1960phae.proj.229S

KG
11365
229

K.19

Zones.

Feb. 21st to Nov. 24

1860

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KG-II 365.229

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I find that the following are the values of Argelander's magnitudes according to the scale used by HHS in that book.

Arg.	HHS	No.	Pr. Em. comp.
9.0	9.24	24	± 0.m214
9.1	9.45	8	± 0.213
9.2	9.45	26	± 0.263
9.3	9.69	28	± 0.281
9.4	9.77	26	± 0.180
9.5	9.82	114	± 0.247
			± 0.m24

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15 25

no sig
wire lost 15
R 60
D. 1 0

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Zone 147

Date February 21st 1860
pos. circle 354. determined

at beg.
E C 6 52 00
Bar 30.300
att th 55
ext th 37½

at end
E C 8 29 00
Bar 30.332
att th 52.0
ext th 33.0

Obs S.C
Rec A H
weather

telescope East of pier
Continued from

3h 46 20.3 29.4
56.6 60.5
pen failed
d

Zone 148

Date
pos. circle

at beg.
E C
Bar 29.628
att th 66.0
ext th 46.5

at end
E C 8 41 00
Bar 29.724
att th 62.2
ext th 42.3

Obs. S C
Rec A H
weather

telescope last of pier
Zones 145, 146

3h 46 lost
60.8
8.1 12.1

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147 0°, 50'-60' 148

Draconis Catalogue Stars.

1860.0

		α.	Dec.	Probable Error
124	9 Greenwich	3 46 21.81	+0° 58' 8.9	8.9
125	5.	47 9.29	50 50.9	61.4
129	9	52° 48.52	1 0 2.7	2.7
130	9	53 4.27	0 58 58.0	58.0
136	9	4 9 0.66	53 18.9	20.3
138	9	11 15.62	55 39.0	39.0
139	8	13 51.23	0 57 23.2	23.2
163	9	38 46.92	1 0 50.9	50.9
164	9	39 4.07	0 57 9.8	9.8
173	7	43 31.96	54 19.1	(21.3)
174	9	44 36.24	1 0 32.2	32.2
175	8.9	46 15.23	0 53 43.8	43.8
183	9	52 45.23	57 12.7	12.7
187	9	54 43.18	50 26.4	23.6
188	9	57 9.42	54 9.6	9.6
189	7	58 10.20	58 55.9	55.9
194	9	5 1 31.24	55 48.4	48.4
196	7	4 32.25	51 46.1	(47.2)
204	9.10	13 12.86	49 57.3	57.3
207	(8)	15 52.19	55 12.8	(14.2)
209	9	19 3.37	55 56.11	56.0

D

10,9 8 03 5 8.2 10.9 9 00 1st

12 8 3 11/2 22 9.4 12 8 19 first wire bent

9 0 4 9 1/2 49 7.6 9 0 45

B D.

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48	30.4	34.2					
50	49	8.3		3h 50	4.7	8.8	
	24.1	28.1			24.8	28.7	
51	27.5	ww?		51	27.7	—	ng:
	54 5	8.5			55.2	59.1	
52	16.2	20.0		52	16.7	20.7	
	47.0	50.9			47.5	51.3	
53	2.4	6.3		53	2.9	6.9	
	13						
6					36.5	40.6	
54	5.7	9.8		54	6.3	10.0	
	40.7	44.5			41.3	45.0	
							Strgk. Mag.
				56	35.3	39.1	9.
					37.1	40.9	
				57	21.3	25.3	8.9
					45.2	49.0	
				58	24.8	28.8	
					47.4	51.3	
				59	6.8	10.6	
4h 0m	1.9	5.7		4 0	2.1	6.2	7.
	40.0	—			40.7	44.7	double 9.10
	40.7	—			41.3	45.2	
	45.2	49.0			45.9	49.4	9.
1m	7.0	11.1		1	7.8	11.8	
		25.9			13.0		
				2	9.6	13.6	
				3	3.4	7.3	8.

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			2 5·4			D	
13.14	4	01	00		13	3	59
12	7	02	03	9.5	12	6	58
13,14	-0	27	29 double, comp S.f. 3" starless field		13	-0	37½ not double, one wire only
12	9	00	00		12	8	58½
12,13	3	5·½	49½		12.13	3	48
10	9	55	B 53 red star	8.7	11	9	50 reddish
						B	
11	8	46	46½ 46		11	8	41½
	D. B.		B.D.B				
13.14	4	40			13.14	4	36
12.	0	09	09	9.1	13	0	00
	B.D.						
12	9	03	03		12.13	8	59½
14	4	50±	nebulous by indirect vision		not obs. too faint		
	D.	D.					
10.11	7	42		9.1	9.10	7	39
11.12	8	29½	n.s		10	8	23
10,11	5	80		8.7	9	B 5	26
13.14	2	10	a nebulous comp. n.p. 20"		13	2	05 approx. AR? no nebu-
	B. B						
12	7	03			12,13	7	00
12	1	41			12,13	1	35
12	3	5·4			12,13	3	47
	D. B. D.						
12,13	0	2 2	20½		12	0	16 windy
12	6	5·3	5·2		12	5	49 n.s
12	6	10	10 n.s n.s Second wire lost	9.5	12	6	07 n.s
10	0	38½	38½ n.s first wire lost		9.10	0	31 n.s
12.11	8	18	18½		12	8	13
12.11	0	39	36? first wire lost			B.D.	not there
	B.D.B.						
13.12	5	20					
12	4	10			12	4	35
10	8	29	30 wind shakes tube badly	8.0	10	8	25

(24)

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3h 46m

4h 4 19.0 22.8
56.0 59.5

5 9.0 13.0
39.5 43.3

9.10 6 20.7 24.6
54.6 58.3

7. 28.0 26.9
51.9 5
53.1 57.1

9.10 53.9 58.0
8.9 59.0 62.9?

9.9½ 9.0 0 51m 57

8.9

The second of Beginning seems to have been taken wrong in recommencing

Add 1s.

9.3 13.6
12 23.3 27.3

13 10.6 14.6

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B.D

14	4	10			14	4	04 n.s
14	6		} not obs.			not obs in Dec	
14	5						
12,13	1	57	?		13	1	52
12,13	5	59½	6 00½		12,13	5	57 n.s
	D.D.B.						
12.11	0	20½	20	Q.4	12	0	15
12	10	20	13			not obs	
12	7	58			13	7	50
12,13	6	48			14	6	39
12,13	6	19½	19		13	6	12
12.11	3	33	13 n.s same	Q.5	12	3	09
	B.B.D.	D.B.D					
10	2	11	15	Q.7	10.11	3	07 sure
11,12	9	12½	14		12	9	10
11.72	10	—	41 n.s		12	10	55
	D.B.D.B						
12.'	0	13	07 a broken line of dark lines		12	0	08
12,	7	20	n.s				
10.11	5	30	32	Q.7	11	5	26
	B.D.B.D.	B.D.D.B.					
12	8	00	00 first wire lost		12,13	7	57
12	3	47	49 n.s			3	42
12,	5	06	03		13	5	00
12	10	—	10.12 n.s n.s		13	10	11
12	6	52½	59		13	6	49
9.10	1	18	19 on second scale not cor. 8.5		9	1	17½
	B.D.D	B.D.B.D				D.B.D.B	
12.11	0	58	59	Q.5	12	0	50½
12	8	09	09		13	3	01½
13	5	37	Dots one minute				
13	6	17	?				
13.14	0	39½	comp. north 2 comps n. p.				
11.12	5	26	29 on 5m scale	Q.5	11.12	5	20½
	B.	D					

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Add 1ˢ

4ʰ	18.9	22.6	12
	32 9	36.8	12
13	49 5	53.3	1
	bdb		

Catalogue item not obs. 8th circle

14	49.6	53.3	1

The right = ascensions after (9.10)

this seem to be misplaced.

There is a good deal of confusion

	56 0	60.0	13

here; which can be explained 9.10

17	4.1	8.1	11
	473	514	1

by referring to the next 9.10?

	47 8	51 8	12

book of Zones, in connection 9.10

18	47 3	11.3	10
18	39.7	43.8	1

with the press-copy.

J. H. S. 9.10

(8.9)

(9.10

(9.10)

24 1

2	8.1	12.0	1
	59.0	63.0	1
26	28.2	—	1

!

	39.1	43.2	1
	40.9	44.8	1
27	29.6	33 6	1

29	11.9	15.8	1
	13.7	17 8	1
	30.8	34 8	1

	31.9	36 0	1
30	8.0	12.0	
	—	16.2	

9

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12,11	5	30			12	5	28		
12.11	3	11	10 n.s	q.5	12	3	09	n.s	
11	8	24	27 comp. 2s foll. 2° amp?	q.3	11	8	20	comp fol 4s slightly south	
								B D. B	
12	4	57½							
11	2	49	40 not acc, close comp. s.f.	q.5		2	42		
	8		} not obs in AR						
	8		} B in second obs.						
	D								
13,14	1	21			13.14	1	09		
11.12	6	48	49 very faint comp north 2"	q.5	12	6	42½		
13	3	14			12,13	2	10	Instrument stench	
12,13	0	09	Astr of 14 may obs here in		12,13	0	07		
	D.B		second obs.						
10.11	10	10	20 n.s	q.1	10,11	10	16½		
11	8	46	48 n.s	q.5	11	8	43		
	Dots for a minute								
11	6	22	24 ~~not obs~~	q.5?	12.13	6	21	} ex in star	6 19.
12	6	23	27 first wire lost,		13	6	42	}	6 22
12	3	43	42?			not obs			
	B								
12	9	30	30 double? from north to south		12	9	29	elongation?	
13	9	00	meteor crossed the field, close double!			8	01	double?,	d
~~11~~	0	30±	lost in obs.			0	41	see wire lost	
12	9	12			12.13	9	09		
12	6	42	2,42		12,13	6	42		
12	9	17			13	9	12		
	D.		Scale covered with mist=			D.D.D.D			
12	7	06	= wire		13	7	03½		
12	8	35?	comp. 8" south		13	8	29	ns comp south fol. 8" about	
12	1	03				0	59		
12	6	04				5	04		
10	7	22	21½ } first wires lost	8.9		7	18½		
11	4	29	28 double?, bisect wires			4	22	not double pair in last	

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9.10	4	30	35 S	39.2
		31	49 5	48 4
			6	
		32	47 3	5 13
9.10		33	0.9	7.6
			5.0	9.2
			~~59.2~~	~~63.2~~
			59.2	63.2
		34	28 9	32.7
8.9			30 5	34 6
		35	33 7	37.7
8			45 3	49.4
9/		38	45 2	49 0
9		39	2.0	6.1
		40	—	17 7
Double 9.10			21.6	25.8
			—	31 6
9.10			36 6	40 6
a 41 7/9 10 56		41	33 6	37 5
			38.3	39.4
		42	36 6	40 6
9			80 3	84.3

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10.9	0	35	36		9.10	0	29	
11	not obs					not clear		
	D.B							
12	6	02	00 comp north south about 10"		12	5	59	comp north 9"
	B,D					B		
12	10	29	30		12	10	26	
12	8	23	22		12	8	20	see wire double.
12	7	34	34 n.s	9.5	12	7	31	
	D.B.D		B.					
12.11	4	14	13		12	4	10	
11	10	43	48		11	10	42	
11	4	39½	39 n.s. ?	9.1	11	4	34	n.s
	B,D,B		29 another star					
12	7	24	32		12	7	21	
10	0	12	11	7.6		0	06½	
	Break		B.D.D for a minutes					
13			& starless field					
12	10	44	see wire loose.					
10	10	39	41.	9.0		10	37	
12	not obs 9 38					not obs		
1								
10.11	7	00	01 fair wire	9.2		6	59	
12	10	12						fair wire loose, double
	D							
12	2	28½	29 sec wire first	9.3		2	21	f
12	2	28	28 fair wire last	9.5		2	20	fair wire
12	4	03		9.5		4	00.	
12	6	00	n.s, 00			5	57	
12.13	B		7 11 another obs					
12	9	38	9 49	9.5	12.11	9	35	
12	5	02	n.s 5 03			5	00	n.s
13	7	38	close double? n.s		11	not obs	7	34 double
11	6	09	10	9.0	10	6	07	

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+ 1.5

7	43	30.2	34.2	12
		52.8	56.8	9
8.9	44	39 0	37 0	11
9.10	45	9.3	13.5	
		—	22.1	12
		32.0	36 0	12
		407	W.W.	12
		8		
other q/o here 9.10		44.8	48.9	12
The right ascensions are generally misplaced here. 8.9	46	44	8 6	12.1
		18.2	17.9	12
		18.0	21.9	12
		8		
(9 here)				
9		~~18 8~~	~~22.7~~	1
9.	48	33.7	37.7	12
	48	58 0	62.1	13
9		27.7	31.6	12
	49	48.0	52.0	12
	50	15.8	20.0	13
		27.1	31.0	12
	50	29.2	33 0	12.
		6 fil		
	52	2.2	5.9	1
9.10		7.5	11.6	1
9.~~10~~		434	474	1

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12	–	0	27½	28 n.s	See wire doubtful		12	– 0	28	
9		4	09	10 8 4 11	on See scale	9.3	8	4	05	
				D.B.						
11		10	20½	23½	close double, prec. fol. sure		12,13	10	22	10 19 close double?
				D.B.D	Interval 3/4"			B		8.3?
									D.D.D	
									3 53	
12		0	09	09	9 09 sec slit	9.3			0 06	fine mean hr
12		2	09½	3 10		9.3			2 06	1
12		6	29	n.s	fine wire double	9.4			6 28	
									D	
12.13		4	29½	30	n.s fine wire double		12		4 23	
9.10		3	33	33		8.3	9		3 29	
				D.B.D.B	B,D,B.D					
12.13				10 03					10 09	n.s
12,11		3	02½	3 05		9.0	11,10		2 59	
12,13					9.D.B 6 31				D.	
				B,D.B.D.B						
12		9	30½	32 n.s		8.9	10		9 39	
12		5	03	5 04	Wind moving telescope	8.9	10		5 00	
13		D		6 29			12,13		6 22	
				D						
				9 59						
12		1	09½	1 07		9.0	11		1 04	
12		7	00	7 28			12		7 21	
				end			13			
13		6	21				13		6 14	
12		7	00				12		6 56	
12.13		3	00						2 57?	n.s
		D.B							D for an m	
13		4	40						4 39	n.s fine wire double
12		5	31	n.s		9.4			5 23	
10		7	05			9.1			7 00	

