

I. *Observations of the Eclipses of Jupiter's Satellites, from 1700, to the Year 1727. By the Reverend W. Derham, M. A. Canon of Windsor and F. R. S. Communicated by Sr. Hans Sloane, Bart. President of the College of Physicians and Royal Society, &c.*

Eclipses Primi Satellitis.

Dies Menfis.	Tempus æquale.			Tempus apparens.			Per Tab. Flamst. & Cassini.	Qua- lis E- clipfis.	Locus Jovis Helioc.		
	H.	M.	S.	H.	M.	S.			Min.	Sec.	Grad.
Anno Domini 1700.											
Aug. 13	10.	59.	4	10.	57.	10	59. Fl.	Em.	≈	15	Telescopio 6. pedali.
Dec. 1	—	—	—	{ 5. 1. 8	4 ^b .	55 ¹ / ₂ C.	4. 58 Fl.	E.	≈	10	Telefc. 16. pedali.
Omnes sequentes E- clipses Tubo 16. pedali observatæ fuere, nisi cum aliiter notatur.											
Anno Domini 1701.											
Jun. 15	—	—	—	{ 13. 23. 0	13. 21 Fl.	Im.	≈	27			
Jul. 8	—	—	—	{ — 24. 50	13. 26 C.	I.	≈	29			
Oct. 12	—	—	—	{ 5. 54. 9	5. 59 C.	E.	×	8	Bona Observatio.		
— 19	—	—	—	{ — 54. 49	7. 48. 57	E.	×	9	Bona.		
Dec. 20	—	—	—	{ — 49. 47	6. 25. 0	E.	×	14	Dubia.		
Anno Domini 1702.											
Oct. 15	—	—	—	{ 9. 22. 0	9. 23 Fl.	E.	∇	11 ¹ / ₂	Optima.		
— 24	—	—	—	{ — 22. 15	9. 26 C.	E.	∇	12	Optima.		
Dec. 9	—	—	—	{ — 22. 45	5. 44. 57	E.	∇	16 ¹ / ₂	Aer nebulosus.		
				{ — 45. 21	5. 50 C.						
				{ — 45. 42	6. 5 Fl.						

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Eclipses Primi Satellitis.

Dies Mensis.	Tempus æquale.			Tempus apparens.			Per Tab. Flamst. & Cassini.	Eclip- fis qualis.	Locus Jovis.	
	H.	M.	S.	H.	M.	S.				
Anno Domini 1703.										
Aug. 8	—	—	—	15. 21. 30			15. 18 F.	I.	♄ 8½	Dubia ob Nebulas.
— 24	—	—	—	{ 13. 43. 6			13. 38 F.	I.	♄ 10	Bona.
				{ — 43. 35			13. 45 C.			
Sept. 2	—	—	—	10. 8. 20			10. 4 F.	I.	♄ 11	Nebulosum Cælum.
Nov. 28	5.	37.	40	5. 44. 52			5. 43 F.	E.	♄ 19	Non mala.
Anno Domini 1704.										
Aug. 26	17.	7.	43	{ 17. 9. 53			17. 8 F.	I.	♄ 12½	Nimia lux, sed non mala.
— 28	11.	36.	16	{ — 38. 18			11. 37 F.	I.	♄ 13	Bona.
				{ — 39. 3						
Sept. 4	13.	29.	14	{ 13. 33. 5			13. 23 F.	I.	♄ 13½	Bona.
				{ — 34. 25						
Oct. 6	10.	2.	40	{ 10. 16. 40			10. 13 F.	I.	♄ 16	Nebulosa, sed non mala.
				{ — 17. 10						
Nov. 3	17.	39.	54	17. 54. 55			17. 48 F.	I.	♄ 18½	Nebulosum.
Dec. 9				5. 31. 00				E.	♄ 21½	Dubia.
— 23	9.	14.	43	9. 9. 17			9. 10. C.	E.	♄ 23	Bona.
Anno Domini 1705.										
Mart. 2	—	—	—	{ 9. 46. 3			9. 47 F.	E.	♄ 29	Bona.
				{ — 46. 40						
				{ — 47. 0						
— 25	{ 10.	9.	58	10. 7. 18			10. 10 F.	E.	♄ 0½	Bona.
	{ —			{ — 7. 52						
	{ 10.	11.	5	— 8. 25						
Sept. 7	{ 16.	39.	15	16. 45. 26			16. 52 F.	I.	♄ 15	Bona.
	{ —	40.	15	— 46. 26						
Oct. 30	{ 18.	54.	50	19. 10. 19			19. 10 C.	I.	♄ 19	Nimia lux, ideo dubia.
	{ —	55.	20	— 10. 49						
Nov. 22	19.	4.	50	19. 13. 59				I.	♄ 21	
Dec. 15	19.	15.	0	19. 13. 20			19. 11 F.	I.	♄ 22½	{ Dominus Gray hanc immerfionem Cantuar- riæ 19 ^h . 15 ['] observavit.
Anno Domini 1706.										
Mart. 7	—	—	—	7. 27. 0			7. 26 F.	E.	♄ 29½	Emerfum inveni.
— 30	{ 7.	46.	40	7. 45. 25			7. 48 F.	E.	♄ 3	Bona.
	{ —	47.	37	— 46. 20						
Apr. 29	9.	59.	21	10. 3. 5			10. 3 F.	E.	♄ 3½	Nebulosum.

