

I. *Tabula Motuum quinque Satellitum Saturni ad fidem nuperarum Observationum correctæ, Cæloque conformes reddita.*

Circa finem Anni 1686. D. Jo. Dom. Cassini, Reg. Soc. Sodalis, & in Astronomicis nemini secundus, cum Societate nostrâ inventa sua de motibus quinque Satellitum *Saturni* communicavit, Epochasque singulorum ad annum ineuntem 1686. eorumque motus diurnos in Epistola N^o 187. harum *Transact.* editâ exhibuit: E quibus datis motuum Tabulas concinnavimus, dictæque Epistolæ subjunctas una edidimus. Cum vero deinde per triginta fere annos nullas omnino Observaciones eorum tradiderint, qui soli poterant, Astronomi *Galli*; cumque aliunde, ob intervallum temporis nimis breve, non nisi laxè periodos Satellitum, præsertim interiorum, definire potuerit præclarissimus Inventor; non prius dictarum Tabularum defectus corrigere datum est, quam in nuperis Actis Academiæ Regiæ *Parisiensis* Physicis & Mathematicis, observata ea, quæ sub finem præcedentis *Transact.* N^o 355. protulimus, prodire.

Horum vero opæ facta aliquali Motuum castigatione, tum demum Telescopio *Hugeniano* omne Saturni Satellitium ipsi agnovimus; adhibitisque accuratis Rev. D. Jac. Pounsi observationibus, Tabulas subsequentes cælo satis consonas obtinuimus. Addendo sc. motui annuo *Interioris*, 2^{gr.} 9'; *Penultimi* vero 3^o. 25' retentis Epochis D. Cassini ad Annum 1686. Augendo etiam motum annum *Extimi* 9 min. sublatis vero 16 grad. ab *Epocha*, quæ in Epistola dicta N^o 187. perperam scribitur \times 16^o. 19', pro \times 0^o. 16'. *Hugenianum* 6' annuatim tardiozem invenimus. *Tertii* autem Tabellas, ob motum diurnum falsò in Epistola illa traditum, de integro recudere necesse habuimus, retenta saltem *Epocha*.

Tabula

Tabula Mediorum Motuum Intimi Satellitis Saturni à Cassino detecti Anno 1686.

Annis Christi incunt	Epochæ			Annis	Mor. Med.			Diebus	Mor. Med.			H M	Mor. Med.			Morus Medi.			
	s	o	'		s	o	'		s	o	'		Sex. o	'	Min.		o	'	
1681	8	48		1	4	44	3	1	6	10	42	1	0	7	57	3	4	6	
1686	13	4		2	8	9	25	2	0	21	24	2	0	15	53	3	2	14	
1701	6	34		3	0	14	8	3	7	2	6	3	0	23	50	3	3	22	
1714	9	57		4	10	29	33	4	1	12	47	4	0	31	47	3	4	30	
1715	14	39		5	3	4	16	5	7	23	29	5	0	39	44	3	5	38	
1716	19	22		6	7	8	59	6	2	4	11	6	0	47	40	3	6	46	
1717	4	47		7	11	13	42	7	8	14	53	7	0	55	37	3	7	54	
1718	9	30		8	9	29	6	8	2	25	35	8	1	3	34	3	8	2	
1719	14	13		9	2	3	49	9	9	6	17	9	1	11	31	3	9	10	
1720	18	55		10	6	8	32	10	3	16	59	10	1	19	28	4	0	18	
Mens Anni Com.	Mor. Med.			11	10	13	15	11	9	27	41	11	1	27	24	4	1	26	
	s o '			12	8	28	40	12	4	8	22	12	1	35	21	4	2	34	
				13	1	3	23	13	10	19	4	13	1	43	18	4	3	42	
Jan.	0	0	0	14	5	8	5	14	4	29	46	14	1	51	15	4	4	50	
Febr.	5	1	38	15	9	12	48	15	11	10	28	15	1	59	11	4	5	58	
Mar.	3	1	10	16	7	28	13	16	5	21	10	16	2	7	8	4	6	5	
April	8	2	48	17	0	2	56	17	0	1	52	17	2	15	5	4	7	13	
Maii	6	23	44	18	4	7	39	18	6	12	34	18	2	23	1	4	8	21	
Junii	11	25	22	19	8	12	21	19	0	23	16	19	2	30	58	4	9	29	
Julii	10	16	19	20	6	27	46	20	7	3	57	20	2	38	55	5	0	37	
Aug.	3	17	57	40	1	25	32	21	1	14	39	21	2	46	52	5	1	45	
Sept.	8	19	35	60	8	23	19	22	7	25	21	22	2	54	49	5	2	53	
Octob	7	10	31	80	3	21	5	23	2	6	3	23	3	2	45	5	3	1	
Nov.	0	12	9	100	10	18	51	24	8	16	45	24	3	10	42	5	4	9	
Dec.	11	3	5	120	5	15	37	25	2	27	27	25	3	18	39	5	5	17	
								26	9	8	9	26	3	26	35	5	6	7	25
<i>In Anno Bissextili post Fe-</i>								27	3	18	50	27	3	34	32	5	7	33	
<i>bruarium adde unius diei</i>								28	9	29	32	28	3	42	28	5	8	41	
<i>motum.</i>								29	4	10	14	29	3	50	25	5	9	49	
								30	10	20	56	30	3	58	22	6	0	57	