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4	53	8.8	13.0
		39.7	38.6
	54	15 0	19.0
		~~7 4 9~~	~~25.~~ 28.2
8.9		41.2	45.3
	55	16.4	20.9
		57.0	61.0
	56	20.0	24.2
		46 0	50.3
9	57	7.7	11.6
9.10	57	18 2	22.2
9.10	57	45.3	49.0
7	58	8.9	12 3
		30.6	34 5
	59	3.3	7 2
(9?		60 41.9	45 9
9?)		57 4	61.4
9		1 29.8	33.7
		45.2	49.5
	2	3.3	7.2
("		11. 3	15.2
(9.10)		12.0	16.0
9.10		45.1	48.9
9	3	7.8	11.8
		47 2	51 4
		—	55.0
		39.7	53.7

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1960phac.proj.2208

		B						
13	3	33			14	3	30	
12,13	5	30			12,13	5	26	
		D.B.D.						
12,13	10	29	sm wire lost		12,13	10	20	
13	6	20			13		lost D sm first wire lost	
10	0	~~24~~	0 17 on Sec Scale (double)	8.3	11,10	0	11	
		B D						
13	1	33			13	1	31	
14	7	07	comp n.f. 8"		14	7	00	comp. n.f. 7"
12,13	4	04				3	59	Meteor from S.p. to n.f.
12;13	2	18				2	15	
9,10	3	53		9.0	11,10	3	49	
9,10	3	45		9.3	11,10	3	38	
		B						
13	9	08	n.s				not obs	
	5	40		9.2	11	5	37	
6	8	46t	~~disturbed, lost~~	6.0		8	40	
13	0	29	distant comp north		13	0	23	dist comp north 10"
		B D						
12,13	4	11			13,12	4	10	
		B D B D						
11,10	6	47		8.8	11	6	40	
11,10	7	17		9.2	11	7	10	
12	-0	28					not obs	
		D.B.D						
10	6	37½		8.8		5	31	curtain
13	~~not obs~~		4 06		13	4	00	
12,13	3	11				2	09	
	4	50				4	41	
	6	29	n.s	9.5		6	22 n.s	
11	-0	03		9.5		-0	09	
		D						
11	6	54		9.2		6	50	
13	1	29	sm wire lost		13	1	21	
	2	13	n.s		12,13	2	11	first wire lost
12,12	0	20				0	12	

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7

5h 4 24.6 28.4
30 5 34.6

5 24.9 29.0
35.0 39.6

6 49.0 52.8
7 53 9 7
41.9 45.5
42 52 3
50.1 54.1
8 7 7 11.6

9

— 21.8
3
35 7 39.8

9 17 0 20 7
13
54 9 58 6
6
10 60.2 64.0

48.2 52.1

11 4 7 8 9
33 1 36.9
51 5 55 4

9. 12 11.0 14.8

13 11.3 15.3
9.10 27.1 31.3
9.10 38 3 42.1
9.10 53 4 57.0

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12.13	3	09½			13	3	00½ n.s
	1	37½		6.5	8	1	31
	B						
12.	9	40	comp. fol. 10s slightly south		12.13	9	34 dist comp fol 9s
12	1	19			11.13	1	22
	B.D.B						
13	2	38				2	30
13	4	19½				4	21
11	10	33	n.s			10	30
11		22		9.2		8	19
11.12	2	27	n.s			2	18½ n.s
10	1	58		9.1		0	48 sure
11,12	3	02				2	58 first seen best
	D.B						
12,13	4	00			13	4	00
13.14	7	01				6	59
	B.					B	
13	6	40				6	31
13	1	19	n.s			1	10 n.s Schwachfad
	D						
12	1	01				0	55
12,11	4	34				4	29
12,13	8	44				8	41
12	5	01		9.5		4	59
10	8	14		8.9	10	8	09
	B.D.D						
13	not obs						
11	-0	12		9.1	12,11	-0	20
11.10	5	27		9.4	12.11	5	20
11.12	2	11½		8.9	12.11	2	6½
11.12	3	18½		9.5	12.11	3	20

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1860phae.proj..229S

	5^{2}	14	2.7	12 7
			10.1	14.0
		14	33 9	38.0
		15	1. 7	5 8
9.10			7 5	11 6
	8		50.6	~~[illegible]~~ 2.6 D
	9		85.0	59.0
9.10		16	7 8	11.8
			50.2	5 39
9.10		17	Ga 6	204
9.10				
		18	5 ~~[illegible]~~ 91	11h 7.0 W 5 6 0
9		19	1. 8	5.9

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1960phae.proj..2295

11.12	5	07				5	07	
11	9	31	n.s telescope moved			9	30	
	B.B.B							
12	5	00	See wire?			4	50	
11	7	19½				7	11	
11	6	50	n.s	9.0		5	40	sure
	38½	one wire double close middle						
10	5	03	5.06 AR of first only	(7.9)	11	4	59	comp 5 04
10	10	01		8.6	11	10	00	
12	10	21						
11	5	03		9.4		4	58	
	B.D							
12.10	4	50						
12	5	41				5	38	
12	8	49		9.5		8	40	
12	5	39	See wire here			5	30	
12	7	50		9.5		7	58	
10	5	50		9.1		5	40 42	

C – A (67 comps)

67 comps. $1''.83 \pm 0''.06$

Prob. Error 1 comp $\pm 0''.49$

C'' – A

41 comps. $1''.84 \pm 0''.08$ / 45 comps.

R. Error 1 com. $\pm 0''.52$

After reducing the Calisto magnitudes by the table at the end of Book B. we find

$C''^{(m)} - A$

$0''.49 = 0''.04$

R. error 1 comp. $\pm 0''.28$

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1860hae.proj..229S

Zone 149

Date February
pos. circle

EC
Bar 30.282
att th 36.0
ext th 44.0
EC
Bar
att th
ext Ther

Obs
Rec
weather

telescope of pipe
Continued from zones

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1860phae.proj..229S

Repetition of Zone 133.

Nov. 1 1860
Dist. Nov. 54° 26′ Used 54° 29′ = mean of 3 determinations

Nov. 6. 1860

Angle of Pos. 90° 28′.5 —
18.5
19.0
90 22.0

T. H. S. observed ——————— Assumed angle 90 20.0

Σx. Ther at close 39°.6
Ec. 0h 38m ~~off~~ end of sheet.

THS. Ob
AH rec.

1	22	25	30.6	34.5
2		25	48.0	52.0
		26	17.3	21.2
		26	43.3	47.2
		28	49.0	53.9
		29	8.2	12.2
		29	(22.8)	26.5
		30	38.7	42.9
		30	59.3	63.1
		31	35.6	39.5
		32	18.0	21.9
		32	50.0	54.0

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1860phae.proj..229S

6 6.0

0°40'–0°50'

on first wire
on second wire
on first wire

May. Suppl.

						D.D.D.	
9	6 30		8.8	9	6 31		
11	4 36			11	4 37		
11	5 32	v 9	mags too faint	11	5 33		
11	8 50	B			8 52		
					B.B.D.		
10-11	6.55			9.10	6 56		
12	1.51	2 nr doub		10.11	1 53		
		* lost		11.12	4 30	8? first wire doubtful	
	8.59		9.3	9	8 58		
	D			9.10	9 11		
9-10	9.8						
11-12	4.26			11	4 27		
	D B				B		
12	8.124			10.11	8 26		
	8.			10	2 35		

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1860phae.proj..229S

22	33	10.0	13.9
	33	44.9	49.0
	33	55.6	59.8
	34	33.8	37.7
	35	35.6	39.3
	36	16.2	20.1
	37	48.7	52.3
	38	9.5	13.2
	38		23.4
Examiné	38	47.7	51.5
	39	53.2	56.9
	40	15.5	19.5
	40	28.3	32.2
	41	0.5	4.3
	41	3.0	6.9
	41	15.3	19.1
	41	16.9	21.7
	41		42.3
	44	2.6	6.8
	44	25.3	29.4
	44	27.0	30.9
	45	37.0	41.0
	45	57.6	61.3
	46	34.5	38.7
	47	4.6	8.4
	47	31.4	35.3
Catalogue	48	45.5	49.3
	49	33.0	36.9
	49	43.2	47.2
	50	15.5	19.3

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1860phae.proj..229S

				v		
9-10	5.11			9	5 10	
	B S					
10	5.47			10	5 47	
9	10.16	d	9.5	9	10 17	
10	6.19			10	6 19	
	lost	Dec by 2 on dad		11	6 19	
	B D D				D.B.	
				11.12	8 0	
11-12	5.6			11	5 6	
	5.6			10	8 6	
	lost			10.11	0 11	first wire lost
10	4.22				4 17	n.s
	B					
9-10	9.41				9 7	
9-10d	4.25					
				10	8 22	
	8.4			10.11	8 1	
	7.21				B.	
				11	9 2	
	9 28			11	8 6	
				10	10 30	
				9	7 20	
				9.10	10 32	first wire lost
					D.B.D	
9-10	6 12			11	6 6	
9.10	2 24	no sig	9.5	9.10	6 8	}
9	5.47		9.3	9	2 35	}
				9.10	5 50	
10	1.22			11.12	4 33	
10	5.6			9.10	1 24	
	B				B. B. B.	
11-12	D lost			11	5 6	
				11	8 51	
				11.12	8 19	
			8.8	8.#	2 36	
				10	10 8	
				11	9 11	

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1860phae.proj..229S

50	53.1	56.8			8	14	comp.
51	5.9	9.9		10	0	10	
	6.4	10.4		10	1	43	
					D. D.		
52	26.2	30.2		9.10	9	20	
52	36.2	40.0		10.11	4	8	
53		2.5		11	0	40	δ doubtful
53	35.8	40.0		10	−0	20	
53	50.8	54.7		10.11	4	40	
54	42.3	46.2		10	8	46	
55	52.6	58.6		11.12	3	3	
56	1.8	5.8		8.9	5	38	n.S
56	16.0	20.2		9.10.	7	12	
56	38.7	42.9		9.10	−0	11	
57	15.3	19	wire doubtful prob. 1.st	11.12	2	38	
57	19.6	23.4		11.12	0	22	
58	14.0	18.0		10	7	05	
58	28.9	32.8	9.2	9	5	46	
					B. B. D		
59	16.1	20.1		11	0	17	
22 59		25.0		11	−0	17	
23 0	4.0	7.9		11	9	3	
		11.5	wire doubtful. pr. 2d rej	11	10	43	?
0	33.9	37.4		10.11	4	40	
0	47.4	51.3		10.11	2	38	
1	25.5	29.5		9.10	6	46	
1	34.6	38.8		9.10	5	58	
					D D.		
1	53.7	57.6			7	27	
2	11.9	15.7		10	4	1	
2	28.8	32.8	9.3	9	8	1	
2	40.8	44.9		10.11	0	47	
2	50.5	54.5		10	0	15	
					B		

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1860phae.proj..229S

23	3	57.8	61.7		11,12	1 54	
	4	23.5	27.4		11	1 9	
	5	14.5	18.3		10.11	6 22	
	6	4.8	8.8		10	4 30	
	6	12.5	16.5		10	6 38	
	6	20.7	24.7		11	3 52	
	6	3	34.2			6 10	
	6	37.0	37.0			5 27	
						D	
	7	16.3	20.1			5 38	
	7		34.0			5 10	first c
	9	19.9	23.9		11.12	0 · 54	
	9	45.1	49.0	9.5	9	5 27	
	10	5.0	9.0		11	1 30	
	10	20.7	24.7		10	6 26	
	10	23.8	27.7		10	6 6	
						B	
	11	1.2	5.2		10	7 48	
	11	8.7	12.7		10	9 30	
	11	10.7	14.7	rej		9 45	n.s.
	11	37.3	41.6		10	3 5	
	13	4.4	(6.6)		9.10	8 54	Le wire wrong
	13	15.8	19.4		9.10	6 8	
	15	1.8	5.7		10	6 37	
	15	16.7	21.8	9.5	9	10 44	?
						B	
	16	57.9	62.0		10	7 4	
	19	48.7	52.6		10.11	7 15	
	21	0.3	4.5		10.11	8 18	
	21	21.0	24.9		10.11	8 9	
23	21	22.6	26.6		10.11	7 51	n.s.

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1860phae.proj..229S

V

22	27	40.2	44.1		12	1 10	δ!
	22	58.3	62.2		10	0 16	
	23	22.1	26.1		10	10 0	
	23	32.1	36.0		10	6 8	
	24	40.0	43.9		11.12	3 39	
	24	56.0	59.9		10	10 37	
	25	37.6	41.7		11	2 50	
						D. B. D.	
	27	47.5	51.6	9.3	8.9	10 7	
	27	59.8	63.8		10	5 30	n.s
	29	29.8	33.8		9.10	7 25	
	29	32.4	36.5		10.11	0 18	n.s
	30	43.8	(48.1)		10	6 28	See wire doubtful
	31	29.0	32.7		10.11	9 20	
	31	30.9	34.9	9.2	9.10	8 14	
						B. D.	
	32	27.6	31.5	9.2	9.10	4 00	may 9.10 or 9.
	32	50.8	54.9	9.0	8.9	6 13	
	33	46.7	50.7		11.12	7 21	
	33	57.7	61.5		11	4 50	
	34	21.4	25.4		10.11	0 9	
						D. D	
	35	30.3	34.3		11	6 46	
	36	40.3	44.3			9 32	
	36	5	50.2			1 18	first wire lost
						B. B.	
	37	45.6	49.6		11.12	2 14	
	39	46.8	50.7			0 19	
	41	18.3	22.2		10	7 41	
	42	50.2	54.2	9.5	9.10	1 21	
	43	1.6	5.3		11.12	5 24	
					10.11	1 26	AR lost
	43	56.5	60.3	9.1	8.9	9 6	show Sig
	44	18.0	22.0	9.5	9	8 12	
	44	36.4	42.5		11.12	0 28	

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1860phae.proj..229S

23	44	56.7	60.4	9.2	9	3	52	
	45	7.1	11.0	8.3	8.9	3	31	
	45	34.9	38.7		11.12	0	55	
						D. D. D		
	46	54.6	58.6		10	7	56	
	47	1.6	5.4		11.12	2	55	
	47	33.9	37.9		10.11	8	51	
	47	47.0	51.0		11	7	31	
	48	57.3	61.2	9.0	10	7	11	double comp north 20" of
	49	48.9	52.9		9.10	7	54	
	50	27.7	32.0		11.12	6	2	
	50	30.7	34.6		11.12	5	21	
	50		39.5		11.12	5	43	
	51	12.2	16.0	9.5	10	9	2	
	51	25.3	29.3		10	4	35	

By 20 comps. $S - A = -0.^{m}17 \pm 0.^{m}058$

R. error of 1 comp. ± 0.26

Reducing the catalogue mags. by formula

$C' = 10.^{m}2 + 0.^{m}8\,(\text{Mag. } C - 12)$

we get on the whole a good agreement between the mags. C' and those S.

