nasaphae.proj.228

KG
11365
228

K. 18

Zones.

Nov. 26 1859 5. 60. Feb. 17

134½ to 147

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22
25
28
26
25
25
25
23
25
23
4
251

Jupiter

Comet

bad

2d w. last 2

1st w doubtful 1

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before observing instrument is clamped in declination and with both R screws. The old R screw generally throws it out slightly in declination when first set in.

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134 Continued from vol 4 — $20^h 27^m$ – $22^h 31^m$ — Continued from vol 4

26	26.1	30.1	No 1.– Gt. A.	164	$21^h 26$	26.2	30.2	
	44.3	48.2		165		44.3	48.4	
26	49.3	53.2		166		49.4	53.5	
27	39.5	43.5		167	27		43.9	
28	10.7	10.7		168	28	?	15.3	
	14.8	18.8		169		14.1	19.2	
	17.3	21.1		170		17.3	21.4	
28		36.2		171	28		36.4	
		46.4		172				
29	14.0	18.0		172	29	14.3	18.2	
	16.2	20.1		173		16.3	20.3	
23.?	23.3	27.3.	[illegible]	174		=		
	28.3	32.1		175		28.4	32.4	
	B							
30	10.6	14.0		176				
	21.0	25.0		177				
	31.5	35.4		178	30	31.4	35.3	
	D							
31	14.3	18.4		179	31			
	17.7	21.5		180				
	35.3	39.3		181		35.5	39.4	
	B							
32	23.1	27.1		182	32	3.4	7.2	
33	1.1	5.3		183	33	1.4	5.5	
	19.4	23.5		184				
34	33.2	37.3		185	34			
	43.5	47.3		186		43.6	47.6	
	54.3	55.2		187				
	B							
36	51.6	55.7		188	36	51.8	55.5	
37	49.7	48.4		189	37	44.7	48.6	
38	52.2	56.3		190	38		36.4	
39	5.1	9.1		191	39	5.4	9.3	
	BDB					BDB		
	39.3	43.1		192		39.2	43.3	

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1850phae.proj..228S

22 4 15
22 1 51
38

134 Continued from vol 4 — 0°50'-60° — 135 Continued from vol 4

10	-8	33		10	8	45	
11	-0	.05		11	0	07	
12	-0	01	n.s	13	0	10	n.s
	D, B. D						
13	8	27	n.s doubtful obs	12-14	8	39	~~passy clouds~~
12-13	0	13					
3) 12-13	1	33		13	1	54	
12-13	0	5		10	4	05	doubtf; n.s
4) 12.13	4	42	on sc seen	13	4	58	
			lone (Cont)		B		
5)			R.A	11	7	10	
			5- obs badly recorded	12	6	03	n.s
			(9.3 / ~~1770~~)	12-11	6	44	
			9.3				
6) 12	8	19	= 174	13	8	43	
11-12	1	33	n.s a = 175 s.s	13	1	29	sure
	B.			12-13	4	47	certain
7) 13	4	00		12-13			
12-13	-0	27					not seen look for
8) 12	7	23			7	16	sure
	D						
9) 13	5	31					
10) 13	7	41	n.s on s.s doubtful				
11) 12	1	18	on s.s		2	13	
	B.						
12) 12-11	4	34	9.3				not then } hazy or passy cloud
13) 12	7	04					
14) 12-13	6	12					
field with no Star above Nº 14							
15) 13	8	05	comp 14, hazy s.p. 25"				
16) 12-11	2	00					
13-12	9	12	on s.s doubtful				
	B						
17) 12	9	30		12-11	9	45	
18) 12	6	40	9.5	12	6	51	
19) 12	10	32					not seen & 09 ex Un +
20) 12-11	8	51		12	~~09~~ 09		
	B, D, B				B, D, B		
21) 12	4	30		12	4	42	

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1859phae.proj..228

134 Continued from vol 4 — 20h 27m – 22h 31m — 135 Continued from vol 4

140	15 3	19.0	193	21h				
	17 3	21.3	194		40	17 8	21 7	
42	33 6	37.7	195		42	33 9	37.8	
	58 7	62 7	196					
43	—	4.4	Dec. 5 — 197					
	—	11.8	rei					
	37.8	41.9	198		43	38.1	42.0	53
	45.1	48.9	Dec. 8' 199			?		
		56.9	200		43	55.1	59.0	24
44	0.3	4.7	201		49	0.5	4.5	2 25
	52.0	55 9	202			52.1	56.3	
45	28.9	33 0	203		45	29.1	32 8	
	29.8	33.7	204			29.9	33.7	
46	55 1	58 9	205		46	55.3	59.2	
47	—	22 9	206		47	19.2	23.1	
	29.1	32.7	207				33.0	
48	16 0	19 8	208		48	16.1	20.0	
49	24 1	28.0	209		49	24 1	28 0	
	40 9	44.8	210			41.0	44 9	
	51 3	55.3	211			51 5	55 4	
50	26.1	30.0	212		50	26.2	30.4	
	59 0	62 8	213			59 2	63.2	
51	2.0	lost	214		51	—	6.0	
	31 8	35 8	215			—	36.0	
	34 8	38.8	216			—	38.8	
			S.H.S.			13		
			May 1 and 2 1862					
			Sept 23					
52	24.7	30.6	9.5		52	20.2	24.0	
52	48 4	52 3	10.5		52	13		
	59 8 W.W.		1st wire 10.5					
53	12.0	15 9	10.8		53	12 2	16.1	
53	23 0	26 9	11.7		53	23 3	27.3	
	23 3	27.2	9.2					
	13							
54	30 6	34.3	9.8		54	30.8	34.8	

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134 continued from vol 4 0°.50'–60' 135 continued from vol 4

22	12.13	9	10	n.s			seen not obs.	
23	12	6	59	n.s		12-13	7 14	
		a field with no star above 15th mg						
24	12-11	0	10			12	0 22	
25	13	0	31	n.s			not obs	
26	13	5-		first two in dark			not obs	
27	12-13	4	49	first one in		12	5- 03	
28	12			dark				
	11	1	08	first in bar on n.58.1	13	10-11-	9 26	seen
29	= 225 = 22	B.			(9.5)	10-11	2 25	
30	13-12	7	32			13	7 47	
31	12-11	2	41			13	2 55	
	12-11	0	07	n.s		13	0 08	n.s
		B.		starless field				
	13	omitted						
32	13	1	30			13	1 43	
33	13	0	03	first one bar		13-12	0 15-	
34	13	5-	28			13	5- 50 +	quite first one bar
	13	omitted	comp. 20' fol.					
35	13-12	9	51			13	10 08	
36	12-13	3	41			12-13	D B 3 53-	
37	12-13	9	49			12-13	10 03	
38	12-13	9	44			13	10 00	n.s.
		D.						
39	12-13	8	45			12-13	8 55	
40	13	6	53			13	7 09	obs t. comp. fol.
41	13	3	46	n.s			4 00	first one
42	12	8	22				9 40 / 2 40	not seen
43	12	3	29			12	3 44	
	12	omitted						
		B, D, B, D, B,					D.S	
44	12.13	2	30	= 217	9.5			
45	12.13	9	34	= 218 n.ss				
	12.13	2	40	= 219 n.s double star				
	13	2	58	= 220 seen not				
	12-13	3	27	= 221 n.s			3 40	
	12	7	41	= 222 n.s	9.2		7 50	
		D. B.						
51	13-12	7	18			11	7 29	

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1859phae.proj..228S

134 Continued from vol 4 — 20h 27m — 22h 31 — 135 continued from vol 4

55	16.2	20.1	224		10.0	21h 55m	16.3	20.3	
	DB								
	54.3	58.3	225		10.5		54.5	58.4	
56	17.4	21.2	226		10.2	56	17.5	21.3	
57	34.3	38.4	227		9.8		34.4	—	
	DD								
58	1.7	5.7	228		9.0	58	1.7	5.8	
	13.4	17.4	229				13.4	17.5	
	32.6	36.5	230		10.2		32.6	36.7	
							D		
22h 1m	44.9	49.0	231		10.5	22h 1m	45.2	49.1	
	57.0	60.8	232		10.0		56.9	60.9	
	59.1	63.0	233		10.3		59.2	63.0	
2	11.3	15.2	234		9.2	2	11.3	15.2	
	14.0	18.1	235		9.7		14.3	18.1	
	D						B		
3	6.3	10.2	236 (Comp=11m)		9.7	3	6.6	10.7	
6	389	426	237		8.8	6	390	430	
	B								
8	—	9.8	238		9.8	8	6.0	9.9	
	11.2	15.1	239		9.3		11.2	15.2	
10	36.8	40.9	240			10	36.9	40.8	
	55.0	58.8	241		10.5		54.8	58.7	
	57.2	61.2	242		9.5		57.3	61.3	
12	5.7	9.7	243		10.0	12	5.6	9.9	
	8.9	12.7	244		10.3		8.9	12.7	
	25.1	29.0	245		9.8		25.1	29.1	
	DB								
13	6.9	11.0	246		9.5	13	6.9	10.8	
	14.1	18.0	247		10.0		14.0	17.9	
	25.9	29.5	248		9.3		26.1	—	
	34.3	38.3	249		10.0		34.4	38.2	
	53.4	57.5	250				53.2	57.4	
	B						SB		
14	590	628	251		9.7	14	59.2	63.2	
15	0.7	4.7	252		9.8	15	0.8	4.9	

Measuring Spectrum Broadening and Lacunae

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134 Continued from vol 4 0°. 50'-60'

12-13	6	16			
	D.B.				
13	9	01			
12	5	00			
13-12	9	21			
	D.				
11-12	5	36		9.2	
12	0	22			
12	1	23	on 33. 1 25		
13	omitted				
	Dots for one minute				
12-13	6	00		9.5	
12-13	5	45	(4 45 ?)		
12	3	50	on, 55	(9.1?)	
11	5	51	on, 53	8.7	
12	6	57	on. 53		
	D.			(9.5)	
12-13	6	06	dist comp, n.f. 22, 14, mg		
12-11	4	29	suspect elongation s. fol. 8.2		
	B.				
13	8	00	first wire lost	9.5?	
12	3	27		9.2	
	hazy				
12	0	00		9.2	
13	5	09		(8.8)	
12	5	58	n.s		
13	1	59			
13	1	03	n.s		
12	7	02			
	D.B.				
12-11	1	33		9.2	
13	5	56			
12-11	9	58		B. 9.3	
12	8	06			
12-13	0	13			
	B.				
1) 12	4	00		9.3	
2) 12	0	51	45	9.3	

135 Continued from vol 4

12	6	30		
12-13	9	11		
12	5	13		
	D.D.			
12	9	35	one wire lost	
11	5	50		
12	0	10		
12	1	36		
	D			
12	not seen	6	16	
12	not seen	5	01	n.s
12		4	03	
10 11		6	03	
11		7	09	
12-13	6	20	dist comp, n.f. 15 mg	
11-12	4	53	one, cert.	
12-	8	13	sometimes not 2 *s	
12-11	3	40	n.s	
12	0	14		
13	5	21		
12-11	6	11	n.s	
12-13	2	11	false sig	
12-13	1	17	n.s	
12	7	17	see no close	
12-11	1	48		
13	7	14	sure	
11-12	10	08	one wire lost	
12	8	09	one	
12	0	30		
	D.B.			
12-11	5	12	one poor	
12-11	1	04		

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1859phae.proj..228S

13 4 continued from vol 4 $20^h.27^m — 22^h.31^m$ 13 5 continued from vol 4

22h 15	21.9	25.7		22h 15	21.8	25.7		3/13
	27.8	31.9			27.9	32.1		4) 13
18	47.9			16	4.6	8.4		
	49.0	52.9	(40 a)	18	49.2	2.30		
20	37.9	41.9		20	38.1	42.0		
	D							
21	53.0	56.9		21	53.4	57.1		
	53.8	57.7			57.2	58.0		
22	39.4	43.4		22	39.5	43.5	11)	
23	34.7	38.7		23	35.0	39.0	12)	
	B D B							
24	—	26.4		24	22.6	26.4	13)	
24	—	30.0					14)	
25	20.4	24.5		25	20.7	24.6	15)	
	48.9	[illegible]					16)	
	49.8	53.9			50.0	53.9		
27	8.2	12.4	3'42"	27	8.0	[illegible]		
	24.8	28.6			25.1	28.8	17)	
	B D B		41.3 45.2		41.6	45.6	= no. 19 Gf. 13.	
28	9.0	13.1		28	9.2	13.1		
	19.9	24.0			20.0	23.9		
		50.4 w.w.			46.8	50.4		
29	13.4	17.3		29	13.5	17.4		
	50.5	54.7			50.6	54.6		
30	24.4	28.5		30	24.8	28.6		
	B D B				B D B			
31	13.6	17.7		31	14.0	17.8		
	48.1	52.2		31	45.8	49.6		
					48.3	52.3		

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1859phae.proj..2285

134 Continued from vol 4 0° 50'-60'

3)	13	4	08			13	3 20 sure, faint
4)	13	0	6	n.s	on S.S. doubtful.	13	0 07
5)	(7 39)					13	9 40
6)	12	8	48			13-12	9 00
8)	13	10	00	first wire lost n.s		12-13	~~10 23~~ ~~not obs~~ } sure
9)	12	6	7	n.s	first star of 1386	11-12	6 33
10)		D.					
	13-12	9	38		dec doubtful	13	9 53 doubt dist comp n. of 19".
	12-13	7	01	n.s		12-13	7 18
11)	12	5	50			12	6 05
12)	11	10	13			11-12	10 27
		B.D.B.					
13)	13	0	22	first lost.		13	0 36. D
14)	13	10	30	first lost, doubtful			not obs.
15)	10-11	1	34			11	1 48
16)	13-14	3	58	(no 266)		13	4 10
	14	3	42	n.s 267			not seen
	13	8	48	doubtful		13	9 09 sure
17)	13-12	5	09	269		12	5 12 sure
		A.D.B.					D.D.D
	13	6	18			13	6 24
	13	2	49			13	3 00
	13	8	45	on S.S.		12-13	8 58
	13	4	58			12-13	5 05
	13	7	21			12-13	7 35
	13	8	41			13	8 57
		D.B.D					B.D B.D
	13	3	29		doubtful	13-12	~~not seen~~ 3 39
	13	5	21			12-13	2 30 5 26 n.s
		D.					

135 Continued from vol 4

Haze gradually became very thick and moisture deposited on object glass to assist interference very successfully with observations & measurements —

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1859phae.proj..228S

137 $22^h\,11'\,20{,}38''.2 - 0^h\,14^m.16$

Date 28th Nov. 1859
pos. circle 352, 11½

at beginning
EC 22 30 00
Bar
att th
ex th

at end
EC 0 38 00
Bar 29.930
att th 57.0
ex th 34.0

Obs. SC
Rec AH
weather clear — slight wind
telescope East of pier
continued from

Date Nov 29 1859
position circle 352 11½

at beginning
~~EC~~
B. EC 23 8 00
Bar 30.208
att th 64.0
ex th 34½

at end
EC 1 8 00
Bar 30.199
att th 56,0
ex th 29½

Obs SC
Rec AH
weather clear & calm
telescope East of pier
zones 134. 135

22^h	20^m	38.2	42.2	1	22^h	20^m 38.5	42.5
	21	53 7	48 7 reject.	2		21 44,9.	48.7
		54 6	58 3	3 4		54.6	58.6
22		39.9	43.8	5		22 40.1	44.1
23		9.3	13.3	6		23 9.5	13.4
		21.6	25.7	7		21.9	25.9
		35.3	39.2	8		35.5	39.4
		13					
24		17.4	21.4	9	24	17.7	21.7
		22.7	26.8	10		23 0	27.0

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1859phae.proj..2288

No	mag	R	D	No	mag	R	D
1061	8	22h 25m 20.2	+0° 51' 38"	1106	5	23h 34m 57.3	+1° 0' 18"
1069	9	37, 16.1	57' 17"	1108	9	38, 34.6	0° 53' 25"
1082	9	49, 42.1	51' 29"	5	6.7	0h 10m 33.4	0° 54' 25"
1087	9	58, 15.2	1° 0' 25"	22	9	38, 22.6	56' 11"
1093	9	23h 19m 35.7	0° 55' 32"				
1101	?7 10'	24, 28.4	57' 14"				

Zone 137

Meteor from N. slightly pre (236 = 22h 37m) to middle of field when it disappeared, lasted 0".4 yellow white

D low sig

9	6	20		8.6	9	6	20	
12	8	36	pair wire bd		12	3	35	
11-12	7	04	obscr cirrus * (Campbell)	9	11-12	7	04	n.s
11-12	5	51		9.5		5	52	false sig
13	4	35			13	4	35	
12	4	12			12	4	12	
8.9	10	14		8.8	10	10	14	
	B							
12.13	1	13			12.13	1	11	
12	0	27	n.s	9	12	0	25	n.s 9

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1859phae.proj..22dS

22^h 25	20.8	24.9		11	22^h 25	21.0	25.0	
	50.1	54.0		12		50.4	54.3	
	D							
2								
26	34.6	38.8	(To this the companion.)	13	26	34.6	38.7	
27	8.4	12.2		14	27	8.6	12.6	
	25.1	29.0		15		25.2	29.2	
2	41.8	45.7		16		41.9	46.0	
28	9.4	13.5		17	28	9.7	13.7	
	20.2	24.3		16		20.6	24.4	
	46.9	51.0		19		47.2	51.0	
	D13							
29	13.8	17.7		20	29	14.0	18.1	
	13							
29	51.0	54.9		21		51.2	55.1	
	56.2	60.2		22		56.5	60.6	
30	24.8	29.0		23	30	25.3	29.3	
31	14.2	18.1		24	31	14.3	18.2	
	48.5	52.6		25		48.8	52.7	
	D13D							
32	35.1	39.0	(ink beginning to fail	26	32	35.3	39.3	
	56.0	60.0		D7		56.4	60.4	*
33	8.3	12.3	ns	28	33	—	12.6	
	ink	42.1		29		38.4	42.3	
				30				
	53.1	57.0				53.3	57.3	
35	31.6	35.6		31	35	32.0		
36	00.4	4.2		32	36			
	37.9	42.0		33		38.3	42.3	
	49.0	52.8		34		49.1	53.3	
37	ink	8.1		35	37	4.6	8.4	
	15.8	19.9		36		16.0	20.1	
	38.9	42.8		37		39.1	43.0	

