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K. 20

Zones.

No. 7.

Nov. 20 1860
Feb 4 1861.

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Recorder went after a new book.

6	47			6	47	42.0		
	47				47	48.8		
6	49	8.8	12.6	6	47	42.0	46.2	
	49	34.0	38.0		47	48.8	52.7	
	49	—	59.4		48	3.3	7.0	
					48	10.5	14.4	
					48	31.1	35.2	
6	49	9.0	12.9	6	47	42.0	46.2	
	49	34.4	38.3		47	48.8	52.7	
	49	55.7	59.5		48	3.3	7.0	
					48	10.5	14.4	
					48	31.1	35.2	
	50	9.5	13.4		50	9.2	13.2	
	50	59.2	63.3		50	59.1	63.0	
	52		33.7		52	29.6	33.7	
	53	52.3	56.1		53	52.0	55.9	
	55		25.7		55	21.5	25.5	
	55	35.4			55	35.2	39.3	
	55	(38.1)	41.8		55	37.6	41.5	
	56	39.6	43.9		56	39.3	43.3	
				6	57		17.7	Examine
	57	13.7	17.9	6	57	31.6	35.8	
				6	58	16.4	22.5	
6	59	26.4	30.3	6	59	26.1	30.1	
7	2	2.3	6.2	7	2	1.9	6.0	
	2	45.2	49.0		2	44.9	48.9	
	2	46.3	50.1		2	46.1	50.0	
	3	23.6	27.8		3	23.7	27.7	
	3	35.2	39.0		3	35.0	38.8	
	3	44.0	47.8		3	43.8	47.6	
	4	51.1	55.0		4	50.7	54.7	
	5	1.3	5.3	4	59.1		5.2	single wire
	5	35.0	38.8		5	34.8	38.7	
	5	40.9	44.7		5	40.4	44.4	
	6	0.4	4.5		6			
7	6	8.1	12.0					

One declination too many.

Catalogue

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1960phae.proj.:230S

Nov 20. 1860

0°50′ – 1° 0′

Continued from Zone Book n. 6.

								10.11	4	21	
									D		
9.10	7	52			8	6			8	40	
									7	19	
9	8	46		9	8	57		10 11	8	23	
11	0	27		10	0	50		11	9 B	38	
9.10	9	18						9.10	9	28	
10.11	5	41						11	5	52	
	B.B.D								B.B.B		
11	2	1	first-wire lost-					10.11	1	8	
10	1	14						10.11	~~1~~	~~25~~	
11.12	9	1	first-wire lost								
11	8	37	See wire bad						8	37	
11	4	8	first wire lost, n.s.						4	19	n s
10	4	7							4	18	
	B.B.								B.D.D		
12	3	30	AR doubtful	Examine				11.12	3	48	first wire lost
11	10	6	Dec doubtful						3	18	
10	5	55							10	20	
								10	6	7	
	1	52		May.				10.11	2	3	
9.10	7	25						9.10	7	37	
10	9	—						10	9	31	
									5	6	
									2	49	
9.10	4	~~40~~	This does not fit the observations						~~4~~	~~29~~	10
10	~~4~~	56							~~5~~	~~4~~	11.10
9.10	2	26							~~1~~	~~38~~	10
	D D D										
10	4	22							4 5	29 24	This from above
10	1	25							1	38	This from above.
9.10	2	4						10	2	18	
9	6	8						9	6	21	
10	9	39						~~10~~	~~9~~	~~51~~	
10	2	27									

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7	6	27.7	31.7	7	6	27.6	31.4
	7	12.4	16.4		7	12.2	16.0
	7	17.1	21.1		7	16.7	20.8
	7	32.1	36.0		7		35.8
	7	43.0	46.9		7	42.6	46.6
	8	7.5	11.3		8	7.3	11.3
	8	39.3	43.1		8	38.9	43.0
	8	45.5	49.4		8	45.3	49.1
	9	7.4	11.4		9	7.2	11.1
	9	31.8	35.8		9	9.3	13.4
	9	33.4	37.5		9	33.1	37.1
7	10	8.1	12.2	7	10	8.0	11.8

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10	9	42	
9.10	0	26	
9	8	38	NS
10	3	53	
	B.		
9.10	0	4	
9	1	38	
10	8	32	
10	9	7	
10	5	23	
10	10	2	
9.10	5	58	NS
9	3	33	

11	9	51	trüb. Hft.
	0	48	
	8	49	
18	4	9	fein weiß hin
N	0	18	
9.10	1	50	
	8	45	N.
	9	—	
	5	37	
	10	18	Stern 8' — ob
	6	8	
9	3	46	

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Zone.

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0°40 - 0°50'

Catalogue Stars

(Zone not observed on following page)

9	7	24	41.09	+0°45' 0."4
9		24	44.41	40 21.7
8		25	17.99	48 15.0
8		31	18.22	49 6.3
9		40	45.88	48 42.2
9		44	22.26	44 10.8
8.9		50	33.34	40 9.2
9	8	1	57.08	41 24.8
8.9		2	32.91	44 36.0
9		10	43.67	46 24.5
9		15	52.45	48 39.2
8		18	55.56	41 5.7
8		22	36.39	44 21.2
9		24	28.67	47 34.8
7		27	57.23	50 31.6
9		29	21.18	50 26.0
9		37	45.55	49 6.3
7		38	12.29	42 12.8
9		45	19.24	42 26.8
9		53	18.58	42 7.6
9	9	2	31.58	45 52.6
7		13	25.73	46 23.0
7		43	3.37	45 14.7
8		43	17.32	+0 45 17.4

Examine these Stars.

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Repetition of Zone 148.

Dec 2. 1860. Angle of Pos 263° 18'

End of sheet about 4h 23m

Thr. at Eq. 27°0
end 27.2

	D.B.D						Angl.	l − 1.4
9	8	18		346	22.1	26.0	8.2	8.4
11	8	39		48	56.0	62.0	9.4	10.6
8	1	3		47	9.2	13.1	7.6	7.6
11	5	16		47	50.6	54.7		
12	4	10	Sec wire doubtful	48	31.4	35.1		
	B.							
9.10	7	16		50	25.9	29.7	9.5	10.6
10	9	15		51	56.2	60.3		10.6
11	6	49		52	2.8	6.5		
10	4	8		52	17.8	21.8		11.1
8.9	10	10	red Catalogue	52	48.6	52.6	8.7	9.1
9.10	9	4	Catalogue	53	4.1	8.1		9.6
10.11	4	55		53	37.9	41.7		12.1
10	0	21		54	7.3	11.1	9.1	11.1
11	9	20		354	42.4	46.2		10.8

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1860phae.proj...230S

δ 50 40'

								Style	Color — 1.4 Ob. to S.
	D.D.								
9.10	7 58			3 56	36.4	40.2		9.1	8.6
10	8 42	first wire doubtful (a little)		56	38.1	42.0			9.3
9.10	5 43			57	22.5	26.4		8.7	8.3
10.	7 17			58	25.7	29.6			10.8
10.11	1 54			58	48.4	52.4			10.8
11	4 6			3 59	7.7	11.7			
	B.B.								
11,12	0 34			4 0	3.1	7.1			10.8
10.11	6 9			0	41.4				10.6
9.10	6 26	first wire lost. No S star obs here			42.2	46.2		9.5	10.6
10	8 33			1	8.8	50.4 12.7			8.4? 10.4
11	0 51			1	22.9	26.8			10.2
	4. 55			2	10.7	14.6			10.6
9	8 44			3	4.4	8.3		8.0	8.6
11	3 23			3	15.2	19.1			~~10.8~~
	B.D								
12	2 11			5	9.9	13.9			10.8
11	6 14			5	40.6	44.3			11.1
10	0 34			6	21.4	25.5		9.4	10.4
11	10 29			6	42.5	46.4			11.1
11	8 11			6	55.7	59.4			
11	7 2			7	24.3	28.1			11.8
11.	6 31	Dec wire lost		7	46.9				11.3
10	3 26			7	54.1	58.0		9.5	10.4
	B.								
9.10	3 24		Catalogue	8	60.0	63.9		9.7	8.8
9.10	9 26	"		9	24.1	28.0			10.4
10	10 45	Dec doubtful		9	33.9	37.9			10.4
10	0 24	Dec wire lost		10	55.2				10.6
10	7 35	~~first~~ "		4 10	57.8	61.8			10.6

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Repetition of Zone 148.

Dec 2. 1860. Angle of Pos 263° 18'

End of sheet about 4h 23m

Thr. at Eq. 27°0
end 27.2

	D.B.D						Angl.	l − 1.4
9	8	18		346	22.1	26.0	8.2	8.4
11	8	39		48	56.0	62.0	9.4	10.6
8	1	3		47	9.2	13.1	7.6	7.6
11	5	16		47	50.6	54.7		
12	4	10	Sec wire doubtful	48	31.4	35.1		
	B.							
9.10	7	16		50	25.9	29.7	9.5	10.6
10	9	15		51	56.2	60.3		10.6
11	6	49		52	2.8	6.5		
10	4	8		52	17.8	21.8		11.1
8.9	10	10	red Catalogue	52	48.6	52.6	8.7	9.1
9.10	9	4	Catalogue	53	4.1	8.1		9.6
10.11	4	55		53	37.9	41.7		12.1
10	0	21		54	7.3	11.1	9.1	11.1
11	9	20		354	42.4	46.2		10.8

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δ 50 40'

								Style	Color — 1.4 Rel. to S.
	D.D.								
9.10	7 58			3 56	36.4	40.2		9.1	8.6
10	8 42	first wire doubtful (a little)		56	38.1	42.0			9.3
9.10	5 43			57	22.5	26.4		8.7	8.3
10	7 17			58	25.7	29.6			10.8
10.11	1 54			58	48.4	52.4			10.8
11	4 6			3 59	7.7	11.7			
	B.B.								
11,12	0 34			4 0	3.1	7.1			10.8
10.11	6 9			0	41.4				10.6
9.10	6 26	first wire lost. N.S			42.2	46.2		9.50	10.6
10	8 33	star obs here		1	8.8	50.4 12.7			8.4? 10.4
11	0 51			1	22.9	26.8			10.2
	4. 55			2	10.7	14.6			10.6
9	8 44			3	4.4	8.3		8.0	8.6
11	3 23			3	15.2	19.1			~~8.8~~
	B.D								
12	2 11			5	9.9	13.9			10.8
11	6 14			5	40.6	44.3			11.1
10	0 34			6	21.4	25.5		9.4	10.4
11	10 29			6	42.5	46.4			11.1
11	8 11			6	55.7	59.4			
11	7 2			7	24.3	28.1			11.8
11.	6 31	Dec wire lost		7	46.9				11.3
10	3 26			7	54.1	58.0		9.5	10.4
	B.								
9.10	3 24		Catalogue	8	60.0	63.9		9.7	8.8
9.10	9 26	"		9	24.1	28.0			10.4
10	10 45	Dec doubtful		9	33.9	37.9			10.4
10	0 24	Dec wire lost		10	55.2				10.6
10	7 35	~~first~~ "		4 10	57.8	61.8			10.6

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11	15.5	19.5
12	11.6	15.5
12	25.3	29.2
13	12.9	16.6
13	21.1	25.0
13	34.8	38.9
13	51.4	55.3
14	22.3	26.3
14	51.3	55.3
14	58.0	61.7
16	1.1	5.1
16	18.2	22.1
17	6.1	19.9
17	49.3	
17		53.7
17	59.5	63.4
18	9.3	13.2
18	41.8	45.7
19	7.0	11.1
20	10.0	14.0
20	44.3	47.9
20	59.9	63.9
22	1.0	5.0
22	16.8	20.8
22	22.3	26.4
24	7.4	11.3
24	19.4	23.4
4 24	36.6	40.5

