KG
11366
v.525

http://hdl.handle.net/2027/uc1.b3125288

Collimation, Level, &
Flexure, Runs, etc.

From Feb. 7, 1883 to Sept 6 1883

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Feb. 7, 1883

$0^h\ 5^m$

	N.C.	S.C
17	78.8	11.1
	76.7	12.8
	78.0	14.0
	76.5	13.4
	77.1	13.3
~~17~~	87.1	14.6
17	77.42	12.92
18	12.92	
	19034	
17	95.17	

$18^h\ 25^m$

	N.C.		S.C
17	77.0	18	8.5
	76.9		8.1
	76.6		8.4
	77.0		~~7.6~~ 8.0
	77.4		9.1
	49		~~24~~ 17
17	76.98		~~42~~ 8.34
18	8.34		
	18532		
17	92.66		

$18^h\ 35^m$ Level No. 2

up		down	
E	W	E	W
6.9	11.1	11.1	11.3
9.8	8.0	11.9	10.8
9.8	8.1	11.8	10.8
6.9	11.1	11.1	11.4
334	383	19	3
8.35	9.58	11.48	11.08
	1.23	40	
	+0.62	−.20	
	−0.20		
	0.42		
	+0.21	$\times .19 = +0.^{s}04$	

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Feb. 8. 1883

$18^h\ 40^m$

	N. e.	S. e
17	78.8	17 84.8
	77.6	86.1
	77.2	83.8
	77.1	84.5
	787	84.9
	44	241
17	77.88	17 8482
17	84.82	
	16270	
17	81.35	
	82.51	
	386	
	81.93	

Repeated $18^h\ 55^m$

	N. e.	S. e
17	77.6	17 86.1
	80.5	87.8
	78.7	86.0
	78.0	86.2
	78.0	86.2
	428	323
17	78.56	8646
17	86.46	
	502	
17	82.51	

Set at 17 81.9

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Feb. 11, 1883

19h 0m	N.C	S.C
17	83.2	17 90.9
	84.1	90.5
	83.7	90.6
	83.8	90.1
	83.1	89.2
	179	13
17	83.58	90.26
17	90.26	
	173.84	
17	86.92	

Flexure

18h 5m 5s

	E	F	G	H	E	F	G	H
55 4	4.6	12.2	9.3	4.1	6.0	1.7	0.8	7.3
	4.3	13.7	9.3	3.4	6.8	2.0	0.8	7.3
	4.2	12.7	8.8	3.7	6.1	1.6	0.7	6.8
	11	26	4	22	9	53	0	4
	4.37	12.87	9.13	3.73	6.30	1.77	0.77	7.13
	12.87				1.77			
	9.13				0.77			
	3.73				7.13			
	~~28~~ 30 10				1597			
	7.52				3.99			
	3.99							
	~~1151~~	3.53						
	~~5.75~~	+1.76						

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Feb. 11, 1883

19h 5m

Runs

	E		F		G		H	
0 0	3.0	5 1.7	56.1	58.8	56.2	57.5	2.3	3.2
	3.1	1.8	56.8	58.0	56.5	57.2	2.9	2.7
	3.4	1.7	57.1	58.1	56.0	57.5	3.2	2.2
	6	22	20	9	7	12	24	21
	3.17	1.73	56.67	58.30	56.23	57.40	2.80	2.70

Reg.

19h 10m

N	S			N	S		
6.9	7.1	35. 3	57.0	7.9	6.1	35 4	9.1
3.7	10.2		51.9	9.3	4.6		3.1
106	173		50.0	172	107		1.9
5.30	8.65		56.1	8.60	53 5		7.2
	3.35		150	3.25			213
	−1.68		53.75	+1.62			5.32
			+ 4.75				− 4.56
			58.50				0.76

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Feb. 11. 1883

19h 15m

	Up		Level down	
E		W	E	W
6.7		8.2	12.6	11.6
7.0		6.8	12.1	12.3
7.2		6.8	13.1	12.4
5.8		8.1	13.0	12.0
267		299	108	3
6.68		7.38	12.70	12.08
		.70	.62	
		+.35	−.31	
		−.31		
		+.04	×.19 = +.01	

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Feb. 12, 1883

$18^h\ 40^m$

	N.C.	S.E
17	~~750~~ 790	~~91.2~~
	77.2	17 91.7
	76.6	93.1
	78.2	92.5
	78.7	92.1
	397	106
	~~77.94~~	9212
	9212	
	17006	
17	85.03	

Let at 17 85.0

$18^h\ 45^m$ Level B, Obs.

up E	up W	down E	down W
4.8	5.0	7.0	2.4
3.0	6.7	5.2	4.0
7.8	11.7	12.2	6.4
3.90	5.85	6.10	3.20
	1.95	2.90	
	+ 0.98	−1.45	
	− 1.45		
	.47		

− .23 × 19 = −.04

+ 0.98
+ .12
1.10

+ 0.55 × 19 = +.10

$18^h\ 50^m$ Level R, Obs.

up E	up W	down E	down W
2.7	8.0	3.2	5.6 ~~.6~~
5.4	5.2	5.4	3.5
8.1	13.2	8.6	9.1
4.05	6.60	4.30	4.55
	2.55		.25
	+ 1.28		+ .12
	+ 12		
	1.40		

+ .70 × 19 = +.13

Roy.

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1883phae.proj.1529B

$18^h\ 5^m\ 5^s$ Regr.

N	S			N	S			
3.7	7.2	35	3 49.3	5.7	5.0	35	4	9.4
−2.4	13.1		42.6	9.2	1.5			3.5
1 3	2.03		41.2	1 4 9	6 5			2.0
0.6 5	10.15		45.2	7.45	3.25			5.9
	9.50		183	420				208
	−4.75		44.58	+2.10				~~+0.40~~
			138					5.20
			58.4					6.0
			59.2					59.2
			176					
			~~178~~					

~~18h~~

$19^h\ 0^m$ Level repeated. R. Ills.

E up	W	E down	W
5.5	5.1	9.0	8.2
4.0	6.~~84~~	8.0	8.9
3.8	7.0	~~+70~~	
5.0	5.5	8.6	8.3
183	240	9.0	8.1
4.58	6.00	346	15
	1.42	8.65	8.38
	+0.71	.27	
	−.14	−.14	
	~~+~~.57		
	+.29 × .19 =	+^{s}.05	

adopt. $b = +0.^s05$

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1883phae.proj.1529B

Feb. 13, 1883

$0^h\ 45^m$

	N. C.	S. C.	B	Clo.
17	79.3	90.5		
	76.3	90.0		
	80.4	90.0		
	80.3	90.4		
	78.7	90.1		
	470	10		
	79.40	90.20		
	9020			
	16960			
17	84.80			

Set at 17 85.0

$18^h\ 50^m$

	B	R	B	R
	N. C.		S. C.	R. Clo.
17.	81.5	82.5	88.1	87.9
	81.0	79.1	89.5	87.3
	81.0	79.8	88.0	86.4
	81.9	81.2	87.9	86.5
	82.1	80.0	88.2	86.3
	75	26	417	344
	81.50	8052	8834	8688
	88.34	8688		
	984	740		
	8492	8430		
		8492		
		862		
Set at 17		843		

$18^h\ 55^m$ Flexure

	E	F	G	H
55^m 4	6.3	10.5	7.2	0.8
	6.6	10.1	7.3	0.8
	6.8	10.0	7.6	1.2
	17	6	11	28
	6.57	10.20	7.37	0.93
	10.20			
	7.37			
	0.93			
	2507			
	6.24			
	4.25			
	1.99			
	~~0.~~ 2.00			

E	F	G	H
8.7	2.4	0.2	5.4
8.7	2.7	0.7	5.7
8.6	2.7	0.0	5.2
	18	9	13
8.67	2.60	0.30	5.43
2.60			
0.30			
5.43			
1700			
4.25			

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Feb. 13, 1883

19h 0m Reg.

N	S		N	S	
2.6	6.2	35 4 0.5	8.0	1.1	4 10.8
4.3	4.7	54.5	4.2	4.6	4.1
6 9	9	51.0	1 2 2	5 7	2.4
3 4 5	5.4 5	56.5	6.10	2.8 5	6.3
	2.00	2 2 5	3.25		2 3 6
	− 1.00	5 5.6 2	+ 1.6 2		5.90
		+ 2.8 3			− 4.6 2
		5 8.4 5			1.28

19h 15m

Level

up

down

E	W	E	W
4.7	4.2	9.2	8.9
2.8	6.1	10.8	8.4
3.0	6.0	11.3	8.0
4.7	4.0	9.2	9.9
1 5 2	2 0 3	4 0 5	3 5 2
3.8 0	5.0 8	10.12	8.8 0
	1.28	1.32	
	+ 0,6 4	− 0,6 6	
	− 6 6		
	÷ 2		
	− .0 1 ÷ 1 9 = 0		

+.00
+.04
+.04
b = +.03

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1883phae.proj.1529B

19 4 10m

Reg. Repeated

N	S			N	S	
7,2	1,4	35	4 9,1	8,4	0,3	20,84
3,8	4,8		1,7	11,2	−2,6	14,1
110	62		58,5	196	−2,3	10,3
5,50	3,10		3,8	9,80	−1,15	16,2
2,40			131	1095		210
+1,20			3.28	+5,48		15.25
			−3,42			−15,62
			59,86			59,63

5845
6128
5986
5963
5922
59.80

B Level R

up	down N		up E		down W	
~~110 86~~	72	111	9,2	8,3	9,9	9,2
~~9,5 10,0~~	9,5	8,8	7,7	10,2	9,2	10,1
~~205~~ 186	7,6	10,5	7,9	10,0	10,4	8,6
~~10.25 9.30~~ 91	9,0		9,0	9,0	9,2	10,1
95			338	375	387	380
110 86	334	394	84,5	9,38	9,68	9,50
9,5 10,0	83,5	9,85		+,93	,18	
9,3 10,2		1,50		+47	−09	
10,3 9,0		+,75		1,38		
401 378				+1,19 X,19 = +,04		
10,02 9,45						
,57						
−,28						

+75
+47
+23. X19 = +04.

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Feb. 18 1883

P. M.

Collimation

	S	
1798	17 67.2	
98.2	67.7	
99.1	67.8	
97.0	66.4	
96.9	66.4	
395	363	
1797.90	1767.26	
6726		
10516		
17 8258		
Set to	17 82.6	

	N. C.	S. C.
18h 50m	17 77.8	91.1
	78.0	91.2
	77.2	90.8
	77.3	90.0
	77.0	90.0
	23	31
	17 77.46	9062
	17 9062	
	16808	
	17 84.04	
	Set at 17 84.0	

Flexure

18h 55m	E	F	F	G	H	E	F	G	H
5 4	4.0	8.7	9.8	8.2	2.5	6.2	0.1	0.3	7.7
	3.4	7.8	10.4	8.8	2.8	5.8	0.7	0.2	7.4
	3.8	8.1	10.2	8.7	2.7	5.9	0.2	0.1	7.0
	22	6	4	17	20	29	10		11
	3.73	8.20	10.13	8.57	2.67	5.97	0.33	0.20	7.37
	~~8.20~~					0.33			
	10.13					0.20			
	8.57					7.37			
	2.67					1387			
	2510					3.487			
	6.28								
	3.47								
	2.81								
	+ 1.40								

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Feb 18, 1883

19h 0m Runs

		E		F		G		H	
5s	0	23.4	21.7	15.7	16.4	15.8	16.2	23.1	23.0
		23.5	21.8	15.6	16.1	16.1	16.4	23.0	22.7
		23.7	21.8	15.0	15.7	15.8	16.6	23.1	22.4
		186		13	2	27	12	2	21
		23.30 53	21.77 ~~58.47~~ −1.53 .64	15.43	16.07 +.64	15.90	16.40 +.50	23.07 −.37	22.76

19h 5m Regir

N	S		N	S		
6.6	6.2	35 4 0.4	6.4	6.4	3 5 4	5.0
4.3	8.3	54.8	8.9	4.0		57.9
109	145	54.5	153	104		58.0
5.45	7.25	59.5	7.65	5.20		3.1
	1.80	292	2.45			40
	−.90	57.30	1.22			1.00
		+2.56				3.48
		59.86				57.52
		59.52				
		1238				
		58.66				

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Feb. 18, 1883

19h 10m

Level

up E	up W	down E	down W
4.0	8.9	8.3	8.2
4.4	8.3	8.1	8.7
6.4	6.3	8.1	8.8
6.1	6.6	9.1	7.7
6.1	6.7	9.0	7.7
4.2	8.6	7.7	8.9
31 2	45 4	503	500
5.20	7.57	8.38	8.33
	2.37	05	
	+ 1.19	−.03	
	− 03		
	+ 1.16	+ 0,58 × 19 = + 0.11	
	+ 0.58		

Reg. Repeated

19h 15m N S

6.3	6.3	35	4	3.1
8.5	4.1			57.0
148	4			57.3
7.40	5.20			2.1
2.20				395
+ 1.10				59.88
				− 3.14
				56.74

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Feb. 19, 1883

2h 0m

B. Clds.

N.C.	S.C	Repeated S.C.	N.C
86.6	94.0	89.0	82.2
85.9	94.0	89.5	82.8
85.4	94.1	89.5	81.0
87.2	93.2	90.0	81.8
85.6	94.9	89.1	82.0
307	202	471	98
17 86.14	94.04	89.42	81.96
94.04			89.42
180.18			1138
17 90.09		17 85.69	

Set at 17 85.0

2h 10m

Level B. Clds.

Up E	Up W	down E	down W
4.4	8.7	6.0	6.6
6.2	6.8	7.0	5.7
4.1	9.0	5.8	7.0
6.2	6.8	7.0	5.8
209	313	258	251
5.22	7.82	6.45	6.28
	2.60	-17	
	+1.30	-09	
	-09		
	+1.21		
	+0.60	×.19 =	S +0.11

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Feb. 19, 1883

$19^h\ 15^m$

N	S			N	S		
18.0	2.7	35 4	20.0	8.9	11.9	3	59.5
15.9	5.0		15.5	11.2	9.7		55.8
139	77		14.3	201	16		53.8
16.95	3.85		19.1	10.05	10.80		59.2
1310			289		.75		283
+ 6.55			17.22		-.38		57.08
			- 18.67				1.08
			58.55				58.16

Level

$19^h\ 25^m$ up down

N	S			E	W	E	W
5.1	15.7	3	42.3	10.1	10.8	13.1	11.9
2.6	18.2		37.9	8.2	12.7	12.5	12.7
77	139		35.9	9.1	11.8	12.7	12.4
3.85	16.95		41.4	10.4	10.2	13.1	12.0
	13.10		1575	10.4	10.2	114	90
	- 6.55		39.38	8.1	12.4	12.85	12.25
			+ 18.67	563	81	.60	
58.55			58.05	9.38	11.35	-.30	
58.16					1.97		
58.05					+ 0.98		
76					- 30		
58.25					.68		
					+ .34	× 19 = .06	

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19h 30m

Flexure

	E	F	G	H
65 4	5.6	13.1	7.8	4.1
	5.2	13.0	8.1	3.5
	4.4	12.8	8.0	4.1
	2	29	29	27
	5.07	12.97	7.97	3.90
				7.97
				12.97
				5.07
			29	91
				+ 7.48
				3.96
				352
				+ 1.76

	E	E	F	G	H
5 4	72.0	3.2	0.8	8.1
	72.2	3.2	0.9	8.1
	72.8	3.6	0.0	8.3
	13	10	27	5
	7.43	3.33	0.90	8.17
	3.33			
	0.90			
	8.17			
	1983			
	3.96			

19h 35m

	N. E	S. E
17.	85.1	87.1
	85.3	85.9
	85.0	86.8
	85.5	86.7
	85.4	86.8
	13	33
	85.26	86.66
	86.66	
	1192	
	85.96	

Set at 17 86.0

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1883phae.proj.1529B

Feb. 19, 1883.

194 ~~35~~ 40m

Runs

	E		F		G		H	
5 0	14.1	13.3	5 0 21.5	21.7	17.0	16.1	13.2	12.4
	14.0	12.7	20.7	22.0	17.2	16.9	12.7	12.0
	14.3	13.3	21.3	21.5	17.0	16.7	12.5	12.1
	4	3	5	22	2	17	24	5
	14.13	13.10	21.17	21.73	17.07	16.57	12.80	12.17

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1883phae.proj.1529B

Feb. 20, 1883

$18^h 15^m$ B Obs.

N.e	S.e
89.9	94.4
89.8	94.4
88.0	94.1
88.1	93.0
89.5	93.5
3	44
89.06	93.88
93.88	
294	
91.47	

seeing bad.
Set at 17 91.5

Feb. 21 put here by mistake

B

$0^h 45^m$

N.e.	S.e.
89.9	91.2
89.0	91.2
89.8	91.7
89.5	90.5
89.1	90.6
23	2
89.46	91.04
91.04	
180.50	
90.25	

seeing bad.
Set at 17 90.3

Level

$19^h 30^m$ up down

E	W	E	W
6.5	6.0	5.0	7.2
9.0	3.6	3.2	8.9
6.5	6.0	4.7	7.7
8.8	3.9	3.7	8.4
308	195	166	322
7.70	4.88	4.15	8.05
282			3.90
1.41			+1.95
			+ .54
			+ .27 ÷19 = +.05

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1883phae.proj.1529B

Feb. 21. 1883

$20^h 15^m$ B. Obs.

N. C.

85.8	87.0
85.0	86.5
84.8	87.0
85.1	88.0
86.5	87.1
272	356
85.44	87.12
87.12	
1256	
17 86.28	
Set at 17 86.3	
Seeing pretty good	

$20^h 30^m$ Level B. Obs.

Up		down	
E	W	E	W
10.1	5.9	6.0	9.5
8.2	7.6	6.0	9.4
10.7	5.3	5.5	10.0
8.0	8.0	6.0	9.5
370	268	235	384
9.25	6.70	5.88	9.60
255			3.72
-1.28			+1.86
+1.86			
+.58			
+.29 ×19 = +5.06			

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1883phae.proj.1529B

Feb. 23. 1883

$0^h 45^m$ B Cls.

N.C.	S.C.
~~88.2~~	~~86.8~~ 85.5
88.8	86.7
89.5	85.6
88.5	85.3
88.5	85.1
37	32
17 88.74	85.64
85.64	
1438	
17 87.19	
Set at 17 87.2	

$1^h 40^m$ Level $1^h 35^m$

	up		down	
	E	W	E	W
	6.2	2.3	9.0	11.0
	4.8	3.7	8.0	12.1
	110	60	0	11
	5.50	3.02	8.50	11.55
	2.50			3.05
	−1.25			+1.52
	+1.52			
	.27			
	+.14	×.19 =	+.03	

Reg.

$0^h 45^m$

N	S		
3.3	5.0	35	3 48.7
−0.2	8.6		44.9
3.1	136		45.0
1.55	6.80		50.8
	5.25		294
	2.62		47.35
			+7.52
		38	54.87

N	S		
3.8	4.6	3	58.1
5.8	2.6		54.7
96	72		53.6
4.80	360		59.9
120			263
0.60			56.58
			−1.72
		38	54.86

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1883phae.proj.1529B

Feb. 23, 1883

B Obs. 19h 25m

	N.C.	S.C
17	81.9	85.3
	81.7	86.9
	81.0	85.9
	82.8	86.7
	83.0	86.0
	104	8
	82.08	86.16
	86.16	
	822	
17	84.11	
Set at 17		84.1

Level

	up E	up W	down E	down W
	6.9	5.5	4.0	7.9
	9.0	2.4	3.7	8.2
	6.0	5.4	4.5	7.2
	8.5	3.0	4.5	7.3
	294	163	4.0	7.7
	7.35	4.08	3.6	7.8
	327		243	41
	−1.63		4.05	7.68
	+1.82			3.63
	.19			+1.82
	+.10	×.19 =	S .02	

Reg.

N	S
5.3	6.0
2.3	9.2
76	152
3.80	7.60
	3.80
	−1.90

		N	S
30	3	56.3	10.0
		49.8	7.5
		46.0	175
		52.1	8.75
		42	6.15
		51.05	+3.07
		+5.45	
		56.50	
		56.4	

		N	S
4	10.3	1.4	3.8
	4.1		5.2
	0.2		2.60
	6.1		
	207		
	5.18		
	−8.81		
	56.37		

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1883phae.proj.1529B

Feb. 25, 1883

$19^h 45^m$

Flexure R. Obs.

	E	F	G	H	E	F	G	H
55 4	4.8	12.8	9.5	5.1	6.8	2.8	0.9	8.8
	5.1	13.2	9.2	5.5	6.9	3.1	0.8	8.5
	4.9	13.1	9.1	5.1	6.5	2.7	0.7	8.2
	28	1	8	7	22	26		15
	4.93	13.03	9.27	5.23	6.73	2.87	0.80	8.50

13.03
9.27
5.23
3246
8.12
340
+ 1.70

2.87
0.80
8.50
1890
4.72

$19^h 35^m$

Flexure B. Obs.

	E	F	G	H	E	F	G	H
55 4	4.7	12.9	8.7	4.4	7.3	3.2	0.6	8.5
	4.8	12.5	9.1	4.5	7.2	3.1	0.9	8.4
	4.9	12.4	8.8	4.3	7.1	3.2	0.7	7.8
		18	26				22	7
	4.80	12.60	8.87	4.40	7.20	3.17	0.73	8.23

12.60
8.87
4.40
3067
7.67
284
+ 1.42

3.17
0.73
8.23
1933
4.83

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1883phae.proj.1529B

Feb. 25, 1883

19h50m B Cls.

	N.C.	S.C
17	86.8	88.1
	86.7	88.1
	86.2	88.3
	86.1	87.4
	86.0	88.0
	18	49
	86.36	87.98
	87.98	
	1434	
17	87.17	

87.17
86.05
1322

Set at 17 86.61

19h50m R Cls.

