LX. *Observations made at the Cape of* Good Hope; *by Mr.* Charles Maſon *and Mr.* Dixon; *reduced to apparent Time by Mr.* Maſon. *With an Appendix.*

Read April 22, 1762.

TABLE for the object-glaſs micrometer, applied to the object-end of the tube of a reflecting teleſcope of two feet focal length, its focal length being 495.48 inches.

Inches.	Angle. ′ ″	Decimals of an inch.	Angle. ′ ″	Diviſions of Vernier.	Angle. ″
1	7 5.9	.05	0 21.3	1	0.852
2	14 11.9	.10	0 42.6	2	1.7
3	21 17.8	.15	1 3.9	3	2.6
4	28 23.8	.20	1 25.2	4	3.4
5	35 29.7	.25	1 46.5	5	4.3
		.30	2 7.8	6	5.1
		.35	2 29.1	7	6.0
		.40	2 50.4	8	6.8
		.45	3 11.7	9	7.7
		.50	3 33.0	10	8.5
		.55	3 54.3	11	9.4
		.60	4 15.6	12	10.2
		.65	4 36.9	13	11.1
		.70	4 58.2	14	11.9
		.75	5 19.5	15	12.8
		.80	5 40.8	16	13.6
		.85	6 2.0	17	14.5
		.90	6 23.3	18	15.3
		.95	6 44.6	19	16.2
		1.00	7 5.9	20	17.0
				21	17.9
				22	18.7
				23	19.6
				24	20.4
				25	21.3

MEMO

MEMORANDA.

The body of the obſervatory (erected at the Cape) was circular, the radius of which $6\frac{1}{2}$ feet in the clear; the height of the circular wall $5\frac{1}{2}$ feet; the roof conical, and moveable, (made of board) a lid in it of 3 feet breadth, to open, which was eaſily turned to any part of the heavens, as the whole top moved freely.

The clock was fixed againſt two pieces of timber (let near 4 feet into the ground) of 10 inches by 8; theſe pieces being joined together by pins of $1\frac{1}{2}$ inch diameter.

The mean of Farenheit's thermometer, as it ſtood at 6 or 7 in the morning, noon, 1 or 2^h after, and 7 or 8 in the evening.

From 27th of May 1761 to June 10th 59.5, Extremes 53 to 65.
From 10th of June to 20th - - - 59.2, Ditto - 50 to 67.
From 20th of June to 30th - - - 57.9, Ditto - 51 to 68.
From 1ſt of July to 15th - - - 56.3, Ditto - 50 to 65.
From 15th of July to 30th - - - 54.3, Ditto - 47 to 60.
From 1ſt of Auguſt to 15th - - - 56.9, Ditto - 48 to 66.
From 15th of Auguſt to 30th - - 56.0, Ditto - 48 to 68.
From 1ſt of September to 15th - - 57.4, Ditto - 50 to 69.
From 15th of September to 26th - 54.8, Ditto - 49 to 64.

At 47 upon 18th July, in the morning, and 69 the 1ſt and 14th of September, in the afternoon. Theſe were the greateſt differences I ſaw.

June 6th, at the end of the tranſit, 55.

Note. Thoſe obſervations marked : are a little dubious.
Thoſe marked :: are very dubious.
The tranſit was obſerved with the power that magnified 120 time.
The eclipſes of the ſatellites of Jupiter with the ſame power.

The adjuſtment of the nonius of the micrometer, thus - - -

—	0 0 2
+	0 1
	0 0
—	0 3 —
+	0 0 +
	0 0
	0 0
—	0 0½
	0 0
	0 0
—	0 2 —

Mean = — 0 0.52 = 0.4 to be added to the obſerved angle, it falling to the left hand of 0.

Obſervations made at the Cape of Good Hope.

1761.
April
☽ 27d. Arrived in Sable bay.
May
♄ 2. Carried the inſtruments aſhore.
☽ 4. Set the clock going, the pendulum having not been altered ſince it came from London.

The quadrant being fixed, the plumb-line ſhewing it did not move.