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9	1	38	cat star in trapezium of 4th & of 15th mag 8.1	14	9	1	35	Cat-star
13	4	00	D		12.13	3	59	n.s
13	6	01	blurred		13,14	6	02	comp n.p.
13	3	47	comp 9" ~~south~~ north, also 13 mg.		13	3	47	? ~~doubtful~~
12,	8	55			11,12	8	59	n. s
					D			
12.11	5	02		9.3	12, 11	5	01	
11	6	21			11	6	21	
11.10	2	49		9.5	12.11	2	48	
12	8	46			12,13	8	45	
	D	B						
12.11	4	59		9.5	11.12	4	58	
	B.							
12.11	7	23			12	7	23	
12	5	58	n.s		12	5	58	first was doubtful n.s
12	8	43			12	8	43	
12	3	28			12	3	27	
12	and	obs						
10	5	25		9.3	11	5	23	
	D	B	D			B.	D.	B
12	4	28	n.s		13	4	27	
12	4	02			13	4	12	sure
12	1	59			13	1	59	obs on last wire
~~+2~~								
9-10	6	40		9.0 9.5	10	6	40	
10	-0	17	field without stars above 15		11,12	-0	18	
11	9	37	to night, difficulty in finding 9' & 10' on account of shadow			D.	B. D.	
12	8	14	from lamps on them		12	9	37	see wire lost
10-11	8	46		9.5	11	8	46	
10-11	7	34			11	7	32	
10-11	8	07			11	8	07	
9-10	7	17	Cat. star	8.9	9.10	7	17	
12-11	8	37	dark comp 30" not		12	8	34	

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37	48 1.	52.0		38	$22^h.37$	48.3	52.3
	D					—	
38	41.0	44 8		39	38	41.0	44.9
39	—	4.1		40	39	—	4.2
	8.0	12 0		41		8.2	12.2
40	21.6	25-4		42	40	22.0	25.8
41	12.8	16.6		43	1	13.0	16.9
4	35.5	39.6		44		35.8	—
	45.2	49.2		45		45.3	49.4
	46.2	50.1		46		46.4	503
42	7.9	11.8		47			
	B.DBD					—	
43	53 8	57 7		48			
	58.7	62.5		49	43	58.8	629
45	18 7	22.7		50	45	18.9	22.8
	25.4	29.4		51		25.6	29.6
	36.8	40.9		52		37 0	41.0
	D						
46	18.9	23.0		53	46	19.9	23.2
47	27 9	32.0	(ink giving out)	54			
	42.8	47.0		55	47	43 0	46 9
	D						
48	21.2	25.2		56	48	21.4	25.3
49	42 8	46.8		57	49	43 0	47 0
	58.7	62.6		58		58.8	62.7
51	5.2	9 2		59	51	5.5	—
	23.1	27.1		60		23.2	27 1
	49.2	53.2		61		49.3	53.3
				62		56 6	60.6
1 m 1/2 of obs not recorded				63	52	40.2	—
				64		54 6	58.8

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11	4	25		9.5	11	4	26	
	D					B	
12–11	6	18			11, 12	6	18	elongated see wire doubtful
12,11	3	18			12,11	3	17	
10	6	43	first wire lost n.s	9.3	11.12	6	42	first wire lost
	D.					D,B		
12,13	7	14	few stars		13	7	13	
12	–0	08			13	–0	10	
12	–0	03			13	–0	05	see wire lost
12	1	43			12	1	41	
			windy					
12	1	43	n.s		12	1	46	
12	10	—	lost in dec, shadow			seen		not obs
	B.D.B.D					B.		
12	0	48			13	0	46	first star lost in AR
12–11	7	54	n.s		11	7	54	
10,11	0	27		9.3	12,12	0	24	
10,11	6	07		9.3	11	6	06	
11,10	6	21			11	6	20	
	D							
13	5	58	n.s		13	5	57	n.s ≤ obs for a minute
12,13	9	48				lost		
12,12	3	18			13	3	20	
	D							
12	2	58			12,13	2	57	n.s
9,10	1	29	Cat star	9.0	9	1	30	
13	2	21	first wire doubtful		13,14	2	31	sure
13	1	39			13	1	39	dec wire lost
12.13	5	37			13.12	5	38	
12.13	0	29			13,12	0	27	
12	6	51			12	6	53	
12,13	9	27	dec wire lost		13	9	30	see wire lost
12	6	14			12	6	15	

26 25

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22^h 53	32.8	36.7	(pen failed) 6.5	22^h 53	32.9	37.0	
	DB 52.8	56.7	6.6		53.0	57.0	
			mags. Shdy 7.H.S. 1862 Sept 23				
55	18.8	22.7		55	19.0	23.0	
57	—	14.7		57	10.8	14.9	
	20.7	24.8	8.5		21.0	24.9	
	—	28.6	10.3		—	28.7	
58	15.8	20.0	8.3	58	16.0	20.1	
	29 4	33 5	10.8		29.7	33.5	
	41.8	45.7	11.3				
	DB						
$23^h 0^m$	12 8	—	(pen disturbed) 11.2	23 0	13.2	17.1	
	—	17.0	10.8	0			
	39.1	43 1			39.6	43.5	
	40.3	44 2			40.7	44.6	
	54.3	58.4			54.6	58.5	
	BDB						
1^m	52.9	56.9		1^m	53.0	56.0	
2	43.0	47 1	10.5	2	43.3	47.3	
			11.5 reject.		45 0	48.9	
	48 0	51.9	10.2		48.1	52.0	
	55.7	59.6	10.8		55.7	59.8	
4	2.5	6.3	10.3	4	2.5	6.6	
	20 2	24 1	10.3		20.4	24 4	
	26.0	30.0	10.5		26.2	30.0	
			10.2				
	31.4	35.4	10.0		31.6	35 4	
			11.7	5	24.9	28.7	
			9.7		54 7	58.8	

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11	9	24		9.3	11,12	9	26	
	D.B.							
12,13	3	04	n.s		13	3	03	
12,13	5	00	pro star above 14 mag in field		12,13	5	00	∠ a field with no star above 14 mag
12	3	45	first wire lost		12,13	3	45	
10	0	29		8.2	9	0	30	
11,12	8	11	first wire lost			8	09	first wire lost
6.7	10	18	doubtful Dec, lamp troubles.	8.5	8	6	22	∗ (alarm)
11	—		not obs in Dec.		10	10	28	on scale
13	6	03			13			lost in AR
	D.B.							
12	4	29	~~Fine~~ wire lost		13	5	03	
12	5	03	1st wire lost		12	4	29	
	—		2 ∗, Dec lost		11	9	30	doubtful Dec
	—		Lamp beginning to be troublesome		11	10	09	
12	0	18			11	0	14	
	B.D.B					D.B		
11	—		Decl. lost.		11	10	03	dist comp per 8"
12,11	6	12			12.11	6	10	
12	not obs			rejected.		9	11	doubtful very (Dec)
12.11	8	09	n.s			8	09	
12	5	15			12	5	15	
11	10	—	lost on account of Lamp		11,12	9	53	AR lost ?
11	1	52			11,12	1	51	
11	3	16			11	3	24	sure
11	8	—	lost " "		11,12	8	32	
11	1	25		9.5	11	1	23	
			Lamp taken out and arranged					
					13,14	5	03	
				9.1	10.11	4	19	∠ field with no stars above 15 mag

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Mag. Obsd by T.H.S. Sept. 23 1862

23h	7m	22.0	26.1	12.0	23h	7m	22.2	26.2
	8	7.3	11.3	10.0		8	7.3	11.4
		22.0	26.2	10.2			22.2	—
		25.4	29.5	9.5			25.7	29.6
		13						
		46.5	50.4	10.5			46.5	50.7
	9	—	21.0	10.5		9	1.75	21.5
		24.7	28.7	11.0				
		36.1	40.0	11.2			36.2	40.3
	10	52.2	56.0	10.7		10	52.5	56.3
	11	35.0	39.0	11.5		11	35.2	39.2
		43.5	47.6	10.8			43.8	47.8
	12	5.2	—	10.7		12	5.3	9.2
		11.3	15.3	9.7			11.4	15.3
		long	dots					
	13	6.6	10.6	14.7		13	6.7	10.7
	14	5.0	9.0	10.5		14	5.2	9.1
	15	14.3	18.4			15	14.4	18.3
		21.7	25.6	9.3			21.6	25.6
		30.	30.7	10.5			26.9	30.6
		46.7	50.8	10.8			46.8	50.8
		3 B					59.3	63.1
	17	5.8	9.8	10.8		17	6.1	10.1
		8.4	12.3	10.3			8.8	12.8
		40.6	44.5	10.2			40.7	44.7
				Sept 23 1862 Mag. 9.3 6' 11" prec. 40° 2' north				
	18	27.2	31.0	9.5		18	27.1	31.2
		51.8	55.8	11.0			52.0	56.0
		29.7	33.8	10.7		19	30.0	34.0
		36.8	40.6	9.3			36.8	40.8
	19	58.3	6.23	9.7			58.4	6.24
		B						

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12:13	8	58		12,13	3	56	
	D. B. D						
12	8	20		12	8	20	
12,11	10	14	(9.4)	12,11	10	14	see wire lost
12,11	9	30	n.s	11,12	9	30	
	B						
12,13	6	15		12	6	15	
12	2	56	fine wire lost	12	2	57	
12,13	7	34	doubtful (7 44?)				see not obs
12	7	30	the 7th minute is 20	12	7	30	
12,13	8	49	Scratched	12,13	8	49	
13	2	10	that obs are doubtful	13	2	10	
12	7	00		12	7	00	n.s
12,13	0	31	see wire lost	12,13	0	30	
11	6	17	9.4	11	6	16	
	D long				D. B. D.		
13	4	43		14	4	42	see doubtful
13,14	8	03	doubtful see	13	8	04	
11,10	0	07	see wire doubtful	12,13	2	41	
				11	0	07	
10,11	8	48	9.4	11	8	49	
12	2	27	first wire lost	12	2	27	
11,12	4	51	[3.51 Sept 23 1862)	12	4	50	
	D. B. D			12	9	57	fine sig
12,13	5	14		12	5	15	
12,13	5	06	n.s	12	5	07	n.s
12	8	40		12,11	1	39	
				D.			
12	4	11	[6 11 9.5	12,11	4	11	
13	0	46		12,13	0	43	
12,13	1	13		12,13	1	12	
10.9	5	30	cat clear 8.9	10,9	5	29	
12	9	22		12,12	9	22	
	B						

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137				138		
28 20	29.0	33.2	9.0	29 20	29.1	33.1
	34.5	38.4	10.0		34.5	38.6
	B D B					
21	30.9	34.9	9.8	21	31.0	34.9
	47.4	51.4	10.0		47.5	51.6
22	8.7	12.7	10.5	22	8.9	12.8
	29.5	33.5	9.4		29.6	33.7
	47.5	51.5	10.3		47.6	51.8
	B					
23	19.7	23.7	1	23	19.8	23.9
	57.7	61.7	10.0		57.8	61.8
				24	13.2	17.1
24	29.6	33.5	9.3	24	29.5	33.6
	31.9	35.9	10.2		32.1	36.0
	53.4	57.5 (Corr. read 33.5)			53.9	57.7 (Corr. read 33.6)
26	—	13.3	10.7	26	9.7	13.8
27	30.8	34.9	10.5	27	31.0	35.2
	45.2	49.0	8.8		45.5	49.4
28	17.3	21.3		28	17.4	21.3
	50.2	54.2			50.6	54.5
				29	17.2	21.1
		reject			35.0	39.0
29	53.2	57.2 [Comp. 12th mag.	9.5]		53.3	57.3
30	17.1	21.0	9.5	30	17.3	21.2
31	42.7	46.7		31	43.0	47.0
	49.4	48.6			44.6	48.7

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137 — 0° 50'-60' — 138

12	4	05		9.3	10	4	04
13	6	28	n.s		12	6	28
	B.D.B						
12	9	31			11,12	9	31
12,13	4	17	or ~~18~~		12,11	4	17
12	0	49			11	0	48
10.11	1	31		9.4	9	1	31
13	1	20			13	1	19
	B.						meteor crossed the field from fol. W. prec.
11	-0	35			12	-0	34
12	4	06			12	4	07
~~13~~	~~0~~	~~3~~	ms obs		13	0	33
10.9	7	18	ast star	9.2	10.9	7	18
12	1	18	n.s		12	1	16 n.s
13	0	00	n.s		13	0	00
	D.D.B					Break for a minute	
13	4	02	9 stars wire lost		12.13	4	03
13	3	00			12.X	3	59
11	-0	27	su wire doubtful	9.3	11.10	-0	27
13	5	12	doubtful		14	5	10
12	10	03	n.s		12	10	08
12.13	0	16	not obs. in AR		12.13	0	18
12.13	9	—	lost from Camp	9.5		9	lost = AR (or dec)
11	4	51	camps, of 14 mm south fol. 23"		11	4	50 camps of 14).p 8" off
	B						
11.12	2	09		9.5	10.11	2	07
12,11	5	35				5.	34
12	3	27	n.s			3.	27
12	9	—	lost from Camp				
12	10	—	" " "				
			vision difficult				

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23h 32	56.8	60.7	141	23h 32	56.8	60.9	10.
33	43.2	47.1	142	33	43.3	47.3	11.
34	52.3	56.3	143	34	52.5	56.4	
35	1.6	5.6	144	35	1.8	5.8	1
	D 13		~~144~~				
	43.3	47.2	145	35	42.3	47.3	1
36	7.6	8.6	146	36	4.8	8.3	12
37	20.2	24.2	147	37	20.3	24.3	
	29 D	33.2	148				
38	9.0	13.0	149	38	9.2	13.2	
	35.9	39.9	150		35.8	40.1	9.
	42.3	46.0	151		42.3	46.4	10.
			152	39	49.3	—	
			153		53.1	57.1	
			154	40	31.1	35.2	
			155	41	41.3	45.2	
			156	42	42.9	16.7	
	D						
43	14.2	18.0	157	43	14.3	18.2	1
	21.9	26.0	158		22.0	26.1	12.
44	19.6	23.4	159	44	19.8	23.7	1
45	50.8	54.9	160	45	51.0	55.0	13
46	19.8	23.7	161	46	19.8	23.8	1
	57.6	61.5	162		57.6	61.6	14
47	44.3	48.3	163	47	49.4	48.3	12
48	15.2	19.3	164		51.6	55.7	
51	—	13.2	165	48	15.2	19.1	12
			166	51	9.3	13.4	1

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10.11	2	03		9.5	11	2	02	
11.10	2	08		9.4	11	2	07	
5	10	—	lost in Dec from Lamp	6.6	5.6	10	18	sig to loster wire
12	3	16			12	3	14	
	D.B					B		
12	2	39			12,14	2	37	
12.13	9	09	doubtful Dec (Lamp)		12,13	9	11,	?
12	4	14				4.	12	
12	10	—	lost by Lamp			10	—	not obs.
						D.B.		
12	6	50			12.13	6	49	
9.10	3	28	cat. 5 stars n.s	8.6	9.10	3	27	fine wire doubtful
10.9	9	29	n.s	9.5	11.	9	36	
			Lamp taken out the second time	(9.5)	12	7	17	one wire lost
					12.11	8	09	n.s
				9.5	11	10	25	field with no stars above 14
					14	1	26	
					12.13	2	22	
	D.							
12.11	2	50		9.3	12.11	2	49	
12.11	6	24	no star above 14th mag	9.1	11.14	6	33	certain very few stars
14	6	59	n.s very few stars		14	6	58	
13	4	13	seeing somewhat improved		12	4	12	
11.10	5	09		8.6	10.11	5	09	
14	2	39			14	2	37	
	B.							
12.13	9	41			12	9.43		
12.13	3	04	no star above 14 mag		12.13	8.12		sure
12	9	23	first wire lost		12	3.05 9	26	no star above 14 in field

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23h 51	15.9	20.0	167	23.51	16.1	20.0	12
	27 9.	31.8	168		28.0	32.2	11
52	36.4	40.4	169	52	36.4	40.2	13
5	59.9	63.9	170	53	0.0	4.1	11.
53	549	58.9	171		549	588	13
54	10.9	14.7	172	54	10.8	14.8	13
	30.7	34.8	173		30.9	34.8	12
	56.1	59.9	174		56.1	60.0	12.
55	7 3	11.3	175	55	7 1	11.1	12.
	34.0	38.1	176		34.0	38.0	13
56	17.9	21.9	177	56	18.1	22.0	12.
	45.0	48.8	178		44.8	45.9	1
57	18.1	20.1	179	57	17 7	22.0	1
	57 7	61.7	180		57.8	61.7	13.
58	55.7	59.7	181	58	55.9	59.7	1
59	19.6	23.8	182	59	20.0	—	13.
	20.6	24.6	183		—	24.6	13
0h59	46.8	50.8	184	0h59	46.8	50.7	1
0	8.2	12.2	185	0	8.2	12.3	10
	56.6	60.7	186		56.8	60.7	12
2	45.3	49.2	187	2	45.1	49.1	1
3	17.4	21.4	188	3	17.5	21.3	1
	33.2	37 2	189		33.2	37 2	1
3	58.5	62.4	190		58.4	624	13

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1859phae.proj.:2288

12	9	48	doubtful Dec			12,13	9	50	
11	9	03			9.5	11,12	9	04	
	D.B.D								
13	10	00				12,13	10	01	
11.	9	16			9.1	9,10	9	18	
13	1	17				12.13	1	38	certain
13	4	34				12,13	4	35	
12	10	12				11,12	10	15	
	D						D.		
12,13	5	19				12	5	18	
12,13	5	09				12	5	10	
	B						D.B		
13	1	06				12,13	1	06	
12,13	7	57				12	7	59	
	B.D.B								
13	1	13				12.13	1	13	
13	1	03				12.13	1	00	
13.14	0	59				12,13	0	58	
	D.B						D.B.D.D.		
13	6	56				12,13	6	59	
13.14	1	33				12	1	32	2d w. lost.
13	8	00	N.S			12.13	8	01	1st w. lost.
	B.								
12	9	29				12	9	40	sun
10,11	2	53			8.9	9.10	2	54	
	D								
12.11	7	57			9.3	10.11	7	57	
13	7	40				12,13	7	40	first wire doubtful
12.	0	20				12	0	20	
13	5	09				13, 14	5	10	
	D.B.D.B								
13.12	1	41				12,13	0	40	sun
							D.		