Eclipsis Primi Satellitis.

Dies Menfis.	Tempus æquale.		Tempus apparens.		Per Tab. Flamsteed. & Caffini.	Qua- lis E- clipf.	Locus Jovis.					
	H.	M.	S.	H.					M.	S.	H.	Min.
Anno Domini 1707												
Feb. 15	10.	17.	52	10.	4.	43	10.	3 F.	E.	♃	26 ³ / ₄	
— 24	{	6.	39.	52	6.	28.	20	6. 28 F.	E.	♃	27 ¹ / ₂	Bona.
		—	41.	32	—	30.	0					
Mar. 26	{	8.	47.	53	8.	45.	36	8. 46 F.	E.	♃	29 ³ / ₄	{ Ventus fortis tubum motavit.
		—	48.	6	—	45.	49					
Maii 11	{	9.	14.	43	9.	18.	43	9. 20 F.	E.	♃	3 ¹ / ₄	Bona.
		—	16.	7	—	20.	7					
Anno Domini 1708.												
Jan. 31				17.	35.	0			I.	♃	23 ¹ / ₄	Immersus fuit ante.
Anno Domini 1709.												
Maii 18	{	9.	7.	26	9.	10.	47	9. 18 F.	E.	♃	1 ¹ / ₄	Non mala.
		—	8.	26	—	11.	47	8. 59 C.				
Jun. 10	{	9.	22.	21	9.	21.	9	9. 27 F.	E.	♃	3 ¹ / ₄	Bona.
		—	24.	0	—	23.	8	9. 12 C.				
Anno Domini 1710.												
Maii 14		10.	6.	57	10.	10.	26	10. 14 F.	E.	♃	26	
Jul. 15		—	—	—	8.	46.	0	8. 49 F.	E.	♃	2	Immersum vidi.
Aug. 23		7.	22.	2	7.	22.	50	7. 28 C.	E.	♃	5	Non mala.
Anno Domini 1711.												
Aug. 19	—	—	—	{	8.	23.	40	8. 32 F.	E.	♃	4	Bona.
				—	—	24.	30	8. 30 C.				
				—	—	25.	00					
Anno Domini 1713.												
Oct. 27		8.	10.	28	8.	26.	19	8. 35 F.	E.	♃	14	Bona.
Dec. 28		7.	4.	18	6.	56.	30	{ 7. 5 F. 7. 1 C.	E.	♃	19 ³ / ₄	Bona.
Anno Domini 1714.												
Oct. 23		9.	59.	0	10.	1.	1	10. 5 F.	E.	♃	17	Dubia.
Nov. 1	—	—	—	—	6.	20.	0	6. 28 F.	E.	♃	18	{ Nubilum ideo dubia licet tubo 34 pedali obfervationem feci.