*Tabula Mediorum Motuum Satellitis Saturni
Penintimi, à Cassino detecti Anno 1686.*

Annis Jul. incunt	Epochæ			Annis	Med. Mot.			Diebus	Med. Mot.			H Sex M	Mot. Med			Motus Medi.		
	s	o	,		s	o	,		s	o	,		o	o	o	o	o	o
1681	✕	3	23	1	4	10	2	1	4	11	32	1	0	5	29	31	2	50
1686	♄	5	25	2	8	20	4	2	8	23	4	2	0	10	58	32	2	56
1701	✕	22	3	3	1	0	6	3	1	4	36	3	0	16	26	33	3	1
1714	♄	7	5	4	9	21	40	4	5	16	8	4	0	21	55	34	3	7
1715	♄	17	7	5	2	1	42	5	9	27	40	5	0	27	24	35	3	12
1716	♄	27	9	6	6	11	44	6	2	9	12	6	0	32	53	36	3	17
1717	♄	18	43	7	10	21	46	7	6	20	44	7	0	38	22	37	3	23
1718	♄	28	45	8	7	13	20	8	11	2	16	8	0	43	51	38	3	28
1719	✕	8	47	9	11	23	22	9	3	13	49	9	0	49	19	39	3	34
1720	♄	18	49	10	4	3	24	10	7	25	21	10	0	54	48	40	3	40
Menf. An. Co	Med. Mar.			11	8	13	26	11	0	6	53	11	0	17	41	3	45	
	s o .			12	5	5	0	12	4	18	25	12	0	5	46	42	3	51
	s o .			13	9	15	2	13	8	29	57	13	0	11	15	43	3	56
Jan.	0 0 0			14	1	25	4	14	1	11	29	14	0	16	44	44	4	1
Febr.	3 27 34			15	6	5	6	15	5	23	1	15	0	22	13	45	4	7
Mar.	6 20 32			16	2	26	40	16	10	4	33	16	0	27	42	46	4	12
Apr.	10 18 6			17	7	6	42	17	2	16	5	17	0	33	11	47	4	17
Maii	10 4 7			18	11	16	44	18	6	27	37	18	0	38	39	48	4	23
Junii	2 1 41			19	3	26	46	19	11	9	9	19	0	44	8	49	4	28
Julii	1 17 43			20	0	18	20	20	3	20	41	20	0	49	37	50	4	34
Aug.	5 15 17			40	1	6	40	21	8	2	13	21	0	55	6	51	4	39
Sept.	9 12 51			60	1	25	0	22	0	13	45	22	0	0	35	52	4	45
Oct.	8 28 53			80	2	13	20	23	4	25	17	23	0	6	4	53	4	5
Nov.	0 26 27			100	3	1	4	24	9	6	49	24	0	11	32	54	4	56
Dec.	0 12 28			120	3	20	0	25	1	18	22	25	0	17	1	55	5	1
In Anno Biffextili post Februa- rium adde unius diei motum.								26	5	29	54	26	2	22	30	56	5	7
								27	10	11	26	27	2	27	59	57	5	12
								28	2	22	58	28	2	33	27	58	5	18
								29	7	4	30	29	2	38	56	59	5	23
								30	11	16	2	30	2	44	25	60	5	29