Stars paſſed the wires per clock.	The ſtars returned to the ſame plane.
Procyon. ☽ 4d May.	Procyon. ♂ 5th.
h ′ ″	h ′ ″
2 12 5½	2 9 48½
14 36	12 18
17 7½	14 51
Procyon. ♂ 5th.	Procyon. ☿ 6th.
2 33 47 :	2 31 31
36 26	34 9 —
39 7½	36 48½

Going of the clock.

Loſes per day of the ſtars.
′ ″
2 17
2 18
2 16½

Farenheit's thermometer.

May	7h A. M.	2 or 3h P.M.	7h P.M.
10		65	
11		62	
13	56	60	
14	55	59	57
15	55	60	59
17		62	63
18	58	61	
19	58	63	64
20	60	65	
21	60	64	65
22	60½	63	62½
23	58	61½	
24	58	60½	
25	58	63	63½
26	59	62½	63

1761.	Stars paſſed the wires per clock.	The ſtars returned to the ſame plane.
May.	Caſtor. ⊙ 10th.	Caſtor. ♂ 12th.
	h ′ ″	h ′ ″
	2 55 28	Clouds.
	Clouds.	2 49 30 +
	56 26½	51 52
	57 6½	52 32
	Pollux. 12th.	Pollux. 13th.
	3 2 27	3 0 11½
	4 17	2 0
	6 5½	3 49
	7 15½	4 57½
	Pollux. 13th.	Pollux. 14th.
Quadrant as before, and took the other wires, which clouds prevented, on the 12th.	3 0 11½	3 0 0
	2 0	59 43 —
	3 49	1 33 —
	4 57½	2 41½
	7 29½	5 9 +
	8 0	5 43
	Regulus. 16th.	Regulus. 17th.
	3 33 23½	3 31 6
	34 42	32 25½
	35 39 +	33 21
	37 56	35 38 —
	Time per clock.	
May	h ′ ″	° ′ ″
☽ 18d.	2 11 24 —	55 34 28 } Procyon apparent or
	19 52	56 59 0 } obſerved zenith di-
	25 26½	57 56 2 } ſtances.
	Procyon. 18d.	Procy. 19d returned.
	2 34 31½	2 32 17 —
	35 1½	32 43½
	37 26	35 11
	37 52 —	35 34½
	2 38 42½	36 37 —

1761. May ☽ 18d.

Time per clock.

h	′	″	
5	24	0	Cloudy.
5	36	0	The eclipſe of the ☽ had been begun ſome time.
6	36	5	Entrance into total darkneſs - } all very clear
7	58	20	Emerſion - - - - - - - }
9	6	30	The end of the eclipſe - - - }

Apparent time. h	′	″
10	53	28
12	15	37
13	23	42

Hitherto the clock ſtood on a lower floor, near to the place intended for the obſervatory; and the obſervatory being now finiſhed, I put the clock into it, wound up the pendulum, and ſet it to nearly ſyderial time.

No obſervations were made material to June 5th, it being cloudy near all the time; but the 5th, in the evening, it fortunately cleared up.

June ☿ 5d.

h	′	″		°	′	″	
11	39	21	+ obſerved zenith diſtances	59	25	0	Antares. I ſet the quadrant to theſe even minutes, and then waited for the ſtar paſſing of the wire.
11	55	16½		56	11	0	
	58	12	+	55	35	0	
12	11	44		52	49	0	

Clouds.

Equal altitudes. East. Time per clock. h	′	″		West. Time per clock. h	′	″		Paſſed the meridian. Time per clock. h	′	″		°	′	″
12	19	45		20	8	53½		16	16	16¾	Antares point	50	40	0
	22	12½			10	21	+							
Clouds.				Clouds.										
12	52	4½		19	35	37	+	16	16	18	Ditto - -	44	0	0
Clouds.					37	4½								
	56	59			40	30		16	16	17¾				
13	4	58	−	19	22	44								
	7	24	+		25	11	+	16	16	17½	Ditto - -	41	20	0
Clouds.					27	37½		16	16	17¾				
13	16	13	+	19	11	29	−	16	16	18				
	18	39			13	55½		16	16	17¼	Ditto - -	39	0	0
	21	7	−		16	22	:	16	16	17½				

1761.