Eclipsis Secundi Satellitis.

Dies Mensis.	Tempus æquale.	Tempus apparens.	Per Tab. Flamst. & Caffini.	Qualis Eclipf.	Locus Jovis.	
	H. M. S.	H. M. S.	H. M.		Grad.	
Anno Domini 1717.						
Feb. 1	{ 6. 25. 3 — 26. 18 — 26. 48	{ 6. 10. 15 — 11. 30 — 12. 00	{ 6. 14 F. 6. 14 C.	E.	♄ 1	Bona.
— 8	{ 8. 21. 21 — 21. 51 — 22. 21	{ 8. 7. 0 — 7. 30 — 8. 0	{ 8. 9 F. 8. 12 C.	E.	♄ 1½	Bona.
Anno Domini 1725.						
Nov. 27	— — —	{ 9. 8. 36 — 9. 0	Per Tabul. D. Bradley. 9. 6. B.		♄ 22	Sequentes Observatio- nes Telescopio 12½ pe- dali optimo factæ fuere. Windeforiæ, dubia.
Anno Domini 1726.						
Jan. 5	{ 7. 40. 19 — 41. 0 — 41. 30	{ 7. 29. 49 — 30. 0 — 31. 0	{ 7. 31 B.	E.	♄ 25	Bona, Upminstro.
Aug. 5	{ 14. 50. 17 — 51. 7	{ 14. 46. 28 — 47. 18	{ 14. 47 B.	I.	♃ 15	Bona.
Sep. 15	{ 7. 44. 17 — 45. 37 — 46. 7	{ 7. 53. 10 — 54. 30 — 55. 0	{ 7. 53 B.	I.	♃ 19	Bona.
Oct. 8	— — —	{ 10. 25. 0	{ 10. 7 B.	E.	♃ 21	{ Observatio incerta is propter vicinitatem.
— 17	— — —	{ 6. 46. 30	{ 6. 46 B.	E.	♃ 21½	
Dec. 2	— — —	{ 7. 2. 0 — 3. 0	{ 7. 5 B.	E.	♃ 25	Windeforiæ, dubia.
— 25	{ 7. 12. 57 — 13. 57	{ 7. 7. 0 — 8. 0	{ 7. 9 B.	E.	♃ 28	Upminstri bona.

Observationes Eclipsium Secundi Satellitis Jovis.

Anno Domini 1700.						
Oct. 27	— — —	{ 8. 24. 0	{ 8. 23	E.	♄ 6½	{ Sequentes Observatio- nes Telescop. 16 pe- dali factæ fuere. Dubia propter vapo- res. D. Flamsteedii Minister observavit cir- ca 8h. 16'. p. m.

Eclipsis Secundi Satellitis.

Dies Mensis.	Tempus æquale.			Tempus apparens.			Calculatio Flamsteedii.	Qua- lis E- clipf.	Locus Jovis Helioc.	
	H.	M.	S.	H.	M.	S.				
Anno Domini 1701.										
Jun. 29	---	---	---	10.	50.	0	10. 52	I.	♁ 28 $\frac{1}{2}$	Dubia ob vapores.
Jul. 31	Inter	} 9. 43. 0 10. 3. 0			10. 33			I.	♁ 1	Nubilofum.
Oct. 21	---									
----- 28	---	---	---	10. 18. 2 — 20. 0	10. 29		E.	♁ 9	Bona.	
Nov. 22	---	---	---	7. 26. 18 — 27. 0						7. 34
Anno Domini 1702.										
Aug. 26	---	---	---	9. 46. 0	10. 17			I.		Immerfum inveni.
Sep. 9	---	---	---	15. 0. 51 — 1. 51	15. 35			I.	♃ 8	Bona.
Oct. 15	---	---	---	7. 5. 21 — 6. 22 — 7. 22	7. 30			E.	♃ 11 $\frac{1}{2}$	Bona.
----- 22	---	---	---	9. 40. 38 — 41. 0 — 42. 13	10. 8			E.	♃ 12	Bona.
Anno Domini 1703.										
Aug. 20	---	---	---	9. 50. 0	10. 11			I.	♃ 9 $\frac{3}{4}$	Immerfum inveni.
Oct. 5	---	---	---	15. 3. 0	15. 19			I.	♃ 24	Immerfus ante.
Dec. 19	8.	41.	9.	8. 38. 7	9. 6			E.	♃ 20 $\frac{1}{2}$	Bona.
Anno Domini 1704.										
Aug. 20	12.	15.	29	12. 15. 34	12. 32			I.	♃ 12	Bona.
Oct. 5	---	---	---	17. 10. 44 — 11. 14	17. 32			I.	♃ 16	Bona.
----- 16	---	---	---	9. 2. 19	9. 26			I.	♃ 10	Haud mala.