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137 22h 20m – 0h 14m 138

h				h			
4	26.0	30.0	191	0h 4	26.1	30.0	12
	27.2	31.3	192		27.3	31.1	12
	35 5	39.3	193		35.2	39.1	12
5	43.1	46.8	194	5	43.1	46.9	1
	45.2	49.1	195		45.3	49.2	1
6	3.0	7.0	196	6	2.8	7.0	1
	12.8	16.8	197		13.0	16.8	1
7	30.0	34.2	198	7	30.0	34.1	12
8	59.0	—	199	8	59.2	63.1	1
9	3.0	7.1	200	9	—	7.0	1
	58.8	62.9	201		59.0	62.8	1
10	4.2	8.1	202	10	4.2	8.3	1
	34.7	38.7	203		35.0	38.9	7
11	38.3	42.0	204	11	38.4	42.2	1
12	36.6	40.4	205	12	36.8	40.6	1
12	47.3	51.2	206		47.2	51.2	12
13	46.6	50.6	207	13	46.7	50.6	12
14	12.4	16.5	208	14	12.3	16.5	1

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137 $0^{\circ}52'$-$60'$ - 138

12	3	21		12	3	20	
12	4	41	n.s	12	4	40	
12	3	53	sec wire doubtful	12	3	55	
					D. B		
13	6	02		13	6	03	
13,14	5	11		13,14	5	10	
12	8	07		12	8	07	
13	6	10	?	12	6	10	
	B. B. B.						
12,11	-0	08	perfectly starless field (clouds)	11	-0	08	perfectly starless field
13	6	09	n.s sec wire lost	13	6	10	
12	1	59	n.s		0	58	sure first mer bar
	D						
12,13	9	44		12	9	43	
11	7	00		10,11	7	02	
7	4	20	cal. star, 4 23 on sec scale 7.0	6.7	4	21	
14	5	53		13.14	5	56	
	D. B						
13	7	12		12	7	13	
12.13	2	34		12	2	33	
12	last dec		on account of damp comp of 14 may fail 10"	12	10	14	comp. 14 may 10" n. f.
13	1	05		12	1	04	
					D		

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Zone 139 $0^h.10^m$ 33–$2^h.13^m$.35 Zone 140

Date. 1859 Nov. 30th

pos. circle 352° 11½ this position was determined near the meridian on the night the instrument is ½ ± hour by east of meridian

at beginning
- EC 22 42 00
- att th 67.0
- Bar 30.142
- ext th 46.½

at end.
- EC 0 58 00
- Bar 30.151
- att th 66.5
- ext ther 45.3

Obs. S.C

Rec. A.H

weather Calm – haze gradually increasing

telescope East of pier

continued from zones 137. 138

Obsev. hard to make in the 7 minutes scale also in the 10 m.

Date dec 12th (?)

pos. circle 351°.48½ a star of zone 140 was made to run along division 4 of scale – does not agree with zone 139 or 140 the last zone is correct.

at beginning
- EC 23 41 00
- Bar 29.903
- att th 64.0
- ext th. 16.¼

at end
- EC 2 20 00
- Bar 30.035
- att. ther. 62.0
- ext. th. 10.0

Obs. SC

Rec. AH

weather Cold & high wind

telescope West of pier

Number of stars 147

0^h	10^m	33.2	37.2	1	0^h 10^m	33.3	37.4
	11	36.6	40.5	2	11	36.8	40.7
	12	35.0	39.0	3	12	35.2	39.1
		45.6	49.5	4		45.8	—
	13	45.0	48.7	5	13	45.2	49.1
		D					
	14	11.0	15.0	6			
				7	16	—	16.3
	16	17.8	21.8	8		18.3	22.2 *

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Zone 139 $0^h\,50'$-$60'$ Zone 140

Nom	Mag	R	Decl.	Nom	Mag	R	Decl.
5	6.7	$0^h\,10^m\,33.4^s$	$0°\ 54'\ 25''$	57	8.9	$1^h\,56^m\,18.1^s$	$0°\ 55'\,48''$
22	9	38,22.6	56,10"	59	8.9	56,47.8	55',15"
42	6.7	1 15,21.6	59'.20"	68	9	2^h 9,56.6	51',15"
44	8	25,4.0	50'.45"	70	9	13,08.8	56,30"
46	8.9	33,37.1	54'.41"	74	9	18,07.5	56',48"
53	9	47,13.9	57'.53"	78	8.9	25,30.6	58'.58
54	9	49.26.4	56'.59"				

D

6.7 4 22 δ 23 sig. to both wires Catstar (8 14h 4m) 6.7 4 23 Meteor from n.p. to s.f.

13 5 57 13 5 59 Dec wire ½

13 7 20 12,13 7 17 doubtful but to observe

XI,XII

13,12 2 34 12,13 lost in Dec. Dec wire lost

12 10 12 double star Dec 12,13 10 19
dist 1' comp.

D

Stables field

13 1 06 not seen

13,12 7 23 not ob. in afn 12,13 7 28 first wire lost

12,13 1 33 12,13 1 48 Lamp lost

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h					h			
17	21.1	25.0	7		0 17	21.2	25.3	11.1
18	34.9	38.8	10		18	35.4	39.3	13
19	17.8	21.7	11		19	18.1	22.0	13
			12			42.0	46.0	12
	D					d		
20	39.8	43.8	13		20	40.1	44.1	12
	50.1	54.0	14			50.5	54.2	13
			mj					14
22	49.6	53.6	15	+0.03	22	50.0	—	−0.13 13
23	7.3	11.1	16		23	8.0	11.8	12
	18.3	22.3	17			18.7	22.4	12
	39.6	43.6	18			40.1	44.0	10
	DB					b		
25	10.1	14.1	19		25	10.3	14.2	12
	52.2	56.2	20			52.3	56.4	11
			mj					14
27	43.3	47.3	21		27	43.6	47.7	12
	BD							
28	38.5	42.4	22		28	39.0	42.9	11
	48.0	52.1	23			48.4	52.2	12
30	20.4	24.9	24		30	20.6	24.6	11
	32.8	36.7	25			—	37.0	11
	DBD							
31	5.1	9.1	26					14
32	32.9	36.5	27		32	33.0	36.9	13
	47.3	—	28					12
	59.0	63.1	29			d6		13
34	20.5	24.7	30		34	20.8	24.7	10
35	26.7	30.7	31		35	27.1	31.1	10.1
35	34.6	38.6	32			35.0	38.7	
—	41.9	45.9	33			42.2	46.1	11.
	BDB							

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Angle Mg.

11.10	6	21	B. (9.5)	11	6	23	
13	5	35		12	5	39	
13	9	08	elongated	12.13	9	09	
12	−0		lost, not obs. in AR		−0	27	doubtful
	D				D		
12	0	48	n.s.	12	0	49	
13	1	55	< starless field				lost Dec on adv of Ramp
14	6	−	not obs				
13	9	07	−3.8	12	9	08	Dec was lost
12	2	13		12	2	17	first wire doubtful
12	6	58		12	6	42	certain Dec
10.11	0	13	(9.0)	9.10	0	19	
	D.B.		starless field		B.		
12	4	44	close blue comp. S.P.	12	4	46	< focus adjusted
11	8	05	(9.3)	11	8	06	
14	10	−	not obs				
12	9	02		12	9	07	
	B.D.						
11.	0	52	(8.8)	11	0	56	
12.11	4	39	< starless field no star obsv 15 mag	12.11	4	40	
11.10	7	03	9.2)	11.10	7	05	
11.10	0	53	9.1)	10.11	0	57	first wire lost 0 55 on Dec
	D.B.D						
14	6	40+					Dec, not obs.
13	3	09		12.13	3	10	
12.13	10	29	doubtful, Dec wire lost	12	not obs		
13	6	20		12	6	not obs.	
10	8	37	(7.9)(8)	10	8	34	
10/11	5	27	(8.5)(8.9)	10.9	5	28	
11.12	8	43	(9.3))	10.11	8	45	n.s
11.12	9	20		11	9	22	
	B.D.B						

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h					h		
36	50.1	53.9	34		0 36	50.4	54.2
	58.0	61.9	35				
38	19.7	23.7	36	magt changed by S.H.S Sept 26 1862			
			37		38	20.1	24.2
	22.9	26.8	38	8.8		23.0	27.2
38	59.8	63.5	39	10.0	39	0.1	3.89
						6d	
39	54.9	58.8	40	9.5		55.2	59.1
40	42.1	46.0	41	10.2	40	42.9	46.6
41	2.6	—	42	11.0			
41	24.8	29.0	43	9.0	41	25.4	29.2
	31.1	35.2	44	10.8		—	35.7
42	39.8	43.8	45	9.2	42	40.2	44.2
43	20.4	24.6	46	11.0			
	52.0	56.0	47	11.5			
45	15.7	19.7	48				
47	49.4	53.5	49	10.7			
48	11.2	15.0	50	10.5	48	—	15.6
49	12.7	16.5	51	9.5	49	12.8	16.8
49	36.8	40.8	52	8.8		37.1	41.1
	pen		(pen disturbed)				
			53	10.0	50	59.7	63.8
51	37.5	41.4	54		51	37.9	41.9
52	59.4	63.3	55	9.0	52	59.8	63.7
53	26.0	30.1	56	9.5	53	26.3	30.4
						8d6	
54	14.0	17.9	57	9.8			
	35.5	39.3	58	10.5			
	53.5	57.5	59	11.0			
55	15.5	19.5	60	9.3	55	15.7	19.8
56	4.0	7.9	61	9.8			

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1859phae_proj_2285

12	7	08			12,11	8	05	
12	2	—	prec by a 14 mag about 4½ time		12			
12	4	02				not obs		
12,13	3	45	Cat star	8.5	12	3	49	
11	6	18	n.s.	(9th m)	9	6	20	
12,13	7	19			12,13	7	25	hard to read
	D. B. D. B					B. D.		
11.12	6	07		9.5	12,11	6	10	
14	5	20			12,13	5	21	
14	7	01	n.s. see wire list		13	7	—	seen not obs
11	1	53		9.2,	10,	1	08	first seen lost
12,13	2	52			11	2	08	doubtful wire list
11,12	4	09		8.8	11,12	4	15	
	B. D. B. D							
14	1	30	n.s					seen not obs
14	1	19	perfectly starless field					
	10	40	+ last Dn from scale			seen not obs.		
	D. D.		no star above 15 mag.					
14	2	11	slight haze			~~not~~ seen not obs		
13.14	6	40	8		12,	~~seen not obs~~. 6' 42" first w lost		
11,12	8	10	Moonlight	9.3	11.	8	19	Instrument jarred
10.11	5	09	starless field	8.8		5	13	
14	5	—	not obs.			Seen not obs.		
14	3	04			14	2	05	[2.05 cent]
11	0	03	starless field	9.0	10.11	0	09	
11.12	7	22		9.3	11.12	7	26	
12,13	7	03		9.5	12,13	7	09	
	B. B.					B. D. B		
14	1	20				not obs		
14	3	37	Sept 26 1962 [3 27 ?]			not obs		seen
14	2	10				not obs		
11.10	5	58		9.5	11.10	6	02	
	D. D. B.							
14	10	30				not ob		

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h								
	56	32.5	36.6	62	May. Obsd Sept. 26 1862	56	33.0	36.9
	57	34.2	38.3	63		57	34.7	38.7
	58	47.2	51.1	64	10.0	58	47.8	51.8
		49.3	53.3	65	9.0		49.9	53.7
	59	16.1	20.1	66	9.7	59	16.4	20.5
		27.0	31.0	67	10.0			
		- - -					dbdb	
1h	1	30.2	34.2	68	9.5	1h 1	30.5	34.7
		43.2	47.3	69	9.5		43.8	47.8
	3	18.9	23.0	70		3		
		44.1	48.1	71	10.0		44.6	48.6
		--- --- ---						
	5	15.5	19.6	72	9.0	5	15.9	19.9
		54.9	58.9	73			55.6	59.6
	6	13.8	18.0	74	10.2	6	14.3	18.5
		51.1	55.1	75	9.3		51.6	55.5
		- - -					dbdbd	
	7	32.8	36.6	76	9.9			
	8	36.8	40.7	77	9.5	8	37.2	41.0
	9	20.5	24.3	78				
		--- --- ---		rej				
	11	40.7	44.3	79		11	40.8	45.0
	13	30.1	34.2	80				*
								*

	14	39.7	43.4	81				*
	15	22.0	26.0	82		15	—	26.1
		42.2	46.2	83			42.4	46.4
	16	16.0	20.0	84		16	16.1	20.3
		—						
	17	23.9	27.8	85		18	~~1.6~~	~~5.7~~
	18	1.1	5.2	86			1.6	5.7
		37.6	41.7	87			38.3	42.2

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12	-0	21		9.4	12	-0	20	
11	-0	01			10	-0	02	
12.13	1	27			12	0	40	sure false break
11	7	29	n.s.	B. 9.0	11			Dec not recorded
12	2	46			12	2	50	
12.13	7	13	doubtful			not obs.		
	B.B.D		perfectly starless field			D B D. B		
11.12	3	15	readjusted focus B	9.1	11.12	3	19	
12,13	9	06	< no star above 15 mag.		12.	9	10	?
13	-0	20				not obs.		but seen
13.12	1	36		9.5	12,	1	40	
	D.D.D.							
11.12	4	13		9.2	11	4	18	
13	-0	02	n.s.		-13,14	-0	0	
14	0	38			13.	0	41	
11	6	15		9.0	11	6	19	
	B.B.B.					B D. B.D		
13	5	39			~~12~~	~~5~~		not obs
12,13	5	30		9.5	12	5	34	
13.14	3	41	n.s.		13	not obs,		
14	6	–	not obs, does for a minute			not obs,		
13.14	3	50			13.	3	54	< starless field
13.14	3	59	< starless field			not seen		
13	10	–	lost			not seen		
	D.							
13	6	30	n.s.			not seen		
6	9	27	between 27" & 28"	Cat Star 6.5	6	9	33	first was false
10.11	10	14	[8.8	(6.7 from ~~6.2~~)	10	10	18	see was wrong
12	5	40			12	5	43	
	B.							
12.13	0	41			13	0		not obs
11.12	6	11	close comp pair, doubtful		11	6	17	
12.13	2	50			12	2	57	
			no stars above 14 mg					

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19	44.1	48.2	98				
20	22.0	26.0	99				
21	13.3	17.3	90		21	13.9	17.7
	24.6	26.6	91				
22	20.3	24.2	92		22	20.7	24.8
						D.D	
23	——	38.2	93				
	54.5	58.5	94		23	54.9	55.8
24	8.3	12.1	95		24	8.6	12.3
	9.8	13.6	96				
	52.4	56.3	97		24	52.9	56.7
25	4.2	8.2	98		25	4.7	8.7
	55.0	58.6	99			53.2	—
26	1.7	rej.	rej		26	2.2	6.0
	D.B.D						
27	11.0	15.0	100		27	11.7	15.6
						B.B	
27	44.2	48.2	101			44.6	48.5
28	34.6	38.7	102				
			103		29	10.1	14.2
29	56.8	60.6	104				
			105		30	57.0	61.1
30	23.6	27.5	106			4.7	9.0
31	4.0.0	44.1	107			23.8	29.0
						40.6	44.6
32	49.2	53.2	108		32	49.8	53.9
33	19.6	23.3	109				
	21.6	25.5	110		33	22.1	—
33	36.9	41.1	111		33	37.5	41.3
34	7.9	11.7	112		34	8.0	12.1
						D.J.B	

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1859phae.proj.. 2288

13	1	20			14	not obs	Moon up	
12,13	7	—	lost Dec on account of Scale			7 10	not obs	
12	4	45		9.5	12,11	4 50		
12	1	08	double?		12	1 10	?	
12.13	——		not obs.			seen not obs		
12	3	39		9.5	12.	3 40	focus readjusted	
	B		no stars above 14 mag.			D D		
14	1	35	five wires lost			seen o something sure		
.	3	58	six wires lost	8.7		not obs		
10.11	5	53			10.11	5 58		
12	9	40+	Scale		12	9 43		
13	5	+				not there		
	D B							
11.12	6	07		9.8	10	6 00		
10.11	0	48	Cat star (8 mag 8.0)			0 53		
11	10	28		9.2	10	10 31	six wires lost	
11	——		six wires doubtful	9.4			n.s. Dec lost	
	D.B.D							
13	±0	00			13	0 03		
						B.B		
12.11	7	08	or 7		11	7 09		
14	2	50				seen, not obs.		
13	6	—	not obs.		13	~~not obs~~ 6 56		
	B.D.							
12,13	5	10			12,	5 12		
12.13	5	00			12, 13	4 08		
12	10	14		9.5	12.12	5 02		
					12	10 19		
11	1	44		9.0	12	1 48		
12	9	05				not ob		
11	2	31	n.s		11	2 44	sure	
8	4	49	Cat star (8 mag 8.5)		9	4 51		
12	8	00			12.13	8 03		
	D.B.D					D D B	wind falling	

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	34	48 8	5 27	113	1^h		
				114	35	22.0	26.1
	37	38.0	48.0	115	37	38.6	42.6
						57.4	1.0
	38	27.9	31.8	116	38	28.4	32.4
		45 0	49.0	117		45.4	49.4
						B, A. ∞	
	41	37.3	41 4	118	41	38,0	42.1
		54.8	58.7	119		55.1	59.1
	42	20 9	24 8	120	42	21,3	25,3
						∞ ∞ ∞	
	43	7 0	11. 1	121	43	7.6	11.6
	43	35.5	neg.	122		36.5	40.1
	45	4.3	8.1	123			
	46	7.0	11.0	124	46	7.4	11.4
		38.6	42.3	125		38.8	42.9
	47	8.1	12.3	126	47	8.8	12.8
		14.0	18.0	127		14.2	18.2
		38.1	42.1	128		38.5	42.5
						B. B. B	
	48	33.0	37.1	129	48	33.6	37.6
	49	26.5	30.6	130	49	26.8	30.8
		44.3	48.3	131		44.7	48.6
		52.8	56.8	132		53.1	57.0
	50	16.8	20.8	133	50	17.2	21.0
		28.2	32.2	134		28.2	32.4
						B	
	52	4.1	8.0	135			
		52,0	56.0	136	52	52,3	56,2
				137			
	53	26.4	30 2	138		59.8	63.5
					53	26.7	30.9

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1859phae.proj..2285

14	7	24	doubtful Dec	9.5			not obs	
12	10	38?	not obs, perfectly starless field		12,11	10	33	< starless field
	-0	10			13	0	08	a star obs here? wind rising again
12	6	44	doubtful	9.5	12	6	18	
	5	34		9.5'	11	5	39	
	B. for one minute					B.B.D		
						Starless field		
			Haze					
12,13	-0	21			13	0	18	
12	3	45	first wire doubtful		12,13	3	48	
12	7	42			12	7	43	
	B.D.B					D.D.D		
12	2	58			12	3	01	
12	2	58	sec wire doubtful Dec		12	2	59	
12	10	33				not seen		
14	0	57			14	0	58	
13,14	6	00			13	6	02	
11.10	2	04	n.s	9.0	10	3	07	sure
10	9	02	Cat star. (9th ^{m}) 8.7		9	8	06	certain
12	4	41	B 9.4		10.10	4	46	
	D.B.D.B					B.B.B		
12,13	-0	21	< telescope moved in AR		12.	-0	19	
10	7	02	Cat star (9th ^{m})	8.5	10.9	7	06	< 9.4 mag B brt.
12	7	36	B 9.4		12	7	38	
10	9	31		9.0	10	9	37	< 9.5 brt.
12	9	10	sec wire doubtful		12.11	9	09	
12	lost on account of Scale				12.11	9	48	
	B.D.B.D					B for one minute		
12	-0	15		9.5		not seen		
12	0	49		9.5	12	0	53	
13	0	00			13	3	00	
					12.13	0	02	

