KG
11866
v.423

1880phae.proj.1427B

Polaris.
Circle Readings
From Oct 17, 1880 to Sept. 19, 1881

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

1000phae_proj_14278

180 00
59 36
120 24
81
57

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1880phae.proj.1427B

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1999phae.proj..14278

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1880phae.proj.1427B

Oct. 17, 1880 C = 44 83,0
Polaris L.C.

~~0 30~~	B	B	B	B	B	B	B
0 3	30.8	3 0,1	58,0	57,8	55,4	54,3	53,0
	30.8	0,9	57,6	57,7	55,5	54,1	53,0
	33.8	3,1	58,3	0,0	58,1	57,0	55,6
	31.9	2,5	58,99	57,6	57,3	56,2	55,0
	127 3	66	2358	2351	2263	2216	2166
3	31,82	3 1,65	58,95	58,78	56,58	55,40	54,15

Lost some of the wires preceeding A_3,
Lost also $A_3\ 2\ 2\ 1\ (2\ ?)$
~~Got out~~ After the first break on account of
clouds ~~at~~ July 3, $2\ 2\ 2\ (20)$

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1880phae.proj.1427B

(19)

Oct. 18, 1880 C = 44 83.0
Polaris L.C.

	B	B	B	B	B	B	B	B	B	B
0 3	37.1	35.0	17.5	5.5	4.6	3.2	2.5	1.4	0.4	59.5
	37.1	34.2	7.6	5.3	4.6	3.1	2.7	1.3	0.3	59.3
	34.8	32.0	5.0	2.8	1.3	0.2	59.5	58.3	57.6	56.6
	39.9	37.5	10.0	7.9	6.8	5.7	4.8	3.5	3.0	2.3
	148.9	138.7	30.1	21.5	17.3	12.2	9.5	4.5	8.3	237.7
3	37.22	34.68	7.52	5.38	4.32	3.05	2.38	1.12	2.08	59.42

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1880phae.proj.1427B

Oct 20, 1880 C = 44 76.7
Polaris U. C. B. obs.

	B	B	B	B	B	B		B	B	B	B
40	1	15.2	29.5	35.5	40.0	44.8	50.1	2	17.4	19.9	21.1	22.9
		16.2	29.9	35.8	40.3	45.3	50.8		19.1	20.5	21.7	23.3
		11.6	24.2	32.3	36.7	41.0	47.0		14.3	16.3	17.3	19.5
		15.4	29.7	36.2	40.4	45.2	50.1		17.0	19.8	20.9	22.2
		584	1153	1398	1574	1763	1978		681	765	810	879
41		1460	2882	3495	3935	4408	4945		1702	1912	2025	2198

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1880phae.proj.1427B

Oct. 22, 1880 C = 44 76.7

Polaris L.C. B. obs.

	B		B	B	B	B	B	B	B
0	3	38.3	0 3	39.1	33.1	5.3	1.3	0.8	2 58.9	58.2
		39.0		39.9	34.0	5.7	2.2	0.6	59.4	57.8
		36.7		39.2	32.4	4.2	1.3	59.9	58.5	57.0
		34.0		42.2	36.0	7.1	5.3	4.0	1.9	1.5
				1604	1355	223	101	53	2387	2345
	B	B	3 40 10	B	33.88	5.58	2.52	1.32	59.68	58.62
	55.9	55.7		54.8						
	55.7	55.0		54.8						
	55.1	54.0		54.1						
	58.3	58.3		57.8						
	2240	2230		2215						
	56.00	55.75		55.38						

A_8 $7_2 - 6_2$ (6 ± 1 ‖ 1st Str.) (3,2 1st–2nd Str.) · 2_1 3rd 2_0 1_2 1st 2 3rd 1_1 1st 3rd 1_0 1st A_+ 1 2 3 4 ‖ 2nd 3rd

Lost 2nd + 3rd stroke of A_{6_2} 1 6_2 6_1 First ‖ of 6 1st + 2nd

of A_{3_2} 3rd 2_1 2_0 1 + 3rd 1_2+1_1 1 1_0

Lost A_{+1}

Lost 1st stroke of $A_{+,2}$ Clouds interfered

Very bad seeing.

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1880phae.proj.1427B

Oct 23/1880, Δ = 44 46.7
Palain Leo.

		R	R	R	R	R	R	R	R	
0	3	5.17	4.08	3.62	8.1	6.1	4.4	4.3	1.8	2.2
		5.14	4.13	3.68	8.0	7.1	5.3	4.8	2.3	1.6
		4.92	3.84	3.44	1.8	4.1	2.8	2.2	5.93	5.90
		5.88	4.79	4.35	15.2	13.5	12.6	11.8	8.8	9.2
								2	2	
		21.11	16.84	15.09	37.4	30.8	25.4	1		12.0
	3	52.78	42.10	37.72	9.35	7.70	6.35	23.1	10.4	3.00
								5.78	2.60	

5) A $6_{2}8_{1}8_{0}7_{2}7_{1}7_{0}6_{2}6_{1}6_{0}5_{0}3_{1}3_{0}2_{2}2_{0}1_{2}1_{1}1_{0}$

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1880phae.proj.1427B

6

Oct 24 1880 @ = 44 81.3

Polaris Lb.

	B	B	B	B	B	B	B	B
0 4	13 5	4.8	1.0	56.7	52.3	49.0	45.3	41.5
	11.4	2.8	58.3	54.7	50.8	47.4	43.4	39.3
	8.8	5.3	51.8	47.5	44.0	39.9	36.5	32.8
	9.4	0.8	56.6	52.5	48.5	45.0	41.0	36.7
	481	43	2279	2114	1959	1813	1662	1503
4	12.02	1.08	56.98	52.85	48.98	45.32	41.55	37.58

R	R	R	R	R
13.9	11.6	11.0	8.8	9.1
11.8	9.6	8.5	6.3	7.4
4.0	1.0	1.0	5.92	5.90
11.1	7.9	7.5	5.8	6.0
408	301	283	201	215
10.20	7.52	7.08	5.02	5.38

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1880phae.proj.1427B

Oct 25 1880

Pleiades L. b.

M. R. rds.

Clouds,

A 5.0 4.2 4.1 4.0 3.2 3.1 3.0 2.2 2.1

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1880phae.proj.1427B

8

Nov 1879

Polaris Lc.

	B	B	B	B	B	B
0 24	43	3 55.1	52.0	48.2	44.6	41.2
	0.2	57.3	58.5	44.8	41.8	38.0
	57.3	48.3	45.5	41.9	39.3	35.2
	4.8	86.7	53.4	50.0	47.0	43.5
	6.6	24.14	20.94	16.49	17.27	15.79
4	1.65	52.85	52.35	46.22	43.18	39.48

	R	R	R	R	R
0 3	14.3	7.0	6.9	5.6	8.3
	11.6	3.8	4.0	2.8	2.6
	8.4	0.8	1.0	1.98	1.87
	18.4	9.9	9.9	9.0	8.6
	5.27	2.15	2.18	1.72	1.52
3	13.18	5.38	5.45	4.30	3.80

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1880phae.proj.14278

Nov 2 (1880)

Polaris Nbo.

C=44 75:2

	B	B	B	B	B	B	B	B
40 0	56.8	40	71	114	158	207	25.9	29.5
	55.3	26	59	99	145	190	243	280
	53.0	592	25	95	112	157	209	250
	40	100	145	180	221	271	318	358
	2291	758	300	468	636	818	1029	1183
	57.28	18.95	09.50	11.70	15.90	20.45	25.72	29.58

B	B	B	B	B	B
34.0	36.2	39.5	42.4	46.2	49.5
320	34.5	380	410	449	48.5
29.0	311	350	380	412	45.0
401	423	456	488	523	558
1351	1441	1583	1702	1806	1988
33.78	36.02	39.58	42.55	45.15	49.70

A_H 1 2 3 (4) 5 A_{10} to 50

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1880phae.proj.1427B

10

Nov. 2 1880 C = 44 74.0

Dolan Tel., L.C.

		B	B	B	B	B	B	B	B	B	B
0	4	45.1	29.7	24.2	21.2	16.2	13.0	9.4	4.9	1.5	58.0
		42.0	26.5	21.4	18.5	13.4	9.5	6.3	1.2	57.2	53.8
		36.9	20.1	14.5	11.0	6.8	3.1	59.2	55.0	51.9	47.1
		44.0	29.5	23.8	21.0	16.3	13.2	8.8	4.8	1.5	58.0
		167.0	105.8	83.9	71.7	52.7	38.8	23.7	15.9	6.1	233.9
	4	41.75	26.45	20.98	17.92	13.18	9.70	5.92	3.98	1.52	58.45

B	B
53.0	48.0
49.0	44.6
43.0	39.0
53.0	48.2
198.0	179.8
49.50	44.95

A 2345 Ago W 3,

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1880phae.proj.1427B

Nov. 3, 1880 C = 44 74.0
Polaris U. C. B obs.

		B	B	B	B	B	B	B	B	B	B
40	0	55.0	1 3.1	10.0	14.8	21.5	29.4	35.2	38.8	44.2	2 14.0
		54.0	2.1	7.9	12.9	20.0	27.9	33.4	36.4	42.8	12.2
		49.2	57.8	4.8	9.1	16.0	24.1	29.5	33.0	38.2	7.7
		1.3	9.3	16.0	20.6	27.5	35.8	41.3	44.4	50.0	18.9
		2195	123	387	574	850	1172	1394	1528	1752	528
40		54.88	41 3.08	9.68	14.35	21.25	29.30	34.85	38.20	43.80	42 13.20

Reject 10th ∫

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1880phae.proj.1427B

2

Moore (1959)

Adams & Le,

C = 44 74.0

		B	B	B	B	B	B#	B	B	B
0	3	483	44.9	212	185	181	118	105	95	88
		444	41.1	194	150	139	86	70	60	68
		400	37.0	128	102	100	48	25	12	14
		500	46.8	231	205	200	137	122	116	112
			1827	1698	745	642	620	389	322	283	292
	3		45,68	42,45	18,62	16,05	15,50	9,72	8,05	7,08	7,30

Illumination lost before this reading

Adjusted Illumination

~~A_{9_0} 8_2 8_1 7_2 7_1 7_0~~

Lost A_{8_0}

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1880phae_proj.1427B

Nov 6 1880 Ω = 44 7 4.0

Lc.

		R	R	R	R	R	R	R	R	R	R
0	3	343	431	406	124	97	90	81	66	58	53
		32.2	40.2	36.4	9.0	6.7	5.0	4.8	3.4	2.4	2.3
		35.4	42.2	38.8	11.8	8.9	7.9	7.6	5.8	5.1	4.6
		0.7	48.8	44.8	17.8	16.1	15.3	14.0	12.9	11.7	11.8
	1	2009	1743	1611	510	414	372	~~10.35~~ 3.45	287	250	240
	3	50.22	43.58	40.28	12.75	10.35	9.30	~~25.88~~ 8.62	7.18	6.25	6.00

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1880phae.proj.1427B

Nov. 7. 1880 C = 44 80.8

Polaris L.C.

	B	B	B	B	B	B	B	B	B	B
0	3	49.6	46.3	3	16.8	15.0	13.2	12.2	11.5	10.0	9.5	10.0
		45.8	42.2		12.6	10.4	9.3	8.1	7.4	6.0	5.0	6.0
		42.8	39.8		10.4	9.0	6.5	6.4	5.4	4.4	3.0	3.02
		49.5	46.2		17.6	16.0	14.5	13.9	12.9	11.3	10.6	11.2
		1877	1745		477	507	43'5	304	3½2	3'20	271	304
	3	46.92	43.62		11.92	12.68	10.88	7.60	9.30	8.00	6.78	7.60

A_{90} to 3_2

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1880phae.proj.1427B

Nov. 8, 1880 C = 44 74.8

Polaris U. C. B. Obs.

	B	B	B	B	B	B	B	B	B	B
40 0	56.5	14.8	9.2	14.5	19.4	23.2	28.5	31.9	36.4	39.8
	53.9	2.3	6.9	12.3	16.8	20.7	26.0	29.9	34.0	37.0
	57.4	59.0	4.1	8.8	13.9	18.1	22.9	26.4	31.0	34.8
	0.2	8.0	12.5	18.2	22.8	26.6	32.2	35.4	40.2	43.4
	2220	241	327	538	729	886	1096	1236	1416	1550
40	5.550	6.02	8.18	13.45	18.22	22.15	27.40	30.90	35.40	38.75

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1880phae.proj.1427B

Nov. 9 1880 C = 44 73.0

Polaris L.L.

	B	B	B	B	B	B
0 4	9.8	3.9	0.1	56.6	53.8	50.1
	5.4	59.0	55.4	52.5	49.6	46.0
	3.0	57.2	53.2	49.7	47.0	43.3
	9.8	4.3	0.1	57.2	54.9	51.0
	280	49	229.4	216.0	205.3	190.4
4	7.00	1.22	57.35	54.00	51.32	47.60

	B	B	B	B	B
0 3	22.3	22.0	20.7	19.2	18.2
	19.2	18.5	16.9	15.0	14.9
	16.1	15.0	13.8	12.1	11.3
	23.6	22.3	21.2	19.9	19.2
	81.2	77.8	72.6	66.2	63.6
3	20.30	19.45	18.15	16.55	15.90

A 9. to 3.

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1880phae.proj.1427B

Nov 11 1882 C = 44 73.3

Rolamin Ile.

	B	B	B	B	B	B	B	B	B	B
40	0	1-65	3.5	7.3	10.3	14.4	16.8	23.5	29.4	33.2	36.5
		54.3	1.6	5.2	8.0	12.0	15.0	21.3	26.7	31.1	34.9
		53.0	0.9	8.8	6.4	10.9	13.0	~~20.0~~	25.8	30.0	33.1
		1.0	7.6	11.1	14.3	18.1	21.0	27.6	33.0	37.2	40.2
		22.48	13.8	27.4	39.0	55.4	65.8	92.4	114.9	132.0	128.8
40		56.20	3.45	6.85	9.75	13.85	16.45	23.10	28.72	33.00	32.20

B	B
40.4	44.0
38.4	41.3
36.9	40.2
45.0	40.8
160.7	173.3
40.18	43.32

A_{+1234} $A_{10+1+2=0}$ to 9_0

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1880phae.proj.1427B

Nov. 11 1880 C = 44 733

Polaris Lb.

with 3451

	B	B	B	B	B	B	B	B
0 4	14.3	11.5	7.2	2.8	57.5	53.2	50.0	46.8
	14.2	9.0	4.7	0.2	54.2	50.0	47.2	44.0
	13.9	8.0	3.0	58.0	52.0	47.8	44.3	41.7
	18.3	13.4	8.8	5.3	59.4	54.4	51.5	48.5
	6 37	4 19	2 37	63	2231	2054	1930	1810
4	15.92	10.48	5.92	1.58	55.78	51.35	48.25	45.25

	B	B	B	B
2	19.3	15.4	14.6	14.0
	16.3	12.5	12.0	11.2
	13.9	10.2	9.5	8.8
	21.1	17.9	17.0	15.9
	706	560	5 31	499
3	17.65	14.00	13.28	12.48

Aq. w 3.

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1880phae.proj.1427B

Nov 13 1880

Polaris Obs.

	R	R	R	R	R
♂ 8	268	160	161	154	170
	228	122	128	123	134
	170	64	65	56	58
	244	143	144	132	149
	910	492	498	465	531
3	2275	1230	1245	1162	1328

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1880phae.proj,1427B

20

Nov 14 1880 G.M.T. $\alpha = 44^h\ 7^m\ 33^s$

Polaris N.P.

	R	R	R	R	R	R	R	R
40	1 02	4,1	11,2	18,2	22,2	27,6	31,7	41,9
	5 8,2	5,1	6,0	17,0	19,8	26,7	30,9	40,0
	5 29	0,0	3,8	11,6	15,1	20,9	25,4	34,8
	1,4	8,6	12,3	20,1	23,6	~~27,7~~ 28,1	33,9	43,3
	23,7	20,8	36,3	66,9	80,7	103,9	121,9	160,0
40	58,18	41 5,20	9,08	16,72	20,18	25,98	30,48	40,00

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1880phae.proj.1427B

Rows 15 to 20

Polaris Lc

		B	B	B	B	B	B	B	B	B	B
0	4	29.8	21.8	15.2	10.6	8.1	4.8	1.5	58.6	30.9	28.1
		25.1	17.3	10.5	6.3	3.4	59.7	56.8	54.3	26.2	23.3
		18.8	9.8	3.7	59.4	56.7	53.0	49.7	47.2	~~39~~ 19	15.8
		25.0	17.0	10.4	6.0	2.7	59.1	56.4	54.0	26.0	22.6
		987	659	398	223	109	2366	2246	2141	1020	898
	4	24.68	16.48	9.95	5.58	2.72	59.15	56.15	53.52	25.50	22.45

Ag. to 3.

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1880phae.proj.1427B

22

No 16 1880 C = 44 73.4

Polaris N. C.

	B	B	B	B	B	B	B	B
40 1	5.2	10.9	16.3	20.2	24.6	28.9	32.3	36.8 #
	0	6.8	12.6	15.4	21.1	24.4	28.8	33.1
	5.8	0.5	6.4	10.0	15.2	19.9	22.5	25.4
	39	4.7	15.8	19.0	23.6	27.8	31.2	35.3
	41	27.9	51.1	64.6	84.5	100.7	114.8	130.6
41	102	69.8	127.8	161.5	211.2	251.8	287.0	326.5

B	B	B	B
38.8	42.2	45.3	49.9
34.5	38.0	41.2	45.8
28.8	33.2	36.0	39.5
36.6	41.1	44.5	49.2
139.2	154.5	167.0	184.4
341.80	386.2	417.5	461.0

Rej 2nd observation of this star

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1880phae.proj.1427B

Nov. 18 1880 C=44 73.3

Polaria Nb.

B	B	B	B	B	B	B
40	77	165	204	230	268	268	343
	40	12.8	16.1	19.0	23.5	26.8	30.2
	56.0	4.4	8.2	11.2	15.0	19.0	22.0
	5+5	136	18.6	206	240	280	315
	132	473	643	758	893	1046	1180
41	3.30	11.82	16.08	18.45	22.32	26.15	29.50

B	B	B	B
37.7	41.2	44.8	48.0
33.3	37.0	40.2	43.5
25.3	30.1	32.1	35.8
353	38.0	42.1	45.3
1316	1463	1592	1523
32.90	36.58	39.80	38.08

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1880phae.proj.1427B

Nov 18 1880 C = 4469,3

Polaris Dec.

		B	B	B	B	B
0	4	12,3	70	41	09	58,0
		6,4	0,2	57,9	54,1	57,7
		52,5	57,7	49,4	45,7	43,0
		58	59,1	57,2	53,5	51,4
		220	238,0	228,6	214,2	204,1
	4	5,50	3 59,50	57,15	53,55	51,02

		B	B	b	B	B
0	3	30,4	27,0	24,0	25,0	24,3
		24,1	21,4	21,0	18,6	18,3
		15,4	12,0	11,9	9,8	9,8
		93,5	90,2	19,7	18,2	17,6
		934	806	796	716	700
	3	23,35	20,15	19,90	17,90	17,50

A_{9_0} to 3_0

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1880phae.proj.1427B

Nov 20
Ha
Delavan Lb

	R	R	R	R	R
0 4	203	160	118	96	53
	15.6	10.9	7.4	5.21	1.4
	5.0	1.3	5.72	5.50	5.10
	15.3	10.4	6.8	4.9	0.4
	562	389	232	19	2378
	14.05	9.72	5.80	0.48	59.45

R	R	R	R	R
302	312	288	280	264
267	268	251	254	248
174	171	149	145	128
256	251	231	229	221
999	1002	925	908	864
2498	2505	2312	2270	2160

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1880phae.proj.1427B

26

Nov 21 1881

C = 4467.3

Polaris Lb.

		B	R	B	R	B	R
		23.4	23.2	13.0	12.3	12.2	11.2
		16.0	17.1	5.1	6.2	4.4	5.2
		6.4	6.8	56.1	55.0	53.7	54.3
		13.0	13.7	2.2	2.6	0.7	0.7
		591	498	164	161	110	114
	4	1478	1245	410	402	275	285

		B	R	B	R	B	R
		37.1	36.8	35.0	34.7	33.5	33.3
		29.4	30.6	27.7	28.5	25.9	27.0
		19.0	19.2	16.9	17.2	15.9	16.0
		25.3	26.0	25.0	27.8	25.9	26.0
		1108	1126	1046	1082	1012	1023
	3	27.70	28.15	26.15	27.05	25.30	25.58

A_{9_6} to 3_2

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1880phae.proj.1427B

Nov 22 1880 c = 44 64.9

Polaris Lib.