N.C	S.C
85.8	85.2
85.8	86.8
85.6	86.8
86.9	85.9
85.7	86.0
48	7
85.96	86.14
86.14	
1210	
86.05	

Runs

19h 55m

5	0	19.4	0	0	18.0	26.2	27.8	21.9	22.5	19.2	19.1
		19.1			18.6	26.2	28.1	21.8	22.6	18.9	19.0
		19.3			18.3	26.0	27.4	22.0	22.6	19.1	19.1
		4			9		28	57			
		19.27			16.30	26.20	27.97	21.90	22.57	19.07	19.07
					.97	2 13	1.57				

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1883phae.proj.1529B

Feb. 25, 1883

18h 0m

Reg.

N	S			N	S		
4.7	8.5	35	3 55.8	5.3	8.6	3	46.7
7.4	6.3		51.7	2.4	11.~~64~~		46.0
121	148		49.6	~~77~~ 7	200		43.7
6.05	7.40		57.4	3.85	10.00		51.4
	1.35		145		6.15		298
	−0.68		53.62		−3.08		47.45
			+ 1.95				+ 8.84
			55.57				56.29

11 8 6
55.9

18h 10m

Level

up		down	
E	W	E	W
8.~~4~~	5.8	6.9	9.8
7.0	6.8	7.2	9.3
7.0	6.8	8.2	8.6
8.9	5.0	7.8	8.9
8.6	5.1	301	6
~~6.2~~	7.~~8~~1	7.52	9.15
6.5			1.63
461	366		+ 0.82
7.68	6.10		− 0.79
1.58			+ .03
− .79			

$b = +.02 \times 19 = .00$

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1883phae.proj.1529B

Feb. 26. 1883

$1^h 35^m$	N.E	S.E
17	~~89.2~~	90.1
	~~88.3~~	89.0
	~~88.8~~	90.1
	~~88.1~~	90.1
	~~89.0~~	90.1
	34	44
17	88.68	89.88
	89.88	
	1856	
17	89.28	
Set at 17		89.3

$1^h 40^m$ Level

	up		down	
	E	W	E	W
	4.2	6.1	6.2	7.1
	7.8	2.3	5.0	7.3
	7.2	2.9	6.1	6.0
	4.9	5.2	6.2	6.2
	24 1	16 5	25	26
	6.02	4.12	5.62	6.65
	190			1.03
	−0.95			+0.52
	+0 52			
	.43			
	−.22	×.19 =	S −.04	

$1^h 45^m$ Reg.

N	S		N	S	
0.9	9.4	35 3 40.0	4.7	5.7	55.9
−1.7	11.6	37.1	6.8	3.6	54.2
− 8	21 0	35.3	11 5	9 3	51.2
−.40	10.50	43.0	5.75	4.65	59.1
	10.90	354	1 10		204
	− 5.45	38.85	+0.55		55.10
		+15.64			− 1.59
		54.49			53.51
		53.51			
		800			
		54.00			

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1883phae.proj.1529B

Feb. 26, 1883

$22^h\ 35^m$		V. C.	S. C
	17	~~82.1~~ ~~80.0~~	81,5
		80,2	8~~8~~5
		81.8	82.0
		82.0	82.1
		81.5	82.3
		76	94
		81,52	81,88
		81.88	
		140	
	17	81.70	

Set at 17 81.7

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1883phae.proj.1529B

Feb. 27. 1883

$4^h 45^m$

	N.C.	S.C.
17	86.8	86.7
	87.4	86.1
	86.2	85.0
	86.7	84.1
	85.7	84.8
	28	267
	86.56	8534
	85.34	
	1190	
17	85.95	

Set at 17 86.0

$1^h 55^m$ up

E	W
10.9	11.8
13.2	9.3
13.1	9.3
10.9	11.7
81	21
12.02	10.52
1.50	
− 0.75	
+ 1.16	
.41	

+ .21 × .19 = $+.04^S$

down

E	W
11.6	12.7
11.6	12.5
10.3	13.8
10.2	14.0
37	130
10.92	13.25
	2.33
	+1.16

Reg.

$1^h 50^m$

N	S			N	S		
17.9	4.8	35	4 19.4	12.1	10.4	4	9.0
16.1	6.5		13.9	14.9	7.9		3.8
0	113		10.3	70	183		59.9
17.00	5.65		16.8	13.50	9.15		6.2
1135			204	435			189
+5.68			15.10	+2.18			4.72
			16.30				6.26
			58.80				58.46

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1883phae.proj.1529B

Feb. 28 1883

2h 15m

N. C.	S. C.
878	831
881	827
880	830
895	822
889	832
423	142
846	835
	845
120	
860	

Col 01

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1883phae.proj.1529B

Mar. 1, 1883

23h 0m

V.C.	S.C.
89.0	85.8
88.8	85.8
89.0	86.6
88.4	86.8
88.0	86.1
32	11
88.64	86.22
86.22	
86	

1787.43

Set at 17 87.4

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1883phae.proj.1529B

March 2, 1883

$23^h\ 0^m$

	N.E	N.E	S.E
17	87.8	88.1	84.8
	87.7	87.0	86.1
	87.5	88.7	84.2
	84.8	85.3	85.1
	87.8	86.0	85.0
	697		252
	86.97		85.04
	85.04		
	1201		

17 86.0

Set at 17 86.0

$23^h\ 10^m$ Level

	up		down	
	E	W	E	W
	10.9	5.9	8.1	9.7
	8.6	9.3	8.2	9.7
	8.9	9.1	8.1	9.8
	10.9	7.0	8.1	9.8
	393	313	5	30
	9.82	7.82	8.12	9.75
	200			1.63
	-1.00			+0.82
	+0.82			
	0.18			
	-0.09	×.19 =		-0.02 S

$23^h\ 05^m$

N.	S.
9.0	8.8
7.1	5.6
161	144
+8.05	7.20
.85	
+.42	

Reg.

		N	S		
35	4	2.4	9.2	8.6	3 54.1
		59.0	5.2	12.5	51.8
		0.9	144	211	52.9
		5.8	7.20	10.55	57.6
		81		3.35	164
		2.02		1.68	54.10
		~~31.15~~			4.82
		-1.22			58.92 S
		0.80			1157 158

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1883phae.proj.1529B

Mar. 2, 1883

$1^h 30^m$ Reg.

N	S		N	S	
13.3	3,1	35	4.9	11.7	3
11.4	5,2		6.9	9.4	
47	.83		118	211	
12.35	4,15		5.90	10.55	
8.20				465	
+ 4.10				- 2,32	

		N	S
4	8.4	3	47.3
	3.0		44.3
	9.5		49.2
	18.4		58.1
	393		389
	9.82		49.72
	11.89		6.73
	57.93		56.45
	56.4		
	43		
	57.4		

N	S		
3.6	12.9	3	36.2
0,3	16.0		32.6
39	89		37.2
1.95	14.45		45,4
	12.50		314
	6.25		37.85
			18,12
			55.97

55.97
56,45
57.93
2035
Mean 56.78

$1^h 45^m$ Level

up E	up W	down E	down W
10,3	6.0	9.8	11.1
7.1	9.1	9.2	11.7
7.1	9.1	10.0	10.9
10.0	6.2	9.7	11.3
345	304	387	50
8.62	7.60	9.68	11.25
1.02			1.57
- .51			+ 0.78
+ 78			
27			
+ .14	× 19 = + 2.03		

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1883phae.proj.1529B

March 1883

2h	1S	
M	S	C
17	~~8900~~	72.0
	90.3	73.0
	90.2	73.5
	90.6	73.5
	90.2	73.2
	13	152
	90.26	73.04
	73.04	
	16330	
	61.65	Let of 61.7

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1883phae.proj.1529B

Mar. 4. 1883

$9^h 55^m$

	N. C		S. C
17	82.1	17	81.2
	85.2		81.4
	84.2		82.8
	83.8		82.1
	83.8		82.7
	191		2
17	83.82		82.04
	82.04		
	186		

17 82.93

Set at 17 82.9

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1883phae.proj.1529B

Mar. 7, 1883

$2^h 10^m$ B. Obs.

N.C	S.C
94.0	80.4
94.3	81.1
93.2	80.8
94.5	81.0
93.0	81.8
190	1
93.80	81.02
81.02	
174.82	
17 87.41	

Set at 17 87.4

Seeing bad + the S. Collimator very much out of focus

$2^h 15^m$

N.	S
10.9	2.7
7.0	6.5
179	92
8.95	4.60
435	
+2.18	

Reg.

35 4 80

2.1

58.3

6.9

153

3.82

−6.26

57.56

$2^h 20^m$ Level

up E	up W	down E	down W
9.5	4.5	5.2	8.0
6.8	7.0	4.6	8.5
6.8	7.0	5.8	7.4
9.5	4.1	4.8	8.5
326	226	4	4
8.15	5.65	5.10	8.10
250			3.00
−1.25			+1.50
+1.50			
+.25			

+.12 × .19 = +0.02

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1883phae.proj.1529B

Mar. 8. 1883

B. Obs.

18h 20m Level

up		down	
E	W	E	W
5.0	7.0	3.7	6.0
9.2	2.7	3.9	5.8
142	9.7	16	18
7.10	4.85	3.80	5.90
225			2.10
-1.12			+1.05
			-1.12
			-.07
			-.04 ×.19 = -0.01

20h 39m

N. C.	S. C.
85.9	89.3
85.6	87.5
86.4	88.4
87.0	88.1
86.8	89.1
317	424
86.34	8848
88.48	
1482	
17 87.41	

Set at 17 87.4

18h 30m

N	S		
7.4	4.53	35 4	3.9
2.6	9.1		57.7
100	13 4		51.9
5.02	6.70		59.1
	1.70		326
	-0.85		58.15
			2.44
			55.71

N	S		
9.0	2.7	4	21.2
-1.9	13.4		15.0
71	163		8.9
3.55	8.15		17.0
	4.60		621
	-2.30		15.52
9.0	2.7		-15.50
13.4	-1.9		0.02
224	8		
11.20	.40		
10.80			
+ 5.40			

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1883phae.proj.1529B

Mar. 11, 1883 B. Obs.

20h 8m 55s Reg. 21h 0m Level

~~3 S~~	S				up E	up W	down E	down W
5,5	4,2	35	3	59.0	4.0	5,8	3.8	5,8
1.7	8,1			53.3	7.6	2.2	2,9	6.6
72	123			47.4	116	80	67	124
3.60	6,15			55,3	5.80	4.00	3.35	6.20
	2,55			150	1.80			2,85
	1.28			53.75	−.90			+ 1.42
				+ 3.67	+ 142			
				57.42	.52			

+ .26 ±.19 = ±.05

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1883phae.proj.1529B

Mar. 12, 1883
2h 20m B. Obs.

N.C	S.C.
93.0	85.3
92.6	85.2
93.3	85.2
93.5	84.5
94.0	85.5
164	7
93.28	85.14
85.14	
18.42	
17 89.21	
Set 17 89.2	

Level

up E	up W	down E	down W
9.3	4.0	~~4.8~~ 3.8	~~8.21~~
6.3	7.0	5.8	7.0
6.4	6.9	5.8	7.0
9.3	4.0	5.0	7.8
313	219	14	19
7.82	5.48	5.35	7.48
234			2.13
−1.17			1.06
+1.06			
−11			

−.06 + 19 = $\overset{S}{-}$.01

18h 35m Reg. B,

N	S			
5.8	5.5	35	4	4.4
9.0	2.1			1.8
148	76			56.9
7.40	380			3.5
360				66
+1.80				1.65
				5.17
				56.48

18h 40m Level B,

up E	up W	down E	down W
8.0	3.2	4.5	6.4
5.9	5.4	3.8	7.0
139	86	83	134
6.95	4.30	4.15	6.70
265			2.55
−1.32			+1.28
+1.28			
4			

−.02 × $\overset{S}{.}$19 = $\overset{S}{0}$.00

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1883phae.proj.1529B

Mar. 12, 1883

$18^h 45^m$

		E			Rings		B. Obs. G		H	
5	0	1.8	0	5	0.6	8.8	9.4	2.1	2.1	59.5	59.0
		1.5			0.8	8.3	9.4	2.1	2.1	59.0	58.8
		1.5			0.6	8.9	9.1	2.0	1.9	59.4	59.0
		18			20	20	9	2	1	9	28
		1.60			0.67	8.67	9.30	2.07	2.03	59.30	58.93

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1883phae.proj.1529B

Mar. 13, 1883

B Obs.

21h 25m Regr

	N	S	
35	4 8.2	9.2	0.2
	1.9	4.3	5.0
	58.1	13 5	5 2
	5.6	6.75	2.60
	138	415	
	3.45	+2.08	
	5.97		
—	57.48		

21h 35m Level

	up E	up W	down E	down W
	8.0	1.3	3.6	5.6
	4.3	5 1	3.6	5.6
	4.0	5.5	3.3	5.9
	8.0	1.4	3.3	5.9
	243	133	18	30
	6.08	3.32	3.45	5.75
	276			230
	−1.38			+1.15
	+1.15			
	23			

$-0.12 \times .19^{s} = -0.^{s}02$

21h 40m

NC	SC
96.0	86.3
97.0	~~86.6~~ 86.0
95.8	86.0
96.8	86.4
95.8	86.6
314	19
96.28	86.38
86.38	
266	
17 91.33	

Set at 17 91.3

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1883phae.proj.1529B

Mar. 15, 1883 B. Obs.

1h 45m

Runs

	E		F		G		H	
5 0	2.2	1.5	13.9	14.9	12.5	12.0	6.2	6.4
~~2.2~~	2.0	1.9	13.9	14.9	13.0	11.9	6.9	6.4
	2.2	1.9	14.1	14.9	13.2	12.2	6.6	6.3
	4	23	29		27	1	17	11
	2.13	1.77	13.97	14.90	12.90	12.03	6.57	6.37

2h 20m

Reg.

N	S			
9.0	~~8.0~~ 6.1	35	4	1.4
8.0	7.0			57.5
170	131			59.4
8.50	6.55			7.3
1.95				56
+0.98				1.40
				− 2.81
				58.59
				16 4
				50

2h 30m

N	S		
3.0	12.0	3	48.8
6.9	8.2		44.9
2.7	12.3		46.4
6.6	8.4		54.2
192	409		343
4.80	10.22		48.58
~~58~~	5.42	+	7.78
	− 2.71		56.36

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1883phae.proj.1529B

Mar. 15, 1883

$2^h 35^m$ Reg.

N	S		V
11.3	3.7	4	14.9
15.8	-0.9		13.0
15.7	-0.9		13.3
11.8	3.3		20.6
146	52		218
13.65	1.30		15.45
12.35		-	17.74
+6.18			57.71

57.71
58.59
56.36
166

Mean = 57.55

$2^h 45^m$ Level

up E	up W	down E	down W
8.8	6.6	6.6	8.2
7.2	8.0	5.7	9.1
8.5	6.8	6.4	8.4
6.0	9.2	5.5	9.3
6.8	8.4	6.9	8.0
9.4	5.8	5.6	9.2
6.8	8.3	6.2	8.8
8.7	6.4	6.3	8.7
622	595	492	697
6.22	5.95	4.92	6.97
0.27			2.05
-.14			+1.02
+1.02			
.88			

+0.44 ÷19 = +0.08

$3^h 10^m$

	N.C	S.C
18	1.8	87.1
	1.6	87.5
	1.7	87.5
	2.0	87.3
	2.4	88.0
	45	24
18	1.90	87.48

17 87.48
18938
94.69

Set at 17 94.7

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1883phae.proj.1529B

Mar. 15, 1883

18h30m Runs

	E		F		G		H	
5 0	5.1	4.3	15.6	16.6	8.6	9.9	5.5	5.8
	5.1	4.6	16.0	16.3	8.9	10.0	~~5.~~ 6.0	5.2
	5.3	4.1	15.9	16.7	8.9	9.3	6.0	5.3
	5.17	4.33	15.83	16.53	8.80	9.73	5.83	5.43

19h20m N S N S

7.6	6.5	35	4	1.3	2.0	11.9	3	44.4
5.0	9.2			58.2	−0.5	14.2		41.3
126	157			52.2	1.5	6.1		35.4
6.30	7.85			0.2	0.75	13.05		43.3
	1.55			319		12.30		44
	−0.78			57.98		6.15		41.10
				+2.24				17.65
				0.22				58.75
								0 2
								8 9
								59.4

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1883phae.proj.1529B

Mar. 15, 1883

$19^h\ 25^m$ Level

	Up		down		$21^h\ 0^m$	
	E	W	E	W	N.C	S.C
	9.0	5.0	5.8	7.7	100.4	79.7
	6.0	8.0	6.0	7.1	99.0	78.6
	9.1	4.9	5.8	7.7	99.8	79.2
	6.2	7.8	5.0	8.0	99.1	78.8
	303	257	26	25	99.4	77.2
	7.58	6.42	5.65	7.62	127	435
	116			1.97	~~92.34~~	78.70
	−0.58			+0.98	99.54	
	+ 98				78.70	
	40				17824	
	+.20	s/19 =		+ 0.04	17 89.12	

Set at 17 89.1

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1883phae.proj.1529B

Mar. 16, 1883

$1^h 45^m$

N.C.	S.C
99.8	77.2
100.0	78.6
100.0	76.9
100.8	78.1
101.1	77.4
17	382
100.34	77.64
77.64	
17798	
17 88.99	

Set at 17 ~~89.0~~

$2^h 45^m$ Level

up		down	
E	W.	E	W.
8.0	~~3.7~~ 1.5	3.6	5.6
3.7	5.9	3.7	5.6
4.0	5.5	3.7	5.6
8.0	1.5	2.7	6.5
23.7	14.4	17	33
5.92	3.60	3.42	5.82
2.32			2.40
−1.16			+1.20
+1.20			
4			
+1.02	×.19 =		0.00

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1883phae.proj.1529B

Mar. 17, 1883

$1^h 45^m$ B. Obs.

N.C	S.C.
~~89~~.2	79.0
~~89~~.0	77.7
~~89~~.5	77.5
~~89~~.1	78.9
~~89~~.1	77.4
9	40 5
17 ~~89~~.18	78.10
78.10	
17728	
17 88.64	
Set at 17 88.6	

$2^h 20^m$ Level

up		down	
E	W	E	W
3.8	5.7	~~2.0~~	~~7.1~~
5.8	3.8	3.6	5.6
5.6	4.0	3.0	6.0
4.0	5.5	3.7	5.5
32	30	3.3	5.8
4.80	4.75	16	29
.05		3.40	5.72
−.02			2.32
+1.16			+1.16
1.14			

+.57 ×19 = +0.11 s

$2^h 10^m$ Reg.

N	S			
7.4	2.0	35	4	14.8
11.3	−2.0			10.2
11.3	−1.9			7.5
6.8	2.7			15.2
368	8			77
9.20	0.20			11.92
900				12.92
+4.50				39.00

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1883phae.proj.1529B

Mar. 21, 1883

$1^h 0^m$ B. Obs. $1^h 5^m$

	V.C	S.C	V.C	S.C
18	1.0	79.4	0.7	80.1
	1.0	79.3	0.8	81.3
	1.1	80.0	0.3	81.2
	1.0	79.5	1.0	80.6
	1.2	79.0	0.3	80.4
	3	22	31	36
	101.06	79.44	100.62	80.72
	79.44		80.72	
	18050		18134	90.67
17	90.25		90.67	90.25
Set at	17	90.4		92
				90.46

$2^h 45^m$ Level

	Up E	Up W	down E	down W
	8.7	3.8	4.7	7.2
	6.1	6.2	5.0	6.9
	8.6	3.9	4.6	7.1
	6.1	6.2	5.5	6.0
	295	201	198	272
	7.38	5.02	4.95	6.80
	236			1.85
	−1.18			+0.92
	+0.92			
	26			
	−0.13 ÷ 19 =			−0.03

Reg.

$2^h 30^m$

N	S	circ.	
4.2	8.1	35 3	59.3
7.6	4.7		55.8
5.0	7.4		53.3
8.2	4.0		1.6
5.0	7.3		300
7.3	5.0		57.50
373	365		−.20
6.22	6.08		57.30
14			583
+.07			57
			57.9

$2^h 40^m$

N	S		circ
5.4	6.7	3	55.0
3.0	9.2		51.5
5.3	6.8		48.4
3.0	9.2		56.8
167	319		117
4.18	7.98		52.92
	3.80		5.45
	−1.90		58.37

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1883phae.proj.1529B

Mar. 21, 1883

$3^h 45^m$ Flexure

	E	F	G	H	E	F	G	H
5 4	2.9	15.2	10.5	5.3	5.6	2.8	0.8	9.7
	2.7	15.2	10.5	5.3	5.8	2.5	0.7	10.0
	2.6	14.9	10.4	5.1	5.4	2.5	0.7	9.6
	22	3	2	7	18	18	1	22
	2.73	15.10	10.47	5.23	5.60	2.60	0.73	9.73

15.10
10.47
5.23
3353
8.38
4.66
372
+1.86

5.60
2.60
0.73
9.73
1866
4.66

$18^h 55^m$ Level

up		down		Repeated up		down	
E	W	E	W	E	W	E	W
9.2	4.0	5.0	8.0	6.0	7.0	5.0	8.0
6.0	7.0	4.6	8.4	9.0	4.1	4.9	8.1
9.4	3.9	5.0	7.9	6.3	6.8	5.8	7.4
6.6	6.5	4.3	8.8	8.3	4.8	5.0	8.0
312	214	189	331	296	227	7	35
7.80	5.35	4.72	8.28	7.40	5.68	5.18	7.88
2.45			356	1.72			2.70
−1.22			+1.78	−0.86			+1.35
+1.78				+1.35			
.56				.49			
+.28	×19 =	+0.05		+.24	×19 =	+0.05	

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1883phae.proj.1529B

Mar. 21. 1883

Reg.

$19^h\ 35^m$

N	S	circle	
8.0	5.0	35 4	4.8
3.9	9.2		0.0
8.1	4.8		54.0
4.0	9.0		1.2
240	280		00
6.00	7.00		0.00
	1.00		+ .14
	-.50		0.14

$23^h\ 10^m$

N.C	S.C
98.9	77.2
98.9	77.0
98.3	76.0
98.8	78.3
98.1	76.3
30	348
98.60	76.96
76.96	
17556	
17 87.78	

Set at 17 87.8

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1883phae.proj.1529B

Mar. 22, 1883 B. Obs.