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						C − 1 m.4
				Mr Bright		
9.10	5	46	Catalogue	8.7		9.4
11	8	14				10.0
11	3	59				10.6
	B.					
11.12	5	18				11.1
10.11	10	29				11.1
11	7	9				11.1
8	1	29	red Catalogue	8.5	Gerhat	7.8
11	4	1				10.4
10	1	9	(N.S)?	9.5		10.4
10	3	20				11.1
	D					
11	5	52	} AR somewhat doubtful			
11.12	6	31				
10	5	39		9.5		10.1
10	5	45	Dec wire lost			10.4
9.10	3	23	firm wire lost	9.5		10.4
10	2	7				
	8	38		9.3		9.6
10	3	3		9.5		9.6
11	3	6				
10	7	3		9.5		10.4
11	3	—				11.4
11	0	29				11.3
	B					
10	7	46				
9	10	23		9.1		9.1
9.10	9	00		9.5		9.6
10	6	35		B. 9.5		10.3
11	6	37				11.1
11	3	55				10.6

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25	10.1	13.8
26	1.0	5.0
26	41.1	45.0
26	(42.0)	46.7
27	31.5	35.3
29	13.6	17.7
29	32.7	36.5
29	45.7	49.6
30	9.9	13.7
30		17.9
31	37.0	41.0
31	46.2	50.2
32	49.0	52.8
33	2.7	6.5
33		10.8
34	1.0	4.7
34	30.7	34.7
34	32.4	36.2
35	35.4	39.3
35	47.0	51.0
38	39.3	43.6
38	47.0	50.9
39	3.8	7.8
39	27.2	31.3
40	19.5	
40	23.4	27.5
40	33.1	37.0
40	38.5	42.4
41	35.4	39.2

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	D.					1
11	9	43				10.6
11	9	13				11.6
11	9	26				10.9
10	6	58	first wire bad			10.9
11	9	30				11.1
	B. B					
10.11	7	18				11.1
11	1	12				10.6
11	6	18				10.6
9.10	7	34			8.9	8.6
10.11	4	38			✓	9.6
	0	47			9.5	8.1
11	6	14	double			10.6
10	10	42				10.6
10	8	38			9.10	10.6
9.10	7	46	first wire bad		9.5?	10.6
10	4	28				10.4
9	10	49			ovch.	9.6
9.10	4	52			9.1	9.6
10	7	39				10.6
8.9	0	24			7.6	8.6
	D. B.			4 37		
10.11	10	0	N.S			10.6
9.10	10	53		Catalogue	9.0	8.6
9.10	7	13		Catalogue	9.2	9.1
11	10	30				10.6
11	2	38	Dec wire bad		9.3	10.6
10	2	38			9.55	10.6
10	4	17			9.5	10.6
10	6	12				10.6
10	9	49			9.5	10.4

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41	37.1	41.1
42	36.3	42.3
43	31.8	36.0
43	54.3	58.3
44	35.7	39.6
45	20.0	24.1
45	33.6	37.6
45	42.5	46.3
46	6.0	10.1
46	15.0	18.9
46	59.2	63.1
47	24.3	28.2
48	20.6	24.5
48	35.2	39.3
48	59.9	63.8
49	29.3	33.3
49	49.9	53.7
50	17.7	21.7
50	28.8	32.8
50	31.0	34.8
52	3.8	
52	9.1	13.2
52	45.1	49.1
53	36.4	(40.2)
54	16.6	20.5
54	23.0	26.8
54	42.9	46.9
55	58.7	62.7

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10.11	5	12			10.6
9,10	6	23		9.0	9.1
8	4	21	very white Catalogue (a star at 10 29)	7.3	7.1
11.12	10	39	Catalogue		10.3
9	10	34	up to this time mags	8.3	
9.10	0	20	rather faint	9.3.	10.6
10	3	11		9.3	10.6
10	6	39		9.4	10.6
10	4	40			10.8
8.9	3	45	Catalogue	8.3 ex. chart.	7.8
9,10	10	14			11.1
9,10	3	14		9.0	9.7
	B3.D		446		
9	9	44		8.8	9.6
9	5	14		8.8	9.6
11	6	B 39	for sig		11.3
10	1	20		9.9	10.1
11	7	37			10.6
11	6	30			11.6
9,10	7	9			10.6
11	3	11			11.1
	B				
	4	54	See wire lost-		11.6
9,10	5	41		9.4	10.6
9.10	7	14	Catalogue	9.1	8.6
11	5	39	See wire doubtful		11.1
11	10	38			11.1
11	6	32			11.6
9	0	26	Catalogue	8.3	8.9
	D				
12	7	—			12.6

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1860phae.proj..230S

4	56	21.8	25.7
	56	47.7	51.6
	57	9.2	13.2
	57	19.9	23.8
	57	46.9	50.8
	58	10.1	14.1
4	59	5.0	9.0
5	0	21.3	25.1
	0	43.5	47.4
	0	59.2	63.1
	1	31.3	35.3
	1	47.3	51.2
	2	5.0	8.9
	2	13.0	17.0
	2	13.8	17.6
	2	46.3	50.4
	3	9.6	13.5
	3	49.0	
	3	52.7	58.7
	4	1.2	5.3
	4	26.0	
	4	32.1	35.9
	5	26.7	30.4
	5	36.6	40.4
	6		54.4
	7	7.0	11.0
	7	43.2	47.3
	7	49.9	53.9
5	7	51.4	55.6

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1860phae.proj..230S

						Aug. to S.
11	4	14			Sept.	Catalogue - 1.4
10.11	2	33			Aug	+11.1
9.10	4	5		Catalogue	9.0	8.6
10	3	52			9.3	9.6
10	5	52			9.3	
7	8	56	red very	Catalogue	6.0	[4.6]
10.11	4	24				11.1
11	5	12				9.4
9.10	6	56			8.8	9.4
9	7	25			9.2	9.4
9.10	5	46		Catalogue	8.8	9.6
10.11	4	19				11.6
10	2	24				11.1
10	4	59				
9.10	6	38			9.5	
9	0	6			9.5	9.6
9	7	4			9.2	9.6
		B. B.				
10	1	39	Sec wire lost			11.6
10	2	16				11.1
10	0	32				11.2
10	3	18	Sec wire lost			11.3
7	1	46	brighter than pole ✱ Catal.		6.5	6.1
10	9	49				10.8
10	1	38	NS			10.8
10.11	2	47	firm wire lost			11.6
10.11	4	37				11.6
		B				
9	10	44			ex. short.	9.6
9	8	33			9.2	9.6
9.10	2	35			9	10.1

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1860phae.proj..230S

5 8	9.0	13.1	
8	53.3	57.2	
9	52.2		
9	56.5	60.4	
10		5.7	
10	49.5		
10	49.5	53.6	
11	6.4	10.5	
11	34.7	38.5	
11	53.0	57.1	
12	12.3	16.3	
12	24.2	28.2	
13	12.8	16.7	
13	28.8	32.6	
13	35.6	39.7	
13	51.9	58.8	
14	11.8	15.8	
14	35.4	(39.3)	
14	52.4	56.4	
15	3.4	7.2	
15	9.2	13.0	
15	52.2	56.1	0.55
16		0.4	0.50
16	9.3	13.3	0.40
17	18.1	21.9	0.50
17	59.0	63.0	0.35
18	3.9	~~7.7~~	0.30
18	7.8	11.7	0.50
18	53.6	57.6	0.45
5 19	3.1	7.2	0.40

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Mag. Coll'g. – 1m.4

9.10	1	4	(doubtful whether obs.)	9.6		
10	4	8		11.1		
11.12	7	47	see wire lost			
11	6	48				
11.12	1	28	first wire lost	11.6		
	B.					
10	1	8		10.6		
10	4	40		10.4		
10	8	55		11.1		
10	5	9		10.6		9.5
9	8	21		9.6		8.[illegible]
11	7	50				
	B	B				
9	0	7	(See to be ex) Catalogue	10.4		9.[illegible]
10	5	33		9.6		9.4 B
9.10	2	19		10.6		9.8
10	3	31		10.6		9.5
10	9	42		9.6		
10	5	8	see wire doubtful	10.6		
10.11	10	8				
10	7	27		9.6		
10	5	55		9.6		9.3
9.10	5	11	double Catalogue	9.1		(7.9)
9	10	11	✓	9.1		9.6
	5	12		9.6		9.4
10	5	52		11.1		
9.10	8	54	(See lost? n.p.)			9.5
10	5	44		10.6		
10	7	58		10.6		9.5
10	8	5				
9	5	56	Catalogue	9.6		9.1

Fit compd. of mag. with Argelander zone (in this zone) For zone 1860 Nov. 8 57 compars.

S – A = 0.m35 ± 0.m032   C.–C. – 1m.4   S – A = 0.m35 ± 0.m032

Pr. error of 1 comp. ± 0.m23   Pr. error of 1 comp. ± 0.m25

15 compar. gave S = A
23 " S = A + 0.m5
6 " S = A + 1.0

For 9.10 magnitude above

S – A (101 comp.) 0.m33 ± 0.m044

Pr. error of 1 comp. ± 0.16

Using Catalogue instead of Charts
S – A 0.m427 ± 0.m038
102 compars. Pr. error of 1 comp. ± 0.m26

1860phae.proj..230S

Dec 7, 1860. This begins a new period of Zero of micrometer
Angle of Rev. 263° 28' (i.e. micrometer replaced

~~24~~	40.2	(44.4)
24	43.9	47.9
25	5.1	9.1
25	17.6	21.4
27	4.4	8.3
27	14.0	18.0
28	4.2	8.2
28.	11.6	15.5
28	40.2	44.1
28		47.6

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1860phae.proj..230S

0°40' – 0°50'

Le Dec. 11/12

9	14	59	sec will doubtful
9.10	0	18	
10	6	36	
9	8	10	Dec a little doubtful
10.11	2	7	
10	3	15	
10	Lig. and no Star.		
9	10	52	
9.10	10	15	NS. Dec?
10	8	11	
9.10	10	21	
	D		
10.	7	32	double 10 and 11, middle ob
10	3	48	
8	9	4	
9.10	9	44	
9.10	3	15	
	B		
10.11	8	21	nS
10	5	6	
9	10	40	Dec?

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10	3	17	
11.12	5	50	
10	4	7	
11	1	1	
11	9	32	NS
10	5	25	first wire lost
10	4	26	perhaps 9.10
	B, D		
10	9	8	
11.12	7	49	
11	5	46	
10	7	45	
	1	—	not obs.
10	0	24	
11	1	8	NS
9	8	38	
9.10	7	56	
10	7	48	
9.10	2	29	
	B, D		
11.12	3	14	
11	4	59	2d wire lost
9.10	4	6	
10	5	21	
11	9	32	
10	7	43	
9	1	26	
	B		
11	5	27	
11	4	7	
11	0	30	
11	2	27	NS

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1866phae.proj..230S

9.10	9	5·8	
11	8	19	
10.11	2	7	
11	8	17	Dec?
10	7	17	
9.10	9	~~38~~	
9.10	1	6	
	7	~~40~~	Lamp troubling
10	1	15	
11	2	32	fine wire lost-NS
9.10	4	25	
11	8	4	
10	4	15	
11	8	8	
11	3	6	
9.10	8	—	
10	4	53	
	B. D.		
11.12	2	45	
11	3	46	
11.12	5	31	
	D. D		
11	4	18	Sec wire lost-
11	5	3	
9.10	6	21	
9.10	7	~~40~~	
10	3	6	
	Sj and fake break		

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1860phae.proj. 230S

	9	—	
11	8	25	
10	6	8	
9	8	38	Dec doubtful
9	1	5	AR bad-
11.12	9	46	Sec wire bad
9.10	2	11	
9	4	13	
	B.D		
9.11	7	27	
11.12	4	29	
9.10	7	8	
11	3	0	
10	8	9	NS
9.10	5	15	
7	10	26	
9	10	22	
10	9	9	
	B		
11	10	0	
10	7	11	
	B		
10	1	46	
9	7	33	
9	8	57	
9.10	9	30	
7	2	6	
11.12	4	50	

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1860phae.proj..230S

10	9	9	
10.11	4	33	
9.10	10	44	AR?
11	5	58	
9.10	2	16	
10	8	—	
10	1	34	
9.~~10~~	0	57	
10	6	6	NS
10	9	12	
10	1	11	
10	1	38	
11	5	1	
9	5	56	
	Long Break		
9	1	56	
10	9	9	
10,11	7	58	
11	5	53	first wire lost shut off
11	8	6	
	D.D.D		
11	5	59	
11.12	2	27	
10	2	2	
11	4	11	
9	7	12	see wire lost-
9	5	43	
11	3	13	
	5	11	NS
	B.B		

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1860phae.proj...230S

11	4	29	
9,10	9	52	
10	9	3	
11	5	21	See wire lost-
10	4	40	
10.11	9	7	
11.12	8	7	
10	6	17	
9	6	12	
	9	—	omitted
11	7	29	
	D		
11	4	11	
9,10	6	18	See wire doubtful

At this point it was discovered that the circuit was broken in the dome.

