

KG
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B.28

No. 28.

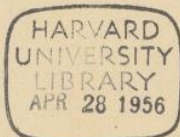
Reduction of Transits

1857. Oct. 4 to Nov. 28. 1857.

Sold by T. Groom & Co., Stationers, India Building, 82 State St., Boston.

KG 11365,99

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1857. Oct. 4.

Ill. East

P. S. C.

1857phae.pr

D. S. C.		"		"		"		"				
Spot A Messier		Bulliald's center		Moon 110		A Arielis		5 ² beti				
	9.9		37.3		11.8		—		58.0			
	13.8		41.1		15.6		—		1.9			
	17.5		45.0		19.2		—		5.2			
	21.1		48.4		22.9		45.8		8.7			
2	3	25.02	4	52.32	5	26.62	10	49.7	2	21	12.2	2
	87.3		224.1		96.1						86.0	
2	3	17.462	4	44.822	5	19.22			2	21	5.20	2

Oct. 4

P.S.C.

ell. Ear

P.S.C.		"		"		"		"	
μ Arietis		38 Arietis		II Arietis		2 Sat. of Jupiter		Jupiter 10	
0		42.8		34.7		43.3		53.7	1.7 (1)
9		46.6		38.5		47.1	2	49	57.5
2		50.2		42.0		50.8		2	50
7		53.8		45.5		54.0			16.6 (5)
2	34	57.8	2	37	41	57.9			
0		254.2		209.7		252.1			
0	2	34	50.24	2	37	41.94	2	41	50.62

1857. Oct. 4

M. Ear

P. S. C.

"

"

"

"

Jupiter 110			1 st Sat. of Jupiter			3 ^d Sat. of Jupiter			4 th Sat. of Jupiter			+ Ceti		
	5.3			—			—			33.4			17.7	
	—			—			—			77.3			21.6	
	12.5			—			—			40.8			21.0	
	—			—			22.2			43.9			28.5	
2	50	19.6	2	50	21.85	2	50	26.1	2	50	48.0	2	51	31.9
										703.4			174.7	
									2	50	40.68	2	51	24.94

1857, Oct. 4.

P.S.C.

Ill. Paul

53 Aielis

47.0

50.7

54.3

58.0

1.8

211.8

271.8

54.36

1857. Oct. 5

1857phae.proj...

A. H.				Ill. Ear							
α Scorpii				μ Herculis							
2 Ophiuchi				γ Draconis							
		1.0		40.4		13.2		34.1			
		4.9		44.1		17.4		39.9			
		8.8		47.6		21.2		45.4			
		12.5		51.0		24.8		50.9			
16	21	16.5	17	28	54.8	17	41	29.0	17	53	56.7
		43.7			237.9			105.6			227.0
16	21	8.74	17	28	47.58	17	41	21.12	17	53	48.40

1857. Oct. 5/6

P. S. C.		All. Ear								
Polaris		0 Arietis		5 ⁷ Ceti		" Arietis		38 Arietis		
3	32.1		35.2		58.3		42.7		34.7	
5	47.4		38.8		1.9		46.7		38.1	
8	6.3		42.2		5.3		50.3		42.0	
10	23.6		41.6		8.7		54.0		41.4	
12	38.62	10	49.62	21	12.32	34	57.72	37	49.0	
	148.0		211.4		86.5		251.4		209.6	
	28.1				26.5					
1	8	5.602	10	42.282	21	5.302	34	50.282	37	41.92

1857. Oct. 5/6

Jl. East

P.S.C.

1857phae.pr

π Arietis		ρ^3 Arietis		ϵ Arietis		α Ceti		δ Arietis							
	43.2		46.4		26.1		12.7		47.2						
	47.0		50.2		30.5		16.7		50.9						
	50.6		53.8		34.3		20.2		54.6						
	54.3		57.4		37.8		23.5		58.3						
2	41	38.0	2	49	1.02	51	41.7	2	55	27.03	0	2.0	2		
		253.1			208.8		170.8			100.1		213.0			
					268.8							273.0			
2	41	50.62	2	48	53.76	2	51	34.16	2	55	20.02	2	59	273.0 54 260	2

Oct. 5/6

Alt. 8 alt

P.S.C.

1857phae. pro

	D.S.C.		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"		"	
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1857. Oct. 5/6

All. Jan

P.S.C.		"		"		"		"	
2 Persi		9 Jani		11 Jani		17 Jani		27 Jani	
	29.3		57.9		38.2		47.2		23.4
	34.5		1.8		42.2		31.5		27.4
	40.2		5.5		41.8		55.0		31.0
	45.1		9.1		49.7		58.9		34.6
3	14	3	29	3	31	3	27	3	39
	50.7		13.1		53.7		2.6		38.8
	199.8		87.4		229.6		215.2		151.2
			27.4				275.2		
3	14	3	29	3	31	3	26	3	39
	39.96		5.48		41.92		42.04		31.04

Oct. 5/6

P. S. C.

III. Part

A Tami.

4			38.9
4			42.9
0			46.3
6			50.0
8	3	56	54.0
2			232.1
04	3	56	46.42

1857. Oct. 7

A. H.

Ill. E. an

1857p

		41.9			22.9			3.8			46.3		49.6		
		45.3			26.3			7.9			49.7		53.1		
		48.8			29.8			11.5			53.3		56.7		
		52.2			33.0			15.0			56.6		59.9		
21	32	55.7	21	40	36.6	21	44	18.9	21	49	0.1	21	54	3.3	21
		243.9			148.6			57.1			206.0		222.6		
21	32	48.78	21	46	29.72	21	44	11.42	21	48	58.20	21	53	56.52	21

Oct. 7.