	B	R	B	R	B	R	B	R	B	R
40 0	40.9	40.9	51.6	51.5	58.2	57.8	4.3	3.8	10.0	10.0
	40.3	40.8	52.3	51.8	58.0	57.9	4.4	4.2	10.2	9.9
	48.3	48.0	58.5	58.0	4.9	4.2	11.4	10.8	17.6	16.9
	54.7	54.6	4.8	5.7	11.1	11.2	17.6	17.8	24.2	24.0
	1832	1843	2272	2270	122	111	377	366	620	608
	4580	4608	5680	5675	305	278	942	915	1550	1520

B	R	B	R
16.8	16.4	23.4	22.6
16.8	17.0	23.3	23.1
23.8	23.9	30.3	30.1
30.0	30.1	36.4	36.1
874	874	1131/4	1119
2185	2185	2835	2798

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1880phae.proj.1427B

28

Nov 22 1880

C = 44 64.9 LC

	B	R	B	R	B	R	B	R	B	R
0 4	7.0	7.0	58	59.2	~~53~~ 54.0		54.3	490	488	443 44.2
	6.6	6.6	58.5	59.3	53.8		54.8	494	488	43.9 44.7
	13.0	12.7	5.2	5.7	0.4		0.2	54.7	54.8	50.1 49.9
	18.3	18.7	15.0	12.0	6.0		6.7	0.6	0.1	55.0 55.3
	449	450	135	162	2339	2360		2137	2125	1933 1941
4	11.22	11.25	3.38	4.05	58.48	59.00		53.12	53.12	48.32 48.52

B	R	B	R	B	R	B	R	B	R
14.4	14.1	12.1	12.0	9.1	9.4	7.3	7.4	6.5	6.3
14.9	14.1	11.8	12.0	8.8	9.0	7.3	7.5	6.2	6.4
20.4	20.2	18.0	18.0	15.3	15.7	13.4	13.1	12.3	12.8
26.2	26.8	23.3	24.0	21.0	21.2	18.3	18.7	17.8	18.0
759	752	652	660	542	553	463	467	428	435
1898	1880	1630	1650	1355	1382	1158	1168	1070	1068

A_{90} to 3,

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1880phae.proj.1427B

Nov. 23, 1880 C = 44 64.9

Polaris L.C.

	B	R	B	R₀	B	R	B	R	B	R
0 3	48.9	48.0	40.1	—	16.0	15.2	13.0	13.1	10.5	9.6
	47.2	46.3	39.0	—	15.6	14.9	12.1	12.8	9.8	9.0
	53.4	52.6	46.3	—	21.9	21.7	19.0	19.1	16.2	16.8
3	58.1	59.3	51.4	—	26.2	27.0	24.0	24.9	21.4	21.0
1	2066	2062	1768		797	788	681	699	579	564
2	51.65	51.55	44.20		19.92	19.70	17.02	17.48	14.48	14.10

A_{9_0} to 3_1

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1880phae.proj.1427B

Nov 25 1880 G = 44649

Polaris

	R		R	R	R	R
40	0	414	571	542	13	49
		41'5	5'01	542	04	43
		427	5'71	08	96	10.4
		56.7	6'6	94	156	19.2
		1883	2249	2386	249	388
40		47.08	56.22	59.65	6.22	9.70

R	R	R	R
165	198	236	265
159	192	239	272
228	259	301	341
301	341	385	416
853	990	1161	1294
21.32	24.75	29.02	32.35

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1880phae.proj.1427B

Nov 25 Hw c = 44 64,9

Plain L.O.

	R	R	R	R	R
0 4	3,8	5,70	5,33	4,90	4,62
	3,4	5,54	5,2	4,86	4,47
	9,5	1,3	5,78	5,37	5,00
	1,60	8,1	4,0	0,2	1,9
	327	18	2273	2115	2028
4	8,18	0,45	56,82	52,88	50,70

	R	R	R	R	R
	148	138	121	11,0	105
	143	126	109	102	99
	198	176	172	144	144
	266	249	241	223	222
	755	689	643	579	573
	18,88	17,22	16,08	14,48	14,32

Ag to 3,

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1880phae.proj.1427B

Nov 27 1880 C =

Beam No.

		R	R	R	R	R	R	R
40	0	4,29	5,30	5,84	24	7,2	11,4	15,3
		4,12	5,21	5,78	1,4	6,7	11,0	14,7
		4,82	5,80	8,4	8,8	12,9	17,2	21,2
		5,68	7,0	12,8	16,8	22,1	26,3	29,1
		18,91	23,04	1,24	2,89	4,89	6,59	8,03
	40	47,28	57,60	3,10	7,22	12,22	16,48	20,08

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1880phae.proj.1427B

Nov 29 1880

Palais Nl.

R R R R R R R R

40	0	41,5	503	549	00	34	7.8	116	15,2	193	220
		420	512	559	021	46	912	12,2	16,4	204	229
		504	594	63	88	128	17,2	21,2	244	28,2	313
		59,0	7,6	11,8	17,0	24,1	25,9	29,1	33,2	36,8	39,8
		1929	2285	59	262	422	601	741	892	1047	1155
	40	48,22	57,12	1,48	6,55	10,55	15,02	18,52	22,30	26,18	28,88

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1880phae.proj.1427B

Nov 29 1882

Polaris Lo.

	R	R	R	R	R	R	R	R
v 4	118	61	00	534	504	470	433	403
	111	58	01	530	510	470	432	02
	105	122	61	597	567	537	397	474
	26,7	19,7	13,7	6,4	4,7	0,4	56,2	54,1
	681	438	199	2325	2228	2081	1924	2020
4	1702	1095	498	5812	5570	5202	4810	5050

R	R	R	R	R
128	125	104	95	71
121	119	106	90	78
197	183	144	153	130
279	263	242	225	211
725	610	600	563	490
1812	1525	1500	1408	1225

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1880phae.proj.1427B

Nov 30 1880

Polaris Alt.

	R	R	R	R	R
40 0	373	470	521	568	30
	368	463	519	564	26
	450	549	592	41	100
	583	34	87	139	193
	1724	2116	2319	112	349
40	43,10	52,90	57,98	2,80	8,72

R	R	R	R
10,4	151	187	242
10,1	147	182	239
181	230	261	314
272	321	359	412
658	849	989	1207
16,45	21,22	24,72	30,18

Alt 40 50

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1880phae.proj.1427B

Prey 1880 C=44 64.2

Dolain Night.

		R	R	R	R	R
40	1	548	550	559	577	569
		553	558	562	578	587
		0.9	2.2	2.8	4.0	4.7
		10.2	11.3	11.4	13.3	13.7
		241.2	244.3	245.8	252.8	254.0
	2	0.30	1.08	1.45	3.20	3.50

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1880phae.proj.1427B

Dec 8 1880
C = 44 64.2
Polaris Lo

	R	R	R	R	R	R
0 8	22.2	21.3	21.9	18.1	15.3	15.7
	18.5	19.2	17.8	15.1	13.0	13.2
	24.8	24.3	22.9	21.3	18.7	20.0
	27.2	35.9	34.1	32.8	29.8	30.8
	92.7	100.7	95.7	84.3	76.8	79.7
3	23.18	25.18	23.92	21.82	19.20	19.92

One setting.

Seeing very bad

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1880phae.proj.1427B

Dec. 9 1880

Polaris U.C. C=4 4 61.9

	B	R	B	R	B	R	B	R	B	R
40	0	51.1 51.3	3.2	3.3	7.3 8.0		15.0 15.2		19.1 19.1	
		49.2 49.1	0.8	1.2	4.8 5.9		13.0 13.3		17.0 17.8	
		54.6 54.9	6.4	6.8	11.5 12.2		19.0 19.2		23.2 23.0	
		1.5 1.2	19.4	19.2	23.1 24.0		30.6 31.2		35.2 35.8	
		22.24 22.25	30.1	30.5	47.2 50.7		77.9 78.9		94.5 95.7	
40		55.60 55.62	7.52	7.62	11.80 12.68		19.48 19.72		23.62 23.92	

	B	R	R	R	B	R	B	R	B	R
	26.1	25.9	54.3	53.7	57.5	57.0	59.7	59.3	0.0	59.6
	23.3	24.3	52.8	52.9	54.8	55.8	57.2	57.8	58.3	58.2
	29.9	30.1	57.3	58.0	0.0	1.0	3.5	3.2	3.3	3.7
	42.0	41.8	10.1	10.2	13.8	13.4	16.0	15.8	16.3	15.8
	12.13	12.21	23.51	23.48	61	72	164	161	179	173
	30.32	30.52	58.78	58.70	152	180	410	402	448	432

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1880phae.proj.1427B

Dec 0 13 1880 c = 44 619

Palmer Lc.

	B	R	B	R	B	R	B	R	B	R
0	4	22 4	23.2	14.8	15.0	6.9	7.1	0.6	1.2	56.1	55.2
		21.5	23.1	13.7	14.8	6.4	7.4	0.0	1.0	55.4	55.0
		30.0	31.2	21.2	21.5	14.0	14.7	7.6	8.7	3.0	3.0
		41.6	40.2	34.2	33.6	26.2	26.0	19.5	20.2	15.7	15.0
		1155	1177	839	849	535	552	277	311	95	82
	4	2888	2942	2098	2122	1338	1380	692	778	238	205

B	R	B	R
494	49.8	431	43.8
488	49.3	426	43.1
569	56.9	605	50.8
87	8.0	21	2.0
2238	2240	1983	1997
5595	5600	4958	4992

9° to 5°

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1880phae.proj.1427B

40

Dec, 14 1880

Dulain Lo.

		R	R	R	R	R	R	R	R	R
0	2	11,8	6,1	5,1	3,2	3,3	1,4	1,8	1,4	1,0
		12,1	6,8	5,3	3,1	3,6	1,9	2,3	1,7	1,5
		21,3	15,7	14,0	11,8	12,8	10,8	10,8	11,2	10,1
		27	26,8	25,0	23,3	23,1	22,1	21,3	22,5	21,3
		6,79	5,54	4,94	4,14	4,28	3,65	3,62	3,68	3,39
	2	16,98	13,85	12,35	10,35	10,70	9,12	9,05	9,20	8,48

$A_{2} - A_{1,0}$ $A_{+1,5}$ 4 3 2 1

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1880phae.proj.1427B

D 2@15-1880 C=44 61.9

	B	R	B	R	B	R	B	B	B
0 46	6.7	6.2	57.9	58.1	50.5	50.7	45.9	42.8	39.8
	6.6	7.2	58.2	58.9	57.3	57.9	46.2	43.3	40.3
	16.3	16.7	7.3	8.2	0.7	0.9	55.3	52.4	50.3
	26.7	27.3	19.3	19.8	11.7	10.9	6.5	3.9	1.0
	563	574	227	250	2342	2344	2139	2024	1914
46	14.07	14.3547	5.68	625	58.55	5860	53.48	50.60	47.85

B	B	B	B
18.3	14.4	13.0	9.8
18.2	15.0	12.9	10.5
27.6	24.3	22.2	19.8
38.7	35.5	33.2	30.4
1028	892	813	705
2570	2230	2032	1762

Ag to 4

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1880phae.proj.1427B

Dec 16 1880

C — 44 61.9

Prelim Nbs.

	B	B	B	B	B	B	B
40	0	58.9	5.5	11.3	15.0	18.5	21.2	45.8
		37.8	6.0	11.9	15.5	18.6	21.7	46.3
		6.5	14.0	25.0	28.2	29.9	29.0	54.0
		1.2	26.7	32.5	35.9	39.1	41.8	7.0
		54	522	760	896	1031	1137	2131
41		135	1305	1900	2240	2578	2842	5328

B	R	B	R	B	R
49.4	48.8	50.7	—	51.5	51.9
49.7	49.2	51.1	—	52.3	52.6
56.8	56.0	58.8	—	58.6	58.9
10.1	9.9	11.8	—	12.7	13.0
2260	2239	2324		2353	2384
56.50	55.98	58.10		58.82	59.60

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1880phae.proj.1427B

Dec 16/80
C = 44619

Rolenia Llo.

	B	B	B	B	B	B	B	B	B
0 4	12,1	9,6	5,4	0,1	58,4	53,9	52,9	48,6	45,4
	10,8	8,5	4,8	5,91	56,2	52,8	51,0	46,2	44,5
	17,9	16,1	11,9	6,0	4,0	59,8	57,4	53,1	50,8
	27,0	25,3	22,3	16,9	14,1	10,6	7,9	3,5	2,0
	678	598	449	221	127	2371	2292	2114	2027
4	1495	1495	1122	552	318	5928	5730	5285	5068

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-1

A -1 54321 A 90 to 70

1880phae.proj.1427B

Dec, 18 1/2 hr C = 44 61.9

Polaris N.C.

	B	R	B	R	B	R	B	R	B	R
40 0	59.2	59.7	8.5	7.6	14.0	13.0	18.0	18.1	21.9	~~20.7~~ 22.3
	58.1	58.2	6.0	6.4	12.6	12.1	16.2	16.3	~~20.2~~	21.0
	4.6	4.8	12.9	13.0	~~14.9~~	18.4	~~23.1~~	23.1	27.5	27.0
	16.9	16.2	24.9	24.7	30.1	29.6	35.3	35.0	39.0	38.7

Chf

B	B	R	B	R	B	R	B	R	B	R
28.1	52.3	51.8	54.7	54.1	55.1	55.2	57.4	57.8	57.7	57.3
27.1	54.0	54.1	54.1	54.0	55.1	54.7	56.8	56.9	56.8	56.3
	57.1	57.8	59.6	59.8	0.1	0.6	2.6	2.7	3.1	2.2
45.0	8.9	8.8	10.8	11.0	10.2	11.8	14.8	14.0	13.0	14.0
	293	295	392	389	05	23	111	114	106	098
Chf.	57.32	57.37	59.80	59.72	60.12	60.57	62.77	62.85	62.65	62.45

A_{3_0} +C.

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1880phae.proj.1427B

Dec 18 1880

Polaris Lo.

		R	R	R	R	R	R	R	R
0	4	114	50	12	578	524	246	190	173
		90	31	587	561	500	220	162	144
		138	80	576	05	541	266	216	201
		245	190	554	417	61	380	310	302
		587	351	2329	61	2236	1112	868	820
	4	14.68	8.78	58.22	1.52	55.90	27.80	21.70	20.50

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1880phae.proj.1427B

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1880phae.proj.1427B

Dec. 19 1880 C=44 64.9

Polaris Obs.

	R	R	B R	B R	B R
0 4	12.4	4.1	0.5 0.6	56.3 56.2	51.6 51.4
	11.1	2.6	58.3 58.8	53.9 55.0	49.2 49.5
	16.8	8.1	5.0 4.8	0.7 0.9	56.1 56.2
	27.8	19.4	15.9 15.8	11.3 11.8	7.1 5.7
	6.81	3.42	1.97 2.00	2.22 .39	2240 2228
4	17.02	8.55	4.92 5.00	5.55 6.97	56.00 55.70

B R	B R	B R
25.0 24.8	22.6 22.4	20.4 20.9
22.4 23.0	19.7 20.2	17.6 18.3
29.0 29.3	26.3 26.8	24.2 24.8
39.5 39.3	36.1 36.8	34.2 34.1
1159 1164	1049 1064	964 981
2898 29.10	26.22 26.60	24.10 24.52

Ag$_0$ to 4$_0$ + from 2$_0$ to 1$_0$

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1880phae.proj.1427B

Dec 21 1880

Rulan Slo.

C = 44 64.9

		B	B	B	B
C	4	14.4	9.0	5.0	1.1	57.3
		12.2	6.9	2.2	59.0	53.6
		18.2	13.5	9.0	5.8	2.3
		29.0	24.7	19.8	16.1	12.9
		738	541	360	220	81
	4	1845	13.52	9.00	5.50	2.02

B	R	B	R	B	R	B	R	B
21.9	22.3	19.5	19.0	17.4	17.2	15.9	16.2	15.0
26.0	21.2	17.3	17.3	15.2	15.8	13.8	13.8	12.9
27.1	26.5	24.1	24.0	22.1	21.6	21.0	20.4	19.2
30.1	36.8	34.7	34.8	33.1	32.2	31.4	31.2	30.2
1061	1068	956	951	878	868	821	816	773
2652	2670	2390	2378	2195	2170	2052	2040	1932

$A_{8.1}$ to 4_0 + from A_{20} to 1_0

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1880phae.proj.1427B

50

Dec. 22 1880 C=44 62.2
Polaris U.C.

B	R	B	R	B	R	B	R	B	R
44.9	44.7	51.9	51.6	58.5	58.0	3.7	3.3	10.0	9.8
44.0	44.8	51.3	51.0	57.9	58.1	3.2	3.0	9.2	9.6
50.1	50.2	57.3	56.6	3.8	3.8	9.6	8.7	15.5	15.2
3.8	4.0	10.8	10.0	17.4	17.0	22.2	21.9	~~28.3~~ 28.3	~~28.6~~ 28.6
2028	2037	2313	2292	176	169	387	369	630	632
50.70	50.92	57.82	57.30	4.40	4.22	9.67	9.22	~~15.25~~ 15.75	15.80

B	R	B	R	B	R	B	R	B	R
14.1	13.8	21.5	21.6	46.3	46.8	50.0	49.4	51.3	51.1
13.3	13.0	20.4	20.7	46.1	46.2	49.8	49.6	51.3	51.3
19.6	19.1	26.8	26.8	51.8	51.8	55.3	55.6	57.0	57.2
32.4	32.2	39.5	39.8	48	51.8	8.8	8.6	9.3	10.2
794	781	1082	1089	2090	2106	2239	2232	289	298
19.85	19.52	27.06	27.22	52.25	52.65	55.97	55.80	57.22	57.45

A_{10} to 5_0

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1880phae.proj.1427B

Dec 22 68 C — 44 62.2

Palain L.C.

	B	R	B	R	B	R	B−R		B−R
0	4	15.2 14.3	6.4	6.0	0.3	0.8	54.5	54.8	3 ~~5.9~~
		13.0 13.2	4.2	4.9	58.0	58.2	52 ~~5.0~~	54.0	
		19.0 19.1	10.1	10.4	3.9	4.5	59.0 ~~5.4~~	59.1	
		30.2 29.2	22.0	21.6	14.8	14.2	9.8	9.0	
		77.4 75.8	42.7	42.9	17.0	17.7	235.7	236.9	
	4	19.35 18.95	10.68	10.72	4.25	4.42	58.92	59.22	

	B	R	B	R	B	R	B	R	B	R
3	24.9	25.1	22.7	22.5	20.3	20.3	18.6	19.2	16.8	17.3
	23.6	23.3	20.0	21.8	18.0	18.9	16.5	16.3	15.5	16.1
	29.1	29.0	26.6	26.8	24.1	25.0	22.6	22.9	21.8	22.1
	39.4	39.5	37.1	36.8	35.0	34.9	33.1	33.2	32.4	32.0
	116.2	116.9	106.4	107.4	97.4	99.1	90.8	91.6	86.8	87.5
	3	29.05	29.22	26.60	26.85	24.35	24.78	22.70	22.90	21.70	21.88

45

Ag$_0$ to 4$_0$

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1880phae.proj.1427B

Dec. 23, 1880 C = 44 62.2
Polaris U.C B. Obs of Prst 3 δ

		B	B	B	B	B	B
40	0	48.0	59.3	6.9	10.6	17.8	20.3
		—	58.3	6.1	10.4	17.4	19.8
		54.2	5.8	13.0	17.1	24.5	26.6
		8.0	18.7	26.2	30.3	37.3	39.9
			221	522	684	970	1066
40			41	5,52	13,05	17.10	24,25	26,65

	B	B	B	B	B
1	47.7	49.3	50.7	51.8	53.1
	47.7	48.8	50.1	51.0	53.1
	53.5	56.2	56.6	57.5	10.1
	6.8	8.6	9.9	10.0	12.1
	2157	2231	2295	2303	811
1	53,92	55,78	56,88	57,58	2,10

A_{1_0} to 5_0 + A_{8_0} to 9_0

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1880phae.proj.1427B

Dec 27 1880 C = 44 62,2

Polaris N.6.

	B	B	B	B	B	B	B	B	B	B
400	27.8	54.6	58.0	1.8	8.7	9.0	12.5	16.4	18.2	22.9
	26.2	53.4	57.9	1.0	2.8	8.2	12.2	15.6	17.4	21.8
	33.0	59.5	2.8	7.1	9.5	16.1	18.9	22.4	24.5	29.7
	46.3	12.4	16.3	20.2	22.0	28.0	31.0	34.9	37.2	42.0
	1333	2399	-140	301	-380	613	746	893	973	1164
40	33.32	59.98	3.50	7.52	9.50	15.32	18.65	22.32	24.32	29.10

A_{+1} 12345 A_{1_0} to 2_2 3_2

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1880phae.proj.1427B

Dec 28, 1880 C = 44 62.2

Polaris Obs.

	B	R	B	R	B	B	B	B	B	B	B
40	0	500	49.8	590	—	3.8	6.1	12.1	16.0	20.4	25.4	27.2
		490	49.6	584	—	2.4	4.9	11.0	14.7	19.9	33.2	35.8
		540	55.2	3.3	—	8.6	11.2	17.2	21.4	26.2	31.0	32.1
		7.1	7.8	16.3	—	21.2	24.1	29.4	33.0	38.0	41.4	44.0
		2201	2224	160		360	463	697	851	1047	1310	1391
40		55.02	55.60	4.00		9.00	11.58	17.42	21.28	26.18	32.75	34.78

B	B	B	B
50.1	515	54.3	558
543	511	53.5	556
10	560	59.3	21
12.5	8.0	11.7	1.36
Ri	2266	2388	71
	56.65	59.70	1.78

A_{+1} 12345 A_1 to 5_0

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1880phae.proj.1427B

Dec 29 1880 C=44 6.2.2

Polaris L.C.

		B	B	B	B	B	B
0	4	18.2	13.9	7.2	5	599	560
		15.7	10.6	4.0	3.2	598	541
		21.3	17.2	12.3	8.8	560	0.3
		30.7	26.5	20.1	18.1	15.9	9.9
		85'9	682	436	352	112	03
	4	21.48	17.05	10.90	8.80	2.80	0.08

J wire precedes A by
Rej J begins in 1m

A # 21
+1

1 Ag. to 5.

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1880phae.proj.1427B

Dec 30 1880 C = 44 62.2

Polaris Mc.

