

KG
11365
107

B.36

No. 36

Reduction of Transits
Nov. 16. 1860 to Jan. 1. 1861.

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

KG 11365.107

KG 11365.107



Nov. 16. 1860

A. H.		" "		M. East		" "		" "		" "	
Lyrae		β Lyrae		Moon TO		δ Aquilae		α Cygni			
	28.2		12.0		52.8		46.5		58.5		
	32.6		16.3		56.8		50.1		0.6		
	37.0		20.3		0.8		53.6		5.4		
	41.6		24.3		4.5		58.9		10.0		
18	32	46.1	18 45	28.6	19 1	8.6	19 19	0.6	20 37	15.3	23
	185.5		101.5		123.5		207.7		86.8		
18	32	37.10	18 45	20.30	19 1	0.70	19 18	53.54	20 37	5.36	23

Nov. 19.

J. H. P.

M. Ear

γ Piscium	κ Piscium	ϵ Piscium	γ Cephei
21.8	2.7	12.4	—
23.4	16.2	13.9	—
28.9	19.7	19.5	—
32.2	23.0	22.8	25.0
33.9	26.6	26.4	34
144.2	98.2	97.0	41.8
23 10 28.84	23 20 19.64	23 33 19.40	

Nov. 19.

1860phae.proj.

J. H. S.			A. H.			Ill. East			J. H. S.					
Bootis			β Leonis			γ Urs Maj.			Polaris S. p.			γ Urs Maj.		
		42.6			22.2			48.6		5	5.6			22.7
		46.5			25.8			54.8		7	29.3			28.4
		50.2			29.4			0.9		9	45.4			33.7
		53.7			32.9			6.7		12	4.5			38.9
14	9	57.6	11	42	36.6	11	47	12.9	13	14	28.9	13	42	44.5
		250.6			146.9			123.9			113.7			168.2
14	9	50.12	11	42	29.38	11	47	0.78	13	9	46.74	13	42	33.64

Nov. 20. 1860

Ill Ear

J.H.S.

1860phae. p. 1.

	2 Aquarii		θ Aquarii		5 Aquarii		Moon 10		γ Aquarii						
7		19.5		53.9		4.7		21.9		36.9					
4		23.3		57.4		8.3		25.5		40.5					
7		26.9		1.1		11.7		29.0		44.0					
9		30.2		4.3		14.9		32.4		47.5					
5	22	0	34.2	22	11	8.0	22	23	18.5	22	24	36.2	22	29	51.0
2		134.1		124.7		58.1		145.0		219.9					
4	22	0	26.82	22	11	0.94	22	23	11.62	22	24	29.00	22	29	43.98

Nov. 20, 1860.

J. H. S.

Ill. East

Pis. Ans.

" Pegasi

21.6

14.3

25.8

17.9

29.9

21.5

33.6

25.0

22 57 37.8 22 59 28.6

148.7 107.3

22 51 29.74 22 59 21.46

Nov. 22. 1860

A.H.		Ill. East		39 Ceph T ⁴	
α Urs Maj.	α Pegasi	γ Piscium	δ Piscium	158 Johnson	
30.4	20.5	28.3	19.3	26	26.0
38.3	24.2	32.0	22.8	27	26.0
45.7	27.8	35.4	26.2	28	21.2
52.6	31.1	38.7	29.7	29	17.3
22 56 0.5 22 58 34.9 23 10 42.4 23 20 33.2 23 30 18.0					
167.5	138.5	176.8	131.2		108.5
22 56 45.50 22 58 27.70 23 10 35.36 23 20 26.24 23 28 21.70					

Nov. 22. 1860

A.N.

M. Ear

Piscium			γ Cephei			δ Sculptoris			Moon 10			ω Piscium		
		18.9						11.5			20.7			41.3
		22.6						13.6			24.3			45.0
		26.0						19.5			27.8			48.4
		29.4			30.0			23.3			31.2			51.9
23	33	33.1	23	34	46.8	23	42	27.5	23	51	35.1	23	52	55.6
		130.0						97.4			139.1			242.2
23	33	26.00				23	42	19.48	23	51	27.82	23	52	48.44

Nov. 22.

A.H.

6 *Nyae minor* B

M. Ear

2 Andromedae 93 Johnson S.p.

42.4 10 38.0

46.5 12 51.6

50.3 14 56.2

54.1 17 51.3

0 1 58.4 0 19 20.2

251.7 171.3

4 0 1 50.34 0 14 58.26

Nov. 23.

J. H. P.

M. Ear

Cor. Ber.