A. H.

ell. Ean

α Aquarii

6		50.4		29.2		41.7		31.3		27.6
1		53.9		32.8		45.3		38.6		31.4
7		57.1		36.3		49.0		41.9		34.9
9		0.5		39.4		56.0		45.4		38.1
3	21 59	4.3	22 2	43.0	22 8	52.4	22 19	35.2	22 23	41.8
6		166.2		180.7		244.4		192.4		173.8

52	21 58	57.24	22 2	36.14	22 8	48.88	22 19	38.48	22 23	34.76
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1857. Oct. 7.

A. H.

J. L. Ear

		18.5			23.4			43.6			52.0			48.2	
		22.0			26.9			47.0			56.7			51.9	
		25.8			30.6			50.9			59.9			58.2	
		28.9			33.8			54.2			3.4			58.4	
22	28	32.6	22	30	37.3	22	34	57.9	22	40	7.0	22	41	2.2	2
		127.8			152.0			253.6			180.0			215.9	
22	28	25.56	22	30	30.40	22	34	50.72	22	40	0.00	22	44	43.18	22

Oct. 7.

A.U.

Ill. Ear

2		58.0		4.3		20.4		1.9		41.1
9		1.8		8.1		23.8		5.8		49.4
2		5.0		11.8		27.5		9.2		52.8
4		8.7		15.0		30.5		12.6		59.1
2	22 47	12.0	22	49	18.7	22 53	34.4	22 57	14.5	23 1 55.9
9		85.5		57.9		136.6		46.0		263.1
18	22 47	5.10	22	49	11.58	22 53	27.82	22 57	9.20	23 1 52.62

1857. Oct. 7.

A.U.

Ill. Sun

28.3

47.1

32.0

50.6

35.6

54.0

38.8

57.3

42.6

1.2

177.3

210.2

35.46

54.04

Oct. 7/8

P.S.C.

Ill. Ear

y Tami?		Spot 1.		Spot 2.		Moon 110		2 Aurigae						
	4.4		11.2		45.8		11.2		21.4					
	7.9		15.8		49.8		15.0		25.6					
	12.0		19.7		53.9		19.4		29.7					
	15.6		23.3		57.8		23.4		33.6					
5	11	19.5	15	17	27.5	5	18	27.5	5	20	38.0			
	59.4		97.6		209.3		96.5		148.3					
					269.3									
5	11	11.88	15	17	19.52	5	17	63.86	5	18	19.30	5	20	29.66

1857. Oct. 7/8

P. S. C

136 Tauri

2 Geminor

γ Geminor

μ Geminor

43.4

48.8

38.8

45.4

47.4

52.8

42.8

49.2

51.4

56.5

46.8

52.8

55.2

0.0

50.66

14

56.8

44

59.35

56

4.16

6

54.6

256.7

162.2

233.6

282.2

44

51.345

55

56.44

6

6

46.72

Oct. 7/8

A.U.

Ill. Jan

 γ Leonis

x Urs Maj.

Polaris s. p

26.7

5.6

3

48.8

30.3

13.4

6

13.9

34.3

20.8

8

24.6

37.9

28.1

10

40.7

10

12

41.7

10

51

36.0

13

13

1.1

170.9

103.9

129.1

10

12

34.18

10

51

20.78

13

8

25.82

1857. Oct. 8.

A.U.

"

Ill. Ear

"

 α ' Capricorn α^2 Capricorn

	18.9	20.7	15.8	6.2	30.2
	27.6	24.3	19.1	9.9	34.2
	21.9	27.7	22.8	13.1	37.4
	29.3	31.0	26.1	16.9	41.0
19 58	32.9 20	34.8 20	30.0 20	20.9 20	44.6 20
	129.6	138.1	114.2	67.4	187.4
19 58	21.92 20	27.70 20	22.84 20	13.48 20	37.48 20

Oct. 8

A.U.

ell. Ears

1857p

2			9.7			43.9		30.0			49.4		20.7		
2			13.2			47.4		33.7			52.9		24.4		
4			16.6			50.8		37.0			56.2		27.8		
0			19.9			54.2		40.4			59.5		31.1		
.6	20	12	29.6	20	14	57.9	20	18	44.0	20	20	3.2	20	21	34.8
.4			83.0			254.2		185.1			221.2				138.8
8	20	12	16.60	20	14	50.84	20	18	37.02	20	19	44.24	20	21	27.76

1857. Oct. 8.

A. 21.

Al. Ear

	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
1857phae . pr																	
		29.3				52.1				26.9				10.1			43.0
		32.7				56.0				30.1				14.0			46.1
		36.2				59.7				34.1				17.6			50.1
		39.1				3.0				37.6				21.0			53.4
20	25	43.3	20	30	6.5	20	32	41.0	20	34	24.3	20	40	57.0	20		
		181.0				177.7				170.1				87.4			250.0

20	25	36.20	20	29	59.54	20	32	34.02	20	34	17.48	20	40	50.00	20
----	----	-------	----	----	-------	----	----	-------	----	----	-------	----	----	-------	----

Oct. 8.

A.U.

ell. Par

1857

0		35.9		8.1		23.6		16.3		55.2					
1		39.6		11.9		27.4		19.7		58.8					
1		42.8		15.2		30.9		23.0		2.2					
4		46.3		18.6		34.2		26.5		5.6					
0	20	41	49.7	20	43	22.0	20	46	38.0	20	48	30.3	20	50	9.3
0		214.3		75.8		154.1		115.8		131.1					

0	20	41	42.86	20	43	15.16	20	46	30.82	20	48	23.16	20	50	2.22
---	----	----	-------	----	----	-------	----	----	-------	----	----	-------	----	----	------

1857. Oct. 8

A.U.