Rims

$1^h 40^m$	E		7		G		H	
5 0	6.9	5.9	15.5	15.9	7.1	7.9	3.5	2.2
	6.5	5.8	15.4	15.3	7.1	7.4	3.1	2.2
	6.8	5.7	15.9	15.5	7.3	7.8	3.5	2.2
	22	24	18	17	5	21	11	
	6.73	5.80	15.60	15.57	7.17	7.70	3.37	2.20

Reg.

$2^h 15^m$ N	S				N	S			
2.5	13.3	35	3	40.3	14.9	0.9	35	4	20.1
-1.5	17.0			36.9	11.8	4.0			16.3
1.4	9.5			31.8	14.2	1.5			12.0
-2.0	17.5			39.1	12.0	3.6			18.7
4	173			281	129	100			271
0.10	14.32			37.02	13.22	2.50			16.78
	14.22			+20.41	10.72				7.
	-7.11			57.43	+5.36				-15.38
									1.40

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1883phae.proj.1529B

Mar. 22. 1883

$2^h 45^m$ Level

up		down	
E	W	E	W
10.8	5.0	6.0	9.1
7.2	8.4	6.0	9.1
11.7	4.0	6.0	9.1
8.0	7.6	5.4	9.8
10.6	5.0	34	11
8.0	7.5	5.85	9.28
56.3	37.5		3.43
9.38	6.25		+1.72
3.13			
−1.56			
+1.72			
.16			
+.08	×.19	= +0.02	

$4^h 5^m$

	N.E		S.E
18	1.1	17	80.2
	0.7		79.9
	0.5		81.0
	0.4		80.7
	1.2		80.2
	39		20
	0.78		80.40
	80.40		
	18 1 18		
17	90.59		

87.8
90.6
178 4
89.2

Set at 17 90.5

$4^h 10^m$

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1883phae.proj.1529B

Mar. 23, 1883

18h 40m Level

up E	up W	down E	down W
9.2	2.6	3.6	7.7
6.0	5.8	3.7	7.6
8.3	3.4	3.6	7.7
5.4	6.1	3.4	7.8
9.2	2.4	23	28
4.4	7.0	3.58	7.70
42.5	27.3		4.12
7.08	4.55		+2.06

253
− 1.26
+ 2.06
.80
+ 0.40 × .19 = +.08

19h 15m

	E		Runs		G		H	
5 X 0	2.0	0.8	8.2	8.7	0.5	0.6	58.2	57.9
	1.9	0.5	8.1	8.3	0.7	1.0	57.9	57.9
	1.8	0.5	8.4	8.3	0.7	0.9	58.1	57.7
	7.90	0.60	8.23	8.43	0.63	0.83	58.07	57.83

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1883phae.proj.1529B

Mar. 23, 1883

~~23~~ $21^h 20^m$

N	S
7.5	7.3
10.9	3.9
8.4	6.4
11.3	3.5
7.0	7.6
11.7	3.0
56.8	31.7
9.47	5.28
4.19	
+ 2.10	

35

Reg.

4 11.7
6.7
1.2
8.9
28.5
7.12
− 6.03
1.09

$21^h 30^m$

N.C.	Sc
2.9	75.0
3.0	74.8
2.5	75.0
2.8	75.2
2.4	75.3
3.6	3
18 2.72	75.06
17 75.06	
17 77.8	
17 88.89	

Sc at 17 88.9

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1883phae.proj.1529B

Mar. 24. 1883

$2^h 20^m$

Flexure

	E	7	G	H	E	7	G	H
55 4	5.0	15.8	9.9	5.5	7.9	4.0	0.1	9.8
	5.0	15.8	10.1	5.3	8.2	3.8	0.1	9.6
	4.8	15.3	9.9	5.2	7.8	3.9	0.4	9.8
	28	19	29	10	29	27	6	22
	4.93	15.63	9.97	5.33	7.97	3.90	0.20	9.73

15.63
9.97
5.33
3586
8.96
5.45
351
+ 1.76

3.90
0.20
9.73
2180
5.45

$2^h 50^m$

Regulus

N	S			N	S		
7.0	2.3	35 4	4.8	2.5	6.7	35 4	0.3
3.5	5.7		0.8	5.5	2.8		56.5
7.0	2.3		57.1	2.2	7.0		51.8
3.8	5.6		4.8	5.5	2.6		0.1
213	159		75	157	191		287
5.32	3.98		1.88	3.92	4.78		57.18
1.34	~~66~~		-1.92		.86		+ 1.23
+0.67			59.96		-0.43		58.41

58.41
837
51.2

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1883phae.proj.1529B

Mar. 24. 1883

$2^h 30^m$

	N.E		S.E
18	4.9	17	74.6
	4.1		75.8
	4.0		75.0
	4.3		75.4
	5.3		75.5
	26		13
	4.52		75.26
	75.26		
	179 78		
17	89.89		

Set at 17 89.9

$2^h 55^m$ Level

up		down	
E	W	E	W
7.7	1.7	3.4	5.6
4.0	5.3	1.8	7.1
7.0	2.4	3.8	5.2
4.9	4.5	2.5	6.5
23 6	13 9	11 5	24 4
5.90	3.48	2.88	6.10
2.42			3.22
−1.21			+1.61
+1.61			
.40			

+.20 × .19 = +0.04

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1883phae.proj.1529B

Mar 25

1h 0m

Cali

	N. C.	S. C.
1h	72	1769.7
	7.8	9.0
	6.4	68.7
	214	2094
1h	7.1	69.8
17	6.8	
15	7.69	
17	8.36	Let drop

5h 30

	N C	
18	8.5	17 72.2
	3.8	72.2
	2.7	72.2
	103	
18	3.4	
17	72.2	
	15756	
17	87.8	Let drop

19h 35m B. Clus.

N. C.	S. C.
8.0	72.5
8.6	72.8
9.0	72.4
8.0	72.2
7.8	72.4
14	23
18 8.28	72.46
17 72.46	
18074	
17 90.37	

Let at 17 90.4

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1883phae.proj.1529B

Mar. 26, 1883

$1^h 35^m$ Level

up E	up W	down E	down W
8.0	5.0	3.9	5.8
6.0	7.0	3.6	6.0
9.0	4.0	3.9	5.7
5.0	8.0	2.0	7.6
280	240	14	251
7.00	6.00	3.35	6.28
1.00			2.93
0.50			+1.46
+1.46			
~~+.96~~			
.96			

$+0.48 \times .19 = +0.09$

$1^h 45^m$

N	S			Reg.	N	S		
8.6	4.2	35	4	11.6	2.8	9.8	3	55.8
11.2	1.6			8.9	6.2	6.3		53.0
8.6	4.3			7.6	2.8	9.8		50.4
11.7	1.2			16.0	6.3	6.1		59.2
01	113			41	181	320		184
10.02	2.82			11.02	4.52	8.00		54.60
720				−10.33		3.48		4.99
+3.60				0.69		−1.74		59.59

51 35
026
60.1

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1883phae.proj.1529B

Mar. 27, 1883

$20^h 5^m$

V.C.	S.C.
6.7	73.0
6.7	74.2
6.5	73.6
6.8	73.7
6.8	73.7
35	32

18 6.70 73.64

17 73.64

18034

17 90.17

Set at 17 90.2

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1883phae.proj.1529B

Mar. 28. 1883

Reg.

$0^h 40^m$ N	S			$0^h 55^m$ N	S		
4.3	5.0	35 4	3.0	4.0	11.8	35 3	53.4
8.4	8.0		8.6	8.0	8.0		51.2
11.3	5.0		1.1	4.0	12.0		48.9
7.7	8.6		9.1	7.9	8.0		57.5
387	266		21.8	239	398		11.0
9.68	6.65		5.45	5.98	9.95		52.75
303			4.36		3.97		+ 5.68
E 1.52			3.00 1.09		− 1.98		58.43

All of the above is correct except reading of microscope 7. S.H. So I got the relation between E & the mean of the 4 from the 2nd setting & computed the Reg from that.

− 0.65
2.35
4.36
57.99 approx

Level

$0^h 50^m$	up		down	
E	W	E	W
9.0	7.1	6.9	8.6
7.0	9.2	6.5	9.0
9.1	7.0	6.4	9.1
7.1	9.0	6.1	9.3
322	323	.19	0
8.05	8.08	6.48	9.00
	3		2.52
	+ .02		+ 1.26
	+ 1.26.		
	1.28		

+ 0.64 × .19 = + 0.12

$1^h 40^m$ N	S	Reg repeated	
6.6	6.0	35 3	59.0
9.0	3.8		56.9
6.3	6.3		56.8
9.0	3.8		5.1
309	199		378
7.72	4.98		59.45
274			3.93
+1.37			55.52

5-8.0
584
555
219
5-73

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1883phae.proj.1529B

Mar. 28, 1883

Runs

$4^h 40^m$

E		F1		G		H	
1.5	0.8	14.8	15.2	11.7	12.2	6.3	6.0
1.6	0.7	14.5	15.2	11.5	12.4	5.9	5.8
1.8	0.5	15.2	15.2	12.0	12.4	6.3	5.6
19	20	25		22	10	5	24
1.63	0.67	14.83	15.20	11.73	12.33	6.17	5.80

$20^h 45^m$ B. Cls

V.C	S.C
9.6	74.7
9.0	74.4
8.8	74.8
9.0	73.9
8.3	74.3
47	21
18 8.94	74.42
17 74.42	
1833 6	
17 91.68	

Set at 17 90.3

Artificial illumination used, set at old value.

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1883phae.proj.1529B

Mar. 28, 1883 Regulus

18h 35m

N	S			
9,2	8,4	35	4	5,0
11,3	6,3			2,6
8,7	9,0			57,4
12,1	5,5			5,7
41 3	29 2			107
10.32	7.30			2.68
302				−4.33
+ 1.51				58.35
				566
				50
				575

18h 55m

N	S			
9.0	8.5	35	3	55,2
5.8	11.7			52,5
9.0	8.4			47.4
5.8	11.6			56,3
296	402			114
7.40	10.05			52,85
	2,65			+ 3.79
	− 1,32			56,64

19h 0m Level

up E	up W	down E	down W
7,2	10,4	5,6	~~8,8~~
9,4	8,1	5,8	8,4
7,8	9,8	6,8	7,6
10.5	7,0	5,8	8,5
7,1	10,3	6,0	8,4
10,2	7,1	5,8	8,5
522	527	6,5	7,8
8.70	8.78	423	20
	8	7.05	8.33
	+0.04		1,28
	+ .64		+0.64
	68		
	+0.34	S ×.19 =	0.065

21h 35m

	N.C		S.C
18	9.8	17	77.7
	9.9		76.7
	8.9		77.6
	8.8		77.4
	9.9		77.2
	23		16
18	9.46		77.32
17	77.32		
	18678		
17	93.39		

Set at 17 93.4

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1883phae.proj.1529B

Mar. 28, 1883

Reading South — Flexure — Reading North

— By accident the two sides are reversed here.

		E	F	G	H	E	F	G	H
21h40m		6,3	4.6	59.2	7.6	5.2	15.9	8.1	5.0
		6.5	4.8	59.5	7.4	5.2	15.9	8.1	5.0
		6.5	4.9	59.4	7.3	4.8	15.9	8.0	5.3
55	4	13	23	11	13	2		2	3
		6,43	4.77	59.37	7.43	5.07	15.90	8.07	5.10

4.77
59.37
7.43
1800
4.50

5.07
15.90
8.07
5.10
34.14
8.54
+4.04
+2.02

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1883phae.proj.1529B

Mar. 29, 1883

$4^h\ 20^m$

	N.C		S.C
18	10.2	17	77.2
	10.4		77.0
	9.5		77.7
	9.1		79.1
	9.2		79.4
	34		404
	9.68		78.08
	7808		
	187.76		
17	93.88		

$4^h\ 30^m$

Flexure

	E	F	G	H
554	6.3	4.0	~~59.7~~	
	5.9	3.7	59.9	
	5.8	3.8		

South

E	F	G	H
6.3	4.0	1.4	10.9
5.9	4.7	1.7	10.4
5.8	3.9	1.3	10.8
0	6	14	21
6.00	4.20	1.47	10.70
4.20			
1.47			
10.70			
2237			
5.59			

North

E	F	G	H
1.5	14.4	10.2	5.7
1.3	14.7	10.2	5.7
1.2	14.2	11.4	5.6
10	13	18	2
1.33	14.43	10.60	5.67
14.43			
10.60			
5.67			
3203			
8.01			

8.01
5.59
2.42
+ 1.21

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1883phae.proj.1529B

Mar. 29, 1883

$18^h\ 40^m$ Reg.

N	S			
6.8	4.0	35	4	5.2
9.0	1.7			3.7
6.1	4.6			58.2
8.6	2.1			6.4
305	124			135
7.62	3.10			3.38
452				~~9.70~~
+2.26				−6.49
				56.89
				10
				11 0 5.9
				58.5

$19^h\ 0^m$

N	S		
9.3	9.0	3	59.8
6.7	11.5		58.0
10.0	8.3		52.5
7.1	11.0		0.6
331	398		309
8.28	9.95		57.72
	1.67		+2.38
	−0.83		0.10
	~~2.38~~		

$19^h\ 10^m$

N	S		
13.8	4.0	4	11.1
10.4	7.3		9.2
13.8	4.0		4.5
10.4	7.2		11.5
84	225		363
12.10	562		9.08
6.48			9.30
+3.24			59.78

$19^h\ 30^m$

N	S		
8.5	8.5	3	55.4
3.9	13.0		52.8
7.9	9.0		47.9
4.5	12.4		56.9
248	29		130
6.20	1072		53.25
	452		+6.49
	−2.26		59.74

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1883phae.proj.1529B

Mar. 29. 1883
$20^h 45^m$ Level

up				down	
E	W	E	W	E	W
7.1	10.3	8.7	8.5	8.0	10.5
9.1	8.2	10.4	6.8	7.5	10.9
7.1	10.1	7.1	10.0	8.2	10.3
9.2	8.0	10.0	7.0	8.0	10.5
32 5	6	2	323	37	22
8.12	9.15	9.05	8.08	7.92	10.55
	103	97			2.63
	+0.52	−0.48			+1.32
	−0.48				+.02
	04				134
	+.02				+0.67 ×19 = 0.13

If instead of combining +1.32 with the mean of the values for "Level up", you I take the first, +0.52 and +1.32 I get 2)1.84
+.92 × .19 = +0.18

If I take the second, −0.48, and +1.32 I get 2).84
+.42 × 19 = +0.08

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1883phae.proj.1529B

Mar. 30, 1883

$19^h\ 30^m$ Level

up		down		$22^h\ 0^m$	
E	W	E	W	N.C	S.C
				7.0	81.3
7.2	9.8	7.6	9.3	7.3	80.0
11.5	5.5	7.6	9.3	7.4	81.0
7.2	9.8	6.5	10.5	8.0	80.0
11.0	5.9	5.5	11.3	7.3	80.1
369	310	32	04	20	24
9.22	7.75	6.80	10.10	18 7.40	80.48
1.47			3.30	17 80.48	
−.74			+1.65	187.88	
+1.65				17 93.94	
0.9171				Set at 17 93.9	

$+0.46 \times 19 = +0.^s09$

$19^h\ 35^m$

N	S	Reg.	
		35	4
11.0	6.0		3.1
6.5	10.2		1.6
11.0	5.8		55.2
7.6	9.6		3.7
361	316		36
9.02	7.90		0.90
1.12			−1.61
+0.56			59.29

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1883phae.proj.1529B

April 1883

h m
12 30

18	4,4	17 72,6
	3,2	73,2
	5,1	71,8
	3,4	73,0
	5,2	72,0
	24,1	126
18	4,82	17 72,10
		18 4,12
		15 76,92
		17 88,46 Sel-M.

6 0

18	6,4	17 76,4
	6,6	75,2
	5,9	73,9
	6,0	75,0
	6,4	75,5
	31,3	24,0
18	6,26	75,0
17	73,60	
	15 81,86	
17	90,9	Sel-01.

19h 30m Level

up E	up W	down E	down W
6,8	6,5	5,0	8,0
9,5	3,8	4,5	8,5
9,2	4,0	5,2	7,7
6,5	6,7	4,7	7,8
32,0	21,0	19,4	0
8,00	5,25	4,85	8,00
2,75			3,15
-1,38			+1,58
+1,58			
20			

+0,10 × 19 = +0,02 S

19h 35m Reg.

N	S		
2,7	10,5	35 3	57,8
7,4	5,8		55,1
2,7	10,4		49,2
7,26	5,4		57,5
20,4	32,1		~~4,19~~
5,10	8,02		196
	2,92		54,90
	-1,46		+4,19
			59,09
			1,58
			0,67

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1883phae.proj.1529B

Apr. 1, 1883
21h 50m

N.C	S.C
6.6	73.0
5.6	72.8
5.6	73.0
6.0	74.2
5.4	73.4
42	14
5.84	73.28

73.28
179 12
17 89.56
Set at 17 89.6

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1883phae.proj.1529B

Apr. 2, 1883

$5^h 5^m$ B. Obs.

N.C	S.C
8.2	77.2
7.0	76.2
7.0	75.8
7.5	76.6
7.5	77.4
22	332
7.44	76.64
76.64	
18408	
1792.04	

Set at 17 90.5

Seeing very bad in 2nd half. Settings uncertain.

$20^h 0^m$ B. Obs.

N.C	S.C
11.0	73.8
10.3	73.2
10.0	73.3
10.6	72.2
10.0	72.5
19	0
10.38	73.00
73.00	
18338	
91.69	

Set at 17 91.7

Level

B. Obs

up E	up W	down E	down W
8.7	2.2	5.6	9.0
5.7	5.3	5.1	9.5
8.2	2.7	4.2	10.3
5.2	5.5	4.9	9.8
278	157	38	26
6.95	3.92	4.95	9.65
303			4.70
−1.52			+ 2.35
+ 2.35			
.83			

+.42 × 5/19 = +0.08

R. Obs

up E	up W	down E	down W
5.4 ~~5.8~~	5.8	6.2	8.3
9.1	1.4	7.7	7.2
145	65	5.6	8.9
7.25	3.25	5.5	9.0
400		250	334
− 2.00		6.25	8.35
+ 1.05			2.10
.95			+ 1.05

− .48 × 5/19 = − 0.09

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1883phae.proj.1529B

Apr. 2, 1883

Reg. R. Obs.

N	S			
5.8	4.8	35	4	6.2
10.8	0.1			4.7
166	49			1.4
8.30	2.45			7.5
585				198
+292				4.95
				−8.38
				56.57

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1883phae.proj.1529B

Apr. 3, 1883

19h35m R. Obs.

	N.C	S.C
18	1~~2~~3	17 70.7
	14.8	72.3
	14.2	71.8
	14.2	72.7
	13.0	72.8
	5	10 3
18	14.10	7206
17	72.06	
	186.16	
17	93.08	

Set at 17 9~~0~~3.1

19h40m Flexure R. Obs.

	E	F	S	H	E	F	S	H
55 4	3.7	14.2	7.8	5.0	6.1	4.8	5.1	9.9
	3.2	14.7	8.2	5.3	6~~4~~.8	4.7	5.1	10.1
	3.0	14.8	8.2	5.8	5~~7~~5.7	4.5	5.6	10.0
	9	17	2	11	0	20	8	0
	3.30	14.57	8.07	5.37	6.00	4.67	5.27	10.00

14.57
8.07
5.37
3131
+ 7.83
− 6.48
1.35
+ 0.66

4.67
5.27
10.00
25.94
6.48

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1883phae.proj.1529B

Apr. 3, 1883

Runs

22h 5m

E		F		G		H	
25.5	23.8	36.5	36.1	29.4	25.4 31.4	25.4	26.0
24.8	23.7	36.8	36.8	29.7	25.2 31.71	25.2	25.5
25.0	23.4	36.5	36.5	29.9	25.2 31.2	25.2	25.7
3	19	18	14	20	7	8	22
25.10	23.63	36.60	36.47	29.67	31.23	25.27	25.73

At this date commenced reading with the level above & below instrument to get the flexure ~~at~~ for the instrument set on the North & South points.

22h 10m

Reg. ~~Feb~~ Level up

N	S			N	S		
19.8	1.4	35	4 19.3	1.3	19.8	35	32.2
16.2	5.0		18.4	2.9	~~31.7~~ 18.2		31.7
160	64		15.5	2	~~28.7~~ 0		28.7
18.00	3.20		22.4	2.10	~~35.4~~ 19.00		35.4
1480			356		16.90		80
7.40			18.90		8.45		32.00
			-21.24				24.25
			57.66				56.25

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1883phae.proj.1529B

Apr. 3. 1883

Reg.