	B	B	B	B	B	B
40	11.7	14.0	22.2	24.4	28.0	31.4
	8.7	11.4	19.2	21.7	25.0	29.0
	12.5	16.4	24.7	27.5	31.6	35.0
	24.1	26.4	35.0	37.6	40.9	44.3
	570	682	1011	1112	1255	1397
41	14.25	17.05	25.28	27.80	31.38	34.92

B	B	B
54.9	57.9	3.7
52.1	54.7	0.0
57.2	0.1	6.1
7.1	10.1	15.5
2313	28	253
57,82	0,70	6,32

A_{+1} 2345 A_{1^0} to 5^0 + from 8^0 to 9^0

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1880phae.proj.1427B

Paul 1884 C = 44 57.0

Polaris U.C.

		R	R	R	R	R	R	R	R
40	0	561	26	56	115	150	191	221	250
		528	591	33	78	112	153	186	221
		564	318	91	130	162	284	240	271
		93	166	191	248	282	321	353	387
		2346	221	351	571	706	869	1002	1129
	40	5865	5520	878	1428	1765	2172	2505	2822

A_{10} to 50

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1880phae.proj.1427B

58

Ban 2 1 Rc =

Polaris Vela.

	R	R	R	R	R	R	R
40	0 55·7	34	110	142	181	221	264
	52·6	0·0	77	112	149	188	248
	58·1	5·0	126	164	204	242	288
	88	16·4	243	279	31·1	356	406
	2352	251	556	697	845	1007	1206
40	58,80	6,28	13,90	17,42	21,12	25,18	30,15

By Shelton A_{+1} and 2

	R	R	R	R	R	R	R
	514	538	553	568	587	590	590
	489	510	525	536	558	561	564
	520	543	572	587	594	599	604
	47	69	93	108	120	129	130
	2061	2260	2343	101	59	79	88
	51,52	56,50	58,58	0,02	1,48	1,98	2,20

A_{+1} A_{10} 5 5a A_{-1}
0

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1880phae.proj.1427B

Jan 2 1884

Polaris LC.

C = 44 57.0

	B	R	B	R	B	B	R	B	R
0	4	20.4	19.9	13.5	13.1	8.8	—	59.5	59.0	56.9	—
		16.1	16.3	9.8	9.8	4.4	—	55.0	55.7	52.3	—
		23.1	22.0	15.2	15.9	10.0	—	0.7	0.9	57.1	—
		32.7	31.8	25.2	25.9	20.1	—	11.1	10.7	8.0	—
		12.3	10.0	23.7	24.7	3.3		6.3	6.4	3.3	
	4	23.07	22.50	15.92	16.17	10.82		01.57	1.60	58.32	

	B	R	B	R	B	B	B	B
3	29.3	28.9	26.6	—	24.0	23.4	21.0	20.0
	24.0	24.4	21.3	—	19.7	19.0	16.3	15.0
	30.3	30.9	27.1	—	25.3	25.0	22.1	21.8
	40.0	40.1	37.5	—	36.3	34.9	32.9	31.7
	123.6	125.3	32.5		105.3	102.3	92.3	88.5
3		30.90	31.32	28.12		26.32	25.57	23.07	22.12

Ag. to 2.

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1880phae.proj.1427B

Jan 3, 1881 C = 44 57.0

Polaris U. C.

	R	R	B	B R	B R	B R
40	7.9	22.3	47.6	49.5 49.6	52.0 —	52.9 53.0
	6.2	19.8	44.7	46.8 47.4	49.5 —	50.4 51.1
	10.2	25.3	48.4	51.3 52.1	53.5 —	54.3 54.3
	22.2	36.9	2.2	4.2 4.0	6.2 —	7.5 7.0
	46.5	24.3	34	118 131	217	251 254
41	11.62	26.07	50.85	52.95 53.27	55.42	56.27 56.35

B R	B R	B R	B R
~~53.8~~ 53.9	57.0 57.1	~~56.7~~ ~~57.1~~	57.1 57.2
50.6 50.2	54.0 55.0	54.0 ~~54.6~~	54.4 54.8
54.7 55.7	58.4 59.1	58.2 ~~58.7~~	58.7 59.0
7.9 7.7	11.5 11.8	11.7 ~~12.2~~	12.2 11.7
270 275	309 30	06	29 27
56.75 56.87	60.22 60.75	60.15	60.72 60.67

~~A to~~ A to S

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1880phae.proj.1427B

Jan. 3, 1880 C = 44 57.0
Polaris L.C. B. Obs. of 1.20T 38

		B	B	B	B	B	B	B	B	B
0	4	18.1	10.3	4.3	29.3	26 9	26.0	232	230	224
		13.6	6.8	59.2	25.7	22 7	21 1	19 3	18 8	17 9
		19.4	12.2	5.5	30.7	28.2	25 0	25.4	24 3	23 7
		30.0	22.9	16.9	41.5	39 1	38.3	35.5	35.8	35 1
		811	522	259	1272	1169	1124	1034	1019	991
	4	20.28	13.05	6.48	31.80	29.22	28.10	25.85	25.48	24.78

A_0 to 4_0

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1880phae.proj.1427B

Jan. 6, 1881 C = 44 59.0

Polaris L. C. B. Obs.

	B	B	B	B	B
O 4	23.3	16.3	9.0	2.7	52.4
	20.8	14.0	6.8	1.6	50.7
	28.0	20.8	13.0	8.2	56.9
	39.6	32.6	25.1	20.0	9.2
	1117	837	539	325	2292
4	27.92	20.92	13.48	8.12	57.30

B	B	B	B	B
18.9	16.2	14.7	13.0	12.9
15.8	14.3	12.0	9.9	9.0
22.4	19.8	17.8	16.2	16.0
36.5	33.0	31.1	29.2	28.7
936	833	756	683	666
23.40	20.82	18.90	17.08	16.65

A 9° to 5°

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1880phae.proj.1427B

Jan. 7, 1881 C = 44 59.0

Polaris U. C. B. obs.

		B	B	B	B	B	B	B
40	0	6.0	15.6	48.9	55.8	1 1.1	5.3	13.1
		5.4	15.1	48.5	55.7	1.4	5.2	13.0
		12.7	22.3	56.0	3.3	8.5	12.8	20.2
		26.88	36.3	9.9	17.3	22.2	26.6	33.3
		509	893	2233	121	332	499	796
	40	12.72	22.32	55.82	3.02	8.30	12.48	19.90

A_{1_0} to A_{5_0}

ε Piscium was taken on the same sheet as a time star. 0 56 46 +7 15

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1880phae.proj.1427B

64

Jan. 8 1881 C=44 59.0

Polaris N.O.

R	R	R
10	11.2	23.6
0.4	11.1	23.0
6.0	16.5	28.0
20.7	30.5	42.1
28.1	6.96	11.67
7.02	17.40	29.18

	R	R	R	R	R	R	R
1	49.5	50.0	52.2	54.2	55.9	56.6	58.0
	48.1	49.8	51.4	53.2	55.2	55.8	57.2
	54.2	56.3	57.0	59.9	0.7	1.7	2.0
	7.8	10.0	11.1	13.6	14.1	14.7	16.0
	2.96	226.1	2.317	1.9	5.9	8.8	13.2
1	54.90	56.52	57.92	0.48	1.48	2.20	3.30

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1880phae.proj.1427B

Jan 10, 1881 C = 44 59.0

Polaris L.C.

	B	B	B
0 4	20	55.2	52.0
	59.1	53.3	50.2
	6.7	0.5	56.4
	8.0	12.2	8.3
	258	12	2269
4	6.45	0.30	56.72

B	B	B	B
190	184	180	181
18.7	17.5	17.2	16.0
24.8	24.2	23.7	22.0
36.1	36.0	35.3	34.9
996	961	942	910
24.90	24.02	23.55	22.75

A-145 A_{90} b_2 to 3_0 A_{T1} 54321

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1880phae.proj.1427B

Jan 12 1877 $\alpha = 44^{h}\,62^{m}.4$

Rdais N.C.

	R	R	R	R	R	R
40	0 400	486	538	24	96	190
	391	446	526	18	90	176
	448	532	573	52	142	228
	517	67	109	203	272	364
	2216	2161	2346	317	600	958
40	55,40	54,02	58,65	7,92	15,00	23,95

	R	R	R
	225	1 530	542
	220	526	541
	270	582	590
	40.5	11.7	12.6
	1123	2355	2399
	28,08	58,88	59,98

A 1 12345 A 10 a 5,

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1880phae.proj.1427B

Jan. 12, 1881 C=44 62.4

Polaris L. C. B. obs.

		B	B		B	B	B	B	B
0	4	57.0	57.1	3	21.8	20.4	20.3	21.3	18.2
		1.3	54.1		17.5	16.8	16.8	17.0	15.0
		7.3	0.4		23.3	23.2	22.4	23.1	21.0
		18.2	10.9		35.3	33.6	34.2	34.3	32.0
		319	25		979	940	937	957	862
	4	7.98	0.62		2448	2350	2342	2392	2155

Aq to 5 Seeing very bad.

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1880phae.proj.1427B

Jan 15 1881 C = 44 62.2

Polaris No.

	R	R	R	R	R
401	2'41	5'06	5'72	5'91	0'2
	2'57	4'92	5'57	5'70	5'79
	3'09	5'42	0'3	2'1	3'8
	4'2?	7'0	13'0	15'0	16'4
	12'59	22'10	56	132	183
	31'48	55'25	1'40	3'30	4'58

	R	R	R	R	R
	5'94	5'90	5'91	5'87	5'74
	5'77	5'64	5'64	5'62	5'59
	3'1	1'5	1'7	2'0	0'6
	1'60	1'51	1'49	1'44	1'40
	162	120	121	113	79
	4'05	3'00	3'02	2'82	1'98

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1880phae.proj.1427B

Jan 16 1881

Palaia Hle.

		R	R	R	R	R
40	1	53 3	51 9	56 1	55 2	56 4
		51 9	52 9	53 9	53 8	55 8
		1 9	51 7	58 9	59 7	59 9
		9 8	10,3	11,8	11,7	13 2
		236 9	235 8	0 7	239 9	245 7
41		59.22	58,95	0,18	59,98	61,42

A_2 to 5,

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1880phae.proj.1427B

70

Jan. 17 1881 C = 44 61.8

Polaris U. C. B. obs.

	B	B	B	B	B	B	B	B
40	0	42.2	54.5	59.6	4.3	8.1	13.0	16.4	22.5
		40.2	52.3	57.5	2.0	5.9	10.9	14.2	20.6
		44.7	57.5	2.4	7.0	11.1	17.2	20.2	26.7
		58.2	10.9	16.0	19.9	23.9	28.7	32.6	38.9
		1853	2352	155	332	490	698	834	1087
40		46,32	58.80	3,88	8,30	12,25	17,45	20,85	27,18

B	B	B
56.0	56.8	57.4
54.1	54.8	55.3
0.0	59.3	0.6
12.0	12.0	13.2
21	29	65
0,52	0,72	1,62

Rattle preceeds R. A. wires

A_0 to 5^-_0 & 8_0 to 9_0

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1880phae.proj.1427B

Jan. 18, 1881 C = 44 61.8

Polaris U. C. B. Obs.

	B	B	B	B	B	B	B	B	B
40	18.1	24.0	27.2	53.0	55.0	56.7	58.0	58.2	59.8
	15.6	21.9	24.8	50.9	52.2	54.3	55.4	56.3	57.6
	21.9	27.8	31.2	56.0	58.1	59.6	1.3	2.1	3.2
	34.7	40.2	42.9	8.6	10.5	12.1	13.3	14.1	15.8
	903	1139	1261	2285	2358	27	80	107	164
41	22.58	28.48	31.52	57.12	58.95	0.68	2.00	2.68	4.10

~~A~~ A_0 A_1 to 5_0

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1880phae.proj.1427B

Jan. 20, 1881 C = 44 61.8

Polaris U. C. B. obs.

		B	B	B	B	B	B	B	B	B	B
40	1	6.4	13.1	17.9	22.9	57.4	53.4	55.0	56.1	57.7	57.2
		4.9	11.3	16.0	21.0	50.1	51.3	53.0	54.0	55.8	55.9
		11.0	17.3	22.3	27.3	55.3	56.9	58.9	59.9	1.5	1.6
		22.1	29.4	34.5	39.6	7.6	10.0	11.3	12.2	13.9	13.3
		444	711	907	1108	2244	2316	2382	2322	89	80
41		11.10	17.76	22.68	27.70	56.10	57.90	59.55	58.05	2.22	2.00

A_0 to 5_0

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1880phae.proj.1427B

Jan. 24, 1881 C = 44 61.9

Polaris U. C. B. obs.

		B	B	B	B	B	B	B	B	B	B
40	0	52.5	0.7	6.6	10.8	14.1	19.1	24.3	27.0	59.3	1.9
		49.7	57.3	3.8	8.3	11.0	15.6	21.1	24.1	58.0	59.6
		53.7	2.6	8.8	13.0	15.4	21.3	26.3	29.2	1.8	4.6
		6.2	15.1	20.7	25.3	28.1	32.7	38.9	40.6	13.8	16.7
		2221	157	399	574	686	887	1106	1209	129	228
	40	55.52	3.92	9.98	14.35	17.15	22.18	27.65	30.22	3.22	5.70

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1880phae.proj.1427B

Jan. 25, 1881 C = 44 61.9

Polaris U. C. B. obs.

	B	B	B	B	B	B	B	B	B	B
40	1	18.1	22.0	27.0	52.4	53.8	56.7	57.6	58.9	59.1	0.1
		15.3	19.3	24.3	50.1	51.0	53.6	54.4	56.1	56.8	57.3
		20.9	24.5	28.9	54.1	55.7	58.1	59.0	0.4	1.3	1.6
		32.3	36.1	40.4	6.1	8.0	10.3	11.8	13.0	13.7	13.9
		866	1019	1206	2227	2285	2387		28	84	104	129
41		21,65	25,48	30,15	55,68	57,12	59,68		0,70	2,10	2,72	3,22

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1880phae.proj.1427B

Jan. 26, 1881 C = 44 61.9

Polaris U.C. B. obs.

	B	B	B	B	B	B	B
40 /	11.0	16.9	23.0	51.7	53.6	55.9	56.6
	8.1	14.1	20.3	49.8	51.0	53.3	54.6
	13.2	19.2	26.1	53.5	55.0	57.7	58.3
	25.3	32.1	38.0	5.9	8.2	10.4	11.3
	576	823	1074	2209	2278	2373	08
	1440	2058	2685	55.22	56.95	59.32	0.20

Breaks following 2nd S owing to derangement of key.

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1880phae.proj.1427B

Jan. 27, 1881 C = 44 61.9

Polaris U. C. B obs.

	B	B	B	B	B	B	B	B	B	B
40	1	3.6	14.4	19.1	23.7	27.3	52.0	53.2	56.0	58.0	59.6
		59.3	11.3	16.0	20.5	24.6	49.4	50,3	52.7	55.1	56.7
		4.3	16.8	21.1	26.4	30.3	54.2	55.1	57.5	59.7	1.7
		17.5	29.0	33.6	37.8	41.7	6.0	7.5	9.8	11.5	13.4
		247	715	898	1084	1239	2216	2261	2360	43	114
41		6,18	17,88	22,45	27,10	30,98	55,10	56,52	59,00	1,08	2,85

Last A_1

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1880phae.proj.1427B

Jan. 28, 1881. C = 44 61.9

Polaris U. C. B obs.

	B	B	B	B	B	B	B	B
40	1	32.0	57.9	1.0	1.8	4.2	4.9	59	6.3
		27.9	54.1	57.0	57.6	0.3	0.8	1.5	2.3
		33.0	58.8	1.7	2.5	5.3	5.4	6.4	7.4
		44.0	10.4	12.4	13.1	16.1	16.8	17.0	18.0
		1369	12	121	150	259	279	308	340
41		34.22	030	302	375	648	69+	7.70	0850

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1880phae.proj.1427B

78

Jan. 29, 1881 C=44 61.9

Polaris U. C. B obs.

40	1	B	B	B	B	B	B	B	B	B	B
		57.1	0.4	2.1	2.0	2.2	2.9	4.1	5.8	5.5	5.8
		53.3	56.3	58.0	58.1	58.9	59.3	0.5	2.0	2.0	2.5
		58.0	1.1	2.8	3.1	3.5	4.1	6.1	7.1	7.0	7.1
		8.4	11.0	13.7	13.9	13.9	14.5	15.7	16.9	17.4	17.8
		2368	188	166	171	185	208	264	318	319	332
	41	59.20	2.20	4.15	4.28	4.62	5.20	6.60	7.95	7.98	8.30

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1880phae.proj.1427B

Jan. 31, 1881 C = 44 61.9

Polaris U. C. B, obs.

		B	B	B	B	B	B	B	B	B	B
40	1	35.9	56.6	0.0	0.5	2.3	3.3	3.7	4.0	5.0	5.4
		31.8	52.8	56.1	56.7	58.1	59.2	59.7	0.0	1.1	1.8
		36.7	57.1	0.4	1.3	3.1	4.7	5.2	5.0	5.9	7.1
		47.3	7.1	11.2	12.1	13.8	15.7	16.1	16.8	17.3	17.9
		1517	2336	79	106	173	229	247	248	293	324
	41	37.92	58.40	1.98	2.65	4.32	5.72	6.18	6.20	7.32	8.10

Last A_{101}

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1880phae.proj.1427B

Feb. 2, 1881 C=44 61.9

Polaris U. C. B. obs.

	B	B	B	B	B	B	B	B
40 0	49.0	56.5	1.2	7.7	18.9	24.3	28.0	31.9
	44.0	51.8	56.9	2.7	14.2	19.6	23.2	27.1
	50.2	57.7	2.0	8.3	19.7	24.9	29.1	33.2
	59.0	7.5	11.3	17.9	28.4	34.1	38.3	42.0
	2022	2335	114	366	812	1029	1186	1342
40	50,55	58,38	2,85	9,15	20,30	25,72	29,65	33,55

B	B
57.7	3.3
55.8	59.1
0.3	4.5
9.2	13.9
50	208
1,25	5,20

Seeing very poor

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1880phae.proj.1427B

Feb. 3, 1881 C = 44 : 61.9

Polaris U. C. B Obs.

	B	B	B	B	B	B
40 1	10.0	15.0	20.7	24.4	26.0	34.4
	6.1	11.4	16.7	20.2	22.1	30.4
	10.7	14.7	21.1	25.3	27.1	35.0
	19.8	25.2	31.0	34.5	36.0	45.1
	466	683	895	1044	1112	1449
41	11,65	17,08	22,38	26,10	27,80	36,22

	B	B	B	B
40 2	0.4	2.0	4.0	5.6
	56.2	57.8	0.2	1.7
	0.3	2.3	4.8	5.8
	11.2	12.6	14.1	15.2
	81	147	231	283
42	2,05	3,68	5,78	7,08

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1880phae.proj.1427B

Feb. 4, 1881 C = 44 61.9

Polaris U. C. B. obs.

	B	B	B	B	B	B	B	B	B	B
40	0 34.1	44.1	49.8	55.7	0.0	4.3	8.9	12.0	20.2	24.0
	30.4	40.7	46.0	52.0	56.2	0.7	4.8	7.7	16.7	20.0
	36.2	46.0	50.3	56.2	0.7	6.0	9.0	12.6	21.2	25.5
	45.2	55.2	0.3	6.2	11.1	15.7	19.2	22.2	30.9	34.4
	1459	1860	2064	2301	80	267	419	545	890	1039
40	36,48	46,50	51,60	57,52	2,00	6,68	10,48	13,62	22,25	25,98

B	B	B
1.8	3.3	5.2
57.6	0.2	1.4
1.8	4.6	5.1
13.0	14.2	16.3
142	223	280
3,55	5,58	7,00

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1880phae.proj.1427B

Feb. 5, 1881 C = 44 61.9

Polaris M.C. B obs.

	B	B	B	B	B	B	B	B	B	B
40	16.6	21.1	26.3	0.2	1.6	2.6	4.3	6.4	6.8	8.2
	12.1	16.9	22.5	56.3	57.8	58.9	0.8	2.5	2.3	4.2
	17.3	22.3	27.6	0.0	1.9	4.0	5.8	7.2	7.4	9.7
	29.2	33.8	40.2	12.3	14.3	15.8	17.2	19.8	19.5	21.3
	752	941	1166	88	156	213	281	359	360	434
41	1880	2352	2915	220	390	532	702	898	900	1085

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1880phae.proj.1427B

Feb. 7. 1881 C=44 61.9

Polaris U.C. B. obs.

	B	B	B	B	B	B	B	B	B	B
40	1	1.4	18.0	22.3	26.3	31.1	59.0	0.8	1.7	4.3	6.0
		59.5	15.7	20.2	24.0	29.3	56.0	58.6	59.3	1.7	2.9
		5.5	21.6	25.9	30.0	34.5	1.1	3.9	4.9	7.1	18.9
		17.0	32.9	37.6	41.0	46.1	13.0	15.4	16.5	19.0	20.7
		234	882	1060	1213	1410	91	192	224	321	485
	41	585	2205	2650	3032	3525	228	480	560	802	1212

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1880phae.proj.1427B

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1900phae.proj.1427B

Feb. 11, 1881 C = 44 63.7

Polaris U. C.