"

Ill. Ear

"

"

21.6

36.8

58.6

53.2

58.9

21.1

40.4

2.1

57.0

2.7

28.6

43.6

5.8

0.4

6.0

32.0

47.2

9.2

3.7

9.3

20 52 35.7

20 53 50.7

20 54 12.1

20 58 7.2

21 2

13.0

143.0

218.7

88.2

121.1

89.9

20 52 28.60

20 53 43.74

20 54 5.64

20 58 0.30

21 2

05.98

Oct. 8,

A.U.

Ill. East

" β -Aguarii

		12.0			1.0			48.6			53.7			28.5
		15.6			4.6			51.7			57.5			29.0
		19.0			8.0			55.3			6.9			32.5
		22.5			11.5			59.0			4.5			31.9
21	5	26.1	21	8	15.0	28	12	2.2	21	17	7.8	21	24	38.5
		95.2			40.1			216.8			124.4			162.4
21	5	19.04	21	8	8.02	21	12	55.36	21	17	0.88	21	24	32.48

1857. 8/9 Oct.

P.S.C.

Ill. Fan

x Aurigae		" 26 Aurigae		" 136 Tauri		" 1 Geminae		" 7 Geminae	
	47.8		49.6		43.0		48.5		37.4
	52.0		54.0		47.1		52.4		41.2
	56.3		57.8		51.0		56.0		45.0
	0.2		1.8		54.8		59.7		48.8
5 24	4.3 5	30	6.0 5	44	58.8 5	56	3.8 6	6	52.8 6
	160.6		169.2		254.7		220.4		225.2
	280.6		289.2				280.4		
5 25	56.12 5	29	57.84 5	44	50.94 5	56	56.08 6	6	45.04 6

Oct. 8/9

All. Ear

P.S.L.

P.S.L.		"		"		"		"		Moon 110				
μ luminous		$\sqrt$ luminous		Spot center		Bassendi								
	41.2		51.0		35.9		11.0				35.9			
	45.1		54.8		40.1		15.1				40.4			
	48.8		58.5		44.3		19.2				44.2			
	52.5		2.2		48.2		23.3				48.2			
6	14	56.4	6	21	5.9	6	24	52.4	6	25	27.5	6	25	52.6
	244.0		172.4					220.9			96.1			221.3
			292.4											
6	14	48.80	6	20	548.48	6	24	44.18	6	25	19.22	6	25	44.76

1857. Oct. 8/9.

M. Ear

P.S.C.

5 Geminor

37 " Geminor

30.4

53.4

34.4

57.1

38.2

1.1

41.9

4.8

6 35 45.9 6 47 8.9

190.8 121.3

5.3

6 35 38.16 6 47 1.06

1857. Oct. 9.

A. U.

Ill. East

"

"

" *S. Aquilar*

	19.7			39.6			0.8			9.7			13.8	
	23.3			43.3			4.5			13.2			17.6	
	26.7			46.6			8.0			16.7			21.6	
	30.1			50.0			11.6			20.0			24.4	
19	12	33.7	19	18	52.8	19	21	15.3	19	22	23.8	19	24	28.1
		133.5			233.3			40.2			83.4			104.9
19	12	26.70	19	18	46.66	19	21	8.04	19	22	16.68	19	24	20.98

1857. Oct. 9.

A. H.

H. E. Ear

		37.7			0.3			38.8			35.6			32.0	
		41.6			4.0			2.7			39.2			35.2	
		45.0			7.8			5.9			42.6			39.0	
		48.1			11.0			9.5			45.9			42.2	
19	25	52.2	19	31	14.3	19	34	12.8	19	35	49.8	19	38	46.1	19
		224.6			37.4			89.7			213.1			194.1	
19	25	44.92	19	31	7.48	19	34	5.94	19	35	42.62	19	38	38.90	19

Oct. 9.

A.H.

H. E. a

γ Aquarii

		49.6			8.0			51.7			29.5
		53.5			11.5			55.5			33.3
		56.8			14.9			58.7			36.7
		0.1			18.4			1.9			40.1
19	40	3.9	19	45	22.0	19	52	5.6	19	53	43.8
		163.9			74.8			173.4			183.4
19	39	56.78	19	45	14.96	19	51	58.68	19	52	36.68

1857. Oct. 1/12.

M. Ear

A. H.

 α Hydrae

Moon 100

 γ Leonis α Leonis

58.5

39.3

5.2

6.8

59.0

43.0

9.1

10.6

2.5

47.1

13.0

14.1

5.8

50.7

16.7

17.5

9

21

9.4

9

25

54.4

9

38

20.3

10

1

21.3

132.2

234.1

64.3

70.3

12.2

9

21

2.44

9

25

46.90

9

38

12.86

10

1

14.06

Oct. 12/13

A. U.

All. West

 α Leonis

Moon TTB

 α Mus Maj

		6.9			26.2			5.2
		10.8			30.1			13.5
		14.0			33.6			20.6
		17.5			37.3			27.8
10	1	21.1	10	16	41.0	10	51	35.1
		70.3			168.2			102.6
10	1	14.06	10	16	33.64	10	51	20.52

Oct. 13, 1857.

A. U.

Ill. Wm

x Aquarii

1857

		49.6		—				16.5		30.6		40.9				
		53.1		—				20.1		34.2		44.8				
		56.5		43.2				22.4		37.7		48.1				
		59.9		46.7				27.0		41.2		51.4				
21	59	3.6	21	59	43.10	50.2	22	2	30.5	22	7	44.8	22	8	54.9	2
		222.7						117.5		188.5		240.1				
21	58	56.54					22	2	23.50	22	7	37.70	22	8	48.02	2

Oct. 16

A.H.