N	S		
8.4	11.6	3	51.1
9.8	11.1		49.6
2	7		47.1
9.10	11.35		53.6
	2.25		14
	− 1.12		50.35
			+ 3.21
			53.56

$22^h\ 20^m$ Level

up		down	
E	W	E	W
11.0	9.9	11.1	14.8
12.6	8.1	11.0	14.8
12.5	8.2	13.1	13.6
10.2	10.3	13.1	13.5
63	36.5	83	7
11.58	9.12	12.08	14.18
2.46			2.10
− 1.23			+ 1.05
+ 1.05			
.18			
− .09			

$\times .19^s = -0.02^s$

$22^h\ 25^m$

N	S	Reg.	Level down
13.9	11.8	35 3	47.3
11.9	13.9		58.7
~~58~~	~~57~~		54.9
~~12.90~~	~~12.85 stat~~		49.1
~~11.1~~	~~14.8~~		100
05			52.50
+.02			− 0.06
			52.44

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1883phae.proj.1529B

Apr. 6. 1883

1h 30m

	N.C.		S.C
18	19.0	17	72.0
	18.0		73.6
	18.6		73.5
	17.0		72.8
	19.7		73.1
~~18~~	423		40
18	18.46		72.80
17	72.80		
	19126		
17	95.63		

Set at 17 95.6

1h 40m Level

up E	up W	down E	down W
~~14.8~~ 13.2	10.2	5.0	7.4
11.4	12.0	4.8	7.8
11.2	12.1	98	12
14.2	9.2	4.90	7.60
100	35		2.70
12.50	10.88		+1.35
162			
-0.81			
+1.35			
.54			

+.27 × 19 = +0.05

1h 35m — Up

N	S	
18.2	5.0	35
22.8	1.5	
10	65	
20.50	3.25	
17.25		
+8.62		

4 20.3
19.1
23.6
28.4
114
22.85
- 24.74
58.11

Reg. down

N	S		
10.0	2.3	35	3 44.2
5.1	6.8		56.3
151	91		0.8
7.55	4.55		52.2
300			135
+1.50			53.38
			~~+63~~
			~~+57.7~~ 57.1

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1883phae.proj.1529B

Apr. 6. 1883

N	S			
18.8	4.8	35	4	7.9
17.6	6.3			5.8
164	111			10.0
18,20	5.55			15.5
1265				392
6.32				9.80
				−18.14
				51.66

N	S			
6.2	6.2	35	3	41.3
5.8	6.3			53.0
120	5			56.4
6.00	6.25			47.5
	.25			49.55

N	S			
9.9	13.8	35	3	47.4
12.2	11.1			45.7
221	49			49.0
11.05	12.45			54.9
	1.40			370
	− 0.70			49.25
				+2.01
				51.26

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1883phae.proj.1529B

Apr. 6. 1883

Value of division of McCloud level

N	S				N	S			
7.6	23.9	30	0	17.0	8	23.1		0	19.3
	16.3			14.8					17.7
	− 8.15			15.8					18.8
				22.9					24.8
				30 5					
			30	17.62					80 6
									20.15

N	S								
22.3	9.4		0	48.6	22.2	10.0		0	47.0
129				46.6	122				45.7
+ 6.45				48.4	+ 6.10				47.7
				54.0					52.3
				376					327
14.7									
14.5			30	49.40	11				48.18

142) 31.78 (2.18
29 2
2 58
146
11 20

2,18
2,14
2,16

1 div =

137) 2803 (20.4
262
1 83
131
5 20

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1883phae.proj.1529B

Aug. 8 1883

	N	E
18	12.1	17 79.1
	13.1	79.6
	12.6	78.2
	12.2	78.4
	12.5	79.0
	12.5	45.0
18	12.50	17 79.00
		18 12.50
		15 91.50
		17 [illegible]
		Lat at 17 91.7

22h 25m	N.C.	S.C.
18	6.4	17 75.8
	8.7	75.8
	7.4	76.7
	8.7	77.5
	8.7	77.6
	49	334
	7.98	76.68
	76.68	
	18466	
	17 92.33	
	Set at 17 92.3	

From 22h 30m to 23h 0m

Up

N	S			
10.9	5.6	35	4	10.1
15.4	0.9			8.5
63	65			10.8
13.15	3.25			15.8
990				52
4.95				11.30
				−14.21
				57.09

Down

N	S		
11.6	11.9	3	37.5
12.9	10.7		49.5
145	6		50.4
12.25	11.30		43.2
7.95	405		1806
.48	2.02		4.5.15
	387		−7.38
	774		43.77
			52.89

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1883phae.proj.1529B

Apr. 8, 1883

N	S		
9.2	7.0	3	52.7
6.0	10.4		51.7
152	174		52.4
7.60	8.70		58.2
	1.10		2150
	0.55		53.75
			+1.58
			55.33

N	S		
~~10.8~~	~~7.1~~	~~3~~	~~47.1~~
~~9.1~~	~~9.2~~		~~59.1~~
			~~59.0~~
			~~58.2~~
10.4	8.7	3	51.9
14.6	4.2		37
50	129		39
12.50	6.45		56.3
6.05			358
3.02			58.95
			− 8.67
			50.28

N	S		
5.4	10.8	3	39.8
2.8	13.6		38.5
82	44		40.7
4.10	12.20		45.5
	8.10		45
	4.05		41.12
	~~87~~		+11.62
			52.74

N	S		
9.1	9.2	3	37.0
3.8	13.9		41.8
129	231		48.2
6.45	11.55		41.4
	5.10		154
	2.55		43.85
			+7.32
			51.17

up	down
53.33	52.89
52.74	50.28
52.13	51.17
52.115	51.68
265	602
53.16	51.51

+1.65
+.82

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1883phae.proj.1529B

Aper. f. 1883

Level

up		down	
E	W	E	W
11.0	5.3	8.0	10.6
8.2	7.9	8.1	10.3
9.1	7.0	8.8	9.8
12.1	4.1	7.9	10.9
11.1	4.9	8	16
11.0	5.1	8.20	10.40
8.1	7.8		2.20
7.8	8.1		+1.10
784	502		−1.76
9.80	6.28		.66
3.52			−0.33 ×19 = −~~7~~ 0.06
−1.76			

Reg. repeated

N	S		
7.1	8.9	3	52.0
9.3	6.4		51.2
164	153		52.1
8.20	7.65		57.7
55			130
0.28			53.25
			− 80
			52,45

Reg repeated

N	S		
5.3	10,2	3	40.0
2,6	13,1		39.4
79	33		39.4
3.95	11.65		45.5
	7.70		43
	3.85		41.08
			+11.05
			52,13

N	S		
11.1	7.8	3	45.3
8.0	10.8		56.6
191	186		56.5
9.55	9.30		49.5
25			81
.12			52.02
			− 34
			51.68

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1883phae.proj.1529B

Apr. 8. 1883

N	S			N	S		
25.1	12.8	30	36.4	12,0	24.7		16.2
			47.4				27.5
			44.3				24.0
			39.9				19.8
			80				75
			42.00				21.88

Sun behind

N	S			N	S		
14.8	22.1		22.3	22.4	14.1		41.9
10,3	9.3		33.8	10,4	10,7		52.6
			30.0				49.9
			26.0				44.9
			112.1				189.3
			28.02				47.32
			28.02				25.44
			28.98				21.10
			57.00				4.34
			4.35				4.200
			2.60				1.90

(1.42?)

1.9

2,41

1883phae.proj.1529B

Apr. 9, 1883 m Mc Geod. level.

N	S			N	S		
14.0	22.0	25	3 38.4	22.1	13.8	3	56.1
?			36.5				55.0
			40.9				58.8
			47.9				5.5
			37				354
8 (N)	17.53	(2.20	40.92				58.85
	~~1630~~			F.1	F.2		17.93
	~~210~~						
	1634						
	630						

1 div = 2".20

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1883phae.proj.1529B

Apr. 10, 1883

$6^h 10^m$

	N.C.	S.C.
18	27.0	77.0
	26.0	79.0
	26.7	77.4
	25.9	79.1
	26.3	78.0
	319	405
18	26.38	78.10
17	78.10	
	0448	
18	2.24	

Repeated $6^h 20^m$

	N.C.		S.C.
18	24.5	17	73.2
	24.2		74.6
	24.2		73.3
	24.3		73.8
	24.6		72.9
	18		18
18	24.36		73.56
17	73.56		
	197.92		
17	98.96		

At $6^h 35^m$ Set at 17 99.0

Seeing very bad.

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1883phae.proj.1529B

Aper. 11. 1883

$22^h 15^m$

	N.C.	S.C
18	15.4	71.2
	13.2	71.3
	13.9	70.1
	13.7	70.2
	14.1	70.1
	203	29
18	14.06	70.58
17	70.58	
	18464	
17	92.32	

Let at 17 92.3

$22^h 20^m$ Flexure

	E	F	G	G	E	F	G	
3	59.6	13.1	12.9	7.3	4.3	4.2	5.7	12.8
	59.9	13.0	13.2	7.7	3.8	4.2	5.8	12.5
	59.8	12.5	13.8	7.1	3.9	3.8	6.3	12.0
	23	26	9	11	0	2	28	13
	59.77	12.87	13.30	7.37	4.00	4.07	5.93	12.43

12.87
13.30
7.37
3331
8.33
6.61
1.72
+ 0.86

4.00
4.07
5.93
12.43
2643
6.61

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1883phae.proj.1529B

Aper. 11, 1883

$22^h 25^m$

	E		F		G		H	
			Runs					
5 0	19.7	0 17.8	31.1	30.2	30.2	31.8	25.8	25.8
	19.6	17.7	30.8	30.8	30.6	31.8	25.2	25.5
	19.2	18.0	31.2	31.3	30.9	31.6	25.0	25.3
	15	25	1	3	19	22	10	16
	19.50	17.83	31.03	31.10	30.63	31.73	25.33	25.53

Reg-

N	S	up		N	S	down	
14.9	0.6	35. 3	56.8	14.8	2.8	35	42.2
7.8	6.5		56.4	18.8	-1.8		4.5
227	71		58.9	136	10		15.2
11.35	3.55		4.3	16.80	0.50		89
780			36.4	16.30			08
3.90			59.10	8.15			10.20
			- 11.19				- 23.39
			47.91	47.91			46.81
				50.57			47.34
				50.04			47.00
				148.52			21.15
				49.51			47.05
				47.05			
				+2.46			
				+1.23			

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1883phae.proj.1529B

N	S		
5.0	9.2	3	46.6
7.9	6.4		45.2
129	156		47.9
6.45	7.80		54.8
	135		345
	0.68		48.62
			+ 1.95
			50.57

N	S		
11.8	4.8	3	45.4
9.9	7.86		54.6
217	124		588
10.85	6.20		52.87
465			160
2.32			54.00
			− 6.66
			47.34

N	S		
4.4	9.8	3	36.3
1.6	12.7		35.3
60	225		37.3
3.00	11.25		44.0
	825		329
	4.12		38.22
			+ 11.82
			50.04

N	S	
9.0	8.0	44.6
11.7	5.2	56.8
207	132	57.2
10.35	6.60	51.0
375		96
1.88		52.40
		5.40
		47.00

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1883phae.proj.1529B

Apr. 11, 1883

22h 45m

McCloud Level

~~N.~~	—	S			N	S		
7.0	—		25	2	50.2	~~10.9~~	~~10.0~~	3 1.8
					49.8	9.2	-8.0	1.6
					51.6			3.0
					57.7			10.1
					93			16.5
					52.32			4.12

short bubble

N	S			N	S		
-11.1	21.8	2	2.7	10.2	20.9	2	2.7
181			1.5				2.0
			2.6	284			2.8
			10.1	289			10.4
			169	286			179
			4.22			2	4.48
			52.32			3	4.72

181) 481.0 (2.66
362
1190
1086
1040

266
204
74

2.37

194) 59.64 (2.08
2165
>30
2340

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1883phae.proj.1529B

Apr. 13, 1883

$6^h 45^m$ R. Obs.

	N.C.		S.C.
18	16.4	17	75.1
	16.9		72.8
	17.2		78.3
	15.9		78.0
	17.3		73.1
	337		163
18	16.74		73.26
17	73.26		
	19000		
17	95.00		

Set at 1793.3

$22^h 25^m$ B. Obs.

N.C.	S.C.
18.5	77.3
18.4	77.5
18.5	77.3
18.2	77.1
18.8	76.6
24	8
18.48	77.16
77.16	
195.64	
17 97.82	

Set at 17 97.8

$22^h 50^m$ Level B. Obs

Up E	Up W	down E	down W
8.5	4.0	5.0	7.0
6.0	6.4	5.2	6.9
5.6	7.0	6.0	6.2
9.0	3.5	6.7	5.5
291	209	229	256
7.28	5.22	5.72	6.40
206			.68
−103			+.34
+ 34			
.69			
−.35			

$\times 19^s = -0.07$

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1883phae.proj.1529B

Apr. 14. 1883

Sun B Obs.

N.C	S.C.
16.2	69.2
15.9	68.8
16.1	69.2
16.2	69.5
16.1	69.3
5	10
18 16.10	69.20
17 69.20	
185.30	
17 92.65	

Set at 17 95.2
the mean of this &
the preceeding collimation

Apr 14 21h 0m

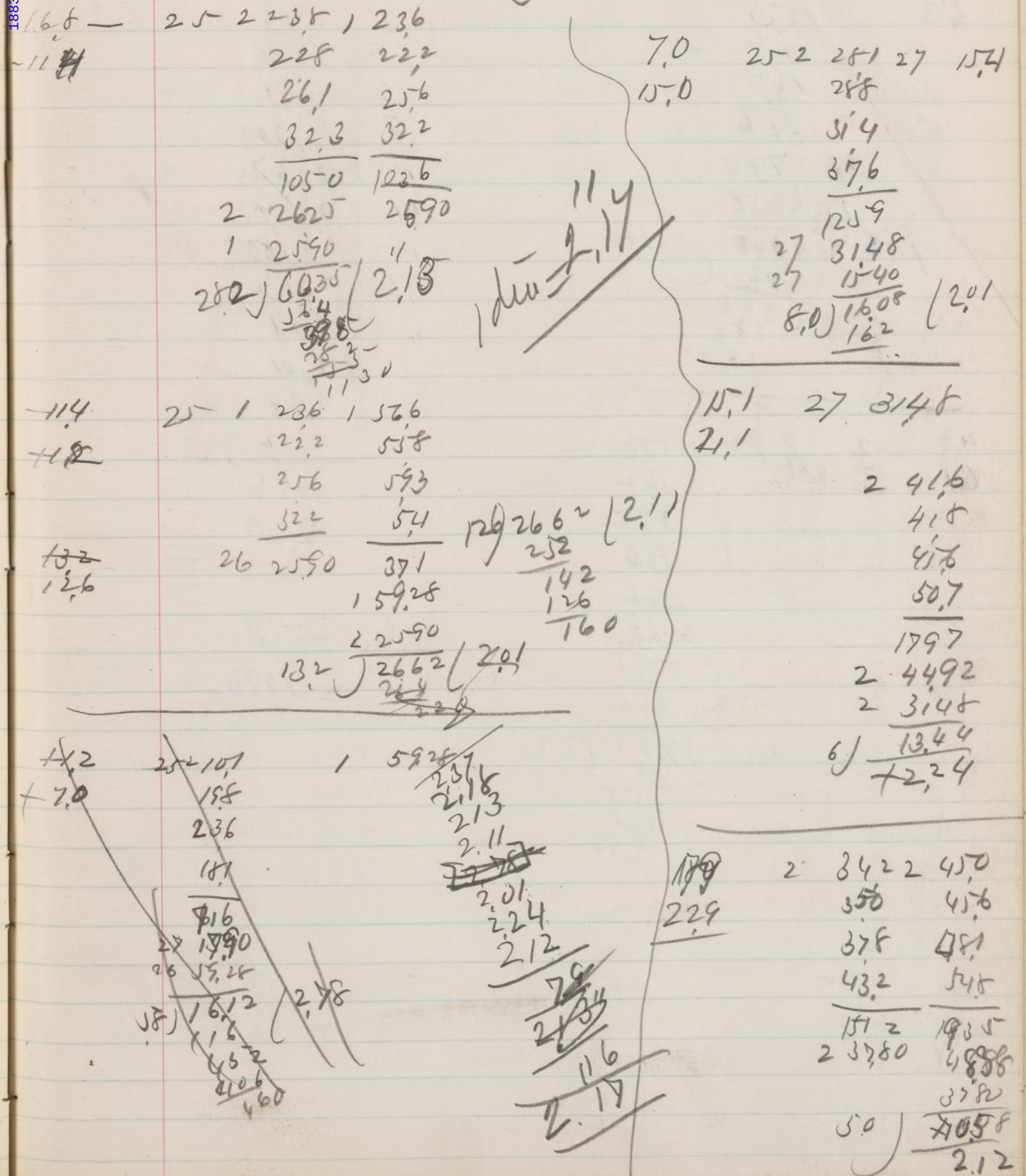
C	N C	
18	13.2	750
	13.8	748
	13.2	748
	13.0	741
	13.1	748
	5	5
	18 13.12	17 74.70
		18 1312
		15-8752
		17 93.41

Set N 17 934

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1883phae.proj.1529B

M. 2 Cloud Level Alt 14



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1883phae.proj.1529B

229 2 5-2
4.3 5.3
7 4
137
316
2 790
2 48.38
186) 4048 (2.18
372
328
186
1420

Alu 6 2,18
" 2,14
8 2,41
9 2,20
11 2,37
14 2,37
" 2,18
" 2,13
" 2,11
" 2,01
" 2,24
" 2,12
246
2,20

4.3 2 7.80 | 1 558
0.1 132
~~5978~~
60
~~2091~~
2318
1 557.5
2 7.80
4.2) 995 (237
84
155
126
290

1 div = 2.20"
= .148s

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1883phae.proj.1529B

Apr. 15/16

$12^h 55^m$

Flexure

	E	F	G	H	E	F	G	
55^s 4	58.7	12.1	16.1	8.2	3.0	3.0	8.3	14.4
	59.0	12.3	15.6	8.1	3.0	2.7	8.4	14.1
	59.2	12.7	15.8	8.0	3.4	3.3	7.9	13.7
	29	11	25	3	4	0	6	2
	58.97	12.37	15.83	8.10	3.13	3.00	8.20	14.07

12.37
15.83
8.10
3527
8.82~~8~~
7.10
172
+ 0.86

	N.C.	S.C.
$1^h 0^m$ 18	16.0	17 66.7
	16.9	67.7
	16.9	68.0
	18	224
18	16.60	67.47
17	67.47	
	18407	
17	92.03	

Set at 17 92.0

3.00
8.20
14.07
28.40
7.10

	N.C.	S.C.
$22^h 40^m$ 18	20.1	67.0
	20.6	68.4
	19.1	68.3
	19.0	68.8
	19.1	67.2
	29	47
18	19.58	67.94
17	67.94	
	18752	
17	93.76	

Set at 17 93.8

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1883phae.proj.1529B

Apr. 16, 1883

$22^h 45^m$

Flexure

	E	F	G	H	E	F	G	H
55 3	58.0	11.1	15.4	8.8	2.5	2.9	9.0	14.8
	57.7	11.1	16.2	8.8	1.8	2.7	8.8	14.1
	58.5	11.0	16.4	8.5	2.4	2.3	8.4	14.4
	2	2	0	21	7	19	22	13
	58.07	11.07	16.00	8.70	2.23	2.63	8.73	14.43

11.07
16.00
8.70
33.84
8.46
7.00
1.46
+ 0.73

2.63
8.73
14.43
2802
7.00

$22^h 50^m$

Reg. Windmill down

N	S		N	S	
13.3	9.2	35 4 0.5	13.1	14.8	35 3 38.7
16.7	6.0	59.3	14.0	13.7	51.5
100	152	6.1	▽1	85	57.5
15.00	7.60	10.6	13.5	14.23	49.2
7.40		165		0.70	1969
3.70		4.12			3 49.2
		− 10.62			+ 2.01
		53.50			51.23
		51.88			
		51.50			
		688			
		52.29			

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1883phae.prbj.1529B

Up

N	S		
13.6	9.0	3	51.6
11.4	11.2		50.2
50	202		57.2
12.50	10.10		2.3
2.40			213
1.20			55.32
			- 3.44
			51.88

Down

N	S		
16.8	12.3	3	42.6
12.8	16.3		56.0
96	86		1.7
14.80	14.30		53.1
50			134
0.25			53.35
			- .72
			52.63

5-2.63
51.23
53.61
~~747~~
52.49
5-1.63
0.86
+43

N	S		
9.2	13.3	3	45.5
11.7	10.9		44.3
209	42		50.6
10.45	12.10		56.2
	1.65		366
	0.82		49.15
			+ 2.35
			51.50

N	S		
~~19.0~~	~~16.0~~ 8.6	~~11.3~~	3 57.0
13.9	13.9		6.3
15.9	11.8		12.0
98	57		8.4
14.90	12.85		16.0
205			4.00
102			10.39
19.0	16		53.61
15.9	11.8		
149	204		
17.40	10.20		
7.25			
3.625			

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1883phae.proj.1529B

Apr. 16. 1883

$3^h 15^m$

up E	up W	down E	down W
9.7	12.9	13.9	14.0
12.9	9.6	13.7	13.9
12.8	9.7		
10.1	12.1	13.90	13.95
55	443		05
11.38	11.08		+.02
30.			
-.15			
+.02			
-.13			

$b = -.06 \times {}^s19 = -0,{}^s01$

Reg repeated

N	S				
14.4	7.9	35	3	59.9	13.1 16
15.8	6.6			58.5	
102	145			6.0	
15,10	7.25			10.4	
785				148	
3.92				3.70	
				− 11.25	
				52.45	

5-2.45
5-1.25
5-1,28
498
5163

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1883phae.prbj.1529B

N	S		
13.2	9.0	3	52.1
12.0	10.2		50.8
52	192		57.0
12.60	9.60		2.3
300			222
1.50			55.55
			4.30
			51.25

N	S		
10.4	11.9	3	46.3
10.8	11.3		44.5
12	12		51.8
10.60	11.60		56.8
	100		394
	0.50		49.85
		+	1.43
			51.28

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1883phae.proj.1529B

Apr. 16, 1883

$23^h 20^m$ McCloud level

N	S		N	S	
21.2	—	43.5	−10.0	—	31.2
		49.0			30.0
		55.1			36.2
		182 1			42.0
		45.5			139 4
					2 34.8
					8 45.5
					31.2) 49.8
					707 (2.27
					624
					830
					624
					206

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1883phae.proj.1529B

Aper. 17. 1883
14 0m

	N.C.		S.C.
18	23.6	17	65.1
	24.3		~~64.5~~
	25.4		67.1
	25.2		66.7
	24.9		66.6
	34		16
	24.68		66.32
	66.32		
	19100		
17	95.50		