Likewise by 22 comps. $C - A = -0.^{m}14$

R. Error 1 comp. $\pm 0.^{m}36$

We shall then have the reduced magnitudes by this formula

$\left.\begin{array}{l} 2/3\, S + 0.16 \\ +1/3\, C' \end{array}\right\}$

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1860phae.proj..229S

Zone (149)

Nov. 8. 1860. Angle of Pos. 270° 12′

Mer. Tm. 35

Zone

Nov 14. 263° 17′ Angle of Pos.

Ext. Fus 41.5 at beg.
38.7 " end.

Mer Tm. 38.

J. H. S. obs
A H. rec.

3	29	52.4	56.3	1	3 29	52.3	56.2
	30	26.4	30.2	2	30	26.0	30.0
	30	35.2	39.2	3	30	35.1	39.1
	30	40.3	44.1	4	30	40.1	44.1
	~~31~~						
3	31	49.4	53.6	5	31	49.4	53.4
	32	0.4	r	6	32	0.1	4.1

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1860phae.proj..229S

0° 40′ — 0° 50′

Catalogue Stars 1860.0

From Argelander's Charts 1855.0

✓	9	4h 18m 41.02	+0° 47′ 37.0	9	4 16.4	+0° 46′	46.7
✓	8	18 43.61	42 33.1	8	18.5	0 43	43.7
✓	7.8	25 11.60	40 42.7	8	24.6	0 41	41.6
✓	9	25 16.56	49 17.1	9	24.9	0 48	48.6
✓	8	26 19.14	43 26.5	8.9	26.0	0 43	43.6
✓	5.6	30 0.94	42 40.4	6	29.6	0 42	42.6
✓	8	33 43.43	41 16.6	8	33.3	0 42	42.6
✓	9	50 10.59	46 7.4	8.9	49.9	0 45	45.5
✓	9	53 7.25	47 35.0	9	52.9	0 46	46.4
?	9	54 43.18	50 26.6	8.9	4 54.4	0 50	50.4
	8	5 1 12.79	45 10.9	8.9	5 0.9	0 45	45.4
	9.10	13 12.86	49 57.3	9	12.9	0 48	48.3
	9	20 57.63	40 6.2	9	20.6	0 40	40.3
	7.8	32 25.24	45 13.6	8	31.1	0 45	45.2
	9	32 30.52	49 38.9	9	32.2	+0 48	48.2
	8	41 53.69	+0 40 31.8				

$\Delta\alpha$ + 20.^{s}

$\Delta\delta$ +0.′18 − 0.′2(t − 6^h)

Map from Argelander

9.8	9	53	9.2	9	9	46	
6.9	−0	7	8.2	8	−0	14	
10	3	56		10	3	48	
9.10	4	25 nS	9.1	9.10	4	18	
	D. B. B.				D. D. B		
10	10	16		10	09	nS	
11	2	17	8? See wire list	2	9		

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1860phae.proj..229S

			7	32	2.4	6.1
32	7.0	11.1	8	32	—	10.7
32	52.2	56.3	9	32	52.2	56.1
33	6.8	10.6	10	33	6.6	10.6
33	34.9	38.8	11	33		38.5
34		12.6	12	34	8.4	12.4
34	25.1	29.0	13	34	24.6	28.7
34	30.9	34.8	14	34	30.7	34.6
35	7.1	11.0	15	35	6.9	10.8
35	29.8	33.8	16	35	29.7	33.7
36	15.9	20.0	17	36	15.7	19.5
36	53.2	57.3	18	36	53.0	57.0
37	36.1	40.0	19	37	35.8	39.7
38	3.5		20	38	3.5	7.3
38	17.0	21.0	21	38	16.8	20.7
39	23.7	26.9	22	39	22.6	26.5
39	34.0	37.9	23	39	33.7	37.7
40	2.3	6.1	24	40	2.0	6.0
41	46.1	50.1	25	41	45.9	49.9
41	53.0	56.9	26	41	53.0	56.8
41	55.2	59.0	27	41	55.0	58.7
42	3.8	7.9	28	~~42~~		
42	38.8	42.9	29	42	38.5	42.6
42	54.3	58.2	30	42	54.1	58.0
43	17.5	21.3	31	43	17.2	21.2
43	48.8	52.8	32	43	48.7	52.7
45	3.3	7.3	33	45	3.1	7.1
45	34.2	38.2	34	45	33.9	37.8
45	53.1	57.3	35	~~45~~		
46	3.8	7.7	36	46	3.4	7.3
46	(15.3)		37	46	10.8	14.8

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1860phae.proj..229S

			9.2	9	10	30	
10	8	8		10	8	3	
9.10	10	11	9.5	9.10	10	6	
11	1	40		11	1	33	
11.12	3	9		11.12	3	4	nS. first wire lost
~~11.12~~	1	17	nS. first wire lost	11.12	1	8	
9.10	-0	2	9.0	9.10	-0	9	
9.10	0	16	9.0	9.10	0	11	
10	4 B	38	9.5	10	4 B	30	
10.11	9	45	not very good	11	9	40	
9	2	36	9.8	9	2	29	
11.12	did not obs this star						
11	2	21		12	2	11	
	D.						
10	2	36		9.10	2	30	
11	7	47	Sec wire lost	11.12	7	43	
11.12	1	55	doubtful	11	1	48	
					D. B. B.		
11.12	5	21		11	5	16	
11.8	1	9		10.11	1	4	
10	8	57		10	8	50	
	B. B.						
9.10	5	21	9.5	9.10	5	15	
10	7	30		10	6	26	anc
9.10	8	38		10	6	33	nS
10	3	58		—	lost-		
10.11	3	18		10	3	17	(in a hurry)
9	5	13	9.1	9.10	5	9	
	B.						
9.10	1	20	9.1	9.10	1	11	
10	6	0		10.11	5	54	
8.9	9	36	9.2 first wire too soon	9	9	29	
9	3	3	9.0	9	2	55	
12	4	16			not seen		
11.12	8	1		10.11	6	56	anc
10	10	9		10	10	3	

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1860phae.proj..229S

3 46	51.6	55.5.		38	~~3 47~~	~~16.1~~	~~20.2~~
47	16.3	20.2		39	3 47	16.1	20.2
47.	28.5.	32.5		40	47	28.4	32.2
48	7.5	11.8		41	48	7.3	11.3
48	22.7	26.7		42	48	22.6	26.5
48	46.1	50.1		43			
49	17.4		Examine	44	49	17.3	21.1
49		23.4	sheet.	45	~~49~~	~~1.2~~	~~5.0~~ rej.
49		56.0		46			
50	26.1	30.0		47			
51	29.8	33.6		48	51	29.1	33.2
51	54.6	58.5		49	51	54.2	58.1
52	0.0	4.2		50	51	59.7	63.5
52	20.8			51	5		
52		27.1		52	52	23.0	26.8
52	37.3	41.3		53	52	37.1	41.1
54	7.9	11.8		54	54	7.6	11.5
55		9.8		55	55	5.4	9.6
56	5.7	9.8		56	56	5.4	9.3
57	5.3	9.4		57	57	5.4	9.1
57	46.6	50.5		58	57	46.5	50.0
58	29.7	33.8		59	58	29.3	33.4
58	30.5	34.4		60	58	30.3	34.2
58	5 41.9	5 45.9	examine sheet	61	58	51.7	55.9
59	28.1	32.2		62	59	28.3	31.9
59	34.7	38.7		63	59	34.5	38.7
3 59.	56.5	60.5		64	3 59	56.3	60.4
4 0	3.9	7.6		rej:	4 0	3.7	~~7~~

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11	8	28				lost	
10	10	37			10.11	10 30	
11	2	30				2 17	
	D D D					D. D	
10	8	16	(Extreme Rec Dec)		10.11	7 9	Sure
11	9	17			10	8 17	Sure
10.11	0	6					
11.12	8	12	Dec will last-		10.11	8 8	
11.12	2	5	first " "			~~2 17~~ doubtful Dec rej	
11	4	0	" " "				
	D						
11	8	0					
11.12	10	2			11.12	9 56	
10	1	40			9.10	2 32	Sure
11	1	7	ns			2 2	
11	7	16	Dec will last-			not obs.	
9.10	3	52	first will last 9.64		9.10	3 46	
9	2	7	Dec will only obs (probably)		9	2 3	
	B. D		adjusted focus			B. B. D.	
10	10	38			10	10 31	
12	5	34	first will last		11.12	5 27	
11.12	2	18			11	2 12	
11.12	8	42	ns		11.12	8 36	
11.12	7	18			11.12	7 9	
11	1	6			11	1 2	
9	6	2	Dec will doubtful 9.1		9	5 54	
10	7	45			10	7 38	
	D. B.						
10	7	51			10	7 46	
9.10	0	16			9.10	0 9	
10	5	50			10	5 42	
9.10	10	50	doubtful 9			10 50	about Dec will last-

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1	25.1	25.1	Examine	65	1	21.0	24.9
1	28.4	32.8		66	1	28.4	32.2
1	32.8			67	1		
1	57.6	61.3		68	1	57.0	61.3
2	16.8	20.7		69	2	16.3	20.5
2	20.0	24.1		70	2	19.8	23.7
2		40.5		71	2	36.3	40.2
3	17.1	20.9		72	3	16.8	20.8
3	37.4	41.2		73	3		41.0
3	50.8	54.6		74	3	50.4	54.5
4	19.0	23.0		75	4	18.8	22.9
4	35.0	38.9		76	4	34.9	38.9
4	40.1	44.3		77	4	40.0	43.9
4		49.0		78	4	45.0	48.6
5	46.8	46		79	5	46.5	50.7
5	53.1	57.0		80	5	52.8	57.0
6	6.3	10.2		81	6	6.2	10.2
6	7.8	11.6		82	6	7.6	11.4
					6	21.9	25.7
6	57.9	62.0		83	6		1.8
7	6.8	10.8		84	7	6.5	10.4
7	12.1	15.8		85	7	11.8	15.6
7	49.6	53.7		86	7	49.2	53.0
7	52.6	56.4		87	7	52.1	56.2
8	39.3			88	8	39.0	42.4
8	44.7	48.6		89	8	44.6	48.4
8	53.3	57.7		90	8	53.3	57.3
10	1.9	5.8		91	10	1.9	5.8
10	9.0	13.1		92	10	8.9	12.9

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11.12	2		first wire lost !			Der lost	
11	4	14			4	8	ns
11	7	29	first only .		6 D	22	
10.11	0	38	9.5		0	30	one wire only
10	4	29	9.5		3	34	
9.10	9	31	9.3		9	26	
10	2	28	fair wire lost		2	21	
10	3	14		10	3	9	
10	8	40		11	8	36	first wire lost
10.11	9 B	8		11	9	4	
9.10	9	51	9.3	9.10	8	42	one
10.11	3	30			3	21	
10	1	34	ns		1	27	ns
10.11	5	39	doubtful about wires and sig.		5	35	ns
11	6	28	Lee wire lost	11	6	23	
11	3	18		11	3	11	
9.10	3	11		10	3	6	
10	4	16	9.4	10	4	8	
	D.D				10	40	
10.11	0	23					
10	4	7		10	4	1	
9.10	8	5		10	8	0	
10.9	7	56		10	7	48	
9.10	6 B	9		9.10	6	3	
11.12	9	37	Lee wire lost	11.12	9	31	
10	5	21			5	14	
10	5	48			5 D	41	
11.12	3	37		11	3	30	
9	7	43	9.2	8.9	7	37	

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4	10	27.0		93	4	10	26.8	30.8
	10	29.2	33.2	94		10	29.0	33.0
	10	55.6	59.7	95		10	55.4	59.3
	11	1.4	5.4	96		11	1.2	5.3
	11	25.4	29.2	— (not the same 97 98)		11	30.7	34.6
				99		12	6.2	10.4
	12	44.4	48.5	100		12	44.2	48.1
	13	3.5	7.3	101		13	3.2	7.2
	13	10.3	14.2	102		13	10.0	14.1
	13		23.6	103				
	14	31.6	35.7	104		14	31.4	35.0
	14	38.1	42.1	105		14	38.1	42.1
	15	34.3	38.2	106		(15	34.0	38.2)
	16	43.0	46.9	107 108 109		16	19.6	22.8
	16	59.8	63.9	110				
	17	30.8	34.3	111		17	30.6	34.5
	17	43.1	46.9	112		17	42.6	46.6
	18	6.2	10.1	113		18	6.3	10.2
	18	41.2	45.1	114	4	18	41.0	45.0
	18	43.8	47.9	115			43.7	47.5
	19	9.7	13.8	116		19	9.5	13.3
	19	34.2		117		19	34.0	
	19		38.3	118		19		38.1
	20	12.6	16.5)	119		(20	14.2	18.1)
	20	19.9	24.0	120		20	19.8	23.5
	20	43.3	47.3	121				
	21	19.9	24.0	122		21	19.5	23.5
	21	44.2	4	Examine 123		21	44.2	48.2
	21	46.5		124		21	46.3	50.5
	21		50.5	125				

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10	3	52	Lec wire lost		3	46	
10	8	15	N S		8	10	
9.10	10	29		9	10	36	Sure
10	5	0		9.10	4	52	
11	10	7			10	4	
	D. B. D				0	40	one wire?
					B. D. D		
9.10	0	8	9.5	9.10	0	2	
10	3	38	Dec doublfire	10.11	3	36	
10	8	48		10,9	8	41	
10.11	7	20	first wire lost		0 not obs		
11.12	9	36		10	9	28	
11	3	15		10	3	9	
12	9	39	Dec doublfire	10	9	34	
11	0	32	(9.5)?		8 27 0 13		Reader ran down stairs
11.12	7	53					
10	7	44		10	7	38	
	B						
10	1	10		10	1	6	
10	7	40	first wire too soon	9.10	7	38	
9	7	56	9 9.2	9	7	48	
8	2	52	N S 8 8.2	8	2	44	N S
10	5	0		10	4	52	Lec wire lost
11	5	48	Lec wire lost	11	5	41	
11	6	29	first wire lost	11	6	26	
	D.			10.11	9	5	
				~~9.10~~	~~9~~	~~19~~	
11.12	8	19					
10	9	26		9.10	9	19	
11.12	5	31					
11.12	6	9	E.	11.12	6	8	
10	4	22	~~9.5~~	10	4	16	
9.10	7	1	Lec wire lost 9.5	9.10	6	51	
9	0	6	first wire lost 9.5	9.10	0	0	not obs in AR

