrometer & and

fitted to east circle. Placed

15° arc in position.

Oiled pivots

[Faint, illegible handwriting at the top of the page]

Dec 17

Measur of Curvature, 15° arc.A end. Star at north end,
10 divisions interval

18.7

18.7 - 10

28 - 59

36.0 - 268

58.0 - 380

58.0 - 00

40.0 - 18.

9.0 - 31

9.0 - 00

56.5 - 2.5

42.0 - 14.5

31.0 - 11.0

20.0 - 11.0

18.0 - 2.0

20.0 + 2.0

Measures of 10 Successive, open or intervals of 2 divisions

6	37.5	6	2.0	4	50.2	4	2.0	3	38.2	3	32.2	3	28.0
6	57.4	5	44.0	4	40.0	4	4.8	3	32.0	3	32.2	3	21.0
6	57.5	5	38.0	4	54.0	3	53.3	3	35.0	3	30.0	3	23.0
6	57.5	6	3.0	4	49.0	4	10.2	3	35.0	3	20.0	3	31.5
6	37.8	5	37.0	4	41.0	4	20.2	3	35.0	3	33.0	3	28.0
6	42.0	5	23.0	4	41.0	4	12.0	3	43.0	3	33.0	3	28.0
6	53.4	5	23.0	4	23.0	3	55.0	3	41.0	3	30.0	3	31.0
6	53.0	5	24.0	4	33.0	3	58.3	3	41.0	3	18.8		31.0
6	35.0	5	33.0	4	20.0	4	5.0	3	41.0	3	15.0		31.0
6	37.2	5	34.6	4	20.0	4	1.0	3	46.0	3	14.0		31.0
66	4683	3816	3712	1018	3872	2582	2835						
6.	46.83	5	38.16	4	37.12	4	10.18	3	38.72	3	25.82	3	28.35

	A_1	A_2
6	46.8	68.6
5	38.2	-7.5
4	37.1	61.1
4	10.2	26.9
3	38.4	31.5
3	25.8	12.9
3	28.4	-2.6

$$1 \text{ Div} = \frac{1}{4}''$$

most-being source
Since A_2 is nearly constant the curvature

1879, Dec. 3-4

W.A. R. obs.

N ^o 1 = 599	From 16	38 to 17	43
2 = 600	" 0	13 " 2	14
3 = 601	" 2	23 " 4	1
4 = 602	"		

Put on Glass cases at 17^h

Adjusted microscopes on North Collimator.

1879 Dec. 4-5

W. A. R. obs.

No. 1 = 603 From to 17 46

1879 Dec. 6

W.A. R. Ls.

N^o 1 = 604 From

h m
to 13 58

1879 Dec. 6-7

W.A.R. obs.

N ^o ₁₁ 1=605	From	To	17	35
2=606	22	25	"	0 35
3=607	0	47	"	3 3
4=608			"	3 55

Dec 15 1879

Cumulative length of 15° pole

Time

Σ	R_{11}	z
40' 10.2"	40' 21.8"	= +15.0
38' 0.2"	38' 11.2"	= +0
<u>-2' 10.0"</u>		

Band
II

42' 2.1"	32.4"	+15
35' 33.0"	45.0"	+0
<u>+6' 28.0"</u>		

Band I

mark

Band		
42' 57.2"	27'	+15
40' 50.0"	0.8"	+0
<u>1' 53.8"</u>		

Band

II

38' 10.0"	
~~53' 12.50"~~	~~36.8"~~
41' 26.7"	
3' 16.7"	

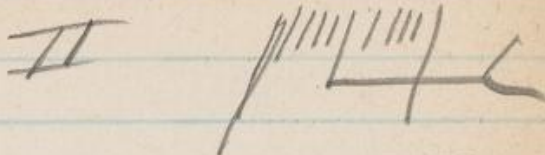
Band

II

Σ

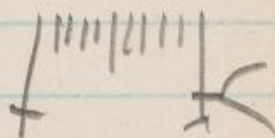
$$\begin{array}{r} 38 \quad 9.0 \\ 40 \quad 12.2 \\ - 2 \quad 3.2 \end{array}$$