~~Set~~ at 17 95.5

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1883phae.proj.1529B

1883

Multiplex

22h45m	E	F	G	H	Σ	F	G	H
55 B	57.3	11.0	14.7	9.2	1.5	1.8	7.1	14.8
	57.3	10.7	15.8	8.9	1.0	1.9	7.3	14.6
	57.7	10.4	15.4	8.5	1.5	2.2	7.3	14.8
	13	21	9	26	10	29	7	22
	57.43	10.70	15.30	8.87	1.33	1.97	7.23	14.73
	10.70				1.97			
	15.30				7.23			
	8.87				14.73			
	32.30				25.26			
	8.08				6.31			
	1.77							
	+0.88							

22h50m

	N.C.	S.C.
	27.1	70.8
	29.4	71.3
	28.1	71.1
	28.0	70.9
	28.0	71.2
	6	53
18	28.12	71.06
17	71.06	
	199.18	
17	99.59	

Set at 1799.6

23h5m Level

	Up E	Up W	Down E	Down W
	6.7	7.7	8.8	9.9
	9.1	5.1	8.9	9.8
	9.1	5.1	8.9	9.8
	5.4	8.8	9.2	9.8
	6.2	8.0	38	33
	8.4	5.7	8.95	9.82
	449	404		.87
	7.48	6.73		+.44
	0.75			
	− 0.38			
	+ 0.44			
	.06			

b = +.03 x 19 = +0.01

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1883phae.proj:1529B

Aper. 18. 1883

$22^h 55^m$

N	S			
15.4	-0.8	35	4	14.5
17.1	-3.2			15.1
125	40			20.1
16.25	-2.00			27.0
18.25				36.7
9.12				19.18
			−	26.17
				53.01

N	S			
11.6	6.7			~~39.3~~
10.1	3.7	35	3	52.2
17	10 4			5.2
10.85	5.20			9.7
565				3.9
2.82				110
				2.75
			−	8.09
				54.66

N	S			
14.5	-0.2	0	4.0	
11.7	2.8		3.7	
62	26		9.5	
13.10	1.30		15.9	
1180			331	
5.90			8.28	
			−	16.93
				51.25

N	S	
13.0	5.7	46.6
12.3	6.3	59.7
53	120	34
12.65	6.00	58.0
665		280
3.32		57.00
		−9.53
		47.47

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1883phae.proj.1529B

Aper. 18, 1883

N	S		
9.3	5.0	3	58.0
10.8	3.6		58.0
01	86		2.9
10.05	4.30		9.8
5.75			87
2.88			2.18
			−8.26
			53.92

N	S	
10.0	8.6	40.1
10.9	7.9	530
9	5	556
10.415	8.25	516
220		03
1.10		50.08
		3.186
		46.982

5301
57.21−
53.92
5337
53.32
148▷
52.99▷

up 52.97
down 50 22
72 75−
+1.07

N	S		
8.9	5.2	3	48.9
5.0	9.1		48.4
139	143		53.5
6.95	7.15		1.3
	.20		2121
	.10		53.08
			+ .29
			53.37

N	S	
9.8	9.21	30.0
8.8	10.1	47.8
6	12	52.1
9.30	9.60	46.3
	30	212
	.15	45.30
		+ .43
		45.73

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1883phae.proj.1529B

Apr. 18. 1883

N	S		
3.3	10.7	3	43.9
7.0	6.9		43.2
103	176		49.3
5.15	8.80		56.0
	365		324
	−1.82		48.10
			+ 5.22
			53.32

N	S	
4.0	14.6	21.7
4.7	13.9	35.7
7	5	39.3
4.35	14.25	33.0
	9.90	97
	4.95	32.42
		+ 14.21
		46.63

Length of Spruce McCloud Level

33 +

23.1 — 30 3 4.8 1.8 — 2 25.4

5.4 25.0

8.3 29.1

17.0 37.0

35 116

33 8.88 29.12

29.12

213 89.76 (1.87

213

1846

1704

1420

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1883phae.proj.1529B

Apr. 18, 1883

187
241
428
214

N	S			N	S		
22.8	—	30	16.1	3.0	—	3	3.8
			16.0				4.2
			20.5				8.0
			27.9				15.8
			80.5				31.8
			20.12				7.95

33 795
3 2 20.12
156 4783 / 24131
936
823
792
310

For level down took a 2nd series with longer time for bubble to settle —

N	S			N	S		
7.2	11.4	35	31.3	2.6	16.1		23.8
5.1	13.0		45.3	4.9	14.0		36.9
12.3	24.4		48.5	7.5	10.1		39.5
6.15	12.20		42.8	3.75	15.05		34.1
	6.05		41.98		11.30		143
	3.02		8.61		5.65		33.58
			50.59				16.22
							49.80

N	S		
9.9	9.0		39.1
8.2	10.3		52.3
1	1.93		56.1
9.05	9.65		50.2
	.60		37.7
	.30		49.42
			+.86
			50.28

50.59
50.28
49.80
150.67
50.22

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1883phae.proj.1529B

Apr. 20, 1883

$21^h 0^m$ B. Clks,

~~73~~ Level

$23^h 5^m$

Up		down		N.C	S.C.
E	W	E	W	19.0	74.8
8.0	3.8	5.0	7.0	18.9	74.4
6.2	5.6	4.4	7.6	18.0	74.2
8.0	4.0	5.5	6.5	19.5	74.2
5.9	6.0	4.4	7.6	19.0	73.5
1	194	193	7	44	11
7.02	4.85	4.82	7.18	18 18.88	74.22
2.17.			236	17 74.22	
- 1.08			+1.18	19310	
+ 1.18				17 96.55	
10					

$+.05 \times .19 = +0.01^s$

Set at 17 96.6

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1883phae.proj.1529B

Alm 222 h 15 —

	N	E
18	84	17 64
	10	5 58
	9	8 60
	8	8 66
	8	8 66
	463	293
18	926	176586
		18 926
		157512
		17 87.5 Sel-01 —

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1883phae.proj.1529B

Aper. 24, 1883

$3^h 0^m$	N.C.	S.C.
18	13.7	74.7
	13.9	74.2
	13.7	74.8
	12.2	74.8
	12.1	74.4
	6	29
18	13.12	74.58
17	74.58	
	18770	
17	93.85	

Set at 17 93.9

$23^h 30^m$

	N.C.	S.C.
18	8.7	17 79.1
	8.7	78.7
	9.7	77.7
	9.8	77.2
	8.3	77.8
	2	405
18	9.04	78.10
17	78.10	
	18714	
	93.57	

Set at 17 93.6

Flexure

$23^h 25^m$	E	F	G	H
55 4	3.1	15.8	12.8	9.4
	3.2	16.1	13.2	9.3
	3.0	16.7	13.4	9.1
	+3	6	4	8
	3.10	16.20	13.13	9.27
	16.20			
	13.13			
	9.27			
	4170			
	10.42			
	1.67			
	+0.83			

E	F	G	H
6.7	7.6	6.3	14.4
6.7	7.2	5.8	14.9
7.3	7.4	5.6	15.1
27	12	27	24
6.90	7.40	5.90	14.80
7.40			
5.90			
14.80			
3500			
8.75			

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1883phae.proj.1529B

Apr. 24. 1883

$23^h 30^m$

Runs

		E		F		G		H	
5	0	9.2	7.8	21.3	20.7	17.3	17.3	14.3	14.1
		8.7	7.7	21.3	20,8	17.8	17.0	14.2	14.1
		9.7	7.4	21.1	20.7	17.3	17.0	15.1	14.3
		8.8	8.1	21.0	20.0	17.7	17.3	14.4	14.2
		8.7	8.4	20.7	20.8	17.6	17.7	14.4	14.0
		1	44	4	30	27	13	24	7
		9.02	8.88	21.08	20.60	17.54	17.26	14.48	14.14
			7						

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1883phae.proj.1529B

Apr. 25, 1883

$23^h 40^m$

	N.C.		S.C.
18	7.0	17	76.6
	8.4		76.3
	7.8		76.2
	9.7		76.8
	8.2		76.8
	411		27
18	8.22		76.54
17	76.54		
	1847 6		
17	92.38		

Set at 1792.4

$23^h 35^m$ mean

Flexure

E	F	G	H	E	F	G	H
2.5	14.8	11.8	8.8	6.0	6.0	3.8	13.0
2.7	15.1	11.5	8.2	6.1	6.0	4.0	13.0
2.4	15.2	11.8	8.7	5.7	6.1	4.1	12.8
16	1	21	17	28	1	29	28
2.53	15.03	11.70	8.57	5.93	6.03	3.97	12.93
15.03				6.03			
11.70				3.97			
8.57				12.93			
3783				2886			
9.46				7.21			
225							
+1.12							

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1883phae.proj.1529B

Aper. 25, 1883

$23^h 45^m$

N	S			
2.7	9.0	35	3	37.4
−2.0	13.0			36.2
7	220			35.5
0.35	11.00			43.7
	1065			328
	−5.32			38.20
			+	15.27
				53.47

N	S	
~~0.4~~	~~11.1~~	~~42.1~~
10.1	6.89	3 48.4
11.8	5.2	1.2
19	1	58.9
10.95	6.05	54.0
490		2225
2.45		55.62
		−7.03
		48.59

N	S	
0.4	11.1	42.1
4.1	7.1	42.4
45	182	40.6
2.25	9.10	48.8
	6.85	139
	−3.92	43.48
		+ 11.25
		54.73

N	S	
4.9	6.9	3 44.6
3.9	7.8	56.3
8	147	537
4.40	7.35	495
	2.95	2042
	1.42	5105
		+ 4.12
		55.173

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1883phae.proj.1529B

Apr. 25, 1883

N	S	
7.0	4.6	50.8
3.5	7.9	49.6
105	125	48.7
5.25	6.25	56.9
	100	60
	0.50	51.50
		+ 1.44
		52.94

53.47
52.94
54.73
1114
53.71 mean.

N	S	
~~5.9~~	~~11.1~~	36.0
6.0	10.9	48.1
4.0	12.8	45.1
0	37	405
5.00	11.85	97
	6.85	42.42
	- 3.42	+ 9.82
		52.24

48.59
55.13
52.24
596
51.99 mean

Level

up		down	
E	W	E	W
8.0	3.5	7.8	9.1
4.7	6.8	7.8	9.1
127	103		
6.35	5.15	7.80	9.10
120			1.30
-0.60			+ 0.65
+0.65			
.05			

$b = +.02 \times .19 = 0.00$

5871 = up
5199 = down
172
1.86

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1883phae.proj.1529B

Aper. 25. 1883

Mc. Cloud level

N	S				N	S		
19.0	2.7	30	3	11.1	~~7.6~~ 16.7	5.0	3	7.9
				11.4				8.1
				9.2				5.0
				17.2				13.7
				89				347
				12.22				8.68

N	S				N	S		
5.~~4~~2	16.~~8~~1	2	43.4		3.3	18.0	2	40.1
138	13.4		44.4		13.4	13.0		40.7
			41.8					37.1
			50.1					46.6
			197					45
		2	44.92		201		2	41.12
		3	1222		209		3	868
		136	27.30	(2.01	2.05		134	27.56 (209
			22					264
			100					116

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1883phae.proj.1529B

Apr. 27.1883
$23^h\ 45^{-m}$

	N.C.	S.C
18	16.5	77.3
	16.7	76.9
	16.5	76.9
	16.3	77.0
	16.8	77.2
	28	3
18	16.56	77.06
17	77.06	
	193.62	
17	96.81	

Set at 17 96.8

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1883phae.proj.1529B

Aug 29 1883 C=

W.C. S.C.

(F/3.0	17	90.1
12.8		68.5
12.2		68.5
13.0		68.9
13.7		68.5
141		445
12.94	17	68.90
	18	12.94
	18	81.84
	17	90.9 Set at

23h 45m N.C. S.C.

18	7.6	17 80.8
	8.2	79.0
	7.0	79.8
	8.3	77.6
	8.6	78.2
	47	454
18	7.94	79.08
17	79.08	
	18702	
17	93.51	
Set at	17	93.5

Flexure

23h 50m

	E	F	G	H
55 4	2.1	15.0	11.7	8.9
	2.6	14.8	11.4	8.7
	12.9	14.8	12.4	8.8
	6	26	25	
	2.20	14.87	11.83	8.80
	14.87			
	11.83			
	8.80			
	3770			
	9.42			
	193			
	+0.96			

E	F	G	H
5.4	6.3	4.1	13.6
5.1	6.2	4.9	13.7
5.6	6.1	5.2	13.7
11		22	20
5.37	6.20	4.73	13.67
6.20			
4.73			
13.67			
2997			
7.49			

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1883phae.proj.1529B

Apr. 29, 1883

0h 0m Up

N	S.			
3.89	7.81	35	3	42.4
0.9	10.1			42.8
4.8	17.82			42.1
2.49	8.60			49.9
	6.30			172
	3.10			44.30
				+ 8.90
				53.20

Up

N	S		
2.1	8.7	3	47.7
4.3	6.4		46.8
6.4	15.1		46.6
3.20	7.55		54.4
	4.35		355
	2.18		48.88
			+ 6.26
			55.14

Up

N	S.		
5.0	5.7	3	57.0
8.9	5.7		56.4
13.7	7.8		55.4
6.85	3.90		3.5
140	74		323
7.00	3.70		58.08
330			4.73
1.65			53.35

down

N	S		
10.0	0.0	35	50
11.1	-1.1		11.6
11			8.8
10.55	-0.55		5.1
11.10			243
5.55			6.08
			-15.92
			50.16

53.35
53.20
55.14
11.69
53.89

53.89
-7.23
+2.66
+1.33

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1883phae.proj.1529B

Aper. 29.1883

down

N	S		
~~13.9~~	~~1.4~~	8	55.2
8.9	1.5		7.3
9.2	0.8		5.0
1	23		08
9.05	1.15		83
790			2.08
3.95			11.34
			50.74

down

N	S	
~~6.11~~	~~3.9~~	470
6.0	4.3	5.91
5.1	5.0	5.79
111	93	523
5016	5.55	4.65	163
50.74	90		54.08
52.79	0.45		- 1.29
366			52.79
5-13.3			

Level

up

E	W
3.0	7.3
7.3	3.1
7.7	3.0
4.5	6.1
3.9	6.6
7.7	2.8
341	289
5.68	4.82
86	

- 0.43
+ 0.71
.28
+ 0.14 ÷ 19 = +0.03

down

E	W
5.6	4.8
3.6	6.8
3.9	6.4
4.8	5.6
179	3.6
4.48	5.90
	1.42
	+ 0.71

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1883phae.proj.1529B

Apr. 30, 1883
$23^h\ 50^m$

	N.C.		S.C.
18	13.1	17	74.9
	13.9		75.1
	13.6		75.2
	13.8		76.8
	14.1		77.2
	35		292
18	13.70		75.84
	7584		
	1895 4		
17	94.77		

Set at 17 94.8

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1883phae.proj.1529B

May 1

N.C –		S.C	
18	15.2	17	77.7
	15.2		78.7
	15.5		77.4
	14.9		78.0
	15.4		77.7
	12		385
18	15.24		77.70

77.70
19294
17 96.47
Set at 17 96.5

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1883phae.prbj.1529B

May 2 1883

V C S C

18 203 17 657
193 701
196 704
198 703
197 711
37 3576
18 1974 7032
17 7032
15 9006
17 950 Sel 01

Sup.

N S 3 54 40
156 06 576
145 611 72
301 160 132
2590
1505 850 8940
850 1375
655 3851.05
327

51.05
+252
397
5158
49.35
263
+1.31

103 127 3 458
126 101 466
231 225 552
1155 1140 14
1140 252
15 3 53.12
-.07 -.20
5292

Domi

53 60 3 372
50 66 491
103 126 61
515 630 509
115 1973
57 3 4933
220
5153

5153
4718
5857
4535

50 68 3 390
46 41 506
56 139 02
480 695 513
215 2011
107 3 50.28
310
4918
3

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1883phae.proj.1529B

May 2

Jupiter

N 53388
9.0 14.0 35.6
4.1 18.0 24.2
13.1 32.0 50.2
6.5 1600 1688
945 4.22
4.72 13.69
8 50.53

63 54
54 63
124 111
6.62 5.10
165
-83

447
168
49
564
2228
55.70
2.40
53.30

Up

51.05
52.52
50.13
450
B 51.50
50.70
.80
+1.40

51.53
47.18
5380
15201
50.70

Level

E W
132 up
18.2 9.6
9.5 13.3
22.7 22.9
11.35 11.45
.85
1.10
+1.05

E W
down
58 62
46 72
104 134
5.20 670
150
+175
.05
.50
+.40

6 - +07

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1883phae.proj.1529B

May 7. 1883

$3^h 5^m$ N.C	S.C
~~18 20.2~~	
~~20.7~~	
18 24.2	17 78.3
23.2	80.2
23.8	80.4
24.0	79.8
24.8	78.0
20 0	467
18 24.00	79.34
79.34	
03 34.	
18 1.67	
Set at 18 1.7	

$7^h 15^m$ N.C.	B. Obs. S.C.
22.0	78.0
21.6	79.9
22.5	78.8
23.8	78.0
24.0	76.8
139	375
18 22.78	77.50
17 77.50	
0028	
18 0.14	
Set at 18 0.9	

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1883phae.proj.1529B

May 9. 1883

$22^h\ 15^m$ B. Obs.

	N.C.	S.C.
18	28.9	17 73.5
	27.4	73.9
	27.6	73.4
	27.9	74.0
	27.9	73.5
	47	33
18	27.94	73.66
17	73.66	
	0160	
18	0.80	

Set at 18 0.8

$22^h 30^m$ Level

	Up		down	
	E	W	E	W
	8.5	6.5	7.0	7.8
	6.1	8.9	6.4	8.5
	9.7	5.4	6.1	8.8
	5.2	9.8	6.4	8.5
	29 5	30 6	19	17
	7.38	7.65	6.48	8.40
		27		192
		+0.14		+0.96
		+0.96		
		110		

$+0.55 \times .19 = +0.10$ s

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1883phae.proj.1529B

May 12, 1883

B. Clks.

~~8~~ 9
~~20~~ 21h 50m

N.C.	S.C
27.2	72.5
26.2	71.1
26.5	71.5
27.0	71.0
26.6	72.0
35	31
18 26.70	71.62
17 71.62	
1 98 32	
17 99.16	

Set at 17 99.2

~~8~~
~~20~~ 4 56m

	E	W	S	H	E	W	S	H
55 3	56.2	10.7	20.7	9.5	58.0	58.0	9.4	13.3
	56.3	10.7	20.7	9.0	58.9	57.4	9.5	13.3
	56.2	10.7	20.9	9.0	58.6	57.5	9.8	13.1

56.23
10.70
20.77
9.02

9.18
4.73

4.45
+2.22

58.50
57.63
13.23
9.37

4.73

Level

Up		down	
E	W	E	W
9.8	3.4	7.0	5.6
6.0	7.0	4.0	8.0
9.0	4.0	5.5	7.0
5.9	7.1	6.0	6.5
30 7	21 5	5.4	7.1
7.68	5.38	5.7	6.9
230		336	411
− 1.85		5.60	6.85
+ 0.62			125
.53			+ 0.62

−0.26 × 1.9 = −0.05

Flexure

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1883phae.proj.1529B

May 13, 1883

$22^h 15^m$ R. Obs.

N.C.	S.C	
25.0	~~7.0~~ 70.9	70.9
24.9	69.1	69.1
25.0	69~~.0~~.9	69.9
24.2	69.7	69.7
24.7	69.4	70.4
38		300
18 24.76		70.00
7000		
19476		
17 97.38		

Set at 17 97.4

$22^h 20^m$ Flexure

E	F	G	H	E	F	G	H
57.1	12.7	15.2	10.1	1.2	3.2	6.8	14.2
57.7	12.5	15.0	9.8	0.9	3.0	6.5	14.8
57.3	12.7	15.0	9.7	0.9	3.1	6.7	14.4
11	14	2	26	0	3	20	14
57.37	12.47	15.06	9.87	1.00	3.10	6.67	14.43
12.47				3.10			
15.06				6.67			
9.87				14.43			
3477				2520			
8.69				6.30			
6.30							
2 39							
1.19							

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1883phae.proj.1529B

22h 25m Rig 3 Rings B Obs. Tm 0h 45m 0s

ε	ζ	η	θ	ι	κ
0 0 14,0	14,1	28,7	29,0	30,6	31,6	25,8	25,9
14,2	13,9	28,5	29,1	30,5	31,9	25,8	25,3
13,8	13,7	28,4	28,6	31,0	31,9	25,4	25,3
14,4	13,8	28,7	28,9	30,5	32,0	25,8	25,8
14,3	13,9	28,9	28,9	30,9	31,5	25,4	25,5
14,14	13,85	28,64	28,90	30,70	31,78	2564	25,56

Rors. Tm 5h 0m 0s

5 0 11,6	0 5 10,6	24,9	26,5	28,1	28,7	22,9	22,6
11,9	10,4	24,4	26,2	28,5	28,9	22,7	22,2
11,5	10,8	25,0	26,5	28,6	29,0	22,2	22,5
11,4	10,3	24,8	26,5	28,2	28,7	22,3	22,1
12,0	10,5	24,6	26,8	28,2	28,7	22,7	22,5
11,68	10,52	24,74	26,50	28,32	28,80	22,56	22,38

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1883phae.proj.1529B

May 16, 1883

3h45m B. Ceti

N.C.	S.C.
13.8	71.0
13.8	70.0
13.5	69.9
14.0	69.0
14.5	69.5
46	494
13.92	69.88
69.88	
18380	
17 91.90	
Set at 17 91.9	

0h30m

	N.C	S.C,
18	23.8	17 71.8
	23.0	71.9
	23,0	72.5
	23.5	73.9
	23.6	73.2
	19	133
18	23.38	17 72.66
	72.66	
	19604	
17	98.02	
Set at 17 98.0		

0h35m

Flexure

	E	F	G	H	E	F	G	H
55 3	57.7	12.4	13.7	9.1	1.9	2.8	6.7	15.0
	57.7	12.5	14.2	8.5	1.8	3.1	7.2	15.1
	57.6	12.7	14.2	9.1	1.8	3.0	6.6	15.1
	20	16	1	27	1	29	25	2
	57.67	12.53	14.03	8.90	1.83	2.97	6.83	15.07
	12.53				2.97			
	14.03				6.83			
	8.90				15.07			
	3313				2670			
	8.28				6.68			
	160							
	+0.80							

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1883phae.proj.1529B

May 17, 1883

$1^h 30^m$

	N.C.		S.C.
18	30.2	17	71.2
	30.9		72.2
	28.7		70.5
	28.9		72.2
	29.7		73.0
	48.4		91
18	29.68		71.82
	71.82		
	01 50		
18	0.75		

Set at 18 0.8

At $6^h 22^m$ sidereal time found the collimation set at 17 90.8, presumably by mistake. ⊙ was taken with this wrong value.