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4	22	15.5	19.5	126	4	22	15.5	19.3
	23	3.7	7.7	127		23	3.5	7.4
	23	11.9	15.8	128		23	11.6	15.6
	23	37.3	41.4	129		23	37.3	41.3
	23	42.5	46.4	130		23	42.4	46.1
	24	21.4	25.3	131		24	21.1	25.1
	24	29.6	33.6	132		24	29.5	33.5
	24	45.3	49.1	133		24	45.2	49.0
	25	3.2		~~134~~		25	3.0	7.1
				135				
	25	~~59.3~~	63.3			2		
	25	12.0	16.1	136	4	25	11.7	15.9
	25	17.2	21.3	137				
	25	39.3	43.2	138		25	39.0	43.2
	26	19.3	23.2	139		26	19.1	23.1
	26	30.5	34.4	140		26	30.2	34.2
	26	56.0	59.9	141		26	56.0	59.8
	28	0.0	4.1	142		28	0.0	3.8
	28	37.6	41.4	143		28	37.2	41.2
	28	43.5	47.4	144		28	43.4	46.9
	29	37.5	41.4	145		29	37.1	41.0
	30	1.1	5.2	146		30	1.1	5.1
	30	38.8	42.8	147				
	31	33.1	37.0	148		31	32.8	36.8
	31	48.4	52.5	149		31	48.3	52.2
	32	29.0	33.1	150		32	29.1	32.9
	32	31.0	35.0	151		32	31.0	35.0
	32	54.4	58.5	152		32	54.2	58.1
	~~30~~	~~28.4~~	~~32.3~~					
	33	25.5	29.6	153		33	25.5	29.6
	33	28.4	32.3	154		33	28.0	32.0
4	33	37.2	41.2	155	4	33	37.0	41.2

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1960phae.proj..229S

10.11	7	44				10	7	36	one wire of a star upset
10	0	42	sig. between wires			10	0 B	35	
9.10	2	35				9.10	2	29	
	B								
11	6	20	break " "			10	6	15	~~N~~
10	8	38			9.5	9.10	8	24	NS
9.10	6	9			Ex.		6	3	
10.11	8	3					7	59	
11	4	21	Dec doublfine				4	14	
11	8	—			Ex		8	13	
12	9	18							
8	1	2		8	8.0				
9	9	37		9	9.2		9	30	
10	3	3		8.9	9.5		2	56	
9.10	3	42		8.9	8.5	9	3	36	
10	9	49			9.5	9.10	9	44	
	D								
10	7	27				10	7	22	
10	7	18				9.10	7	11	
10	0	29			9.4	10	0	21	
10	0	2			9.5		−0	8	
10	0	58				10	0	49	
5.6	3	2			5.7		2	52	
10	2	58		9.10	9.3		~~2 52~~		beg sig
	B. B. D						B.		
11	8	56				11	8	54	
10.11	0	46				11	0	39	
10	−0	8							
11	7	10	NS				7	6	
11	1	38					1	28	
10	4	2	AR last			10	3	53	
10	1	9				10	1	6	
10	1	22					1	18	

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1860phae.proj..229S

4	33	43.9	47.7	4	33	43.8	47.5
	34	32.5	36.2		34	32.2	36.3
	34	37.3	41.3		34	37.1	41.1
	34	52.9			34	48.7	52.8
	34	56.0	59.9		34	55.6	59.6
	35	47.6	51.5		35	47.3	51.3
	36	1.7	5.8	examine	36	1.5	5.5
	36	43.8	47.9		36	43.6	47.5
	37	7.5	11.6		37	7.5	11.2
	37	25.3	28.9		37	25.1	29.0
	37	41.6	45.5		37	41.4	45.3
	37	59.6			37	59.1	3.2
	38		3.9		38	0.0	4.0
	38	24.6	28.7				
	38	39.6	43.3				
	39	3.8	7.9		39	3.4	7.2
	39	54.0	54.9		39	50.7	54.5
	40	33.4	37.2		40	33.2	37.1
	41	16.6	20.0	not the same obs	~~41~~ 40	49.8	
	41	25.1	29.0		41	25.0	29.0
	41	43.8	47.8		41	43.8	47.4
	42	26.3	30.3		42	26.1	30.2
	42	31.0	34.9		42	30.8	34.7
	42	43.3	47.1		42	42.8	47.0
	42	52.8	56.7		42	52.4	56.3
	43	4.1	(7.9)		43	4.0	7.9
	43	(7.9)	12.0		~~43~~		
	43	14.7	18.5		43	14.1	18.1
	44	9.9	13.9		44	9.7	13.8
	44	18	18.4	4	44	14.6	18.4

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9	1	30		8	8.0	9.10	1	23	comp
10.11	7	22					7	16	
10.11	7	23	ns				7	16	
10	8	18		examine 9.10	9.5		8	17	fin wire only
10	1	24				10	1	21	Le wire only
	D.D.B				✓		D.D		
9	10	39				9	10	33	
10.11	8	8		ei		10.11	7	2	
9.10	3	20		8.9	8.8	9	3	14	
9.10	6	31		9.10	9.5	9.10	5	23	Sure (?) Comp. Argelander.
11	0	36				11	0	23	
10	8	47			9.3	9.10	8	42	
10	0	20	Le wire lost				0	15	
10.11	9	36	fin "		9.3	10	9	30	
11	3	11							
11.12	10	7	ns						
10	1	29		9.10	9.5	10	1	23	
9.10	9	32		9	9.0	8.9	9	26	
	B.B.								
11.12	7	23					7	18	
11.12	8	—					8 accident	46 ns Le wire lost	
11	10	5				10	9	57	
11	7	46				10	7	38	
11.10	3	24				10	3	18	
10	3	57	ns	9.10	9.5	10.9	3	47	
11	4	12				10	4	9	ns. fin wire lost
10.11	10	0				10	9	58	
11	6	18	} Examine			10	6	9	
10	1	44		9	9.2				
9	8	40		8.9	8.7		8	36	
11.12	6	16				10	6	10	
10	7	18	Examine			9.10	7	7	

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44	43.8	47.6		44	43.3	47.5
45	12.7	16.9		45	12.6	16.6
45	13.3	17.4		45	13.3	17.2
46	26.1	29.9		46	25.8	29.8
46	52.7	56.4		46	52.4	56.5
				(46	57.6)	
47	20.4	24.4		47	20.1	23.9
47	26.0	29.9		~~46~~		
47	35.6	39.7		47	35.4	39.3
48	1.7	5.6	Mean of two breaks	48	1.3	5.2
					1.6	5.6
49	9.5	13.4		49	9.2	13.2
49	32.0	35.7		49	31.9	35.9
49		41.0		49	37.3	41.2
50	6.1			50	5.7	9.6
50	10.4	14.3		50	10.4	14.4
50		53.7		50	49.5	53.4
51		21.9		51	17.7	21.6
51	27.1	31.0		51	26.7	30.7
52	14.5	18.5		52	14.3	18.2
52	39.8	43.7		52	29.7	33.3
52		45.0		52	40.8	44.7
53	7.9	11.9		53	7.6	11.5
53	48.3	52.5		53	48.0	51.7
53	50.8	54.7		53	50.4	54.4
				53	57.5	1.5
54	11.5	15.3		54	11.2	15.3
5				54	43.3	47.1
55	3.9	7.9	Examine	55	39.2	43.2
55	47.9	51.4				
455	55.8	59.6		55	55.8	59.7

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9.10	—	0	1		9.10	9.5	10.11	— 0	7	
		B								
10		1	6		9.10	9.3	10	1	1	
9		3	58		9	8.8	9.10	3	50	
9.10		8	8				9.10	7	59	
10		9	1					4	51	
10.11		9	54				10	9	50	
11		4	20							
10		7	11				10	7	3	
		B.D.						BB.D		
9		4	31	double. dist 7" south. fol. (8.8			10.11	4	28	and 4.23 double
11		5	37	each about 10.11				5	50	
11		1	55					5	30	
		Long D.					10.11	1	43	
11		8	28	first wire lost			10.11	8	22	
11		8	19	Lic " "			11	8	12	
9.10		6	24			8.9	9.10	6	18	
11		2	7	first wire lost				2	1	
11		2	8	" " "			11	1	59	
10.11		5	31				10	5	21	
		D.B.								
9.10		9	26			9.5		9	18	
11.12		6	19	n s				6	11	not the same star
11.12		4	7	first wire lost n.s				4	2	
9.10		7	52			9.0	9.	7	45	
11.12		4	4			9.3	10.11	3	53	n s
11		9	10				10.11	9	3	
10		3	0				10	2	52	
		B								
8.9		10	41	not obs.		8.9		10	34	
								D	D	
11.12		1	18	n s			11.12	1	8	
11.12		4	56				10	4	9	
10		2	11			9.5				

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4	57	18.2	22.2		4	57	18.1	22.1
	57	34.3	38.5			57	34.2	38.3
	57	36.5	40.4			57	36.2	40.2
	57		42.5					
	57	53.0	57.2			57	53.2	57.1
	58	23	23.0					
	59	3.9	8.1			59	3.7	7.7
						59	6.0	9.8 rej
	59	17.0				59	13.0	16.8
	59	20.5	24.5		4	59		24.4
4	59	26.3		ex.				
5	0	4.5	8.5		5	0	4.3	8.2
	0	22.7		Two stars		0	15.1	19.2
	0	44.3	48.3	Examine this region		0	43.9	47.9
	0	46.4	50.4					
	1	7.6				1	7.8	11.8
	1	11.8	rej.					
	1	13.1	17.0			1	12.9	16.8
	1	44.0	47.9			1	43.5	47.6
	1	47.2	51.2			1	47.2	51.2
	2	32.3	36.3			2	32.2	36.1
	2	47.0	50.7			2	46.7	50.7
	2	56.8	rej					
	3	0.5	4.6			3	0.5	4.4
	3	12.9	16.8			3	12.5	16.7
	3	35.4	39.3			3	35.0	39.1
	4	12.5				4		16.7
	4	36.9	43.0			4	36.9	42.7
	4	50.4	54.3			4	50.3	54.3
5	5	1.6	5.6		5	5	1.4	5.4

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1860phae.proj..229S

11	7	—	AR lost-					
10.11	8	29				10	8	20
11	6	1				10	5	54
11	6	12				10.11	6	6	nS
11	5	55	one wire only doubtful	Ex				
10.11	4	38					4	30.
11	—	0	1	first wire lost					
	D.	D						
11	3	12				10.11	3	8	
11	4	—		Ex		10.11	4	13	
10	2	57				10	2	51	first wire lost
11	9	50		Ex					
9	8	19			8.3	8	8	15	
10	1	9		Ex	9.3	9.10	1	6	
10.11	6	27							
10	3	56					3	49	
12.	2	42		Ex		11	2	34	~~Thru dec. doubtful~~
10.11	2	17		—					
9.10	5	35			8.3	8.9	5	27	Thru dec. doubtful 10"
10	7	10				10	7	3	
10	10	21	nS comp			10	10	16	nS
	B.						D		
10 9.	8	57		-	9.5	9.10	8	49	
9.10	10	18			9.5	9.10	10	14	
12	1	37							
	6	22				10	6	17	
10	—	0	1		9.5	10	—	0	6
11	1	33					0	22	
	D.	D.	B						
12	8	38	See wire for (faint)			11.12	8	30	first wire lost See wire doubtful
11	3	22				11	3	15	
10.11	4	0				10.11	3	53	
9.10	2	36			9.2	9.10	2	26	

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1860phae.proj..229S

5	19.9	24.0			
5	37.2	41.3	5 5	37.0	41.0
5	39.8	43.8	5		~~43.9~~
5	54.1		5	50.1	53.8
6	[illegible]	35.2	6	32.3	36.2
6	58.0	61.9	6	57.9	61.8
7	24.2	28.2	7	24.0	27.9
7	29.2	33.2	7	29.0	32.8
7	49.7	53.7	7	49.5	53.7
7	58.8	62.6	7	58.8	62.7
8	1.1	5.3	8	0.9	4.8
8	25.7		~~8~~		
9	4.7	(8.1)	9	4.4	8.3
9	5.8	9.5	9	5.4	9.4
9	26.7	30.6	9	26.4	30.5
10	35.5	39.3	10	12.1	15.7
10	48.7	52.8	10	48.5	52.4
11	10.4	14.3	11	10.1	14.1
11	12.0	15.9	11	11.7	15.7
11	44.4	48.4	11	44.2	48.1
12	4.2	8.1	12	4.1	7.9
12	27.4	31.4 (ex) 36.0 40.0	12	27.2	31.3
12	36.0	40.0 56.9 60.8	12	35.7	39.7
12	56.9	60.8	12	56.5	60.5
13	10.2	14.2 reject.	13	13.0	16.9
13	13.2	17.0			
14	4.7	8.8	14	4.5	8.7
14	12.2	16.1	14	12.1	15.9
14	26.6	31.0	14	26.4	30.4
5 14	53.8	57.5	5 14	53.4	57.2

Catalogue with L.L.

