

III. *A Catalogue of Eclipses of the four Satellites of Jupiter, for the Year 1732.* By James Hodgson, F. R. S. and Master of the Royal Mathematical School at Christ's Hospital, London.

I HAVE been long importuned by several of my Friends to publish a Catalogue of *Eclipses of Jupiter's Satellites*, to the Intent that such Persons as are furnished with proper Instruments, and want neither Leisure nor Inclination to observe them, may no longer neglect the frequent Opportunities that offer, for want of timely Notice.

The great Number of *Eclipses* that happen in a Year, as appears by the following Catalogue, amounting to 352; notwithstanding the fourth *Satellite* will pass wide of the Shadow, after the middle of *January* next; the Ease with which they are observed, especially since the great Improvement made to the reflecting Telescope by Mr. *Hadley*; the little Skill that is required to make the Observations, since the Difference of Times, when observed by the largest Glasses, and the smallest through which they may be seen, amounts to scarce one quarter of a Minute; render these Observations the most proper of any that the Heavens afford us, at present, for determining the Longitude of Places; and I may venture to assert, that there are very few Places of Note upon the Surface of our habitable Globe, whose Longitudes are already known, that have not either been absolutely deter-

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mined or, at least, have been rectified and confirmed by them.

How near these Calculations will answer to the Heavens, must be left to Time to discover; but as the Tables that I have made use of had received no Correction for fifty Years past, I have endeavoured, during the small Time since I set myself about this Work, to correct them as much as the Time would allow me; and, I hope, before the Year comes about, to bring some of the *Satellites* to answer nearer than they do at present, and in the mean time, if those Gentlemen who shall have an Opportunity of observing them, will transmit their Observations to the Royal Society, it will contribute towards a farther Rectification of the Tables.

I have by me the Times of the Appulses of the Moon to the fixed Stars, and their Occultations, by the Interposition of her Body, for the succeeding Year; which I had some Thoughts of communicating: But as the long-expected Lunar Tables of Dr. *Halley* will very soon be published (as I am informed) I have deferred that Affair for another Year.

For the Benefit of those Persons who have not been accustomed to make Observations of this Kind, I had determined with myself to have given the Configurations of the *Satellites*, at the Times when those that are visible in our Hemisphere, which are marked with a Star, will happen; but as it would have taken me up much Time in doing, as well as Expence in grav- ing, I have chose rather to give such People some In- structions, which, if well observed, will not only point out the exact Spot in the Heavens, where the  
Appear-

Appearance will be visible (for want of knowing which, the *Satellite* may be Immerged some time before it is missed, and Emerged before it is discovered) but will prevent them from taking one *Satellite* for another.

And first, the Observer must take Notice, that from the Time of the Conjunction of *Jupiter* with the Sun, which happened the beginning of *September* last to the Time of the Opposition which will happen in the middle of *March* next, the *Eclipses* in general will be visible on the Western Side, or on the Right Hand of *Jupiter*, when viewed in the Heavens, and at the Time of the first Quadrature, which will happen about the middle of next *December*, the first *Satellite* will immerge into the Shadow of *Jupiter's* Body at the Distance of two Semidiameters of *Jupiter*, nearly from the Center of his Body: The second *Satellite* will immerge at the Distance of two Semidiameters and an half, the third *Satellite* at the Distance of three Semidiameters and a quarter. And as the Earth hastens to the Opposition, which will happen in the middle of next *March*, the Distance of each *Satellite*, at the Time of the *Eclipse* from the Body of *Jupiter*, will grow less and less, till when the Earth arrives at the Opposition, the *Satellite* will immerge close to the Limb of *Jupiter*; and this Diminution or Decrease of Distance will be so regular, that the Spectator, by allowing for the proportionable Part of Time between the Quadrature and the Opposition or Conjunction (the Distances of the *Satellites* from the Body of *Jupiter* at equal Distances from these Points being the same) I say, by these

Means the Spectator will be at no Loss to find the exact Point where the *Satellite* will appear or disappear. And on the contrary, during the Space of Time that the Earth is moving from the Opposition through the second Quadrature to the Conjunction, which is from the Middle of *March* to the Beginning of *October*, the *Eclipses* will be seen on the East Side, or on the Left Hand of *Jupiter*, viewed from the Earth, and at the same Distances, as in the former Case, according as she approaches to the Quadrature from the Opposition, or recedes from it in going to the Conjunction.