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1883phae.proj.1529B

May 18, 1883

B. Clls.

6h30m N.C. S.C

18	26.2	17	73.8
	27.0		73.0
	26.9		73.6
	26.6		73.4
	28.1		73.5
	348		23
18	26.96		73.46
17	73.46		
	0.42		
18	0.21		

Set at 18 0.2

1h40m B. Clls.

N.C.	S.C
29.7	73.3
29.2	74.0
29.6	72.6
28.9	72.3
29.8	74.0
22	162
18 29.44	73.24
17 73.24	
268	
18 1.34	

Set at 18. 1.3

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1883phae.proj.1529B

May 19 1883

VC

18	27 2	D 7 29
	26 3	24,2
	25 2	23 8
	25 4	23 0
	26 0	23 2
	331	166
18	26.62	17 7 3.32
17	23.32	
	3.30	
	9.57	
Sel	18 0.0	

Z

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1883phae.proj.1529B

May 24, 1883

$23^h 15^m$ B. Obs.

Level

up		down	
E	W	E	W
5.7	8.7	6.6	7.5
10.0	4.5	6.0	8.0
6.2	8.0	5.7	8.5
10.0	4.3	7.0	7.0
319	255	13	30
7.98	6.38	6.32	7.75
160			143
-0.80			+0.72
+0.72			
08			

$-.04 \times .19 = -0^s.01$

R. Obs.

14^m	N.C.		S.C.
18	34.37	17	75.9
	34.13		74.8
	32.2		76.1
	32.3		76.3
	32.2		76.6
	27		47
18	32.54		75.94
	75.94		
	848		
18	4.24		

Set 18 4.2

$14^h 20^m$ R. Obs.

Collimation repeated

	N.C		S C
~~18 31.7~~			
18	31.9	17	75.8
	31.6		73.2
	32.0		74.2
	31.9		73.2
	31.7		74.8
	91		212
18	31.82		74.24
17	74.24		
	606		
	3.03		

Set at 18 4.2

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1883phae.proj.1529B

May 24. 1883

Flexure

	E	F	G	H	E	F	G	H
55 3	53.7	10,3	17.7	10.1	57.5	59.8	8,8	14.7
	53.6	10,1	17.8	9.3	57.2	59.8	8.2	14.6
	53.6	10.2	17.6	9.3	57.6	59.3	8.3	14.8
	19	6		17	13	19	13	21
	53.63	10.20	17.70	9.57	57.40	59.63	8.43	14.70

10.20
17.70
9.57
3110
7.78
273
+ 1,36

57.40
59.63
8.43
14.70
2019
5.05

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1883phae.proj.1529B

May 25, 1883

1h 40m

Seeing too bad
for Collimation -

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1883phae.proj.1529B

May 26. 1883
10^h 0m B. Obs.

	N.C.	S.C.
18	40.3	62.1
	40.2	61.5
	40.5	64.0
	40.9	62.3
	40.2	64.1
	2[illegible]	140
18	40.42	62.80
17	62.80	
	322	
18	1.61	

Set at 18 1.6
Seeing very bad

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1883phae.proj.1529B

May 27 1883

B. Ills.

$23^h 15^m$ Level

up		down	
e	w	e	w
7.0	8.5	7.5	7.7
9.5	6.0	7.5	7.7
7.5	8.0	7.9	7.3
10.5	5.0	8.0	7.2
6.8	8.7	29	19
10.6	4.8	7.72	7.48
51.9	41.0	24	
8.65	6.83	-0.12	

182
- 0.91
- 0.12
103
- 0.52 × 19 = ~~0.01~~ - 0.10

$1^h 40^m$ N.C. S.C.

18	41.3	67.8
	40.5	67.7
	39.7	67.0
	39.8	67.4
	40.4	67.3
	17	22
	40.34	67.44
	67.44	
	778	
2) 18	3.89	
1) 18	7.06	
	1095	
18	5.48	Set at 18 5.5

$1^h 30^m$ R. Ills.

	N.C.	S.C.
18	44.3	17 71.1
	42.2	71.8
	42.8	71.6
	42.3	72.1
	42.0	70.4
	36	70
	42.72	71.40
	71.40	
	1412	
18	7.06	

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1883phae.proj.1529B

June 2, 1883

Tail-piece of instrument returned from Mr. Clark's where alterations have been made in glass diaphragm & elsewhere -

Adjustment for focus, & and parallelism of lines was made by W.W.B. It was then collimated, & South Collimator ~~a little~~ focussed.

9h 30m

B. Cls.	N.C.	S.C.
50	61.4	91.7
	62.1	90.2
	61.6	91.2
	61.9	90.9
	61.7	90.7
	37	47
50	61.74	90.94
49	90.94	
	5268	
50	26.34	

10h 0m Repeated

	N.C.	S.C.	S.C.
50	62.0	91.2	93.0
	62.0	92.2	91.8
	61.2	93.1	92.8
	61.9	93.3	92.2
	61.5	92.4	92.8
	36	122	26
50	61.72	92.44	92.52
49	92.48		92.44
	5426		96
50	27.10		92.48
	26.34		
	1344		
50	26.72		

Set at 50 26.7

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1883phae.proj.1529B

June 2, 1883
B. Obs.
$11^h 45^m$ Level

up		down	
E	W	E	W
11.0	3.6	6.2	8.0
6.9	7.7	7.0	7.2
9.5	5.1	6.4	7.9
6.5	8.0	7.0	7.4
10.5	4.0	7.5	6.8
6.5	8.0	6.4	8.0
10.3	4.3	7.5	6.7
6.9	7.6	7.3	6.9
681	483	553	589
8.51	6.04	6.91	7.~~24~~ 36
247			0.45
−1.24			+0.22
+0.22			
102			
−0.51	×.19 =	~~−0.01~~	−0.10

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1883phae.proj.1529B

Resumé of Flexure determinations

Date	From Collimators Rfl.	From level. Rfl.
Apl 3	+.66"	
6	—	+.60
8	—	+.82
11	+.86	+1.23
15	+.46	—
16	+.73	+.93
18	+.88	+1.37
24	+.83	—
25	+1.12	+.86
29	+.56	+1.33
May 2	—	+1.31
12	+2.22	
13	+1.19	—
16	+.80	—
24	+1.36	—
Mean	+1.04	+1.03

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1883phae.proj.1529B

June 4. 1883

$1^h 25^m$ B. Cls.

	N.C	S.C
50	65.4	49 98.3
	64.8	98.0
	64.3	97.6
	64.5	96.2
	65.0	97.0
	4.0	3.71
50	64.80	97.42
49	97.42	
	62.22	
50	31.11	

Set at 50 31.1

Seeing exceedingly poor

$23^h 45^m$ Level B. Cls.

	Up		down	
	E	W	E	W
	3.1	9.0	5.9	5.7
	8.0	4.0	6.8	4.8
	2.9	9.2	4.3	7.2
	8.5	3.5	8.0	3.6
	2.0	9.9	5.0	6.4
	8.1	3.8	7.0	4.6
	326	394	370	323
	5.43	6.57	6.17	5.38
		114	79	
		+ 0.57	-0.40	
		- 0.40		
		17		

$+0.08 \times .19 = +0^s.015$

$0^h 15^m$ B. Cls.

	N.C.	S.C.
50	67.8	49 91.9
	67.1	91.2
	67.8	92.2
	67.5	91.8
	67.4	92.0
	26	41
50	67.52	91.82
49	91.82	
	59 34	
50	29.67	

Set at 50 29.7

Seeing very fine.

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1883phae.proj.1529B

June 5, 1883

B. Obs.

$10^h 45^m$	N.C.	S.C.		N.C.	N.C.	S.C.
50	73.3	91.5	90.0	76.9	76.8	92.0
	74.0	89.8	92.2	75.8	76.0	92.1
	73.3	92.1	91.1	75.7	75.5	91.4
	73.5	92.1	92.3	75.8	76.4	90.0
	73.9	92.2	90.5	75.3	75.9	90.1
	30	77	61	45	86	56
50	73.60	91.54	91.22	75.90	76.12	49 91.12
		91.22		76.12		50 76.01
		76		02		6713
		49 91.38		76.01		50 33.56
		50 73.60				Set at 50 32.5
		6498				
		50 32.49				
		Set at 50 32.5				

Seeing bad especially on South Coll.

Repeated $11^h 15^m$

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1883phae.proj.1529B

June 5 1883

$23^h 15^m$ B. Clls.

Level

up		down		B. Clls. $23^h 45^m$ N.C.		S.C.
e	w	e	w	50	77.6	49 87.5
3.6	8.3	6.5	5.1		78.2	87.0
8.0	4.0	4.8	7.0		77.4	86.6
3.6	8.3	6.5	5.0		77.0	87.4
8.0	4.0	5.3	6.4		77.2	87.1
4.0	7.8	6.8	4.8		24	6
7.7	4.2	5.0	6.5	50	77.48	87.12
349	366	349	348	49	87.12	
5.82	6.10	5.82	5.80		64.60	
	28	02		50	32.30	
	+ 0.14	−0.01		Set at 50 32.3		
	− 0.01					
	13					

$b = +\ 0.06 \times .19 = +0.01$

+01
−.08
−.04

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1663phae.proj.1529B

June 5, 1883

R. Ills.

$2^h 20^m$	N.C.		S.C.
50	78.8	49	86.8
	75.0		87.3
	77.5		85.2
	74.8		86.1
	76.0		86.9
	321		323
50	76.42		86.46
49	86.46		
	6288		
50	31.44		

Adjusted South Coll. for focus

$2^h 25^m$	Repeated. R. Ills. N.C.		S.C.
50	74.8	49	90.9
	77.2		91.0
	77.8		90.5
	75.7		90.0
	75.0		91.2
	305		36
50	76.10		90.72
49	90.72		
	6682		
50	33.41		

Level R. Ills.

Up E	Up W	down E	down W
4.1	7.1	4.2	5.8
8.8	2.8	5.3	4.7
4.2	7.0	6.0	4.1
3.6	7.7	~~3.9~~	~~6.9~~
8.9	2.2	~~4.8~~ 4.8	5.1 5.1
9.0	2.2	5.3	4.87
8.7	2.7	304	295
4.5	6.7	5.07	4.92
5.18	3.84	15	
6.47	4.80	-0.087	
1.67			
-0.84			
-0.07			
91			
-0.45	×.19 = -0.08		

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1883phae.proj.1529B

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1883phae.proj.1529B

June 11, 1883

B. Obs.

	N.C.		S.C.	N.S.C.	Repeated with artificial light
40	12.4	39	5.4	4.1	
	12.0		5.3	4.9	
	12.5		4.4	5.8	
	12.5		4.5	4.0	5.06
	12.6		5.7	4.0	4.56
	20		3	28	~~10~~ 9 62
40	12.40		5.06	4.56	~~5.31~~ = mean of S.C.
39	5.06		S.C. very dark,		39 4.81
	~~1746~~		tree shades		40 12.40
~~39~~	~~58.73~~		it too much.		11721
~~Set at~~					39 58.60
					Set at 39 58.6

In order to test whether the wax will soften & let the plate loose I will collimate before & after the sun & also read circle when set on N.C. before the sun on morning June 12 (civil time) ~~5h 45m~~ 5h 45m

	N.C.		S.C.
40.	7.2	39	10.0
	7.5		9.4
	7.1		9.5
	7.7		9.8
	8.0		9.2
	25		29
40	7.50	39	9.58
39	9.58		
	11708		
39	58.54		
Set at 39 58.5			

5h 10m

55 3 35.2
53.1
9.9
55.3
135
53.38

For second half see over

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1883phae.proj.1529B

June 12, 1883

6h 0m | After the ⊙ ½ hour.

	N.C.		S.C.
~~40~~	15.8	39	15.3
	14.9		14.5
	14.7		14.9
	15.4		14.2
	14.9		14.3
	7		32
40	15.14	39	14.64
39	14.64		
	12978		
39	64.89		

Set at 39 58.5

55	3	35.3	4
		53.4	
		10.1	
		55.5	
		143	
		53.58	

40
39
39

B. Obs.

2h 0m

	N.C.		S.C.
40.	18.9	39	15.8
	~~20.1~~		15.4
	17.5		15.2
	17.6		16.0
	17.5		15.5
	173		
	38		29
40	17.76		15.58
39	15.58		
	13334		
39	66.67		

Set at 39 66.7

Level B. Obs.

	up		down	
	E	W	E	W
	10.0	4.6	6.5	8.0
	8.0	6.5	6.5	8.0
	9.3	5.2	6.5	8.0
	7.5	7.0	7.0	7.6
	348	233	25	36
	8.70	5.82	6.62	7.90
	288			128
	−1.44			+0.64
	+0.64			
	80			

$-.40 \times .19 = -0.08$

5

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1883phae.proj.1529B

June 13. 1883

½ hour after ⊙

B Clbs.

N.C		S.C.	
40	14.6	39	15.0
	14.2		14.9
	14.3		14.9
	15.8		15.7
	16.0		15.0
	249		5
40	14.98		15.10
39	15.10		
	13008		
39	65.04		

Set at 39 65.0

0h 30m B. Clbs.

N.C.		S.C	
40	12.5	39	16.0
	11.7		15.1
	12.0		15.4
	11.0		14.5
	11.7		14.5
	39		255
40	11.78		15.10
39	15.10		
	12688		
39	63.44		

Set at 39 63.4

0h 40m Flexure B. Clbs.

	E	Fl	G	H	E	Fl	G	H
55 3	34.7	54.7	7.0	54.7	39.1	45.4	59.9	0.5
	35.2	54.9	6.5	54.5	39.1	45.2	59.9	0.8
	34.6	54.5	6.5	54.5	39.6	45.2	59.9	0.7
	25	21	20	17	8	8		20
	34.83	54.70	6.67	54.57	39.27	45.27	59.90	0.66
	54.70				45.27			
	6.67				59.90			
	54.57				0.66			
	1077				20510			
	52.69				51.28			
	1.41							
+	0.70							

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1883phae.proj.1529B

June 13. 1883

Level B. Clks.

	up		down	
	E	W	E	W
	5.7	4.3	4.5	5.1
	5.0	5.0	5.2	4.5
	7.3	2.7	4.0	5.8
	(5.0	5.0)	5.2	4.5
	(3.8	6.1)	29	39
	8.0	1.8	4.72	4.98
	348	249		26
	5.80	4.15		+0.13
	165			
	-0.82			
	+0.13			
	69			

$-0.35 \times .19 = -0.07^{s}$

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1883phae.proj.1529B

June 14, 1883

$0^h 30^m$ B. Obs.

N.C		S.C	
40	9.5	39	20.4
	9.3		19.7
	8.5		21.0
	8.3		20.6
	8.0		19.0
	36		07
40	8.72		20.14
39	20.14		
	12886		
39	64.43		
Set at		39	64.4

Level

up		down	
E	W	E	W
6.4	7.0	~~8.0~~	~~4.7~~
10.2	3.0	~~7.0~~	~~5.4~~
~~5.2~~	~~8.0~~	~~6.5~~	~~6.0~~
~~8.0~~	~~5.0~~	5.4	7.0
9.4	3.7	5.5	7.0
64	6.6	6.5	6.0
324	203	6.0	6.4
8.10	5.08	34	24
302		5.85	6.60
−1.51			75
+ 38			+0.38
1.13			
−0.56			

$\times^s 19 = -0.^s 11$

$0^h 45^m$ Rimo B. Obs.

	E			F1		G		H	
5	0	4.0	05 3.3	22.5	25.6	32.9	34.0	24.2	24.5
		3.5	3.0	22.5	25.5	32.4	34.2	23.9	24.4
		4.0	3.8	22.5	25.2	32.6	34.2	23.8	24.0
		25	11		13	19	4	29	9
		3.83	3.37	22.50	25.43	32.63	34.14^3	23.97	24.30

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1883phae.proj.1529B

June 15, 1883

$0^h 20^m$ B. Obs.

	N.E		S.E
40	7.6	39	22.5
	9.0		21.6
	8.1		22.8
	8.3		21.0
	8.3		21.1
	13		40
40	8.26		21.80
39	21.80		
	13006		
39	65.03		Seeing very poor
	Set at 39		65.0

$0^h 45^m$ Level B. Obs.

	up		down	
	E.	W	E	W
	5.3	6.7	5.8	5.8
	8.4	3.6	5.4	6.5
	5.7	6.2	~~5.0~~	~~6.67~~
	8.7	3.3	6.8	5.1
	28 1	198.	6.0	5.6
	7.02	4.95	0	30
	207		6.00	5.75
	−1.04		25	
	−.12		−.12	
	116			
	−0.58	×.19 =	−0.11	

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1883phae.proj.1529B

June 17, 1883

$0^h 15^m$ B. Obs.

	N.E		S.E
40	5.7	39	24.9
	5.4		25.0
	4.5		24.7
	5.9		25.5
	4.9		24.6
	14		247
40	5.28		24.94
39	24.94		
	13022		
39	65.11		

Set at 39 65.1

$0^h 30^m$ Level

up		down	
E	W	E	W
6.0	5.6	7.1	4.2
7.6	4.0	5.9	5.5
5.0	6.7	7.0	4.5
8.6	3.0	5.9	5.6
8.0	3.6	259	38
5.3	6.2	6.48	4.95
405	291	153	
6.75	4.85	−0.76	
190			
−0.95			
−0.76			
171			

$-0.86 \times .19 = -0^s.16$

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1883phae.proj.1529B

June 20, 1883

B. Obs. $0^h 20^m$

	N.C.		S.C.
40	8.8	39	23.9
	8.9		23.0
	9.8		24.4
	8.9		24.0
	9.7		23.7
	11		190
40	9.22		23.80
39	23.80		
	13302		
39	66.51		

Set at 39 66.5

B. Obs. $1^h 15^m$

	N.C.		S.C.
40	6.62	39	23.7
	6.2		23.3
	6.4		24.6
	5.8		24.0
	6.0		24.2
	6		48
40	6.12		23.96
39	23.96		
	13008		
39	65.04		

Set at 39 65.0

$1^h 20^m$ Flexure B. Obs.

	E	F	G	H		E	F	G	H
55	3 37.5	57.8	5.9	56.7	3	41.7	48.2	59.0	2.8
	37.5	57.9	6.5	56.2		41.8	48.3	59.0	2.2
	37.4	57.8	5.9	56.5		42.0	48.0	59.1	2.8
	14	25	3	14		25	5	1	18
	37.47	57.83	6.10	56.47		41.83	48.17	59.03	2.60
	57.83					48.17			
	6.10					59.03			
	56.47					2.60			
	1787					1163			
	54.48					52.91			
	52.91								
	157								
	+~~$$~~ 0.78								

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1883phae.proj.1529B

June 20, 1883

$1^h 45^m$ Level B. Obs.

Up		down	
E	W	E	W
10.0	5.5	8.0	7.0
10.8	4.8	9.7	5.3
5.9	9.6	7.0	8.0
5.1	10.2	8.0	7.0
10.5	4.9	8.0	7.0
6.2	9.0	7.3	7.6
485	440	480	419
8.08	7.33	8.00	6.98
75		102	
−0.38		−0.51	
−0.51			
89			
−0.44	$\times 19^s = -0.^s08$		

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1883phae.proj.1529B

June 21. 1883

3h 50m

	N. C		S. C
40	4.7	39	25.9
	3.8		25.0
	3.7		24.4
	3.2		24.8
	3.5		24.0
	39		41
40	3.78		24.82
39	24.82		
	1286 0		
39	64.30		

Set at 39 64.3

Level 4h 10

	up		down	
	E	W	E	W
	6.7	9.0	9.0	6.5
	9.8	6.0	7.7	7.6
	7.2	8.5	9.1	6.3
	9.9	5.9	7.9	7.5
	336	294	17	39
	8.40	7.35	8.42	6.98
	105		144	
	-0.52		-0.72	
	-0.72			
	124			
	-0.62		S ×.19 = -0.12	

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1883phae.proj.1529B

June 22, 1883

1h45m B. Obs. 3h30m

Level

Up		down		N.C	S.C
E	W	E	W	40 15.5	37 27.1
9.3	6.0	9.0	6.0	14.0	26.0
6.0	9.3	8.0	7.0	13.8	26.0
9.2	6.0	7.87	7.83	14.8	25.5
5.4	9.8	8.83	6.7	13.4	26.5
299	311	330	30	215	311
7.48	7.78	8.25	6.75	40 14.30	26.22
	30	150		39 26.22	
	+.15	-0.75.		140.52	
	-0.75			39 70.26	
	.60			Set at 39 70.3	
	-0.30	×.19 = -0.06			

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1883phae.proj.1529B

June 23, 1883

13h 5m

	N.C.		S.C
40	14.8	39	24.2
	13.5		23.7
	13.0		22.6
	14.0		24.5
	14.3		23.6
	46		186
40	13.92		23.72
39	23.72		
	13764		
39	68.82		

Let at 39. 69.5

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1883phae.proj.1529B

June 24, 1883

$0^h\ 15^m$

Seeing too bad to Collimate.

$0^h\ 30^m$ B. Obs.

Level

Up		down	
E	W	E	W
8.5	5.0	6.7	6.6
5.1	8.5	7.6	5.7
9.1	4.5	6.2	7.0
5.1	8.4	7.0	6.3
278	264	275	256
6.95	6.60	6.88	6.40
35		48	
-0.18		-24	
- 24			
42			

$-.21 \times .19 = -0.04$

$3^h\ 5^m$ B. Obs.