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1860phae.proj..229S

11	2	30					
10.11	7	30				7 29	
11	1	12				1 -	first wire lost, Sec wire wrong
10.11	7	57	Ex		10.11	7 50	
11	6	13	first wire lost		11	6 6	
	Long D						
11	1	52				2 43	
10	6	56			10	6 49	
11	6	27	nS			6 18	nS
11	3	23				3 14	
10.11	4	47			10	4 39	
10	7	18			9.10	7 12	
11	3	45	Ex				
11	9	6	Sec wire wrong		10	8 58	
	8	2			10	7 53	
10.11	0	47				0 44	
	Long B.				11.12	5 37	
11	1	31				not seen	
10	7	50			10	7 44	
10	6	53			9.10	6 48	
10	3	2	nS	9.4	9.10	2 54	
11	6	57	There is one star two		10.11	6 51	
9.10	4	14			9.10	4 6	
9.10	1	30	few in declination 9.0			1 22	
9.10	4	34		9.4	9.10	4 28	
10	0	16		9.5	10	1 9	
10.9	10	9	Cat Major	9.9	9.10	10 4	
	D.D.B					B.D.D	
10	1	18		9.6	10	1 9	
11	5	16			11	5 7	
10	2	14			10	2 9	
12	6	41			11.12	6 36	

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5	15	1.7	5.6	5	15	1.3	5.3
	15	20.9	24.6				
	15	40.3	44.3		15	40.3	44.2
	15	51.7	55.4		15	51.4	55.5
	15	59.7	63.6		15	59.6	63.8
	16	3.0	7.0		16	2.8	6.8
	16	—	20.6				
	16	—	34.1		16		33.8
	16	39.0	42.8		16	38.7	42.3
	17	11.7	15.4		17	11.1	15.1
	17	46.7	—				
	17	54.9	—		17	54.4	
	17	—	58.6		17		56.4
	18	—	7.3				
	18	38.6	42.7				
	18	53.7	57.5		18	53.4	57.3
	19	7.9	11.9		19	7.3	11.5
	19	10.2	14.3		19	9.9	13.9
	19	15.0	18.9		19	14.9	16.5
	19	26.5	30.5				
	19	55.7	59.7		19	55.5	59.4
	20	25.0	~~20~~		~~20~~		
	20	—	29.3		20	25.3	29.2
	20	45.6	49.6		20	45.5	49.3
	20	57.9	61.9		~~20~~	57.4	61.4
	21	11.1	15.1		21	10.9	14.9
	21	17.4	21.2		21	17.2	21.2
	21	41.2	45.2		21	41.1	44.8
5	22	14.7	18.7	5	22	14.6	18.7

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9.10	9	28			9.10	9	21	
11	9	4	Minute?				not seen	
11	7	55			9.10	7	49	
10	6	41		9.3	9	6	35	
10	6	48			9.10	6	43	
9.10	5	26	first wire bar	9.5	10	5	18	
11	3	33	first wire bar Ex.					
11	0	36			10.11	0	30	
9	3	55		8.7	9	~~4~~	~~49~~	
10	4	56		9.4	9	4	49	
11	6	58	See wire bar					
10.11	6	36	See " "		10	6	29	See wire bar
9.10	8	26	first wire bar	9	9	8	19	first wi bar
10.11	9	17	" " "					
	B					0	11	
10	0	20	n s			0	11	
9.10	2	37		8.9	9.10	2	31	
10	0	36		9.4		0	29	n s
9.10	0	32	n.s	8.9		0	24	
10	3	1	n.s	9.4		1	55	
11	3	45	n s					
	D. D							
10	0	20		9.5	10	0	13	
	3	3	See wire bar					
10	4	8	first " "		10	3	59	
9.10	4	2		9.5	9.10	3	56	
9.10	1	13	Ut. dec.	9.0	9	0	6	
11	8	7			10	8	1	
11	10	16			10.11	10	9	
	B				1			
11	2	52			10.11	2	45	
11	4	11			11	4	8	

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1860phae.proj..229S

5	22	17.9	21.8	5	22	17.5	21.5
	22	30.7	34.8				
	22	55.9	59.8		22	55.4	59.3
	23	—	10.0		23	5.5	9.5
	23	11.2	15.0		23	10.8	14.7
	23	17.3	21.1		23	16.9	21.0
	23	37.7	41.7		23	37.4	41.5
	24	0.3	4.2		24	0.2	3.9
	24	50.7			24	50.1	54.3
	24	58.6	62.5		24	58.3	62.2
	25	0.5	4.5				
	25	59.1	63.1		25	59.0	62.8
					(26	25.7)	
	26	33.5	37.3		26	33.5	37.0
	26	35.1	39.1		26	35.1	38.9
	26	42.0	46.0				
	26		50.1				
	27	0.0	3.9		26	59.8	62.8
	27	19.8	23.5		27		23.8
	27	33.6	37.7				
	28	27.1	31.3		28	26.9	30.9
	29	24.5	28.0		29	24.1	27.8
	30	11.1			30	28.3	32.3
	30	16.2	13.8		30	09.7	13.6
	30		20.7 rej because of uncertainty in its place.		30	34.3	38.1
	30	55.8	59.7		30	55.7	59.7
					31	11.0	14.8
	31	31.6	35.6		31	31.4	35.2
	31		(41.5)				
	31	47.2	51.5		(31	47.0	50.9
					31	56.2	0.3)
					32	25.2	29.2
					32		34.4

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1860phae.proj..229S

10	2	47	n S	g. 5	10	2	39	
11	3	6						
11	6	11			10.11	6	8	
11	1	51	first wire lost			1	46	
11	1	40	n.s			1	34	n S
10	0	37		g. 2		0	19	
10.11	0	42		g. 5	10	0	36	
10.11	5	21			10	5	16	
10.11	4	31	see wire lost			4	23	first wire lost
10	9	29	double	g. 5 ~~g. 10~~	10	9	24	double brighter = $10^{m}.7$ other 11^{m}
10	1	30		g. 4 ~~g. 11~~				
g. 10	6	6		g. 4 ~~g. 12~~	10	5	57	
~~g.~~ 11.12	4	6			11	3	59	
10	9	45			10	9	40	
10.11	0	—						
	7	46	R. 26 42.0	(En) E				poseder (6 28) 19 S
10	6	33		g. 5		6	28	
10	0	19		g. 5		0	12	first wire lost
11	7	16						
g. 10	9	36		g. 1	10	9	19	
12	8	28	n S		11	8	21	
	D long					D long		
11	3	6	not obs		11, 12	2	58	
10.11	8	39			11	8	37	
11	0	50	reg.			4	1	
11	4	37			10	4	30	
11	5	10			10	5	7	
10.11	4	32			10	B	27	Dure
11	2	25						
10	1	47				1	40	
10.11	2	24						
9	5	21		7. ~~7.8~~	8. 9	5	16	
						9	42	fein wire lost

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1860phae.proj..229S

32 — 34.4

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8 9 48 9.0 ~~9~~ G42

Magnitudes in the first observation of this Zone

1. From 59 comps. we get instrs.

in which $A = S$	26		11
$A = S - 0^m.5$	26	−13	26
$A = S - 1^m$	7	−7	
$A = S - 1^m.5$	1	~~0~~	

Hence $A = S - 0^m.34$

Prob. Error of one comp. $\pm 0^m.25$

" final result $\pm 0^m.032$

2. From 24 comps. at beginning (excluded in the previous comp.

$A = S - 0^m.33 \pm 0^m.08$

3. Excluding 5 catalogue stars which may not have been corrected by an independent judgment

$A = S - 0^m.39 \pm 0^m.034$

4. From 46 comps. on repetition

$A = S - 0.22$

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1860phae.proj..229S

Zone

Zone.

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1869phae.proj..229S

Catalogue Stars.

1869.0

9	3	46	21.81	+0° 58′	8.9″
5 NNW		47	9.29	50	59.9
9		52	48.52	1 0	2.7
9		53	4.27	0 58	58.0
9	4	9	0.06	53	18.1
9		11	15.62	55	38.9
8		13	51.23	51	23.2
9		39	4.07	57	9.6
7		43	31.96	0 54	19.1
9		44	36.24	1 0	32.2
8.9		46	15.23	0 53	43.9
9		52	45.23	57	12.7
9		54	43.18	50	26.6
9		57	9.42	54	9.6
7	4	58	10.20	58	55.9
9	5	1	31.25	55	48.4
7		4	32.25	54	46.1
9.10		13	12.86	49	57.3
9.10		13	40.00	52	24.1
8		15	52.19	55	12.8
9		19	3.37	55	56.0
9		20	40.78	0 59	3.9
9.10		23	27.82	1 0	31.3
9		32	30.52	0 49	38.9
9	5	34	3.87	+0 53	41.2

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1860phae.proj..229S

Nov. 16. Angle of Pos. 263° 12′

Min Sur. 30″.

Nov 22. Angle of Pos 263° 19′
263 17

At beg Sur. cat. 26.8
end 25.6 — 5m 35

5 24 26.1 30.1
30 7.7 11.7
30 8.8 12.8

5 28 25.9 30.2
30 8.6 12.7

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1960phae.proj..229S

5 25
9 30

4 43 17.6
9 8 43 -

Catalogue Stars.

7.4	5	32	29.24	0 45 13.6
9	5	32	30.52	+ 0° 49' 38.''9
~~9~~		~~33~~	~~3.88~~	~~53 41.2~~
8		41	33.69	40 32.0
9		46	14.67	44 47.3
8		48	45.02	48 41.4
9	6	5	46.33	47 24.6
9		32	20.82	42 19.0
9		32	53.14	45 35.4
9		36	59.64	45 17.0
8.9		37	24.05	43 40.9
9		37	41.03	45 36.5
9		46	49.01	44 20.5
9		49	54.57	44 38.7
8.9	7	5	20.73	48 46.7 ✓
9		9	48.28	47 23.5
7		13	10.22	39 38.2 - 2.b
9		16	10.57	49 10.1 ✓
9		17	35.01	39 35.7 2.b
7		24	41.08	45 0.3
9		24	44.41	40 21.7
8		25	1.99	+ 0 48 14.7

May. from Arg. Cat.

11 9 16
11.12 2 54
11 8 38 nS ea. dec.

11 9 15 Stars very faint at
12 not obs
11 8 36 beginning - Moon

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1866phae.proj..229S

5	30	54.8	58.7		5	30	54.7	58.7	
	31	10.2	13.9			31	10.0	14.0	
	31	30.5	34.4			31	30.4	34.4	
	31	46.0	50.1			31	45.9	50.0	
	31	55.3	59.3			31	55.4	59.2	
	32	8.1				32	21.4	28	
	32	24.4	28.4	Catalogue		32	24.4	28.3	
	32	29.7	33.5	Catalogue		32	29.7	33.4	
	33	56.8	60.7			33	56.7	60.5	
	34	25.3	29.2			34	25.2	29.0	
	34	47.2	51.0			34	47.3	51.2	
						(35	54.3)		
	35	58.7	62.5			35	58.5		
	36	2.0	6.3			36	2.0	5.9	
	36	8.1	12.1			36	8.0	12.0	
	36	25.5	29.5			36	25.4	29.4	
	36	51.1	55.2			36	51.1	55.0	
	37	26.3	30.3			37	26.1	30.1	
	37	49.8	53.8			37	49.8	53.8	
	38	22.5	26.6			38	22.5	26.5	
	39	10.0	14.0			39		14.3	
	40	54.3	58.3			40	54.4	58.2	
	41	9.6	13.5			41	9.7	13.5	
	41	26.0	30.0			41	26.0		
	41	32.7	36.7	Catalogue		41	32.7	36.7	
	42	21.8	25.8			4			
	43	3.1	7.1						
	43	17.2	21.1			43	17.4	21.2	
5	43	50.8	54.8		5	43	50.7	54.4	

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1960phae.proj..2295

11.12	4	30			11.12	4	29	
11.12	5	3			11.12	5	1	
11	3	22				3	21	
	B		Look for a star = 17.					
10	1	26	en dec.			1	36	Sure
10.11	5	55				5	57	
11	2	8	Ex			not obs		
	~~D~~							
8	5	12		7.8	8	5	12	
9	9	38		9.0	9	9	38	
	B, D, B					D, B.		
11.12	3	19	Minute doubtful in Dec		11	3	18	Minute sure
10	4	33		9.5	10	4	33	
10	7	37			10.##	7	38	
11	3	30	On rep: omit 2d wire			3	28	2° wire omitted
11.	2	49	n.s			2	49	n.s
9.10	8	58		9.5	9.10	8	57	
9.##	1	9		8.8	9	1	8	
11	0	17			10	0	16	
9.10	7	25		9.5	##0	7	25	
	D							
10.10	5	29			11.12	5	28	
11	2	36			11	2	34	
11	1	28			11	B 1	.28	Short Sig. first wire lost
9.10	6	18			10	6	17	
10.11	2	12				2	13	Dec. doubtful
10	6	26				6	25	Sec wire lost
8	0	28		7.5	8.9	0	29	
11.12	3	41						
	D.D							
11	8	32						
10.11	1	26			11	1	29	
10.11	0	37			11.	0	44	

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1860phae.proj..229S

	44	49.4	53.4		5 44	49.4	53.8
	45	14.6	18.7		45	14.6	14.4
	45	54.8	58.7		45	54.6	58.7
	46	1.6	5.4		46	1.4	5.3
	46	13.7	17.6	Catalogue	46	12.5	17.5
	46	35.9	39.9		47		
	47	31.6	35.7		47	31.7	35.5
	47	39.7	43.7		47	39.6	43.5
	48	4.3	8.5		48	4.4	8.3
	48	15.9	19.9		48	15.8	(19.6)
	48	43.6	47.6	Catalogue	48	43.7	47.5
	48	45.3	49.2		48	45.3	49.1
	49	14.0	17.9		49	14.0	17.8
	49	52.3	56.1		49	52.1	56.1
	50	12.4	16.4		50	12.3	16.4
	50	21.3	25.3		50	21.2	25.3
	50	50.0	54.0		50	49.8	53.8
	51	20.1	24.2		51	20.4	24.2
	51		27.4		51	23.4	27.3
	52	10.8	14.7		52	10.7	14.7
	52	44.6	48.6		52	44.6	48.6
	52	58.8	63.0		52	58.9	63.1
	53	36.1	39.8		53	36.0	39.9
	54	7.6	11.8		54	7.7	11.7
	54	22.8	26.8		54	22.7	26.8
	55	7.4	11.2		55	7.3	11.2
	55	35.1	39.1		55	35.0	39.0
	56	6.7	10.7		56	6.6	10.5
5	56	29.9	33.9	5	56	29.8	33.8