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1859phae.proj..228S

34	48 8	5 27	113	1^h			14
			114	35	22.0	26.1	12
37	38.0	48.0	115	37	38.6	42.6	
					57.4	1.0	
38	27.9	31.8	116	38	28.4	32.4	12
	45 0	49.0	117		45.4	49.4	
					B, B. ∂		
41	37.3	41 4	118	41	38,0	42,1	12
	54.8	58.7	119		55.1	59.1	12
42	20 9	24 8	120	42	21,3	25,3	12
					∂ ∂ ∂		
43	7 0	11.1	121	43	7.6	11.6	12
43	35.5	neg.	122		36.5	40.1	12/2
45	4.3	8.1	123				12
46	7.0	11.0	124	46	7.4	11.4	14
	38.6	42.3	125		38.8	42.9	13.
47	8.1	12.3	126	47	8.8	12.8	1.
	14.0	18.0	127		14,2	18.2	1
	38.1	42.1	128		38.5	42.5	1
					B. B. B		
48	33.0	37.1	129	48	33,6	37,6	1
49	26.5	30.6	130	49	26.8	30.8	1
	44.3	48.3	131		44.7	48.6	1
	52.8	56.8	132		53.1	57.0	1
50	16.8	20.8	133	50	17.2	21.0	1
	28.2	32.2	134		28.2	32.4	1
					B		
52	4.1	8.0	135				1
	52,0	56.0	136	52	52.3	56.2	1
53	26.4	30 2	137 138		59.8	63.5	1
				53	26.7	30.9	

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14	7	24	doubtful Dec	9.5		not obs		
12	10	38?	not obs, perfectly starless field		12,11	10	33	∠ starless field
	-0	10			13	0	08	a star do here? wind rising again
12	6	44	doubtful	9.5	12	6	18	
	5	34		9.5'	11	5	39	
	B. for one minute					B.B.D		
						Starless field		
			Haze here					
12,13	-0	21			13	0	18	
12	3	45	first wire doubtful		12,13	3	48	
12	7	42			12	7	43	
	B.D.B					D.D.D		
12	2	58			12	3	01	
12	2	58	see wire doubtful Dec		12	2	59	
12	10	33				not seen		
14	0	57			14	0	58	
13.14	6	00			13	6	02	
11.10	2	04	n.s	9.0	10	3	07	sure
10	9	02	Cat star (9^{tm} 8.7		9	8	06	certain
12	4	41	B 9.4		10.10	4	46	
	D.B.D.B					B.B.B		
12,13	-0	21			12.	-0.	19	
10	7	02	← telescope moved in d R Cat star (9^{tm}	8.5	10.9	7	06	∠ 9.4 mag B bet.
12	7	36	B 9.4		12	7	38	
10	9	31		9.0	10	9	37	
12	9	10	see wire doubtful		12.11	9	09	∠ 9.5 bet.
12	lost on account of Scale				12.11	9	48	
	B.D.B.D					B for one minute		
12	-0	15		9.5		not seen		
12	0	49		9.5	12	0	53	
13	0	00			13	3	00	
					12.13	0	02	

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1859phae.proj..228S

1h 54	51.7	9.5	139	1h 54	5.9	10.0	
56	11.3	15.6	140	56	12.0	16.1	
	18.5	22.3	141		18.8	22.8	
	48.1	52.2	142		48.6	52.6	
58	4.2	8.2	143	58	4.7	8.9	
2h 59	37.3	41.2	144	59	37.7	—	
2h 0	55.1	59.0	145	2h 0	55.3	59.4	
			146	2	48.6	52.7	
			147	3	56.1	60.2	
			148	4	3.3	7.1	
					D		
2h 56	44.9	48.9	149	5	45.2	49.2	
6	54.0	57.8	150	6	54.4	58.5	
8	1.9	5.9	151	8	2.2	6.4	
c	32.4	36.4	152		32.5	36.6	
9	23.4	27.3	153	9	23.9	27.5	
			beginning of zones				
9	57.1	61.0	154		57.4	61.6	
12	29.7	33.6	155				
13	5.3	9.2	156	13	5.8	9.8	
	9.8	13.7	157		10.3	14.3	
	48.7	52.4	158		48.9	53.0	
					D		

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13	0	59	< stakes field		12,13	0	58	< stakes field
11	5	17	n.s	9.5	11	5	19	
9	5	52	Cat star ($8^{tn}-9^{tn}$ m)	9.0	9	5	57	
8,9	5	21	Cat star ($8^{tn}.9^{tn}$ m)	9.0	9	5	24	or 25
	D.D.							
13	4	14		9.5?	12,13	4	16	
12	10	30	doubtful Dec		11	10	30	see wire lost
13	4	50	doubtful Dec < passing stakes field	9.5?	12,13	4	56	stakes field
			Haze.					
					13	6	05	
					12/13	10	03	comp 14^m s. f.
				~~9.5?~~	12,13	9	10	
					D			
12	2	53			13	2	56	
12	3	37			12	3	40	
	B.B.							
12	7	00			12	7	01	
9,10	10	02		9.0	10.11	10	00	
12	6	47			11.12	6	50	
1	4	5	- 146					
10	1	18	Cat star (9^{tn} m)	9.0	8	1	20	< stakes field
12,13	—— not obs.							
11	2	49	Hazy	9.5	12	2	51	see wire doubtful
12	7	20	n.s		12	7	20	see wire doubtful
10	6	33	cat. n.s (Cat star (9^{tn} m)	9.8	10	6	35	n.s
11	8	39			11.12	8	44	
	D.D.B				D			

Thick haze

17

~~Dec, circle 171 — 48½~~

Observation hard to make from cold stars out of focus - scale in focus

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1859phae.proj..228S

Zone 141 — 23h 44m 55.4s — 1h 44m 30s — Zone 142

Date 13th Dec. 1859
position circle 352 16½
determined from 1st star of zone 141 previous to observing

		D	m	s
at beginning	Eb	1	31	00
	Bar.	30.495		
	att th	68.0		
	ext th	15.0		
at end	Eb	4	00	00
	Bar	30.498		
	att th	62.0		
	ext th	12½		

Obs. S C
Rec A H
weather cold clear and calm. towards the end gathering clouds
telescope East of pier

Date 15th dec. 1859
position circle 352.16½
(see zone 141)

at beginning	Eb	0	00	00
	Bar.	30.164		
	att th	66.½		
	ext. th	22.¾		
at end	Eb	2	10	00
	Bar.	30.194		
	att th	61.½		
	ext th	19.0		

Obs. S.C.
Rec. A.H.
weather clear & calm
telescope East of pier

Continued from zones 133 & 136 bis

number of stars in zone 141 observed in declination 180

number of stars in zone 142 observed in declination 187

Rem Scale screw hard to work probably moving the telescope continually in R, back & forwon

23h	44m	55.4	59.5	1	23h 44m	55.8	59.9
	45	6.0	10.0	2	45	6.5	10.5
		33.6	37.5	3		34.0	38.1
	46	53.5	57.3	4	46	54.0	58.0
	47	32.7	37.0	5	47	33.3	37.3
	48	56.2	60.1	6	48	56.6	60.6
	49	47.7	51.6	7	49	48.2	52.3
	51	11.2	15.1	8	51	10.2	14.4
				9		11.8	15.4

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1859phae.proj..220S

Zone 141 0°, 40′–50′ Zone 142

D				D. B.		
10	3	50	9.2	10	3	50
8.9	3	29	8.8	9	3	28
12	0	50		12.13	Dec lost	
	D.					
11,12	7	59		12	7	59
13	not obs					
12	8	54?		12	8	52
11.12	7	09	9.0 comp n. f 10″ of 14 mag	12.11	7	10 comp 12.14 mag n 10″
12	7	52		12	7	51
11	9°	03 post of lamp altered 9.5		14	7 5	42 comp 14 mag s.p. slightly
				11	9	03 dist comp n.p. 12″
				14	5	52 double comp p.s

(8) (8)

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1859phae.proj..228S

Zone 141	$23^h\,44^m - 1^h\,44^m$			Zone 142			Z
23 5	24.0	28.0	10	23^h			* 11.1
52	51.8	55.8	11				13
53	53.3	57.3	12				13
							* 13
54	39.8	43.7	13	54	40.3	44.3	11
55	14.7	18.8	14	55	15.4	19.4	12
	55.9	60.0	15		56.5	60.6	12
56	28.3	32.2	16	56	28.8	32.7	10
	55.5	—	17		56.1	59.7	12
	59.3	63.0	18		59.7	63.7	12
57	35.8	39.9	19	57	36.2	40.2	9
59	36	7.4	20	59	3.8	7.9	12
57	41.5	45.4	21		41.9	46.0	12
0^h 0	9.6	13.6	22	0^h 0	10.3	14.2	12.
1	56.3	60.6	23	1	56.9	60.9	13
3	19.0	—	24	3	19.8	23.5	12
4	28.6	32.3	25	4	29.1	33.2	* 12
	50 0	53 8	26		50.8	—	12
	57.9	61.8	27		58.2	62.2	11
6	11.8	—	28	6	12.2	16.0	12.
	17.3	21.3	29		17.9	21.9	12
	23 3	—	30		24.1	27.9	12.
	40.8	447	31		41.3	45.3	12
7	31.3	35.3	32	7	31.9	35.9	11.
8	9.7	13.9	33	8	10.4	14.2	13
	23.3	27.2	34		23.8	27.7	1.

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1859phae.proj...22GS

Zone 141 — 0°. 40′–50′ — Zone 142

11.12	4	34		not obs			seen on Dec 16
	B						
13	1	30		13	1	33	lost in RR
13	not obs						
13	5	08	?	not obs			seen Dec 16
11	7	45		12,11	7	44	
12	4	51		12	4	49	
12	5	21		12,	5	22	
	D. B						
10	8	40		9	8	40	
12	1	01	2° wire lost	12	1	02	Dec wire lost
12	7	08	n.s ~~on Dec scale~~	12	7	07	n.s
					D		
9	5	47		9,10	5	48½	∠ no stars above 14
12	0	lost	Dec	12,13	0	49	
12	3	23		12	3	23	
	B. D.				B		
12,13	2	34	∠ stars in field	13	2	35	
13	0	59	∠ no star above 13th	14	0	58	no star above 14
12	−0	26	2° wire lost	13	−0	27	
* of	2	00	not obs	12.X			
12	0	21		12−	0	22	n.s
12	lost Dec			12	0	28	n.s Dec wire lost
11	7	59	B 9.5	11	7	59	
12,13	2	04	2° wire lost	13	2	03	n.s
12	2	34		12	2	36	n.s
12.11	3	25	dist comp. f. 2° wire lost	12,11	8	28	comp f. slightly south 23″
12.13	1	39		12	1	38	
	D, B, D						
11.12	10	30		10.11	10	21	
13	8	29		13 +	8	30	
13	6	11		13+	6	12	

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1859phae.proj..228S

Zone 141 — 23h 49m – 1h 44m — Zone 142

	8	42.9	47.1	35		0h	8	43.8	47.6	13
		48.2	51.9	36				48.7	52.4	13
	9	10.5	14.3	37			9	10.8	14.9	12
		19 9	23.7	38				20.3	24.1	
								d b		
	9	54.6	58 4	39	Mean Anl by J.H.S. Sept 26 1862		9	54.8	58.9	13
	10	74.1	48.0	40			10	44.6	48.5	12
	11	22.5	26.4	41	9.7		11	22.9	26.8	12,1
		31.4	35.3	42	11.5			31.7	35.8	12,1
	12	9.4	13.4	43	10.2		12	9.9	13.9	12
		46.2	50.2	44	8.0			46.8	50.7	8.
	13	38.8	42.8	45	11.0		13	39.4	43.3	12,1
	14	1.3	5.3	46	10.5		14	1.8	5.6	12
	14	2	9.0	47	10.7			9	9.7	12
		17,2	21.2	48	10.0			17.8	21.8	12,1
								b.d		
	15	2.9	6.9	49	10.2		15	3.6	7.5	12
	16	43.3	47.2	50	8.7		16	43.7	477	12
	17	5 9	9 9	51	8.0		17	6.3	10.3	8
	18	31.7	35 4	52	12.0		18	32.0	36.0	1.
	19	19 0	23.0	53	11.5		19	19.5	23.6	13.
		44.7	48.7	54	10.8			45 0	49.0	12.
	20	27.6	31.6	55	11.2			28 4	32.3	1.
	21	44 4	48 4	56			21	45 0	48.9	1.
	22	15 4	19.3	57	10.9		22	15.7	19.8	1
	23	42.5	46 4	58	9.0		23	43.0	—	1
		48 3	52.3	59	9.5			49.0	52.9	1
		56.4	60.5	60	9.2			56.8	60.8	11.
								d b d		
	24	31 0	35 8	61	9.7		24	32 4	36 4	12

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1859phae.proj...22dS

Zone 141 — 0° 40′-50′ — Zone 142

13	0	28		13,12	0	30	
13	0	58	1st wire lost	13.12	1	00	n.s
12	5	10		12	5	11	
	9	—		12	9	47	one ✱
	B.D.B				D,B		
13	5	16	!	13	5	18	
12	2	47		12	2	47½	
12,11	4	19	9.4	12,11	4	19	
12,13	3	50		12	3	51	
	D.B.D.B						
12	0	47		12	0	47½	
8.9	8	35	7.9	8	8	36½	
12,13	4	56		12	4	55	
12	0	20		12	0	24	
12	7	38	1st wire lost	12	7	41	first wire lost
12,11	3	38	9.5	12,11	3	39	
	B.D.B.D				D		
12	9	13	∠ Starless field	12	9	11	∠ Starless field
Dots are minute							
12	6	02	8.8	11.10	6	02	certainly larger than 12 mg
8	7	20	wagon passing Stakes the Instrument 8.0	8	7	23	
12 11	4	41	faintly nebulous D		4	42	faintly nebulous?
13,14	3	20±		13,14	3	20	close double?
12,13	10	12?	dist comp north	13	10	13	comp n. p
13	5	49	∠ Starless field	13	5	38	∠ Starless field
12	0	13		12	0	15	
12	1	08	9.5	12	1	57	
10,11	10	51	∠ no ✱ above 14 mag 9.0	10,11	10	49	see wire lost
11,12	7	48	on sec scale corr.?	11	7	44	
11.12	5	51	9.3	11.10	5	53	
	D				D.D.D		
12,11	7	57	n.s 2.5	12	7	57	

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1859phae.proj..228S

Zone 141 — $23^h\,44^m = 1^h\,44^m$ — Zone 142

Mag. of Obs. by Sylvester 7.4.5 / 1862

	24	45.2	49.1	62	8.5	0	24	45.6	49.7
	26	34.2	38.6 ?	63	11.5		26	35.2	39.0
		46.0	50.0	64	10.0			46.7	50.7
	27	38.6	42.6	65	10.5		27	39.3	43.2
		55.5	59.4	66	9.5			56.0	60.1
		b						8 d b	
	29	48.0	52.0	67	9.3		29	48.7	52.5
	30	19.6	23.5	68				53.6	57.6
		55.0	59.0	69	9.5		30	20.0	23.9
				70	11.0			55.3	59.6
	31	11.7	15.7	71	10.3		31	12.3	16.2
		12.9	16.3	72	10.0			12.9	16.8
		37.4	41.2	73	9.3			37.8	41.7
		d b							
	32	16.7	20.7	74	9.5		32	17.2	21.1
	33	33.8	37.7	75	11.5		33	34.2	38.2
	33	55.5	59.5	76	10.0			56.1	60.0
	34	46.1	50.0	77	9.8		34	46.7	50.7
	36	2.0	5.6	78	10.5		36	2.3	6.3
		42.5	46.3	79	9.8			42.9	46.8
	37	36.9	41.0	80	10.2		37	37.3	41.3
	38	22.6	26.6	81	11.0		38	23.0	27.0
	38	44.3	48.3	82	9.5		38	44.8	48.6
	39	8.4	12.5	83	9.8		39	8.9	12.9
		b d							
	39	29.9	33.9	84	10.2			30.4	34.3
		36.2	40.3	85	8.5			36.8	40.7
	40	33.7	37.6	86	10.3		40	34.9	38.1
	41	41.0	44.9	87	10.7		41	41.4	45.6
		48.0	53.0	88	10.0			49.7	53.6
				night.			42	16.3	20.2

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1859phae.proj...226S

Zone 141 — 0.° 40 14 – 50 ' — Zone 142

10.9	4	30		8.3	10	4	33	
13.14	0	59	false break		13	0	59	
12	0	56		9.5	12	0	59½	
13	3	04	comp. n.p. of 13 mag. about 11"		13	3	04	sure Comp n.p 13th mag
12,13	8	47?	Starless field		12	8	47	Starless field n.o to above 16 mag B D B
12	8	41		9.5	11	8	41½	
12,13	9	37		9.5	12,13	9	10.27	sure
13	2	17			13	2	17	
					13	2	17	
12	4	08		[8.9.0]	12,11	4	08	
12	4	18	n.s		12,11	4	18	
12.13	5	50	D. B	9.4	12,	5	50	
13,12	7	57	no * above 13 mag		12	7	56	
13.14	7	06±			13,14	7	03?	
13	3	00			12	3	00	
12,13	2	57			12,13	2	58	
13	2	39	dist comp of 13.14 p.n,		13	2	40	no * above 14 dist comp n.p about 25" ±
12	4	01	on Dec scale 4 02		12	4	00½	
12,13	7	53			12	7	53	
13	4	20			13	4	20	
12.	5	07	northern most * of triangle		12	5	07½	northern most of triangle
13	5	57	B. D		13,12	5	59	
13	6	19			13	6	22	
10	7	01	on 2d scale 7 03	8.5	10	7	04	
13	8	32			12	8	32	elongated
13	2	52			12–	2	53	
13, 12	2	37			12+	2	39	
13	no	ob						ns

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Zone 141 — $23^h\,44^m$ — $1^h\,44$ — Zone 142

42	26.2	30.3	89	0^h 42	—	30.6	1
	57 2.	60.9	90		57 3	61.3	13,
	d.b.d.						
43							
43	45.0	48.9	91	43	45.3	49.3	14
			repeat	45	11.7	which were ? 1st wire	
45	36.1	40.2	92		36.7	40.7	1
	48.2	52.1	93	45	48.7	52.5	1
46	12 5	—	94	46	13.0	17.0	12
	59.6	63.8	95	47	0.0	4.2	1
			96		5.8	10 0	1
48	34.8	38.7	97	48	35 0	39.2	14
49	.5	8.6	98	49	5.4	9.2	1
	21.3	25.4	99		21.8	25 8	12,
50	26.4	30.3	100	50	27 0	31.0	12,
51	22.9	26.7	101	51	23.1	27 0	1
	39.1	43.2	102		40.7	43.6	1
	40.6	44 5	103		40.7	—	10
	b.d.b.				d.b.		
54	9.6	13.7	104	54	10.1	14.0	1
	20.4	24.3	105		20.8	25.0	1
56	59.7	63.7	106	56	0.3	4.1	19
56	35.6	39.5	107	56	35.7	39.8	12
	50.3	54 0	108		50.4	54.4	1
	53.2	57.2	109		53.6	57 6	1
57	16.7	20.8	110	57	17 1	20.9	12
	37.1	41.2	111	57	37 6	41.5	9.
	d						