M. West

 α^2 Capricorn

		30.7			10.1			44.3			29.9			49.2
		34.4			13.6			47.9			23.6			52.9
		37.8			17.1			51.3			37.0			56.3
		41.4			20.5			54.9			40.2			59.7
20	10	45.1	20	12	24.0	20	14	58.3	20	18	43.9	20	20	3.3
		189.4			85.3			256.7			184.6			221.4
20	10	37.88	20	12	17.06	20	14	51.34	20	18	36.92	20	19	56.28

1857. Oct. 16.

A. U.

H. W.

		20.6			29.2			53.6			26.9			10.3
		24.2			32.9			57.1			30.6			13.9
		27.4			36.4			0.8			33.9			17.4
		30.8			39.6			4.4			37.1			20.7
20	21	34.1	20	25	43.2	20	28	7.8	20	32	41.0	20	34	24.1
		137.1			181.3			124.1			169.9			86.8

20	21	27.50	20	25	36.26	20	28	0.82	20	32	33.98	20	34	17.36
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Oct. 16

A. 21.

M. W. R.

"

"

"

"

		42.8			8.2			16.1			12.5			55.2
		46.6			11.8			19.8			15.8			58.8
		50.0			15.3			23.1			19.4			2.1
		53.4			18.7			26.5			22.8			5.7
20	40	57.0	20	43	22.2	20	48	30.1	20	45	26.1	20	50	9.1
		249.8			76.2			115.6			97.0			130.9
20	40	49.96	20	43	15.24	20	48	23.12	20	45	19.40	20	50	2.18

857. Oct. 16.

A.U.

M. W. W.

		58.2			40.1			11.8			53.4			59.1	
		2.1			44.0			15.3			57.0			2.7	
		5.4			47.4			16.7			0.4			6.3	
		8.9			50.8			22.2			3.8			9.6	
20	54	12.4	20	53	54.4	20	56	21.7	20	58	7.4	21	2	13.0	21
		87.0			237.1			93.7			122.0			90.7	
20	54	5.40	20	53	47.42	20	56	18.74	20	58	0.40	21	2	6.14	21

Oct. 16

A. H.

"

Ill. Wm

"

12.2

47.5 21

11

48.1

15.6

50.9

52.4

19.3

54.4

—

22.7

58.6

58.9

21 5 26.3 21 8

1.6

—

96.1

212.4

21 5 19.22 21 7 54.48

55.50

55.78

55.49

1857. Oct. 16/17.

A. U.

Ill. West

1857phae.pr

A. U.		"		"		"		"		"		"			
α Hydrae		δ Urs Maj		ϵ Leonis		α Leonis		γ Leonis		γ' Leonis					
	56.8		35.6		6.4		8.1		27.7						
	0.4		41.6		10.4		11.8		31.7						
	3.8		47.1		14.0		15.3		35.2						
	7.2		52.8		17.8		18.8		38.9						
9	21	10.9	9	23	58.6	9	38	21.7	10	1	22.1	10	12	42.7	21
	79.1		2	35.7		70.3		76.1			176.2				
9	21	3.82	9	23	47.14	9	38	14.06	10	1	15.30	10	12	35.24	21

Oct. 17.

A. H.

H. West

β Aquarii

		54.4			39.1			26.2			10.7			45.3
		58.2			42.8			29.9			14.2			49.0
		1.5			46.3			33.4			17.9			55.7
		5.0			49.7			40.5			21.2			52.2
21	17	8.4	21	18	53.4	21	24	36.8	21	27	25.0	21	27	59.5
		127.1			231.3			166.8			89.0			261.7

21	17	7.50	21	18	46.76	21	24	33.36	21	27	17.80	21	27	52.34
----	----	------	----	----	-------	----	----	-------	----	----	-------	----	----	-------

1837. Oct. 17.

A. U.

Jl. W. W.

		42.4			56.0			22.3			23.3			4.9
		45.9			59.1			26.0			26.8			8.8
		49.3			2.9			29.4			30.2			12.2
		52.6			6.8			33.1			33.6			15.5
21	32	56.0	21	34	10.1	21	36	36.6	21	40	37.4	21	44	19.2
		246.2			135.3			147.4			151.3			60.6
21	32	49.24	21	34	3.06	21	36	29.48	21	40	30.26	21	44	12.12

1857. Oct. 17

A.U.

All. Wier

" ~~Aquarii~~" ~~Aquarii~~

"

"

46.7	50.1	50.7	—	17.8
50.6	53.5	54.3	—	21.4
53.9	56.9	57.9	44.4	24.8
57.2	0.4	1.2	47.8	28.2
21 49 1.0	21 54 4.0	21 59 4.8	21 59 44.90 51.4	22 2 32.0
209.4	164.9	168.9		124.2
21 48 53.88	21 53 56.9.8	21 58 57.78		22 2 24.84

857. Oct. 17.

A. 7c.

J. C. Ware

1857phae. pr		N. D.		"		"		"		"		"		"	
		42.2		59.6		32.1		28.2		19.3					
		46.0		3.2		35.7		32.0		22.6					
		49.4		6.7		39.2		35.4		26.2					
		52.8		10.2		42.5		38.9		29.6					
22	8	56.4	22	10	13.7	22	19	46.1	22	23	42.4	22	27	33.1	22
		246.8			93.4			195.6			176.9			130.8	
22	8	49.36	22	10	6.68	22	19	39.12	22	23	35.38	22	27	26.16	22

Oct. 17

A.U.