Equal altitudes. East. Time per clock.				Equal altitudes. West. Time per clock.				Paſſed the meridian. Time per clock.						
	h	′	″		h	′	″		h	′	″			
June ♀ 5d.	16	9	39		23	5	54	−	19	40	37½	α Aquilæ	64	48 20
		12	29½			8	45	:	19	40	37¼			
		15	20½			11	34		19	40	36½			
		21	44		22	53	46	:	19	40	36½	Ditto -	62	40 0
		24	37			56	37		19	40	37			
		27	27			59	31		19	40	37½			
	16	33	16	+	22	41	58		19	40	37	Ditto -	60	40 0
		36	15½			44	59	−	19	40	37¼			
		39	16			47	58		19	40	37			

Mr. Dixon.

Tranſit of Venus.

Time per clock. h	′	″	
June ♀ 5d. 0	12	0	The ⊙ aſcended in a thick haze, and immediately entered a dark cloud.
0	35	0	The firſt ſight of the planet.
0	48	40	Very hazy.
0	52	0	Cloudy.
1	0	0	Ditto.

Parts of the micrometer. Inches.				
1	18	7	3 90 5	The ⊙'s fartheſt limb from ♀'s fartheſt limb. That is, the ⊙'s northern limb from ♀'s ſouthern limb.
	27	18	3 95 5 +	Ditto.
	30	4	3 95 15	Ditto.
	33	5	4 0 0	Ditto.
	35	15	4 0 4	Ditto.
	37	40	4 0 17 ::	Ditto.
	39	0	4 40 23 −	The ⊙'s diameter.
			4 40 20½	Ditto.
	44	0	4 40 21 +	Ditto.
	46	0	4 40 23½	Ditto.

By a mean of theſe four obſervations, the ⊙'s diameter is = 31′ 33″·3.

1761.

1761.	Time per clock.	Parts of the micrometer.	
June	h ′ ″	Inches.	
♀ 5d.	1 48 20	4 10 0 —	The ⊙'s farthest limb from ♀'s farthest limb, as before.
	50 58	4 10 5	Ditto.
	55 30	0 10 19½	Venus's diameter.
	57 0	0 10 20 —	Ditto.
	59 0	0 10 19 +	Ditto.
			By a mean of these three observations, the diameter of Venus is = 59″.6.
	2 2 23	4 19 19 —	The ⊙'s farthest limb from ♀'s, as before.
	3 55	4 19 22½	Ditto.
	5 45	4 20 5 +	Ditto.
	2 39 16		The time of internal contact } very clear
	56 50		Ditto external - - - - }
			Apparent time. h ′ ″
			21 39 52 —
			21 57 23 —
	2 39 12		Ditto, per Mr. Dixon.
	56 48		
	3 10 0		Cloudy.
	9 5 0		Saw the ⊙ (but no satellite). Cloudy after, till night.

N. B. The adjustment of the nonius of the micrometer as upon the 17th May.

When I saw the planet first, its periphery, and that of the Sun's, were in a great tremour; but this vanished, as the Sun rose, and became well defined.

Four minutes before the internal contact, the Sun's disk was entirely hid by a cloud, for about one minute.

	Equal altitudes. Time per clock.	Equal altitudes. Time per clock.	Passed the mer. Time per clock.				
	h ′ ″	h ′ ″	h ′ ″		° ′ ″		
☿ 10.	12 51 39½	19 35 11	16 15 51¾	Antares	44	0	0 Mr. Dixon.
	54 5½	37 35 :	16 15 50¾				
	56 32½	Clouds.					
	13 4 32	19 22 17					
	6 59	24 44	16 15 51½	Ditto	41	20	0
	Clouds.	27 10 +	16 15 51				