*Tabula Mediorum Motuum Satellitis
Saturni Medii, à Cassino detecti Anno 1671.*

Annis Julia. ineunt	Epocha			Annis	Med. Motus			Diebus	Med. Motus			H M	Med. Mot			Med. Mot:		
	s	o	.		s	o	.		s	o	.		o	.	o		.	M
1681	xx	12	16	1	9	17	2	1	2	19	41	1	o	3	19	31	1	43
1686	m	27	6	2	7	4	3	2	5	9	23	2	o	6	38	32	1	46
1701	ff	1	17	3	4	21	5	3	7	29	4	3	o	9	58	33	1	49
1714	ff	11	43	4	4	27	48	4	10	18	46	4	o	13	17	34	1	53
1715	g	28	45	5	2	14	50	5	1	8	27	5	o	16	36	35	1	56
1716	g	15	47	6	0	1	52	6	3	28	9	6	o	19	55	36	2	0
1717	g	22	30	7	9	18	53	7	6	17	50	7	o	23	15	37	2	3
1718	h	9	32	8	9	25	36	8	9	7	31	8	o	26	34	38	2	6
1719	h	26	34	9	7	12	38	9	11	27	13	9	o	29	53	39	2	10
1720	h	13	35	10	4	29	40	10	2	16	54	10	o	33	12	40	2	13
Menf. Anni Com.	Med. Motus			11	2	16	42	11	5	6	36	11	o	36	31	41	2	16
	s o .			12	2	23	25	12	7	26	17	12	o	39	51	42	2	19
				13	0	10	26	13	0	15	59	13	o	43	10	43	2	23
Jan. Febr.	o o o			14	9	27	28	14	1	5	40	14	o	46	29	44	2	26
	10 10 24			15	7	14	30	15	3	25	21	15	o	49	48	45	2	29
Mar.	o 21 44			16	7	21	13	16	6	15	3	16	o	53	8	46	2	33
Apr.	11 2 9			17	5	8	15	17	9	4	44	17	o	56	27	47	2	36
Maii	6 22 51			18	2	25	16	18	11	24	26	18	o	59	46	48	2	39
Jun.	5 3 16			19	0	12	18	19	2	14	7	19		3	5	49	2	43
Julii	o 23 58			20	0	19	1	20	5	3	49	20	1	6	24	50	2	46
Aug.	11 4 23			40	1	8	2	21	7	23	30	21	1	9	44	51	2	49
Sept.	9 14 47			60	1	27	4	22	10	13	11	22	1	13	3	52	2	53
Oct.	5 5 30			8	2	16	5	23	1	2	53	23	1	16	22	53	2	56
Nov	3 15 54			100	3	5	6	24	3	22	34	24	1	19	41	54	2	59
Dec.	11 6 37			120	3	24	7	25	6	12	16	25	1	23	1	55	3	3
<i>In Anno Bissextili post Februa- rium adde unius Diei motum</i>								26	9	1	57	26	1	26	20	56	3	0
								27	11	21	39	27	1	29	39	57	3	9
								28	2	11	20	28	1	32	58	58	3	13
								29	5	1	1	29	1	36	17	59	3	16
								30	7	20	43	30	1	39	36	60	3	19

Tabula Mediorum Motuum Penextimi Satellitis Saturni ab Hugenio inventi Anno 1655.