By reason of the great Distance of the third *Satellite* from *Jupiter*, for about six Weeks before and after the Quadratures, the Immersions and Emersions become visible on the same Side of the Body of *Jupiter*; and this, without any other Proof, is an ocular Demonstration, that neither *Jupiter* nor any of his *Satellites* have any Light of their own, and none but what they borrow from the Sun. And the same happens to the fourth *Satellite*, of which we have but two *Eclipses* in the whole Year; which, according to this Calculation, will happen on the 15th of *January* next, when, if the Air be clear, it will be seen to enter into the Shadow about Twelve at Night, on the Right Hand of *Jupiter*, at the Distance of four Semidiameters and a quarter from his Center, and will emerge on the same Side thirty Minutes after One in the Morning, at the Distance of almost four Semidiameters on the same Side.

After this manner will the *Satellites* appear, if they could be seen with the naked Eye; but if they are seen thro' a Telescope composed of two Convex Glasses, they

they will be inverted, that is, from the Time of the Conjunction to the Time of the Opposition, they will appear on the Left Hand of *Jupiter*; and from the Opposition back again to the Conjunction, they will be visible on the Left Hand of his Body.

If these Predictions should prove instrumental in exciting the Curious to improve this most useful Branch of the Astronomical Science, it will be a sufficient Recompence for the Pains I have taken.

ECLIPSES .

## ECLIPSES of the first Satellite of Jupiter for the Year 1732.

<i>January.</i>				<i>February.</i>				<i>March.</i>			
Immerfions.				Immerfions.				Immerfions.			
D.	H.	M.	S.	D.	H.	M.	S.	D.	M.	H.	S.
01	18	42	21*	02	15	07	16*	01	22	46	15
03	13	10	16*	04	09	35	37*	03	17	15	19*
05	07	37	59	06	04	04	04	05	11	44	25*
07	02	5	37	07	22	32	38	07	06.	13	30*
08	20	33	27	09	17	01	10*	09	00	42	35
10	15	01	18*	11	11	29	42	10	19	11	42
12	09	29	11*	13	05	58	10	12	13	40	47*
14	03	57	06	15	00	26	52	Emerfions			
15	22	25	05	16	18	55	32*	14	10	21	41
16	16	53	06*	18	13	24	16*	16	04	50	48
19	11	21	09*	20	07	53	02	17	23	19	53
21	05	49	15	22	02	21	50	19	17	49	01*
23	00	17	22	23	20	50	39	21	12	18	09*
24	18	45	32*	25	15	19	29*	23	06	47	17*
26	13	13	46*	27	09	48	23*	25	01	16	27
28	07	42	13	29	04	17	18	26	19	45	34
30	02	10	27					28	14	14	39
31	20	38	52					30	08	43	42

ECLIPSES

## ECLIPSES of the first Satellite.

<i>April.</i>				<i>May.</i>				<i>June.</i>			
Emerfions.				Emerfions.				Emerfions.			
D.	H.	M.	S.	D.	H.	M.	S.	D.	H.	M.	S.
01	03	12	45	01	05	23	36	02	01	55	31
02	21	41	47	02	23	52	14	03	20	23	44
04	16	10	49*	04	18	20	48	05	14	51	56
06	10	39	51*	06	12	49	21*	07	09	20	13
08	05	08	48	08	07	17	53	09	03	48	29
09	23	37	44	10	01	46	27	10	22	16	47
11	18	06	39	11	20	14	59	12	16	45	04
13	12	35	33*	13	14	43	30*	14	11	13	22*
15	07	04	27	15	09	12	01*	16	05	41	42
17	01	33	19	17	03	38	31	18	00	10	01
18	20	02	09	18	22	09	00	19	18	38	21
20	14	31	00*	20	16	37	28	21	13	06	43
22	08	59	52*	22	11.	05	55*	23	07	35	08
24	03	28	42	24	05	34	10	25	02	03	34
25	21	57	31	26	00	01	27	26	20	32	01
27	16	26	15	27	18	30	50	28	15	00	29
29	10	54	57	29	12	59	02*	30	09	28	58*
				31	07	27	21				