	B	B	B	B	B	B	B	B	B	B
25 0	0.6	3.2	9.3	12.4	15.3	20.0	23.0	25.9	32.0	34.8
	1.3	4.2	9.9	13.0	15.9	20.8	23.3	26.8	32.3	34.8
	14.1	17.3	23.1	26.1	29.0	33.4	36.2	38.7	44.8	47.1
	7.2	10.2	16.3	18.9	22.0	27.0	29.8	32.9	38.6	41.1
	232	349	586	704	822	1012	1123	1243	1477	1578
25	5,80	8,72	14,65	17,60	20,55	25,30	28,08	31,08	36,92	39,45

B		B	B	B	B	B	B
43.9	1	10.2	11.5	12.9	14.1	15.1	15.9
44.5		10.6	12.1	13.2	14.8	16.0	16.7
56.4		23.1	24,9	26,0	24.9	28.0	28.7
50.8		16.0	17,9	~~24.3~~ 19.3	20.3	21.4	22.4
1956		599	664	714	761	805	837
4890	1	14,98	16,60	17,85	19,02	20,12	20,92

A_{+1} A_{10} ϖ β_0 ν β_1 ϖ γ_0 A_{-1}

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1880phae.proj.1427B

88

Feb. 13 1881 $\odot = 44.63.7$

Polaris 4.6

	R	R	R	R	R	R
2 5 0	196	239	307	327	378	424
	198	253	304	351	387	426
	309	341	401	425	477	523
	264	291	351	377	426	473
	945	1124	1358	1460	1670	1848
25	23,62	28,10	33,95	36,50	41,75	46,20

	R	R	R	R	R	R
1	116	140	143	166	172	189
	116	153	150	179	178	191
	217	244	247	264	272	287
	162	198	193	219	226	238
	611	735	728	826	848	905
1	15,28	18,38	18,20	20,65	21,20	22,62

A_{+1} A_{10} to 5, A_{-1}

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1880phae.proj.1427B

Feb. 13, 1881 C = 44 43.6

Polaris L.C.

	B	B	B	B	B	B
45	34.26	31.0	32.3	29.1	25.2	21.8
	42.3	36.1	31.3	28.7	23.9	21.0
	48.4	42.7	38.1	35.1	31.0	27.1
	41.2	37.0	32.0	28.1	23.6	20.6
	1745	1528	1337	1210	1035	905
48	43.62	38.20	33.42	30.25	25.88	22.62

	B	B	B	B	B	B
2	49.8	48.1	46.8	45.3	42.8	42.0
	49.0	47.7	46.0	44.2	42.1	41.6
	54.7	53.2	51.5	51.0	48.2	47.2
	48.4	46.9	45.9	44.1	41.9	41.2
	2019	1959	1902	1846	1750	1720
2	50.48	48.98	47.55	46.15	43.75	43.00

A_{-1} A_{90} A_{+2} A_{+1}

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1880phae.proj.1427B

Feb. ~~14~~ 14. 1881 C = 44 ~~159.2~~

Polaris U.C.

	B	B	B	B	B	B
25.0	19.6	31.1	35.3	40.0	44.4	48.1
	17.8	29.6	33.1	38.6	43.2	46.8
	23.3	35.0	~~38.8~~	42.9	48.0	51.8
	19.0	30.9	35.0	39.2	44.0	47.8
	79.7	126.6	136.9	160.9	179.6	194.5
	19.92	31.65	34.22	40.22	44.90	48.62

B des.

	B	B	B	B	B	B	B	B	B	B	B
25.1	19.8	21.8	23.0	24.6	25.4	26.2	28.3	28.2	28.0	27.7	27.0
	18.9	20.8	24.8	23.3	24.4	25.5	27.2	27.3	27.3	26.8	26.1
	24.0	25.9	27.2	28.5	29.1	30.3	32.3	32.3	32.2	31.8	30.9
	20.0	21.6	23.0	25.0	25.5	26.8	28.5	28.2	28.0	27.7	26.3
	82.7	90.1	95.0	101.4	104.2	108.8	116.3	116.0	115.5	114.0	110.3
26	20.68	22.52	23.75	25.35	26.05	27.20	29.08	29.00	28.88	28.50	27.58

A_{+1} A_{1_0} to 5_1 & 8_1 to 9_0 A_{-1}

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1880phae.proj.1427B

Feb 5 1881

Polaris UC.

C = 44 59.2

	B	B	B	B	B	B	B	B	B
25-0	4.0	12.0	16.2	19.6	23.8	27.5	45.1	47.1	51.0
	2.9	10.9	14.9	18.8	22.9	26.7	44.3	45.8	50.1
	7.9	16.1	20.2	23.5	27.8	32.1	48.5	50.7	55.0
	3.4	12.2	15.5	19.2	23.5	27.3	44.7	46.2	50.2
	182	512	668	811	980	1136	1826	1898	2063
25	4.55	12.80	16.70	20.28	24.50	28.40	45.65	47.45	51.58

B obs.

B	B	B	B	B	B
53.4	56.3	21.0	23.7	25.4	26.9
52.5	55.8	20.4	23.3	24.9	26.3
57.2	59.9	25.4	27.9	30.0	31.7
53.2	55.8	20.0	23.0	24.9	26.1
2163	2278	868	979	1052	1110
54.08	56.95	21.70	24.48	26.30	27.75

~~$\Delta\gamma_0$~~ $A_{1,0}$ to 5_1, + 2nd + 3rd tap of δ_2 + $,9_0$

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1880phae.proj.1427B

Feb. 16, 1881 C = 44 59.2

Polaris Ale. Rdes.

	B	B	B	B	B	B	B	B	B	B
25	0	19.9	24.9	27.1	31.0	34.1	37.0	40.1	43.1	46.8	50.2
		19.0	23.8	26.2	29.8	32.8	35.7	38.9	42.0	46.0	49
		25.1	29.3	32.2	35.1	38.3	40.8	44.0	47.4	51.0	54.1
		19.5	24.0	27.3	31.5	34.7	37.4	40.9	43.7	47.0	50.4
		83.5	102.5	112.8	127.4	139.9	150.9	163.9	176.2	190.8	203.6
25		20,88	25,62	28,20	31,85	34,98	37,72	40,98	44,05	47,70	50,90

B des. B vdes

	B	B	B	B	B	B
1	18.0	21.8	22.9	24.0	25.6	26.2
	16.1	20.7	21.8	23.1	24.5	25.2
	22.2	26.4	27.8	28.9	30.4	31.1
	16.3	21.7	21.5	23.9	25.1	26.1
	7.26	9.06	9.40	9.99	10.56	10.86
1	18,15	22,65	23,50	24,98	26,40	27,15

A_{+1} A_0 to 5_1 8_1 to 9_0

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1880phae.proj.1427B

Feb. 16, 1881 C = 44 59.2

Polaris L.C.

		B	B
2	45- 3	19.1	14.8
9		18.1	14.0
41		24.4	20.2
		17.3	14.1
54		789	631
36	48	1972	1576
50			

	B	B	B	B	B	B	B	B
2	46.9	46.0	44.8	43.3	41.3	41.3	41.0	40.2
	46.3	45.2	44.1	42.6	40.6	40.3	39.9	39.2
	5-2M	51.4	49.9	48.2	46.6	46.5	46.0	45.3
	45.3	45.0	44.0	42.0	40.1	40.2	39.8	38.1
	1912	1876	1828	1761	1686	1683	1667	1628
2	47.80	46.90	45.70	44.02	42.15	42.08	41.68	40.70

Perhaps a false stroke for δ at a little distance from 1st wire.

A_0 to 4_2

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1880phae.proj.1427B

Feb. 17 1881

Dreams Yale.

Bolis. Rec.

	B	B	B	B	B	B	B	B	B	B
25 0	10.1	17.9	22.2	27.0	32.8	39.7	44.9	48.5	52.0	55.5
	8.2	15.8	20.9	26.1	31.1	37.6	43.3	47.4	50.6	54.4
	13.9	22.0	26.6	32.0	36.8	42.6	48.5	53.0	56.2	59.7
	10.1	17.3	22.0	27.0	32.8	39.2	44.8	48.6	52.5	55.1
	423	730	917	1121	1335	1591	1815	1975	2113	2247
25	10.58	18.25	22.92	28.02	33.38	39.78	45.38	49.38	52.82	56.18

Bdes t+1

Rdes. Bec.

Rdes A1,to 5, A-1

	B	B	B	B	B	B	B	B	B	B
~~25.0~~										
~~25.0~~	19.5	21.9	22.4	23.5	24.9	25.8	26.5	27.3	28.1	28.0
	18.4	20.9	21.4	22.5	23.8	24.7	25.6	26.4	27.7	27.2
	24.1	26.9	26.9	28.2	29.1	30.3	31.2	32.0	32.9	32.7
	18.8	21.0	22.0	23.5	24.8	25.8	26.6	26.9	28.3	27.8
	813	917	927	977	1026	1066	1099	1126	1170	1157
	2032	2292	2318	2442	2565	2665	2748	2815	2925	2892

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1880phae.proj.1427B

Feb. 19. 1881 C = 44 59.2

Polaris U. C. B obs.

	B	B	B	B
25 0	19.3	28.4	45.9	50.3
	18.0	27.2	44.6	49.8
	24.5	34.1	51.3	56.4
	20.5	29.7	47.4	51.9
	823	1194	1892	2084
	2058	2985	4730	5210

B	B	B	B	B	B
18.7	21.4	24.0	25.2	26.0	26.5
17.2	20.4	22.8	24.4	25.2	25.7
24.3	27.2	29.9	31.1	32.1	32.6
20.0	23.0	24.9	26.3	26.8	27.3
802	920	1016	1070	1101	1121
2005	2300	2540	2675	2752	2802

$A_{1,0}$ to 5, + A_{-1} 2 3 4 5

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1880phae.proj.1427B

Feb. 25 1881

Delaware N.L.

R R R

25	23.8	24.4	27.5
	23.3	23.8	46.6
	28.5	24.8	32.1
	25.1	25.6	29.0
	1027	1028	1154
26	25.68	25.70	28.85

Seeing bad

Hazy

A 50 to 90

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1880phae.proj.1427B

Feb. 21, 1881 C = 44 64.3

Polaris L.C. B obs.

	B	B	B	B	B	B	B	B
45-3	33.0	24.0	45.4	42.8	41.5	40.5	39.5	39.7
	31.8	23.0	44.4	41.0	40.0	39.2	38.1	37.9
	37.6	28.8	49.9	46.7	45.8	44.8	43.8	43.6
	32.3	22.7	44.2	41.0	39.7	39.0	38.5	38.0
	1347	985	1841	1715	1670	1635	1599	1592
48	33.68	24.62	46.02	42.88	41.75	40.88	39.98	39.80

B	B
39.5	39.5
38.1	38.1
43.6	43.9
38.1	38.1
1593	1596
39.82	39.90

$A_{\frac{1}{2}}$ 2 1st + 2nd stroke, 3, 4 2nd + 3rd stroke, 5, A_{7_1} to 4_2

A_{4+1} 2, 3

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1880phae.proj.1427B

Feb. 22, 1881

C = 44 57.6

B obs. of A+1 ~~+ 12"~~

~~6 obs~~

Polaris U. C.

B obs.

	B	B	B	B	B	B
25 0	22.3	27.2	32.0	39.0	44.3	46.9
	20.4	25.4	30.3	37.3	42.5	45.3
	26.2	30.5	36.0	42.4	47.3	50.5
	23.1	27.7	32.5	39.3	44.6	47.0
	920	1108	1308	1580	1787	1897
25 23,00	R	27.70	32.70	39.50	44.68	47.42

R obs A+1

Robs.

	B	B	B	B	B	B	B
1	20.8	22.1	23.0	24.2	26.2	26.9	27.1
	19.9	21.2	22.0	23.2	24.9	24.8	26.2
	25.5	27.1	27.6	28.8	30.5	30.9	32.0
	21.5	23.1	~~23.7~~ 23,2	23.9	26.8	26.5	27.5
	877	935	958	1001	1084	1091	1128
1	21,92	23,38	23,95	25,02	27,10	27,28	28,20

Rej. ~~to~~ all stroke after 5th wire

~~Robs. A+1~~ R obs. A_{10} to 5_2 + 8_0 to 9_0 A−1

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1880phae.proj.1427B

Feb. 23, 1881 C = 44 57.6

Polaris L.C. Obs.

	B	B	B	B	B	B	B	B
45	34.1	25.9	2 51.0	48.4	46.9	46.3	45.8	44.2
	33.9	25.4	50.4	47.6	46.0	45.3	45.4	43.6
	37.9	29.6	54.2	51.3	49.9	49.0	48.7	47.3
	31.3	23.0	46.8	44.9	43.0	42.0	41.4	39.7
	1372	1039	2024	1922	1858	1826	1813	1742
48	34,30	25,98	50,60	48.05	46,45	45,65	45,32	43,55

$\mathcal{L}$ A_{-1} 2 +1 A_0 to 5$_0$ A_{+1} 4,3,2,1

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1880phae.proj.1427B

Feb 24, 1881 C = 44 56.4

Polaris U. C.

	B	B	B	B	B	B	B	B	B
25 0	12.9	18.1	22.6	27.3	34.4	39.1	44.8	53.8	1 2.7
	10.2	16.0	20.0	25.0	32.0	37.3	42.7	51.9	0.7
	13.0	18.7	20.1	28.3	35.1	39.9	45.0	54.4	3.1
	9.0	14.1	18.4	23.5	30.3	35.4	40.3	50.0	58.1
	451	669	841	1041	1318	1517	1728	2103	646
25 11.28	B 1672	B obs.	21.02	26.02	32.95	37.92	43.20	52.58	16.15

B. obs. A_{+1} + δ^S

R. obs. of A_{1_0} to 5_2

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1880phae.proj.1427B

Feb. 25, 1881 C = 44 56.4

Polaris U. C. B obs.

	B	B	B	B	B	B
25 0	29.9	39.1	44.2	47.9	54.4	1.4
	27.7	36.8	42.8	45.8	52.1	59.8
	30.9	39.5	46.1	48.5	55.1	2.2
	25.0	33.6	46.0	42.9	50.1	56.2
	1135	1490	1731	1851	2117	2396
25	28,38	37,25	43,28	46,28	52,92	59,90

B	B	B	B
33.8	36.1	36.5	36.9
32.1	35.0	34.8	35.4
35.9	38.3	38.0	38.3
29.9	31.5	31.7	32.2
1317	1409	1410	1428
32,92	35,22	35,25	35,70

A_{+1} A_{1_0} to 5, $A_{\pm 1}$ 3 + 5

Seeing very bad

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1880phae.proj.1427B

Feb. 24, 1881 C = 44 56.4

Polaris U.C. B. obs.

	B	B	B	B	B	B
25 0	27.2	34.8	40.7	49.1	57.7	3.9
	25.4	32.9	38.7	47.5	55.3	1.6
	29.2	36.1	41.3	50.4	58.4	5,0
	23.7	31.0	37.1	45.6	54.1	0.2
	1055	1348	1578	1926	2255	107
25	26,36	33,70	39.45	48,15	56.38	2,68

B	B	B	B
33.3	38.0	38.1	37.8
31.3	36,3	36.4	35,7
34.1	39.6	38.8	38.6
29.6	34.7	34.0	33.4
1283	1486	1473	1455
32,08	37,15	36,82	36,38

A_{+1} A_{1_0} to 5, A_{-1} 1 2 4 5

Seeing very bad

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1880phae.proj.1427B

Mar. 5, 1881 C = 44 56.3

Polaris U. C. B. obs.

	B	B
25 0	32.3	42.0
	31.7	42.0
	37.6	48.6
	34.2	44.3
	1358	1769
25	33.95	44.22

A_{+1} 1 2 3 + perhaps 4, A_{40}

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1880phae.proj.1427B

Mar. 7, 1881 C = 44 56.3

Polaris N.C. B obs.

	B	B	B	B	B	B	B	B	B	B
25 0	18.2	27.3	35.8	48.2	53.9	22.0	24.9	27.6	28.2	27.5
	18.2	27.3	35.6	48.1	53.8	21.6	24.8	26.9	28.1	27.4
	25.4	34.1	41.9	54.7	0.3	28.3	31.7	33.8	35.3	34.2
	19.8	29.3	37.8	50.4	56.2	23.6	26.8	29.9	30.3	28.3
	816	1180	1511	2014	2242	955	1082	1182	1219	1174
25	20.40	29.50	37.78	50.35	56.05	23.88	27.05	29.55	30.48	29.35

A_{+1} 1.2 4 5 A_{10} to 5_0 A_{-1}

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1880phae.proj.1427B

Mar. 8, 1881 C = 44 56.3

Polaris N.C. Bobs,

		B	B	B	B
5	25 0	22.1	35.0	42.6	51.9
4		22.2	35.0	42.7	52.0
2		30.4	43.0	49.8	59.5
3		24.1	37.8	45.4	54.6
4		988	1508	1805	2180
5	25	24.70	37.70	45.12	54.50

	B	B	B	B	B	B
1	23.8	26.8	27.6	28.1	29.4	28.9
	23.5	26.8	27.6	28.3	29.7	28.9
	31.5	34.4	35.2	36.0	37.1	36.2
	25.7	28.6	30.2	30.9	32.0	30.9
1	1045	1166	1206	1233	1282	1249

A_{+1} $A_{1,0}$ to 5; A_{-1} 1345

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1880phae.proj.1427B

May 15 1881 C=44 614

Polaris W. C.

		B	B	B	B	B
25	0	42,0	47,0	50,9	52,3	55,4
		40,8	46,0	49,3	51,0	54,3
		46,4	52,0	56,0	57,2	0,5
		45,4	50,4	54,8	55,3	58,7
		17,46	19,54	21,10	21,58	22,89
	25	43,65	48,85	52,75	53,95	57,22

		B	B	B	B	B
	1	24,4	26,5	27,4	27,1	28,8
		23,8	26,0	26,3	26,3	27,9
		29,8	32,0	32,3	33,1	34,1
		27,5	29,9	30,2	30,3	31,8
		10,51	11,44	11,62	11,68	12,26
	1	26,28	28,60	29,05	29,20	30,65

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1880phae.proj.1427B

(16)

Mar. 15, 1881 C = 44 61.6

	UC		R	B	B	B	B	B
25	20,8	23.0	25.8	27.6	27.7	27.4	28.7	29.0 29.1
	20.4	22,8	25.4	27.8	27.3	28.0	28.6	28.7 ~~2~~
	28.1	30,7	32.9	35.0	35.1	34.5	36.0	36.0
	24,8	26,6	29.6	31.3	31.1	31.4	32,7	33.0
	941	1031	1137	1217	1212	1215	1260	1267
	2352	2577	2842	3042	3030	3038	3150	3167

B	B
29.1	29,3
28.9	29,1
36,5	36,7
32.7	32,2
1272	1273
31,80	31,82

$A_{6,1}$ to 9_0 A_{-1}

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1880phae.proj.1427B

Mar. 21, 1881 C=44 61.6

Polaris N. C. B obs.

	B	B	B	B	B	B	B
25 0	52.5	24.8	25.8	28.4	28.2	27.6	29.1
	53.2	25.3	24.9	28.4	28.2	27.2	28.9
	1.9	34.3	33.9	37.0	36.6	36.2	37.2
	58.0	30.1	30.3	33.2	33.1	33.0	33.8
	22 56	11 45	11 49	12 70	12 61	12 40	12 90
25	56 40	28 62	28.72	31.75	31.52	31.00	32.25

A_{+1} 5 A_{-2} 6_2 7_0 7_1 7_2 8_0 A_{-1} 1 2 3 4 5

Seeing very poor + clouds.

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1880phae.proj.1427B

Mar. 23, 1881 C = 44 61.6

Polaris B obs. ue

		R	B	B	B	B	B	B	B	B
25	0	59.0	23.2	25.4	28.0	30.0	31.2	31.1	31.4	32.5
		0.8	22.8	25.0	27.4	29.2	30.5	30.3	31.0	31.8
		6.3	29.7	32.0	34.7	36.4	37.7	37.6	38.0	38.8
		3.7	25.3	27.4	30.0	31.9	33.3	33.2	33.5	35.0
		98	1010	1098	1206	1275	1327	1322	1339	1381
25		2,45	25,25	27,45	30,15	31,88	33,16	33,05	33,48	34,52

$A_{2,}\ 2_2\ 3,\ 3_2\ 4_0\ 4,\ 4_2$ to 9_0 A_{-1}

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1880phae.proj.1427B

Mar. 24, 1881

Polaris N. C. · B obs.

$A_{5_0}\ 5^{-}_{2}$

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1880phae.proj.1427B

Mar. 24, 1881 C=44 60,1

Polaris L.C. B obs.

	B	B		B	B	B	B	B	B
45	3	25,8	8,6	2	36,3	33,3	30,0	29,0	28,9	28,9
		25,3	7,6		35,1	33,0	29,0	28,5	28,5	28,5
		32,4	15,1		43,3	40,0	36,7	35,7	35,7	35,2
		26,9	9,7		37,0	33,9	31,1	29,4	29,4	29,9
		1104	410		1517	1402	1268	1226	1225	1225
48		27,60	10,25		37,92	35,05	31,70	30,65	30,62	30,62

B	B
28,3	29,4
27,8	28,7
35,1	36,1
28,8	29,7
1200	1241
30,00	31,02

A_{-1} A_{9_0} to 5_0 A_{11}

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1880phae.proj.1427B

Mar. 25, 1881 C = 4.4 60.1

Polaris U.C.