Baird



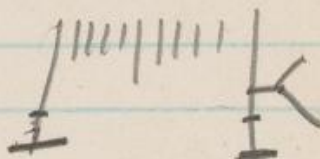
$$\begin{array}{r} 37 \quad 40.2 \\ 36 \quad 38.5 \\ + 41.7 \end{array}$$

II



$$\begin{array}{r} 37 \quad 17.5 \\ 37 \quad 37.0 \\ - 21.5 \end{array}$$

II



1-37

4.82

$$\begin{array}{r} 37 \quad 19.2 \\ 37 \quad 16.0 \\ + 3.2 \end{array}$$

Final setting
 Σ mem

$$\begin{array}{r} 37 \quad 21.7 \quad 32.0 \quad 37 \quad 26.8 + 15.0 \\ 37 \quad 19.2 \quad 25.0 \quad 37 \quad 24.2 + 0 \\ + 2.6 \end{array}$$

1879, Dec. 8

W.A.P. obs.

			h	m.		h	m
No. 1 = 609	From	12	15	to	13	22	

1879 Dec. 8-9

W.A. R. obs.

		h	m		h	m
N ^o 1=610	From			to.	17	56
2=611	"	0	0	"	1	55
3=612	"	1	58	"	2	14

1879, Dec. 11-12

W.A.R. obs.

			h	m		h	m	
N ^o 1 = 613	From	17	7	to.	17	32		
Dec 11 2 = 614	"	23	46	"	0	34	J.F.M. obs.	
" 12 3 = 615	"	0	38	"	1	50	J.F.M. obs.	
" 12 4 = 616	"			"	13	41	J.F.M. obs.	

1879 Dec. 15

W. A. R. obs.

		h	m		h	m
N ^o 1=617	From	0	19	to	2	28
2=618	"	2	35	"	3	57
3=619	"	12	45	"		
4=620	"	12	57	"		
5=621	"			"	16	28

1879. Dec. 15- 16

W.A. R. obs.

		h	m		h	m
N ^o 1 = 622	From	17	41	to	18	52
2 = 623	"			"	2	50

1879. Dec. 16 - 17

W.A. R. obs.

		h	m		h	m
No. 1 = 624	From	17	32	to	18	4
2 = 625	"	0	57	"	2	8
3 = 626	"	3	5	"	3	52
4 = 627	"	11	49	"	14	5
5 = 628	"			"	15	40

1879. Dec. 17-18

W. A. R. Obs.

		h	m		h	m
N ₁ 1 = 629	From	17	42	to	18	7
2 = 630	"	0	15	"	2	33
3 = 631	"	2	38	"	~~3~~ 4	4

Brought Frodsham Chronom. 3451 to Bond
& Sons to be fixed. Received back same day.

1879 Dec. 20

W. A. R. Obs.

			h	m		h	m
No	1-632	From	11	52	to	13	58

Dec. 20 - 21

		W.A.R. obs.			
		h	m	h	m
N ^o . 1- 633	From 17	55	to	18	30
2- 634	" 1	33	"	1	55

1879phae.proj:1657R

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1879 Dec. 25

N ^o 1 = 636	From	12	55	to	13	51			
2 = 637				to	16	19	Comparison		

1879 Dec. 25-26

W. A. R. obs.

		h	m		h	m
N ^o 1 = 638	From	18	5	to		
2 = 639		23	51	"	1	37 1/2 m. S.

1879 Dec. 27

W. A. R.

J. T. M. obs.

h m h m

No 15640 From 0 48 to 2 6

1879. Dec. 28-29

W. A. R. obs.

		h	m		h	m
N ^o 1 = 641	From	18	22	to	18	43
2 = 642	"	0		"	3	11
3 = 643	"	3	17	"	4	1

1879 Dec. 30

		J. F. M. obs.			
		h	m	h	m
N ^o 1-644	From 1	53	to	2	42

1879. Dec. 31

W. A. R. obs.

~~At~~
No. 1 = 645 From ^{h m} 12 13 to 13 59

1880 Jan. 1

p. L. M. obs.
M. A. R. obs.

		h	m		h	m
N ^o 1 = 646	From			to	3	2
2 = 647	"	3	9	"	3	52

1880. Jan. 2

W. A. R. obs.

		h	m		h	m
N ^o 1-648	From	18	45	To	19	11