1761.	Altitude. Time per clock.			Equal altitudes. Time per clock.		Passed the meridian. Time per clock.						
June	h	′	″	h	′	″	h	′	″			Apparent time. ° ′ ″
4 11.	20	13	55	The second satellite of 4 immerged. Foggy air. The satellites appeared faint.								14 51 24
				h	′	″	h	′	″			° ′ ″
♀ 12.	12	19	10½	20	7	20½	16	15	43	} Antares	50	40 0 } Mr. Dixon.
	21	37½			9	50 −	16	15	43¾			
	24	5½			12	18	16	15	44¼			
	12	35	21	19	51	10 +	16	15	43	} Ditto −	47	20 0
	37	48			53	37	16	15	42½			
	40	16			56	6 −	16	15	43½			
												Apparent time. h ′ ″
	19	33	40	The * γ Virginis immerged behind the ☽ The occultation was at the ☽'s northern limb, near the intersection of light and darkness.								14 7 12
☉ 14.	12	19	1	20	7	10	16	15	33½	} Antares	° 50	″ 40 { Mr. Dixon.
	21	28½			9	38 +	16	15	33¼			
	23	57			12	6½	16	15	33¾			
☽ 15.	12	35	6½	19	50	55 +	16	15	28½	} Ditto - -		° ′ ″ 47 20 0
	37	34			53	23	16	15	28½			
	40	1½			55	50 +	16	15	28¼			
							°	′	″			
	22	45	6 ::	Zenith distance			3	2	6	{ Fomalhaut upon the meridian. Plane of the quadrant facing the west.		
							h	′	″			
♂ 16.	12	35	0½	19	50	50	16	15	22¾	} Antares -		° ′ ″ 47 20 0
	37	28 −			53	18	16	15	23			
	39	55½			55	44½						
												Apparent time. h ′ ″
	21	9	30	The third satellite of 4 emerged - - - -								15 26 32

1761.	Altitude. Time per clock.			
June	h ′ ″		° ′ ″	
♂ 16.	22 44 55	Zenith distance	3 3 45	Fomalhaut upon the meridian. Plane of the quadrant facing the east.

By the observations of Fomalhaut, it appears the quadrant does not shew the true angle, I new-adjusted it, &c. &c.

	Equal altitudes. Time per clock.		Equal altitudes. Time per clock.		Passed the meridian. Time per clock.		
	h ′ ″		h ′ ″		h ′ ″		
♃ 18.	16 53 49½		22 18 44½		19 39 28¼		° ′ ″
	57 0 —		21 56½		13 39 28¼	α Aquilæ -	57 5 0
	17 0 12		25 7 —				
					° ′ ″		
	22 44 40	Zenith distance			3 2 28	Fomalhaut upon the meridian. Plane of the quadrant facing the east.	
							Apparent time. h ′ ″
	23 18 35	The second satellite of ♃ immerged - - - -					17 27 11

	Equal altitudes.			Passed the mer.		
	h ′ ″		h ′ ″	h ′ ″		° ′ ″
☿ 19.	12 18 34 —		20 6 36½	16 15 3¼		
	21 1½		9 5½	16 15 3½	Antares - -	50 40 0
	23 30 —		11 33 +	16 15 3½		
				° ′ ″		
	14 50 24½	Zenith distance		9 35 40 :	γ Scorpii upon the merid.	
	15 44 45½	Ditto - -		8 31 32	π	
	16 15 8 —	Ditto - -		8 2 56	Antares.	
	17 7 40½	Ditto - -		9 11 38	θ Ophiuchi.	
	18 40 50 —	Ditto - -		7 21 34	σ Sagittarii.	
						Apparent time. h ′ ″
♄ 20.	23 21 54	The first satellite of ♃ immerged - - - - -				17 22 26

	Equal altitudes.			Passed the mer.		
	h ′ ″		h ′ ″	h ′ ″		
☉ 21.	2 22 54 —		9 31 47½	6 0 35¾		
	26 5 +		35 4½	6 0 35¾	Sun's limbs. Mr. Dixon.	
	29 24 +		38 17	6 0 35½		