B	B	B	B	B	R	R	R	R
24.0	33.0	40.9	43.7	45.9	24.9	27.9	29.0	29.0
25.7	33.1	40.2	42.6	44.7	24.7	27.1	27.0	28.5
32.7	40.0	47.1	49.8	52.3	21.8	34.3	34.9	36.0
28.5	35.9	42.3	46.2	49.0	28.0	30.4	31.0	31.8
1129	1426	1705	1823	1919	994	1197	1219	1253
28,22	35,65	42,62	45,58	47,98	24,85	29,92	30,48	31,32

R	R	R
30.2	32.2	32.0
30.0	31.1	31.8
36.5	38.5	38.9
33.2	34.9	35.2
1299	1367	1379
32,48	34,18	34,48

$A_{+1,2}$ $A_{7,7_2}$ $8_{0,1,2}$ 9_0 A_{-1}

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1880phae.proj.1427B

Mar. 28, 1881 C = 44 57.6

Polaris L. C. B. obs,

	B	B	B	B	B	B	B	B	B	B
45 2	38,5	35,0	31,1	30,6	28,5	27,5	27,7	28,0	28,4	28,8
	38,3	35,0	30,2	30,3	27,6	27,0	27,1	27,8	27,4	28,2
	45,7	42,0	38,1	37,3	35,2	33,9	34,2	35,0	35,0	36,0
	38,9	34,5	31,3	30,3	28,6	27,0	27,3	27,2	27,4	29,0
	161 4	1465	1307	1285	1199	1154	1163	1180	1182	1220
47	40,35	36,62	32,68	32,12	29,98	28,85	29,08	29,50	29,55	30,50

A_{5_0} to 1_0 A_{+1}

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1880phae.proj.1427B

Polan NC Jun 29 1881 C=44 57.6

B Rds. S and R A on
(A+1, 1204−A)

	B.	B	B	B	B	B	B
25− 0	26.6	31.0	37.5	39.9	44.2	52.1	56.4
	25.4	29.8	36.3	38.4	43.6	51.3	55.2
	32.8	36.8	43.4	45.8	50.2	58.4	2.0
	27.7	32.7	39.3	41.3	46.1	53.7	57.3
	1125	1303	1565	1654	1841	2155	2309
25	28.12	32.58	39.12	41.35	46.02	53.88	57.72

Rdgs. A S and R A on A

B	B	B
3.1	3.6	5.1
2.1	2.0	4.9
9.4	9.2	11.4
4.7	4.4	6.9
193	192	283
4.82	480	7.08

Lost the last 6 or 8 w. of A

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1880phae.proj.1427B

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1880phae.proj.1427B

Planet No. Mars 31 C = 44 57 16

Obs.	R	R	R	R	R	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
25 0	24,0	29,5	32,2	33,9	37,9	39,9	43,8	48,1	57,5	56,2
	23,9	29,3	32,3	33,5	37,0	39,3	43,8	47,6	51,3	56,5
	32,2	38,0	40,4	41,8	45,2	47,1	51,9	54,8	59,6	4,0
	27,1	33,0	36,1	37,5	40,4	43,2	47,4	51,4	54,8	59,3
	10,72	12,98	14,10	14,67	16,05	16,95	18,69	20,19	21,72	23,60
25	26,80	32,45	35,25	36,68	40,12	42,38	46,72	50,48	54,30	59,00

Obs	R	R	R	R	B	B	B	B	B
Reader.	B	B	B	B	B	B	B	B	B
	1.3	2.9	27.0	27.9	28,2	30,2	32,5	33,2	33,1
	0.8	2,8	26.5	27.3	27,8	29,8	31,8	32,8	32,6
	9.3	11.0	35.4	36,0	35,9	38,1	40,3	41,1	41,0
	4.7	6.1	30.0	30,2	30,9	32,8	35,6	36,1	36,1
	16.1	228	1189	1214	1228	1309	1402	1432	1428
	4,027	5,70	29,72	30,35	30,70	32,72	35,05	35,80	35,70

B obs. $A_{+1} < A_{-1}$

R obs A

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1880phae.proj.1427B

Apr. 1, 1881 ℄ = 44 57.6

Polaris L.C. B obs.

	B	B	B	B	B	B	B	B	B	B
45 3	19.0	8.9	1.9	34.4	31.4	28.3	27.9	25.9	24.0	24.1
	19.1	8.7	2.3	34.2	31.7	27.9	27.9	25.8	24.1	23.5
	29.7	19.3	12.4	44.5	41.7	38.4	38.2	36.2	34.3	34.2
	32.1	12.0	5.8	37.9	34.6	31.3	30.9	28.3	26.4	26.4
	999	489	224	1510	1394	1259	1249	1162	1088	1082
48	24,98	12,22	5,60	37,75	34,85	31,48	31,22	29,05	27,20	27,05

A_{-1} 4321 A A_{+1}

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1880phae.proj.1427B

Apr. 2, 1881 C = 44 57.6

Polaris M.C. B obs

	B	B	B	B	B	B	B
25	0	26.0	32.5	36.8	42.4	49.3	55.2	57.5
		25.3	32.1	36.2	41.9	49.5	55.0	56.9
		34.4	40.4	44.7	51.4	58.0	3.4	5.9
		29.6	36.3	40.3	46.4	53.4	58.7	1.2
		11 53	14 13	15 80	18 21	21 02	23 23	15
	25	28,82	35,32	39,50	45,52	52,55	58,08	0,38

B	B	B
28.3	30.2	32.0
27.5	30.2	31.9
36.5	38.5	40.9
32.0	34.4	36.6
12 46	13 35	14 14
31,15	33,38	35,35

A+1 A

Last 1st stroke A+1, also A-1 2

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1880phae.proj.1427B

Mu. 3.

Polaris Wl.

	R	R	R	R	R	R	R	R
25 0	33,7	47,1	49,9	55,3	57,6	1,1	4,0	8,0
	3,8	46,4	49,1	54,8	57,2	59,8	3,4	7,6
	40,7	53,2	56,3	1,3	3,8	7,2	10,2	14,0
	3'14,9	48,1	50,6	56,9	59,4	2,0	5,8	9,8
	14,61	19,48	20,59.	22,83	23,80	1,01	2,34	3'9,6
	36,52	48,70	51,48	57,08	59,50	2,52	5,85	9,90

R	R
31,8	33,6
81,3	33,8
37,9	40,4
33,0	35,3
13,40	14,31
33,50	35,78

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1880phae.proj.1427B

Mar. 3/4

C=44 55,4

Polaris Nb.

Bstr.

Obs.	B	B	B	B	B	R	B	B	R	B	B
Reader	B	B	B	B	B	B	B	B	B	B	B
250	50,3	56,1	59,8	1,6	5,7	7,1	32,1	32,6	33,2	33,7	34,2
	50,2	55,8	59,9	1,3	5,4	7,4	31,4	32,5	30,2	31,7	35,7
	56,6	2,6	5,4	7,8	11,9	13,2	38,7	39,8	39,4	41,1	42,2
	51,1	57,7	1,4	2,4	7,0	8,1	33,7	34,2	35,6	36,2	57,6
	2082	2322	68	127	300		1559	1386	1418	1457	
25	52,05	58,05	1,70	3,18	7,50		38,98	34,65	35,45	36,42	

R	R	R	R	R	R
B	B	B	B	B	B
7,1	37,8	40,3	39,5	39,6	38,2
7,4	37,4	39,8	39,5	39,4	38,3
13,2	44,1	46,1	45,3	45,5	44,1
8,4	39,0	41,5	40,3	40,2	38,9
361	1583	1677	1646	1647	1595
9,02	39,58	41,92	41,15	41,18	39,88

Bdes. A_{+1} 2 3 4 5 A_{-1} 1 2 3 4 5 (lost middle stroke of A_{-1} 5)

Bdes – A

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1880phae.proj.1427B

April 6 1881 a = 45-55.7
7 Polaris Ult.

Obs.	R B	R B	R B	R B	R B	R B	R B	R B	R B	R B
Reduc.										
25 U	18.2	20.3	24.2	27.4	29.8	31.4	34.7	34.9	38.0	40.2
	17.2	19.9	24.3	26.6	28.7	31.0	34.0	34.3	37.3	39.7
	25.1	28.4	32.0	34.4	36.0	38.3	41.6	42.0	44.1	46.9
	18.3	21.0	25.2	28.3	29.5	32.2	35.0	35.5	38.1	40.0
15.17	7.88	8.96	10.57	11.70	12.40	13.29	14.53	14.67	15.75	16.68
37.92	19.70	22.40	26.42	29.25	31.00	33.22	36.32	36.68	39.38	41.70

R B	R B	R B	R B	R B
32.5	33.6	33.8	34.9	35.0
31.8	32.8	32.8	34.1	33.9
39.5	39.8	40.9	42.1	41.8
33.5	34.1	32.4	35.6	35.6
13.73	14.05	14.19	14.67	14.63
34.32	35.12	35.46	36.68	36.58

Lost A_{7_2} 8_2

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1880phae.proj.1427B

Apr 7/8, 1881 C = 44 55.7

Polaris U. C.

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
25 0	4.4	14.1	17.2	22.4	26.6	31.1	37.9	53.0	57,4	59.6
	5.0	14.3	17.4	22.8	26.0	31.0	37.3	52.8	55.2	59.4
	15.0	25.0	26.5	33.3	36.4	41.0	47.3	3.0	4,5	9.3
	8.7	18.1	22.3	26.6	31.3	35.1	42.0	57.0	59.0	3.3
	331	715	854	1046	1203	1382	1645	2258	2331	116
25	8,28	17,68	21,35	26,15	30,08	34,55	41,12	56,45	58,28	2,90

R	R	R	R	R	R	R	
B	B	B	B	B	B	B	
300	299	314	37.0	36.9	37.6	37.8	38.1
299	299	31.2	36.9	36.9	37.5	37.5	38.3
359	359	416	47.0	46.3	46.6	47.0	47.0
35.0	359	35.7	41.2	40.5	41.4	41.0	41.3
1348		1399	1621	1606	1631	1633	1647
33,70		34,98	40,52	40,15	40,78	40,82	41,18

B obs. A_{+1} A_{-1} some false strokes in A_{-1} low rg

R obs $A_{3,}$ to 9_0

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1880phae.proj.1427B

Apr. 8/9, 1881 C = 18 0.4

Polaris N. C. B obs.

	B	B	B	B	B	B	B	B	B	B
25	0	30.3	56.2	56.7	57.8	59.2	59.9	0.3	0.4	1.1	59.9
		29.9	55.4	56.4	7.4	59.0	59.7	0.6	0.3	1.0	59.0
		40.5	6.3	7.0	8.0	9.1	10.0	10.7	10.4	11.5	9.2
		35.2	0.0	1.3	2.6	3.3	4.0	4.7	5.0	5.4	3.7
		1359	2379	14	158	106	136	163	161	190	118
25		33,98	59,48	0,35	3,95	2,65	3,40	4,08	4,02	4,75	2,95

A_1 to 9_0 Seeing poor.

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1880phae.proj.1427B

Mrs 10 481 C=18 5:4

" Polaris N.G.

Obs. Reader		R B	R B	R B	R B	R B	B B	B B	B B	B B	B# B B
20	4	47,5	52,8	56,0	56,8	0,27	6,8	9,4	14,1	17,2	23,8
		47,0	52,4	56,0	56,5	1,1	6,2	8,9	13,5	16,7	23,1
		57,7	3,2	6,7	7,5	13,3	18,0	20,4	25,9	29,2	35,0
		53,3	57,5	2,2	2,9	9,8	12,4	15,2	20,3	23,6	30,0
		2055	2263	09	37	249	434	542	745	867	1119
	24	51,38	56,58	0,22	0,92	6,22	10,85	13,55	18,62	21,68	27,98

R Obs. $A_{1,0}$ to 80

B Obs. A_{1} 1 2 3 4 5

Perhaps an extra ✓

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1880phae.proj.1427B

Apr. 15/16, 1881 C = 18 5.7

Polaris N.C. B obs.

		B	B	B	B
25	0	54.1	58.2	59.9	1.1
		54.0	58.4	0.0	1.3
		4.3	9.1	10.4	12.1
		0.3	4.7	6.9	8.0
		2327	104	172	225
	25	58.18	2.60	4.30	5.62

A 6 0 | 2 7 0 | 2 8 0 | 1 ∘ 2nd ∘ 3rd strokes of 9 0

Seeing ~~good~~ steady — very cloudy.

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1880phae.proj.1427B

Apr. 16, 1881 C = 18 5.7

Polaris L.C. B obs.

	B	B	B	B	B
45 2	50.7	38.0	33.1	20.4	16.3
	52.8	40.1	35.0	22.2	18.1
	7.1	54.5	49.1	36.9	32.3
	59.5	47.3	41.3	28.9	24.7
	2301	1799	1585	1084	914
47	57.52	44.98	39.62	27.10	22.85

	B	B	B	B	B
1	46.1	45.9	43.9	43.0	40.9
	49.7	47.2	45.0	44.1	42.1
	3.7	1.3	59.0	59.2	56.8
	55.9	54.5	51.2	50.9	49.0
	2174	2089	1991	1972	1888
1	54.35	52.22	49.78	49.30	47.20

A_{-1} A A_{+1}

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1880phae.proj.1427B

Thu 16 1881

Plain Velo.

R	R	R	R		R	R
20 4 581	7.0	99 w 5123		25 0	15.0	23.3
15	9.0	13.1	15.7		20.8	25.6
1.40	22.6	25.9	28.6		33.9	38.6
8.4	16.8	19.8	22.7		27.6	33.3
220	554	687	793		1013	1208
24 5.50	13.85	17.18	25 19.82		25 25.32	30.20

R	R	R	R	R	R
49.5	51.2	52.2	54.1	55.1	56.0
51.7	53.1	54.3	56.1	56.6	57.9
49	60	57.0	8.7	8.8	40.8
5.9.9	1.0	2.2	4.0	5.0	5.8
2260	2313	2257	29	54	2205
56.50	57.82	56.42	0.72	1.35	55.12

A +1 1-3 4 5 A A -1 1 2 3 4 5

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1880phae.proj.1427B

Mr. 17/1881 C=18 5.4

Polaris N.o.

Observer	B	R	R	R	R	R	B	B
Recorder	B	B	B	B	B	B	B	B
20 4	36.4	41.5	45.1	49.5	~~55.7~~	53.0	58.0	2.9	20.0
	38.9	43.6	46.6	51.4	~~7.5~~	55.2	0.8	4.0	20.8
	57.3	56.0	59.1	4.3	1.5	7.5	13.2	16.3	33.9
	45.4	50.4	53.2	58.5		1.5	7.3	11.0	28.7
	1720	1914	2040	2237		2372	193	342	1034
24	43.00	47.85	51.00	55.92		59.30	4.82	8.55	25.85

B
B
27.9
29.2
41.3
36.4
1348
33.70

Rob's A 1, 1 = 20 4,
B observed A+1 1 4 + 5

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1880phae.proj.1427B

Apr. 18, 1881 C = 18 0.4

Polaris U. C.

Observer	B	B	B	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	B	B	B	
25	4	41.1	48.6	53.2	57.9	2.0	6.9	11.0	23.0	26.5
		43.0	50.4	55.1	59.7	3.1	7.8	12.2	24.0	27.4
		54.9	1.8	6.7	11.0	15.4	20.2	24.6	36.5	39.3
		47.8	55.0	0.2	5.0	9.8	14.6	19.0	30.7	34.3
		1868	2158	2352	136	303	495	668	1142	1275
29		46.70	53.95	58.80	3.40	7.58	12.38	16.70	28.55	31.88

		R	R	B	B	B	R	R	R	R	R	R
		B	B	B	B	B	B	B	B	B	B	B
	0	54.1	55.7	57.8	59.0	0.0	1.6	2.1	2.2	2.4	3.3	2.4
		55.1	56.1	58.2	0.0	1.2	2.5	3.1	2.4	3.4	4.3	3.2
		6.9	8.1	10.7	12.4	12.7	14.3	15.3	14.5	14.5	16.0	15.0
		1.4	3.0	5.3	6.6	8.0	9.2	9.7	9.2	8.5	9.5	9.2
		2375	29	120	180	219	276	302	283	288	331	298
	a	59.38	0.72	3.00	4.50	5.48	6.90	7.55	7.08	7.20	8.28	7.45

R obs. A

B obs. A_{+1} A_{-1}

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1880phae.proj.1427B

Apr. 20, 1881 C set at 18 10.4

Polaris U. C.

Observer	B	B	B	B	R	R	R	R	R	R
Reader	B	B	B	B	B	B	B	B	B	B
25 0	4.8	18.2	22.7	25.9	27.9	30.0	31.1	53.0	54.9	55.1
	3.7	18.3	22.4	26.0	28.2	29.8	31.3	53.1	56.0	55.6
	17.3	32.2	35.7	38.9	40.6	42.3	44.0	6.0	8.2	8.0
	13.3	27.2	31.4	34.2	36.5	38.5	40.0	1.2	3.9	4.0
	391	959	1117	1250	1332	1407	1464	2333	30	2430
25	9.78	23.98	27.92	31.25	33.30	35.18	36.60	58.32	0.75	60.75

R	B	B	B	B	B
R	B	B	B	B	B
	55.8	57.0	58.0	59.3	59.1
	56.3	57.9	58.9	0.3	0.0
	9.3	10.5	11.7	13.0	12.8
	5.0	5.9	7.1	8.4	7.3
	64	113	157	210	192
	1.60	2.82	3.92	5.25	4.80

R. obs. A

B obs. A_{+1} A_{-1}

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1880phae.proj.1427B

Apr. 21, 1881 Obst at 17 90.0

Polaris L.C. Obs.

		B	B	B	B	B	B	B	B	B	B
45	2	35.3	30.9	22.2	17.5	1	50.1	47.9	45.1	43.3	42.4	42.1
		37.2	32.4	23.8	18.8		51.5	48.9	46.7	45.2	44.1	43.7
		52.0	47.3	38.8	34.0		6.1	3.8	1.4	59.4	58.7	58.0
		45.1	39.2	31.4	26.3		59.1	56.2	54.0	52.1	50.3	51.3
		1696	1498	1162	966		2268	2168	2072	2000	1955	1951
47		42.40	37.45	29.05	24.15		56.70	54.20	51.80	50.00	48.88	48.78

A_{+1} A A_{+1}

Last A_{-1}

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1880phae.proj.1427B

Apr. 23, 1881 C = 18 1.0

Polaris L. C. B Obs.

	Glas.	B	B	B	B	B	B	B	B	B	B
	Refl.	B	B	B	B	B	B	B	B	B	B
45	2	40.3	26.3	20.1	16.9	1 49.9	47.7	46.0	45.1	42.1	40.2
		41.6	27.5	21.4	17.7	51.0	48.4	46.6	45.8	42.9	40.4
		57.0	42.5	37.0	33.2	6.1	3.6	1.9	1.3	58.5	56.0
		50.5	36.5	29.9	26.2	59.3	56.9	55.9	55.1	51.9	49.9
		1894	1328	1084	940	2263	2166	2104	2073	1954	1865
47		47.35	33.20	27.10	23.50	1 56.58	54.15	52.60	51.82	48.85	46.62

A−1 A A+1

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1880phae.proj.1427B

Am 24/881 C=18 1.0

Polaris 2 C.

Obs'n	R	R	B	B	B	B	B	R	R
Reduc'n	B	B	B	B	B	B	B	B	B
20 4	54.8	24	47	90	126	18.2	21.5	0 47.6	51.0
	0.3	6.8	9.2	13.7	16.8	23.2	26.3	52.9	56.0
	21.6	25.3	31.8	35.9	38.9	44.4	47.9	14.9	18.1
	14.7	22.9	25.1	34.7	33.0	38.7	42.1	7.9	11.0
	1514	614	708	931	1013	1240	1378	33	161
25	37.85	15.35	17.70	23.28	25.32	31.00	34.45	0.82	4.02

B	B	B	B	B
B	B	B	B	B
51.9	54.3	54.1	54.4	55.7
57.1	59.1	59.1	59.3	0.2
19.1	21.8	21.4	21.5	23.0
12.1	14.8	13.7	15.0	15.6
202	300	283	302	345
5.05	7.50	7.08	7.55	8.62

B obs. A_{+1} A_{-1}

R obs. A_{10} to 5_2 $A_{8,1}$ 8_2 9_0

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1880phae.proj.1427B

May 27/84

Polaris N.C.

C = 18 5:3

Observer	R	R	B	B	B	B	B	R	R
Reader	B	B	B	B	B	B	B	B	B
20 4	57.1	59.7	63.5	68.8	109	168	189	26.3	26.5
	1.0	4.4	7.2	8.7	13.0	18.8	21.2	28.3	28.8
	22.1	24.8	29.7	30.2	35.0	39.8	41.9	49.3	50.1
	15.0	17.4	23.3	23.4	28.3	33.7	36.2	43.8	44.0
	352	463	657	691	872	1091	1182	1477	1494
25	8.80	11.58	16.42	17.28	21.80	27.28	29.55	36.92	37.35

R	R	R	B	B	B	B	B
B	B	B	B	B	B	B	B
48.9	50.2	50.2	50.9	52.1	53.2	55.4	56.1
51.8	53.6	53.4	54.0	54.6	56.1	58.1	58.6
12.9	14.2	14.9	14.8	15.9	17.0	19.2	19.6
7.6	8.4	9.1	8.4	9.7	11.0	13.7	14.1
12	64	76	81	123	173	2664	2684
0.30	1.60	1.90	2.02	3.08	4.32	6.66	7.10

Obs $A_{+1234.5}$ A_{-1}

R. obs A_0 to 6_0 & 7_2 to 9_0

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1880phae.proj.1427B

Apr. 28, 1881 C = 18 5:3

Polaris L. C.