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1960phae.proj..2295

0°40′ — 0°50′

10	3	19		9.5	10	3	20	Image blurred
9.10	2	48		9.5	9.10	2	51	
9.10	5	22		9.5	9.10	5	22	
9.10	6	8		9.5	10	6	9	
9	4	40		9.0	9	4	41	
11	9	31	Sec wire doubtful			Not Obs		
	B.D.B					B.B.B		
9	10	22			9	10	11	Sure
9.10	0	49	NS	9.5	9.10	0	46	
9.10	9	38			9.10	9	37	
9.10	1	45		9.3	9.10	1	46	Very Sig Sec wire?
8	8	37		7.9	8	8	36	
10	4	29	NS	9.5	10	4	28	
	D.D.B							
10.or 9.10	4	50		9.5	9.10	4	52	
11.12	2	13				2	12	
11	2	7				2	7	
10.11	2	57				2	58	
9.10	9	24		9.3		9	23	
10.11	9	39				9	38	
11.12	7	28	first wire but Sec?			7	22	N.S Sec doubtful
11	6	23			10.11	6	19	
9.10	2	5		9.5	9.10	2	5	
	B.							
10.11	6	16				6	15	
11	5	36			11	5	32	
9.10	2	46		9.5	9.10	3	45	Minute Sure
10	6	52		9.5	10	6	52	
10	0	49		9.5		0	49	
9.10	3	28		9.4		3	27	
	D.D					B		
11	1	1			10.11	1	2	
10	2	26		9.5	10	2	27	

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1860pnae.proj..229S

				5	56.	56.9	60.8
					58	31.7	35.6
					58	53.4	57.4
					59	~~55.~~	33.5
1	19.2	23.1	6	1	19.1	23.0	59	49.2	53.2
1	41.9	45.9		1	42.0	45.9	59	52.4	56.4
1	55.4	59.3		1	55.5	59.5	6 0	4.0	9.2
							0	55.1	59.1
1		63.6							
2	55.2	59.0					2	55.1	59.1
2	58	62.8					2	2.9	62.9
3	38.0	41.9					3	38.1	42.0
4	3.9	8.0					4	4.0	8.0
4	38.9	42.8					4	38.9	42.8
5	39.7	43.7.					5	39.8	
6 5	45.3	49.3	Catalogue				5	45.3	49.4
5	52.1						5	48.3	52.1
6	2.0	5.9					6		
	18.0	21.7					6	18.1	22.1
	58.5	62.6					6	41.9	45.8
							6	58.6	62.6
7	14.2	18.3					7	14.3	18.4
7	17.8	21.7					7		22.0
7		47.2					7	43.4	47.2
8	13.5	17.2					8	13.6	17.6
8	38.4	42.6					8	38.8	42.8
8	54.0	58.1					8	54.1	58.2
9	3.7	7.6					9	3.8	7.8
9	11.2	15.2					9		
9		23.4					9	19.5	23.4
10	1.2	5.3					10	1.2	5.2
10	16.4	20.4					10	16.8	20.8
6 10	35.4	39.4					6 10		

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1960phae.proj..229S

0°40' – 0°50'

			Get a few stars here			11	1	10	
						11	7	45	
						10.11	9	31	
						11	1	18	first wire lost
10	9	38		(9.0)	10–9.5	9	9	36	
9.10	7	6		(8.9)	9.10–9.5	9.10	7	31	
10	2	2	N.S.	9.5	9 2 3				
							11	3	32
							11	3	32
10	9	4	N.S. first-wire lost						
9.10	3	58		9.0		9	3	56	
10	3	9	first-wire lost	9.5		10	3	6	
	B.								
9.10	2	58		9.4		9.10	2	55	
10	7	54				10.11	7	51	
9	6	42		8.5		9	6	43	
10	4	3				10	4	2	omit 2° wire
9	7	18		8.6		9.10	7	18	
10	0	38	Ex.	9.5			0	38	
10	3	2		9.3					
10.11	3	1				10	2	58	
10	2	52		9.4		11	0	18	
						10	2	51	
10	2	41		9.5		10	2	41	
9.10	4	38	N.S.	9.2		9.10	4	36	
11	6	40	first-wire lost	9.5		10.11	6	38	
9.10	8	26		9.3		9	8	23	
10	6	18				10	6	16	
10	3	29					3	27	B for dej
9.10	5	55		9.0		9	5	53	
11	4	19					lost		
9.10	8	25	first wire lost			9.10	8	22	
	B.								
10	6	42		9.5		10	6	43	
9.10	0	7		9.4		10	0	6	
10	9	32				10	7	34	transferred to next page ZAS

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1860phae.proj..229S

6	10	45.2	49.0				
	11	3.0	7.0	6	11	2.9	6.9
	12	16.1	19.9		12	16.1	20.2
	12	22.1	25.8		12		26.0
	13	5.3	9.3		13	5.6	
	13	34.7	38.5		13	34.7	38.6
	14	45.3	49.5		14	45.4	49.3
	14	54.7	58.6		14	54.8	58.6
	15	43.5	47.6		15	43.8	
	15	51.2	51.2		15	47.4	51.6
			37.1		17	5.7	9.6
					17	36.7	42.9
					17	50.7	
6	17	54.9	58.8		17	54.9	58.9
	19	15.2	19.2		19	15.2	19.2
	19	46.8	50.7		19	34.9	38.8
						46.7	50.8
	20	32.8	36.7		20	7.5	11.4
	20	34.9	39.1				
	2						
	21	7.8	11.8		21	7.9	11.7
	21	21.1	26.1		21	22.1	
	21	27.4	31.5		21	27.4	31.5
	21	39.3			21	39.6	
	21	50.4	54.4		21	50.4	54.5
	22	0.6	4.6		22	0.8	4.8
	22	(5.6)	9.4		22		9.5
	22	53.9	57.7	6	22	53.9	57.9
	23	4.0	8.0				

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10.11	2	56			10	7	34 (HH)
11	7	38	n.s, first wire lost (probably)		11.12	7	16
11	7	19	.				
10.11	6	51			11	6	49
	2	36				D	
	D.		Examine		10.11	2	36 Dec wire low
	8	22		8.5			reject break
	(6	58)	Leave space		9	8	21 reject wire before break
	4	0			11	6	58
	4	12			11	3	39
	9	5	E			D	
					11	4	11 Dec wire Sij. doubtful
					10	9	6
					10.11	10	9
						1	13
					10	8	35 first wire only n.s?
	B.						
9.10	3	52		9.0	9.10	3	51
10	4	41				5	39
9.10	7	14		9.2		7	16 Examine these declinations
					10	8	21
8.9	7	44	Ex				
10			Ex				
11							
	D.B						
10	6	55			10	6	53
	4	18	Ex.	9.5	10.11	4	18 Dec wire low
	5	50		9.5	10	5	52
						D	
	5	11	Ex.			5	10 one wire
9.10	7	31	Dec?	9.3		7	30
9.10	8	9		9.3		8	6
	2	0	Ex first wire wrong			2	1 first two low
10	8	34			9.10	8	35
11.12	5	54					

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6	23	12.1	15.7	6	23	12.4	16.2
	23	34.6	38.5		23	34.5	38.3
	23	40.1	44.1		23	40.0	44.0
	23	54.7	58.5		23	54.6	58.6
	24	7.2	11.2		24		
	24	31.3	35.5		24	31.5	35.6
	24	40.2	44.1		24	40.0	44.0
					25	22.2	26.4
	26	5.4	9.5		26	5.6	9.5
	26	15.2	19.2		26	15.2	19.3
	26	26.1			26	26.1	30.1
	26	29.3	33.5		26	29.4	33.4
	26	53.3	57.3		26	53.4	57.3
	27	5.3	9.1		27	5.4	9.5
	27	8.2	12.3		27	8.5	12.3
	27	20.2	24.1		27		24.3
	27	30.2	34.1		27	30.3	34.3
	28	0.4	4.1		28	0.3	4.2
	28	6.3	10.3		—	—	—
	29	39.4	43.2		28 29	39.2	39.1
	29	46.7	50.5		29	46.6	50.5
	30	9.7	13.6		30	9.7	13.6
	30	50.0	54.0		30	50.3	54.2
	31	3.8	7.6		31	4.0	7.9
	31	16.1	20.1		31	16.1	20.1
	31		24.4		31		24.5
	31	37.1	41.2		31	37.3	41.1
	31	56.0	(60.2)		31	56.0	60.2
	31	59.3	63.1		31	59.3	63.7
6	32	19.9	23.7	6	32	20.0	—

Catalogue

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1960phae.proj..2295

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

11	9	31						
9.10	9	55		9.5		9	53	
9.10	8	25	n s	9.5	9.10	8	26	
	B							
10	4	49		9.2	10	4	49	
10.11	4	30		9.3				
9.10	3	56		9.5	10	3	57	
9.10	4	52		9.2	9.10	4	51	
	D, D; B					B		
			Struck Instrument with head	9.5	10	3	18	
9.10	7	36		9.3	9.10	7	34	
10	5	32			10.11	5	27	
9.10	8	27	Lec wire lost	9.4	10	8	21	
9	4	2	n s	8.7	9	3	57	n s
9.10	8	6			9.10	8	2	
10	7	16		9.4	10	7	12	
			In					
10	7	52	n s		10	7	48	doubtful Dec
10	9	2			10.11	8	58	
10	8	6			10	8	1	
	B. B.					B. D. B		
9.10	1	26				1	24	
10	7	6		9.5		7	7	AR lost-
10.11	3	24				2	19	first wire lost
					11	3	19	
11	0	32			11	0	28	
11.12	7	10		(9.5)	11	7	3	
11.12	3	50			11.12	3	43	
11	1	2			11	0	58	
9.10	9	43	7	9.2	9.10	9	38	
10	8	19	first wire lost	9.3	10	7	18	first wire lost
10	5	44				5	41	
10	7	9	Lec wire wrong			7	5	
10	4	4	n s		10.11	3	58	
9	2	17		9.5	9.10	2	12	Lec wire lost

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1860phae.proj..229S

6	32		27.5		6	32	23.9	27.9
	32	40.8	44.7					
	32	52.2	56.2	Catalogue		32	52.4	56.3
	33	14.8	18.8			33	14.9	18.8
	33	17.8	21.8			33	17.9	22.0
						33	24.5	28.1
	33	59.4	63.3			33	59.5	63.6
	34	42.0	46.0			34	42.2	46.0
	34	58.1	61.8			34	58.2	62.1
	35	15.7	19.7			35	15.7	19.5
	35	24.1	27.9			35		
	35	48.5	52.5			35		
	35	50.3	54.4			35	50.5	54.4
	36		11.0			36	11.	11.2
	36	14.7	18.7	examine		36	15.1	14.8
	36	30.0	34.1	~~to the Jan this book~~		36	—	34.2
	36	36.9	~~reject~~	~~no der~~		36	41.0	45.1
	36	40.9	44.8			36	58.8	62.7
	36	58.6	62.7	Catalogue		37	23.1	27.1
	37	23.1	27.2	Catalogue		37	35.1	
	37	35.2				37		44.2
	37	40.2	44.1	Catalogue				
	38	24.3	28.3			38	24.4	28.3
	38	25.2	29.0			38	25.1	28.9
	38	42.6	46.6			38	42.4	46.4
	38	45.5	49.3			38		49.6
	38	52.7	56.6			~~39~~	~~16.1~~	~~20.1~~
	39	15.9	19.8			39	16.1	20.1
	39	50.5	54.4			39	50.6	54.6
	39	53.1	57.1	Jean. sheet		39	53.1	57.0
6	40	16.8	20.7	Catalogue		40	16.8	20.6

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1960phae.proj..2298

$0^{q}49' - 0^{q}50'$

9,10	6	9	fein wie ber		9.1		Some Decs lost by recorder	
10	6	20			9.5			
9	5	36			9.0	9.10	5 30	
10.9	8	22			9.5		8 18	
10	5	48	N.S		9.5		5 42	
	D.						D	
10,11	8	16					8 11	
11	2	35				10.11	2 42	Lute
10,11	0	58				10	0 53	
10.11	7	39			9.5		7 26	Lute
10	1	11						
10.11	1	59						
10	0	12			9.5	10.11	0 7	
10.11	6	52	fein wie ber				6 25	
10.11	6	50	N.S				6 46	
10	2	51	Lee wie ber		9.5	10	2 48	accurate track
10	4	18	N.S	Ex.	9.5	10	4 14	
9.10	3	15			9.2	9,10	3 12	
							B.	
9	3	31			8.0		3 27	
10	2	52	Lee wie ber				2 50	Lee wie ber
9.10	5	35			9.2	10	5 28	fein wie ber
11	8	38				10	8 34	
11	5	15	N.S			10	5 11	
10.11	4	20					4 13	
10.11	2	30	N.S				2 21	
10	10	1			9.5			
10	3	39	Lee wie ber			10	3 54	
10	6	32	fein wie ber		9.5		6 18	AR ber
9.10	10	26				9.10	10 20	
9.10	6	59				10	6 54	N.S
9	10	29			8.8	9	10 B 24	

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1860phae.proj..229S

6	40	22.3	26.3			
	40	56.5		different stars.		
	41	2.8	6.6			
	41	19.7	23.5		41	19.9	23.8
	41	29.5	33.4		41	29.7	33.7
	41	55.2	59.3		41	55.3	59.3
	41	56.6	60.6		41	56.8	60.7
	42	12.5	16.3		42	12.5	16.6
	42	25.5	29.6		42	25.7	29.6
	42	57.6	61.5		42	57.6	61.6
	43	13.6	17.4		43	13.8	17.7
	44	2.3	6.2				
	44	29.5			44	29.5	
	44	33.1	37.2		44	33.2	37.2
	45	16.8	20.6		45	17.0	20.7
	45	26.4	30.4	One star too many in dec.	45	26.4	30.4
	45	47.8	51.5				
	45	57.0	61.1		45	57.0	60.8
	46	46.8	51.0		46	46.8	50.8
	46	[47.2]	51.5		47	13.6	22.4
	47	13.6	22.4		47	28.2	32.2
	47	28.3	32.2				
	47	37.3	41.3		47	37.5	41.3
	47	42.2	46.1		47	42.5	46.5
	48	24.3	28.1		48	24.3	28.4
	48		32.1		48		32.4
	49	5.1	9.1		49		9.1
	49	14.1	18.0		49	14.1	18.1
	49	27.2	31.0		49	26.0	30.0
6	49	44.5	48.3		6	44.5	48.5
					41	2.8	6.9