"

Ill. Wm

5 Pegasi

		23.9			36.1			44.2	
		27.6			40.2			47.9	
		31.0			43.5			51.4	
		34.4			46.9			54.8	
22	30	28.0	22	31	50.1	22	34	58.3	
		114.9			217.6			256.6	
22	30	30.98	22	31	43.52	22	34	51.32	

1857. Oct. 7/20

Ill. Wier

A. H.

γ' Leonis

28.8

32.7

36.3

39.9

10 12 43.8

181.5

10 12 36.30

Oct. 21

Ill. Wm

A. H.		" "		" "		" "		" "		" "		" "	
α Lyrae		S Pegasi											
26.9		45.0		54.4		49.9		0.1					
31.6		48.5		—		53.1		3.4					
31.8		52.1		—		56.8		6.6					
40.3		55.8		—		60.0		10.3					
18 32 44.7	22 34 59.4	22 40 8.3	22 45 3.8	22 47 14.0									
179.3	261.1		163.6	34.4									
18 32 35.86	22 34 52.70	22 40 1.35	22 44 56.72	22 47 6.88									

657. Oct. 21.

A.H.

M. W.

A.H.			"			"			"			"		
	6.1	18.91	21.9			3.6		58.0			12.9			
	9.7	29.7	25.8			7.3		1.8			16.8			
	13.1		—			11.0		5.3			20.1			
	16.5		—			14.5		8.3			23.5			
22	49	20.2	22	53	—	22	58	18.2	23	14	11.9	23	24	27.2
	65.6							54.6			85.3			100.5
22	49	13.12	22	53	29.05	22	58	10.92	23	14	5.06	23	24	20.10

Oct. 21

A. H.

Wm. West

		30.8			31.4			1.8			24.6			16.3
		33.9			35.1			5.6			28.8			20.1
		37.9			38.5			8.6			32.0			23.9
		40.9			41.8			12.5			35.0			27.4
23	27	44.7	23	29	41.6	23	33	16.0	23	34	39.2	23	37	30.1
		188.2			192.4			44.5			119.6			118.2
23	27	37.64	23	29	38.48	23	33	8.90	23	34	31.92	23	37	23.64

Oct. 21. 1857.

A.U.

Ill. Wier

56.2

59.9

3.4

6.8

23 42 10.4

136.7

23 42 3.34

Oct. 21/22.

A.H.

Ill. Warr

 α Leonis γ Leonis β Leonis s.p.

		9.2			29.1		
		13.1			32.9	6	17.5
		16.6			36.5	8	31.1
		19.9			40.0	10	44.7
10	1	23.7	10	12	44.0	13	8.5
		82.1			182.1		
10	1	16.50	10	12	36.50		

837. Oct. 24

J. H. W. W.

A. H.

 α Lyrae β Lyrae

Moon TV

Spot

26.1

9.7

33.0

—

31.1

14.0

37.1

21.0

31.5

18.0

41.2

24.9

39.9

22.1

45.1

28.8

18 32

44.5

18

41

26.5

19

20

49.3

19

21

33.0

177.5

90.3

205.6

18 32

35.50

18

41

18.06

19

20

41.12

Oct. 26.

P.S.C.

M. Wier

ψ Capricorn			" 32 Vulpecula			" v Aquarii			" Moon 10			" Draughton		
		2.5			51.3			13.7			17.9			27.2
		6.3			55.7			17.3			21.8			31.2
		10.1			59.3			20.8			25.6			34.9
		14.1			3.2			24.3			29.4			38.7
20	38	18.0	20	49	7.0	21	2	28.0	21	9	33.22	10		42.6
		51.0			176.5			104.1			127.9			174.6
					296.5									
20	38	10.20	20	48	59.30	21	2	20.82	21	9	25.58	21	10	34.92

1857. Oct. 26.

P.S.C.

M. Wier

Capricorn			5 Capricorn			β Aquarii		
		42.2			55.4			27.4
		46.3			59.2			31.0
		49.7			2.9			34.1
		53.3			6.8			37.8
21	14	57.0	21	19	10.6	21	24	41.4
		248.1			134.9			172.1
					14.9			
21	14	49.90	21	19	2.98	21	24	34.42

Oct. 29/30

A. U.

Ill. Wm

 α Leonis γ Leonis δ Leonis

10.1

29.8

54.1

13.7

33.6

57.9

17.2

37.0

1.7

20.8

40.8

51.3

10 1

24.4

10

12

44.6

11

7

9.1

86.2

185.8

128.1

10 1

17.24

10

12

37.16

11

7

1.62

1857. Oct. 30.

Ill. Min

P.S.C.

21 Piscium			" α Piscium			" γ Pegasi			" δ Piscium			" 13 Ceti		
		34.5			24.5			18.6			40.9			19.7
		38.0			28.0			22.2			44.4			23.6
		41.6			31.5			25.7			47.9			26.8
		45.0			35.0			29.3			51.2			30.0
23	42	48.4	23	52	38.5	0	6	32.9	0	13	54.8	0	28	34.0
		207.5			157.5			128.7			239.2			134.1
23	42	41.50	23	52	35.50	0	6	25.74	0	13	47.84	0	28	26.82

Oct. 30

Ill. Wm

P.S.C.		"		ell. Wm		"		"		"				
α Cassiopeae		Moon TO		Proclus		Lpot		Lpot		Lpot				
	41.3		398		52.8		22.4		49.1					
	52.1		438		56.1		21.8		53.2					
	58.1		47.2		0.2		29.4		56.8					
	4.4		508		3.4		33.0		0.4					
0	33	10.1	0	36	54.6	0	37	7.3	0	37	36.8	0	38	4.0
	170.4		236.2		120.2		147.4		163.9		283.9			
					00.2									
0	32	34.08	0	36	47.24	0	37	0.04	0	37	29.48	0	37	56.78

1857. Oct. 30.

J. L. West

P.S.C.