Eclipses Secundi Satellis.

Dies Mensis.	Tempus æquale.	Tempus apparens.	Calculatio Flamitee- dii.	Qua- lis E- clipf.	Locus Jovis Helioc.	
	H. M. S	H. M. S	H. M.		Grad.	
Anno Domini 1705.						
Jan. 15	— — —	7. 47. 0	8. 14	E.	II 24 $\frac{3}{4}$	Emerfus ante.
— 20	{ 10. 30. 23 — 31. 14	10. 16. 9	10. 50	E.	II 25 $\frac{3}{4}$	Bona.
Feb. 14	7. 45. 31	7. 32. 0	8. 1	E.	II 27 $\frac{1}{2}$	Vaporofus aer : dub.
Mar. 25	{ 10. 15. 10 — 16. 5	10. 12. 30	10. 36	E.	☉ 0	{ Incerta propter vicini- tatem primi Sat.
Apr. 26	— — —	10. 4. 0	10. 29	E.	☉ 3 $\frac{1}{2}$	Vaporofus Horizon : dub.
Sep. 29	{ 16. 26. 11 — 26. 26	16. 39. 11	16. 48	I.	☉ 16 $\frac{1}{2}$	Bona.
Oct. 31	{ 15. 55. 20 — 56. 26	16. 10. 52	16. 27	I.	☉ 19	Bona.
Dec. 20	{ 9. 49. 30 — 50. 10	9. 45. 36	10. 11	I.	☉ 23	Bona.
Anno Domini 1706.						
Ap. 20	— — —	8. 58. 30	9 31	E.	♃ 3	Fuerat emerfus.
Anno Domini 1707.						
Mar. 13	— — —	7. 59. 0	8. 18	E.	♃ 28 $\frac{3}{4}$	Emerfit ante.
— 20	10. 28. 14	10. 23. 54	11. 5	E.	♃ 29	Dubia.
Ap. 14	7. 33. 17	7. 35. 39	8. 9	E.	♃ 0 $\frac{1}{2}$	Dub. propter nim. lucem.
— 21	{ 10. 9. 33 — 10. 59	10. 12. 51	10. 45	E.	♃ 1 $\frac{1}{4}$	Bona.
Anno Domini 1710.						
Mar. 4	— — —	17. 5. 0	— — —	I.	♃ 21 $\frac{1}{2}$	Nubilum, & incerta.
Anno Domini 1711.						
Jul. 15	— — —	9. 16. 0	9. 6	E.	♃ 1 $\frac{1}{2}$	Nebulofum & dub.
Anno Domini 1712.						
Oct. 12	{ 7. 35. 6 — — —	{ 7. 50. 30 — 51. 15 — 52. 30	7. 58	E.	♃ 10	Bona.
Anno Domini 1714.						
Nov. 1	— — —	6. 34. 7	6. 55	E.	♃ 18	Incerta ob nubes.
Dec. 3	{ 6. 14. 26 — 15. 0	6. 34		E.	♃ 21 $\frac{1}{2}$	Bona.
Anno Domini 1716.						
Dec. 22	— — —	4. 55. 0	— — —	E.	II 27 $\frac{1}{2}$	Emerfus ante fuit.