Observer	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B
45	25 51.1	51.0	44.0	40.1	32.9	29.0	24.0	10.9
	58.9	54.2	47.2	43.3	36.1	32.3	27.2	13.8
	23.0	18.0	11.0	7.0	0.1	56.0	51.0	37.1
	12.2	7.5	0.7	56.3	49.0	45.2	40.3	27.0
	292	107	2229	2067	1781	1625	1425	Chf.
48	7.30	2.68	47	55.72	51.68	44.52	40.62	35.62

	B	B	B	B	B	B	B
	B	B	B	B	B	B	B
1	39.0	37.9	37.0	34.3	33.3	32.8	32.8
	41.8	40.0	39.2	37.0	36.0	35.1	34.8
	5.4	3.8	2.6	0.8	59.4	58.7	58.4
	55.0	53.6	52.8	51.0	49.9	49.0	49.5
	2012	1953	1916	1831	1786	1756	1755
1	50.30	48.82	47.90	45.78	44.65	43.90	43.88

~~Last A_{-1} 321 + $A_{3\frac{1}{2}}$ to 9~~

Got A_{-1} 54 + A_{9_0} to 4_1 + A_{+1}

Lost A_{-1} 321 + A_{4_0} to 1_0

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1880phae.proj.1427B

Thu 30 Polaris UC C=

	R	R	R	R	R	R	R	R	R
25	0	18.5	21.3	26.2	29.0	30.7	56.6	56.6	59.0	28
		20.4	24.1	28.6	31.2	32.5	59.0	59.8	1.7	30
		38.1	41.2	45.4	48.0	49.8	16.2	16.8	19.0	22.5
		32.6	36.1	40.3	42.5	44.4	10.6	11.3	13.0	17.2
		1099	1227	1405	1507	1577	226	247	427	475
	25	27.48	30.68	35.12	37.68	39.42	5.65	6.18	10.68	11.88

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1880phae.proj.1427B

May 2, 1881 C = 17 80.0

Polaris U. C.

Observer	R	R	R	R	B	B	B	B	B	R
Reader	B	B	B	B	B	B	B	B	B	B
20 4	50.5	54.4	57.2	5 00	D 5.9	11.7	15.0	21.1	22.8	27.3
	53.5	57.7	0.0	3.0	7.9	13.4	17.2	23.5	24.9	29.5
	11.3	15.2	18.3	21.0	26.0	32.2	36.0	42.0	43.1	48.0
	5.0	9.1	11.5	14.9	20.2	26.3	30.1	36.0	37.9	42.2
	03	164	270	389	600	836	983	1226	1287	1470
25	0,08	4,10	6.75	9.72	15.00	20.90	24.58	30.65	32.18	36.75

R	R	R	R	B	B	B	B	B
B	B	B	B	B	B	B	B	B
31.1	33.1	58.0	588	0.0	1.9	1.0	3.1	5.5
33.8	35.1	0.2	10	2.2	3.8	3.8	5.9	7.4
51.9	53.9	18.1	188	20.1	22.2	21.4	23.2	25.4
46.9	48.2	12.6	13.8	14.7	16.6	17.0	18.2	19.8
1637	1703	289	324	370	445	432	504	581
40.92	42.58	7.22	8.10	9.25	11.12	10.80	12.60	14.52

B obs A_{+1} + A_{-1}

R obs A_{10} to 5_2 + 8_0 to 9_0

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1880phae.proj.1427B

May 3, 1881 C = 17 80.0

Polaris L.C.

Observer		B	B	B	B	B	B	B	B
Reader		B	B	B	B	B	B	B	B
45	2	39.2	31.3	25.3	21.2	18.0	13.9	46.0	41.9
		41.0	33.1	27.3	28.1	19.3	15.5	47.0	43.4
		0.2	52.1	46.2	41.5	37.8	34.1	6.3	1.8
		51.8	44.6	38.3	33.9	30.0	25.9	58.8	54.6
		1922	1611	1371	1197	1051	894	2171	2017
47		4805	4028	3428	2992	2628	2235	5428	5042

B	B
B	B
41.2	39.5
42.4	40.7
0.8	59.0
54.0	51.9
1984	1911
49.60	47.78

A-1 A_{90} to 4, A_{+1}

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1880phae.proj.1427B

May 3 1881 C = 14 5.0

Polaris N. C.

	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB
25-0	7.2	11.4	13.1	14.3	15.9	17.3	18.5	20.2	21.9	24.9
	8.9	13.0	15.6	16.0	17.4	19.3	20.8	22.3	23.7	26.8
	25.4	30.0	32.5	33.2	34.8	36.1	37.6	38.9	40.3	43.1
	20.9	24.8	27.3	28.2	30.1	31.0	32.6	34.0	35.1	38.6
	6.27	7.92	8.85	9.17	9.82	10.37	10.95	11.54	12.10	13.34
25	15.68	19.80	22.12	22.92	24.55	25.92	27.38	28.85	30.25	33.35

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1880phae.proj.1427B

~~Pol.~~ May 4, 1881 C=17 95.0

Polaris L.C. B obs,

Observer	B	B	B	B	B		B	B	B	B	B
Reader	B	B	B	B	B		B	B	B	B	B
45 2	39.0	29.8	22,3	18.5	13.0	1	43.2	40.8	39.0	39.4	38.3
	40.7	32.1	25.1	21,2	15.4		45.4	43.2	41.6	42,2	41.5
	59.3	49.5	42,8	38.0	32.4		4.1	0.0	58.9	58.9	58.0
	51,3	42,1	34.9	30.9	24.8		55.8	53.0	51.9	51.9	51.0
	1903	1535	1251	1086	858		2085	1970	1914	1924	1888
47	47,58	38.38	31.28	27.15	21.45		52,12	49,25	47.85	48.10	47,20

A_{-1} A_{0} to 4, A_{+1}

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1880phae.proj.1427B

May 4, 1881 C = 17 91.3

Polaris N. C.

Observer		B	B	B	B	B	B	B	B	B	B
Reader		B	B	B	B	B	B	B	B	B	B
25	0	11.5	21.1	31.8	58.0	0.8	3.0	4.1	5.8	6.2	5.9
		13.4	23.3	33.4	5.3	2.9	5.8	6.9	8.5	8.9	7.9
		30.1	39.3	50.4	16.9	18.9	21.7	22.7	24.6	25.1	24.0
		24.8	34.5	44.4	11.4	14.4	16.0	17.6	19.5	19.7	18.3
		798	1184	1600	316	370	465	513	584	599	561
25	1	19.95	29.60	40.00	7.90	9.25	11.62	12.82	14.60	14.98	14.02

2nd 11 03 rd top Δ_{+1} 3, thin 4, + 5 Δ_{10} to 5_2 Δ_{-1}

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1880phae.proj.1427B

May 7. 1881 C = 17 91.3

Polaris L.C, B obs.

Obsers.	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B
45 1	42.4	36.5	34.6	35.1	33.3	32.8	32.2	32.8	33.4
	44.7	38.6	37.4	36.5	35.0	35.2	34.3	34.8	35.2
	54.1	58.1	56.2	53.5	54.5	54.0	53.3	53.0	53.6
	50.4	50.0	48.3	48.1	46.2	46.3	45.6	46.0	46.5
	2068	1832	1765	1752	1693	1683	1654	1666	1687
46	51.70	45.80	44.12	43.80	42.32	42.08	41.35	41.65	42.18

A_{60} to $_{10}$ A_{+1}

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1880phae.proj.1427B

May 8. 1881

Polaris U. C.

Observ. Reader	R B 1.	R B 2.	R B	R B	R B
250	520	553	554	00	583
	529	579	579	28	09
	120	172	170	218	200
	56	110	100	149	134
	405	194	203	395	326
25	0.12	4.85	5.08	9.88	8.15

seing bad. hazy

R. obs. A_{2_2} to A_{7_1}

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1880phae.proj.1427B

May 9, 1881 C = 17 9.3

Polaris U. C.

Observer Reader	R B	R B	R B	R B	R B
21 25 U	486	509	523	524	540
	517	539	548	552	570
	143	166	182	189	201
	71	94	108	109	125
	1217	1308	1361	1374	1436
	25	30,42	32,70	34,02	34,35	35,90

A_2 to $\#7_2$ *

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1880phae.proj.1427B

May 10, 1881 C = 17 95.6

Polaris L.C. B obs.

Observer		B	B	B	B		B	B
Reader		B	B	B	B		B	B
45	2	22.9	14.0	10.2	7.0	1	33.6	31.7
		26.3	18.2	14.3	11.0		37.1	34.9
		52.2	44.0	40.0	36.8		3.1	1.1
		40.2	31.7	28.0	24.9		51.0	48.8
		1416	1079	925	797		1848	1765
47		35.40	26.98	23.12	19.92	46	46.20	44.12

A_{-1} 4 3 2 1 A_0 to 4,

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1880phae.proj.1427B

May 10 1881 We C = 17 (59.6) / 95.6

	R B	R B	R B	R B	R B	R B	R B	R B
25 0	17.4	21.8	21.1	24.0	24.7	28.0	30.0	30.3
	20.4	24.4	24.4	26.8	28.0	30.9	33.0	32.4 5
	43.2	40.3	46.7	49.0	50.2	53.6	55.8	55.7 2
	35.3	39.4	39.9	42.5	43.7	46.6	48.1	47.6 80
	1163	1329	1321	1423	1466	1591	1669	
25	29.08	33.22	33.02	35.58	36.65	39.78	41.72	

A_{10} to A_{52}

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1880phae.proj.1427B

May 11 1881 C=17 17,97.4

uc

Observer	B	B	B	B	B	R	R
Reader	B	B	B	B	B	B	B
20 4	56.9	0 3.2	10.4	16.0	19.4	24.5	25.4
	2.8	6.4	14.0	19.0	23.3	27.9	29.4
	30.5	35.1	42.0	47.7	51.6	56.4	57.6
	18.9	23.6	31.0	36.8	40.8	46.0	46.9
	491	683	974	1195	1351	1548	1593
24	12,28	17.08	24,35	29,88	33,78	38.70	39,82

B obs. A_{+1}
R obs. A_{10} to 5_2

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1880phae.proj.1427B

May 13, 1881 C = 17 97.6

Polaris L.C. B ob.

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
45	34.3	29.8	30.9	28.6	27.2	26.8	26.4	27.0	27.1	26.4
	38.8	34.3	35.1	33.0	32.1	31.4	30.9	31.9	31.6	31.2
	4.7	0.2	1.2	58.9	58.4	58.0	56.9	57.4	57.9	57.3
	53.2	48.5	49.2	46.8	45.8	44.9	44.9	45.0	45.0	44.8
	1910	1728	1764	1673	1635	1611	1591	1613	1616	1597
46	47.75	43.20	44.10	41.82	40.88	40.28	39.78	40.32	40.40	39.92

A_0 to 4, & A_{+1}

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1880phae.proj.1427B

May 13, 1881 $\odot$ = 17 97.6

Polaris U. C. Obs

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
25 0	12.0	18.4	23.6	25.7	54.0	55.5	56.5	59.3	59.9	0.2
	15.8	22.2	26.5	29.5	59.1	0.1	1.0	3.9	4.0	4.4
	39.4	46.1	50.1	53.2	22.1	23.8	24.5	27.4	27.6	27.1
	30.5	37.9	42.0	45.0	13.2	15.1	16.3	19.0	19.0	19.2
	977	1046	1422	1534	284	345	383	496	505	509
25	24,42	31,15	35,55	38,35	7,10	8,62	9,58	12,40	12,62	12,72

A_{+1} A_{10} to 5_2 A_{-1}

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1880phae.proj.1427B

May 22. 1881 C=17 90.2

Polaris U. C.

Observer	B	B	B	B	B	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	B	B	B	B	B	
20 4	38.4	43.9	51.0	55.5	59.0	3.6	9.7	15.5	20.0	23.4	28.6	
	42.0	47.8	54.4	59.0	3.1	6.1	12.1	18.3	22.3	25.8	30.9	
	4.0	9.6	16.6	21.7	25.1	28.8	34.9	40.2	44.9	48.1	53.2	
	55.1	0.2	7.0	12.0	16.0	20.6	26.5	32.8	37.0	40.2	45.2	
	1995	2215	90	282	432	591	832	1068	1242	1375	1579	
24	49.88	55.38	25 2.25	7.05	10.80	14.78	20.80	26.70	31.05	34.38	39.48	

R	R	R	R	R	R	B	
B	B	B	B	B	B	R	
32.2	35.0	54.8	55.5	56.6	57.6	2.9	
34.9	37.8	57.3	59.0	59.9	0.7	6.1	
57.0	0.1	19.5	21.0	21.9	23.1	28.1	
49.1	51.5	11.2	12.8	13.3	14.6	20.0	
1732	1844	228	283	317	360	571	
4330	46.10	5.70	7.08	7.92	9.00	14.28	

B obs A_{+1} A_{-1}

R " A_{10} to 5_2 V A_{81} W 90

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1880phae.proj.1427B

May 23, 1881 $\odot = 17\ 90.2$

Polaris L. C.

Observer	R	R	R	R	R	R
Reader	B	B	B	B	B	B
45 2	1.1	58.1	34.5	33.2	32.3	30.0
	6.1	3.1	37.3	36.9	35.9	33.8
	32.1	28.5	2.8	2.2	1.0	58.9
	19.1	16.1	50.9	49.1	48.8	45.9
	584	458	1855	1814	1780	1686
47	14.60	11.45	46.38	45.35	44.50	42.15

Δ_{90} to 4,

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1880phae.proj.1427B

May 23, 1881 @ = 17 90.2

Polaris U. C.

Observer	B	B	R	R	R	R	R	R
Reader	B	B	B	B	B	B	B	B
25 0	16.1	26.3	29.9	31.6	55.0	55.9	58.1	59.1
	20.7	31.0	34.3	36.5	58.9	0.3	2.2	3.5
	43.1	53.0	57.2	58.3	21.6	22.8	24.7	25.8
	35.0	44.3	48.1	50.0	13.3	14.3	16.5	17.9
	1749	1546	1695	1764	288	333	415	463
25	28.72	38.65	42.38	44.10	7.20	8.32	10.38	11.58

B obs. A_{+1} 3-4-5

R obs. A_{10} to 5_2 & A_{80} to 9_1

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1880phae.proj.1427B

May 24, 1881 C = 18 2.0

Polaris L.C.

Observer	R	R	R		R	R
Reader	B	B	B		B	B
45 2	5.0	2.9	0.1	1	34.0	32.7
	9.5	7.9	5.0		38.2	36.9
	35.3	33.2	29.7		2.2	1.4
	23.2	20.2	17.5		51.3	50.0
	730	642	523		657	610
47	18.25	16.05	13.08		16.42	15.25

Perhaps only 1 stroke for 1st wire

Δ_0 to 4_0

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1880phae.proj.1427B

May 24, 1881 C=

Polaris U. C.

Observer	R	R	R	R	R	R
Reader	B	B	B	B	B	B
25 0	55.0	55.8	57.7	57.9	58.0	0.1
	59.8	0.4	2.0	1.8	3.2	5.1
	22.6	23.3	25.0	25.0	26.5	28.1
	14.0	14.7	16.2	16.0	16.9	19.0
	314	342	409	407	446	523
26	7.85	8.55	10.22	10.18	11.15	13.08

A_{2_0} to 9_0

lost 4_0

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1880phae.proj:1427B

May 26, 1881 C=17 91.3

Polaris L. C.

Observer	R	R	R	R	R	R	R	R	R
Reader	B	B	B	B	B	B	B	B	B
45 2	26.4	20.3	16.9	14.8	12.3	9.2	7.0	3.9	1.0
	31.1	25.2	21.1	19.1	16.9	14.0	11.4	8.0	5.1
	35.0	48.8	45.0	42.6	40.3	37.5	35.0	31.4	28.7
	43.0	36.9	32.9	31.0	29.0	28.7	23.2	20.2	17.4
	1555	1312	1159	1075	985	864	766	635	522
47	3888	3280	2898	2688	2462	2160	1915	1588	1305

A 90 to 40

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1880phae.proj.1427B

May 26, 1881 C = 17 91.3

Polaris U. C.

Observer	B	B	B	R	R	R	B	B	B	B	
Reader	B	B	B	B	B	B	B	B	B	B	
25 0	10.5	18.8	23.8	53.0	55.0	55.1	57.2	57.2	58.4	59.6	
	15.1	23.4	28.9	58.0	0.1	59.4	2.5	2.6	3.5	4.6	
	37.5	45.5	51.3	21.3	23.1	22.9	26.1	25.8	26.7	28.0	
	29.1	36.9	42.8	11.2	13.7	14.0	16.5	16.1	17.0	18.2	
	922	1246	1468	235	319	314	423	417	456	504	
25	23.05	31.15	36.70	5.88	7.98	7.85	10.58	10.42	11.40	12.60	

B. obs. A_{+1} & A_{-1} — lost 1st & 11th strokes of A_{+1} 3

R. obs. A_{1_0} to 6_0 + 7_{1022} to 9_0 — lost A_{1_1}

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1880phae.proj.1427B

May 30, 1881 C = 17 91.2

Polaris U. C B. 6h.

Observer		B	B	B	B	B	B	B	B	B
Reader		B	B	B	B	B	B	B	B	B
20	4	39.0	45.9	49.1	53.9	57.7	0 22.2	52.0	53.9	56.0
		45.1	52.6	55.1	0.0	4.3	27.7	57.9	59.3	1.5
		12.4	19.2	22.1	26.9	31.1	55.3	24.9	26.3	29.0
		59.6	7.2	9.0	14.8	18.7	43.3	13.0	14.8	16.8
		2161	49	153	356	518	1485	278	343	438
	24	54.02	25 1.22	3.82	8.90	12.95	37.12	6.95	8.58	10.82

A_{-1} 45 A_{10} to 5_2 + 9_0

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1880phae.proj.1427B

May 31, 1881 C = 17 91.2

Polaris U. C. B obs.

Observer	B	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	B	
25	0	5.9	11.1	18.3	23.0	27.7	51.3	54.0
		11.5	17.8	24.7	29.0	33.8	58.0	0.5
		38.2	43.8	51.2	56.5	0.2	24.3	26.9
		26.9	33.0	40.0	44.9	49.0	12.5	15.7
		825	1057	1342	1534	1107	261	371
	25	20.62	26.42	33.55	38.35	27.68	6.52	9.28

A_{+1} A_{1_0} Δ 5_1 + A_{8_2} 9_0

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1000phae.proj.1427B

June 1, 1881 C = 17 91.2

Polaris N. C. B obs.

Observer	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	
25	0	53.2	54.9	57.2	59.0	59.1	1.0
		0.4	2.4	4.7	5.9	6.2	8.1
		25.3	27.3	29.9	30.8	31.5	32.9
		15.1	16.9	19.5	20.5	21.0	23.2
		340	415	513	562	578	652
26		8.50	10.38	12.82	14.05	14.45	16.30

A 0 A -1 1 2 3 4 5

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1880phae.proj.1427B

June 4, 1881 $\odot = 17\ 91.2$

Polaris L.C. B. obs.

Observer		B	B	B	B	B	B
Reader		B	B	B	B	B	B
45	2	26.2	18.2	13.1	9.3	3.8	58.2
		32.0	23.9	19.0	15.5	9.4	4.2
		53.1	44.9	39.9	36.4	30.7	25.3
		43.3	35.0	30.1	26.3	19.9	15.0
		1546	1220	1021	875	638	427
	47	38.65	30.50	25.52	21.88	15.95	10.68

A-1 A_0 41

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1990phae.proj.1427B

June 5 1881 C = 17 9 1.2

Polaris N. C. B. Obs.

Observer	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B
25 0	—	1.0	3.9	2.6	2.6	2.9	3.4	3.9
	2.8	6.8	9.3	8.1	8.4	9.5	10.0	10.3
	25.0	29.4	31.7	30.4	30.3	31.0	31.3	32.0
	15.9	20.9	23.1	21.9	21.4	22.7	23.0	23.0
		581	68?0	630	627	661	677	692
25		14.52	17.00	15.75	15.68	16.52	16.92	17.30

A_{20} b_{9_0} A_{-1} 1245

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1880phae.proj.1427B

June 6, 1881 C = 17 89,1

Polaris L.C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	B	B	B	B	
45	2	17.7	10.1	7.2	3.0	27.9	26.5	24.8	23.2	22.0	22.3
		24.3	16.9	13.4	9.9	33.9	32.1	31.0	29.0	27.6	28.5
		47.4	39.6	36.4	32.5	58.0	55.8	54.0	52.3	51.0	51.7
		35.3	28.2	25.7	20.9	45.7	44.0	41.9	40.5	39.0	39.0
		1247	948	827	663	1655	1584	1517	1450	1396	1415
47		31,18	23,70	20,68	16,58	41,38	39,60	37,92	36,25	34,90	35,38

A_{-1} 4 3 2 1 A_{9^0} ☆ 4_0 A_{+1} 4 3 2 1

Last 1rst stroke of A_{8^0}

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1990phae.proj.1427B

June 6. 1881 C = 17 89.1

Polaris M. C. B obs.