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Zone 141 . 0°, 40'–50' . Zone 142

12	0	07			12	0	07	1st w. Cost.
13, 14	6	52			13	6	52	
	D, B, D							
14	2	37±			13.[illegible]	2	37	
perfectly Starless field					perfectly Starless field 14 mag 7 : 34			
13	7	42			13	7	41	
13	8	50			13	8	50	
12, 13	9	00	2d wire lost		12	9	08	
12	2	27		9.5	12	2	29	
13	not obs.					6	32	
no * above 14 mag.								
14, 15–	8	28±			14	8	29	
13	0	52			13	0	52	
12, 13	6	12	[illegible]		12, 13	6	13	
12, 13	6	06	double? not double		12, 13	6	06	double? not double
13	6	38	?		13	6	37½	
12	9	08	n.s on 2d scale 9 09		12	9	07	
10, 11	10	38		9.0	11	10	36½	
	B, D, B					D, B		
Break for one Minute								
Ins luminous centrally in A.R								
12, 13	4	43			12, 11	4	43	
10	2	48	on 2d scale 2 50	8.8	10	2	50	
perfectly Starless field								
15–	6	55–			14, 15–	6	58	n.s
12, 11	10	12		9.4	10	10	11	
12	6	57	n.s 6 47 on Sc 16	9.5B	12	6	47	sure I can
11, 12	5–	40		9.2B	12	5–	44	
12, 13	9	13			12, 13	9	17	
9, 10	10	32		8.7B	9	10	33	
	D							

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Zone 141 — 23h 44m = 1h 49m — Zone 142

6h	58m	16.8	20.7	114	0h	58	17.3	21.2
		51.5	55.4	113			52.1	55.8
		53.9	58.1	114			54.5	58.5
	59	5.9	9.8	115		59	6.4	10.3
		11.0	14.8	116			11.2	15.2
		17.8	21.6	117			18.4	—
		44.1 b	48.0	118			47.7 d.b.d.b.	48.6
	1h 0	32.6	36.6	119		1h 0m	33.0	37.0
	1	6.4	10.2	120		1	6.8	10.7
		20.9	24.8	121			21.0	25.3
		—	28.6	122				
		d b		123			37.8	41.6
	2	1.9	6.0	124+1		2	2.3	6.2
		4.8	8.8	124			5.0	9.1
		28.3 6d	32.1	125			28.4	32.7
	3	20.9	24.9	126		3	21.4	25.3
		22.0	26.0	127			22.4	26.3
	4	9.7 6.d.	13.7	128		4	10.3	14.2
				129			58.6	62.6
	5	35.7	39.8	130		5	36.1	40.2
		53.1	57.0	131			—	57.5
		58.1	62.1	132			58.3	62.7
	6	—	14.9	133		6	11.0	14.8
				134			19.6 w.w?	
		46.6 d	—	134+1				
		58.9	63.1	135			59.3	63.1
	7	4.7	8.7	136		7	5.3	9.3
		6.3 d.b.d.	10.3	137			6.8	10.8
	8	22.1	26.1	138		8	22.5	26.5

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Zone 141 | 0°40′–50′ | Zone 142

13	0	08			12	0	10
13	4	40			12,13	4	41½
13	4	09			12,13	4	09½
11	2	13		8.8	10	2	15
12.11	Dec lost				12.11	3	38
12	Dec lost			9.4	14	8	55 n.s, Dec wire lost
13	8	46			13	8	47
	B					D.B.DD	
11	0	14		9.0	11	0	16
12,13	6	54			12	6	54
12	3	27		9.3	11	3	26
13	4	00	n.s 1st wire lost			nr com seen on Dec 16	
	D.B				12,13	6.43	
12,13	8	11			12,	8	11
12,13	6	51	n.s		12	6	53 extra
12,13	−0	10			12	−0	07
	B.D						
13	2	39			13,12	2	39
13,12	10	10	n.s		12	10	10 n.s
13,12	5	19			12	5	20½
	B.D						
13,14	8	—	not obs.		13,14	8	34
12,13	5	51			12,13	5	52
13,12	6	49			12	6	49½
12	10	30	n.s		11.12	10	— lost dec
12	−0	03		9.5	12	−	14
	0	—	not obs		14	0	00
	D					D	
13	0	38	D wire lost			seen not obs	
10	5	38		8.5	9.10	5	38 comp
12.13	4	30			13	4	31
12,13	5	139		9.5	11.13	5	18
	D.BD						
11.12	3	07		9.0	11	3	09

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Zone 141 — $23^h\,44^m = 1^h\,44^m$ — Zone 142

19	0.2	4.0	139	9	0.7	4.4	
	8 d b						
10	37.0	41.0	140	10	37.5	41.5	×
11	25.6	29.7	141	11	26.1	30.1	
12	10.8	14.8	142	12	11.4	15.3	
d. b. for a m.			143	15	20 5	24.4	
15	58.9	63.1	144		59 5	63.7	
	9.7	13.9	145 146	16	30.7	34 8	17 7.8 11.5
17	9.7	13.9	147	17	10.3	14 2	
	44.8	48.6	148		45.2	49.3	
16	8.0	12.1	149	18	8.5	12.6	
	16.5	20.6	150		17.2	21.0	×
	23.7 b	27.6	151		24.3	28.1	
	—	56.0	152				*
17	35 9	40.1	153	19	36.3	40.3	
19	18.5	22.5	154	21	19.1	229	
	38.2	41.9	double pt in R 155		38 6	42.7	
	39.6 d b	43 5	156		40.0	43.8	
20	48.5	52.7	157	22	49.1	53.1	
21	58.5	62.3	158	23	58.7	62.7	
22	18.1	22.3	159	24	18.5	22.6	
	b. d		160		44.0	47.0	
24	12.9	17.0	161	26	13.5	173	
	13.9	179	162				
			163		49.2	53.1	
			164 very r	28	50.6	54.8	59.3 63.3
29	37.2	41.2	165	29	37 5	41.6	
30	2.9	6.8	166	30	3.2	7 2	

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Zone 141 | 0°. 40'-50' | Zone 142

13.14	1	33	2d wire doubtful B.D.B	12,13	1	34	
13	9	57		13	9	52½ ?	
13,14	6	35 ±		13	6	33	
13	1	28		12,	1	29	
			~~B~~ 13 for one minute	13	1	56	
11,12	7	04		11	7	04	
13,14	not obs.			13	1	12	
12.14	6	47		13	3	09	
				13	6	46½ n.s	
13,14	9	50 ±		12	9	48	
10.9	4	18	D.D	8	4	19	
13,12	7	32		13	7	28 ?	
12,13	7	29		12	7	29	
			B.				
13	9	50	1st wire lost	9.5?	not seen	seen on Dec 16	
13.14	9	03	No * above 14 mag	13	9	02	
14,13	9	08		12,13	9	06	
12.13	2	58	AB doubtful	12	2	58½	
12	8	49	n.s D.B	11	8	48	
14	0	35 ±		14	0	33	
14	2	30		13	2	30	
12.13	5	39	B.D	12	5	39	
				13	10.3	8	
13	3	54		13	3.5	3	
13	10	46 ±		13			
	perfectly Charles field						
13.14	7	—	cloudy	12	7	43	
13.14	1	—		—	1.	37	
12	4	11	fake Rock 9.5	11.10	4	12	
12	8	12		11	8	18	

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Zone 141 — 23h 44m = 1h 44m — Zone 142

30	26.3	30.3	167	1h 30	36.8	40.6	11
			24		51.0?	9—?	
31	50.8	54.8	168	31	5—?	55.0	12
							13
32	14.3	18.1	169	32	—	18.7	14
33	9.4	13.3	170	33	9.8	13.8	12.
	10.3	14.2	171		10.7	14.9	12.
	d. 8. d						
34			172	34	36.2	40.2	
	36.5	40.3	173		37.0	40.8	12
							12
	50.0	53.9	174		50.3	54.1	12
36	33.0	36.8	175	36	33.3	37.3	12
37	2.9	6.8	176	37	3.3	7.2	12
	13.4	17.3	177		13.8	17.8	12.
	41.3	45.2	178		41.7	45.7	13.
	Clock not a seconds beat						
38	59.9	—	179	38	0.3	4.3	12.
							1
38	3.3	7.1	180		3.7	7.7	12.
	14.6	18.5	181		—	19.0	1
	d						
	48.0	51.8	182		48.3	52.2	12.
39	2.9	7.0	183	39	3.2	7.3	13
	32.0	36.0	184		32.5	36.5	12
	d. b				8		
			185	40	4.1	—	13
40	14.5	18.7	186	40	15.0	18.9	11.
	30.7	34.8	187		31.2	35.0	12.
					Zones 143 & 144		
	55.6	59.6	188		56.1	60.1	11.
41	3.0	6.7	189	41	—	7.1	13
	40.5	44.3	190		40.8	44.9	12

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1959phae.proj.:228S

Zone 141 | 0°.40'-50' | Zone 142

11	0	40			11	0	41	
						−0	09	} are wk obs ?
12.10	8	22				8	20	
10	0	not obs						
14	7	03±				7	01	first wk obs
12.13	1	59				1	59½	
12.13	5	13	n.s			5	15	
			clouds					
	D.B.D							
					14	2	00	
14	1	58			14	2	00	
13.14			not obs. obs.					
13	4	11			13	4	12	
								Instrument struck with head
12.13	4	56		9.5	12	4	56	
12	1	27		9.5	11	1	26½	
12.11	1	32		9.2	11	1	31	
13,12	10	28 ?			13	10	23	
	B							
12.13	10	19	n.s		12	lost		
12.13	9	59			12	10	00	
12	3	13			12	3	14½	
	D.							
12.13	−0	29			12	−0	30	
13	4	28			13	4	30	
12.13	9	19		9.5	12,11	9	16½	
	D.B					B		
13.	2	—	not obs.		12	2	20	on wk list
11.12	−0	30		9.5	11	−0	30	
12.13	2	09			12	2	09	
			begin here					
11.10	8	51	first star of zones 143,144	9.0.	10	8	52	first star of zones 143. 144
13	4	10			12	4	13	On Sid. Scale corr.
12.13	10	13			12,13	10	13	
			probably stables bad					

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Zone 141 — $23^h 44^m = 1^h 44^m 30^s$ — Zone 142

43	23.0	27.1	191	1^h 43	23.1	27.3	
	33.2	37.0	192		33.3	37.5	
44	14.5	18.6	193	44	15.0	18.8	
	30.1	34.3	194		30.6	34.6	

27

0.0	49	
0.1	76	0.76
0.2	35	1.40
0.3	16	1.44
0.4	1	0.16
	177	2.76

0.0156

0.125

± 0.084

± 0.059 Pr. error of 1 wire

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1959phae.proj..228S

Zone 141 0° 40'-50' Zone 142

13	7	50±		13	7	49±	
13	8	14±		13	8	12	on 2d scale cam.
12	3	38	9.0	11	3	38±	
12	7	50	9.5	11,12	7	42	curtain

The focus of scale does not agree with focus of stars, owing probably to cold. Observations hard to make and not very reliable from stars having a sensible disc from their being out of focus.

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1859phae.proj..228S

Zone 143 — $1^h\ 40^m\ 56^s = 3^h\ 50^m\ 26^s$ — Zone 144

Date Dec 16. 1859
pos. circle 352° 16′ (Zone 141)

at beginning	E C	0h	51m	00
	Bar	30.378		
	att th.	66.0		
	ext. th.	18.½		
at end	E C	3	17	00
	Bar	30.395		
	att th.	68.0		
	ext th	13.0		

Obs. SC
Rec ASL
weather Cold Clear & calm

telescope East of pier

Date Jan 23d 1860 Monday
pos. circle. 358° 59′ determined from star 11 12 mag near or in zone on Jan. 21st 1860

at beginning	E.C.	~~2h~~	~~43m~~	~~00s~~
	Bar	30.202		
	att th.	58.0		
	ext th	30.0		
at end	E C	5	24	00
	Bar	30.255		
	att th	65.4		
	ext th	29.0		

Obs. S.C.
Rec A.H.
weather clear & calm

telescope East of pier

Continued from zones 141, 142

number of stars in zone 143
observed in declination 251
6 stars of zone 141 & 143

number of stars in zone 144
observed in declination 223

Remarks

Observations hard to make from cold. stars out of focus
Scale screw works easily

The observations on 2d Scale are not corrected.

1	40m	56.2	60.3	1	1			11
41		41.0	45.1	2	41	41.2	45.0	11.1
43		23.6	—	3	43	23 5	27.6	12
		33.8	37.7	4		33.7	37.7	13

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Zone 143 $0^h.40-50^i$ Zone 144

11	8	50			10.11	8	50
11.12	10	13			11,12	10	11
12	7	49	see micht		12	7	48
12	8	13			12	8	12½

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Zone 143 | $1^h\,40^m = 3^h\,50^m$ | Zone 144

	44	15.2	19.2	5		44	15.1	19.1	
		30.8 d	34.8	6	Zones 141 & 142	end	30.8	34.8	
	45	59.8	63.7	7		45	59.7	63.6	
	47	14.6	18.7	8		47	14.8	18.6	
		27.8	31.9	9			27.7	31.5	
	48	8.0	12.0	10		48	8.4	12.2	
		14.6	18.6	11					
		36.6 b	40.4	12			36.8 b	40.6	
		50.8	54.7	13	*		5		
	50	8.2	12.3	14		50	8.2	11.9	
		54.7	58.6	15			54.8	58.6	
				16		51	6.0	9.9	
	51	43.8	47.8	17			43.9	47.6	
	52	7.5 d.b	11.6	18		52	7.7 d.b	11.7	
		37.6	41.3	19			37.3	41.1	
		42.5 d.b.	46.9	20			42.4 b.d	46.4	
	53	11.2	15.2	21	*	53	30.0	34.1	
		59.3	63.3	23			59.2	63.3	
	54	12.8	16.9	24		54	—	16.6	
		21.4	—	25			21.5	—	
		28.0 d.d	32.0	26			27.9 d b d	31.9	
	55	3.6	7.5	27		55	3.4	7.3	
		19.7		28			—	23.4	
		29.2	33.2	29			29.2	33.2	

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Zone 143 | 0°.40'-50' | Zone 144

11.12	3	35		9.0	11.	3	33	
10.11	7	41		9.5	10.	7	40	
	D					D		
1								
11	9	04		D 9.4	11	9	04	
12	8	37			12	8	34½	
13,14	1	41	See scale corr.		13	1	41	nS on 2D scale 1 42
11.10	6	40			10	6	40	
13,14	6	33						not seen, one reads 5 30 t
11	10	10			10	10	12	
	B					B		
12	-0	10	See scale corr.					not seen
12,13	-0	20	See scale corr. doubtful			-0	22	
11	4	34½			11.10	3	34	sure
12	9	—	not obs			9	27	on 2D scale
12,13	10	27	D scale corr		12 11	10	30	
12	10	16		9.5	11 D	10	15	
	D.B					D B		
12,13	-0	14			13	-0	17	
12,13	-0	03			13	-0	03	nS
	D.B					B.D		
14	8	00			11	10	33	
10.12	0	22			11	D	21	
13	1	20				1	19	first wire lost
12	6	34	2D wire lost	9.5	12	3	36	2d wire lost
9.10	0	14		8.7	9.10	0	15	on 2 scale
	D.B.D					D B D		
12	-0	27			12	-0	23	
13	3	44	doubt. 2d wire lost			3	40	AR lost
12	2	05			12	2	8	on 2D scale

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1859phae.proj..2288

Zone 143 | $1^h.40^m = 3^h.50^m$ | Zone 144

h							
	55	56.2	60.1		1 55	56.2	60.2
	56	35.1	39.0		56	35.1	39.2
	57	13.3	—		57	13.6	17.4
		22.0	26.0			21.9	25.9
		28.6	32.4			28.7	32.5
		d.b.d.				d b d	
	58	0.6	4.7		58	0.7	4.8
		—	50.4			46.7	50.8
		56.8	60.5			56.8	60.7
	59	37.0	41.1		59	37.0	41.1
		53.8	57.8			53.8	57.7
2h	0	2.2	6.7		2 0		
		9.6	13.4			9.2	13.2
		d b d				d b d b	
	1	25.5	29.4		1	25.5	29.4
		52.4	56.5			52.7	56.3
	2	10.4	14.3				
		39.8	43.7		2	39.9	43.8
	3	1.2	5.2		3	1.3	5.2
		48.0	52.1			48.1	52.0
					4	20.1	24.1
						d d b d	
	4	48.9	52.8			49.1	53.0
	5	26.8	30.6		5	26.8	30.8
	6	9.0	13.0		6	9.1	13.0
		39.3	43.3			39.3	43.4
	7	8.0	12.0			7.8	11.8
						d d	
	8	22.2	26.1		8	22.0	—
		33.8	37.8			33.4	37.5

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1950phac.proj...228S

Zone 143 | 0°.40'–50' | Zone 144

10,11	1	37½	Laeyusted focus	9.8	9.1	1	37½
11	8	23½		9.0	10	8	22½
13	8	52	2D wire lost		12,13	8	51
12,11	3	59			11	4	00
12	2	01			11,12	2	00
	D.B.D					BDB	
14	4	28½			13	4	28½ nS
14	8	00	1st wire bar		13	8	03
12,13	4	58			12	4	56 on 2D scale 4.59
8	6	40		8.0	7.8	6	39
12	0	42			12,13	0	40
12	6	12	?			two	
12	5	59			12	5	58
	B.D.B					DBDBB	
12,13	3	29			12,13	3	29
12,13	2	43	?		12,13		on 2D scale 2 49
12,13	9	45	?			8	— not obs
12	7	41		9.5	12	7	33 sure, position
12,13	6	07		9.5	11	6	05 2D scale 6.09 sure (was 6 6
13	2	01½			12,13	2	00
13	——	?	obs not		12,13	1	13
						BD,B,D	
12,11	7	48		9.2	11.10	7	48
	B.D.B.D						
12	7	26		9.5	11	7	23
13	2	33			13	2	33 on 2D scale
12	6	50			12	6	49
13.14	0	41			13	0	41
			no * above 14 mag			D.D.	
13.14	1	59			12,13	1	53 sure sure
13	1	48	nS ?			2	48 nS on 2D scale sure
	D						