19.4

23.4

27.4

31.0

15 29 30.1

136.3

15 29 27.26

Nov. 24. 1860

J. H. S.			" "			M. East- A. H.			" "			" "		
α Lyrae			γ Aquilae			ϵ Piscium			Polaris			Moon TO		
		42.2			12.2			19.2		4	40.8			0.3
		47.7			15.8			23.0						4.0
		53.2			19.4			26.6		9	19.4			7.4
		58.5			22.7			29.8						10.9
18	33	4.0			26.6	0	55	33.4	1	14	2.8	1	22	14.8
		205.6			96.7			132.0						37.4
18	32	53.12			19.34	0	55	26.40				1	22	7.48

Nov. 24.

Ill. East

A. H.

 γ Piscium

B.A.C. 477

 γ Piscium β Arietis α Arietis

38.3

59.3

47.9

33.3

56.1

42.2

3.0

51.6

37.2

59.8

45.8

6.4

54.9

40.9

3.6

49.2

10.2

58.3

44.5

7.2

1 24 52.9 1 29 14.0 1 35 1.9 1 47 48.3 2 0 11.1 1

228.4

92.9

214.6

204.2

187.8

1 24 45.68 1 29 6.58 1 34 54.92 1 47 40.84 2 0 3.56 1

Nov. 25. 1860

A. H.

All. East

Polaris

 γ Piscium

B. A. C. 477

 ν Piscium β Arctis

1860

1	4	35.8		41.4		2.2		50.9		36.2					
8	7	4.7		45.1		5.9		54.2		40.0					
6	9	18.2		48.6		9.5		57.6		43.7					
2	11	29.7		52.0		12.9		1.1		47.2					
1	13	57.3	1	24	55.7	1	29	16.8	1	34	4.8	1	47	51.1	
8		45.7			242.8			47.3			168.6			218.2	
6	1	9	21.14	1	24	48.56	1	29	9.46	1	33	57.72	1	47	43.64

Nov. 25, 1860

1860phae.proj.

A.M.		All. East													
Arietis		" Moon TO		27 Arietis		μ Arietis		γ Ceti							
	58.8		48.8		50.6		10.6		45.1						
	2.6		52.7		54.4		14.3		48.6						
	6.3		56.3		58.1		18.1		52.1						
	10.0		0.0		1.6		21.7		55.5						
2	0	14.0	2	11	3.9	2	24	5.3	2	35	25.6	2	36	59.1	2
	91.7		161.7		170.0			90.3			260.4				
2	0	6.34	2	10	56.34	2	23	58.00	2	35	18.06	2	36	52.08	2

Nov. 25

A.H.

M. East

α Octi

1		40.1					
6		43.7					
1		47.1					
5		50.4					
1	2	55	54.1				
4			235.4				
8	2	55	47.08				

Nov. 26,

T.H.S.

M. Ear

Andromedae

51.3

55.7

59.4

3.4

7.7

177.5

0 2

0 1 59.50

Nov 28.

J.H.P.				M. E. van A.H.										
β Draconis		α Cygni		δ Cygni		β Aquarii		β Cephei						
52.4		19.5		41.6		56.4		16.8						
58.3		24.5		45.7		0.0		27.2						
4.0		29.4		49.8		3.4		37.7						
9.3		34.1		53.6		6.8		47.2						
17	28	15.4	20	37	39.3	21	7	57.7	21	25	10.5	21	27	57.8
139.4		146.8		248.4		77.1		181.7						
17	28	3.88	20	37	29.36	21	7	49.68	21	25	3.42	21	27	87.84

Nov. 28. 1860.

A.H.				J. H. P.				A.H.				H.P.T.			
ϵ Pegasus				16 Pegasus				γ Piscium				κ Piscium			
		3.5				25.4				40.4				31.3	
		7.0				29.4				44.1				35.1	
		10.5				33.2				47.4				38.4	
		13.9				36.9				50.7				41.6	
21	38	17.6	21	47	40.8	23	10	54.5	23	20	45.4	23	33	45.5	23
		52.5			165.8			237.1			191.8			191.8	
21	38	10.50	21	47	33.16	23	10	47.42	23	20	38.36	23	33	38.36	23

Nov. 28

T.H.S.

M. Ear

 ω Piscium γ "Pegasi α "Bootis

3			53.4				47.7			1.1	
9			57.2				51.4			5.0	
4			0.4				55.0			8.8	
7			4.0				58.3			12.4	
5	23	53	7.6	0	7		2.2	14	10	16.3	
8			122.6				214.6			43.6	
36	23	53	0.52	0	6		54.92	14	10	8.72	

Nov. 29. 1860.