1761.	Altitude. Time per clock. h ′ ″			° ′ ″	
June ☉ 21.	13 12 46 :	Zenith distance		20 0 55	Spica upon the meridian.
	Equal altitudes.			Paſſed the meridian.	
	Time per clock. h ′ ″	Time per clock. h ′ ″		Time per clock. h ′ ″	
	15 52 35 :	23 20 14		19 39 10½	° ′ ″
	55 21½	22 59	+	19 39 10¼	α Aquilæ - 67 40 0
	58 7	25 45½		19 39 10¼	
☽ 22.	2 14 25½	19 48 36	+	6 4 39	+
	17 33½	51 46½		6 4 40	Sun's limbs.
	20 42½	54 55		6 4 40	Mr. Dixon.
	26 57½	35 51½		6 4 39	
	30 9½	39 7	+	6 4 38¾	Ditto.
	33 26½	42 21	+	6 4 39½	
				° ′ ″	
	13 12 35 ::	Zenith distance		24 1 2	Spica upon the meridian.
	14 4 54	Ditto - -		54 20 45	Arcturus, ditto.
	34 0	Ditto - -		61 59 52	ε Bootis.
	15 24 0	Ditto - -		61 26 10	α Coronæ borealis.
♂ 23.	13 12 37 ::	Ditto - -		24 1 8	Spica upon the meridian.
	14 4 44	Ditto - -		54 20 42	Arcturus, ditto.
	34 0	Ditto - -		61 59 48	ε Bootis, ditto.
	16 14 0	Ditto - -		8 3 3	Antares, ditto.
	22 33 30	The third ſatellite of ♃ not immerged.			
	Clouds.	Clouds.			
	36 6	It was immerged.			
	22 44 0	Zenith distance		° ′ ″ 3 3 30 :	Fomalhaut upon the meridian. Quadrant weſt.

From this day to the 1ſt of July, cloudy, with ſtrong winds and rain.

1761.	Equal altitudes. Time per clock.		Equal altitudes. Time per clock.		Paſſed the mer. Time per clock.			
July	h ′ ″		h ′ ″		h ′ ″			
☿ 1.	12 58 24½		19 25 46	:	16 14 32	:	} Antares	° ′ ″ 42 20 0
	13 0 51	+	28 14	:	16 14 32½			
	3 18		Clouds.					
	14 29½		19 0 0					
	16 56		12 8½		16 14 32¼		} Ditto - -	39 0 0
	19 23	+	14 35		16 14 32¼			
					° ′ ″			
	17 17 23		Zenith diſtance		2 58 6	S.	{ λ Scorpii upon the meridian. Plane of the quadrant weſt.	
♃ 2.	16 35 27		Ditto - -		3 40 48	S.	{ μ Scorpii upon the meridian.	Plane of the quadrant facing the weſt.
	17 17 0		Ditto - -		2 58 8	S.	λ Ditto.	
	18 5 0		Ditto - -		4 1 45	N.	δ Sagittarii.	
	22 44 0		Ditto - -		3 3 8	N.	Fomalhaut.	
♀ 3.	16 35 30		Ditto - -		3 40 52	S.	{ μ Scorpii upon the meridian.	Plane of the quadrant facing the weſt.
	17 0		Ditto - -		2 58 0	S.	λ Ditto.	
	18 0 0		Ditto - -		4 1 42	N.	δ Sagittarii.	
	22 44 0		Ditto - -		3 3 4	N.	Fomalhaut.	
	Equal altitudes. Time per clock.				Paſſed the mer. Time per clock.			
	h ′ ″		h ′ ″		h ′ ″			
♂ 7.	13 14 23		19 9 33		16 14 24½		} Antares point	° ′ ″ 39 0 0
	16 49		12 0	+	16 14 24½			
	19 16	+	14 26½		16 14 24¾			
					° ′ ″			
	16 35 24		Zenith diſtance		3 41 32	: S.	{ μ Scorpii upon the meridian.	Plane of the quadrant facing the eaſt.
	17 17 0		Ditto - -		2 58 40	S.	λ Ditto.	
	18 5 0		Ditto - -		4 1 0	N.	δ Sagittarii.	
☿ 8.	16 35 19		Ditto - -		3 41 34	S.	{ μ Scorpii upon the meridian.	Plane of the quadrant facing the eaſt.
	17 17 0		Ditto - -		2 58 48	S.	λ Ditto.	
	18 5 0		Ditto - -		4 1 8	N.	δ Sagittarii.	

1761.

	Equal altitudes. Time per clock.	Equal altitudes. Time per clock.	Paſſed the meridian. Time per clock.	
July	h ′ ″	h ′ ″	h ′ ″	° ′ ″
♃ 9.	13 14 13	19 9 22½	16 14 14½	Antares - - 39 0 0
	16 39 —	11 49 +	16 14 14	
	19 6½	14 16 —	16 14 14½	
			° ′ ″	
	16 35 8	Zenith diſtance	3 41 28	μ Scorpii upon the meridian. Plane of the quadrant facing the eaſt.
	17 17 0	Ditto - -	2 58 46	λ Ditto.
	18 5 0	Ditto - -	4 1 10 :	ϑ Sagittarii.
	22 44 0	Ditto - -	3 2 33	Fomalhaut.