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1859phae.proj..228S

Zone 143 — $1^h\ 40^m$ to $3^h\ 50^m$ — Zone 144

2^h	9^m	22.2	26.0		2^h	9	22.1	26.2
		46.5	50.3				46.6	50.2
		b					b b	
	10	58.4	62.2			10	58.5	62.5
	11	28.7	32.9			11	29.0	32.7
		d b						
	12	28.2	31.9			12	28.1	32.0
	13	34.9	38.9			13	35.0	39.1
	*	56.8	60.7				56.9	60.8.
							d.d.d	
	15	15.2	18.9			15	15.3	18.7
		37.1	40.9				37.0	40.8
		b.d.						
	16	34.8	38.8					
	17	10.3	14.4			17	10.3	14.4
		34.0	38.0				34.2	38.0
				Mags Obs'd by THS Sept 26 1862				
		55.0	59.0	—	10.2		55.1	59.1
	18	10.1	14.1		9.0	18	10.3	14.3
		d.bd						
		50.7	54.7		10.7		50.5	59.7
	19	8.6	12.5		11.0	19	8.5	12.4
		b.d.b.						
		56.6	60.6		11.2		56.9	60.4
	20	13.3	17.6			20	13.6	17.3
		32.1	36.2				32.2	—
		—	42.8		10.5		38.7	42.9
	21	0.8	4.7			21	0.6	9.7
		d.d.						
	22	13.9	17.7		11.8	22	13.6	17.8
		41.1	45.2				41.3	45.0
		50.8	54.7		9.5		50.7	54.6

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1859phae.proj.:2285

Zone 143 | 0, 40'-50' | Zone 144

12,13	7	20½		12	7	15	
12	8	49		12.11	8	46	
	B				B.B		
13	0	11	doubtful	13	0	17	
13	1	32½		13	1	28	
	D.B						
12.XX	0	25		12	0	21½	
11.12	5	56	on 2° Scale 5 57	9.1 11.10	5	54	
12.11	6	30	" " 6 32	12	6	30	
					D.D.D		
14	9	30		13,14	9	29½	
12,13	2	29		12	2	29½	
	BD						
14	1	30			last		
13.14	2	52		13	2	50	on 2° Scale
13	6	40	?	12.13	5	41	n S 2nn or 2° Sm
12,13	1	47		12	1	42	2° Sc. 445
10.11	4	48	8.8	9.10	4	43½	on " Scale 4 47½
	D.B.D						
13,12	9	06		12.13	9	06	
13,12	9	49½		12.13	9	47	
	B.D.B						
14	6	54		13	6	52	n S
13	0	07		13	0	04	
	10	——	obs in AR	12	10	12½	See more last
	6	30	1st wire last	12.13	6	32½	n S
13	-0	21		13	-0	21	
	D.D						
14,13	6	30		13	6	29	
12	-0	21		11,12	-0	23	
12	5	39		11,12	5	40	

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1859phae.proj..22ns

Zone 143 — $1^h\,40^m = 3^h\,30^m$ — Zone 149

Mags checked by T.H.S. Sept. 26 1862

23	6.6	10.6		10.5	23	6.7	10.7	
	b.b.					b b b		
24	27.4	31.6	81	9.5	24	27.7	31.6	
25	16.2	20.3	82	10.8	25	—	20.3	
	21.1	25.2	83	9.7		21.4	25.4	
	d.d.b.							
26	9.3	13.0	84	10.8				
	40.6	44.6	85	9.3	26	40.9	44.8	
	51.4	55.7	86	9.5		51.7	55.7	
27	35.2	39.4	87	10.2	27	35.3	39.3	
	b.b.d					d		
28	24.2	28.2	88	10.5	28	24.4	28.2	
						d for a minute		
29	29.1	33.4	89	10.5	29	29.4	33.3	
30	22.0	25.9	90	11.0	30	22.1	25.9	
	d d d							
31	0.0	4.2	91	10.0	31	0.2	4.0	
	13.3	17.3	92	10.2		13.3	17.4	
	36.9	41.1	93	10.8		36.1	46.1	
32	13.2	17.3	94	11.0	32	13.5	17.5	
	23.4	—	95	8.3		23.5	27.5	d 5.
33	15.9	19.9	96	10.7	33	15.8	19.9	
	d 6							
34	3.9	7.9	97	11.0	34	4.0	8.0	
	35.3	39.4	98	11.5		35.5	39.2	
	58.0	62.0	99	9.5		58.0	62.1	
35	3.1	7.0	100	12.0	35	—	7.4	
	53.3	57.2	101	9.7		53.3	57.4	
36	4.3	8.2	102	10.8	36	4.6	8.5	
	14.1	18.1	103	9.3		14.2	18.2	
	b.d.					g		
37	26.8	——	104	9.5	37	26.9	30.7	

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1859phae.proj.:2285

Zone 143 | 0°.40-50' | Zone 144

12	3	9½			11.12	3	07½	
	B.B					B.B.B		
12	1	47		9.5	12.11	1	46	
12	6	13	2° wire doubtful		12	6	18	first wire bad
12	5	36	n.s	9.5	12.11	5	23	5 28 on See Scale sur
	D.B.D.B							(5 27 Ad Tel)
13	4	11			12		no obs	
11.12	2	30		9.2	10	2	28	
11.12	9	16½		9.0	11,10	9	17	
13	8	38½			12	8	34	
	B.B.D					D		
13	3	05	?		13	3	01	
						Obs for one minute		
13	3	50			12	3	51	
13,14	7	00			13,12	7	00	
	DDD							
12	10	10			11	10	9½	
12	9	21			11,12	9	19½	
12,13	5	48			12	5	42	
								(Wind)
12	7	01			12	7	00	
9,10	6	07½	2 wire lost	8.5	9.	6	7	on See Scale 6 10
12	4	41			12.11	D 4	29	
	D,B							
	7	23½			12,13	7	23	hard to observe
13	1	25	?		13	1	36	surely 36"
10	4	51			10	4	49	
13	8	49	n.s See Scale corr		13	8	49	first wire bad
12.12	1	49			11	1	47	
12,11	6	06			11	6	4	n.s
10.11	2	09½		9.0	10	2	5	on See Scale 2"
	B.D					B		
11	4	00		9.5	11	3	58½	

(25)

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1859phae.proj..22ms

Mag. Obsd by 7.45
Sept 26 1862

$1^h 21^m 0 = 3^h 50^m$

Zone 143 — Zone 144

2h	35.0	39.1	decl.?	105	9.8	2h			
39	3.4	7.4		106	10.0		39	3.4	7.1
	5.0	9.0							8.9
8	5	51.1		107	10.0			—	51.4
	54.9	59.0		108	10.5				
	59.9	63.0		109	11.0				
	8 db								
40	58.2	62.2		110	9.5		40	58.3	62.2
41	28.0	—		111	10.5		41	28.0	31.9
	43.3	47.3		112	10.8			43.4	47.7
	51.7								
42	12.4	16.5		113	10.3		42	12.5	16.7
				114					
	24.9	29.0			8.8			25.1	29.0
43	43.7			115	8.0		43	47.9	47.6
	d								
44	30.6	34.6	where does this belong		11.0 9.3		44	30.9	34.7 (where does this belong?)
	44.6	48.2		116	8.8				
49	49.1	53.1					44	49.1	53.1
45	7.0	10.9		117	10.8		45	7.3	11.1
	9.7	13.6		118	9.7			9.9	13.7
	b								
	53.1	57.1		119	11.5			53.2	57.3
46	226.2	6.6		120	11.0				
	36.4	40.4		121	9.8		46	36.5	40.7
47	1.2	5.2		122	9.3		47	1.6	5.4
	4.1	7.9		123	10.3			4.1	8.0
	d b								
	32.2	36.3		124	9.8			32.3	36.4
48	2.0	5.9		125	10.3		48	2.3	6.2
	9.8			126	10.2			9.8	13.4

reject. 2h alone throughout this page. Should do as to corr. = Positions of stars measured with three wires by shifting them in declination

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1859phae.proj.:2285

Zone 143 | 0, 40–50′ | Zone 144

12	0	33½	D very last		12	0	37	on Sc Scale
13 –	0	29			12,11 –	0	31	
12	9	19½			12,11	9	18	first wire last
13	10	30			12	10	29	
14	9	58			12.13		last	
	B.D,B					D.D		
12	3	38	a brilliant *	9.0	10	3	36½	
13	5–	12	2D wire last		12	5–	09	
13	4	25½			12	4	22	2nd wire last
13	8	39		9.0?	12	8	35–	2nd wire last
12,13 –	0	20	n.s				last	
9	7	43		8.3	9	7	41	
9,10	9	48			9	9	48½	
	D							
12,13	9	47½	D wire last		12	9	31–	2nd wire on D 2nd Sc 9 38
12	1	05	* obs in AR not in dr		12,11	1	03	
10	3	08	n.s	8.8	10	3	05–	
12,13	3	40			12	3	39	
12,13	2	08		(9.5)	12,11	2	6	n.s
	B					B,B		
13	8	58			13	8	52	
13	5–	24			13			
11,12	1	09	dust comp s.p.		11	1	08	
10	3	12		9.3	10	3	12	
13	6	30			12	6	30	
	D.B							
12,11	4	42			11	4	40½	
12,11	5–	58			12,11	5–	59	
12,13	5–	39			12,11	5–	38	

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1859phae.proj..22ES

Zone 143 — 1h 40m to 3h 50m — Zone 144

mag. doubly 7m.5 Sept. 26 1862

8.8 2h

	48	16 S	20.7	127	48	16 9	20.9
		33.0	37.1	128		33 5	37.3
		b.d					
		58.7	62.6	129		58.8	62.7
		d b d					
	49	46.5	50.4	130	49	46.7	50.6
	50	13.8	17.8	131	50	13.8	17.6
		25.9	29.9	132		25.9	30.0
		29.0	32.7	133			
		56.7	60.6	134		56.9	60.7
		d.b.d					
	51	42.5	46.3	135	51	42.4	46.4
	51	53.9	57.9	136		59.0	58.0
	52	5.3	9.4	137	52	5.6	9.4
		21.9	26.0	138		22.2	26.0
		b d b d				b b b	
				Nej			
	53	37.9	41.8	139	53	38.0	41.0
	54	13.4	17.4	140	54	13.5	17.6
		15.7	19.5	141		—	19.4
		d.b.d.b.					
	55	21.9	25.9	142	55	58.8	62.8
		58.6	62.4	143			
		16.0	20.0	144	56	16.0	20.0
	56	33.8	37.7	145		33.9	28.0
	56	59.7	63.5	146		59.8	63.7
		b d b d					
	57	46.2	50.0	147	57	46.2	50.0
	58	4.6	8.9	148	(M) 58	5.4)	is this the same star.
		8.0	11.8	149		8.0	11.9
		45 9	49.9	150		45 9	50.0

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1859phae.proj..228S

Zone 143 — 0°, 40′–50′ — Zone 144

10	7	28	reddish – owing to instrument.	8.7 9.5	10	7 30	on $\mathfrak{D}$ scale
12.10	4	09½			12	4 11	on $\mathfrak{D}$ scale
	B.D						
12	1	49			12	1 46	on $\mathfrak{D}$ scale 1.49 1.47 AT
	D.B.D						
13	7	21			12	7 20	
13	2	55-			12	2 51 ?	
13	4	29			12	4 28	
13	9	30 ±			D D D		
					mds		
9.10	8	49	B	9.1	9.10	8 50	
	D.B.D						
13	7	44			12	7 45-	false sig
10	9	15½	B	9.2	10	9 12½	
8.9	1	21		8.5	9	1 20½	on $\mathfrak{D}$ scale 1 25- AT 1 22
13	5-	03			12	5 04	
	B.D.B.D				B.B.B		
13	1	21½	AR, lost		not obs		
12	5	52½		? 9.4	12	5 ST-	
12	9	59			12	9. 59	sure
12	3	06½	n.s		12	3 04	AT n.s faint wide line on $\mathfrak{D}$ scan 3.05-
	D.B.D.B						
13	5-	30½				line	
9	9	22	reddish – owing to instrument?	8.0?	8	9 22	
10.11	2	18		9.5	10	2 18	
13	6	58			12,13	6 58	n.s
12	1	14			12	1 13	
	B.D.B.D						
12.11	7	40			12	7 41	
12.13	7	6½			not obs		
10 – 0	21	ns		8.8	12	– 0 28	
12.13	3	52	ns		12	3 49½	on $\mathfrak{D}$ scale 3 5-1

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1859phae.proj..228S

Zone 143 | $1^h 40^m = 3^h 50^m$ | Zone 144

		d					
59	36.2	40.3	151	59	36.6	40.4	
3h 0m	29.7	33.7	152	3 0m	29.8	33.7	
1	4.2	8.0	153	1	4.5	8.3	
	31.9	36.1	154	1	32.1	36.4	
2	7.0 b	10.8	155	2	7.3 d b	11.2	
	43.0	47.0	156		43.3	47.1	
	55.7	59.8	157				
3	0.6 d b	4.0	158				
	30.5	34.8	159	3	31.1	35.0	Same star?
	32.4	36.4	160		32.7	36.6	
	49.4	53.4	161		49.7	53.6	
4	13.1	17.2	162		13.5	17.3	
	25.0	29.1	163		25.4	29.3	
	47.1 b.d.	51.1	164		47.9	51.1	
5	19.8	23.8	165	5	20.0	24.0	
	—	49.5	166		45.8	49.7	
	50.7 d.b.d	54.7	167		50.8 b.d.	54.9	
7	5.9	9.0	168	7	5.7 6.8	10.0 10.8	
	39.0	43.1	169		39.3	43.2	
8	27.4	31.4	170	8	27.6	31.4	
9	17.8	—	171	9	17.9	21.8	
	44.0	48.1	172		44.4	48.3	
10	6.0	10.1	173				
	18.4 d.d.	22.3	174	10	18.4	22.5	
	49.8	53.6	175		50.0	53.8	

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1859phae.proj...228S

Zone 143 | 0°,40'-50' | Zone 144

8,9	0	03½	D.	8	0	02½	
10	6	51		10	6	50	
10,11	0	29		10,11	0	25½	
12	7	00	ap. disc ?	12	6	59	ap. d. ?
12,13	3	11		12,13	3	9½	
12	9	59	B	11	8	56	D, B
12,13	4	41		12,	4	41½	
13	2	29				not obs	
13	5	21 ?	D. B			not obs	
12,13	6	01	n.s		6	00	
12	7	58	n.s	12	7	50½	7 57 on 2 scans
12,11	4	42		11	4	42½	on 2° scan
11,10	4	41½		10	4	41	
12,13	4	08		12	4	05 ?	
12	1	09	B.D	12	1	06	
12	8	47		12	8	48	
12	-0	12	1st wire lost n.s	12,11	-0	11	
10,11	5	37	n.s on 2 scans	9,10	5	34	n.s
			D. B.D				B.D
10,11	5	19		10,	5	18	
13	4	48		14			n.s
12,11	-0	15		12,13 14,10	4 -0	42 19½	
14	1	12	see wire lost				see list
12	2	29		11,12	2	28	
13,14	7	20 ?				lost	
13	-0	02	D.D	13	-0	07	
14	10	11	a wire lost across from south to north	12	10	09	

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1859phae.proj..22ns

Zone 143 | $1^h.40^m = 3^h.50^m$ | Zone 144

9h	11m	40.3	44.3	176	9h 11	40.6	44.4
	12	33.3	37.3	177	12	33.5	37.5
	13	4.0	8.0	178	13	—	7.9
		19.5	23.5	179		19.6	23.7
		41.1	44.9	180		41.2	45.0
	14	3.2	—	181	14	3.4	7.2
		25.8	29.7	182		26,0	30.0
		26.4	30.6	183		26.8	30.7
		27.7 d	31.4	184	[My] 15	1.7	5.6 not the same star
	15	12.9	17.0	185		13.0	17.0
		38.3	42.3	186		38.3	42.2
		40.1 b	44.1	187			44.1
	16	30.4	34.6	188	16	30.5	34.7
		53.3	57.3	189		53.5	57.5
	17	22.0	26.0	190	17	22.0	26.1
		23.4 db	27.3	191		d d d	
	18	12.3 bd	16.2	192	18	12.3	16.3
	19	9.7	13.7	193	19	10.0	13.9
		10.6	14.6	194			
		57.2	61.2	195		57.3	61.3
	20	26.6 dd	30.4	196	20	26.7	30.8
	21	2.2	6.0	197	21	2.3	6.1
		27.6	31.3	198		28.0	31.7
		39.1	43.1	199		39.7	43.4
		56.5	6a6	200		56.9 6dl	60.7
	22	35.0	38.9	201	22	35.1	
		45.8	49.7	202		45.9	49.9
		50.5 6d.b	54.4	203		50.7	54.6

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1859phae.proj.:228S

Zone 143 | 0° 40'-50' | Zone 149

12	4	26			11	4	27	
8.9	1	38½			8.9	1	37	on 2D scale 1 40
13	4	29			13	4	27	faint mist here
10	0	17			11	0	14	
10,9	−0	07			9	−0	10	
12,13	1	40	2D mean here		12	1	37	
12	3	49			12	3	46	
12	3	30	n.s		12	3	29	
12,13	6	06	? 6 06 on 2D scale corr		13	6	12	
	D.							
14	3	20			10	3	18	n s
9	−0	07			9	−0	10	
13	0	59			13	0	57	on 2D scale
	B		a circular nebulosity of 14 mag.					
14	1	22			13	1	18	
11	9	20			11,10	9	19	
12,13	7	59			13	7	58	
	B							
13	5	21	on 2D scale corr				not obs	
	D	D			D	B.	D	
13	6	18	on 2D scale corr		12,13	6	10½	certain
	B	D						
10	4	41			10	4	41	distant comp. s. f 11″
13	0	12	hard to obs				hist	
14	0	58			14	0	49	mist
12	2	00			12	1	58	
	D	D						
12	3	10			12	3	9	
12,13	9	37½	n s		12	9	34	?
12	3	56			12	3	57	
11	9	18			11.10	9	14	
					B.	D.	D	
12.13	1	52	D mean		12	1	50	D mean here
12,11	5	43			11.12	5	51	5 55
11	1	45	on 2D scale 1.49		10	1	46½	n s 1 44½ cr dist
	B.	D	B					

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1859phae.proj..22ES

Zone 148 | $1^h\,40^m = 3^h\,50^m$ | Zone 149

24	24m	0.5	4.7	3 24	0.8	4.8
					8. for 1m.	
25	19.7	23.4		25	19.6	23.6
	db db db					
25	56.0	60.0			56.2	—
26	36.3	—			36.5	40.5
	49.4	53.4			49.5	53.6
	8				d b d	
27	39.0	43.1		27	39.7	43.7
	—	54.2				
28	8.8	12.9		28	9.2	13.0
	15.3	19.0			—	19.5
	18.0	22.1			18.3	22.3
	35.8	39.9			36.0	40.1
	d					
29	53.5	57.4		29	53.8	57.8
30	25m, 5s.	W W.		30		
	27.0	31.0			27.2	31.2 where does this belong
	36.2	40.1			36.3	40.3
	41.2	45.3			41.4	45.3
	59.7	63.4				
					b d b d	
	d b d					
31	50.6	54.7				
32	3.5	7.4		32	3.9	7.8
	8.1	12.0			8.4	12.3
	b d					
	53.4	57.3			53.8	57.7
33	7.5	11.6				
	17.5	21.4				
	35.8	39.7				
33	9.6	13.4				
	d					