Observer	B	B	B	B	B	B
Reader	B	B	B	B	B	B
25 0	5 8.9	0.0	3.0	3.0	3.9	5.0
	5.1	6.2	8.9	9.7	10.8	11.6
	24.9	26.1	29.1	29.4	31.0	31.5
	17.0	19.0	22.2	21.8	23.1	24.0
	459	513	632	639	688	721
26	11,48	12,82	15,80	15,98	17,20	18,02

A_0 to 9_0

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1880phae.proj.1427B

June 11, 1881 $\odot = 17\ 89.1$

Polaris L.C. Bk.

Observer	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B
45 2	5.9	58.3	31.8	28.6	28.8	24.5	22.4	21.4
	11.0	3.4	34.0	33.9	33.6	29.0	27.0	25.9
	31.3	23.4	55.2	54.5	53.5	49.0	46.9	45.7
	22.3	15.0	47.6	40.2	44.9	41.0	39.3	37.3
	705	401	1706	1622	1608	1438	1358	1303
47	19,62	10,02	42,65	40,55	40,20	35,95	33.95	32.58

A_{-1} | A_0 A_0 A_0 A_{+1}

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1990phae.proj.1427B

June 14. 1881 C = 17 89.1

Polaris N. C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
25 0	25.3	29.2	31.9	56.8	57.0	58.8	59.5	1.0	1.4	2.3
	28.8	32.9	35.2	59.6	1.0	2.6	3.2	4.5	5.2	5.6
	53.0	56.9	59.1	23.1	24.5	26.0	27.0	28.4	29.1	29.9
	43.6	47.7	50.2	14.0	15.0	16.7	17.6	19.5	19.8	20.0
	1507	1667	1764	325	375	441	473	534	555	578
25	37.68	41.68	44.10	8.12	9.38	11.02	11.82	13.35	13.88	14.45

A_0 to 5_2^- A_{-1} 2345$^-$

Rej. rattle preceeding last wire.

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1880phae.proj.1427B

June 15, 1881 C=17 89.1

Polaris L.C. B. Obs.

Observer	B	B	B	B	B	B	
Reader.	B	B	B	B	B	B	
45° 2	15.0	11.8	2.0	59.3	54.8	51.6	
	20.8	17.4	7.4	4.1	0.0	57.1	
	47.8	44.1	33.4	31.2	27.0	24.0	
	32.7	30.0	20.1	16.9	12.2	9.5	
	1163	1033	629	515	340	222	
47	29,08	25,82	15,72	12,88	8,50	5,55	

A-1 A9° to 4°

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1000phae.proj.14278

June 15, 1881 C = 17 89.1

Polaris U. C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B *	B	B
25 0	28.2	32.0	56.0	58.0	0.1	1.0	1.6	2.9	2.5	3.3
	33.9	37.4	1.9	3.5	6.2	6.6	7.5	8.8	9.0	9.1
	56.9	0.9	25.0	26.8	29.1	29.8	30.5	31.9	31.8	32.0
	47.0	50.9	14.6	16.4	18.8	19.9	20.1	21.0	21.0	21.4
	1660	18.12	375	447	542	573	597	646	643	658
25	4.15	45.30	9.38	11.18	13.55	14.32	14.92	16.15	16.08	16.45

A_{+1} 3 4 5 A_0 to 5, + A_{90} A_{-1}

* Rej: rattle, + also extra taps from loose key.

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1880phae.proj.1427B

June 16, 1881 C=17 88.2

Polaris L. C. B. Obs.

Observer	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B
45 2	20.1	3.0	59.5	55.3	24.6	23.5	22.0	21.0
	26.9	9.9	6.8	2.1	31.2	29.6	28.2	27.2
	51.2	33.8	30.5	26.0	55.2	54.0	52.4	51.2
	37.1	20.0	15.7	11.4	41.7	40.4	38.8	37.9
	1353	667	525	348	1527	1475	1414	1373
47	33.82	16.68	13.12	8.70	38.18	36.88	35.35	34.32

A-1 A9 to 30 Last A70 62

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1880phae.proj.1427B

June 17, 1881 C = 1788.2

Polaris L.C. B. Obs.

Observer	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B
45° 2	2.7	54.9	52.0	25.7	24.9	23.9	22.7	21.0
	11.0	3.4	0.1	32.2	31.2	30.5	29.5	28.1
	37.0	28.8	25.9	57.3	56.4	55.5	55.0	53.0
	21.8	13.5	10.8	43.9	42.9	42.2	40.7	39.3
	725	406	288	1591	1554	1521	1479	1414
47	18,12	10,15	7,20	39,78	38,85	38,02	36,98	35,35

A_{-1} 2 1 A_{0} to 4_{0} + 2_{2} to 1_{0} A_{+1} 5 4

Last 1rst tap A_{-1} 1

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1880phae.proj.1427B

June 17, 1881 C=17 88.2

Polaris U. C. B. Als.

Observer	B	B	B	B	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	B	B	B	B	
2 5 0	5.4	12.4	16.6	20.3	25.7	28.9	53.9	57.7	57.2	58.0	
	11.9	18.9	23.1	27.1	32.2	35.1	0.6	1.2	3.6	4.8	
	35.9	42.8	47.1	51.2	56.0	59.5	24.5	25.1	28.0	28.5	
	25.6	32.9	37.5	41.1	46.1	49.9	14.7	15.1	17.5	18.3	
	788	1070	1243	1397	1600	1734	337	361	463	496	
25	19,70	26,75	31,08	34,92	40,00	43,35	8,42	9,02	11,58	12,40	

A_{+1} A_{10} A_{50} A_{90} A_{-1}

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1880phae.proj.1427B

June 18, 1881 $C = 17\ 88.2$

Polaris K. C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
45 2	13.0	3.2	59.4	53.4	50.5	22.5	20.2	18.8	16.9	15.9
	21.0	11.5	7.0	1.4	58.3	29.3	27.0	25.7	23.2	21.6
	48.0	38.0	33.3	27.9	24.8	55.3	53.2	51.7	50.0	48.3
	34.0	23.7	19.4	13.8	11.1	42.5	39.5	37.9	36.4	35.0
	1160	764	591	365	247	1496	1399	1341	1265	1208
47	29.00	19.10	14.78	9.12	6.18	37.40	34.98	33.52	31.62	30.20

A_{-1} A_{9_0} to 4_0 A_{+1}

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1880phae.proj.14278

172

June 19, 1881 $\odot = 17\ 88.2$

Polaris U. C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B	O
Reader	B	B	B	B	B	B	B	B	B	B	R
25 0	4.1	13.8	16.3	20.1	24.6	29.0	53.2	54.8	56.0	57.9	4
	10.8	20.9	23.1	27.0	30.6	35.2	0.3	1.7	2.9	4.6	
	36.8	46.4	48.8	53.0	56.9	1.2	26.7	27.4	29.0	30.8	
	25.9	36.0	38.3	42.1	46.1	50.2	15.0	16.3	18.2	20.1	
	776	1171	1265	1422	1582	1756	352	402	461	534	
25	1940	29.28	31.62	35.55	39.55	43.90	8.80	10.05	11.52	13.35	

B	B
B	B
58.0	58.5
4.5	5.5
30.7	31.4
19.9	20.9
531	563
1328	1408

A_{+1} A_{1_0} to 5_0 & 8_2 9_0 A_{-1}

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1880phae.proj.1427B

June 21, 1881 C = 17 88.2

Polaris L. C. B, Cls

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
45 2	12.9	5.9	1.1	55.9	53.3	26.0	23.3	22.1	20.0	18.1
	19.8	13.2	8.8	3.2	1.0	33.1	30.0	29.2	26.8	25.2
	47.3	41.2	36.0	30.8	28.1	0.0	56.8	55.4	53.4	51.8
	33.4	26.8	21.4	16.0	13.9	46.0	42.5	41.9	39.3	38.0
	1134	871	673	459	363	1651	1526	1486	1395	1331
47	2835	2178	1682	1148	908	4128	3815	3715	3488	3328

A_{-1} A_{9_0} to 4_0 + 2_1 to 1_0 A_{+1}

Lost A_{-1} 5

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1880phae.proj.1427B

June 21, 1881 C=17 88.2

Polaris U.C. B. Obs,

Observer	B	B	B	B	B	B		B	B	
Reader	B	B	B	B	B	B		B	B	
25 0	~~4~~ 4.1	8.9	16.1	20.3	25.0	27.8	~~25.0~~	55.5	57.1	
	11.2	15.1	22.9	27.8	32.2	34.3	~~55.5~~	2.7	4.5	
	34.6	38.9	45.5	50.5	55.1	57.9	~~2.7~~	25.8	26.2	
	25.1	30.0	36.4	41.2	45.8	48.8	~~25.8~~	16.0	17.9	
	750	929	1209	1398	1581	1688		400	457	
25	18,75	23,22	30,22	34,95	39,52	42,20		10,00	11,42	

B	B
B	B
0.1	1.3
7.1	8.5
29.0	30.5
21.1	22.2
573	625
1432	1562

A_{+1} A_{1_0} to 5_0 A_{-1}

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1880phae.proj.1427B

June 22, 1881 C=17 88.2

Polaris L. C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	B	B	B	B	
45	2	20.0	10.9	6.4	2.1	57.9	53.1	27.0	25.0	23.8	22.0
		27.1	18.8	14.1	9.9	5.6	0.3	34.0	32.1	31.0	29.4
		51.3	43.0	38.4	34.2	30.0	24.9	58.2	56.3	55.1	53.3
		38.7	31.0	25.1	21.7	17.0	12.3	45.9	44.0	42.5	41.0
		1371	1037	840	679	505	306	1651	1574	1524	1457
47		34.28	25.92	21.00	16.98	12.62	7.65	41.28	39.35	38.10	36.42

A_{+1} A A_{+1}

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1880phae.proj.1427B

June 23, 1881 C = 17 85.6

Polaris L.C. B. Wls.

Observer	B	B	B	B	B	B	B	B	B	B	
Reader	B	B	B	B	B	B	B	B	B	B	
45 2	18.8	10.3	5.7	1.9	56.6	52.7	26.0	25.0	24.0	21.1	
	27.3	19.1	14.1	10.2	5.4	0.8	33.3	32.1	31.4	28.3	
	53.1	44.9	39.0	35.8	30.8	26.4	58.4	57.5	56.9	53.2	
	38.5	30.5	25.2	21.2	16.7	12.4	45.8	44.0	43.4	40.3	
	1377	1048	840	691	495	323	1635	1586	1557	1429	
47	34,42	26,20	21,00	17,28	12,38	8,08	40,88	39,65	38,92	35,72	

A_{-1} A A_{+1}

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1880phae.proj.1427B

June 23, 1881 $C = 17\ 85.6$

Polaris U. C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
25 0	0.9	5.2	10.0	11.4	16.1	19.9	24.0	28.0	55.8	58.5
	8.5	12.7	16.9	18.5	23.4	27.0	31.0	35.3	3.8	6.1
	32.5	36.7	41.3	42.9	47.1	51.1	54.9	59.8	26.9	29.1
	22.0	26.4	30.7	32.2	37.3	41.0	44.7	49.7	17.4	20.0
	639	810	989	1050	1239	1390	1546	1728	439	537
25	15.98	20.25	24.72	26.25	30.98	34.75	38.65	43.20	10.98	13.42

$A_{+1}\ A_{1_0}\ \cancel{+}\ 5_0\ +\ \delta_2\ 9_0\ A_{-1}$

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1880phae.proj.1427B

June 25, 1881 ☉ = 17 85.6

Polaris L. C. B. Obs.

	B	B	B	B	B	B	B	B	B	B
45	1	53.9	49.2	24.7	23.1	20.3	18.2	18.0	17.0	16.0	15.9
		2.4	58.3	32.6	31.3	28.7	26.2	26.1	25.0	23.9	24.0
		29.7	25.2	59.1	58.0	54.9	52.7	52.3	51.5	50.2	50.1
		15.3	10.8	45.9	43.9	40.9	38.9	38.9	37.5	36.3	35.6
		4.13	2.35	1623	1563	1448	1360	1353	1310	1264	1256
47		1,032	5,88 46	40,58	39,08	36,20	34,00	33,82	32,75	31,60	31,40

A_9 to 1_0 Lost 1rst tap of A_9

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1880phae.proj.1427B

June 28, 1881 $\odot = 17\ 05.6$

Polaris U. C. B. Obs.

Observer	B	B	B	B	B	B	B	B	B	B
Reader	B	B	B	B	B	B	B	B	B	B
20 4	45.7	50.4	55.1	59.2	5.0	15.8	23.0	51.5	52.9	56.2
	51.0	56.9	1.6	6.0	9.9	21.1	28.5	56.9	58.6	2.0
	18.5	24.5	29.2	33.2	38.0	48.7	56.4	25.0	26.1	28.9
	4.8	10.9	15.6	19.9	25.4	36.2	43.9	11.9	13.5	17.0
	00	227	415	583	783	1218	1518	253	311	441
25	0.00	5.68	10.38	14.58	19.58	30.45	37.95	6.32	7.78	11.02

A_{+1} A_{10} to 5_0 A_{-1}

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1880phae.proj.1427B

June 29, 1881 C = 17 83.8

Polaris L. C. B. Obs.

Obs.	B	B	B	B	B	B	B	B	B	B	
Read.	B	B	B	B	B	B	B	B	B	B	
45 2	8.2	1.3	56.6	52.5	48.5	21.2	19.1	17.9	16.8	15.4	2
	17.0	10.0	5.0	0.9	56.4	28.8	27.0	25.4	24.5	23.2	
	46.1	38.7	34.0	29.6	25.7	57.9	55.5	54.0	52.5	51.1	
	29.0	21.6	17.1	13.1	8.4	41.5	39.2	37.8	36.9	35.0	
	1003	716	527	361	190	1494	1408	1351	1307	1247	
47	25.08	17.90	13.18	9.02	4.75	37.35	35.20	33.78	32.68	31.18	

A_{-1} 4 3 2 1 A_0 t_0 4_0 + i_2 1_1 1_0 A_{+1}

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1890phae.proj.1427B

June 29, 1881 C = 17 83.8

Polaris N.C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
20	4	54.1	0 1.6	10.4	13.9	19.9	22.2	26.0	49.9	52.0	53.9
		3.1	9.6	17.8	21.5	27.2	29.7	33.1	57.5	59.9	2.0
		30.0	37.0	45.0	48.3	54.6	57.1	0.0	25.0	27.3	29.3
		15.7	24.5	32.7	36.4	42.1	44.9	48.1	12.7	14.8	17.0
		429	727	1059	1201	1438	1539	1672	251	340	422
	25	10.72	18.18	26.48	30.02	35.95	38.48	41.80	6.28	8.50	10.55

A_{+1} A_{10} to 5_0 + A_{9_0} A_{-1}

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1880phae.proj.1427B

July 1, 1881 $\odot = 17\ 84.8$

Polaris U. C. B. Obs.

	B	B	B	B	B	B	B	B	B	B
25 0	24.5	53.7	56.2	56.8	59.0	58.9	59.1	0.1	0.1	0.0
	32.0	0.9	3.3	3.8	6.6	6.3	7.2	8.0	7.8	7.1
	57.3	26.9	29.2	28.6	31.2	30.5	31.7	33.0	32.4	32.2
	45.9	14.5	17.4	17.9	20.9	20.4	21.3	21.9	21.0	21.1
	1597	360	461	471	577	561	593	630	613	604
25	39,92	9,00	11,52	11,78	14,42	14,02	14,82	15,75	15,32	15,10

A_{+1} 5 A_{10} to 5$_0$ A_{-1}

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1880phae.proj.1427B

July 2, 1881 C = 17 84.8

Polaris L. C. B. Alb.

		B	B	B	B	B	B	B	B	B	B
45	1	47.7	22.2	20.1	19.6	17.3	16.0	15.3	14.6	13.4	12.9
		57.8	31.3	29.1	27.9	26.4	25.3	24.1	23.7	22.0	22.0
		25.7	59.0	56.7	55.1	53.4	52.7	52.0	51.0	49.0	49.0
		8.6	44.0	41.2	39.9	38.2	37.2	36.0	35.3	34.0	33.3
		1398	1565	1471	1425	1354	1312	1274	1246	1184	1172
46		34.95	39.12	36.78	35.62	33.85	32.80	31.85	31.15	29.60	29.30

~~A~~ A_0 to 4_1 + 1210 A_{+1}

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1880phae.proj.1427B

July 3, 1881 C=17 84.8

Polaris M.C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
20	4	46.4	55.7	0	1.2	5.0	11.1	16.2	23.5	50.1	52.0	52.9
		55.2	3.9		8.2	12.1	18.3	23.0	30.0	57.6	59.3	0.0
		23.7	32.1		36.9	40.3	46.3	51.1	58.6	25.8	27.2	28.0
		8.9	17.3		23.0	27.1	33.0	38.1	45.6	12.3	13.6	14.5
		142	490		693	845	1087	1284	1577	258	321	354
	25	3,55	12,25		17,32	21,12	27,18	32,10	39,42	6,45	8,02	8,85

A_{+1} A_{10} to 5_0 + $8_2 9_0$ A_{-1}

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1880phae.proj.1427B

July 4, 1881 C = 17 84.8

Polaris L.C. B. Obs.

	B	B	B	B	B
45	1 57.3	47.9	29.1	25.8	24.1
	59.5	55.9	37.2	33.3	31.8
	29.1	25.1	6.3	2.3	1.0
	11.6	8.2	49.7	46.1	44.9
	31.5	1.71	623	475	418
46	7.88	4.28	15.58	11.88	10.45

Aq to S Two Short rattles forecced + follow middle nore.

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1880phae.proj.1427B

July 6. 1881 $c = 17\ 84.8$.

Polaris L.C. B. Obs.

	B	B	B	B	B	B	B	B	B	B
45 1	22.1	19.0	16.6	16.8	14.9	15.0	13.8	13.1	13.3	14.0
	28.7	25.3	23.1	28.4	21.3	21.3	19.9	19.6	19.8	20.2
	59.1	55.8	53.5	53.3	51.7	51.2	50.0	49.2	49.5	50.2
	43.0	39.6	37.0	37.2	34.9	35.4	34.0	33.6	33.7	34.0
	1529	1397	1302	1307	1228	1229	1177	1155	1163	1184
46	38.22	34.92	32.55	32.68	30.70	30.72	29.42	28.88	29.08	29.60

A_0 to 1_0

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1880phae.proj.1427B

July 8, 1881 $c = 17\ 84.8$

Polaris N. C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
20	4	57.0	4.9	11.9	15.3	19.5	23.2	50.6	52.1	52.9	56.8
		5.9	12.0	19.9	22.8	26.8	30.4	58.0	59.8	0.4	4.0
		33.7	40.0	47.0	50.7	55.0	58.5	25.9	27.5	28.3	32.0
		19.0	27.1	34.5	38.0	42.0	45.7	13.1	14.8	15.3	19.2
		556	840	1133	1268	1433	1578	276	342	369	520
	24	13,90	21,00	28,32	31,70	35,82	39,45	6,90	8,55	9,22	13,00

$A_{+1}\ A_{1_0}\ t_0\ 5_0 + A_{9_0}\ A_{-1}$

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1880phae.proj.1427B

July 9. 1881 C = 17 84.8

Polaris L. C. B. Obs.

		B	B	B	B	B	B	B	B	B	B	B
45	2	13.0	8.0	3.8	59.5	55.0	50.3	47.9	20.0	18.2	16.7	15.3
		22.4	17.0	12.6	8.1	3.6	59.2	56.2	28.2	26.3	24.1	23.3
	5	22	46.9	43.0	38.3	34.1	29.1	26.3	58.0	56.2	54.1	53.0
		36.0	30.1	25.9	21.9	17.0	12.5	10.1	42.2	39.9	37.9	37.2
		1236	1020	853	678	497	311	205	1484	1406	1328	1288
47		30,90	25,50	21,32	16,95	12,42	7,78	5,12	37.10	35.15	33.20	32,20

A_9 to i_0 Rattle precedes & follows middle w.

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1880phae.proj.1427B

July 12, 1881 (L.C) C = 17 68.8

Polaris N. C. B. Obs.

		B	B	B	B	B	B	B	B	B
45	1	59.7	55.9	51.9	49.1	47.1	20.3	19.1	17.9	16.2
		9.1	5.3	1.1	58.0	55.8	28.5	27.9	26.3	24.0
		39.0	35.5	31.0	28.0	25.8	58.0	57.3	55.6	53.4
		22.0	17.8	13.2	10.3	8.9	41.5	41.2	38.9	37.7
		698	545	372	254	176	1483	1455	1387	1313
	47	17.45	13.62	9.30	6.35	4.40	37.08	36.38	34.68	32.82

W. Aq. to 1. Rattle preceeds + follows middle W.

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1880phae.proj.1427B

July 13, 1881 · C = 17 68.7

Polaris N. C. B. Obs.

	B	B	B	B	B	B	B	B	B	B
25	0	47.1	49.9	52.0	52.0	52.9	53.0	53.8	53.4	53.9	53.4
		54.0	55.9	58.6	58.9	59.1	59.4	59.9	59.5	0.8	0.5
		24.0	26.3	28.4	28.5	29.0	30.0	30.3	30.1	30.1	30.3
		9.3	11.6	14.2	14.0	14.6	15.4	15.9	15.3	16.0	15.4
		144	237	332	334	356	376	399	383	408	396
	26	3.60	5.92	8.30	8.35	8.90	9.40	9.98	9.58	10.20	9.90

A_1 to 5_0 & A_9 A_{-1}

Lost 1rst tap of A_{10}

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1880phae.proj.14278

July 14; 1881 $C = 17\ 68.7$

Polaris L.C. B. Alt.