ECLIPSES

## ECLIPSES of the first Satellite.

<i>July.</i>				<i>August.</i>				<i>September.</i>			
Eclipsions.				Eclipsions.				Eclipsions.			
D.	H.	M.	S.	D.	H.	M.	S.	D.	H.	M.	S.
02	03	57	27	01	06	05	53	02	02	49	29
03	22	25	58	03	00	34	47	03	21	18	42
05	16	54	29	04	19	03	43	05	15	47	54
07	11	23	01	06	13	32	41	07	10	17	05
09	05	51	32	08	08	01	40*	09	04	46	14
11	00	20	06	10	02	30	40				
12	18	48	46	11	20	59	40				
14	13	17	28	13	15	18	24				
16	07	46	13	15	09	57	46				
18	02	15	00	17	04	26	52				
19	20	43	45	18	22	56	00				
21	15	12	31	20	17	25	18				
23	09	41	19	22	11	54	21				
25	04	10	15	24	06	23	33				
26	22	39	10	26	00	52	43				
28	17	08	06	27	19	21	53				
30	11	36	59	29	13	51	06				
				31	08	20	17				

*Jupiter*  
and the  
Sun in  
Conjunction.



## ECLIPSES of the first Satellite.

<i>October.</i>				<i>November.</i>				<i>December.</i>			
Immersions.				Immersions.				Immersions.			
D.	H.	M.	S.	D.	H.	M.	S.	D.	H.	M.	S.
				01	04	59	34	01	06	52	14
				02	23	27	42	03	01	19	45
				04	17	55	47*	04	19	47	17*
				06	12	23	47	06	14	14	48*
				08	06	51	48	08	08	42	18
				10	01	19	49	10	03	09	48
				11	19	47	49*	11	21	37	19
				13	14	15	43	13	16	04	45*
				15	08	43	32	15	10	32	51
				17	03	11	17	17	04	59	41
				18	21	39	00	18	23	27	10
				20	16	06	38	20	17	54	38*
				22	10	34	15	22	12	22	09
				24	05	01	51	24	06	49	42
				25	23	29	27	26	01	17	18
				27	17	57	03*	27	19	44	56
				29	12	24	40	29	14	12	35*
								31	08	40	12

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ECLIPSES

ECLIPSES of the second Satellite for the  
Year 1732.

<i>January.</i>				<i>February.</i>				<i>March.</i>			
Immerfions.				Immerfions.				Immerfions.			
D.	H.	M.	S.	D.	H.	M.	S.	D.	H.	M.	S.
*1	10	21	28 A. M.	01	13	07	15*	04	12	49	34 *
04	02	54	18	05	02	24	44	08	02	08	13
07	16	10	16*	08	15	42	23	11	15	26	52 *
11	05	26	25	12	05	00	04	Emerfions.			
14	18	42	45*	15	18	17	55*	15	07	31	59 *
18	07	59	17	19	07	35	58	18	20	50	32
21	21	16	01	22	20	54	11	22	10	09	08 *
25	10	32	52	26	10	12	29*	25	23	27	48
28	23	49	59	29	23	30	57	29	12	46	18

<i>April.</i>				<i>May.</i>				<i>June.</i>			
Emerfions.				Emerfions.				Emerfions.			
D.	H.	M.	S.	D.	M.	H.	S.	D.	H.	M.	S.
02	02	04	46	04	01	08	40	01	12	07	59*
05	15	23	21*	07	15	06	20	05	01	24	52
09	04	41	47	11	04	23	59	08	14	41	53
12	18	00	09	14	17	41	36	12	03	58	57
16	07	18	26*	18	06	59	07	15	17	16	04
19	20	36	42	21	20	16	34	19	06	33	13
23	09	54	55*	25	09	33	45*	22	19	50	26
26	23	13	02	28	22	50	53	26	09	07	49*
30	12	30	54					29	22	25	15

## ECLIPSES of the second Satellite.

<i>July.</i>				<i>August.</i>				<i>September.</i>			
Emerfions.				Emerfions.				Emerfions.			
D.	H.	M.	S.	D.	H.	M.	S.	D.	H.	M.	S.
03	10	42	40	04	11	24	13	01	21	53	54
07	01	00	09	08	00	42	39	05	11	12	50
10	14	17	41	11	14	01	09	09	00	31	38
14	03	35	27	15	03	19	45				
17	16	53	24	18	16	38	27				
21	06	11	22	22	05	57	17				
24	19	29	30	25	19	16	10				
28	08	47	47*	29	08	35	02*				
31	22	06	01								

<i>October.</i>				<i>November.</i>				<i>December.</i>			
Immerfions.				Immerfions.				Immerfions.			
D.	H.	M.	S.	D.	H.	M.	S.	D.	H.	M.	S.
				01	05	20	50	03	04	45	40
				04	18	37	35*	06	18	01	09*
				08	07	54	06	10	07	16	39
				11	21	10	39	13	20	32	05
				15	10	26	53	17	09	47	29
				18	23	42	48	20	23	02	53
				22	12	58	38	24	12	18	28
				26	02	14	21	28	01	34	11
				29	15	30	04*	31	14	49	57
21	13	29	31								
25	02	46	48								
28	16	03	49								