The object-glass of the telescope was found to be covered with frost. This may account for various discrepancies in the magnitudes and declinations.

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1860phae.proj..230S

Dec 9. 1860 Angle of Pos 263° 34'

At beg 1h 2m Inv 21°.5
end 21.2

At beg 25.°8 5 Learn
end 26.0 25.7 4.0 cu.

7	24	40.2	44.4
	24	43.9	47.9
	25	5.1	9.1
	25	17.6	21.4
	27	4.4	8.3
	27	14.0	18.0
	28	4.2	8.2
	28	11.6	15.5
	28	40.2	44.1
	28		47.6
	29	1.9	5.5
	30	3.4	7.4
	30	59.2	63.1
	31	17.6	21.6 Catalogue
	31	42.4	46.2
	32		32.3.
	32	44.0	48.0
7	33	7.5	11.6

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1860phae.proj...230S

				Argl.	
9	4	56		8.	
10	0	9	nS	9.	
10	6	38			
8	8	11		8.9	
11	3	13			
11.12	6	50	nS		
	D				
9	10	51			
10	10	20			
11.12	2	45			
10.11	8	9	first wire lost	9.10	
11	5	6			
11	7	33	Comp. South free.		
	B				
11	3	45			
8	9	1		7.	
10	9	38		9.	
11.12	0	0	first wire lost, nS	9.10	10
10	3	11		9.10	
11	8	31			
	B				

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1860phae.proj..230S

7	33	43.3	47.2
	33	55.3	59.2
	34	(1)5.2	19.0)
	34	31.0	35.0
	35	10.0	13.9
	35	47.8	51.6
	36	10.5	14.6
	36	34.3	38.4
	36	45.8	49.7
	37	6.7	10.7
	37	52.2	56.1
	38	16.4	20.4
	38	48.0	51.8
	39	7.7	11.9
	39	22.9	26.9
	39	35.8	39.8
	39	53.0	57.1
	40	19.5	23.4
	40	22.0	25.9
	40	45.3	49.2
	40	55.9	59.8
	41	18.0	21.6
	41	32.8	36.8
	42	52.8	56.7
	44	6.9	10.8
	44	22.0	25.9
7	44	37.5	41.6

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1860phae.proj..230S

11	5	2		
9.10	10	36		
10	10	28	AR?	
10	5	15		
11	5	47		
10	4	5		
	B, D.			
11	6	0	nS	
10.11	9	30		
10	5	22		
9.10	4	23		
10	9	4		
11	7	45		
10.11	5	42		
	D B			
10.11	4	20		
9.10	7	43		9.10
10	1	4		9.10
10	9	32		
9.10	0	22		
10	1	8	nS	9.10
9	8	37		8.9 or 9
9.10	7	51		9.10
9.10	7	46		9.10
	B			
9	2	28		8.9 or 9
11	3	11		9.10
10	4	54		
9	4	6		8 9 or 9
10.9	5	18		
	D			

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1860phae.proj..230S

45	33.9	37.7	
45	35.1	39.0	
46	1.1	4.9	
46	39.3	43.2	
47	24.1	28.0	
47	48.8	[illegible]	52.5
48	27.3	31.3	
48	33.5	37.4	
49	38.2	42.4	
49	41.3	45.3	
49		63.5	
50	2.5	6.4	
52	14.0	18.1	
52	34.6	38.4	
52	57.7	61.9	
53	34.1	38.0	
54	32.9	36.8	
54	48.1	52.0	
56	7.1	10.9	
59	7.8	11.8	
7 59	31.0	34.9	
8 0	36.0	40.0	
1	28.2		
1	56.5	60.4	Catalogue
1	58.5	62.3	
2	32.2	36.3	
3	11.9	16.0	
4	38.6	42.5	
4	49.8	53.7	
5	22.2	25.9	

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1860phae.proj..230S

10	9	28	Dec wire lost 9.10
10.11	6	23	first " " "
9.10	7	40	
9	1	25	8.9
10	5	25	
10.11	5	20	
10	4	4	
10	4	59	Short Sig
10.11	0	28	
10.11	2	26	n S
10	9	20	first wire lost. n.S.
9.10	9	57	9.10
	D		
10	8	14	
10	6	39	
10.11	3	10	
11	2	7	
11	7	14	n.s
10	9	53	
	D.B.B		
11.12	4	11	
9.10	2	3	9.
10	9	56	
11	8	2	— Dec lost-
11	2	38	Dec wire lost
10	1	11	9
10.11	2	25	
9.10	4	29	8.9
10	4	11	double Dist. 7". comp n.p. 9
11	3	0	
9.10	8	39	8.9
10.11	4	51	

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1860phae.proj..230S

8	10	42.8	
	10	46.1	50.0
	11	(39.4)	
	12	12.8	16.6
8	15	51.5	55.4

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1960phae.proj..230S

Dots one minute

9.10	6	12	Sec wire lost-	9.
9.10	7	39	n.s.	9.
11	2	50		9.10
10.11	3	0		

Very few stars here

9	8	28	8.9

It was found that the atmosphere was getting very thick.

26 comps:

S-A $0^m.56 \pm 0^m.068$

Prb. error of 1 comp $\pm 0^m.348$

Dividing into groups we have

Mg. 1-9

S-A $0^m.53 \pm 0^m.08$

Prb. error of 1 comp $\pm 0^m.31$

Mg. 9.10 $0^m.50 \pm 0^m.12$

Prb. error of 1 comp $\pm 0^m.40$

The magnitudes in this zone must be considered abnormal, because the weather was bad.

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1860phae.proj..230S

Dec. 11. 263° 27′ Any. of Pos.

At beg Thr. 18°
15.5
End El. (7 0) ~~[illegible]~~ of Zone.

Tolerably good seeing till within a few minutes of the end.

Dec 12. 263° 36′

At beg 25.°8
end 26.0
End El. 7 40.

Rounded up as usual

7 24	40.4	(44.7)	Catalogue
	(46.2)	48.1	Catalogue
25	5.2	9.4	
25	17.4	21.6	Catalogue
26	4.9	8.8	
26	59.5		
27	4.6	8.6	
27	14.1	18.1	
27	41.0	44.9	
28	11.7	15.7	
28	44.0	47.9	
28	59.6	63.7	
30	3.8	7.7	
30	59.5	63.2	
31	7.7	21.8	Catalogue

7 31 — 21.6

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1860phae.proj..230S

$0^{o}40' - 0^{o}50'$

D

5 1 } false stars
0 18 }

Argl. Argl Catal

B

8.9	5	0	very red 2° doubt.	8.	8.9	5	4		8.2
9.10	0	19	ns	9.	9	0	21		9.2
10	6	37			10	6	42		
9	8	15	Dec. doubtful	8.9	8	8	18		8.5
11	2	9			11	2	12		
11	5	35	Sec wire lost		10.11	5	38		
10	3	19			9.10	3	21		
10.11	6	53			10	6	55		
11.12	4	30			11.12	4	39		

D B

9.10	10	17		9.10	9	10	18	certainly 9 mag	9.5
10	8	14		9.10	9.10	8	17		9.5
9.10	10	21		9.10	9.10	10	27		9.5

B

11	7	39	Comp. S. p. about 8" Dist 12m		11	7	45	double	
10	3	51			10	3	54		
8	9	7		7.	8	9	9		7.3

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31	42.5	46.6	7	31	42.2	46.2
31	55.0	58.9		31	54.6	—
32	10.9	14.7		32	—	1
				32	—	30.5 ng
32	44.3	48.1		32	44	48.0
33	7.9	11.7		33	7.6	11.4
33	58.7	62.7		33	58.4	62.3
34	31.4	35.3		34	31.1	35.0
34	47.9	52.0		34	47.8	51.8
35	10.3	14.2		35	10.1	13.9
35	25.6	29.4		35	25.4	29.3
35	48.2	52.1		35	47.9	51.8
36	46.2	50.2		36	45.9	49.7
37	7.2	11.0		37	6.8	10.8
37	13.6	17.5		37	s	
37	52.5	56.4		37	52.4	56.3
38	16.7	20.7		38	16.5	20.5
39	23.0	27.1		39	22.7	26.7
39	36.1	40.1		39	35.8	39.8
39	53.0	57.1		39	53.2	57.2
40	19.7	23.7		40	19.4	23.4
40	22.1	26.0		40	21.8	25.7
40	45.3	49.3		40	45.2	49.3
40	[illegible]	60.1		40	55.7	59.8
41	18.1	21.9		41	17.7	21.8
41	33.1	37.0		41	32.7	36.8
42	53.1	57.1		42	52.9	56.9
44	2.1	6.2		44	2.0	6.0
44	7.1	11.0	7	44	6.7	10.8

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1860phae.proj...230S

9.10	9	44			9.10	9	46		
10	0	18			9.0	0	19		
10	9	~~59~~				9		Lee wire only	
10	3	17		9.10	10	3	19		9.5
11	8	24	Dec doubtful		10	8	28	accidental Break	
10.11	4	40			10.11	4	~~48~~		
	D					B.D			
10	5	31			9.10	5	34		
10.11	10	31			10	10	32		
11	4	52			10	5	56	Last	
11.12	7	41	N.S		10	7	47		
11	4	9	Stars of nearly the		9.0	4	12		
	B		Same Mag.						
11	5	29			10.11	5	31		
10	4	27			10	4	30		
11	7	43	N.S		10.11	7	50	AR last	
10.11	9	9			10.11	9	12		
11.12	7	50			11.12	7	53		
10	7	48		9.10	9.10	7	51		9.3
							accidental Break		
10	1	9		9.10	10	1	12		9.3
10	9	38			10	9	39		
9.10	0	29		9.10	10.11	0	31		9.0
11	1	10		—	11	1	15		
9	8	38		9 =	9.	8	45		8.9
10	7	59		9.10	9.10	8	2		9.5
10	7	50		9.10	10	7	54		9.5
10	2	32		~~9~~ 9	9.10	2	35		8.7
	B.D 53		Large Group of Stars			D			
11	4	19		9.10	10.11	3	19	Last	
10.11	6	31			10.11	6	37		
10.11	5	2	N.S		10.11	5	3		

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7	44	22.2	26.3	Catalogue	7	44	21.9	25.9	9
	44	37.8	41.7			44	37.7	41.6	9.
	45	34.2	38.1			45	33.8	37.8	
	45	34.3	39.2			45		38.9	10
	46	1.4	5.4			46	1.1	4.1	9.
	46	39.6	43.3			46	39.3	43.2	9.
	47	24.5	28.4			47	24.1	28.0	1
	47	48.7	52.8			47	48.4	52.3	1
	48	27.5	31.4			48	27.2		1
	48	(34.0)	37.6			48	33.5	37.4	11.
	49	39.0	42.8			48	56.5	62.4	
	49	59.8	63.6			49	38.3	42.6	11
						49	59.8	63.5	1
	50	2.7	6.5			50	2.4	6.4	1
	51	13.9	17.9			51	13.6	17.4	1
	51	[36.7	41.0]			51	36.5	40.3	1
	52	0.5	4.2			52	0.0	4.0	1
	52	14.2	18.1			52	14.1	18.0	1
	52	25.6	29.7			52	25.5	29.6	1
	52	58.0	62.2			52	57.8	61.8	10
	53	34.3	38.3			53	33.9	37.9	1
	53	44.6	48.6			53	44.3	48.3	1
	54	33.0	37.0			54	32.7	36.9	1
	54	48.3	52.2			54	47.9	52.0	9
	55	23.8	27.6			55	23.6	27.8	1
	55	45.6	49.7			55	45.5	49.3	10
	56	7.1	11.0			56	6.8	11.0	11
	59	8.1	12.1			59	8.0	11.9	9
	59	29.4	33.5			59	29.5	33.4	10
	59	31.2	35.2			59	31.1	35.1	9
7	59		52.5		7	59	~~51.1~~	52.1	10