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1860phae.proj.:229S

$\alpha^{0}40' - \delta^{0}58'$

10	9	51							
11	5	51	See wire lost				5	57	
	3	56	NS fine wire lost?		10		3	~~58~~	
									Star lost from Alt.
10	4	57		9.2	10		4	51	
10	2	12		9.2	10		2	8	
9.10	6	38		9.2	10	D	6	32	
10	2	53		9.3	10		2	49	NS
10	4	17			9.10		4	12	Wire l.
9.10	6	56		9.2	10		6	50	
	B.D.D								
11	6	25			10		6	19	
10.11	10	39			9.10		10	30	
10.11	0	30							
10	2	49	~~Ex~~		10		2	42	See wire lost
9.10	4	49	NS	9.5	9.10		4	44	
10.11	7	45		9.0	9		9	28	
							7	~~40~~	
10	2	22		9.5			2	17	
12-12	4	23	double mean of two						
10.11	3	21		9.4	10		3	16	
						D			
10	~~4~~	16	comp fol. reads $4'36'',11^{m}$ (9.0)				4	12	
10	3	12					4	32	
9.10	4	43		9.3			4	41	
10	2	31			10.11		2	36	Sun
10	6	8	N.S.	9.4	10		6	2	
9.10	9	21		9.5		B	9	16	sig.
9.10	8	6	first wire lost	9.5			8	2	fine wire lost
	B.B.B								
10.11	3	46			11		3	42	NS fine wire lost
10.11	8	6		9.5	10.11		8	0	
10.11	3	47							
10	8	8		9.4			8	2	sig. Examine this place
					11		8	16	

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1860phae.proj..229S

6	49	53.2	57.2	Catalogue	6	49	53.2	57.2
	50	14.1	18.0					
	50	44.6	48.5					
	51	24.5	28.4					
	51	53.9	58.1			51	54.0	58.0
	52	2.0	6.0			52	2.0	6.1
	52	31.6	35.5			52	32.0	—
	52	32.1	36.1				—	36.3
	52	41.5	41.5			52	37.7	41.7
	53	14.2	18.2			53		
	53	17.3	21.3			53	17.5	
	53	58.2	62.1			53	58.3	62.2
	54	12.3	16.4			54	12.5	16.5
	55	1.5	5.3			55	1.6	5.5
	55	13.8	17.7			55	13.8	17.9
	55	43.3	47.3			55	43.5	47.4
	56	4.1	8.0			56	4.1	8.2
	56	56.3	60.1		(	56	54.9	55.9)
	57	22.0	25.7			57	22.0	25.8
	57	32.1	36.3			57	32.5	36.4
	57	53.8	57.7			57	53.8	57.6
	59	4.7	8.6			59	4.8	8.9
6	59	42.6	46.2		6	59	42.5	46.5
7	0		43.7		7	0	39.9	43.6
	0		47.0			0		47.4
	1	13.7	17.7			1		17.7
7	1	22.1	26.1		7	1	22.0	26.0

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1860phae.proj.. 229S

9.10	4	38			8.7	9.10	4 33	
10	8	54					B, B, D. B	
10.	1	5	AR?					
11	3	4						
	D B B							
10	7	33				10.11	7 25	
10	6	35				10.11	6 26	
11	7	54	} double		(9.3)		7 48	first wire only
10	7	54						Dec " "
10	5	36	Ex cocoa (9.5)				5 31	
11	8	27						
11	7	3	NS				6 55	Dec wire lost
9	4	39			8.3	8.9	4 33	
10	3	7			9.4	10	3 2	
	B. B. B.							
10, 11	5	51				11	5 46	
9, 10	1	52			9.3	9, 10	1 44	
10, 11	4	5			9.5	10	4 0	
9.10	3	4			9.3	10	2 57	
11.12	3	46					3 —	AR? Ex.
11.12	1	9				11	1 6	
9, 10	5	36			9.3	10	5 27	
10, 11	2	15					2 9	
	D long							
9, 10	1	55			9.2	9, 10	1 48	
10.11	0	10					Dec lost	
10.11	0	44	first wire lost			11	0 B, 38	
10.11	4	58	" " "				4 49	first wire lost
9.10	3	24			9.8	9, 10	3 18	" " "
9	0	38	Dec doubtful		8.3	9	0 24	

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1860phae.proj..229S

				7	1	52.6	56.8
1	2	51.8	55.5		2	51.8	55.7
	3	9.1	13.1		3	9.5	13.4
	3	31.3	35.4		3	31.3	35.4
	3		35.4		3		
	4	49.7	53.6	(ex sheet)	4	13.6	17.5
	5	7.4	11.3		5	7.4	11.4
	5	20.0	23.9	Catalogue	5	20.0	24.0
	5	31.2	35.2		5	31.3	35.3
	6	8.9	12.9		6	8.9	12.9
	7	3.3	7.1		7	3.5	7.4
	7	22.6	26.5		7	22.6	26.7
	7	42.1	46.0				
	8	11.9	15.7		8	11.8	15.7
	8	21.6	25.4		8	21.7	25.6
	8	39.3	43.3		8	39.6	43.4
	8	58.8	62.8		8	59.1	63.1
	9	24.6	28.4		9	24.8	28.6
	9	35.5	39.5		9	35.5	39.7
	9	48.0	52.0	Catalogue	9	48.0	52.0
	11	52.2	56.1		11	52.6	56.4
	12	30.5	34.5		12	30.7	34.5
	13	43.1	47.0		13	43.1	46.9
	13	57.4	61.6		13	57.6	61.8
	14	20.9	24.9		14	21.1	25.0
	14	58.2	62.3				
	15	9.9	13.8		15	10.1	14.1
	16	2.1	6.1		16	2.5	6.3
7	16	9.3	13.1	7	16	9.6	13.7

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9.10	2	57	AR lost			10	2	50
9.10	4	6				9.10	4	0
10	8	1			9.5	9.10	7	54
9.10	6	21	See wire lost		9.3		6	16
10	4	18	first " "					
11	9	36					9	3–
9.10	1	52			8.5	9	1	47
9.10	8	45			8.6	9	8	40
10	5	6			9.2	9.10	5	1
	B.							
9.10	7	3			9.2	9.10	6	57
11.12	8	18				10.11	8	B B D
9	9	37			9.2	9	9	30
10	10	13			9.5			
11	9	15–				11	9	7
9	2	56			9.0	9.10	2	48
10	3	41				10	3	36
10	5	16				10.11	5	9
11	9	36					9	27 B for Sig
10	1	29					1	20 See wire wrong
	B							
9	7	26	reject //		8.5	9	7	11
9.10	3	25			9.3	9.10	3	18
10	5	15–				11	5	10
10	3	59			9.5	11	3	54
11	3	54				11	3	48
9.10	9	34				10	9	29
11.12	2	1						
	D. B.							
9.10	9	6	n s			9.10	8	58
10	4	26				10	4	21
9	9	0			7.9	9	8	53 See wire doubt-

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	16	27.9	32.0		16	28.0	32.2
	16	55.7	59.5		16	55.8	59.6
	17	35.4	39.4		17	35.7	39.5
	17	47.6	51.6		17	47.7	51.7
	18	0.1	4.0		18	0.3	4.1
	18	12.0	15.7		18	12.0	16.0
	18	17.2	20.9		18		21.3
	18	26.8	30.4		18	(26.5)	30.9
	19	51.2	55.1		19	51.4	55.2
	20	5.6	9.9		20	6.1	10.3
	20	18.2	22.2		20	14.3	18.3
	20	54.1	57.9		20	16.8 54.1	22.4 58.1
	21	0.0	3.8		21	0.0	3.9
	21	20.9	24.8		21	21.2	25.1
	22	2.2	6.2	Begin next Zone Examine	22	Break 2.4	6.3
	22	50.5	54.2		22	50.6	54.6
	23	12.5	16.5		23	12.7	16.8
	23	33.4			23	33.6	~~37.6~~
	23	~~37~~ 4	41.8		23	~~38.0~~	41.6
	23	52.3	56.3		23	52.7	56.5
	24	39.7	43.4		24	39.7	44.0
	24		47.0		24	43.2	47.2
	25	4.4	8.4		25	4.5	8.5
	25	16.7	20.7		25	16.8	20.9

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11	5	33				5	31	
10.11	7	12			10.11	7	6	
10.11	7	59		9.2	11	7	52	
11	2	11			11	2	2	
10.11	9	4			10.11	8	59	
10	4	42		8.9	9.10	4	36	
10.11	8	28.			10.11	8	22	
11	8	59	WS		11	8	51	first wire double
10	7	55		9.4	10	7	47	
10	5	13			10.11	5	7	
10	8	39		9.3		8	41	} Examine
10	4	54				7	37	
					10	4	46	}
9.10	3	18		8.5				
10	9	59				9	53	
9.10	9	9			9.10	9	4	
11.12	4	40			11	4	36	
10.11	2	2			10	1	56	
9.10	4	43	see wire lost	9.5	10	4	36	
9	7	29		9.1	9.10	7.	22	
7.8	5	1	~~first~~	8.2	8.9	4	53	
	0	15	first wire lost	9.2	9.10	0	9	
9.10	6	39			9.10	6	32	
8.9	8	13		8.5	9	8	6	

By 100 comps. in Zone 2^{d}. $\int - \Delta = +0^{m}.462 \pm 0^{m}.024$

Pr. error of 1 comp $\pm 0^{m}.243$

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1860phae.proj..229S

Zone

Nov. 20. 1860. 263° 18 Zero of Pos.

Inv. at beg. 35.7
" end 34.2 end 4h 53m.

Mi. Tu 40.

5	15	51.6	55.6	Catalogue
	15		59.9	
	16	8.9	12.9	

Zone

Nov. 24.

5	15	51.6	55.5
	15	56.1	59.9
	16	8.7	12.9

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1966phae.proj.:2293

0°50′ — 1° 0′

Catalogue Stars
1860.0

From A. Cat. II.

~~207~~						
(8)	5 15 52.20	0° 55′ 12″8	~~9.10~~			
9	5 19 3.38	55 56.0				
9	5 20 40.78	59 3.9	9.10	5 23 27.88	1 0 29.3	(1)
9	5 33 3.88	53 41.2				
9	5 36 34.70	59 14.6				
9	5 36 59.28	53 36.6				
9	5 39 41.82	54 42.4				
7	5 48 9.02	56 21.5				
8	5 57 55.56	52 22.5	9	6 2 33.20	1 0 8.1	(2)
9	6 16 5.24	57 6.3				
8	6 18 38.14	53 29.1				
9	6 19 39.54	54 13.1				
~~9~~ 8	6 19 45.63	55 17.8	7	6 28 2.49	0 59 50.7	(3)
9	6 40 17.69	50 30.2				
9	6 40 44.46	55 39.3				
9	6 42 25.10	53 40.8				
8.9	6 42 52.12	54 58.1				
9	6 46 35.67	53 57.3				
9	6 46 50.66	50 57.0				
9	7 5 40.83	56 25.5				
8	7 8 7.69	57 48.9				
9	7 10 8.49	0 53 53.8				

9 1

9 8 10	5 11	South pair obs		9	5 22	South one obs. Dist 6″	
9	10 12	fine evening N.S	8.6	9.10	10 21	N.S.	
10	5 11		9.4	10.11	5 20		

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1860phae.proj..229S

	16	41.6	45.7		5 16	41.7	45.8
	17	17.5	21.5		17	~~17.7~~	~~21.3~~
	17	58.7	62.6		17	58.5	62.3
	18	3.6			14	3.2	
	18	7.3	11.2		14	7.2	11.0
	18	(53.2)	57.1		18	52.9	56.9
	19	2.8	6.6	Catalogue	19	2.6	6.5
	19	33.0	36.9		19	32.7	36.5
	20	5.9			20	6.0	
	20	8.5	12.4		20	8.1	12.3
	20	22.9	27.0		20	22.6	26.7
	20	40.1	44.0	Catalogue	20	40.0	43.9
	21	16.5	20.7		21	15.9	20.2
	21	45.9	50.1				
	22	4.6	8.4		22	4.3	8.2
	22	48.9	52.8		22	48.6	52.7
	23	1.9	5.8		23	1.7	5.5
	23	20.3			23	20.1	
	23	27.0	31.0	Catalogue. 2d (9/10)	23	26.9	30.0
	24	58.1	62.0	(~~a minute in steel~~)	24	57.8	61.8
	25	18.6	22.7		25	18.5	22.4
	25	40.5	44.3		~~25~~	~~40.6~~	~~44.5~~
	26	40.8	44.8		26	40.6	44.5
	27	40.9	44.6		27	40.5	44.4
	27	53.9	57.8		27	53.7	57.3
5	28	7.8	11.8		28	7.6	11.6

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1960phac.proj..2293

11	3	30	Sec wire doubtful		12	3	38		
11	5	52			11	6	2		
	B. B. D.					D B D			
10	8	57		9.5	9.10	9	6		
10	5	46	n.S. Sec wire lost		11	5	54	Sec wire lost, n.S	
9.10	8	4		9.5	10	8	12		
11	8	4	first wire doubtful		10	8	16		
9.10	5	57		9.1	9.10	6	8		
11	6	1			11.12	6	11		
	D. D. D.								
10	8	41	Sec wire lost		11	8	51	Sec wire lost	
9.10	3	42	Dec doubtful	9.4	9.10	3	51		
9	9	10		8.5	9	9	17		
9	9	4		8.7	9	9	14		
	B. D					B			
10.	9	39			11.12	9	48		
11	7	39	AR doubtful						
9.10	2	14			10	2	23		
9.10	9	45		9.5	9	9D	54		
10	0	26			11	0	38		
10	3	27	Sec wire lost		10.11	3	39	Sec wire lost	
9.10	10	30			9.10	10	38		
	B. long								
9.10	7	9		9.3	10	7	19		
9	5	5		8.9	9.10	5	16		
11	3	18			11	2	30	not the right star or not obs in AR.	
10	not obs.								
9.10	5	59		9.4	9.10	6	9		
11.12	not obs								
9.10	1	25		9.5	9.10	1	36		
10.11	0	40			11	0	50		
10	3	1		9.5	10.11	3	11		

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1860phae.proj..229S

5	29	2.9	6.9		5	29	2.4	6.5
	30		34.1			~~29~~	8.8	12.8
						30	29.7	33.7
	30	39.8	43.8			30	39.6	43.8
	30	42.5	46.7			30	42.4	46.3
						30	53.1	57.2
	31	35.7	39.6			31		39.4
	31	37.2	41.2					
	33	3.2	7.3	Catalogue		33	3.2	7.3
	33	31.0	35.0					
	33	42.4	46.3	different stars		33	42.2	46.2	reject : insufficient contrast
	34	11.6	15.7			34	11.6	15.5
	34	22.1	25.8					
	34	50.7	54.6					
	35	55.8	59.6					
	36	19.2	23.1					
	36	34.1	38.0	Catalogue		36	34.0	37.9
	36	41.5	45.4			36	41.3	45.2
	36	48.9	53.0					
	36	58.8	62.7	Catalogue		36	58.4	62.4
	37	9.9	14.2			37	—	13.9
	37	59.0	63.0			37	58.7	62.7
	39	37.7						
	39	41.3	45.3	Catalogue				
						38	52.5	56.4
						39	37.5	4
						39	39.1	42.9
						39	41.1	45.1