Eclipses Tertii Satellitis.

Dies Menfis.	Tempus æquale.	Tempus apparens.	Calculatio Flamst. & Molyn.	Qua- lis E. clips.	Locus Jovis Helioc.	
	H. M. S	H. M. S	H. M		Grad.	
		Anno Domini 1717.				
Jan. 30	— — —	7. 24. 0	7. 46	E.	♁ 1	Emerfum inveni.
		Anno Domini 1725.				
Oct. 30	— — —	9. 16. 23 — 17. 0 — 17. 18	8. 46 M.	E.	♁ 19	Bona observatio Tele- scopio 12 $\frac{1}{2}$ pedali opt.
		Anno Domini 1726.				
Aug. 28	{ 8. 52. 25 — 53. 55	8. 54. 52 — 56. 22	8. 58 M.	I.	♃ 17	Bona.
Oct. 17	— — —	6. 12. 0	5. 53 M.	E.	♃ 21 $\frac{1}{2}$	Dubia.
Nov. 25	— — —	{ 8. 27. 15 — 28. 0	8. 16	E.	♃ 25	Non mala, Windeforia.

Observationes Eclipsium Tertii Satellitis Jovis.

		Anno Domini 1700.				
Oct. 19	— — —	6. 23. 15	6. 13	I.	♁ 6	
		Anno Domini 1701.				
Jul. 11	— — —	10. 18. 0	10. 11	I.	— —	Dubia.
Sep. 28	— — —	{ 10. 25. 27 — 26. 0 — 26. 42	10. 12	E.	♁ 6 $\frac{1}{2}$	Bona.
		Anno Domini 1702.				
Jul. 26	— — —	10. 51. 13	10. 33	E.	♃ 4	Dubia.
Aug. 2	Inter	{ 11. 55. 0 12. 5. 0	11. 35	I.	♃ 5	Nubes interrompebant.

Eclipses Tertiæ Satellitis.

Dies Mensis.	Tempus æquale.			Tempus apparens.			Calculatio Flamstee- dii.	Qua- lis E- clipfis.	Locus Jovis Helioc.	
	H.	M.	S.	H.	M.	S.				
Anno Domini 1703.										
Jul. 12	—	—	—	14. 46. 0			15. 32	I.	♃ 6	Fuit Immerfus. Optima observatio Im- merfionis : at fomno invadente, nimis ferò Emerfionem vidi.
Aug. 24	—	—	—	13. 43. 20	}	}	13. 4	I.	♃ 10	
				— 44. 20						
Sep. 22	—	—	—	— 44. 51	}	}	15. 40	E.	♃ 12 ³ / ₄	
				16. 6. 36						
— 29	—	—	—	8. 9. 53	}	}	7. 50	E.	♃ 13	
				9. 57. 44						
				— 58. 5						
Oct. 6	}			12. 8. 17	}	}	11. 52	E.	♃ 13	
				9. 57. 44						
				— 58. 5						
Oct. 6	}			14. 0. 30	}	}	13. 19	I.	♃ 14	
				— 1. 50						
				— 2. 50						

In Observacionibus Aug. 24, Sep. 22, 29, & Oct. 6. notandum est, Latitudinem tertiæ Satellitis majorem fuisse quam C. FLAMSTEEDIUS, aut CASSINUS conjectarunt. Nam iste Satelles usq; ad extremum Poli Jovis marginem evagatus est, & (antequam in ejus umbram profus immerfus est) diu in ejus penumbrâ latuit: & in eadem umbrâ non ultra duas horas permanisse autumo, quamvis post Observaciones Aug. 24, & Sep. 29, moram diuturniorem fuisse videatur. Sed in priore observacione, veram non vidi Emerfionem: & in posteriore cum * ☉ ♃ fuerit) Emerfio Jovis limbo tam propinqua fuit, ut difficile fuerit eam cum Telescopio 16 pedali vere observare.