	Equal altitudes.		Paſſed the mer.	
	h ′ ″	h ′ ″	h ′ ″	° ′ ″
☉ 12.	13 31 39 —	18 51 25	16 13 59	Antares - - 35 20 0
	34 5	53 53 +	16 13 59	
	36 33 —	56 19½	16 13 59¼	
			° ′ ″	
	15 50 45 +	Zenith diſtance	14 47 22	σ Scorpii upon the meridian. Plane of the quadrant facing the weſt.

	Equal altitudes.		Paſſed the mer.	
	h ′ ″	h ′ ″	h ′ ″	° ′ ″
♅ 15.	13 0 0	18 51 10½	16 13 43¾	Antares - - 35 20 0
	33 49	53 38	16 13 43½	
	36 17 —	56 5		
	17 18 30	σ Sagittarii made a near appulſe to the ☽'s limb. The eye could not diſcover by the teleſcope, that it altered its diſtance, till about 17h 35′.		
		Nonius of the micrometer. Inches.		
	17 45 18	0 15 15½	Moon's ſouthern limb from σ Sagittarii.	
	52 55	0 30 3	Ditto.	
	57 58	0 40 5½	Ditto.	
	18 2 15	0 50 11½	Ditto.	
	7 45	0 65 6 + :	Ditto. A little hazy.	

1761.

	Equal altitudes. Time per clock. h ′ ″	Equal altitudes. Time per clock. h ′ ″	Paſſed the meridian. Time per clock. h ′ ″		
July					
♀ 17.	16 0 22 +	23 9 47½	19 37 53½	} α Aquilæ	° ′ ″ 66 0 0
	3 10	12 36	19 37 53		
	5 59½	15 24	19 37 53		
					Apparent time. h ′ ″
☽ 20.	1 10 35	The ſecond ſatellite of ♃ immerged - - -			17 9 42

	Equal altitudes. ° ′ ″	Equal altitudes. h ′ ″	Paſſed the mer. h ′ ″		
♂ 21.	5 14 59½	10 41 53 −	8 2 5		° ′ ″
	18 38 −	45 32 +	8 2 5	} Sun's limb -	66 30 0
	22 17 +	49 11 −	8 2 5½		
☿ 29.	15 20 19½	23 48 32 +	19 37 5¼		
	22 59	51 11½	19 37 5½	} α Aquilæ -	73 20 0
	25 38½	53 51 :			
					Apparent time. h ′ ″
	20 59 1	The third ſatellite of ♃ immerged - - -			12 24 0
	23 52 42	Ditto emerged - - - - - - - - -			15 17 13
	0 18 15	The firſt ſatellite immerged - - - - -			15 42 42
	0 18 17	Ditto, per Mr. Dixon.			

	Equal altitudes. h ′ ″	Equal altitudes. h ′ ″	Paſſed the mer. h ′ ″		
Aug.					
♀ 7.	15 30 13½	23 37 18 −	19 36 28		° ′ ″
	32 54 −	39 59 +	19 36 26½	} α Aquilæ -	71 20 0
	35 36	42 40½	19 36 27		
					Apparent time. h ′ ″
	20 52 32	The 2d ſatellite of ♃ immerged. A litle hazy			11 43 26
	21 14 55	The firſt immerged. Clear - - - - -			12 5 46

			° ′ ″	
♄ 8.	15 48 54 −	Zenith diſtance	14 47 40	{ σ Scorpii upon the meridian.
	16 12 0	Ditto - -	8 3 0	Antares ditto.
☉ 9.	17 4 45	Ditto - -	9 11 42	{ θ Ophiuchi upon the meridian.
	18 3 0	Ditto - -	4 1 28	δ Sagittarii ditto.

1761.

1761.