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1960phae.proj..230S

9	4	10		9.	9	4	14		8.7
9.10	5	23			9.10	5	25		
9.10	9	33			9.10	9	38		
10.11	6	29	n s	~~9.10~~	10	6	33	fine wire	
9.10	7	46			9.10	7	49		9.3
~~9.10~~	1	30		8.9	8.9	1	34		8.3
	D								
10	5	29			10	5	33		
11	5	24			11	5	27		
11	4	10			10	4	11		
11.12	4	39	fine wire doubtful		10.11	4	48	sure	
11	0	35			11	2	30		
11	9	24			10	0	37		
					10	9	31		
10	9	59	n s	9.10	9.X	10	4	n s	9.5
11	3	23			10.11	3	25		
11	1	1	AR?		11	1	4		
	B								
11	5	2			11	5	6		
10	8	20			10,	8	22		
11	5	8			10	5	12		
						D, B			
10.11	3	16			10	3	19	n s	
10	2	11			10	2	13		
11	8	20	Dec?		11	8	20	Dec?	
10	7	19	Stars are pretty evenly		10.11	7	23		
9.X2	9	38	scattered	ex. ch.	9.10	9	42		9.1
10	8	89			10.11	8	41		
	D. B.								
10.11	3	2	n s		11	3	6	Sec wire doubtful	
11.12	3	15			11	3	17		
9.10	2	10		9.	9	2	11	D	8.5
10.11	7	48			9.10	7	49		
9.10	10	4	n s	ex. chart	9	10	6		
10.11	0	28	fine wire lost		11	0	31	fine wire lost	

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0	33.9	37.8	
0	36.3	40.2	
1	10.1	14.1	
1	28.1	32.5	
1	56.8	60.9	
1	58.8	62.6	
2	32.6	36.7	
3	4.0		
3	12.1	15.9	
4	39.0	42.9	
4	50.1	54.1	
5	22.1	26.2	
5	47.3	51.3	
6	36.9	41.0	
7	17.2	21.1	
7	22.8	26.8	
8	24.6	28.4	
8	42.3	46.4	
9	38.7	42.7	
10	43.0	46.9	
10	46.2	50.3	
11	35.4	39.4	
11	37.8	41.7	
12	12.9	16.9	
12	27.8	31.9	(Too many stars here)
12	56.2	60.2	
14	18.3	22.3	
14	28.3	32.4	
15	0.3	4.3	
15	28.7	32.6	

8 0	33.4	37.3	
0	36.1	39.9	
1	10.0	13.9	
1	28.0	32.0	
1	56.5	60.5	
1	58.6	62.6	
2	32.4	36.4	
3	3.9	7.9	
3	11.8	15.8	
4	38.6	42.6	
4	49.9	53.8	
5	22.0	26.0	
5	47.1	51.1	
6	36.7	40.7	
7	17.1	21.0	
7	22.6	26.4	
8	24.5	28.3	
8	42.3	46.4	
9	38.4	42.3	
10	42.8	46.7	
10	46.0	50.0	
11	35.3	39.2	
11	37.4	41.3	
12	12.7	16.5	
12	43.2	47.1	
12	56.0	60.0	
14	18.3	22.2	
14	28.1	32.2	
14	60.0	63.8	
8 15	28.2	32.1	

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1860phae.proj...2308

11	0	40			10.11	0	38			
10	8	24	Dec?		10	8	30			
10	2	58			10	3	0			
10	2	45			10	2	48			
9.~~10~~	1	16		9.	9.10	1	19			8.8
10	2	33			10	2	36			
8.9	4	32		8.9	8.9	4	35			8.5
10	8	7	Le wire low		10	8	8			
10	4	16	comp S.p. 10" dist 11.12 may	9.	10	4	18	Comp 4' 24". 12 may		8.8
		B.B			Σ for 8 3 42. c 47					
10.11	3	7			10.11	3	9			
9	8	44		8.9	8.9	8	48			8.5
9.10	4	56		9	~~9~~ 10	4	58			9.0
10	2	48			10	2	50			
10	7	30			11	7	30			
10.11	7	46			11	7	51			
~~11~~	3	48			10.11	3	52	n.s		
11	1	51			10.11	1	53			
11	4	22			10	4	25			
		D.D.B								
10	9	6			10	9	7			
9	6	19		9	9	6	21			9.0
9	7	41		9	9	7	45			9.0
9.10	2	57		9.10	9	3	0			9.3
9.10	0	45		9.10	9.10	0	—	ns		9.5
9.10	3	8		9.	9	3	8			9.2
	9	—	examine dec.		10.11	9	8			
	D				9.10	9	16			9.5
11	0	21		9.10	10	0	25			
10.11	8	26			10	8	28			
11	6	9		9.10	9.10	6	11			9.5
11	5	0			10	5	3			

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1860phae.proj..230S

15	57.7	55.6	8	15	57.6	55.5	
15	59.8	59.8		15		59.7	
16	48.4	52.3		16	47.9	51.9	
17	13.3	17.2		17	12.8	16.8	
18	54.8	59.0		18	54.8	58.9	
19	35.5	39.3		19	35.4	39.3	
20	43.7			20	43.3	47.3	
~~20~~	~~57.4~~	? this		20	53.0	57.2	
21	2.6	6.5		21	2.3	6.6	
22	35.7	39.6		22	35.3	39.5	
24	~~25.1~~	32.0		24	27.8	31.8	
25	33.5	37.4		25	33.2	37.2	
25	51.2	55.6					
26	~~7.3~~	11.3					
26	32.7	36.7					
26	~~36.6~~	~~42.5~~					
27	34.9	38.8		27	34.8	38.7	Record faint
27	56.7	Break.		27	56.4	60.4	for some time
29	10.4	—	or 28 31.7	29	10.0	—	
				2			
29	23.4	~~27.3~~	or 28	29	23.3	27.3	
30	2.2	6.4		30	2.1	6.2	
30	29.3	33.1		30	28.8	32.8	
30	36.8	40.8		30	36.6	40.6	
31	5.3	9.4		31	5.2	9.0	
32		20.4		32	16.0	20.1	
32	41.3	45.3		32	41.0		
8 32	49.0	52.8	8	32	48.7	52.7	

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1860phae.proj.: 2305

9	8	36		8.9	9	8	36			8.5
10.11	4	33	first wire lost		10	4	37	first wire lost		
11.12	7	37	~~for~~ Dec wire doubtful		10.11	7	40			
11	5	16			11.12	5	19			
	D. B									
8	1	2		9	8.9	1	4			8.5
11	8	14	Dec doubtful		11.12	8	16	AR.? Dec.?		
10.12	0	19	first wire only and very bad		11.12	0	20			
10	9	—	first wire only		10	9	51			
8.9	2	12		8	8.9	2	14			7.7
9	4	14		7	8	4	15			7.0
9	7	27		8.9	9	7	29			8.5
9.10	7	9		9.10	9.10	7	12			9.5
11	3	30								
11	6	57								
11	3	0								
9.10	8	10		9.10						9.5
	B.									
9.10	5	15		9	9.10	5	16			8.8
8	10	28	Dec? rather red	8	8	10	28			7.3
11.	0	21	Dec wire lost		—	0	34	sure		
					~~10.11~~	~~10~~	~~25~~	~~ex bl. star, ob before free on~~		
9	10	18		9	8.9	10	~~22~~	n.s		9.2
9.10	9	8		9.10	10	9	10			9.4
11	2	4			11	2	6			
10	10	3			10.11	10	4			
10	7	12		9	9.10	7	13			9.1
	D									
11	7	33	first wire lost		11.	7	37			
11	3	31			11	3	34			
11	4	2			11	4	4			

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1860phae.proj..230S

33	15.6	19.4		8	33	15.4	19.4
33	37.9	41.9			33	37.7	41.8
33	48.8	52.7			33	48.6	52.4
34	29	7.8	→		33	0.4	4.7
34	31.3	35.2			34	4.0	7.8
34	47.2	51.2			34	31.0	35.0
35	55.0	59.1			34	47.0	57.0
37	29.6	33.2			35	54.9	59.0
37	30.1	34.1			37		
37	54.1	57.9			37		34.0 Record faint
38	7.0	+ 5. or more			37		58.0
38	11.5	15.5			38	6.9	10.8
39	39.2	43.2			Not	By record on sheet	
					39	39.3	43.3
41	31.6	35.7			41	31.7	35.9
41	37.1	40.8			41	(37.0)	40.5
43	54.3	58.2			42	32.0	36.0
					43	—	—
45	5.5	9.5			45	5.6	9.6
45	18.3	22.4			45	18.0	22.1
45	43.6	47.6			45	43.3	
46	46.5	50.6			46	46.4	50.3
46	51.8	55.8			46	51.6	55
47	40.4	44.3			47	40.3	44.3
47	51.0	54.8			47	50.7	54.7
					47	—	51.7
49	4.3	8.4			49		
					49	17.4	21.6
8 50	40.8	44.8	In this zone the differences between my me	8	50	40.9	44.6

Probable Error ± 0.062

a	Δg	
1	70	0.70
2	24	0.96
3	4	0.36
4	2	0.32
	134	
	0.160	

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1860phae.proj..230S

10.11	5	52			10.11	5	55						
	Chart Ods, no star												
11	3	6			10	3	8						
11	4	59			10	5	0						
10.11	10	38			10	9	20						
10	8	37		0	10	10	40						
					11	8	39						
					10	1	53	See wire first					
9.10	7	33		9.10	9.10	7	36	9.0					
10	7	55			10	7	58						
10	10	9			10	10	11	AR lost					
9	8	57		9	9	9	0	8.8					
10	9	32		9	9.10	9	34	9.1					
10	8	32	Dec?	9	9.10	8	32	9.1					
7	2	6		8	7	2	8	7.4					
10	9	14		9.10	9.10	9	14	9.5					
	B.D.D					DB							
11	7	29			11,12	7	34						
9.10	10	44	NS		9.10	10	46	first wire					
11	8	51			11	8	53						
						6	44						
11,12	6	56			11	6	59						
10	2	16		9	9,10	2	19	(9.0)					
11	8	21	Dec?		10	8	25						
9	1	0		8.9	9.10	1	2	8.4					
9.10	6	7		9	9.10	6	10	9.1					
10	9	12	faint comp. n.p	9.10	9.10	9	13	9.5					
						1		9.1					
10.11	0	8		9	9,10	0	10	Dec wire lost					
	B.				10	1	14	faint 9,12 "					
10,11	1	35		(? 9.10)	11,12	1	40	fine wire 9.14 doubtful					
					10.11	6	6	8.8					
9.10	5	55		9	9	5	57	B for dy					
	~~8 15~~	Vacant field											
Cloudy					Over								

Magnitudes

$\Delta - A$ + 0.49 ± 0.038 0.029

2 comp. sets

	18
	25
	8
	3
	1
	55

$\Delta - B$

− 1.0	
00	
+ 0.5	
+ 1.0	
+ 1.5	
+ 2.0	

8.8		
9.1		
9.1		
7.4		
9.5		
25.0	2.0	
9.7	9.0	
± 0.328	1.04	
± 0.358	2.43	

− 2.0	4.16	Mean $\Delta - A$ = + 0.44 ± 0.04
+12.5	3.48	
8.0	2.51	
4.5	3.32	
2.0	2.43	

Dr. corr. 1 comp. ± 0.25

Dr. corr. 1 comp. ± 0.35

Dr reduction $\Delta - A$ = 0.218 ± 0.036

Dr rep

55	1	12.0
23	11	
13	9.5	
8	1.0	

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Continuation observed on Dec. 12.