Anno Domini 1704										
Sep. 14	Inter			16. 58. 0	}	}	16. 32	E.	♃ 14 ³ / ₄	Nubilum cœlum.
Oct. 20	10. 14. 34			17. 10. 0			}	}	9. 48	I.
				10. 28. 40						
Nov. 3	18. 12. 16			18. 27. 17			17. 45	I.	♃ 18 ³ / ₄	Bona, licet aer nebulos.

Anno Domini 1705										
Jan. 14	}			9. 53. 57	}	}	— — —	I.	♃ 24 ³ / ₄	Bona.
				— 9. 4						
Feb. 26	10. 9. 32			9. 58. 7	}	}	— — —	I.	♃ 28 ¹ / ₂	Bona.
				— 58. 42						
Oct. 6	Inter			17. 18. 0	}	}	— — —	E.	♃ 17	} Incerta per Nebulas denfas.
Nov. 25	— — —			— 27. 0						
				7. 41. 0						

Dies Menfis.	Tempus æquale.	Tempus apparens.	Calculatio Flamsteedii.	Qualis Eclipsif.	Locus Jovis Helioc.	
	H. M. S.	H. M. S.	H. M.		Grad.	
Anno Domini 1706.						
Mar. 13	— — —	{ 8. 52. 27 — 54. 0	7. 36	E.	♋ 0	Bona.
— 20	— — —	{ 9. 24. 0 — 16. 59. 27	9. 3 16. 50	I. I.	♋ 0 $\frac{1}{2}$ ♋ 0 $\frac{3}{4}$	Dubia ob vicinitatem. Non mala.
Anno Domini 1707.						
Maii 17	— — —	{ 8. 17. 0 — 18. 49. 15	— — — 18. 41	E. E.	♊ 3 $\frac{1}{4}$ ♊ 18 $\frac{1}{2}$	Emerfum inveni.
Nov. 26	18. 41. 37	{ 19. 24. 1 — 25. 9	19. 25	I.	♊ 19	Bona.
Dec. 3	{ 19. 19. 38 — 20. 46					
Anno Domini 1709.						
Feb. 5	{ 17. 35. 32 — 37. 4	{ 17. 21. 0 — 22. 32	17. 26	I.	♋ 21 $\frac{1}{2}$	
Anno Domini 1711.						
Jul. 14	— — —	{ 9. 45. 0 — 9. 41	9. 41	E.	♋ 2	Dubia.
Anno Domini 1712.						
Sep. 16	— — —	{ 6. 15. 0 — 20. 0 — 9. 50. 3 — 52. 0 — 52. 30	{ 6. 28 — 10. 5	I. E.	♋ 7 $\frac{3}{4}$	Dubia ob nimiam lucem. Bona.
Oct. 29	— — —	{ 6. 26. 30 — 28. 0	6. 45	I.	♋ 11 $\frac{1}{2}$	Bona.
Anno Domini 1713.						
Dec. 26	6. 38. 30	{ 6. 32. 0 — 6. 46	6. 46	E.	♋ 19 $\frac{1}{2}$	Ventus dubiam reddidit.
Anno Domini 1714.						
Sep. 17	{ 8. 26. 56 — 28. 56	{ 8. 36. 9 — 38. 9	8. 40	I.	♋ 13 $\frac{3}{4}$	Bona, Tubo 34 pedali.
Oct. 23	{ 7. 22. 0 — 23. 0 — 25. 0	{ 7. 24. 0 — 25. 0 — 27. 0	7. 38	E.	♋ 17	Bona, Tubo 16 pedali.
Anno Domini 1716.						
Dec. 5	— — —	— — —	7. 37	E.	— —	Hic Satelles magnam habet Latitudinem, & ni fallor, nullam passa est Eclipsin hâc nocte.

Eclipses Tertii Satellitis.