	B	B	B	B	B	B	B	B	B	B
45 2	8.0	0.7	56.9	53.3	49.6	47.8	19.4	18.3	16.5	16.0
	18.1	10.6	6.9	3.3	59.9	57.4	28.6	27.6	25.9	24.8
	48.5	41.0	37.0	33.5	30.1	27.3	58.4	57.5	55.9	54.9
	30.5	23.2	19.6	15.2	12.5	9.7	41.3	40.3	39.0	37.8
	1051	755	604	453	321	222	1477	1437	1373	1335
47	26.28	18.88	15.10	11.32	8.02	5.50	36.92	35.92	34.32	33.38

$A_{9.0}$ $A_{1.0}$ Rattles preceed & follow $A_{5.0}$

False rattle after 1rst S.

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1880phae.proj.1427B

July 14, 1881 $\odot = 17\ 68.8$

Polaris U. C. B. Obs.

	B	B	B	B	B	B	B	B	B	B
20 4	47.6	52.3	57.1	0	3.0	13.7	17.8	22.5	48.6	51.1	52.9
	58.2	2.9	8.1	12.5	23.0	37.5	32.2		58.6	1.0	2.4
	26.0	30.7	35.5	40.6	50.1	54.9	59.4		26.2	28.9	30.2
	11.2	15.8	21.3	26.4	37.9	42.0	46.8		12.4	15.1	16.7
	230	417	620	825	1247	1522	1609		258	361	422
25	5.75	10,42	15,50	20,62	31,18	38,05	40,22		6,45	9.02	10,55

A_{+1} A_{1_0} $t_{a\ 5_0}$ + $A_{8_2\ 9_0}$ A_{-1}

Seeing quite poor

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1880phae.proj.1427B

July 15, 1881 $\odot$ = 17 68.8

Polaris L.C. B. Wls.

	B	B	B	B	B	B	B	B	B	B
45 1	54.1	48.9	46.9	21.2	19.0	18.0	16.8	15.4	14.1	13.0
	5.4	0.1	57.3	31.2	29.0	27.9	26.9	25.4	24.2	23.1
	34.4	28.8	26.1	0.1	57.4	56.1	55.2	54.1	52.8	51.8
	17.2	12.2	9.0	44.4	41.6	40.2	39.6	38.2	37.0	35.6
	511	300	193	1569	1470	1422	1385	1331	1281	1235
47	12,78	7,50	4,82	39,22	36,75	35,55	34,62	33,28	32,02	30,88

A_{9_0} to 1_0

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1880phae.proj.1427B

July 17, 1881 C = 17 68,8

Polaris N. C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
25	0	8.0	15.9	20.6	25.3	48.4	49.6	50.7	52.4	54.2	52.8
		17.6	25.3	30.1	34.4	58.5	58.8	0.1	2.1	4.1	2.7
		44.8	51.6	56.5	1.0	25.1	25.9	27.0	28.9	30.8	29.1
		31.6	39.4	45.0	49.2	13.0	13.3	14.7	16.2	18.8	16.8
		1020	1322	1522	1099	250	276	325	396	479	414
	25	2550	3305	3805	2748	625	690	812	990	1198	1035

A_{+1} 2 3 4 5 A_{10} π 5_0 A_{-1}

Seeing excessively bad.

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1880phae.proj.1427B

(18)

July 19, 1881 C=17 68.8

Polaris U.C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
20	4	45.4	51.0	56.9	2.9	10.0	15.4	22.1	49.1	50.4	53.0
		56.0	1.3	7.2	12.1	19.3	24.6	31.3	58.6	59.7	2.2
		21.1	25.9	32.5	37.5	44.3	49.9	56.9	24.0	25.1	28.0
		8.9	15.0	20.7	26.0	34.0	39.1	46.2	13.0	14.4	16.5
		114	332	573	785	1076	1290	1565	247	296	397
	25	2.85	8.30	14.32	19.62	26.90	32.25	39.12	6.18	7.40	9.92

A_{+1} A_{10} to A_{-1}

Seeing, at times, was again excessively bad.

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1880phae.proj.1427B

July 19, 1881 ☾ = 17 68.8

Polaris L. C. B. Obs.

	β	B	B	B	B	B	B	B
45	1	20.6	18.8	17.9	16.6	15.0	13.9	12.8	11.9
		30.8	28.7	27.6	26.1	24.6	23.1	22.8	21.0
		57.8	55.9	54.9	53.2	51.5	50.8	49.2	48.3
		43.9	41.3	40.1	36.8	37.0	35.3	33.2	33.3
		1531	1447	1405	1327	1281	1231	1180	1145
46		38,28	36.18	35,12	33.18	32,02	30.98	29,50	28.62

A_{2_2} to 1_0 A_{+1}

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1890phae.proj.1427B

July 20, 1881 C = 17 64.8

Polaris L.C. B. Als

2nd + 3rd taps A_{6_0} A_{5_2} 1st + 2nd taps $A_{5_{\pm 1}}$ — Clouds,

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1880phae.proj.1427B

July 21. 1881 $\odot = 17\ 66.8$

Polaris L. C. B. Oles,

	B	B	B	B	B	B	B	B	B	B
45 2	15.6	10.0	58.3	54.0	51.1	57.9	21.2	19.5	17.9	16.4
	24.1	19.1	6.9	2.1	59.7	56.2	29.1	27.2	25.4	24.0
	53.0	47.4	35.4	31.1	28.3	24.5	57.9	55.9	54.1	53.0
	36.5	31.1	19.9	15.0	12.0	8.6	8.6	40.1	38.6	37.6
	1292	1076	605	422	311	272	1168	1427	1360	1310
47	32.30	26.90	15.12	10.55	7.78	6.80	29.20	35.68	34.00	32.75

A_{8_1} + 1st tap of 8_0 A_{7_0} to 1_0

2 rattles preceed a follow A_{5_0}

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1880phae.proj.1427B

July 25, 1881 C = 17 66.8

Paris L. C. B. Obs.

	B	B	B	B	B	B	B
45 2	1.0	55.0	49.2	45.3	20.1	19.0	16.4
	10.3	3.6	57.6	53.9	27.9	26.5	24.5
	41.1	34.0	28.4	24.5	58.2	56.9	54.8
	23.2	17.1	10.4	7.6	42.0	40.1	37.8
	756	497	256	113	1482	1425	1335
47	18,90	12,42	6,40	2,82	37,05	35,62	33.38

Lost A_{-1} 5 4 2 $A_{6,5_2 5_1}$ ~~first~~ 2nd + 3rd taps of 50 2nd tap of 4_2 + A_{+1} 4 3 2 1

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1880phae.proj.1427B

200

May 21 1880

Plain Plate

	R	R	R	R	R
60	4 131	111	86	78	6,2
	34,2	32,1	29,8	29,0	29,1
	33,1	31,0	27,9	28,7	27,0
	17,4	15,8	13,4	12,4	12,0
	9,7,8	9,0,0	7,9,7	7,7,3	7,4,3
54	24,45	22,50	19,92	19,32	18.58

R	R
B	B
10	9,4
3	32,9
36,9	34,3
17,2	15,9

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1880phae.proj.1427B

Aug. 22, 1881 C = 17 67.8

Polaris L. C.

	R B	R B	R B	R B	R B
50 4	25.3	21.6	20.3	18.1	15.0
	49.6	46.7	43.9	41.8	38.9
	53.5	50.2	47.0	44.5	41.1
	33.6	29.4	27.8	25.3	22.0
	1620	1479	1390	1297	1170
54	40.50	36.98	34.75	32.42	29.25

R B	R B	R B	R B	R B
10.6	9.4	7.8	6.5	5.0
34.4	32.9	31.6	30.1	28.2
36.9	34.3	33.3	31.2	29.6
17.2	15.9	14.9	12.4	10.4
991	925	876	802	732
24.78	23.12	21.90	20.05	18.30

A_{8_2} 7_2 7_1 7_0 5_2 5_1 5_0 4_2 4_1 4_0 3_2 3_1 2_2 1_2 1_0

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1880phae.proj.1427B

67.8

~~67.8~~
~~66.7~~

Aug. 22, 1881 C=17

Polaris N. C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
		B	B	B	B	B	B	B	B	B	B
30	2	51.0	54.9	3 22.2	25.1	26.0	27.5	28.1	28.1	28.8	28.6
		16.2	19.9	48.0	50.3	51.1	53.0	54.1	53.5	54.0	53.4
		15.2	19.0	46.3	49.0	49.5	51.3	52.2	51.6	52.1	51.6
		58.0	1.3	28.6	31.8	32.0	33.5	35.0	34.3	35.0	34.8
		204	351	1451	1562	1586	1653	1694	1675	1699	1684
33		5,10	8,78	36,28	39,05	39,65	41,32	42,35	41,88	42,48	42,10

2 short rattles in each side of middle W.

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1880phae.proj.1427B

Aug. 27. 1881 C = 17 66.1

Polaris L. C. B. Obs.

		B	B.	B	B	B	B	B	B	B	B	B
50	4	42.9	39.0	13.6	11.1	10.0	9.3	5.9	7.1	5.9	6.2	5.1	4.9
		6.5	3.1	36.2	33.8	32.3	31.5	29.0	30.2	28.2	28.7	28.1	28.3
		7.3	4.0	36.9	34.2	33.1	32.7	29.1	31.2	29.4	29.9	28.5	28.0
		46.3	45.3	18.9	15.6	15.6	14.2	11.3	13.0	11.1	11.4	10.8	10.8
		4.50	3.14	1056	947	910	877	753	815	746	762	725	720
	55	11.25	7.85	2640	2368	2275	2192	1882	2038	1865	1905	1812	1800

A_0 $+1_0$ Seeing extremely poor.

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1880phae.proj.1427B

Aug. 29, 1881 C = 17 66.1

Polaris L.C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
50	4	59.8	51.0	41.0	38.7	13.9	10.8	11.0	9.8	8.6	6.9
		24.1	15.9	5.3	3.4	37.8	35.5	34.2	33.1	32.1	29.8
		25.6	17.0	7.0	4.3	39.2	36.3	35.4	34.1	33.7	31.2
		5.4	58.2	48.0	45.2	20.3	17.8	17.2	15.6	14.8	12.8
		549	221	2213	916	1112	1004	978	926	892	807
55		13,72	5,52	55,32	22,90	27,80	25,10	24,45	23,15	22,30	20,18

Lost A_{6_1} + perhaps 6_2; also 1rst " taps. of 5_0 + 4_0

2 rattles follow A_{5_0}

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1880phae.proj.1427B

Aug. 29, 1881 C = 17 6h. 1

Polaris U. C. B. Obs.

		B	B	B	B	B	B	B	B	B	B
30	2	50.2	56.2	23.0	25.0	26.6	27.2	28.0	27.3	28.9	28.3
		14.5	20.5	47.7	49.7	51.3	52.5	52.2	51.3	52.8	53.0
		12.3	18.3	45.1	47.2	48.9	49.2	49.7	49.3	50.9	50.6
		3.7	2.2	28.5	30.3	32.2	33.0	34.1	33.8	35.0	34.4
		207	372	1443	1522	1590	1619	1640	1617	1676	1663
	33	5.18	9.30	36.08	38.05	39.75	40.48	41.00	40.42	41.90	41.58

Lost A_{1_0} 2 rattles each side of A_{5_0}

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1880phae.proj.1427B

Aug. 30, 1881 $\alpha = 17\ 67.7$

Polaris, S. C.

	R	R	R	R	R	R	R
	B	B	B	B	B	B	B
50 4	50.2	45.0	43.1	39.9	39.7	13.4	12.0
	15.2	10.2	7.4	4.9	4.4	36.8	35.3
	17.0	10.3	8.0	5.1	5.1	37.2	36.2
	57.2	50.9	49.1	45.5	46.6	19.5	18.0
	196	2364	2276	2154	2158	1069	1015
55	4.90	59.10	56.90	53.85	53.95	26.72	25.38

	B	B	B	B	B
	B	B	B	B	B
50 4	10.1	10.0	9.2	7.4	7.0
	33.2	32.6	31.7	30.7	30.2
	34.4	33.3	32.2	31.2	31.3
	16.6	15.3	14.8	12.8	12.8
	943	912	879	821	813
54	23.58	22.80	21.98	20.52	20.32

Seeing very bad.

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1880phae.proj.1427B

~~Polaris~~ Aug. 31. 1881

Polaris L. C. B. Obs. C = 17 64.9

		B	B	B	B	B	B	B	B	B	B
50	4	13.5	10.5	9.8	9.4	7.0	5.8	5.0	5.4	7.2	7.2
		36.7	33.8	33.3	32.8	30.2	28.8	28.7	28.6	30.1	30.0
		37.2	34.5	33.6	33.5	30.2	29.0	28.9	28.9	30.7	30.3
		18.1	15.0	14.3	14.7	11.4	12.2	10.3	10.3	12.3	12.1
		1055	938	910	904	788	751	729	732	803	796
54		26.38	23.45	22.75	22.60	19.70	18.78	18.22	18.30	20.08	19.90

Lost $A_{3,2}$ Seeing very poor.

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1880phae.proj.1427B

Sept. 7. 1881 c = 17 70.1

Polaris L. C.

		B	R	R	R	R	B	B	B	B	B
		B	B	B	B	B	B	B	B	B	B
50	4	57.5	47.5	45.2	43.7	41.3	17.2	15.1	12.9	12.3	11.0
		15.4	10.0	7.9	5.4	4.0	38.3	36.8	34.3	33.7	31.8
		15.3	9.9	8.3	6.1	4.6	38.7	36.2	34.0	33.1	31.4
		55.0	49.4	47.0	46.0	43.5	19.1	17.1	14.4	14.1	12.3
		232	2368	2284	2212	2134	1133	1052	956	932	865
55		5,80	54 59,20	57,10	55,30	53.35	28,32	26,30	23,90	23,30	21,62

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1000phae.proj.1427B

Sept. 8, 1881 $\odot$ = 17 70.1

Jc

	R B	R B	R B	R B	R B	R B	R B	R B
50	4	17.0	16.8	15.9	14.9	13.1	13.8	12.9	12.2
		43.0	41.3	40.7	40.4	38.9	38.9	37.9	36.8
		42.3	41.7	41.0	40.3	38.4	38.9	38.1	37.0
		23.3	22.9	21.8	21.2	19.1	19.9	18.6	17.9
		1256	1327	1194	1168	1095	1115	1075	1039
	54	31.40	33.18	29.85	29.20	27.38	27.88	26.88	25.98

B B	B B	B B	B B	B B
10.5	10.0	9.1	8.9	9.0
35.8	36.0	34.0	34.3	34.6
35.7	36.0	34.3	34.3	34.2
16.7	16.5	15.2	15.2	15.2
987	985	926	927	929
24.68	24.62	23.15	23.18	23.22

B. obs. A_{7_2} to 2_0

R. obs. A_{1_2} to 1_0 A_{+1}

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1880phae.proj,1427B

Sept. 8. 1881 C=17 70.1

Polaris U.C. B. Obs.

	B	B	B	B	B	B	B		B	B
30	2 25.0	33.0	38.3	40.5	46.0	50.0	54.3	3	19.9	22.9	23.6
	50.8	57.1	4.2	7.0	12.4	16.0	19.8		46.4	49.3	50.0
	46.4	54.7	0.0	2.6	8.1	12.1	16.3		41.6	44.9	45.8
	30.5	38.9	44.1	46.7	52.2	56.0	59.7		25.1	28.8	29.6
	1527	1857	2066	2168	2387	141	291		1330	1459	1490
32	38,18	46,42	51,65	54,20	59.68	3,52	7,28	33	33,25	36,48	37,25

A_{10} to 5_0 A_{82} 9_0

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1000phae.proj.1427B

Sept. 13, 1881 C =

Polaris L. C.

	R B	R B	R B	R B	R B	B B	B B	B B	B B	B B
55 0	15.1	11.2	9.0	6.5	4.1	0	59.04	55.8	52.8	50.7	48.1
	37.2	33.8	31.2	29.4	27.6		22.2	20.4	15.9	13.8	11.1
	33.0	29.6	27.5	25.2	23.2		18.0	15.3	11.5	9.2	6.6
	18.9	12.2	10.5	8.8	6.4		1.3	56.9	53.6	51.3	49.2
	1022	868	772	699	613		405	284	138	50	2350
55	2555	2170	1930	1748	1532		1012	710	345	125	5875

	R B	R B	R B	R B	R B	B B	B B	B B	B B	B B
	22.8	21.4	20.8	19.8	19.5	17.8	17.3	16.5	15.4	15.1
	45.4	44.2	44.0	42.8	42.0	40.1	40.1	38.9	17.7	38.0
	41.2	39.4	39.0	38.1	37.4	35.8	35.3	34.4	33.4	33.0
	23.6	22.0	21.7	21.5	20.2	18.4	17.9	16.9	15.9	16.0
	1330	1270	1255	1222	1191	1124	1106	1070	827	1021
	3325	3175	3138	3055	2978	2810	2765	2675	2068	2552

Perhaps only one stroke on several wires.

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1880phae.proj.14278

212 Sept 14, 1881

Polaris L.C. C-17 665

	R	R	R	R	R	R	R	R	R	R
	B	B	B	B	B	B	B	B	B	B
50	4 53.7	51.2	49.3	48.8	44.8	23.3	21.5	21.8	20.9	20.0
	18.8	15.9	14.3	13.1	9.5	47.1	45.2	45.3	44.9	43.2
	15.5	12.4	10.8	9.9	6.1	42.8	41.0	40.2	40.2	38.7
	59.1	55.7	52.8	57.4	48.7	25.5	23.8	23.3	22.0	
	2.71	1.52	0.72	23.32	22.91	13.87	13.15	13.11	12.93	12.39
55	6.78	3.80	1.80	54.30	57.28	34.68	32.88	32.78	32.32	30.98

B	B	B	B	B
B	B	B	B	B
19.0	18.0	16.1	15.8	15.5
42.1	41.2	40.1	39.4	39.1
37.9	36.5	35.2	34.1	34.9
20.9	19.2	16.2	17.7	17.6
1199	1149	1096	1070	1071
29.98	28.72	27.40	26.75	26.78

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1880phae.proj.1427B

Sept-15 1881 C = 17 66.9

LC.	R B	R B	R B	R B	R B	B B	B B	B B	B B
55 0	14.4	9.2	5.2	2.6	0.3	457.0	53.6	51.7	51.2
	36.4	31.7	28.0	25.1	22.9	21.0	17.4	14.7	15.1
	32.8	28.1	23.5	31.0	18.6	16.2	12.6	10.2	9.7
	19.0	11.8	8.3	5.8	2.6	59.1	56.8	53.2	52.7
	1006	808	650	645	444	333	204	98	87
55	25.15	20.20	16.25	16.12	11.10	8.32	5.10	2.45	2.18

R B	R B	R B	R B	R B	B B	B B	B B	B B
24.5	23.9	21.9	21.3	20.6	19.7	18.9	18.2	18.1
48.3	46.6	45.4	45.1	43.5	43.5	42.1	42.1	41.5
43.3	41.8	41.1	40.6	39.4	38.2	37.6	37.2	37.1
26.3	25.0	23.5	23.9	22.6	21.8	20.7	19.3	20.0
1424	1373	1319	1309	1261	1232	1193	1168	1167
35.60	34.32	32.98	32.72	31.52	30.80	29.82	29.20	29.18

Mean of 4 strokes for $A_{1=1}$

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1880phae.proj.1427B

Sept. 17. 1881 C=17 66.0

Polaris L. C. B. Obs.

	B	B	B	B	B	B	B	B	B	B
55 0	29.1	22.2	18.2	12.6	8.7	4.4	1.0	4 37.0	24.0	22.0
	51.5	44.9	41.1	35.1	30.8	26.8	23.9	50.4	47.1	45.4
	46.3	39.5	35.5	29.7	25.4	21.5	18.0	45.1	41.5	40.1
	31.0	24.0	20.2	14.9	10.3	7.3	3.7	28.5	25.2	23.4
	1579	1306	1150	923	752	600	466	1610	1378	1309
55	39,48	32,65	28,75	23,08	18,80	15.00	11,65	54 40,25	34,45	32.72

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1890phae.proj.1427B

Sept 18, 1881 Δ = 17 660

Polaris LC.

	R	R	R	R	R	R	R
55 0	1,0	5,40	2,58	8,84	2,18	2,08	8,70
	24,1	18,0	50,5	48,2	45,8	44,5	44,1
	19,5	13,3	44,4	42,2	39,4	38,6	37,7
	4,6	5,0	2,86	2,70	2,46	2,31	2,26
	49,2	23,3	149,3	141,1	131,9	127,0	124,4
55	12,30	5,82	37,32	35,28	32,96	31,75	31,10

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1880phae.proj.14278

Sept-19 1881
Polaris R.C. C=17671

	R	R	R	R	R	R	R	B
	B	B	B	B	B	B	B	B
55	0 4,4	0.0	4 59.0	55.2	53.6	52.0	50.6	22.0
	26.9	22.3	22.1	18.8	16.4	15.1	13.6	45.6
	20.8	16.9	15.5	12.6	10.4	8.5	7.2	40.1
	7.6	2.4	59.3	57.1	54.2	52.0	51.5	23.9
	597	416	359	237	146	81	29	1316
55	14.92	10.40	8.98	5.92	3.65	2.02	0.72	32.90

R. Obs. A 90 to 42

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