J. H. P.

M. East.

E Piscium

29.4

33.0

36.4

39.8

0 56 43.6

182.2

0 56 36.44

Nov. 28, 1860.

A.H.

M. Pan

 ϵ Tauri α Tauri τ Tauri γ Aug

Moon 110

14.0

40.9

38.0

40.0

56.2

17.8

44.6

41.7

44.1

0.1

21.5

48.1

45.6

48.4

4.0

25.0

51.6

49.4

52.3

7.9

b	21	28.7	b	28	55.4	4	34	53.3	4	48	56.6	4	59	12.0
---	----	------	---	----	------	---	----	------	---	----	------	---	----	------

107.0

240.6

228.0

241.4

80.2

b	21	21.40	b	28	48.12	4	34	45.60	4	48	48.28	4	59	4.04
---	----	-------	---	----	-------	---	----	-------	---	----	-------	---	----	------

Nov. 28. 1860

1860phae.proj.

A.H.				M. Ear			
B Tauri		α Leporis		S Tauri		α Aurigae	
	14.0		20.0		4.1		7.1
	18.0		23.8		7.9		12.3
	21.9		27.3		11.7		17.3
	25.8		31.1		15.2		22.2
5 18	29.9	5 27	34.8	5 30	19.2	5 7	27.3
	109.6		137.0		58.1		86.2
5 18	21.92	5 27	27.40	5 30	11.62	5 7	17.24

Nov. 29.

H.P.Y.

Ill. Ear

2 Piscium			S. Sculptoris			Auriga			Tauri			Tauri		
		33.2			25.5			24			16.2			6.8
		36.8			29.4			14.5			20.4			10.6
		40.2			33.4			19.7			24.2			14.3
		43.5			37.4			24.5			28.3			17.8
23	33	47.2	23	42	41.5	5	7	29.7	5	18	32.3	5	30	21.7
		200.9			167.1			97.8			121.4			71.2
23	33	40.18	23	42	33.42	5	7	19.56	5	18	24.28	5	30	14.24

Nov. 29.

H.P.T.

M. Ear-

Moon 110

γ Geminor

μ Geminor

52.0

15.7

19.5

56.1

19.5

23.2

0.1

23.2

27.0

3.8

26.8

30.6

5 59

7.9

6

7

30.7

6

15

34.6

119.9

115.9

134.9

5 58

59.98

6

7

23.18

6

15

26.98

Nov. 29

M. East

A. H.		M. Carr												
S Leonis		S Hyd. A. Crat.		v Leonis		β Leonis		γ Uls. Maj						
	28.0		9.1		38.6		43.4		10.3					
	31.8		12.8		39.1		47.1		16.4					
	38.5		16.3		42.5		50.6		22.3					
	39.1		19.8		44.9		54.1		28.1					
11	7	43.0	11	13	23.6	11	30	49.6	11	42	57.8	11	47	34.4
	177.4		81.6		212.6		253.0		111.5					
11	7	35.48	11	18	16.32	11	30	42.52	11	42	50.60	11	47	22.30

Nov. 30

J. H. P.

M. East

α Bootis

6.0

9.7

13.4

17.1

21.0

67.2

14 10

14 10 13.44

Dec. 1

J. H. S.

M. East

J. H. S.			M. East		
α Piscis Austral.			α Pegasi		
		46.6			39.2
		50.8			43.0
		54.6			46.4
		58.4			49.9
22	51	2.6	22	58	53.6
		213.0			232.1
γ Piscium			α Piscium		
		46.9			37.5
		50.5			41.2
		54.0			44.6
		57.4			48.0
23	11	1.0	23	33	51.7
		209.8			223.0
δ Sculptoris					
		29.7			33.9
		33.9			37.8
		41.7			45.9
23	42	45.9			189.0
		189.0			
22	50	54.60	22	58	46.42
			23	10	53.96
			23	33	44.60
			23	42	37.80

Dec. 1. 1860.

J. H. S.

M. East

1869 ptae. f.