8	5		
	52	17.5	21.3
	53	17.7	21.7
	53	49.7	53.6
	54	27.3	31.3
	54	38.0	42.0
	55	6.9	10.8
	55	44.4	48.5
	56	2.2	6.0
	56	25.5	—— very a little uncertain.
	57	41.1	45.0
	5	one star too few	
	58	59.6	63.4
	59	34.2	38.3
8	59	57.3	01.4
9	0	51.4	55.6
	1	7.7	11.5
	2	27.0	31.0
	2	30.4	34.4
	3	27.0	31.2
	3	40.3	44.3

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No of bright stars much diminished

Continue

10	5	8	
10	5	35	
9	1	56	
	D		
11	5	16	
11,12	3	6	
9,10	9	15	
10	8	0	
10,11	5	56	first wire doubled
11,12	5	27	AR?
11	4	0	AR?
11	8	9	
11,12	7	7	
	B		
11	~~5~~ 6	0	
10,11	~~12~~	29	
11	5	26	
9,10	2	6	
10	4	15	see wire doubled
9,10	7	14	
9,16		—	
10,11	3	19	
10	5	16	
	D		

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9 6	6.6	10.6
6	58.6	62.6
7	19.0	22.8
7	46.0	49.9
8	32.4	36.5
8	50.4	54.3
9	21.2	25.2
10	19.3	23.2
10	(23.7)	27.5
11	29.8	
11	31.9	35.9
11	—	(52)
13	2.3	6.2
13	9.0	13.0
13	24.3	28.2
13	48.9	52.0
14	52.2	56.1
15	3.7	7.7
16	42.4	46.3
16	55.8	59.8
9 17	16.0	20.2

Catalogue.

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1866phae.proj..230S

field with no bright star

10	4	34	
9.10	9	03	
10.11	9	3	
10.11	10	18	
	B.	B	
11,12	4	28	
11.12	4	46	
11.12	10	1	
10,11	5	35	
10	4	44	fine wire doubtful
11	4	29	See wire best
10	9	13	Dec?
10	9	6	fine wire best
	D		
	9	—	(Star obs?)
8.9	6	20	
8	6	15	
9.10	9	21	
11.12	6	55	
11	7	30	
	B.	B	
11.12	4	31	
11.12	10	29	fine wire doubtful
9.10	6	20	

cloudy again.

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$0^{o}\,50' - 1^{o}\,0'$

				Stgel. Mag.	
9.	$7^{h}\ 10^{m}\ 8^{s}.49$	$+0^{o}\ 53'\ 53''.8$		8.5	
9	22 39.22	51 44.7		8.5	
9	26 16.09	54 37.5		9.0	
9	30 56.42	54 58.0		9.2	
9	49 11.92	54 27.4		8.5	
9.10	52 38.23	51 32.6		9.0	
9.	8 0 58.23	53 5.0		8.7	Right-Ascension $8^{h}\ 1^{m}\ 8^{s}$.
6.	1 36.71	51 52.5		8.2	
7.	27 57.23	50 31.6		7.3	
9.	29 24.18	50 26.0		9.2	
9.	29 42.18	51 30.9		9.0	
9.	42 52.07	54 23.4		8.7	
8.	49 33.71	55 27.8		8.0	
7.	9 4 17.60	54 43.2		7.4	
9.	5 38.12	54 0.0		8.8	
9.	11 55.02	56 1.4		8.8	
8.	13 14.84	52 30.4		8.2	
9.	9 43 39.59	+0 ~~58 7.9~~ 57 51.9		8.8	Position somewhat erroneous. in N.

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Dec. 13. 1860 Angle of Pos 263° 40'

		Sec.		
Begun	4	44	Thr.	15°.5
Ended	7	45		11.8

7	8	7.3	11.3
	8	46.5	49.5
	9	7.2	11.1
	9	9.6	13.6
	10	8.0	11.8
	11	22.4	26.4
	11	41.7	45.6
	11	52.3	56.3
	12	7.6	11.7
	12	38.9	43.0
	12	48.1	52.1
	13	11.7	15.6
	13	25.8	29.9
	14	11.3	15.2

lgt w star here

Jan 12th 1861. A. of P. 263° 40'

Begun

End. ~~7 45 Bent.~~

Seeing Very Bad.

7	8	7.4	11.5
	8	43.5	43.5
	8	46.1	49.7
	9	7.7	11.5
	9	~~32.9~~	~~37.7~~
	9	33.2	37.7
	10	8.1	11.9
	10	44.2	48.4
	11	22.6	26.6
	11	42.3	46.2
	11	53.0	57.3
	12	3	
	12	39.7	43.5
	12	48.8	52.8
	13	12.0	16.1
	~~14~~	~~11.7~~	~~15.6~~
	14	11.7	15.6

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1860phae.proj..230S

$0^{\circ}50' - 1^{\circ}0'$

9.10	1	56			8.3	9.10	2	11
10	9	18	examine declination				9	10
10.11	5	43					9	41
						10	6	0
						10	6	32
10.11	9	1	star 6' 26" to be observed					
9	3	52			8.5	8.9	4	7
	B						B	
					9.5	10	6	48
10	4	29				10	4	48
10	5	24			9.1	9.10	5	42
9.10	6	32				10.11	6	—
11	6	12	Dec?					
10.11	6	33				11	6	52
10	5	27				10	5	42
	D							
11	6	46				11	7	2	AR?
10.11	3	7						
11	8	29	NS			11	8	48	Dec?

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88	14	26.0	30.0	7	14	26.6	30.4
	14	57.1	61.0		14	57.6	61.4
	14	59.8	64.0		15	0.7	4.8
	15	14.2	18.3		15	14.7	18.9
	16	6.1	9.8		16	6.7	10.6
	16	19.9	24.0		16	20.3	24.2
	16	53.7	57.7		16	54.2	58.2
	17	12.9			17	3.5 / 13.6	7.2 / 17.7
	17	17.3	21.4		17		22.4
	17	56.3			17	57.1	61.0
	18	3.8	7.7		18	4.5	8.3
	18	21.7	25.7		18	22.3	26.2
	18	34.9	38.9		18	35.6	39.5
	18	53.7	57.6		18	54.3	58.1
	19		7.6		19	4.2	8.2
	19	24.0	27.8		19	24.4	28.5
	19	39.2	43.1				
					19	40.1	43.5
	19	51.4	55.4		19	51.9	55.9
	20	59.4	63.4		20	5.9 / 59.9	10.6 / [64.2]
	21	6.3	6.8		21	3.6	7.2
	21	20.8	25.1		21		
	22	34.4	38.4		22	35.3	39.0
	22	49.5	53.5		22	50.3	54.5
	23	1.0	5.1		23	0.5	4.9
	23	22.6	26.3		23	23.4	27.6
	23	41.4	45.5		23	42.4	46.3
	24	54.0	57.9		23	59.9	64.0
45					24	55.1	58.9
	25	6.8	10.5		25	7.8	11.7
	25	22.8	26.8		25	23.9	28.0
	25	43.4	47.4		25	44.3	48.5

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10	1	40			10.11	1	52		
10	1	51			11	2 D	8	See wire doubtful	
10	3	50			11	4	7		
8	8	2		7.0	8	8	22		
10.11	8	3			11.12	8	23	doubtful	
9.10	8	37		9.5	9.10	8	57		
	D.D								
10	3	40		9.5	10	3	56	Sj to both wires	
9.10	3	5	See wire lost		11	4	36		
10	8	11	Dec doubtful	9.0	9.10	3 8	22		
10.11	9	17	See wire lost		10.11	9	36		
10	4	33			10	4	46		
10	8	44			10	9	3		
10.11	1	37			10.11	1	54	doubtful	
10.11	0	48			10	1	4		
10	2	18	first wire lost		11	2	36		
11	10	10				10	28		
	B								
10.11	5	20	ex.	9.3	10	4	36	B for Sj	
10	9	—			9.10	9	27		
10.11	2	13			10	3 2	8 33	See wire doubtful	
11	1	37	first wire lost			1	56	NS	
	B.D					B.D			
9	1	43	Catalogue	8.5	9	2	09		
10	5	47			10.11	6	2		
9.10	9	—							
10.11	5	18			11	5	38		
10	6	22	B. Catalogue	9.0	10.11 9.10	4 6	33 44	reject. no Dec.	
10	7	22			9.10	9 7	14 43		
9.10	6	5			9.10	6	26		
10.11	9	17							
9.10	6	39	Catalogue		9.10	7	51		
	D.D					B			

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26	16.2	19.1	7	26	16.2	20.4
26	21.6	25.6		26		
26	49.2	52.0		26	49.0	53.3
26	58.2	62.1				
27	10.6	14.6				
27	36.5	40.6		27	37.6	41.6
27	48.5	52.4		27	49.9	53.6
28	3.7	7.6		28	4.6	9.0
28	10.9	15.1		28	11.9	15.8
28	29.2	33.3		28	30.1	
28	37.7	41.6		28	38.5	42.4
29	7.9	12.0		29	9.2	12.9
30	31.5	35.4		30	32.5	36.5
30	54.1	58.1		3		
30	55.1	59.1		30	56.2	60.0
31	42.1	46.1		31	43.1	47.3
32	52.7	56.7		32	53.9	58.0
33	44.0	48.0		33	45.0	46.9
33	54.7	58.7		33	55.9	59.7
34	14.4	18.4		34	15.4	19.4
34	21.4	25.4		34	22.7	26.7
34	42.1	46.2		34	43.2	47.5
35	33.7	37.6		35	39	38.5
35	45.0	49.1		35	46.2	49.9
				36	53.9	57.6
				37	2.6	6.4
			7	37	44.6	48.2

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1866phae.proj..230S

9.10	4	43		9.0	9	5	3	
10.11	6	2						
10	5	6		9.5	10	5	24	
11	6	11						
10.11	10	19						
11	6	28			10	6	45	
11	3	22			11	3	42	
9.	1.	3		8.7	9	1	21	
11	0	22		9.5	10	0	38	
	D.B							
10	7	3		9.3		7	23	Dec wire lost
	9	25	Dec doubtful	9.2		9	46	
10	2	28		9.0		2	42	Dec doubtful
	B.D					D.D.D		
11	5	39			10.11	5	57	
10.11	5	59						
9.10	5	3		9.2	10	5	18	
9	9	33	ex.		9	9	57	
10	8	6		9.5	10.11	8	26	
9.10	6	58		8.7	9	7	18	
10	0	47		9.2	10	1	6	
11	0	44			11	1	2	
10	3	45		9.5	10	4	3	
10.11	7	28			11	7	46	
	B							
11	3	21			10.11	3	40	first wire lost
9.10	9	58				—		Dec lost
					11	7	2	
						D.B		
			Fixed the Lamp					
					11	6	58	N.S
				9.5	10	4	55	
						D		

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39	6.3	10.1	(ex. wire)	38	12.3	16.6
39	58.0	62.0		39	7.4	11.7
40	15.0	19.1		39	15.6	
				39	59.1	63.0
				40	16.0	20.0
40	31.1	35.2		40	32.3	36.2
41	0.0	4.0		41	1.3	5.3
41	14.7	18.7		41	(15.7)	20.1
41	35.7		Cramine	41	37.4	41.0
41	44.2	48.1		41	5	
42	53.0	57.0	ex. mirror (46 50 ?)	41	57.4	61.5
				42	54.5	58.3
[44	16.2	20.0	ex. wire	42	54.5	58.3
				44		21.7
45	16.3	20.0		45	18.0	22.1
46	34.9	39.0		46	36.4	40.6
46	46.7	50.6	(46 54.0 ?)	46	48.2	52.3
48						
48	43.2	47.1		48	44.7	48.4
(48	53.0	57.4)		48	54.7	59.0
49	10.4	14.3		49	7.6	12.0
				49	12.0	15.9
				49	40.2	44.8
50	55.7	59.6		50	2.8	7.1
				50	57.3	61.2
51	16.4	20.6		51		
51	40.0	43.8		51	41.6	45.6
51	49.8	53.8		51	51.4	55.6
52	12.8	16.7		52	14.8	18.6
52	36.8	40.7		52	38.5	42.3
52	43.8	48.0		52	45.5	49.3
53	25.1	29.1		53	26.9	30.8
53	38.0	42.0	Circuit doubt.	53	39.8	43.7
55	32.1	36.1	gain along here.	55	36.0	37.8
55	56.5	60.4		55	58.4	62.6
56		43.5		56	41.3	45.3
57	35	35.8		57	33.7	38.0