Dies Mensis.	Tempus æquale.	Tempus apparens.	Calculatio Flamsteedii.	Qualis Eclips.	Locus Jovis Helioc.	
	H. M. S.	H. M. S.	H. M.		Grad.	
		Anno Domini 1717.				
Jan. 17	— — —	{ 5. 52. 23 — 53. 45 8. 48. 38 }	{ — — —	I. E.	♄ 0	Bona. Mala.
		Anno Domini 1726.				
Jan. 5	{ 6. 41. 10 — 42. 30	{ 6. 30. 40 — 32. 0	{ — — —	E.	♃ 25 $\frac{3}{4}$	{ Bona, Telescop. 12 $\frac{1}{2}$ pedali.
Dec. 15	{ 7. 13. 29 — 14. 42	{ 7. 12. 17 — 13. 30	{ 7. 21 M.	E.	♃ 15 $\frac{3}{4}$	Bona.

Observationes Eclipsium Quarti Satellitis.

		Anno Domini 1701.				
Jun. 11	— — —	14. 20. 0	14. 35	I.	♃ 27	Immersum inveni.
Sep. 3	— — —	13. 59. 0	14. 21	E.	♃ 4 $\frac{3}{4}$	Idem per nebulas.
		Anno Domini 1704.				
Sep. 30	— — —	9. 21. 42	9. 40	E.	♃ 15 $\frac{3}{4}$	Nebulosum, ideo dubia. { Dubia ob proximitatem Jovis, & parvitatem Satel.
Dec. 6	— — —	9. 52. 44	— — —	E.	♃ 21 $\frac{1}{2}$	
		Anno Domini 1705.				
Feb. 11	8. 38. 5	8. 24. 8	8. 23	I.	♃ 27	Non mala.
		Anno Domini 1706.				
Mar. 20	9. 3. 2	8. 58. 40	9. 36	I.	♃ 0 $\frac{3}{4}$	Non mala.
Sep. 20	— — —	16. 24. 0	16. 17	I.	♃ 15	Immersum inveni.
		Anno Domini 1712.				
Aug. 20	Inter.	{ 8. 29. 0 — 39. 0 7. 43. 0 — 44. 0 — 45. 0 }	{ 10. 11 9. 20 }	I. E.	♃ 5 ♃ 7	Bona.

Remarks on the* foregoing TABLES.

AS exact Tables to calculate the *Eclipses* of the *Circumjovials*, would be of very great Service to find the *Longitude of Places*; so I have some Hopes that these Observations of some of them, in more Revolutions than one of *Jupiter* in his Orb, may be of Use to correct, or make such Tables.

I wish that I could have made them more compleat (and in my younger, and more leisurely Days, I endeavoured to do it, by rising at unseasonable Hours, &c.) but besides cloudy and bad Weather, one great Hindrance was the Want of Tables, to enable me to calculate the Eclipses my self, and the frequent Disappointments of my Friends, that furnished me with Catalogues of them. And moreover, many times Company, and Business, and (to tell the Truth) sometimes Forgetfulness, have hindred the Constancy of my Observations: But the greatest Chasms in them were caused by some dangerous Fits of Sickness, which so impaired me, that I have not dared, ever since, to venture upon Observations at unseasonable Hours of the Night.

As to my Manner of observing, it was (for the most Part) with a 16 Foot Telescope, and afterwards with an excellent one (not inferior to it) of $12\frac{1}{2}$ Feet, that, at *Jupiter's* Light, bears an Aperture of $2\frac{1}{2}$ Inches, and a Charge of about 2 Inches.

And as to the *Time*; I made use of an excellent and well-adjusted *Clock*, corrected at Noon, by the Meri-

dional Transits of the Sun, observed with the *Instrument* described in the *Philos. Transact.* N^o 291, which shews the Noon-time to one or two Seconds. This Way some of my skilful Friends (particularly Mr. *Flamsteed*) suspected to be fallacious, and not comparable to taking the Time by Altitudes of the Sun, or fix'd Stars. For a Trial therefore, I gave him a Challenge, of observing some Eclipses that we agreed on; which when we compared, we found so nicely to agree, as to shew to a Second of Time, or very nearly so, the Difference of the Meridian of the *Observatory*, and that of *Upminster*.