Piscium		" Andromedae		" Pegasi				
	0.0		0.8		54.3			
	3.6		4.8		—			
	7.0		9.0		1.5			
	10.4		12.7		4.9			
23	53	14.1	0	2	16.8	0	7	8.7
	35.1		44.1					

23 53 7.020 2 8.82

Dec 2,

J. H. P.

+ Piscium

39.9

43.7

47.1

50.7

—

1860. Dec 6.

Ill. ~~XX~~ ¹⁹ Ear

J. H. P.

Andromedae

"
 γ Pegasi"
 Johnson 93. P. p"
 α Cassiopeae

9.4

2.5

11 27.2

30.9

12.9

6.0

—

36.5

17.2

9.5

15 29.8

42.8

20.9

12.9

17 39.7

49.4

0 2 24.3 0

7

16.3

19 42.7 0

32

54.9

84.7

47.2

214.5

0 2 16.94 0

7

9.44

0

32

42.90

Dec. 6, 1860

M. East
H. P. J.

A. H.				"				M. East				"			
β Arietis				α Arietis				α Aquilae				β Aquilae			
			56.0				18.6				56.4				25.4
			59.8				22.3				59.8				28.9
			3.2				26.0				3.2				32.3
			6.9				29.7				6.4				35.7
1	48	10.3		2	0	33.2	19	46	9.7	19	49	39.6			
		136.2				129.8			125.5			161.9			
1	48	3.24		2	0	25.96	19	46	3.10	19	49	32.38			

Dec. 10.

M. East

J. H. P.

Mrs Maj.

α Lyrae

— 16.4

3.2 20.5

15.9 25.0

29.5 29.4

14 52 41.3 18 33 33.6

125.1

18 33 25.02

Dec 11. 1860

[illegible]

Dec. 13.

N.P.T.

M. East

♂ Virginis

57.3

0.6

4.2

7.7

13 4 10.8

80.6

13 4 4.12

Dec. 17.

J. H. P.

M. East

α Arietis

41.9

45.5

49.2

53.0

2 0 56.4

246.0

2 0 49.20

Dec. 18

J.H.S.		A.H.		M. East											
α Cygni		γ Aquarii		δ Pegasi		Moon TO		β Piscium							
	59.4		35.3		54.0		56.8		10.8						
	4.1		38.4		57.5		0.0		14.1						
	8.8		41.9		0.8		3.6		17.4						
	13.7		45.3		4.2		7.0		20.8						
20	38	22	29	48.5	22	36	7.5	22	50	10.2	22	58	24.0	23	
	44.0			209.4			124.0			77.6			87.1		
20	38	8.80	22	29	41.88	22	36	0.80	22	50	3.52	22	58	17.42	23

Dec. 18

M. East

A. H.		H. P. J.			
γ Piscium		γ Eridani			
8	20.2		57.6		
1	23.5		1.1		
4	26.8		4.4		
8	30.3		7.7		
0	23	11	33.5	3	53
1	134.3		22.1		
2	23	11	26.86	3	53
			4.42		

Dec. 21, 1860

I.H.S.

A.H.

M. East

Aquarii

Andromedae

Pegasi

B.A.C. 149

Moon TO

9.2		42.5		35.9		15.1		23.1	
12.4		46.3		39.2		18.5		26.7	
15.8		50.2		42.9		22.0		30.4	
19.1		54.0		46.3		25.5		33.8	
22.3 0	2	57.7 0	7	49.7 0	30	28.8 1	3	37.1	1
78.8		250.7		214.0		109.9		151.1	
15.76 0	2	50.14 0	7	42.80 0	30	21.98 1	3	30.22	1

Dec. 24.

H.P.T.

M. East

	γ Piscium	β Arietis	α Arietis					
1	43.2	38.3	0.8					
7	46.3	41.8	4.2					
4	50.2	45.6	8.1					
8	53.5	49.0	11.8					
1	1 25 56.8	1 48 52.4	2 1 13.2					
1	250.1	227.1	40.1					
2	1 25 50.00	1 48 45.42	2 1 8.02					

Dec. 28, 1860.

H.P.T.		A.U.		M. East	
Cephei		ε Pegasi		α Aquarii	
	54.8		10.7		28.1
	1.8		14.0		31.5
	9.2		17.6		35.0
	16.4		20.9		38.3
21	17	23.2	21	39	24.2
	105.4		87.4		174.4
21	17	9.08	21	39	17.48
					22
				0	34.88

Dec. 31

H.P.T.

M. East

v Orionis		μ Geminor		γ Geminor		δ Cephei		α Can. Min	
	14.6		9.1		17.2	30	5.4		37.5
	18.0		12.4		20.6	31	14.5		40.8
	21.5		16.4		24.1	32	24.1		44.4
	24.9		20.0		27.7	33	34.7		47.9
5 57	28.2 6	12	23.6 6	27	31.0 6	34	40.3 6	36	51.3
	107.2		81.5		120.6		119.0		221.9
5 57	21.44 6	12	16.30 6	27	24.12 6	32	23.80 6	36	44.38