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1960phae.proj..230S

10,11	6	33					6	58	N S
10.11	6	32			9.3 9.5	9.10 10.11	6	52	
11	6	14					6	48	
	D.D						6	32	
11	1	16	B for ij		9.4	10.11	1	30	
11	3	27				11.12	3	41	
11	4	14				11	4	29	first wire doubtful (to Dow)
10.11	4	57	See wire lost			10.11	5	12	
9	10	34	Dec doubtful						
10	4	14				11.12	4	33	
							D.D		
10.11	5	0	ex.		9.3	10	5	28	
11	7	42				10.11	6	14	— first wire lost
9.10	7	12			9.3	10.11	8	3	B for ij
						10	7	28	
10	4	21			? 8	9.10	4	39	
	B.B.								
10.11	8	46							
						10	9	6	
10.11	9	—	coarse double star			9.10 11	9	36	(1, 31)
10	4	26			8.5	9, 10.11	4	45	
10.11	2	8			9.5	10	5	22	
						10.11	2	21	
11.12	5	59							
9.10	10	22				9	10	42	
9.10	9	7			9.0	9	9	25	
10	1	48			9.5	10	2	5	
9.10	1	34			9.0	9.10	1	47	B
9.10	6	18		B.	9.4	10	6	35	
	D.								
9.10	6	59	N S	B	9.1	10	7	14	
9	9	50				9.10	10	12	
9.10	10	0			8.8	9	10	17	
10.11	8	36			9.5	10	8	47	
10	8	11	N S first wire lost				8	26	
11	6	23	N S " " "				6	39	

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1860phae.proj..230S

	57	54.0	57.9				
	58	11.8	15.9		58	13.6	17.5
	58	30.0	34.0		58	31.8	36.0
	58	36.6	40.7				
	59	[10.5	—]	Circumst	59	8.1	12.2
					59	37.7	35.5
8	0	22.7	—?	< Catalogue * ?	8 0	24.6	28.3
	1	2.3					
	1	6.0	10.0		1	7.9	12.1
	1	34.7	38.8		1	36.8	40.4
	1	45.1	49.2				
	2	21.3	25.2				
	2	36.7	40.9				
	3	1.2	5.1				
	3	21.2	25.2		3	23.0	27.1
	4	0.5	4.6				
	4	30.8	34.7		4	32.5	36.2
	4	56.1	60.0				
					5	16.0	20.1
	5	3.3	7.5				
	5	18.8	22.7				
	5	53.4	57.4				
	5	53.4	57.4				
	6	49.9					
	6	57.0	61.1				
	7	25.7	29.8				
	7	26.9	30.9		7	28.8	32.6
	7	31.7	35.5		7	33.5	37.5
	7	[illegible]	40.9				
	8	29.0	—		8	31.0	35.0

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1860phae.proj.:2308

11	4	24						
10	4	18		9.5	10	5	2	
10	4	34		9.5	11.10	4	49	
11	1	6						
10.11	9	52			10	10	6	first wire doubtful
	D				10	0	27	
9.10	10	30		Catal. *?	9.10	10	50	
11	6	51	See wire lost					
9	2	41		See Appl 8.7	9.10	2	56	
8	1	36		8.2	9	2	12	
11.12	6	28						
10.11	4	47						
11	0	27						
11.12	6	36						
11	9	16			11	9	29	
	B.D							
10.11	2	17						
9	9	44			9.10	10	6	
11	8	41						
					11	10	2	
						B.D		
11.12	5	24						
11.12	3	32						
	B							
11.12	2	54						
10.11	1	34	See wire lost					
10	5	1						
9.10	9	31						
9	6	57	N.W	9.3	9.10	7	16	
9	6	1	N.S	8.8	9.10	6	17	
10	7	0	N.S first wire lost					
	D				10	3	38	
10.11	3	30						

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1860phae.proj..230S

8	8	[47.3	—]		8	8	49.0	53.1		
	9	37.7	41.9			9	39.8	43.6		
	9	45.9	49.9			9	47.7	51.7		
	9	51.7	55.8			9	53.4	57.3		
	10	?26.0	—	circuit in fault		10	26.8	30.8		
	11	35.6	39.4			1				
	11	49.8	—	circuit in fault		11	51.4	55.5		
	12	11.5				12	13.3	17.0		
	12	14.9	19.1			12	17.0	21.1		
	12	29.3	29.3							
	12	38.7	42.5			12	40.8	44.6		
	13	26.0	29.9			13	27.6	31.6		
	14	10.8	14.8			14	12.8	16.9		
	16	41.5	—	cir.					Feb. 6. 1861.	
	16	43.4	47.3							
	17	7.5	11.4							
	17	[28.8	32.8							
	18	7.3	—			18	9.1	13.0	18	8.9 12.9
	18	42.0	46.0			18	43.7	48.1	18	44.0 47.9
	19	26.0	39.8			19	37.4	41.5	19	37.4 41.4
	19	48.3	(52.0)	circuit bad					19	50.3 54.0
	20	27.0	31.0		8	20	28.7	32.9 x	20	28.7 32.7
									20	59.9 63.7
	21	26.6	30.7						21	28.4 32.3
	21	45.3	—	c. 8.					21	46.9 51.0
									22	9.5 13.4
	23	31.6	35.6						23	33.2 37.2
	24	46.5	—	c. 8.					24	48.3 52.2
	25	22.0	26.0						25	23.8 27.8
	25	45.3	49.5						25	47.2 51.1
	25		52.1						26	
8	26	17.6	21.6						26	19.2 23.1

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1860phae.proj..:230S

10	2	25		B. 9.2	10	2	37		
9.10	9	47			9.10	10	8		
10	5	12		9.5	10	5	32		
			} doubtful about wires and } (this min. bin.)						
10	9	18			10	9	27		
9	4	38	B for Sej	8.0	8.9	4	54	See wire ŏ,1 too soon	
10.11	10	16							
10	8	6		9.5	10	8	22		
11	3	17	See wire lost		11	3	32	See wire lost	
10	3	31			10	3	44	See?	
10.11	9	5	first wire lost		9.10				
9.10	1	28		B.8.3		1	48		
11.12	2	28				2	39		
	B.B								
11.12	1	52			11.12	2	6		
10	5	46						Feb. 6. 1861 Arg ☌ P 263° 33′	
11.12	4	20						Hor. Arg. 1ʰ 34ᵐ ☾.	
								Inv. 21°.7 at beg.	
11	6	19							
11.12	7	27	first wire lost						
9.10	8	15		9.2	10	8	29		mag 9.10 8 15
	D		just here there are more						
10	2	56	isolated bright stars than	9.3	11.12	3	14	first wire lost	10 2 57
9.10	7	52	usual	9.3	10	8	8	7 53	9.10 7 53
10.11	4	8						4 6	10.11 4 4
								B.B.B	
8	8	38		8.5	8.9	8	51	8 36	8 8 36
10	7	53		Feb.6.: First star in this column	11	6	56		11 6 56
11	9	49	Dec?		10	7	52		10 7 52
					10	9	49		10 9 49
					11	1	40		11 1 40
					10	4	56		10 4 56
9.10	8	53	same star as in polh. zone 9.5						
10	7	3			9.10	7	6		9.10 7 6
11	6	0			11	6	2		11 6 2
	B.B					D			
10	1	18		9.4	9.10	1	18		9.10 1 18
11	6	1	first wire lost						
11	6	32				6	34		6 34

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8	27	10.3	—	a. 2.	8	27	12.1	15.8
	27	20.0	23.9			27	22.0	25.7
	27	46.0	50.0			27	48.0	51.8
	27	55.2	59.1			27	57.0	60.9
	29	22.0				28	27.1	31.1
	29	41.0	45.1			29	23.8	27.8
						29	42.3	46.3
	29	41.0	45.1			29	42.9	46.8
	30	20.6	24.6			30	27.5	26.4
	30	46.0				30	47.9	
	30		50.8	a. 2.		30		52.6
	Circuit broken					31	34.1	38.9
	31	59.5	63.4			32	1.3	5.2
				The star too faint.				
	32	1.2	5.3					
						34	46	8.4

						34	45.3	49.2
						35	20.1	24.1
8	37	40.2	44.1	Circuit continually breaking		35	47.6	51.6
						37	41.8	45.9
							B.	
	38	12.2	16.2			38	14.0	18.0
	38	18.0	22.0			38	19.8	23.9
	39	18.9	23.0			38	35.6	39.5
	41	25.6	29.8			39	20.7	24.6
	41	35.5	39.2			41	37.3	41.3
	41	58.2	62.9			42	1.0	5.0
	42	32.4	36.4			42	34.1	38.1
	42	49.9	54.0	Catalogue		42	51.9	55.9
	43	23.5	27.2			43	25.1	28.8
	43	50.5	54.4			43	52.3	56.3
	45	21.1	25.1			45	23.1	27.1
	45		44.4	Circuit broken 1st		45	42.5	46.5
8	45	49.9	53.9		8	45	51.6	55.7

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1860phae.proj..230S

10.11	1	57			9.10	1	53	
10.11	2	36			9.10	4	36	anne
11.12	3	39			11	3	38	
7	0	32		7.3	8	0	34	Sec wire doubtful
9	0	26		9.2	10	0	37	
10	1	28		9.0	9.10	0	25	
					10	1	26	
10	1	48	Ex. from this point.		10	1	47	
10.11	7	58			10.11	7	58	
	3	27	Sec wire lost		10	3	34	Sec wire lost
	0	54			10.11	0	52	first wire lost
10.11	5	2			10	5	2	
9.10	9	41			9.	9	41	a curious group of 8 stars
10.11	9	8						The preceding 9.10 may be
	B.D.B				9.10	0	45	too faint.
11	C	46				C		
	D.		for new sheet.					
9.10	6	33	New Sheet.	9.4	10	6	33	
	Double					D.B		
10	5	4			10.11	3	52	
10	2	34			10	5	27	
					10	5	4	
				9.3	9.10	2	30	
						B		
10.11	6	41			10	6	41	
9	1	29			10.11	4	05	
11.12	2	33		9.0	9	1	27	
9.10	0	50			9.10	0	49	
11.12	3	28			10.11	3	24	
10	4	7	NJ		9.10	3	4	anne
	B							
9	4	22		8.7	9	4	19	
10.11	1	49			11	1	47	AR doubtful
8	9	22			8	9	22	
	D.D					D	D	
11	3	27			10.11	3	26	
10.11	4	23			10	4	20	
9	6	53			9	6	53	

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1860phae.proj..230S

8	46	35.9	39.9		8	46	37.8	41.8
	47	49.7	53.8			47	51.6	55.7
	47	—	56.7			47	52.8	56.5
	48	40.0	—			48	41.8	45.8
	49	17.8	—			49	19.6	23.6
	49	31.7	—	Catalogue		49	33.6	37.5
	50	55.5	59.3			50	57.3	61.5
	52	—	—			52	9.0	13.0
						52	50.7	54.8
	53	27.3	31.3			53	29.1	33.0
	53	43.7	47.7			53	45.7	49.5
	53	48.8	—			53	50.9	54.8
	54	—	—	Something obs'd here.		54	21.9	25.9
	54	49.8	—			54	51.6	55.5
	54	57.5	61.4			54	59.5	63.4
	55	36.9	—			55	38.9	43.0
						55	47.1	51.1
8	56	17.6	21.6			56	19.8	23.5
						58	20.8	24.9
						58	33.3	37.2
					8	59	52.3	56.3
					9	0	17.2	21.0
9	—	—	—			0	30.2	34.2
	2	56.0	60.0			2	32.0	35.9
						2	57.9	61.8
	3	3.7	7.7			3	5.7	9.6
	4	15.4	19.5	Catalogue		4	17.4	21.3
	5	10.0	14.1			5	12.2	16.0
	5	36.4	40.5	Catalogue		5	38.6	42.5
	5	48.7	52.4			5	50.6	54.5
	6	13.2	17.1			6	15.0	19.0
	6	33.7	37.8			6	35.6	39.6
	6		61.2			7		3.1
	6	58.9	62.5			7	0.7	4.7
	7	5.1	9.1			7		11.0
9	7	26.0	30.1		9	7	28.0	32.1