But because the Credit of my Observations depends upon the Strictness of the Time, give me Leave to compare my *Instrument* with a *Quadrant*. And here I will presume to affirm, that my *Instrument* is no more liable to Errors than a *Quadrant*. 1. It is less so, in regard of its Structure: For a little Error in the Division of a *Quadrant's* Limb, or in fixing its Sights (whether *Telescopick* or *Plain*) spoils all. But no great Curiosity, or Niceness is required in my *Meridian-Instrument*. 2. In point of Observation, as much Care and Exactness is necessary to guard against Wind, and to take a true *Altitude* by the *Quadrant*, as is necessary to take a true *Azimuth* by my *Instrument*. For if we are sure that the Instrument is exactly in the Meridian (the Manner of which is shewn in the fore-cited *Transaction*) we can be as sure, and that to as few Moments of Time, as any the best *Quadrant* can shew it. And although I cannot say, that every Day, or every Week, I examined the Position of my *Instrument*, yet I did it so often, as to be satisfied, that
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not many, or great Errors, could be in my Observations.

The greatest Part of the Eclipses, that were the most accurately made, may easily be distinguished by the two, or more Numbers of the Time of Observation : The first of which shews the Moment of the Beginning of the Eclipse ; the following, the Times when farther advanced : As in an Emerision, the first Number shews the Time, when the Satellite appears like a small obscure Spot ; the following Numbers, when brighter, or quite emerged out of *Jupiter's* Shadow ; and so contrariwise in an Immerision.

But altho' this might have sufficed, yet for greater Certainty and Satisfaction, I have noted which Observations were good, which doubtful, or bad : Even the latter of which may be of Use in some Cases, where better are wanting.

The calculated Times of the Eclipses I have inserted, where I had them from others, or could calculate them my self, as being of good Use to amend the Tables of Mr. *Flamsteed*, *Cassini*, or others, taken Notice of in the Column on Purpose. And for the same Reason I thought good to add the Place of *Jupiter* also.

And lastly, I thought it good to mention the Length and Power of the Telescope I used ; as being, in some Measure, necessary in the comparing Observations of different Places ; because Observations may differ several Seconds, by the different Length and Goodness of the Telescope used ; a long and good Telescope shewing the Satellite, when the Shadow of *Jupiter* doth but just touch it : Whereas a short, or bad one, doth not shew it, until one half, or more, of the Satellite is enlightened. Which Difference is most remarkable in
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the Eclipses of the two outermost Satellites, in their greatest Latitudes; at which Times they go into, and come out of *Jupiter's* Shadow, in an oblique and longer, not a direct and shorter Path: An Instance of which may be seen in the Observations of the Eclipses of the Third Satellite in the Months of *August* and *September*, 1703.

II. *A Description of a Roman Pavement found near Grantham in Lincolnshire, with the Oeconomy of the Roman Times in this Part of England, communicated in a Letter to Dr. Ruttty, R. S. Secr. by W. Stukeley, M. D. Col. Med. Lond. & R. S. Soc.*

S I R,

LAST Week I had an Occasion of examining a curious Piece of *Roman* Antiquity discovered near us, and resolv'd to send you the following Account of it, together with a Drawing I made of it.

In *Feb.* 1727-8. Plowing in the open Fields of *Denton*, about $2\frac{1}{2}$ Miles from *Grantham*, they happen'd upon a *Roman Pavement* in *Mosaic* Work, as commonly call'd. I had Notice of it from my Neighbour, the Rev. Mr. *Saul*, Minister of *Harlaxton*, the next Parish, and went to see it. It lies partly in the glebe Land, partly in Madam *Welby's*, who assisted us with Workmen to clear it. It has been a very large Room about 30 Foot both ways, as we found by digging in divers Places; but being so near the Surface, not above a Foot, or a Foot and half deep, and having been
plow'd