## ECLIPSES of the third Satellite for the Year 1732.

*January.*

Immerfions.				Emerfions.			
D.	H.	M.	S.	D.	H.	M.	S.
07	02	34	47	07	05	33	07
14	06	30	30	14	09	28	02
21	10	26	59*	21	13	23	45
28	14	24	12*	28	17	20	10

*February.*

Immerfions.				Emerfions.			
D.	H.	M.	S.	D.	H.	M.	S.
04	18	22	09	04	21	17	21
11	22	20	46				
19	02	19	57				
26	06	19	47				

*March.*

Immerfions:				Emerfions.			
D.	H.	M.	S.	D.	H.	M.	S.
04	10	20	10*				
11	14	20	50*	28	21	12	05
				26	01	12	06

*April.*

Immerfions.				Emerfions.			
D.	H.	M.	S.	D.	H.	M.	S.
				02	05	11	49
				09	09	11	34*
				16	13	10	56*
23	14	23	30	23	17	10	10
30	18	22	58	30	21	08	52

ECLIPSES

## ECLIPSES of the third Satellite.

*May.*

Immersions.				Emersions			
D.	H.	M.	S.	D.	H.	M.	S.
07	22	21	51	08	01	07	01
15	02	20	34	15	05	04	58
22	06	19	01	22	09	02	39*
29	10	16	46	29	12	59	38

*June.*

Immersions.				Emersions.			
D.	H.	M.	S.	D.	H.	M.	S.
05	14	14	12	05	16	56	18
12	18	11	47	12	20	53	07
19	22	09	31	20	00	50	05
27	02	07	39	27	08	45	02*

*July.*

Immersions.				Emersions.			
D.	H.	M.	S.	D.	H.	M.	S.
04	06	06	02	04	08	45	02.*
11	10	04	34*	11	12	42	48
18	14	03	47	18	16	41	17
25	18	03	27	18	20	40	11

*August.*

Immersions.				Emersions.			
D.	H.	M.	S.	D.	H.	M.	S.
01	22	03	23	02	00	39	23
				09	04	38	57
				16	08	38	52*
				23	12	39	13
				30	16	39	42

ECLIPSES

## ECLIPSES of the third Satellite.

*September.*

Immersions.				Emersions.			
D.	H.	M.	S.	D.	H.	M.	S.
				06	20	40	15
				14	00	40	33

*October.*

Immersions.				Emersions.			
D.	H.	M.	S.	D.	H.	M.	S.
19	18	08	42				
26	22	06	33				

*November.*

Immersions.				Emersions.			
D.	H.	M.	S.	D.	H.	M.	S.
03	02	03	43				
10	06	00	11				
17	09	55	54				
24	13	50	43	24	16	15	45

*December.*

Immersions.				Emersions.			
D.	H.	M.	S.	D.	H.	M.	S.
01	17	45	25*	10	20	09	49
08	21	39	40	09	00	03	38
16	01	33	45	16	03	56	57
23	05	27	51	23	07	50	29
30	09	22	31	30	11	44	35

ECLIPSES

## ECLIPSES of the fourth Satellite for the Year 1732.

	D.	H.	M.	S.	
January 15	at 11	59	52*		an Immerfion.
	at 13	59	54*		an Emerfion.

After which Time the *Satellite* will pafs wide of the Shadow of *Jupiter*; and there will be no more *Eclipses* till the Beginning of the Year 1734.

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IV. *A Letter to the Prefident of the Royal Society, from Frank Nicholls, M. D. F. R. S. giving an Account of a Polypus, refembling a Branch of the Pulmonary Vein, coughed up by an athmatic Perfon.*

S I R,

**N***icholas Tulpius*, in the 7th Observation of his fecond Book, presents us with the Cafe of a Man who, with a large Effufion of Blood, threw up, by coughing, two Branches of the *Pulmonary Vein*, fix Inches long, with their feveral Ramifications, freed from the *Trachæa* and Substance of the Lungs, as if difsected by the moft accurate Anatomift. This Cafe he obferves to be very extraordinary, and not to be parallell'd in the Writings of physical Authors.

A little Acquaintance with the Structure of the Lungs fufficiently evinces the Impossibility of the Fact,