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10	6	0			10.11	6	0	
10.11	3	8			11	3	9	
9.10	9	10	NS		10	9	6	
9.10	2	28		8.9	9	2	26	
9.10	9	49			9.10	9	47	
8.9	5	25		8.0	8	5	24	a star reads 6' 4" prec. 5.8 (9.10)
	D.B.B					B.B.		
10	6	54			10	6	52	
11.12	5	39			10.11	5	36	
	2	53			11.12	2	53	
					11.	2	51	
10.11	4	58	See wire lost		10.11	4	56	
10	6	58			10	7	58	NS, sure
9	6	80		9.3	9.10	6	32	
10.11	1	21			10.11	2	21	sure
9.10	8	53			9.10	8	52	
9	7	25		8.2	9	7	21	
	B.B.				10	4	29	
9.10	9	6			9.10	9	7	
			Vacant Field					Small stars straggling along, but too faint to obser
				9.3	9.10	7	50	
					10	5	45	
11	9	37			10	3	32	
10.11	6	33			10.11	8	41	
10	4	55			10	9	38	
					10.11	0	44	
					10	6	30	
	B for one minute nearly			9.2	9.10	4	52	
7.8	1	41		7.4	7	1	38	a red star
9	9	48			9.10	9	46	
9	8	53		8.8	9	3	51	
11	2	4			10.11	2	1	
10	5	51			10	5	52	
11	0	54			10	0	53	
9.10	0	4	fine wire lost					See wire ob.
9	3	20		8.8	9	3	19	
10	6	16			10	6	17	See wire only
9.10	6	9		9.5	9.10	6	8	

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10°, 15°.

9	7	46.0	50.2	9	7	48.2	52.0
	8				8	25.7	29.6
	8				8	44.7	48.6
	9				9	11.0	15.1
	10	4.7	~~8.6~~		10	6.8	10.7
	10	8.3	12.2		10	~~11.0~~	14.4
					10	25.1	29.2
					10	31.1	35.2
	11	13.6	17.6		11	15.5	19.6
	11	41.3	45.2		11	43.3	47.3
	11	52.6	56.4		12	54.6	58.7
					12	15.8	19.7
	13	12.3	16.2		13	14.9	18.5
	14	44.0	48.0		14	36.5	40.5
	15				15	46.3	50.2
	16				16	37.2	41.1
	17	42.3	46.2		17	24.8	29.0
					17	44.2	48.3
					18	39.9	~~44.8~~
					19	13.0	16.8

Circuit interrupted and put in order by Prof. G. P. B.

21	44.3	48.1	
22	1.0	5.0	Examine this again ex
23	30.2	34.1	
24	30.3	34.2	
24	56.3	60.2	
25	34.6	38.6	
27	8.7	12.6	
27	51.8	55.7	
29	16.0	21.9	
30	4.1	8.3	Examine Sheet.
30	45.1	48.9	
9 31	24.9	28.8	

9 Feb 18 1864 Hor Ang − 1h 13m.

11	44.5	47.8
11	55.1	59.1
12	16.2	20.3
13	15.1	19.1
14	37.1	41.0
15	46.9	50.8
16	37.7	41.7
17	25.3	29.3
17	44.8	48.9
18	40.6	44.4 < 49.3
19	13.6	17.3
19	56.4	60.4
20	42.1	46.2
21	0.9	4.9
21	47.0	51.0
22	3.7	7.8
22	14.2	18.3
22	28.9	32.7
23	34.4	38.3
23	33.0	37.1
24	33.0	36.9
25	—	2.8
25	0.8	4.8
25	37.5	41.6
27	54.5	58.4
29	20.9	24.9
30	6.8	10.8
30	47.7	51.7
9 31	27.7	31.6

1st w. left by circuit

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0°50′ – 1°0′

10,11	1	19	D	B. 9.5	10	1	17		
	9	—	Lost by Lamp		10	9	14		
	2	—	"	"	10,11	2	9		
9.10	10								
10	2	20			10	2	20		
10	9	10		9.5	9	10	8	double, comp n.p 16″	
9.10	10	38			9.10	2	15		
10	6	2			10	7	17		
					10	18	17	dn?	
					10	9	9		
				8.8.5	9	10	36		
					10	5	56	long big	south 8″ fr. double comp 8. p. 10 6 2
				8.2	10	3	2		10 5 6
9	2	26			9	2	22		8 2 29
	B.B.B					D.B			
					10	9	26		9.10 9 31
11	8	33	doubtful			6	32		10.11 6 8 ms
									10 8 36
					10.	9	13		10.11 9 19
					10	3	3.	A good many B's of Class along here	10 3 4
11	9	34			10	6	13		10 6 18
				8.9					
10.11	9	2			9.10	8	51		9.10 8 53
					10	9	31		thin white 11 2 11
11	5	10			10	9	1		10.11 9 38
					11	5	7		10 9 5
									11 5 10
11	0	36			10.11	0	35		10.11 0 39
	D	D							
10	9	39			10.11	9	55		10.11 10 2
					10	9	48		11 9 51
10.11	9	28			11	9	11		11 9 28
10	5	18		9.2	11	2	35		10. 2 41
	B. long				10.	5	16		11 6 11
									10 5 20
								S. G. broke down.	
10	9	1							10.11 9 4
11	5	1	See wire doubtful						10 5 5
									10.11 2 49
10	9	50		9.3					9.10 9 54
									D long
9	10	41							
10	8	59							10.11 9 1
10.11	1	54		9.3					10 2 2
	D long								
11	2	—							11.12 2 51
10.11	0	44		9.3				AR?	10.11 0 47
10	6	25		9.3					10 6 27

Feb. 14. 1861 A.J.P. 263° 25′ 5″
clouded up

Feb. 18
11.12,

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1860phae.proj..230S

9 32	22.4	26.3		9 32	25.1	29.0
32	38.7	42.5		32	41.7	45.3
35	34.8	38.9	Examine sheet.	35	37.3	41.3
36	35.7	39.7		36	8.5	12.2
39	20.5	24.5		39	23.6	27.5
40	17.0		Mrs dondyal	40	19.8	23.7
40	24.3		Examine sheet.	40	27.3	31.1
41	40.8	44.9		41	43.8	47.5
42	16.1	20.1		42	18.8	22.7
43	8.3	12.3		43	11.1	15.1
43	21.0	25.0		43	23.8	27.6
43		29.3	Examine sheet.	43		32.1
44	6.6	10.4		44	9.3	13.3
44	28.5	32.5		44	31.2	35.3
45	1.6	5.7		45	4.3	8.4
45	53.0	56.8		45	55.8	59.8
9 46	22.3	26.5		9 46	25.1	29.0

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1860phae.proj..230S

10	6	59			Feb 18 11	7	2	
11	7	28			11.12	7	28	
1			Vacant Field					
11.12	9	29	nebula prec. 45s and reads 8'		11.12	9	49	Nebula ; h. 626 nebula not seen, (clouds?)
11	8	58			11	8	59	Thin, white clouds spreading
	D					B.D		over the sky
10	8	12			11	8	17	
10	3	30		9.0 x	9.10	3	30	
11	3	50	see wire lost Dj!	9.3	10	3	50	a star 2' 9" fol ℓ, of 10 mag.
11.12	6	4			11	6	9	
10.11	6	16			11	6	19	
11.12	1	41			11.12	1	43	
9.10	7	12			10	7	18	
11	6	51	first wire lost		11	6	56	first wire lost
	B.D, B3							
9	7	44		8.8 x	9	7	46	
10	5	51		9.2 x	10	5	55	
10	7	7			10	yB	9	
11	9	9			10.11	9	9	
9.10	9	32		9.3 x	10	9	38	

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1860phae.proj..230S

9 44 – 10 47.

Dec. 24. A.M. Angle of Pos 263° 36′

(Angle of Pos not obs this morning but
set as above)

Hour angle of Telescope 0h 45m 29s

Ex Thread Beg. 14.4
" End 15.5

9 44	8.9	12.8
44	30.8	34.7
45	3.9	7.7
45	43.7	
45	55.3	58.9
46	24.6	
46	27.8	31.7

Poor diving body

49	23.4	—
54	4.5	8.5
54	53.8	57.8
55	41.8	45.8

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1860phae.proj..230S

0°50′ – 1°0′.

Catalogue Stars
1860.0.

9.	9	43	—	0° 57′	51.″9
9.	10	26	49.92	53	41.6
9		36	56.17	50	2.8

9	7	40	Lamp not well at first.
10	5	47	
10	7	3	
	~~0~~	~~12~~	
10.11	0	12	Lee wire lost
10.11	9	6	
9	9	33	Lee wire lost
9.10	3	3	
	B.D.B		
9.10	7	58	a faint 9th/10th mag
~~9~~10	0	57	
9.10	9	51	a bright 9.10
10	3	13	
	D		
9.10	6	56	
10	8	6	
11	5	38	

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1860phae.proj..230S

~~9~~	~~56~~	2.1	5.9
	56	25.2	29.3
	56	53.7	57.6
	[58	20.6	24.0] ?
	58	21.8	25.6
10	0	3.0	6.9
	0	4.8	8.8
	1	16.0	19.9
	1	54.7	58.6
	2	53.9	57.9
	3	(	
	~~4~~	0.8	4.9
	4	51.1	55.1
	6	2.0	6.3
	~~8~~		
	~~9~~	38.6	42.7
	9	~~38~~.9	42.9
	9	44.2	
	9	49.3	53.5
	11	1.7	
	11	4.6	8.3
	12	15.4	19.1
	12	41.5	45.0
	13	~~25.3~~	~~29.3~~
	~~13~~	~~37.2~~	~~41.0~~
	13	41.2	45.0
	14	~~26.4~~	30.3
	14	37.2	41.0
10	15	~~35~~.0	39.0

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1869phae.proj.:.2565

10	8	59	
11	7	38	
9.10	0	32	
	B.		
11	3	16	
10	5	0	NS
9	6	24	
11	9	16	See wire doubtful
12	2	46	dec doubtful
9.10	5	1	
9.10	4	25	
17	4	—	not ob
10	6	24	
9	7	11	
12	7	0	
	D		
11	6	24	
10.11	2	18	
11	0	—	one wire (first)
10	9	29	
	Break for Sij to next Star		
11	0	36	See wire lost
10.11	8	17	
9. or 9.10	7	45	
10.11	4	11	
9.10	10	21	
	D		
11	6	30	
11	3	57	
9.10	8	2	
9.10	9	38	
	B. B		

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1860phae.proj..230S

16	44.1	48.2
17	0.9	4.7
17	53.2	57.4
19	18.4	22.4
19	49.3	53.4
20	39.7	43
20	43.0	46.9
22	29.8	33.7
22	47.7	51.6
23	25.9	29.9
25	55.8	59.7
26	49.4	53.5
27	17.9	21.8
28	18.3	22.3
28	24.0	27.8
30	18.1	22.0
30	34.5	38.6
30	49.6	53.6
31	27.8	31.5
33	3.2	7.3
34	38.8	38.8
35	3.2	7.3
36	52.1	56.0
38	9.6	13.6
38	56.4	60.3
39	20.4	24.4
42	14.6	18.1
44	44.6	48.5
45	42.1	46.0

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1960phac.proj.: 2003

10.11	9	8	
9.10	4	55	
10	5	58	
10	5	49	
11.12	5	31	dec doubtful
10.11	5	10	Sec wire lost
			Sij to each wire
10.11	6	33	
	B.		
11.12	8	20	very faint
10	5	39	
9.10	6	27	
10	6	26	
9	3	28	
9.10	5	44	
11	9	46	
10	4	0	
10.11	5	38	
10.11	2	—	dec lost
9	4	55	
10	3	48	
9.10	1	26	
10.11	5	4	first wire lost
10	7	34	
10	9	9	
11.12	6	56	
10	5	51	
10.11	1	39	
12	3	—	Sec wire only
9.10	8	52	
9.10	3	37	

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10	47	32.2	36.4
	48	21.1	25.0
10	48	27.4	31.3

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11	6	49
10	0	7
9	1	54

The Zone was abruptly
uncluded through fear of
ice falling on the Telescope.
Seeing very bad.