Sauri di

" 20 6 Li

" 8 Piscium

30.4

8.8

58.2

34.0

12.6

1.7

37.6

15.7

5.0

41.0

19.2

8.4

0

38

44.7

0

46

22.6

56

12.2

187.7

78.9

85.1

25.5

0

38

37.540

46

11.780

56

5.10

Nov. 7/3

A.H.

Ill. Wm

x Wm May

S Lewis

B Lewis

		9.1		51.1		11.0
		17.6		59.0		14.6
		24.7		2.6		18.2
		32.1		6.3		21.7
10	51	40.0	11	7	10.2	42 25.6
		124.3			133.2	91.1
10	55	24.86	11	7	2.64	42 18.22

Nov. 3. 1857.

A. H.

Ill. West

		14.7			33.4			28.5			31.3			54.4	
		18.4			37.2			32.0			31.0			57.9	
		21.8			40.5			35.4			38.6			1.4	
		25.1			43.9			39.0			41.9			4.9	
23	44	28.9	23	47	47.5	23	51	42.7	23	53	41.5	23	55	8.2	0
		108.9		.	202.5			177.6			192.3			126.8	
23	44	21.78	23	47	40.50	23	51	31.52	23	53	38.46	23	55	1.36	0

Nov. 3.

A.U.

Old. West

y Pegani

1857

		59.9		48.8		19.2		46.8		48.1				
		3.1		52.0		23.1		50.7		51.8				
		6.7		55.1		26.1		53.8		55.2				
		10.0		58.9		30.2		57.3		58.6				
0	0	13.6	0	4	2.6	0	6	33.9	0	10	0.9	0	16	2.2
		93.3		217.8		132.9		209.5		215.9				
0	0	6.66	0	3	55.56	0	6	26.58	0	9	53.90	0	15	43.18

857. No. 3.

St. Wier

A. H.

1857phae. pr

A. A.		"		"		"		"		β Ceti					
	31.7		27.3		57.4		7.2		57.0						
	35.4		31.0		1.1		10.7		55.8						
	38.8		34.5		4.6		14.0		59.3						
	42.1		37.8		7.8		17.5		2.9						
0	18	45.7	0	20	41.4	0	25	11.5	0	31	21.1	0	37	6.7	0
	193.7		172.0		82.4		70.1		176.7						
0	18	38.74	0	20	34.40	0	25	4.48	0	31	14.10	0	36	59.34	0

1857. No. 3

A. 21

N. 21		"		"		"		"						
	11.0		41.9		48.2		8.4		11.8					
	14.1		49.4		51.8		12.1		15.1					
	17.8		52.0		54.3		15.3		19.0					
	21.4		56.2		58.7		18.9		22.1					
0	44	25.0	0	46	59.9	0	51	2.2	0	52	22.1	0	53	26.0
	89.7		264.4		216.2		76.8		94.8					
0	44	17.94	0	46	52.88	0	50	55.24	0	52	15.36	0	53	18.96

1857. Nov. 3

A.H.

H. W. W.

		57.2			49.8			4.7			39.6			38.3	
		0.6			53.5			8.6			43.2			41.9	
		4.1			57.0			12.0			46.7			45.4	
		7.6			0.4			15.4			49.9			48.6	
0	54	11.2	0	58	3.9	1	1	19.0	1	3	52.7	1	5	52.4	1
		80.7			164.6			59.7			233.1			226.6	
0	54	4.14	0	57	56.92	1	1	11.94	1	3	46.62	1	5	45.32	1

Nov. 3

A.U.

M. Wier

		"	"	"	
3	49.4	16.2	21.4	26.0	
9	53.3	19.8	21.6	29.4	
4	56.7	23.0	28.3	32.7	
6	6.2	26.7	32.0	36.2	
4	3.7	30.2	31.2	39.6	
6	1638	115.9	141.9	163.9	
32	6	56.76	23.18	28.38	32.78

1857phae.proj...996
857. Nov. 2.

Ill. West

P.S.C.

17 Tauri		γ Tauri		A Tauri		Star South of A Tauri		α ² Tauri	
	50.5		26.1		41.9		19.8		20.2
	54.4		30.4		45.8		23.7		23.9
	58.0		37.8		49.5		27.3		27.8
	1.7		34.1		53.2		30.9		31.4
3 27	5.7	3 39	41.7	3 56	57.1	57	34.8	4 9	35.2
	170.3		170.5		247.5		136.1		138.5
	290.2								70
3 36	58.06	3 39	34.10	3 56	49.50	57	27.30	4 9	27.90

1857. Nov. 3

P.S.C.

M. West

	ν' Tauri	ϵ Tauri	α Tauri	τ Tauri	A Minor
2	12.3	43.4	10.3	6.9	27.7
9	16.2	47.1	13.9	10.6	31.6
8	19.8	50.7	17.5	14.1	35.1
6	23.6	54.3	21.0	18.3	38.8
2	4 18 27.3	4 22 57.9	4 28 24.8	4 34 22.1	4 43 42.6
1	99.2	25.24	87.5	72.4	175.8
70	4 18 19.84	4 22 50.68	4 28 17.50	4 34 14.48	4 43 35.16

Nov. 3. 1857.

M. W.

P.S.C.

Spot 1.

Flamsteed

Moon 110

Leporis

Star near β Orion

39.6

41.2

30.4

53.0

8.0

44.0

45.4

38.6

57.0

11.1

48.0

49.3

34.1

1.0

15.0

51.7

53.4

42.4

4.9

15.7

56.0

57.6

46.8

9.1

22.0

239.3

246.9

192.7

121.0

75.2

5.0

47.86

49.38

38.54

1.00

15.04

Nov. 3

P.I.C.