N.E.		S.E.
40 17.3	39	26.0
18.3		26.2
17.4		25.2
17.5		25.9
17.0		25.9
25		42
40 17.50		25.84

39 25.84

14334

39 71.67

Set at 39 71.7

Seeing very fine

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1883phae.proj.1529B

June 27, 1883

~~33 50~~ R. Obs.

~~N.C~~ R. Obs.

	N.C.	~~S.C.~~		N.C
50	90.5	51	78.2 ~~47~~	50 9.8
	91.2		78.3	5.1
	89.8		80.0	7.0
	89.8		79.7	10.1
	91.1		79.5	8.0
	24			400
50	90.48		50	8.000
50	8.00			
	9848			
50	49.24			

Set at 50 49.2

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1883phae.proj.1529B

June 28, 1883

~~2~~ $10^h\ 55^m$ B. Obs.

	N.C.		S.C.
50	91.0	50	16.2
	91.2		15.0
	91.6		16.7
	91.2		15.4
	92.6		16.5
	26		48
50	91.52		15.96
50	15.96		
	10748		
50	53.74		
Set at	50		53.7

$11^h\ 5^m$ Level B. Obs.

	up		down	
	E	W	E	W
	5.8	8.3	6.5	7.8
	8.0	6.0	8.2	5.4
	5.9	8.2	7.0	6.4
	8.5	5.5	7.7	6.0
	282	280	294	256
	7.05	7.00	7.35	6.40
	05		95	
	−.02		−0.48	
	−.48			
	50			

$b = -.25 \times .19^s = -0.05^s$

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1883phae.proj.1529B

June 30, 1883

$12^h\ 35^m$ B. Obs.

	N.C.		S.C.
50	94.9	50	11.9
	94.8		13.4
	96.5		12.8
	96.7		11.6
	96.0		12.9
	289		126
50	95.78	50	12.52
50	12.52		
	10830		
50	54.15		
Set at	50		54.2

$13^h\ 0^m$ Level

Up E	Up W	down E	down W
8.9	12.6	10.6	10.6
11.4	10.0	10.4	11.0
9.1	12.2	11.2	10.1
12.2	9.0	10.0	11.4
41 6	438	22	31
10.40	10.95	10.55	10.78
	55		23
	+28		+1 71
	+11		
	39		

+20 × 19 = +0.04 S

The 2nd half of the above was taken hurriedly in order to get a star.

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1883phae.proj.1529B

July 1, 1883

$0^h 38^m$ B. Obs.

Level

up		down	
E	W	E	W
3.7	6.5	6.0	3.9
5.8	4.5	4.2	5.6
5.1	5.0	4.3	5.6
6.7	3.4	4.6	5.4
4.0	6.0	4.8	5.1
6.3	3.8	4.2	5.6
316	292	41	12
5.27	4.87	4.68	5.20
			52
40			+26
−20			
+26			
6			

+.03 × .19 = +0.01s

$4^h 15^m$

N.C.		S.C.	
50	87.5	50	12.5
	90.8		13.0
	89.0		12.5
	88.7		13.9
	89.0		12.2
	~~90~~		41
50	89.00		12.82
50	12.82		
	101 82		
50	50.91		

Set at 50 50.9

$4^h 20^m$

Runs

	E		F1		G		H	
5	0	13.8 05	14.0	33.8	33.8	45.3	46.7	35.2	35.8
		14.1	13.7	33.7	34.7	45.8	46.4	34.7	35.8
		14.0	13.8	33.8	34.7	46.0	46.4	34.8	35.2
		14.0	13.6	34.0	34.7	46.7	46.4	35.1	35.7
		13.6	13.8	33.8	34.5	45.9	46.9	35.3	35.6
		45	39	41	24	47	28	1	31
		13.90	13.78	33.82	34.48	45.94	46.56	35.02	35.62

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1883phae.proj.1529B

July 1, 1883.

4h25m Flexure

	E	F	G	H	E	F	G	H
55 3	59.8	20.4	33.2	22.8	3.8	9.87	~~23.7~~ 24.9	29.1
	59.7	21.2	33.2	22.1	3.6	9.8	~~23.8~~ 24.8	28.2
	59.9	21.2	33.4	22.0	3.6	9.7	~~2~~ 24.8	28.4
	24	28	8	9	20	22	25	17
	59.80	20.93	33.27	22.30	3.67	9.73	24.83	28.57
	20.93				9.73			
	33.27				24.83			
	22.30				28.57			

Examined the inclination & found that the adjustment of stellar focus had disturbed it slightly, but not enough to

4h30m Examined the inclination since adjustment of stellar focus, & found no change.

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1883phae.proj.1529B

July 2, 1883

3h 50m

	N.C.		S.C.
50	94.3	50	16.9
	93.1		19.1
	92.0		19.6
	92.9		20.6
	92.3		19.1
	146		453
50	92.92		19.06
50	19 06		
	1 1 98		
50	55.99		
	Set at	50	56.0

Reg.

N	S			N	S	
11.1	7.8	35	349.3	11.0	7.8	35.9
15.8	2.9		53.8	8.0	11.0	41.6
69	107		8.8	190	188	55.3
13.45	5.35		11.2	09.50	9.40	57.7
810			31	10		305
4.05			0.78	.05		47.62
		−	11.74			+ .14
			49.04			47.76
						49.04
						1680
						88 48.240

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1883phae.proj.1529B

July 4. 1883

N S	7h 0m R. Obs. N.C.	S.C	1h 0m B. Obs. N.C.	S.C.
~~11.1 7.8~~				
	50. 96.4	50 ~~50.9~~ 16.0	51 0.2	50 9.5
	96.8	~~49.1~~ 13.0	99.8	8.0
	97.0	~~48.5~~ 13.1	0.8	9.1
	96.1	12.7	99.2	9.1
	95.1	14.7	99.1	9.5
	314	195	491	2
	50 96.28	13.90	50 99.82	9.04
	50 13.90		50 9.04	
	11018		10886	
	50 55.09		50 54.43	
	Set at 50 55.1		Set at 50 54.4	

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1883phae.proj.1529B

July 5, 1880

0^h 50^m

	N.C		S.C
51	6.2	50	7.8
	6.1		7.2
	7.2		8.7
	6.8		9.1
	7.0		8.0
	33		408
51	6.66		816
50	8.16		
	11482		
50	57.41		

Let at 50 57.4

0^h 5^m 5^{sec}

Flexure

5	E	F	G	H	E	F	G	H
	59.1	20.1	34.6	18.7	4.2	11.0	27.2	25.8
	58.3	20.5	34.4	19.1	3.7	11.1	27.7	25.6
	58.5	20.6	34.8	19.0	3.8	11.4	27.3	25.8
	19	12	18	28	27	5	12	22
	58.63	20.40	34.60	18.93	3.90	11.17	27.40	25.73

20.40
34.60
18.93
~~+3256~~
~~33.14~~
7252
+18.13
-17.05
~~1.08~~
~~+0.54~~

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1883phae.proj.1529B

July 6 1883

$1^h 45^m$ B. Cols.

	N.C.		S.C.
51	16.0	50	11.0
	16.0		10.2
	16.2		11.8
	15.4		11.8
	15.2		10.8
	38		6
51	15.76		11.12
50	11.12		
	12688		
50	63.44		

Set at 50 63.4

Seeing very good.

B. Cols. Level $4^h 5^m$

	Up		down	
	E	W	E	W
	10.9	7.8	8.1	10.3
	8.9	9.8	10.5	7.8
	11.0	7.6	8.2	10.1
	8.9	9.7	10.0	8.4
	397	349	368	366
	9.92	8.72	9.20	9.15
	120		05	
	−0.60		−.02	
	−0.02			
	62			

$-0.31 \div 19 = -0.06^s$

$2^h 25^m$ Reg.

N	S			N	S		
7.0	11.6	35	3 36.0	12.4	6.0	3	44.8
9.3	9.2		42.5	9.4	9.1		44.9
6.8	11.8		0.0	12.5	6.0		8.4
9.3	9.2		57.4	10.0	8.4		5.9
324	418		1959	453	295		240
8.10	10.45		~~4900~~	11.08	7.38		56.00
	235		48.98	370			− 5.37
	−1.18		+ 3.42	+ 1.85			50.63
			5240				

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1883phae.proj.1529B

July 9, 1880
13h 5m B. Clo.

	N.C.		S.C
51	4.1	50	21.5
	4.2		22.5
	4.3		21.6
	5.2		22.3
	4.4		22.1
	22		0
51	4.44	50	22.00
50	22.00		
	126.44		
50	63.22		

Set at 50 63,2

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1883phae.proj.1529B

July 10 1883

12h 55m B. Obs.

	N.C.		S.C.
51	2.5	50	30.1
	2.3		29.4
	2.8		30.0
	1.8		30.8
	2.2		31.5
	16		18
51	2.32		30.36
50	30.36		
	13268		
50	66.34		
Set at		50	66.3

2h 30m B. Obs.

	N.C.		S.C.
51	6.6	50	33.2
	5.9		33.2
	5.5		33.6
	5.4		33.3
	5.2		34.0
	36		23
51	5.72		33.46
50	33.46		
	13918		
50	69.59		
Set at		50	69.6

2h 30m to 2h 50m Reg. B. Obs.

N	S		
8.0	9.7	35 3	43.4
10.8	7.0		50.7
8.0	9.7		3.5
11.5	6.1		6.2
383	325		238
9.58	8.12		55.95
146			− 2.12
0.73			53.83

N	S		
6.2	11.4		35.0
9.0	8.6		43.4
6.1	11.4		55.0
8.5	9.1		57.5
298	05		309
7.45	10.12		47.72
	267		3.89
	1.04		51.61

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1883phae.proj.15298

July 10, 1883.

$4^h\ 20^m$ Level B. Clks.

Up		down	
E	W	E	W
9.4	8.0	9,2	7.8
9.1	8.5	7.8	9.3
10.1	7.4	9.8	7.2
8.2	9.1	7.8	9.3
368	330	26	336
9.20	8.25	8.65	8.40
95		25	
-0.48		-.12	
-0,12			
60			
-0.30	×.19 =	-0.06	

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1883phae.proj.1529B

July 11, 1883

$2^h\ 10^m$ Runs B. Obs.

	E		7		G		H	
5 0	15.2	15.5	35.2	37.8	47.4	48.7	35.5	35.9
	15.1	15.0	35.0	37.5	47.5	48.5	35.6	35.7
	15.1	15.0	35.0	37.7	47.6	48.5	35.4	35.5
	15.13	15.17	35.07	37.67	47.50	48.53	35.50	35.70

$2^h\ 30^m$ Reg- B. Obs.

N	S			N	S		
9.1	7.3	35	3 45.0	5.2	11.0	3	35.1
12.0	4.4		51.5	8.1	8.1		41.7
9.4	7.0		7.2	5.9	10.3		56.5
12.~~8~~0	4.~~8~~2		7.6	8.5	7.6		56.4
2~~8~~5	22~~8~~9		313	277	370		297
10.~~72~~	5.~~72~~		57.82	6.92	9.25		47.42
~~504~~			- ~~7.30~~		233		3.36
+ ~~2.52~~			~~50.52~~		1.16		50.78
490			-7.10				
+ 2.15			50.72				

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1883phae.proj.1529B

July 11, 1883

7h 15m R. Obs.

N.C.		S.C	
51	5.5	49	96.1
	2.9		95.2
	2.7		95.3
	3.8		95.7
	3.5		95.8
	184		31
51	3.68		95.62
49	95.62		
	99 30		
50	49.65		

Set at 50 49.6

Repeated 7h 30m

N.C.		S.C	
51	9.1	50	30.5
	7.8		28.2
	5.2		26.7
	5.0		27.2
	6.0		27.8
	4.5		404
	285		28.08
51	5.70		
50	28.08		
	133.78		
50	66.89		

Set at 50 66.9

On the 1st reading of Collimation it was set on the wrong wire. The erroneous value was used on the ⊙

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1883phae.proj.1529B

July 26, 1883

11^h 5m B. Obs.

	N.C.		S.C.
51	8.9	50	43.9
	9.2		43.5
	9.9		44.5
	9.0		43.3
	10.4		44.8
	24		0
51	9.48	50	44.00
50	44.00		
	53.48		
50	76.74		
Set at	50		76.7

11^h 30m

Level

up		down	
E	W	E	W
9.0	4.8	7.0	6.0
5.9	8.0	6.4	6.8
8.1	5.6	(5.5	7.5)
6.8	7.0	(6.5	6.5)
9.0	4.6	(7.2	5.8)
6.6	7.0	7.8	5.3
454	370	50	7.8
7.57	6.17	6.5	6.5
140		519	522
−0.70		6.49	6.52
−001			03
71			−.01

$b = -0.36 \pm .19^s = -0.07^s$

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1883phae.proj.1529B

July 30, 1883

	V.C.		S.C.
51	2.0	50	49.0
	3.0		48.0
	2.4		48.8
	2.0		47.6
	2.8		48.0
	2 2		14
51	2.44		48.28

50 48.28

15072

50 75.36

Set at 50 75.4

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1883phae.proj.1529B

July 31 1883

Level

Up		down	
E°	W	E	W
9.1	4.1	6.5	6.5
6.4	7.0	8.9	4.0
8.2	5.1	5.0	8.0
7.0	6.2	7.8	5.1
30.7	22.4	28.2	23.6
7.68	5.60	7.05	5.90
2.08		1.15	
−1.04		−0.58	
−0.58			
1.62			
−0.81	×.19 = −0.15		

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1883phae.proj.1529B

Aug 25 1883

Calc

N

51 2.3	50 54.2
1.3	54.2
1.2	54.8
1.5	54.2
0.8	54.2
7.1	16
51 1.42	50 543.2
	57 1.42
	1554
	50 7787

Sel-01-5077.8

Aug 26

15-A

N

51 7.1	607
7.2	588
9.3	580
7.5	594
7.2	587
17	456
7.34	50 5912
	51 7.34
	101 6646
	~~5812~~
	7 83.2

Sel-01-783.2

Aug 26

6 L

51 3.0	50 548
1.5	561
1.6	570
1.8	559
0.8	568
8.7	306
1.74	50 5612
	51 1.74
	101 5756
	50 ~~788~~ 789

L3

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1883phae.proj.1529B

Aug 27
13h 0m

N	S
50 9.0	+1 52.2
9.8	53.2
9.8	53.8
9.7	54.8
9.6	55.8
.9	248
57 9.8	57 5456
	50 9.58
	1525-4
	50 76.3

Aug 27
6h 0m

N	S
50 93.1	+1 61.0
93.2	63.0
94.1	64.0
94.3	62.3
94.7	61.1
194	114
50 9388	50 6228
	50 93.88
	215616
	50 78.1

8h 0m

Aug.

N	S
9.9	8.1
8.8	10.0
17.7	18.1
885-	9.05
	- .20

S
38 38.2
42.1
54.3
59.2
1888
47.2
- .6
38 46.6

N	S
62	88
114	90
176	178
880	890
	+10

S
38 3 25.0
38.8
50.0
57.6
1724
38 43.1
38 47.7
+3
38 43.4
466
100
38 450

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1883phae.proj.1529B

Aug 24

E	N
9.0	8.0
12.1	5.4
12.4	5.1
5.7	8.0
10.0	7.6
11.8	5.8
65.1	40.9
10.85	6.82
	4.03
	−2.01

Down

E	N
7.5	5.8
9.8	9.4
7.7	9.6
9.8	7.3
9.9	7.2
8.1	9.7
53.1	48.5
8.52	8.08
	−.44
	−.22
	2.23
	−1.11

$k = -.21$

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1883phae.proj.1529B

Aug 28

4h 40m

N S

N	S
50 55.0	50 61.2
99.8	62.3
54.4	61.4
58.8	61.2
53.6	62.3
408	88
50 98.6	6176
50 61.76	
101 60.52	
50 80.3	Sel-M

7h 50m

W	Reg	S
7.5		10.5
5.6		2.8
7.7		10.2
5.5		2.9
26.1		26.4
6.52		6.60
		10.8
N		S
7.57		5.76
7.7		5.2
10.5		2.8
10.2		2.9
35.9		16.6
8.98		4.15
		4.83

35	3420	429
	486	458
	23	2.6
	6.0	5.8
	2189	2211
	54.72	55.28
		54.72
		1000
38	55.0	
	+12	
	38 55.2	
	14.0	
	3841.0	

N	S	
40	9.1	31.8
7.0	6.1	39.8
6.8	6.1	52.4
3.8	9.2	46.8
21.6	30.5	1811
54.0	76.5	45.28
	+2.25	2.6
	+1.62	3h 47.88
	+19	
	+.9	

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1883phae.proj.1529B

R E W

N S

80 49 38' 44.8"
11.5 13 52.4
11.1 1.6 4.4
9.1 36 8.8
9.0 3.5
10.2 2.4 2807
9.82 2.92 57.68
6.60 10.0
-3.45 38 47.68

Level

Up

E W

8.8 4.2
7.3 5.4
7.3 5.3
9.1 3.8
32.5 18.7
8.12 4.68
3.44
-1.72

Down

E W

8.8 10.4
11.5 7.8
11.2 8.0
8.8 10.4
40.2 36.6
10.05 9.15
-0.90
-1.72
26.2
1.61
1.5
11.79
1.31
2.49

Took off upper plate of level
& bubble would not adjust
(was loose)
Found in reference plate broken & gummed up

b = -.26

1883phae.proj.1529B

Rey.

N	S	
5D 11.4	11.0	9.2
6.2 11.4	6.8	9.1
6.1 11.4	11.5	9.2
4 8 11.7	8.2	9.0
19		9.12
11.48		236
		−1.18

35 34 4.2
5.50
8.4
11.8
242 D
38 60.68
3.5
38 57.2

Level

up		down				up	down
8	11	4.6	11.0	7.8	10.0	11.0 5.4	5.7 11.2
8.2	9.8	7.8	5.0	6.0	10.8	11.4 9.1	7.9 9.1
7.2	5.5	12.4	2.00	6.0	10.8	11.2 9.1	13.6 20.3
7.0	6.0	6.2	1.00	8.3	8.4	11.8 8.8	6.8 10.15
8.1	4.8		3.80	7.8	9.2	1.4 36.4	3.30
7.88	5.40		+1.80	5.6	11.2	11.10 5.10	+1.65
	2.48			41.5	60.7	−2.00	−1.00
	−1.24			6.92	10.12	1.10	+.32
					3.20		
					+1.60		
					−1.24		
					+.36		
					+.18	b = +.06	

Tightened screw which clamps to reference plate.

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1883phae.proj.1529B

Newberry

Up		Down	
E	W	E	W
11.0	9.8	13.8	9.8
11.7	8.8	9.3	13.9
12.1	8.1	9.8	13.3
11.4	9.0	13.9	9.4
11.45	8.89	46.8	46.4
	2.56	11.70	11.60
	−1.28		−.10
			−1.28
			1.38
			−.69

Up		Down	
E	W	E	W
11.1	8.3	14.2	9.0
10.0	8.4	9.0	14.2
10.1	8.9	23.2	23.2
11.0	8.0	11.60	11.60
42	18		.00
10.50	8.45		1.05
	2.10		1.05
	−1.05		−.53
b = −.13		b = −.10	

b = −.12

Req

W	S
78	11.2
72	11.8
7.50	1.50
	+4.00
	4.00

35 3 35.2
43.8
57.8
0.1
196.9
38 4922
5.80
38 55.02

Adopt
1.1
38 55.0
5

Second up a little tighter

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1883phae.proj.1529B

New Seism

Land

Up		Down	
Σ	u	Σ	u
~~10.8~~	8.1	~~10.8~~	
10.2	8.2	10.1	14.9
11.0	7.8	15.2	10.0
10.8	7.5	5.3	4.9
28	32.0		12.45
10.70	8.00	12.65	−.20
	2.70		−.135
	−.135		1.55
			−.77

δ = −.15

Rey.

N	S		S
7.1	11.6	36.3	δ = −.13
5.0	11.8	44.1	−.10
8.0	10.8	5.71	−.15
7.3	11.3	0.2	δ = −.13
2.94	45	1977	
7.35	11.12	38.4942	
	3.97	5.45	
	+.188	38.5487	
		38.5502	
		589	
		38.5494	Adopt

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1883phae.proj.1529B

Note Made Aug 28

It is objected that the level in the condition for the past few months, ~~has~~ has gone down during the same negative results to about 105. The force required to turn it, could be used with the gummy condition of the reference plate, probably introduced some kind of irregular action in the revolution

W A R.

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1883phae.proj.1529B

Aug 20 1883

	N	S
50	87.8	50 67.2
	85.0	67.8
	88.0	66.5
	87.0	66.2
	86.2	65.2
	35.0	32.9
	87.00	66.8
	87.00	
	66.5	
	153.8	
50	76.8	Sel-ds

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1883phae.proj.1529B

Aug 30 Rg.

N	S
7.3	10.1
5.3	12.1
5.4	12.1
7.1	10.3
25.1	46
6.28	11.5
	+4.87
	2.32

85-3 33.7
41.0
53.7
49.8
188.2
49.05
6.77
38 53.82

Lewis Dom

Sup N	Sup S	Dom N	Dom S
10.3	8.8	11.1	6.4
9.3	7.5	8.6	10.0
8.1	8.3	6.2	11.1
10.4	6.1	11.1	6.1
11.3	6.2		
9.3	8.0	35.4	33.7
60.7	43.3	35.0	34.6
10.12	7.22	8.75	8.65
	290		-.10
	-1.45		-.05
			-1.45
			-1.50
			-.75
			b = -1.45

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1883phae.proj.1529B

Aug 30 1883

7h 50m

W S

50 9.17,10 6.82
9.19 6.41
9.28 6.85
9.06 6.79
9.15 6.91
85 42.2
50 9.170 6.814
9.170
160.14
50 80.1 Wl - 81-

8h 0m

Req wp

W	S		
15.6	6.4	35 35	2.1
13.9	8.2		0.8
14.1	8.1		11.8
15.8	6.4		17.2
194	29.1		61.9
14.85	7.28	38	15.0
	7.57		6.548
	3.78		14.82
		35	50.66

38
39
34
11
148

Req wp.