	Equal altitudes. Time per clock.		Equal altitudes. Time per clock.		Paſſed the meridian. Time per clock.		
Aug.	h ′ ″		h ′ ″		h ′ ″		
☽ 10.	15 19 28	+	23 47 37		19 36 12	}	∝ Aquilæ - 73 20 0
	22 7	−	50 17	+	19 36 12		
	24 47	−	52 55½		19 36 11¾		
					° ′ ″		
	16 3 50		Zenith diſtance		8 55 48		σ Scorpii upon the meridian.
	11 0		Ditto - -		8 2 54		Antares ditto.
							Apparent time. h ′ ″
	0 53 45		The fourth ſatellite of ♃ immerged - - -				15 32 57

	Equal altitudes. h ′ ″		Equal altitudes. h ′ ″		Paſſed the mer. h ′ ″		
☿ 12.	15 19 18½		23 47 28		19 36 2¾	}	° ′ ″
	21 58	:	50 8	−	19 36 3	:	∝ Aquilæ - 73 20 0
	24 37½		52 47	−	19 36 2¾		
							Apparent time. h ′ ″
14.	23 36 11		The firſt ſatellite of ♃ immerged - - - -				14 0 50
♃ 20.	I put the clock forward.						

	Equal altitudes. h ′ ″		Equal altitudes. h ′ ″		Paſſed the mer. h ′ ″		
☿ 21.	16 39 20½		22 36 0½		19 40 43¼	}	° ′ ″
	42 22		39 4½		19 40 43¾		∝ Aquilæ - 59 40 0
	45 26	−	42 6½		19 40 43½		
							Apparent time. h ′ ″
	2 2 35		The firſt ſatellite of ♃ immerged - - -				15 56 2
	2 30		Ditto, per Mr. Dixon.				

	Equal altitudes. h ′ ″		Equal altitudes. h ′ ″		Paſſed the mer. h ′ ″		
☉ 23.	16 51 19	:	22 23 34	−	19 40 35¾	}	° ′ ″
	54 27	−	26 44½		19 40 35¾		∝ Aquilæ - 57 40 0
	57 37½		29 52	+	19 40 35½	:	
							Apparent time. h ′ ″
	20 38 8		The firſt ſatellite of ♃ immerged - - -				10 25 10
	38 2		Ditto, per Mr. Dixon.				

1761.

Aug.	Equal altitudes. Time per clock.	Equal altitudes. Time per clock.	Paſſed the meridian. Time per clock.		
	h ′ ″	h ′ ″	h ′ ″		
♃ 27.	16 50 58 +	22 23 14 −	19 40 15	} α Aquilæ -	° ′ ″ 57 40 0
	54 6 −	26 24	19 40 15		
	57 16 +	29 32 +	19 40 15 +		

		Apparent time. h ′ ″
20 20 44	The fourth ſatellite of ♃ immerged - - -	9 53 32
20 40	Ditto, per Mr. Dixon.	
23 16 38	The fourth ſatellite emerged - - - - -	12 49 0

☉ 30.	Equal altitudes. h ′ ″	Equal altitudes. h ′ ″	Paſſed the mer. h ′ ″		
	16 50 40½	22 22 58 −	19 39 58½	} α Aquilæ -	° ′ ″ 57 40 0
	53 49 −	26 8 −	19 39 58½		
	56 59 −	29 16	19 39 58¼		

Sept.		Apparent time. h ′ ″
22 59 45	The firſt ſatellite of ♃ immerged - - - -	12 21 32
☿ 1. 19 47 10 :	The 2d ſatellite of ♃ immerged. Flying clouds	9 2 20

♃ 3.	Equal altitudes. h ″	Equal altitudes. h ′ ″	Paſſed the mer. h ′ ″		
	17 22 52½	21 49 16	19 39 42¼ ::	} α Aquilæ -	° ′ ″ 52 40 0
	26 24 +	52 52	19 39 38		
	30 8½ ::	56 25½	19 39 39		

		Apparent time. h ′ ″	
17 53 30	A ſmall * immerged behind the ☽	7 1 52	} Mr. Dixon.
18 26 7	Another very ſmall * ditto - -	7 34 24	
19 28 22	The 3d ſatellite of ♃ immerged -	8 36 33	
28 25	Ditto.		

♀ 4.	Equal altitudes. h ′ ″	Equal altitudes. h ′ ″	Paſſed the mer. h ′ ″		
17	Clouds.	21 49 10	19 39 32¾	} α Aquilæ -	° ′ ″ 52 40 0
	26 18½	52 47½	19 39 33		
	29 55½	56 19 +			

		Apparent time. h ′ ″
18 2 4	♎ Libræ immerged behind the ☽ - - -	7 6 53½
19 23 0 ::	Ditto. emerged from the ☽.	