Ill. Wier

β Orionis	" u Tauri	" β Tauri	" o Tauri	" x Aurigae
6.9	8.0	41.8	29.8	51.8
10.5	17.0	41.9	33.1	51.8
14.1	18.6	49.9	37.3	0.0
17.6	19.3	53.7	40.9	4.0
21.1	23.2	57.8	44.8	8.2
70.2	78.0	249.8	186.3	119.8
				299.8
74.04	18.60	49.96	37.26	59.96

1857. Nov. 3.

P.S.C.

M. Wier

Liparis		5 Tauri		Columbae		129 Tauri		136 Tauri	
	52.0		24.6		53.8		59.2		46.9
	51.9		28.2		57.9		2.8		51.0
	59.1		31.1		2.0		6.5		54.8
	3.0		35.0		6.2		10.0		58.6
5	27	5	29	5	35	5	39	5	45
	6.8		38.7		10.6		13.7		3.0
	177.2		158.0		130.1		92.2		214.3
	297.2				10.5		32.2		274.3
5	26	5	29	5	35	5	39	5	44
	59.44		31.60		2.10		6.44		54.86

1900 1201

Self. Wm

1887. Nov. 6/7.

Ill. Wren

A. U.

π Lewis	α Lewis	γ' Lewis	δ Lewis
4.9	10.7	30.4	54.9
8.6	14.3	34.2	58.6
12.1	17.9	37.8	2.4
15.4	21.4	41.1	6.0
19.2	25.1	45.2	9.9
60.2	89.4	188.7	131.8

9

53

10

1

10

12

11

7

9

53

12.04

10

89.4

17.88

10

12

37.74

11

7

2.36

Nov. 10.

A.U.

M. W. W.

A. U.

"

"

"

"

		19.8		1.0		24.4		51.5		57.6				
		13.4		4.2		28.1		55.2		1.1				
		26.9		8.0		31.1		58.7		4.5				
		30.3		11.7		35.0		2.1		7.9				
1	17	33.9	1	27	15.1	31	38.8	1	34	5.7	1	35	11.7	
		134.3		40.0		157.8		173.2					82.8	
10	17	26.86	1	27	8.00	1	31	31.56	1	34	38.64	1	35	4.56

857. Nov. 10.

A.H.

"

All. West

"

" *a line*

"

1857F

		9.3		42.4		57.9		33.8		43.0					
		13.1		46.1		1.1		37.8		46.3					
		16.6		49.5		5.0		41.3		49.7					
		20.1		52.8		8.4		41.2		53.1					
1	38	23.7	1	45	56.4	1	49	11.9	1	59	48.9	2	8	56.7	2
		82.8		247.2		84.7		207.0		248.8					
1	38	16.56	1	41	49.44	1	49	4.94	1	59	41.40	2	8	49.76	2

Nov. 10

A. H.

Ed. Weir

1957phae-pr

A. A.		"		"		"		"	
0		32.6	3.3		4.6		34.1		17.7
3		36.2	7.0		7.9		37.4		16.6
7		39.7	10.2		11.6		41.0		20.0
1		43.1	13.7		15.2		44.3		23.4
7	2 9	46.8	2 11 17.3	2 21	18.9	2 24	48.0	2 30	27.2
8		198.4	51.1		58.2		204.8		99.9
76	2 9	39.68	2 11 10.30	2 21	11.64	2 24	40.96	2 30	19.98

Nov. 10. 1857.

Ill. Wm

A. Z.

beti

26.1

24.7

28.0

31.4

31.2

140.4

36

36

28.08

Nov. 10/11

P. J. C

Ill. Wm

B Lewis

10.3

14.3

17.8

21.4

11 42 21.0

88.8

42 17.76

Nov. 11. 1857.

1857phae.proj...99

Nov. 11. 1857.

H. D. 7.		H. U.		Alt. West		Alt. East	
α Lyrae		γ Aquilae		α Aquilae		"	
	27.4		52.3		13.2		49.2
	31.8		56.1		17.0		52.8
	36.2		59.4		20.2		56.3
	40.6		3.0		23.8		59.7
18	32	41.0	19	40	6.7	19	44
	181.0		177.1		101.1		221.4
18	32	36.20	19	39	59.50	19	44

Nov. 11

A.U.

"

"

"

"

Ill. H. E. E.

9	52.0	50.6	13.9	31.2	32.2
6	55.4	54.0	17.7	34.9	35.6
9	58.9	57.4	20.9	38.3	39.0
3	2.2	0.9	24.4	41.7	42.4
8	23 20 6.7 23 21 9.6 23 24 28.0 23 27 41.2 23 29 46.7				
5	174.6	167.5	104.9	191.3	191.3
90	23 19 58.92 23 20 57.50 23 24 20.98 23 27 38.26 23 29 39.06				

1857. Nov. 11.

A.H.

W. West Fair

2 Piscium

		2.2			25.6			11.6			56.9			14.3	
		6.0			29.2			15.4			0.7			17.9	
		9.3			32.5			18.9			7.2			21.4	
		12.7			35.8			22.2			4.0			24.8	
23	33	16.4	23	34	39.7	23	38	25.8	23	42	11.0	23	44	28.6	23
		46.6			162.8			93.9			79.8			107.0	
23	33	9.32	23	34	32.56	23	38	18.78	23	42	3.96	23	44	21.40	23

Nov. 11.