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a. 40′ – a 58′

Arg. des.

9.0	h	m	s	+0° 42′ 29.8				
8.2		53	18.58	42 7.6				
8.9	9	2	31.58	45 52.6				
7.5		13	25.33	46 23.0				
7.5		43	3.37	+0 46 14.7				
7.0		45	04.60	+0 43 56.0	K.			

Stars marked B. in Bonner Sternverzeichniss.

1880.0

	h	m	s
8.4	8	46	47.
9.1		47	51.
9.2		47	57.
9.4		49	5
9.1	9	2.	28
9.5		24	46
8.0		28	38

°	′	″
0	40.	6
0	39.	7
0	40.	8
0	41.	2
0	46.	9
0	43.	4
0	49.	5

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1860phae.proj..230S

Jan. 30. 1861 $8^h 45^m - 9^h 15^m$ Feb. 4

Zero of Position 263° 37.'

Zero of Pos. 263° 40'
" " 83 43
" " 83 40

At End $7^h 42^m$. El. Tur. 16.°
End of th. 8 30 "
Hor. Angle 2' 8^m. East.

8	45	19.1	23.1	8	45	19.3	23.4
	45	44.4	48.5		45	44.7	48.8
	46	2.0	6.1		46	2.4	6.2
	46	11.8	15.8		46	12.4	16.2
	46	47.3	51.3		46	47.6	51.6
	46	52.7	56.8		46	52.8	57.1
	47	6.4	10.3		47		10.4
	47	41.4	45.4		47	41.6	45.6
	47	51.6	~~55.6~~		47	51.8	
	47	—	55.8		47		56.1
	49	9.1	9.3		49	5.4	9.0
	49		14.8	Were Doubtful	49		15.1)
					49	18.8	22.6
	49	44.2	48.3		49	44.3	48.4
	50	5.7	9.8				
	50	26.6	30.9		50	27.0	31.0
	50	41.7	45.8		50	41.8	45.9
8	50	56.0	60.1		50	56.2	60.2

18

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1860phae.proj.--230S

$0^{\circ}40'-0^{\circ}50'$

9	2	36		9	2	35	
10,11	8	41		10	8	37	
11.12	2	29		1	2	27	
10.~~11~~	1	57		11	1	51	
9	1	17		9	1	15	
9.10	6	~~24~~		9.10	6	22	
10.11	4	50		10	4	48	first wire lost
9.10	9	30		9.10	9	27	
9	0	27	Sec wire lost	9	0	28	Sec wire lost
9.10	1	29	first wire lost	9.10	1	29	N.S, first wire lost
10	1	54			1	55	
11	2	48			3	38	
	B.				6	23	
10.11	1	16		10.10	1	~~17~~	
11.12	7	19					
11	3	4			3	3	
	D. B						
9	6	13		9.10	6	11	
	D. B.						
11	5	18		11	5	13	
					B		

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8h 45m – 9h 45m.

	51	39.0	43.0	8	51	39.2	43.2	11
	52	5.1	9.0		52	5.2	9.1	
	52	6.1	9.7		52	6.3	10.0	11
	52	18.3	22.4 L		52		22.5	10
	5				52		32.7	10
	53	18.7	22.7 x		53	18.9	22.8	9
	53	50.8	54.7 L		53	50.8	54.9	1
	54	15.3	19.3		54		9.4 not same star.	11
	54	28.5	32.5		54	28.7	32.6	9.
	54	39.2	43.0		54	39.4	43.3	1
	55	8.0	11.9		55	8.1	12.1	1
	55	45.6	49.6		55	45.8	49.6	10
	55	53.3	57.0		55	53.4	57.3	10
	56	3.1	7.2		56	3.3	7.4	10
	56	26.5	30.7		56	26.9	30.6	10
	56	51.2	55.1		57			1
	57	42.2	46.0		57	42.3	46.3	1
	59	0.8	4.8		59	0.9	4.8	1
	59	35.3	39.3 x		59	35.6	39.4	9.
8	59	58.7	62.3	8	59	56.6	62.7	1
9	0	51.1	54.9	9	0	51.3	55.3	1
	0	53.0	56.6		0	53.1	56.8	9
	1	8.7	12.9		1	8.8	12.9	10
	2	19.7			2	20.1	24.1	1
	2	22.6	26.4		2	22.5	26.5	1
	2	28.2	31. x		2	28.2	32.0	9.
9	2	31.5	35.4 f/46		2	31.5	35.5	8.9

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0°40'-0°58'

11.12	4	50	Sec wire doubtful	11.12	4	50	Sec wire doubtful
					D. D.		
	7	20	} double	12	4	22	}
11.12	7	10	}	11.12	7	13	}
10	5	27		10	5	22	first wire lost
10.11	5	54	AR lost	11	5	48	" " "
9	2	12	by sig	9	2	12	Sec wire not very good
11	5	33		11.12	5	32	
	B				D, B.		
11.12	4	22	Sa wire		4	33	sure
9.10	9	28		9	9	23	sure
10	8	17		10	8	14	
	D	D					
10	6	12		~~R~~10	6	12	
10.11	5	42			5	39	
10.11	5	26	doubtful		4	26	sure
10.11	5	14		11	5	15	
10.11	8	26			8	19	very doubtful Dec
	B. D. B				D. B		
11.12	7	1					
10.11	7	21		11	7	22	
	B. B						
11	6	17		10.11	6	13	
9.10	2	44		9.10	2	43	
11	5	43		10.11	5	40	
10	7	8		10	7	4	
9.10	2	17	N.S.	9.10	2	19	N.S.
10.11	4	31		10.11	4	28	
	B. D. B. D				D.		
10	8	24	Sa wire lost	11.12	8	19	
11	6	47		11	—		N.S
9.~~10~~	7	30	Sec wire lost	9	7	30	N.S
8.9	6	4		9	6	1	N.S

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$8^h 45^m$ – $9^h 45^m$

3	28.4	32.2	9	3	28.4	32.2
3	41.5	45.7		3	41.7	45.8
3		52.7		3	48.5	52.2
4	20.2	24.3		4	20.3	24.3
4	46.1	49.8				
6	7.8	11.6		6	8.1	12.0
6	16.2	20.1		6	16.5	20.5
6	59.7	63.8		6	59.9	63.8
7	20.1	—		7	20.4	24.3
7	~~—~~	25.1/50				
		Ink failed here.		7	50.8	54.9
				8	13.9	17.8
				8	51.3	55.4
				10	4.8	8.8
				10	20.6	24.6
				10		28.8
				11	21.2	
				11	23.2	27.1
				11	50.1	54.0
				12	21.2	25.2
				12	37.7	(41.6)
				12	57.8	
				13	3.4	7.7
				13	10.4	14.5
				13	25.7	29.6
				13	48.3	52.3
				13	49.4	53.4

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0°40' – 0°50'

10	3	36		9.10.	3	33	
10	5	32		10.	5	29	
10	0	36	firm wire lost-	11	0	34	doubtful Dec
11	6	44		11	6	42	
	D	bony					
10	0	19	Dec?	10,11	0	18	
10	4	50		10	4	49	
10	7	47		10.11	7	47	
9.10	10	11		9.10	10	9	
	B.B						
9.10	9	19	See wire lost	10	9	17	
11	2	31	first wire lost	~~10.11 2 29~~			
11	2	30		10.11	2	29	
11	4	44		11	4	41	
11.12	5	2		11.12	5	1	
12	7	8		11.12	7	7	Both AR & Dec doubtful
					B.B.D		
10.	5	52		10	5	48	N.S
10	5	0	first wire lost	10	4	59	first wire lost
11	2	46	rej				
10	4	44		10	4	43	See wire lost
10	10	1		9.10	10	2	
9.10	9	27		9.10	9	19	sure
	B.						
11.12	7	28		11.	7	26	
11	0	22	See wire doubtful		6	21	See wire doubtful
11	7	0			7	0	first wire lost
10	8	22		10.11	8	—	
10	6	38		10.	6	36	
7.8	6	32		8	6	29	
10	2	18		10.11	2	16	
9	9	27	N S pretty red	10	9	40	N S sure
11.12	5	47	rej				

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$8^h 45^m - 9^h 45^m$

9	14	53.5	57.5
	15	5.2	9.0
	15	29.9	33.9
	16	43.8	47.8
	17	0.7	4.6
	17	8.5	12.5
	17	17.6	21.5
	17	56.0	60.2
	17	56.8	60.9
	18.	33.6	
	18	37.3	41.3
	18	49.3	53.4
	19	10.4	14.2
	20	34.9	38.9
	20	41.2	45.1
	21	17.0	20.9
	22	2.8	6.8
	22	29.9	33.9
	23	36.0	42.2
	23	44.0	47.9
	23	59.5	
	24	22.6	26.5
	24	36.5	40.3
9	24	45.8	49.7
	24	57.9	61.8
	26	10.6	14.7
	27	8.3	12.3
	27	24.7	28.8
	27	42.6	46.6
	28	38.0	41.9
	9	24	38.2	42.2

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0°20'–0°50'

10.11	7	13		10.11	7	9	
10	7	48	Short Dij	10	7	46	
11	3	24		11.12	3	21	
	D long.				B. B		
11	4	49		11	4	47	
11	2	13		10.11	3	9	sure
10.11	4	29		10	4	29	
9.10	6	36		9.10	6	31	
11	5	2		11.12	5	1	
10.11	2	32	n.S	11	2	32	See wire doubtful
11	7	2	false beak, first work lost	11	6	58	
11	3	58		11	3	55	
11	3	12	Short Dij	D.11	9	10	
	B. B. D			11.10	3	12	
11	10	9		10.11	10	7	
10	6	12		11	6	10	
10.11	4	20		10	4	19	
10	8	48		10.11	8	43	
9.10	5	6	n.S	9.10	5	5	
	H. D. B. D				D.		
10	5	20		10.11	5	17	
10	5	2		11	5	0	
11	0	46		11	0	45	See wire lost
				11.12	1	29	
	4	9		10	4	7	
	3	50		10	3	48	
10	4	43					
11	2	40		11	2	38	
11.12	1	30		11.12	1	23	
9.10	9	28		9.10	9	28	
10	4	38		10.11	4	58	
	D. B						
8.9	9	36		8	9	32	

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Sthe Weiße IX. 946

			a	′	″
	9	41 38.56	+ 1	9	11.0
Corr.		+ 28.90			
		+ 12.38		− 1	44.4
		+ 0.02		+	3.4

Weiße

4. Zone 158.

	9	41 49.36	+ 1	9	13.6
		+ 28.90			
		+ 2.39		− 1	38.4
		+ 0.01		−	2.2

4 Zone 158. (See Encke's notes to Bessel's var of the Berlin maps)

Weiße's place should be corrected by about +28.4 so that it may be assumed that the 2° wire was observed in both cases instead of the 4th Circle East. IV − II 28.90

1825.0	9	42 20.64	+ 1	7	30.8		
		42 20.64			33.0		
	9	42 20.44	+ 1	7	31.5	Prec.	
		1 26.38	−	−7	43.3	3.085	16.545
1853.0*	9	43 46.82		0 59	48.2		448.
		+21.59		− 1	56.3		15.26
	9	44 8.41		0 57	51.9		

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