Comment regarding from here

Ends Zone here

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1959phae.proj..229S

2 / 4 / 13

Zone 143 — 0°40′–50′ — Zone 144

12	3	25		12	3	23	
	No ✶ above 16				Break for one minute		
11	0	41		11	0	41	
	⊘ B, ⊘ B, ⊘ S						
13	1	37′ on D scale	1 40	13	1	34	hard to obs.
12	10	50?	do not see	11.12	10	52	
12.13	6	33		11.11	6	31	on sec scale 6 33
	B				⊘.B ⊘.B		
11	10	13	9.3	11	10	13	
D.14	6	00	n.s plain here		not obs		
13	0	08			0	56	sure
12	8	01	n.s	(9.5)	12,11	8	04 plain here n.s
12	8	15	n.s		12,11	8	20
10,11	4	34	n.s	9.3	11.12	4	34
	⊘.						
10	9	54			9,10	9	54½
9,10	6	53 n.s	} to be interchanged?	8.2	9	0	57
	0	02 n.s					
12	3	59	n.s	9.1		3	58
12	4	38	n.s			4	37½ on ⊘ scale
14	)	08	n.s			not obs	
						B ⊘ B, ⊘	
	⊘, B ⊘						
12	10	18				lost	
12	10	27			12	10	34
12	9	20	n.s			~~does not~~ not seen	
	10	9				~~10 11~~	
	B ⊘,						½ tiny above
12,11	10	11½				10 11 does this belong here or	
12	0	49				not obs	
13	2	00½	n.s				
13/12	3	11				} not obs	
13	1	20					
	B						

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1859phae.proj..22ds

Zone 143 | $1^h\,40^m\,56^s = 3^h\,30^m\,26^s$ | Zone 144

3h 34	25.7	29.7	3 39	25.9	30.0
	31.6	35.8		31.8	35.8
	d b d				
35	8.0	11.9	35	8.2	12.3
	17.8	21.9	36	17.2	21.1
	b.8.b.				
36	16.9	20.8	36	17.2	21.1
	34.1	38.4		39.2	38.2
	b.d.			54.2	58.5
37	36.8	40.9	37	37.1	41.0
39	39.0	43.0	39		
40	3.2	7.1	40	3.5	7.9
41	47.2	51.0	41	47.3	51.2
42	4.6	8.8	42	5.0	9.0
	39.8	43.8			
	51.7	56.0			
	55.2	59.2		55.4	59.9
43	18.4	22.7	43	18.7	22.6
	b.d				
			*	50.1	54.0
45	4.3	8.3	45	4.8	8.7
	35.1	39.2		one (38.0)	39.6
46	12.2	16.1	46	12.7	—
	—	25.0		21.8	25.6
46	52.5	56.4			
47	29.5	33.6	47		
	b.d.b.				
48	8.8	12.7	48	9.1	13.0
	24.0	27.9	48	24.3	28.0
49	53.2	57.3		47.3	51.2
50	26.8	31.1			
	d				

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Zone 143 | 0°40'-50' | Zone 144

11	0	00½	n.s	11	0	00 n.s
11	0	18		11	0	19 n.s
	D.B.D					
12,11	4	39		12,11	4	38
13	—	Dec lost				
	B.B.D					
12	2	38½	2 40 on 2 sec	12,11	2	38½
13	—0	25	n.s	12	—0	30
	B.D			12	2	19
12,13	2	39			2	39
13	—	not obs				not obs
	Staten field					
13	—	Dec lost by recorder				
12	9	03½		12	8	55½
12	5	25		12	5	21
12	4	00		11	3	58
12	5	17		11.10	5	14
11	1	23		11.10	1	20
	B.D					
	perfectly Staten field			12	6	02 early obs
11	9	38		11	9	38
11	3	04		11	3	04 first wire heard n.s
12,13	10	12		12	10	11 see wire here
12	10	52	1st wire heard	11	10	52
10	8	31				
14	2	38				not obs
	B.D.B					
12,13	7	20		12	7	19
13	8	27½			8	25 see sec here
14	4	09		12.13	0	08
13	8	04				
	D					

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1859phae.proj..22ms

Zone 145 $23^h\ 9^m\ 57^s$ — $3^h\ 47^m\ 7^s$ Zone 146

Date Jan 25. 1860

pos. circle 353 59. in zone 144. This angle was determined from by a star ± an hour ± west of meridian & tonight we an upward of 1 hour west

at beginning	EC	4	00	00
	Bar		29.744	
	att th.		52.4	
	ext th.		34.3	
at end	EC	5	52	00
	Bar		29.764	
	att th		53.2	
	ext th.		32.0	

Obs. S C

Rec A H

weather clear and high wind

Telescope East of pier

Date 17th Febr. 1860

pos. circle 354.02 set by 1st star of Zone 146 3h from meridian

at beginning	EC	5	34	00
	Bar		29.443	
	att th		53.0	
	ext th		+9.0	
at end	EC	7	37	00
	Bar		29.818	
	att th		45.0	
	ext th		6.0	

Obs. S. C.

Rec. A H

weather Clear. cold wind now & then good vision for a short time

Telescope East of pier

Continued from zones 139 140

number of stars in zone 145 observed in declin. 171. Of these 5 have been observed in zone ~~143~~ 139

Number of stars in zone observed in declin. Of these have been observed before in zone

Remarks

the declinations on second scale are not corrected. Telescope now & then seemed to be shaken by wind

Remarks

This zone leaves the impression of being badly observed ~~before~~ in the observations independently of the readings.

1860 Oct. 24

As End Ext Thr 49.7 146'

Re-observed 1860 Oct. 24

2^h	9^m	57.0	60.9		1:	2^h	9^m	56.6	60.5	2	9	58.7	62.4
	12	29.8	33.7		2		12	29.5	33.5		12	31.5	35.5
	13	5.5	9.8		3		13	repeat	9.0		13	7.0	—
		9.8	13.7		4			—	13.3		13	11.3	15.4

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1859phae.proj.229S

0 17 54

145 $0^{\circ}_{,,}50'-60'$ 146

From this observation I find pr. magnitude charts.
δ – Argelander Comp.
$+0^{m}.75 \pm 0^{m}.06$ 51

The pr. error of a single $\delta - A = \pm 0^{m}.44$

	Δ					Dobs for one minute				Oct 24 K60			
9	1	2	0		9.0	9	1	$2\frac{3}{4}$	n.sig	9	1	33	
12.11	2	5	0		9.5	12.11	2	57		10.11	3	5	
12.11	7	$21\frac{1}{2}$		scarcely seen		17.12	7	28	first [illegible]	11	7	36	Scarcely seen
9	6	37	n.s		8.8	9	6	41	first [illegible]	9	6	49	n.s

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1859phae.proj..228S

2	13	48.7	52.9	5	13	48.3	52.2	2 13	50.3	54.2
	14	4.9	8.7	6		end of zones		14	6.4	10.5
	15	28.2	32.0	7	14	27.8	32.1	15	28.3	—
		51.0	54.9	8				15	52.6	56.5
	16	9.9	13.8	9	16	9.7	13.6	16	11.6	15.4
		d.b.								
		—	38.8	10		34.4	38.5	16	36.6	40.6
	17	7.9	11.8	11	17	7.6	12.0	17	9.6	13.4
	18	3.5	7.3	12				18	5.1	—
		8.3	12.4	13	18	7.9	12.0	18	9.9	14.0
		9.9	13.8	14		9.3	13.3			
	20	—	42.5	15	20		42.2	20	40.0	44.1
		48.1	52.1	16		47.9	52.0		49.8	
		50.3	54.1	17					52.0	56.0
	21	8.1	12.2	18	21	8.0	11.9	21	9.9	14.0
		50.1	54.1	19		49.8	53.8		51.7	55.7
		b.d.				z				
	23	3.7	7.9	20	23	3.6	—	23	5.5	9.5
		13.6	17.4	21		13.3	17.1		15.3	19.2
		26.1	29.9	22					27.9	31.8
		48.3	—	23		47.9	52.1		50.1	
		52.0	56.1	24		51.5	55.6		54.0	57.8
	24	1.5	5.6	25	24	1.3	5.4	24	3.3	7.2
		d.b.d								
		51.3	55.2	26		51.1	55.2		53.3	57.3
	25	30.9	34.8	27	25	30.5	34.5	25	32.3	36.5
	26	13.9	17.2	28	26	13.2	17.3	26		
	27	14.6	18.7	29	27	14.2	18.5	27	16.2	20.1
		27.3	31.0	30					26.3	30.4
				31		26.9	31.0		26.9	32.9
	28	32.8	36.7	32	28	32.4	36.7	28	34.2	38.3
		—	40.2	33						

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1859phae.proj..2288

			B						Oct 24. 1860	
	11	8	43	9.3		10	8	49½	9.10	8 5-9
	12	10	23?	139, 140			not seen		11	10 28
										B.
	13	−0	18			13	−0	13?		Dec? see wire bent
5	13	8	22?			13	8	— not obs	8	40 n.s.
4	11,12	3	20			10,11	3	26	3	38
		D	B							
0.6	12,11	1	41	false sij, first wire bent 9.5		10,11	1	48	1	57
3.4	13	2	02			13	2	9½	11,12 2	17
	12	1	32				not obs		10,11 1	49 D bent
4.0	9	6	58	n.s	8.9	8	7	03	9 7	12
	10	9	33	n.s		10	9	38 n.s.		omitted
										Dots long
						D.				Instrument struck with Cap
1	12,11	4	00	first wire bent, false sij		10	4	08	first wire bent 4	16
		—	23		9.5?		8	31	10. 8	39 ~~one bent~~
5.0		9	20	n.s a brighter star not obs					10 9	34 n.s
0	8	1	11		8.5	6	1	19	1	27
7	9	4	00		9.5	9	4	4½	4	15
		B.	D				B		B. D.	
5	12,11	7	03			11	7	10½	see wire bent 10. 7	18
2	12	0	12			11,12	0	20?	10 0	29
8	12	4	11?			11,12	not obs		10.11 4	30
	11.	7	05	see wire bent	9.4	11	7	23	9.10 7	23 see wire bent
8	11,12	6	11	n.s	9.5	11	6	18	6	28?
2	9	3	21?	one see Scale 3 27	8.4	8	3	29½	3	37
		D	B. D				false track or sij			
3.	12/3	3	37	3 40 on 2° scale		12	3	43	10.11 3	52
5	9	1	07		8.5	8	1	11	8 1	22
	13,14	0	10			13,14	0	13	double star AR	
1	12	0	23½			11	one 29m		10.11 0	38
4	12	2	00	small neb, n p 6'		11	2	05	10,11 7 10.11 2	53 18
3	12	7	20			12	D	B 7 22	10.11	not obs
	12,13	3	10	~~D~~ first wire bent		10.11	3	20 not obs		3 32)

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1850phae.proj..228S

2	28	48.0	52.0	34	2h	28	47.7	51.6	2	28	49.8 53.6
	29	30.4	34.4	35		29	30.2	33.7		29	32.0 36.0
		b. d. b									
	30	9.5	13.4	36		30	9.3	13.0		30	11.0 15.0
		42.6	46.7	37			42.0	46.0			44.0 48.0
		56.7	60.3	38			56.3	60.2			58.2 62.1
	31	16.0	19.7	39 rej							
		b									
		42.2	46.0	39		31	41.8	45.9		31	43.9 47.9
		43.0	47.3	40							45.0 49.1
	32	9.5	13.3	41		32	9.4	~~13.3~~			
		9.8	13.7	42			—	13.3		32	11.3 15.3
		d b									
		54.1	58.0	43			53.9	57.7			56.0 60.0
		d. d. d.									
	34	14.2	17.0	44		34	12.9	16.6		34	14.7 18.7
		40.6	44.6	45			40.0	47.3		34	42.0 46.0
	35	32.8	36.7	46		35	32.6	36.4		35	0.1 4.0
		b. d. b		47							34.3 38.2
											S. S. S.
	36	57.6	61.5	48		36	57.4	61.5		36	59.1 63.2
	37	17.0	21.0	49		37	16.7	20.7		37	18.5 22.3
		d b d b									
	38	7.9	11.8	50		38	7.6	rej.		38	9.6 13.6
		16.9	20.7	51			16.5	20.4			18.1 22.1
		57.2	61.1	52			56.9	60.0			59.0 62.9
		d									
	40	3.2	7.0	53		40	2.8	7.0		40	5.0 8.8
		6.3	10.3	54			6.0	10.0			7.9 11.8
		6									
	41	16.5	20.6	55		41	16.1	20.2		41	18.0 22.0
	42	21.3	—	56						42	
	43	17.4	21.6	57						43	19.0 22.9

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1859phae.proj..2285

6	11	3	17	on 2° scale 3 19	9.5	10.11	3	20	Wind moving Instrument	
5.0	11.12	7	7½		9.5	11	7	06	9.10	7 16
		B.D.B								
0	12.11	10	28			11.10	10	33	8.9	10 39
0	12.11	9	39		9.5	11	9	43	9	9 53
1	12	−0	19			12	−0	12		− 0 06
										B.D.B.
	13,14		34				not obs.		not look for	
		B								
9	12	5	07	n.s	9.5	11.12	5	11		5 18
9.1	12.13	6	25?	n.s						(6 43) wrong
	12	6	10			11	6	12	Dec was here 6 43 n.s.	
5.3	12	4	29	n.s		11	4	33	first was here 10.	4 41
		D.B					B.D.			
9.0	13	7	29			13	7	39	n.s doubtful Dec 10.11	7 49
		D.D.D								
3.7	12	6	33			12,11	6	38	9.10	6 48
6.0	12	4	34½	on 2° scale 4 27½	9.4	11.10	4	30	9.10	4 38 (2 22)
2.2	12.11	1	5-9		9.5	12.11	2	02	12	2 22 (2 11)
		B.D.B							10,11	2 11
									D. D. D	
3.2	13	1	00½			12	1	9½	10	1 16
22.3	11	4	39	Telescope appears unsteady	8.9	10	4	42	7.8	4 52
		D.B.D B				D. B. D				
3.6	11.10	1	11		9.0 8.9	10	1	15½	see wire double	8.9 1 25
2.1	11.10	7	25	Telescope unsteady, 7 29 on 2°		10	7	40	sure on 2 Dec	0.78 7 42½ 50
3.9	12	6	29			12.11	6	32	n.s	9.10 6 40
		D								
8.8	12	6	10½	see wire doubtful		12.13	6	12		6 39 (6 21)
1.8	12,11	7	5-8	n.s		12. 11	8	01		10 5 6 8 10
		B								
2.0		7	18½		9.5	11	7	22		9.10 7 30
		−0	41	see wire lost	8.3	9.8	−0	39½	see wire of AR double	
22.9	13	5	28				5	33	nebulous? f= (12)	5 43

(3 ?) 22

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1859phae.proj..228S

2^h m					2^h	1860 Oct. 24.			
43	31.3	35.0	58			2 43	33.1	37.1	1
	43.1	47.1	59			43		48.8	1
44	41.4	45.2	60			44	43.3	47.3	1
45	2.6	6.5	61			45	4.2	8.0	1
	29.0	33.0	62			45	30.8	34.8	1
	b. d.								
46	11.4	15.5	63			46	13.1	17.0	1
46	25.3	29.2	64				27.0	31.0	1
	48.4	—	65						1
	53.1	56.9	66				54.6	58.6	1
47	50.9	54.9	67			47	52.9	56.8	1
	d b			Mayr Obs. Dec. 7H S. Sept 26 1862					
48	28.2	32.0	68	9.5		48	29.7	33.9	1
	b. d. b.								
49	48.0	52.0	69	9.2		49	49.3	53.3	1
							D.		
50	22.0	26.0	70	10.8		50	23.6	27.7	1
	41.6	45.3	71	~~10.7~~		50	43.1	47.2	1
	d. b. d.								
51	31.1	35.0	72	10.7		51	32.7	(36.4)	1
	—	39.0	73				(36.4)	40.5	
	50.9	54.9	74	9.5		51	52.2	56.3	1
	d								
53	—	2.4	75	10.1		53	0.0	4.0	1
	4.9	8.9	76	9.2			6.3	10.3	
	49.3	53.4	77	9.3			50.7	54.7	1
							B. B.		
54	13.0	16.8	78						1
	b								
	56.1	60.2	79	10.0		54	57.8	61.7	1
55	17.3	21.1	80	10.5		55	18.9	23.1	1
	d d								
56	13.4	17.5	81	10.8		56	10.8	14.5	1
			82	8.8		2 56	14.8	18.7	1

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						4	58				
35.1	13	5	04			4	58		11,12	5	20
48.8	13	4	57							5 B	6 first wk
47.3	13,14	6	08?	Has form an approx r.a. triangle of which hypothenuse = 15'?					12	6	22
8.0	12	10	47½						10	10	54
34.8	13	6	39						10	6	53
		B.D									
17.0	12	7	9½		12	7	14		10	7	32
31.0	12	3	0½		12	3	02	fine wire doubtful	9.10	3	14 hy sig
	12	1	31	see wire last, n.s	12	not obs					
58.6	12	2	12?		12	2	21			2	31
56.8	13,14	6	31		14,13	6	41		11.12	6	46
	D.B										
33.9	12	4	15	on 2d scale 4 18½ 9.5	10.11	4	21		9.10	4	28
	~~11/12~~ B	D	B								
53.3	11.12	5	58	9.1	10	6	02		9	6	10
								Wind rising	D		
27.7	12	10	00		12	10	05			10	20
47.2	13	3	5 — n.s			not seen			12	4	8
	D, B	D									
36.4	12	3	43		12	3	48	fine wire bow	10	3	57
40.5		6	00	fine wire bow	12	6	9	fine wire bow	11	6	15 n.s
56.3	11.10	6	49	9.3	11	6	58		9	7	5
	D.					B D B					
4.0	12	3	40	fine wire bow	12	3	41		10	3	52
10.3		1	28	on 2d scale 1 29 9.1	10	1	30		8.9	1	39
54.7	11	10	16	9.5	9	10	20		8.9	10	31
									B. B		
	12,13	0	11	fine wire doubtful							
		B									
61.7	13	8	28		12	8	32	see wire bow	11	8	42
23.1	12	7	39½		11,12	7	51	sure	11	8	01
	D.B										
4.5	12,13	3	42	not obs in AR	12	4	00	sure	11,12	4	4
8.7	10.11	7	29	7 31½ on 2d scale 9.0	8	4	36		9	7	43