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1960phae.proj..229S

	B. D					B		
11.12	6	13		9.4	10	6	26	
10	5	12	first wire lost		11	5	23	5 23, Dots 5 24
						D		
				9.5	10	5	24	
9	2	51		7.9	9	3	3	
9. x9	4	1		9.0	9.10	4	11	n.s
					11	2	34	
11	3	23			11	3	34	first wire lost
11	4	2	n.s					
9.10	3	35	Dy and faint beats	9.5	9.10	3	46	
10	6	12		9.0	10	3	39	
						D	B	
9. [illegible]	[illegible]	[illegible]	[illegible]	9.5		0	8	reject.
9.10	3	28		9.5		3	39	
11	7	2						
11.12	8	21						
	D	D						
11	6	11						
10	6	56						
9	9	12		9.2	9.10	9	21	
10	4	31	n.s			4	42	
10	0	59	n.s					
9.10	3	33		9.0	9.10	3	43	
10	0	56			11	1	6	
	B. B. B							
9.10	4	18		9.5	10	4	30	
10	4	32	Dec wire lost					
9.10	4	38		8.8				
					10.0	2	37	n.s
						B		
					D	4	42	Dec wire lost
					10	6	34	n.s
					9.10	4	48	

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1	43	(42.5)					
	45	33.9					
5	48	(42.5)					
	L						
	45	29.9	33.9	5	40	4.7	8.9
					42	57.5	61.5
					43	38.3	42.4
					43	41.9	46.0
					45	29.8	33.7
	46	40.4	44.3		46	40.2	44.1
	47	14.4	18.4				
	47	30.3	34.2	Catalogue	47	30.0	34.1
	47	31.9	35.9		47	32.0	35.9
	47	59.7	63.6		47	59.7	63.7
	48	19.2	23.3		48	19.0	23.1
	48	50.3	54.2		48	50.1	54.1
	49	32.1	36.2		49	32.3	36.2
	50	27.5	31.5		50	27.4	31.4
	50	36.9	40.6		50		
	52	2.3	(6.8)				
	52	11.0	14.9				
	52	37.5	41.3		52	37.4	41.6
	53	31.0	34.8		53		
	53	40.3	44.1				
	54	46.2	50.1				
	54	59.9	63.9				
	56	10.5	14.5				
	56	36.2					
	56	39.5					
5	57	19.4	23.4				

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	4	7	n.S					
	4	25				10	4 39	
				9.5		10	4 16	
				9.4		9,10	7 59	
				9.5		10	4 35	
9,10	7	40	examine	9.3		10	7 39	
10	9	11						
7	6	17		7.0			6 26	
10	0	4				11	0 18	n.s
10	7	39		9.5		11,12	7 51	very red
9,10	2	1	(Got)?	9.5			2 12 B	
9,10	1	28		9.5			1 40	
9,10	10	0		9.4		10	10 8	
9,10	2	16		9.4		10	2 28	
10,11	8	not obs						
10	10	16 D						
11	9	36	See wire doubtful					
11	9	38						
10.11	8	16					8 —	See lost
10.11	2	27				11	2 39	
10	5	42		9.5		10	5 51	
10	1	25				10	1 38	
9.10	8	15	Comp South fol	9.0		9	8 23	
9,10	4	56		9.5		10,11	5 21	
	B.D.			9.5			5 6 B.	
10.11	5	28	See wire lost				5 39	
11.12	2	8	N.S. See wire lost					
10	6	29				10	6 41	

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5	57	26.6	30.4				
	57	53.4	57.6				
	57	55.0	59.0	Catalogue			
	58	27.4	31.5				
	58	51.6	55.6				
	59	9.8	13.8				
	59	39.0	42.8		5	59	38.8	42.8
5	59	44.2	48.3			59	44.2	48.1
6	0	[15.3	]		6	0	(11.2)	15.1
	0	53.2	57.3			0	53.2	57.1
	1	13.7						
	1	17.0	21.1					
	2	1.5	5.6			2	1.4	5.7
	2	33.0	37.0	Catalogue. 2d.		2	32.8	36.8
	3	37.2	41.2			3	36.8	40.8
	4	1.1	5.1			4	1.1	5.0
	4	10.8						
	4	11.3	15.2			4	11.2	15.1
	4	39.3	43.1			4	39.1	43.0
	4	40.5	44.6			4	40.4	44.4
	5	6.1	10.2			5	5.9	10.0
	5	13.1	17.0			5	12.6	16.6
	5	22.2	26.2			5	22.1	26.0
	6	24.4	28.4			6	24.1	28.1
	6	34.5	38.5			6	34.5	38.3
	7	5.5	9.6			7	5.4	9.5
	7	12.3	16.5			7	12.0	16.2
	7	32.6	36.5			7	32.3	36.2
6	8	18.5	22.4		6	8	18.3	22.3

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1866phae.proj..229S

	~~6 29~~							
9	7	15		9.4	9.10	7	25	
9.10	2	50		9.5	9.10	3	2	
8	2	18	n.s	7.7	8,9	2	26	
10	3	22			10,11	3	34	
10	3	40			10.11	3	49	
	B. D							
9	2	22		9.2	9	2	31	
10	9	18		9.5	9	9	30	
10	5	8	n s	9.5	9	5	21	
10	5	26	Ex.		10.11	5	38	first wire doubtful
9.10	4	42		9.3	9.10	4	~~55~~ 29	" " "
11.12	5	52	Sec wire lost					
11.12	2	14	Minute doubtful					
10	9	14			10	9	26	
8.9	10	4				10	14	
	D long							
9	9	48		9.5	9,10	9	59	
9	8	9		9.5		8	16	
10	5	7	Sec wire lost	9.5				
9	9	39	ns			9	48	
10	2	38		9.5		2	50	
10.11	2	14				2	24	
9.10	6	25	n s	9.5		6	36	
10	6	04		9.5		6	12	
9.10	1	54		9.5		2	7	
	B. B. B.					B.		
10.11	5	5				5	13	
9	10	8		9.5	9.10	10	19	
9.10	10	28			9.10	10	38	
9.10	3	44		8.8	10	3	52	
9	9	46			9.10	9	51	
8	2	27		7.8	9	2	39	

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6	8	51.5	55.4	6	8	51.5	55.3
	8	54.9	58.8		8	54.7	58.5
	9	17.5	21.3		9	17.2	20.9
	9	54.6	58.6		9	54.2	58.3
	10	21.0	25.1		10	21.1	24.9
	10	24.1	28.2				
	11	16.1	20.1	Exam			
	11	48.8	52.5				
	12	53.0	59.0	Examine			
	13	12.4	16.4		13	12.0	16.0
	13	19.6	23.4	carefully.	13	19.3	23.2
	13	33.0	37.1				
	13	35.3	39.3		13	35.1	39.1
	13	48.3	52.4		13	48.0	52.2
	14	59.3	63.2		14	59.1	
	15	37.8	41.8		15	59.5	63.1
	15	59.5	63.4				
	16	5.0	8.9	Catalogue	16	4.8	8.7
	16	13.9	17.8		16	13.7	17.7
	17	6.0	9.7				
	17	29.3	33.3				
	17	40.6	44.6		17	29.1	33.1
	18	36.1	42.1	Catalogue	18	37.9	41.9
	19	29.5	33.3				
	19	39.4	43.5	Catalogue	19	39.2	43.2
	19	45.3	49.3	Catalogue	19	45.2	49.1
	19	56.1	59.9				
	20	20.4	24.3				
	20	45.1	49.0				
	21	27.6	31.5				
					21	32.3	36.5

To be further examined

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0°50'—1°0'

9	5	4		9.10	5	12	Dec was doubtful
9	0	40	n.s	10	0	50	n.s
11	1	11		10	1	22	
10	6	51		9.10	7	1	
9.10	5	10		10	5	21	
10	2	21					
	B. D				7	40	reject.
11.12	5	51		—	6	1	
11.12	1	8			5	39	
9.10	5	54		—	6	06	
					B		
10	8	18		9.10	8	30	
9.10	9	10	Star seems to be extra)				
~~10~~	2	50		10	3	7	
					5	6	
	4	18	Mag.	10	4	28	
10	0	27			D 0	42	n.s first wire only
	5	14	Dec wire lost		~~5~~	~~22~~	do not obs
				9.10	9	29	
9	7	30	n.s first word found				
9	6	58		9.10	7	8	
10	1	34		9.10	1	48	
11	0	15	Dec doubtful reject one.				
	0	6					
9.10	8	45		9.10	8	56	
11	7	47					
8	3	16	examine dec.	8	3	28	
10	0	58					
9	4	11	examine dec.	10	4	25	
8	5	8		9	5	20	
10	3	34					
10	1	40					some stars obs here
11.12	0	45					
11	0	38					

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6	22	54.8	58.7		6	22	54.6	58.6	9.
	23		0.9	ex.		22	56.9	60.7	9.
	23	44.2	48.1			23	44.1		9.
	23	45.6	49.5			23		49.6	9.
	24	3.1	7.1			24	3.2	7.0	1
	24	22.3	26.1			24	22.3	26.2	9
	~~25~~	10.4	14			24		58.4	
	25	10.4	22.0	21.					9.
	25	29.0	33.0						1
	25	59.1	63.2						1
	26	4.8	12.7						1
	26	56.6	60.6			26	56.3	60.3	9
	27	18.0	22.0			27	17.9	21.9	1
	27	55.7	59.7			27	55.6		1
	28	2.2	6.9	Catalogue. 2d.		28	2.0	5.9	1
	28	16.8	20.7			28	16.7	20.6	
	28	38.6	42.8			28	38.7	42.8	9
	28	50.6	54.4			28		54.4	1
	28	59.3	63.6						1
	29	29.4	33.5			29	29.3	33.2	1
	29	55.0	58.8			29	54.8	58.6	1
	30	7.7	11.7			30	7.7	11.5	1
	30	31.8	35.7			30	31.7	35.6	1
	30	57.5	61.2			30	57.4	61.2	1
	31	14.4	18.4			31	14.3	18.1	9
	32	5.0	8.9			31	35.6	39.6	79
	32	40.2	44.3			32	4.7	8.7	
6	33	1.9	5.8		6	33	1.5	5.5	

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9.10	1	49			10	2	2	
9.10	8	12	ex. K.		10	8	22	
9.10	5	39			10	5	49	Dec wire lost
9.10	9	18			10	9	28	first " "
10	4	9			10	4	19	
9	5	7			9.10	5	16	
		B						
	4	not obs				4	30	first wire lost
9.10	1	3	Minute double	ex. K.				
10	0	31						
10	7	50						
10	2	21						
9	8	32			9.10	8	42	
10	9	21			10.11	9	31	
10	6	52			10	7	4	Dec wire lost
7.8	9	45			7.8	9	36	
9.10	5	3				5	12	
9.10	7	26				7	37	
10	1	8				1	20	first wire lost
10	2	3						
	B, D, B							
11	2	38				2	49	
						B		
10	5	9				5	19	
10.11	1	20				1	32	n.S
10	1	57			10	2	8	
11	2	48			11	3	1	
9	6	0			9.10	6	9	
10	9	0	short sig		11.12	Dec lost		
10	9	2			11	9	9	
	B, B					B		
10	5	17				5	31	

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33	8.0	12.0		33	7.7	11.7	
33	25.0	29.0		33			
33	11.9	30.5		33	30.7	34.5	Cram.
34	11.8	15.7		34	11.6	15.2	
34	37.5	41.4		34	37.2	41.2	
36	16.3	20.2		36	16.1		
36	17.1	21.0		36		20.8.	
36	30.6	34.7		36	30.4	34.3	
36	59.2	63.1		36	59.0	62.9	
37	5.4	9.4					
37	29.4	33.2		37	29.0	33.0	
37	42.1	45.8					
38	3.8	7.8		38	3.5	7.4	
38	43.0	46.8		38	42.7	46.7	
38	57.8	61.9		38	57.6	61.5	
39	5.4	9.3		39	5.2	9.3	
39	51.1	55.1					
40	11.0	15.0		40	10.5	14.4	
40	17.2	21.2	Catalogue	40	17.1	20.0	
40	43.8	47.8	Catalogue	40	43.4	47.6	
41	43.0	47.0		41			
42	11.0	14.9		42	10.8	14.6	
42	24.8	28.9	Catalogue	42	24.5	28.3	
42	40.6	44.4		42	40.2	44.1	
42	51.7	55.7	Catalogue	42	51.2	55.3	
44	22.1	26.1		44	28.9		
44	29.3	33.2		44	28.9	32.9	
45	15.8	19.5		45	15.4	19.5	
45	39.8	43.7		45	39.6	43.4	
46	3.3	7.5		46	3.4	7.3.	
46	35.7	39.8	Catalogue	46	35.6	39.5	In next book for Dec.
46	53.9	57.9	Catalogue				

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1960phae.proj.:2293

10.11	8	50		9.0	8	2	dim
9.10	0	3					
10	2	8	first wire log. n.s.	9	2	20	
11	8	39		11	8	53	
10	2	40		11	2	54	
10.11	6	56			7	7	Lee wire bar
10.11	4	54	n.s		5	8	from " "
10	5	50			6	2	
10.11	1	43			1	56	
10.11	1	37					
9	6	10		10	6	22	
10	9	4					
10	5	34		10	5	48	
11.12	4	23		n.n	4	33	
8	3	18		8	3	32	
9	9	52		9.10	10	4	
10	0	15			D.B.D		
9	0	43		10	0	56	
9	0	21		9.10	0	33	
9.10	5	35	ex dec.		5	38	
11.12	2	6					
	D.						
9	3	11		9.10	3	21	
9	3	29			3	41	
9.10	4	00		10	3	11	
9	4	38	ex dec.		5	1	Lee
11	1	21	Doubtful 30".		B		
9	6	58			6	6	
	B						
	4	—					
	7	50	Briggs ~~not~~ more than 50		8	9	
	D	41	Several stars got here.		6	59	
	D				8	8	
					4		

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