1761. Sept.

Equal altitudes. Time per clock. h ′ ″

Equal altitudes. Time per clock. h ′ ″

Paſſed the meridian. Time per clock. h ′ ″

⊙ 6.
17 22 32 −
26 5½
29 42½

21 48 56½
52 32½
56 6 −

19 39 19½
19 39 19
19 39 19

} α Aquilæ - 52 40 0

☽ 7.
18 13 24

Zenith diſtance 8 23 46

{ λ Sagittarii upon the meridian.

♂ 8.
22 52 15

The ſecond ſatellite of ♃ immerged - - - - Apparent time. 11 42 20

Equal altitudes. h ′ ″

Equal altitudes. h ′ ″

Paſſed the mer. h ′ ″

♂ 22.
19 0 29 +
3 0
5 30 −

2 20 47½
23 18 −
Clouds.

22 43 8¾
22 43 9

} Fomalhaut - 46 0

19 37 48
22 43 16½

Zenith diſtance
Ditto - -

42 10 42
3 3 16

{ α Aquilæ upon the meridian.
Fomalhaut ditto.

♃ 24.
21 27 14
27 15

The firſt ſatellite of ♃ emerged - - - - - Apparent time. 9 21 35
Ditto, per Mr. Dixon.

Equal altitudes. h ′ ″

Equal altitudes. h ′ ″

Paſſed the mer. h ′ ″

⊙ 27.
19 29 38½
32 7 +
34 36 −

1 51 1
53 29½
55 57½

22 42 48½
22 42 48¼
22 42 48

} Fomalhaut - 40

☽ 28. Packed up the inſtruments.

♂ 29. Put them on board the Mercury, Capt. Harrold.

Oct.

♄ 3. Sailed for St. Helena.

Charles Maſon.

The inſtruments made uſe of, in theſe obſervations, were,

Two reflecting teleſcopes, each two feet focal length, and magnifying 120 times, made by Mr. Short.

A quadrant of one foot radius, made by Mr. Bird, and the property of the Earl of Macclesfield.

An aſtronomical clock, made by Mr. Ellicott.

APPENDIX.

Eclipſes of Jupiter's ſatellites, obſerved at the Royal Obſervatory at Greenwich, with a reflector of two feet focus, magnifying 95 times.

			Apparent time. h ′ ″	
1761.	June	23.	15 10 24	Immerſion of the third ſatellite.
	July	20.	15 54 28	- - - of the ſecond.
		22.	12 35 29	- - - of the firſt.
	Aug.	7.	10 51 52	- - - of the firſt.
	Sept.	8.	10 28 5	- - - of the ſecond.
		10.	11 27 6	- - - of the third.
		15.	13 6 36	- - - of the ſecond.
		24.	8 7 46	Emerſion of the firſt.

Eclipſes of Jupiter's ſatellites, obſerved at Mr. Short's houſe in Surry-ſtreet in the Strand, London, by Dr. Bevis, with a reflecting teleſcope of four feet focal length, magnifying 140 times, and by Mr. Short, with a reflector of two feet focus, magnifying 95 times.

			Apparent time. h ′ ″		
1761.	July	22.	12 35 13	Immerſion of the firſt ſatellite,	by Dr. Bevis.
			12 34 58	- - - - - - - - - -	by Mr. Short.
	Aug.	7.	10 29 43	- - - of the 2d ſatellite,	by Dr. Bevis.
			10 29 31	- - - - - - - - - -	by Mr. Short.
		27.	8 41 16	- - - of the 4th ſatellite,	by Dr. Bevis.
			8 37 4	- - - - - - - - - -	by Mr. Short.
		30.	11 7 31	- - - of the firſt ſatellite,	by Mr. Short.
	Sept.	8.	10 29 3	- - - of the 2d ſatellite,	by Dr. Bevis.
			10 28 35	- - - - - - - - - -	by Mr. Short.

N. B. Mr. Short's houſe is 26″½ of time to the weſt of the Royal Obſervatory.

LXI. *Lati-*