A. U.

W. Earle

7 Pegari

3	32.9	30.7	53.8	48.1	18.9
9	36.6	34.6	57.3	51.7	22.6
4	40.1	37.9	0.9	55.0	26.0
8	43.5	41.2	4.2	58.6	29.4
6	47.1	44.8	7.9	2.2	33.2
0	200.2	189.2	124.1	215.6	130.1
40	40.04	37.84	0.82	55.12	26.08

1857. Nov. 11

A. U.

M. Par

 β b et i

46.1	31.2	26.9	6.7	51.6
50.0	34.8	29.9	10.2	54.3
52.6	38.3	33.7	13.7	58.5
56.9	41.6	37.3	17.1	62.4
0.3 0	45.2 0	40.9 0	20.1 0	6.3 0
207.3	191.1	168.7	68.2	174.4

0	9	53.46 0	18	38.22 0	20	33.74 0	31	13.64 0	36	58.88	0
---	---	---------	----	---------	----	---------	----	---------	----	-------	---

Nov. 11

A. H.

Wm. Earle

[illegible]

Nov. 11. 1857.

Ill. East

A. U.

 β Ceti" γ Piscium

50.7

57.9

54.7

1.6

58.3

5.0

2.2

8.3

6.0

12.0

171.9

84.8

58.780

4.96

Nov, 23

A. U.

M. East

Moon 10

52.0

51.8

cloudy 49.3

3.2

21 41 7.0

177.3

297.3

21 40 59.46

Nov. 22/74 1857.

M. Ear

A. U.

Polaris s. p. α Virginis

3 44.8 4.1

6 6.6 7.7

8 17.9 11.4

10 36.6 14.7

13 12 57.8 13 18 16.6

163.7 56.1

13 8 20.7 13 18 11.30

Nov. 24/21-

W. E. Carr

A. H.

x Virginis

у Mrs. May'

3. 9

13.2

スハ

18.6

11.1

24.2

18.0

29.4

13 18

18.4

13.

42

35.0

55, 6

170.4

13218

11. 12

13:

42

24. 68

1857. Nov. 21.

AK.

Ill Part

 α Pegasi γ Piscium

Moon 10

Spot 1

Spot 2.

2.6

10.0

59.7

36.3

4.9

6.4

14.0

4.4

40.1

8.8

10.1

17.3

7.1

43.7

12.1

13.6

20.8

10.9

47.4

15.4

22

58

17.2

23

10

24.2

23

20

18.1

23

20

51.7

23

21

19.4

23

49.9

86.3

97.6

218.6

60.6

37.6

22

58

9.98

23

10

17.26

23

20

7.52

23

20

43.72

23

21

12.12

23

Nov. 25.

Ill. Ear

A.M.

α Piscium	α Piscium	α Piscium	α Andromedae	γ Pegasi
0.9	0.8	50.1	24.0	17.3
4.9	4.8	54.1	28.0	21.0
8.3	8.3	57.3	32.0	24.9
11.6	11.4	60.7	36.0	28.0
15.1	14.8	46.9	40.00	32.6
40.8	40.1	209.5	160.0	123.2
		329.5		
23.23 8.16	23.41 8.02	23.51 53.90	01 1 32.00	0 6 24.64

857, Nov. 26.

Ill. E an

H. P. 7.

S Sculptoris		α Piscium		α Andromedae		γ Pegasi		Moon TO	
52.8		22.6		23.2		16.7		8.3	
56.8		26.1		27.6		20.4		17.0	
0.1		29.6		31.2		24.1		15.1	
4.6		32.9		35.2		27.3		10.9	
23 42 8.6	23 52 36.8	0 1 39.2	0 6 31.0	0 10 22.6					
123.3	148.0	156.4	119.1	77.3					
3.3									
23 42 0.66	23 52 29.60	0 1 31.28	0 6 23.90	0 10 15.46					

1 Nov. 26

U. P. 7.

H. Earl

 α Ceti α Canis major β Ceti

9.3

43.7

49.1

13.0

49.9

53.0

16.6

56.0

56.8

19.7

1.9

0.2

0 23

23.4

0

33

8.1

0

37

4.0

82.0

159.6

163.5

279.6

283.5

0 23

16.40

0

32

55.92

0

36

56.70

Nov. 27, 1857.

U. P. 7.

Ill. Pan

 λ Leonis

S Hyd. et. Crat.

1.9

34.7

5.3

38.3

9.1

42.0

12.2

45.1

10 58

15.9

11

12

49.1

44.4

209.2

10 58

8.88

11

12

41.84

Nov. 27.

Ill. Star

A. U.

α Piscium	γ Piscium	β Ceti	ϵ Piscium	Moon TO
38.2	43.6	48.6	53.4	1 2 32.2
41.9	47.0	52.4	59.0	—
45.4	50.8	56.0	7.1	—
48.9	54.1	59.4	6.0	—
52.1	57.20	3.2	56	9.7
227.0	212.2	219.6	132.6	—

0 13 41.40 0 18 50.64 0 36 55.92 0 56 2.52

857. Nov. 27.

Ill. Part

A.U.

1857phae.pr

N. U.		" 1.		" 2.		γ Piscium		π Piscium		ν Piscium	
—	1	51.1	2	14.1	3	51.4	4	23.9	5	6	
6.7	1	54.6	2	17.8	3	59.2	4	27.1	5	6	
10.1	1	58.1	2	21.3	3	2.7	4	30.9	5	6	
13.8	1	1.9	2	24.9	3	6.2	4	24.2	5	6	
17.3	1	5.0	2	28.1	3	9.8	4	27.9	5	6	
	1	171.8	2	106.6	3	133.2	4	154.4	5	6	
1 3	58.36	1 24	21.32	1 30	2.66	1 34	30.88	1			

Nov 27

A.H.

Ill. 5 am

o Piscium

15.0

18.7

22.1

25.0

1 28 29.2

110.0

1 38 27.00

1875

1857phae.proj...99C