N	S		
10.0	12.1	353	40.7
11.4	10.7		4.87
11.3	10.8		5.88
9.6	12.3		4.9
42.3	45.9		21.26
10.5	11.45		5.315
	+0.87		2.52
	29	35	50.63
	7.83		
	1.74		
	2.52		

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1883phae.proj.1529B

Level

12.0

E	W
12.2	10.2
14.7	9.6
14.8	9.3
12.0	10.1
12.1	10.0
11.0	11.0
10.5	11.3
12.0	10.0
151	81.5
12.38	10.19

E W
12.38
10.19
2.19
1.09

Ry Down

N	S		
11.0	10.7	353	40.2
15.8	6.1		1.0
268	16.8		13.2
13.40	8.40		4.1
	5.00		2385
	2.52	38	5962
	29		5720
	226		4402
	225		
	50	38	5237
	7.25		

Down

13.3	8.2
8.4	13.2
8.8	13.0
13.6	8.2
44.1	42.6
11.02	10.65
	.87
	1.8
	1.09
	1.27
	1.62
	19
	57.6
	64.12

S.
b = -.12

N	S		
13.9	8.6		33.9
9.0	12.8		55.9
22.9	21.4		5.4
11.45	10.70		55.4
	1.75		212.6
	1.37	38	5.31
	29		1.07
	33.3		5.208
	7.4	38	
	10.7		

38 5237
5.208
38 5.22.2
38 50.64
5.8
1.79 = hyp.
+.17

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1883phae.proj.1529B

Aug 31 1885

Coel

W		S	
50	91.8	50	71.3
	92.0		70.1
	91.4		70.3
	91.7		70.2
	92.0		69.7
	89		16
	91.78		70.32
			91.76
			162.10

50 81.0 Set of 803

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1883phae.proj.1529B

Lepu-1

6h 0m

N	S
10 88.2	69.1
88.8	67.8
88.8	68.0
88.4	69.2
88.2	68.6
25	427
10 88.760	68.54
	88.56
	157.10
	78.55 Sel-01-78.5

Rej

Nu1

N	S
11.6	11.1
9.0	13.8
9.0	13.8
11.2	11.4
11.5	11.2
8.3	14.2
8.2	14.3
11.2	11.3
800	211
10.00	12.64
	+2.64
	+1.32

35 3 377
441
569
1.2

38 50.72
+3.82
38 54.54

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1883phae.proj.1529B

Sept 1883

Saturn

6h 10m

Up		Down	
E	W	E	W
11.7	11.1	9.3	13.2
13.8	9.0	13.1	9.3
14.4	8.1	13.6	9.0
12.0	10.9	~~8.2~~	~~14.2~~
119	39.1	50.3	38.7
129.8	~~9.8.9~~	~~12.8~~	~~96.8~~
	-3.20		~~2.90~~
	-1.60	44.2	45.8
			+.6
		11.05	11.45
			+.40
			+.20
			-.60
			-1.40
			-.70
			b=.13

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1883phae.proj.1529B

Sept-1

9 h ~

Calc

N S

50 84.8 67.8
83.2 67.0
84.0 66.7
84.7 67.2
85.0 67.0
237 7
52 84.74 67.14
84.74
1518 8
52 75.9 ~~84.1 75.9 78.5~~
75.9

h ~

10 40

Calc

N

10 84.1 69.7
84.2 67.8
84.3 68.0
85.3 67.0
86.3 67.0
229 39.0
85.72 6780
8372
1553.2
768

1883phae.proj.1529B

~~Colle~~ Sept 2: 1880

Colle. $6^h\ 00^m$

N	S
50.93.8	65.1
92.6	64.2
92.4	65.0
93.8	64.0
93.0	64.7
93.16	64.80
	93.15
	15-55
50	78.9 Set-al

Level

Up E	Up W	Down E	Down W	
11.6	10.7	17.2	11.3	
13.1	9.0	11.1	17.3	
13.1	9.0	11.2	17.2	
11.7	11.6	17.0	10.6	-55
11.7	11.5	165-	164	.19
13.0	9.1	1412	14.10	495
142	609		-02	55
2.32	1015-		-01	104
	2.17		-108	L = -~~0~~.10
	-1.08		-4.09	
			-.55	

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1883phae.proj.1529B

Rev. Up

N	S	P	RR
16.8	11.7	35.3 47.0	47.0
13.2	9.0	56.4	56.3 56.5
13.2	9.0	7.6	7.5 7.8
11.2	11.0	9.5	9.0 9.0
11.2	11.0		398 2403
13.9	8.2		5995 6008
145	5-99		38 60.01
12.42	9.98		4.76
	-2.44		38 55.25
	-1.22		
	3.911		
	1098		
	366		
	4758		

Down

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1883phae.proj.1529B

Sept 2, 1883
8h 25m

Cole

N	C
50 5.23	64.5
5.18	64.6
9.17	64.5
5.17	63.8
5.28	64.0
03	214
9206	6428
6428	9206
27778	15634
1389	78.2
78.17	

Del - d = 78.6

Level

up E	up N	down E.	down N.
9.1	5.8	10.8	6.2
8.2	6.3	6.8	10.3
8.1	6.6	6.7	10.4
9.7	5.2	11.3	5.7
9.8	5.1	356	329
7.8	7.1	890	822
52.7	34.1		68
8.78	5.67		-34
	-311		155
	-155		189
			-92

b = -.17

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1883phae.proj.1529B

Lyn 3 Flares

		E	T	G	M	E	F	G	M
			N			S			
J-3	J26	17.2	31.2	19.2		1.8	9.8	23.2	25.9
	J26	18	31.8	19.7		2.0	9.1	23.2	25.7
	J26	18.3	31.3	19.9		1.3	9.7	23.4	25.4
		18	23	13	18	5	16	8	20
		56.60	17.90	31.43	19.30	1.70	9.53	23.7	25.67

17.90
31.43
19.30
305-23
76.31
16.31
15.04
127
+63

9.53
23.27
25.67
60 17
15.04

Runs.

	E	R	R	G	G	M	M
5-0	14.0	12.8	29.0	34.1	45.9	47.3	36.0	35.0
	13.8	12.7	29.2	35.2	46.0	47.3	36.1	35.8
	13.3	12.8	29.2	35.4	45.9	46.7	36.0	35.8
0-0	13.70	12.77	29.13	34.90	45.93	47.10	36.03	35.53

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1883phae.proj.1529B

Reg. Mpark

N	S
7.8	6.9
6.3	9.2
5.0	9.6
7.2	7.3
7.2	7.2
5.1	9.7
376	499
627	833
	206
	103
	39
	927
	206
	299

38.0	39.[illegible]
46.3	46.3
59.7	59.7
2.3	2.0
2063	270
5158	57.40
	61.49
	2.99
	35 5448

P

35 38.7
48.3
0.8
3.4

Down

N.	S
10.0	6.9
5.8	11.6
6.1	[illegible]
9.6	11.2
31.5	83
789	360
	900
	111
	55
	29
	495
	40
	1159
	15

29.9	30.1
50.7	60.8
4.1	3.7
61.9	52.1
1966	1967
491.5	491.2
49.13	52.48
1.59	50.72
5072	376
	1.88"

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1883phae.proj.1529B

Sept 3 1883

12h 20m

N. S. Coll

N.	S.
0	68.0
0,8	67.2
0,0	67.1
0,6	67.3
0.2	67.3
1 6	37 9
0,32	
67.59	
32 x 3	
16.36	
1395	

Set 51 = Mean Olsen wrong.
Setting = 78.6

Log

Level Up Down

N	S						
10,4	11.9	35.3	37.8	38.0	11.0	6.8	44.8	45.3
8,1	14.1		43.8	44.2	14.2	1.9	6.3	5.9
9.0	13.3		58.2	58.8	15.7	2.0	20.0	18.8
10.7	11.7		1.7	1.6	10.1	6.9	7.0	7.0
10.9	11.7		2015	2026	110	176	180.1	257.0
8.0	14.0		5038	5065	12.75		40.52	62.75
					2.40		62	62
					8.35			44.38
					4.17			12.09
					29			50.29
					37.53			
					8.34			
					1621			
					1209			

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1883phae.proj.1529B

Sept 3 1883

Level $12^h\ 30^m$

E	up	W	down
12.8	9.6	5.9	11.9
10.8	11.3	15.3	7.6
11.2	11.0	11.1	6.7
13.6	8.6	6.3	11.4
13.1	9.1		
11.6	10.4		
11.7	10.3		
13.4	8.7		
98.2	79.0	38.6	37.6
12.27	9.87	9.65	9.40
−2.40			−.25
−1.20			−1.20
			1.45
			−.72
			b = .13

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1883phae.proj.1529B

Sept 3 1883

Coll

$16^h\ 15^m$

	N	S
60	96.7	68.1
	97.6	66.0
	98.3	67.3
	98 4	67. 0
	97.0	66.1
	3+0	045
	9760	6690
		97.60
		16450

δ 2,2 U – Set of

R.T. level

$18^h - 30$		$18^h\ 35^m$		$19^h - 5'$		$19^h - 15$	
E	W	E.	W	E.	W	E	W
14.8	16.0	18.2	14.3	16.8	16.1	15.8	17.2
15.8	16.1	17.6	15.1	16.8	16.2	17.1	16.9
15.8	16.3	158	9.4	16.3	16.7	17.1	16.0
15.1	17.1	17.80	14.70	17.2	15.6	17.3	15.6
15.38	16.38		320	~~17.2~~	~~15.7~~		273
	1.00		1.60	16.78	16.15	1682	16.20
	+.80				.63		−.62
	b=+06		b=−21		.31		.31
					b=+04		b=.04

Adopted level

Mean b=.04

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1883phae.proj.1529B

Sept 3 1883

level RT reversed

19 ~~45~~ 30m		19h 5-5m	
E	W	E	W
~~15.6~~	~~17.2~~	17.0	16.7
16.8	16.8	17.0	15.9
		17.0	16.0
		17.0	16.6
		17.00	16.30
			-.70
			--35
			k=-.05

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1883phae.proj.1529B

Sept 3 1883

Coll

7h 45m

	N	S
5-0	88.7	72.1
	88.9	71.0
	88.9	71.7
	87.4	71.6
	88.0	72.0
	440 9	358 4
50	8 25	71.68

71.68
88.18
159.86
.799

88.18

Flame

N

E	F	G	H
58.8	21.8	27.1	22.2
59.2	21.9	27.3	21.7
59.9	22.0	27.0	21.3
177.9	65.7	81.4	65.2

5-930
2190
27.13
21.73
31006
77.51
19.51

1757
1617
134
16.7

S

E	G	G	H
3.8	12.9	20.0	27.4
4.4	13.5	19.9	27.2
4.0	13.9	20.0	27.0
12.2	40.3	59.9	81.6

403
407
13.43
19.57
27.20
646.7
16.17

13.43 19.57 27.20

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1883phae.proj,1529B

Sept 3 1883 7^h 50^m

Runs.

C	A	F	G	M
5 0 12.8	0 0 11.2	34.1 34.2	38.8 39.8	34.4 35.6
12.8	12.2	33.8 34.2	39.1 40.0	33.7 34.8
12.8	11.6	35.0 34.3	38.6 39.3	34.2 34.8
12.80	11.67	34.30 34.23	38.83 39.70	34.10 35.07

Local Req.

Req. up 8^h ow Down

N.	S	P	p	R	R	R
6.3	8.0	35.3 43.2	43.7	43.9 44.7	80 88	38.9
8.3	6.0	56.0	55.6	53.6 53.2	11.9 4.6	1.6
5.8	8.8	0.0	0.4	59.4 59.7	12.6 4.1	6.4
6.1	8.2	7.8	7.5	7.0 7.3	8.0 7.7	1.0
6.0	8.4	2270	2272	2239 2249	405 252	247 9
8.8	5.9	5675	5680	5598 5624	1012 630	11.97 5-68.8
41 5	453	5678		5610	382	5.53
692	755	+90		9	-191	51.45
	8.7	5768		5700	29	
	+0.63	11.		5-1.45	1719	
	+.31			55	352	
	.25			+2.77	55-35	
	255					
	62					
	690					

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1883phae.proj.1529B

Sept. 5. 1883

8h 10m

Level 8h ± 15'

Up E	Up W	Up E	Up W	Down E	Down W	Down E	Down W
8.0	6.2	7.2	6.7	5.0	11.2	10.0	6.3
10.1	4.3	10.0	4.2	9.8	6.7	5.4	10.8
10.2	4.2	10.4	3.7	14.8	17.9	15.4	17.1
8.0	6.2	8.0	6.0	7.40	8.95	~~8.5~~	
36.3	20.9	7.8	6.2		1.55	~~16.25~~	
5.08	5.22	10.2	3.6		+.99	7.70	8.55
	3.86	53.6	30.4		-1.93		+.85
	-1.93	89.3	50.7		-1.16		+.42
			38.6		-.68		-1.93
			-1.93		b=.11		1.57
					-.14		-.76 b=.14
					b=.13		

Rey. 8h 10m

Up N.	Up S.	P	P	RR	Down N.	Down S.
3.2	11.0	40.3 39.4	39.1 38.8	39.2	~~8.0 8.8~~	39.6
6.1	8.1	48.2	47.3 48.0	48.2	12.8 3.8	2.1
6.9	7.6	53.5	53.0 54.6	54.2	7.0 9.0	6.4
4.1	10.2	0.2	1.4 1.7	1.8	7.0 9.0	59.9
4.2	10.0	201.3	200.8 203.1	203.4	12.8 3.7	228.0
6.8	7.3	~~26.10~~			23.96 25.5	~~5.00~~
31.3	54.2	50.32	50.20 50.75	50.8	9.90 6.38	5.10
5.22	9.03	52.26	52.78		3.52	51.50
	+3.81	5.57	5.51		-1.76	
	19.0	55.83	56.25		29	
	2.9		51.90		1.845	
	17.1		4.39		35.2	
	3.8		+2.20		5.10	
	55.1				2.55	

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1883phae.proj.1529B

Sept 4 1883

14^h 13^m

Coll

	N	S	N	S
50	95.7	83.8	90.0	81.8
	91.0	81.7	91.5	80.0
	90.3	83.0	91.2	81.0
	91.1	83.3	90.2	79.0
	90.5	81.8	89.9	79.0
	458.6	413 6	452 8	400 8
	91.72	82.72	90.56	80.16
	~~9.00~~	87.22		90.56
	~~4.50~~	85.90		170 72
		19312		85.90
		86.56		

Reg

hp. 14^h 30^m

N	S	P	RR
5.0	12 6	35.4 35.7	35.7
7.0	10 3	41.6	40.4
7.4	10.1	54.9	53.3
4.5	13.0	59.5	0.0
239		191 7	1894
5.98	60	47.92	473 5
	1150		8.21
	1165		38 55.56
	588		
	577		
	528	283	
	1162	29	
	688	2547	
		56 6	
		821	

down

N.	S		P	R
7.8	13.7	3 53	38 5	39.2
12.9	4.0		1.8	1.0
~~8.0~~	~~4.0~~		13.4	12.2
20 7			1.1	1.8
103	17 7		2848	2842
5.17	885		58.70	56.85
	368			58.62
	1.84			7.33
	29			51.29
	1656			55.56
	568			427
	7556			+ 2,13

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1883phae.proj.1529B

Sept 4 1883

level up 14h 40m

E	W
13.3	6.0
~~6.6~~	
9.0	8.4
8.0	8.7
13.1	4.2
434	273
1085	682
	403
	−2.01

level down

E	W
~~11.7~~	~~5.8~~
11.7	5.8
6.0	11.3
6.0	11.6
10.3	7.1
11.3	5.9
6.0	11.5
571 3	732
855	887
	32
	+16
	−201
	185
	−.92

b = −.17

Level 15h 45m

down

E	W
6.0	13.6
11.2	6.1
11.3	6.2
6.1	11.6
34	37.5
~~8.6~~ 8.5	9.37
~~3.22~~	+.72
~~1.61~~	+.36

up

E.	W
12.8	7.5
11.3	9.0
13.1	7.3
10.2	10.0
	338
47.4	8.45
11.85	
−3.40	
−1.70	
−1.34	
−.67	

b = −.12
−.17

b = −.14

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1883phae.proj.1529B

~~Sept~~ Sept. 5 - 1883

Level Reversing Transit

18h 30			19h	15m	
E	W		E	W	C.W.
15.0	15.0	C.W.	15.3	16.0	
15.9	15.2		16.7	14.4	
15.9	14.1		16.7	14.6	
15.1	15.0		15.4	15.4	
61.9	59.3			20 4	
15.48	14.82		16.02	15.10	
	-.66			-.92	
	-.33			-.46	
	b = -.04			b = -.06	

Coll

N	S
~~50~~ 88.6	77.8
87.9	77.2
88.2	76.3
88.4	76.0
88.3	76.0
406	333
88.12	7666
	88.12
	16478
	824

Set at 86.1

Coll 7 45

N	S
88.4	78.1
88.7	77.1
89.3	77.0
87.7	78.1
88.0	78.1
442 1	3884
88.26	77.68
	88.26
	165.94
	82.97
	824
	82.4 Set at

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Sept 5. 1883

Level of Russo Transit

$19^h\ 55^m$ C.E.

E	W
15.8	15.9
14.9	16.8
	7
7	16.35
15.35	+1.00
	+.50
	b = +.06

Flexure

N $8^h\ 00^m$ S

E	F	G	H
450	47.1	48.2	53.1
	48.2		55.2
	53.1		
	55.2		
	2036		
450	14.58		
47.1	5.090		
48.2	48.04		
53.1	256		
1934	+1.43		
4835			

E	F	F	G	H	
450	49.7	38.8	44.8	0.2	
	49.5	37.2	44.8	0.5	
	50.1	38.2	44.7	0.6	
	1492	1142	23	1.3	
				042	
	49.40	38.07	4458	0.11	
	38.07				
	4418				
	0.11				
	19216				
	4804				

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1883phae.proj.1529B

Sept 6 1883

Reg. 8h 00

Up N.	S.	P	P	R	Down N.	S	R
7.1	14.6	24.9	24.8	24.7	13.1	10.8	18.4
10.0	12.8	12.8	12.7	12.5	9.1	15.8	19.7
10.0	11.7	18.7	19.4	18.4	9.2	14.4	24.9
7.7	14.0	34.0	33.4	34.6	13.8	10.6	27.2
~~10.0~~	~~11.8~~	904	903	902	45.2	51.6	902
					11.30	12.90	22.55
348	121	~~2510~~					232
870	1302	2260	2252	2237		11.30	24.87
	+432		25 22,87			+1.60	
	+216		+6,26			+.80	
	29					2.9	
	1944		25 28.82			+28.20	
	×43 2						
	46 6						

Up 2882
Down 24.87
87 J-
+1.97

Sem-s Regum 2nd Series

N 8h 50m S

E	F	G	H	E	F	G	H
45.0 47.2	49.2	53.1	55.8	50.4	36.9	45.6	0.2
47.1	50.5	53.0	55.6	50.2	36.7	45.7	0.3
47.1	50.0	53.7	55.4	50.6	36.7	45.2	0.6
141 4	149 7	8	18	12	23	16	11
47.13	49.90	53.27	55.60	50.40	36.77	45.70	0.37
49.50				36.77			
53.27				45.70			
55.60				0.37			
205.90	57.4			195.04			
5.148	48.76			48.76			
	272						

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1883phae.proj.15298

Sept. 5 1883

Level

Mp 8 2 3 m

	E	W
up	11.8	10.0
	14.0	7.7
	13.8	7.9
	10.8	10.9
	50.4	36 5
	12.60	9.12
		3.48
		3.
		−1.74
		+0.4
		−1.34
		−0.67
		19
		603
		67
		.1273

	E	W
down	14.1	9.6
	9.2	14.6
	13.7	10.1
	9.0	14.9
	46 0	49 2
	11,5	12,3
		+0.8
		+0.4
		~~−1.74~~

b = ~~−.12~~ −.13

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1883phae.proj.1529B

Sept. 6. 1883

Coll. $13^h\ 55^m$

N	S
93.0	87.2
92.8	86.8
94.9	85.2
96.1	84.0
94.2	87.7
471 0	29
94.20	598
	94.20
	1801 8
	90.1 Sol-al.

Level R T

$18^h\ 20^m$		$18^h\ 30^m$		$18^h\ 55^m$		$19^h\ 5^m$	
E	W	E	W	E	W	E	W
15.0	15.2	16.0	14.3	15.2	15.4	14.9	16.0
14.8	15.7	14.7	15.8	14.3	16.4	14.3	16.8
14.90	15.45	15.35	15.05	14.1	16.8	14.60	16.40
	+.55		−.30	15.0	16.0		+1.80
	+.28		−.15	14.65	16.15		+.90
	W				+1.50		b=+12
	b=+04		b=−.02		+.75		
					b=+10		

$19^h - 15^m$

13.7	17.6
14.6	16.7
15.0	16.3
14.3	17.9
176	5
14.40	17.12
	+.72
	+1.36
	18

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1993phae.proj.15298

Sept. 6.

Level R T (C E)

	E.	W.	$19^h\ 30^m$		$19^h\ 35^m$		$19^h\ 55^m$	
19^h	16.1	15.1	14.8	16.8	15.8	15.8	15.4	16.6
20^m	14.8	16.6	15.8	15.4	14.9	16.8	15.3	16.5
	15.45	15.85	15.30	16.10	15.35	16.30	15.3	16.6
		−.10		+.80		+.95	15.1	17.0
		−.05		+.40		+.48	11	27
							15.28	16.68
								+1.40
								+.70
								b = +.09

Remeasured $19^h\ 17^m$

b = −.01 b = +.05 b = +.06

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1883phae.proj.1529B

.51
19
459
5-1
09.69

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1863phae.proj.15298

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