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2h 9m — 3h 47m

mags obsd by 7 HS

Sept 26 1862

			rej	9.5			(2 56.3 6.1)	rej.
57	1.8	5.8	83	10.0	9.5	2	57 3.2	7.2
58	8.5	12.3	84	10.2	10.0		58 10.9	13.9
	9.7	13.3	85		10.2		58 11.1	15.0
	30.0	—	86	10.3			58 31.7	35.6
	33.6	37.4	87	10.0			35.1	39.0
59	32.4	36.3	88	10.5			59 33.9	36.2
	35.0	39.0	89	9.8			59 36.5	—
	d b							
3	0m 24.8	28.8	90	8.3		3	0 26.3	30.2
	1 —		91	10.5			1 17.1	21.2
	1 24.2	28.1	92	9.8			1 25.7	29.7
	2 5.3	9.3	93	9.0			2 6.6	10.7
	36.0	40.0	94	8.5			37.5	41.4
	3 0.8	—	95	9.7			3 2.3	
	4.9	8.5	96	9.3			6.0	10.1
	b d.							
4	5.6	9.6	97	11.7			4 7.1	11.1
	24.3	28.1	98	10.0			25.7	29.6
	52.3	56.5	99	10.3			54.1	58.0
5	26.7	—	100			5	27.9	31.8
	35.7	39.6	101	11.0			5 37.2	41.1
	57.2	61.2	102	9.8			5 58.8	62.7
6	12.1	16.0	103	8.8			6 13.5	17.5
	53.3		104	12.0			B. B. B.	
	d d b							
8	14.4	18.4	105	10.2			8 15.8	19.8
				10.5				
	40.0	44.1	106	9.5			41.3	45.4
			107				Hyed 3 8 49.3	53.3

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		B.B					D.D				10	50
	12,11	10	22½		9.5	11	10	29	10 mag.	10'	37"	
	~~12~~	4	04		(9.3)	12	4	10	11	4	16	
0	~~12.12~~	4	30	n.s		12	4	39	n s 11	4	45	n s
6	12.12	2	53	see wire lost		12,13	2	58	see wire lost	3	7	
.0	12.13	2	41	n.s		12,	2	48	n.s see 11 wire lost	2	58	n s
—	12,13	6	11			12	6	19	11	6	25	
—	12,13	1	29	n.s	✗	12	1	31	11	1	38	} Sun't
		D.B										
2.2	8.9	1	49		7.8	7,	1	51	8	1	58½	
1.2	12	3	43	not obs in AR		12	3	58	see see wire lost	4	2	
9.7	12	2	32		9.5	12	2.	39	9.10	2	47	
2.7	11	4	49		8.9	10	4	52½	9,10	5	3	
1.4	9	6	50		8.1	9,8	6	56½	on see ~~8~~	7	4	
	12,13	5	01	sec. wire lost		12,13	5	05	10.11	5	12 Sun't Wire	
									Instrument moved by			
9.1	12	5	12		9.2	12	5	17	9.10	5	22	n.s
		B.D										
1.1	12.14	5	19	nebulous by indirect vision					12	5	33	
9.6	12	1	30			12	1	32	fine wire lost(10.11)	1	44	
8.0	12,13	1	20			12	1	28	10.11	1	33	
1.8	12	09	58	see wire lost			not obs		12	10 B	9	
1.1	12	3	12	n.s		12	3	29	sun	3	36	
		B										
2.7	12	0	20½			10	0	27		0	32	
5	8.9	4	14		8.4 lost	8	4	21	8.9	4	28	
	appox.	5	25	Nebulosity of 15 mag see wire, it seems to have lost it		15	5	30	fine wire lost n.s.	B.B.B.	See wire do	
		D.D.B.										
8	12	8	50			11	6	39	10.11	9	3	
	12.13	—		not obs		12	7	01	n.s fine wire ?			
5.4	12	0	47½		9.5	11	0	52	11	1	1	
33				(24)					reject.	6	3	

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$2^h\ 9^m$ — $3^h\ 47^m$

Mag. Eddy. THS.
Sept. 26 1862

9	9.1	13.1	108	9.5					
	9.7	13.7	109	9.8					
	29.8	33.7	110	10.0					
	46.7	50.7	111	8.7					
10	0.4	4.3	112	9.0					
	38.4	42.3	113	11.0					
	46.4	50.1	114						
11	9.7	13.5	115	10.5					
12	13.8	17.6	116	10.0					
	19.9	23.8	117	9.5					
	46.9	50.8	118	8.0					
14	—	4.2	119	10.0					
	10.2	14.2	120	9.0					
	26.2	30.2	121	10.5					
15	18.0	22.1	122	10.7					
	29.0	33.0	123	10.2					
	44.0	48.0	124	11.0					
16	47.8	51.2	125	10.5					
17	0.6	4.5	126	8.7					
	18.7	22.7	127	10.2					
	25.0	29.0	128	10.5					
	59.7	63.6	129	10.0					
18	58.8	62.8	130	9.7					
19	42.7	46.7	131	9.3					
20	52.2	56.2	132	9.8					

3	9	10.2	14.4
	9	10.9	15.0
	9	31.2	34.9
	9	47.9	51.8
	10	1.8	5.7
	11	11.1	15.0
	12	15.0	19.0
		21.2	25.2
		48.1	52.0
	14	1.6	5.6
		11.5	15.6
		27.7	31.5
	15	19.6	23.7
		30.5	34.4
		45.6	49.4
	16	48.8	52.8
	17	1.9	5.9
	17	19.9	23.9
	17	26.4	30.5
	18	0.9	4.8
	19	0.1	4.1
		44.0	48.0
3	20	53.5	57.5

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		B										
.4	12	9	01				seen		11	9	18″	
0	12	8	00	n.s			seen		11	8	12	
.9	12.13	4	04				—		10	4	20	
.8	9,10	4	17		9.6	8	4	21	8.9	4	28	
.7	10	3	24½		9.3	9	3	29½	9,10	3	26	
		B										
	13	7	18									
	13	-0	—	n.s								
.0	12	4	42			12,13	4	41	not obs	4	55	
		B.B.D										
.0	12	4	23			12	4	29	n s	10	4	38
2	12	10	09	n.s		12	10	13	ns	9,10	10	19
0	9	8	18		7.6	7	8	22		7,8	8	28
		D.D.D					D	B.DB		D.B, B		
6	12	7	29	first wire bar	9.5	12	7	31		10.11	7	38
6	11	9	15		9.0	11	9	21	Vision gitty bad		27	
5	12	5	50			12	5	56½		10.11	6	½
		B.B.B										
7	13	3	42			13	3	50		10.10	4	56
.4	12	5	12			12,13	5	19		10	5	25
4	12.14	3	00			13	3	03	see wire bar	12	3	12 8
		B.D.B								D D		
8	12	6	48			12	6	58½	sun	10.11	7	4
9	10	1	22		9.5	9	1	28½	first wire bar	9	1	35
9	12		55	n s		11	1	00		10.11	1	8
5		—		on 9D sun 150		11	1	51		10.11	1	58
		B										
8	12	—		noise		12	10	12		10.	10	23
		D.B.D								B.D.B.D		
1	12	0	55		Miss 9.0	11,12	1	00		9.10	1	6
0		7	21½		9.3	11	7	28		9.10	7	30
		D			Mitchell							
	14	—		not obs								
	12	—			9.5	12	2	30		11	2	38
		B										

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21	29.0	32.9	133				3	21	30.3	34.2
	51.7	55.6	134					21	53.2	57.1
	18.5	22.9	135							
	d b									
22	59.4	63.2	136					23	01.5	4.3
	b d									
23	50.9	54.9	137					23	52.3	56.2
25	4.8	8.7	138	25	4.5	8.7		25	6.3	10.3
	34 0	38.0	139		33.8	—		25	35.4	39.3
	41.9	46.2	140	*	41.8	45.9		25	43.4	47.4
	43.1	47.1	141		43.0	46.7		25	44.2	48.3
	d d								δ. B.	
26	32.9	370	142	26	32.9	36.8		26	34.2	38.1
26	39.9	43.7	143		39.7	43.8		26	41.3	45.2
	d b									
27	8.3	12.3	144	27	8.0	12.0		27	9.4	13.5
	35.9	39.7	145		36.0	39.9				
28	14.0	18.0	146	28	13.6	17.7		28	15.3	19.4
	16.5	20.3	147	28	13.6	17.9		28	17.8	21.8
	47.0	50.8	148		46.1	50.9		28	48.4	52.3
	d b								δ. B.	
29	42.6	46.8	149	29	42.7	46.7		29	44.0	48.0
	50.2	54.1	150		50.1	54.0				
	59.2	63.1	151		58.9	62.8		30	0.3	4.2
	d b d b									
30	42.3	46.5	152		42.2	46.1		30	43.5	47.4
31	3.4	7.4	153		3.2	7.0		31	4.6	8.4
	d									
31	29.7	33.6	154	31	29.4	33.6		31	30.9	34.8
	47.6	51.2	155					31	48.6	52.5
	52.9	56.8	156		52	56.4		31	53.7	57.7
32	0.1	4.1	157	32	0.8	3.9	3	32	1.4	5.5

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13	5	52			13	5	38	first-min?	12, 6	1
13	1	9			13	1	28		12. 1	33
13, 14	−0	40					no sun			
	D.B.									
12	10	11			12, 13	10	17		12	10 22
	B D									
12, 13	9	20			12	9	22		11	9 30
13	3	30				3	39	1 min sunset	10. 2 14	3 44
12	7	00	n.s		11 12	7	07	sun low	10.11	7 11
12	6	29			12	6	36		10	6 41
12	7	08	n.s	7 10 on sun scale	12	7	11	n.s	10	7 21
	D D.					D			D.B.	
12	0	15			12	0	21		10.11	0 27
12	6	11			12, 11	6	18		10.	6 25
	D.B									
9	5	12½		8.5	9	5	20		9	5 24
11	−0	19		B. 9.3	10	−0	12			
	B.B									
12, 13	5	18			12	5	21		10. 11	5 28
12.13	9	47	n.s			not obs			10.11	9 50 n.s
12	4	02		9.5	12. 11	4	04			
	D.B								10	4 16
									D B.	
12.11	1	55		9.3	12		—		10	2 06
11.12	−0	26		9.2	11	0	31			
9.10	3	01		8.2	9	3	04		8.9	3 10
	D.B.D.B									
11	6	42		9.0	11	6	49		9.10	6 54
10	9	49		8.7	10	9	52½			10 0
	D									
12	1	24			12	1	29		10.11	1 36
12.13	−0	15				−0	not obs		11	−0 6
12	5	51	n.s	first min low	9.3	12	6	00	9.10	6 16
	0	10	8		9.2	11	0	10	9.10 21	0 16

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3	32	49 7	53.9	158	3 32	49 9	53.8
	33	3.9	7.8	159	33	3.5	7.2
		d. for 1m.					
	34	23.1	27.4	160			
		26.3	30.3	161		26.4	30.3
	35	11.8	15.8	162	35	11.3	15.4
		45.1	49.0	163		44.9	48.7
	37	24.2	28.2	164	37	24.1	28.1
		32.6	36.3	165			
		46.6	50.6	166			
	38	12.3	16.0	167	38	12.0	15.5
		d					
	38	49.8	53.8	168	38	49.7	53.6
	39	38.7	42.3	169	39	38.4	42.2
	41	19.8	23.9	169 170	41	19.6	23.5
	42	18.1	22.0	~~170~~ 1	42	17.9	21.8
	43	2.3	6.1	~~171~~ 2	43	1.9	5.5
		26.5	30.6	~~172~~ 2			
		55.0	58.9	2 ~~173~~ 5		54.8	58.8
	44	4.3	8.3	174 3	44	4.3	8.0
	46	5.1	—	~~175~~ 6	45	13.7	17.1
		8.8	12.9	~~176~~ 7			
				177 1			
		18.0	22.0	~~178~~ 5	46	17.8	21.6
		20.5	24.5	~~179~~		20.2	24.0
		b		36.0			
	46	56.8	60.5	180 2	46	56.3	60.1
	47	7.6	11.5	181	47 ~~73~~	7.3	11.2

3	32	51.3	55.0
	33	4.8	9.0
	34	27.5	31.3
	35	13.1	17.0
	35	46.1	50.2
	37	25.6	29.4
	37	33.7	37.7
	37	47.9	51.8
	38	1	
	38	50.9	(56.2)
		Lamp better	
	41	20.9	24.8
	42	19.1	23.2
	43	3.2	7.1
	43	27.7	31.7
	43	56.1	60.5
	44	5.7	9.4
		beim	
	45	14.9	19.0
	45	31.6	35.6
	46	6.3	10.2
	46	9	
	46	19.0	22.7
	46	21.4	25.3
	46	57.5	61.3
3	47	8.7	12.4

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				Mg. Brg.					
12	0	18			11,12	0	12	10,11	— 0 4
	1	56		9.4	11,12	2	00	10	2 11
	Dbl for one minute				B				B
					not obs			Dec line forward, double, Samp failed	
12	1	09							
12,11	10	11	n.s	9.5	11	10	19½	9,10	10 22
12	9	6			12	9	10	10.	9 16
12	8	9½			12	8	11		8 17
13	3	18			13	3	23		3 36
13	2	50				not obs			3 6
13	10	12?	~~on Dec scale?~~			not obs			10 —
13,12	7	43			13	7	51		
	~~Dbl~~								
11	7	15		8.9	11	7	20		7 25
12,13	5	4	cometary tail; n.f.		12	5	9	last not accurate	18
	B.							Wind down	
11.12	6	48		9.1	10,11	6	51½	10	6. 58
11.10	6	23½		8.3	10	6	30	dbl	6. 36
9	9	38		8.6	9	9	41		9 46
13	8	12			13	8	—	not obs 11,12	8 22
13	6	59½			13	7	09		7 14
13	4	03			12	4	07	11	4 16
	~~Dbl~~								
12,13	10	—	not obs		12.13	~~not obs~~		10 47	10 43?
12,13	2	02	see wire bent			not obs		11.	1 45 n.s
12,13	0	19				not obs			2 12
									~~0 24~~
11	0	20	on 2° scale		10	0	20		(0 24)
12.9	8	01		8.2	9	8	9	n.s 9	8 16
	~~Dbl~~								
12	8	23		9.4	12	8	30		8 37
9	0	51		7.6	9	0	57½	8.9	1 3

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144	145
4	4
22	27
23	23
23	24
24	24
22	20
21	25
22	24
26	271
16	
20	
223	

4

The following table can be used to reduce Mr. Coolidge's scale of magnitudes to that adopted by T.W.I

Coolidge	C!
9.0	8.4
9.5	8.7
10.0	9.0
10.5	9.3
11.0	9.6
11.5	9.9
12.0	10.3
12.5	10.6
13.0	11.0
13.5	11.3
14.0	11.6

The investigations of Prof. Bond's scale showed about the same relative values. Pro. B's numbers however and less than Mr. Coolidge's.

A different scale was afterwards (in "Revision of Dorp" Vol. Like this.

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Double Star Jan. 21. 1860

chron. 236

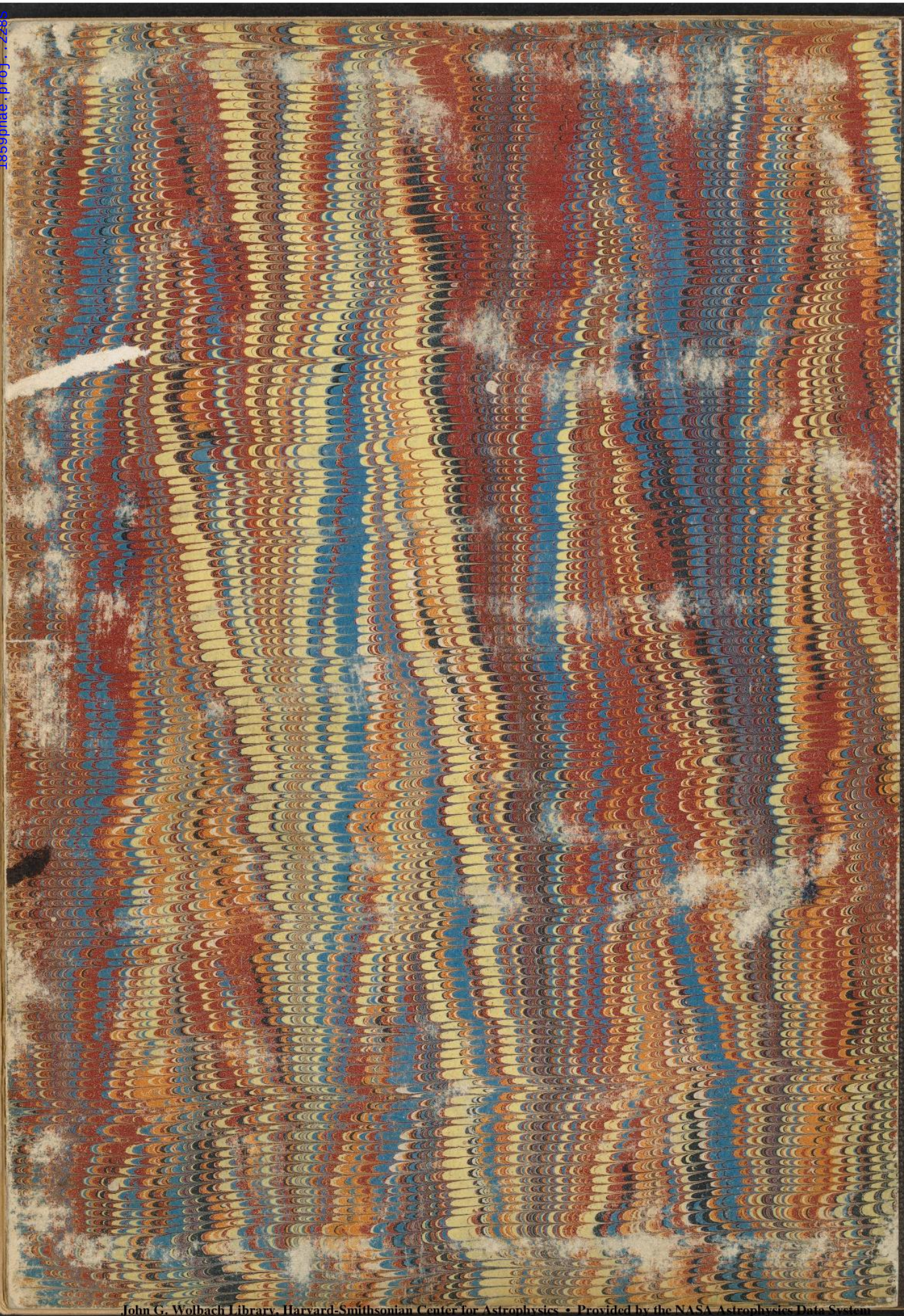
$3^h\ 6^m\ 3^s.4 - 7.3$

scale
6′ 00″
5 57.5

Dec $+2^\circ\ 6'\ 6''$
West. Hr $1^h\ 6^m\ 7^s$

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