Annis Jul. incunt	Epocha			Annis	Med. Mot.			Diebus	Med. Mot.			No. Me.		Actus Anst.			
	s	o	.		s	o	.		s	o	.	M	N				
1641	♄	2	48	1	10	20	35	1	0	22	35	0	56	31	29	10	
1661	♄	13	23	2	9	11	10	2	1	15	9	1	53	32	30	6	
1681	♄	27	58	3	8	1	45	3	2	7	44	2	49	33	31	3	
1686	m	3	28	4	7	14	55	4	3	0	18	3	46	34	31	59	
1701	II	12	33	5	6	5	30	5	3	22	53	5	4	42	35	32	55
1714	♄	17	53	6	4	26	5	6	4	15	28	6	5	39	36	33	52
1715	♄	8	28	7	3	16	40	7	5	8	2	7	6	35	37	34	48
1716	♄	29	3	8	2	29	50	8	6	0	37	8	7	31	38	35	45
1717	♄	12	13	9	1	20	25	9	6	23	12	9	8	28	39	36	41
1718	m	2	48	10	0	11	0	10	7	15	46	10	9	24	40	37	38
1719	♄	23	23	11	11	1	35	11	8	8	21	11	10	21	41	38	34
1720	♄	13	58	12	10	14	45	12	9	0	55	12	11	17	42	39	31
1721	♄	27	8	13	9	5	20	13	9	23	30	13	12	14	43	40	27
Menf. An. Co	Med. Mot.			14	7	25	55	14	10	16	5	14	13	10	44	41	24
	s o .			15	6	16	30	15	11	8	39	15	14	7	45	42	20
Jan.	0	0	0	16	5	29	40	16	0	1	14	16	15	3	46	43	17
Febr.	11	9	54	17	4	20	15	17	0	23	48	17	16	0	47	44	13
Mar.	8	12	2	18	3	10	50	18	1	16	23	18	16	56	48	45	10
Apr.	7	21	55	19	2	1	25	19	2	8	58	19	17	52	49	46	6
Maii	6	9	14	20	1	14	35	20	3	1	32	20	18	49	50	47	3
Junii	5	19	7	40	2	29	10	21	3	24	7	21	19	45	51	47	59
Julii	4	6	26	60	4	13	45	22	4	16	42	22	20	42	52	48	56
Aug.	3	16	18	80	5	28	20	23	5	9	16	23	21	38	53	49	52
Sept.	2	26	12	100	7	12	55	24	6	1	51	24	22	35	54	50	49
Oct.	1	13	30	120	8	27	3	25	6	24	25	25	23	31	55	51	45
Nov.	0	23	24	140	10	12	5	26	7	17	0	26	24	27	56	52	42
Dec.	11	10	42	160	11	26	40	27	8	9	35	27	25	24	57	53	38
								28	9	2	9	28	26	20	58	54	35
								29	9	24	44	29	27	17	59	55	31
								30	10	17	18	30	28	13	60	56	27

*In Anno Biffextili poſt Februa-
rium adde unius diei motum.*

*Tabula Mediorum Motuum Satellitis Saturni
Extimi, à Cassino detecti Anno 1671.*

Annis Julia. ineunt	Epochæ			Annis	Med. Motus			Debus	Med. Motus			Mo. Me.		Med. Mor.			
	s	o	.		s	o	.		H	M	o	.	M		.	..	
1681	Υ	8	40	1	7	6	32	1	0	4	32	1	0	11	31	5	51
1686	Υ	15	50	2	2	13	3	2	0	9	5	2	0	23	32	6	3
1701	♄	11	53	3	9	19	35	3	0	13	37	3	0	34	33	6	14
1714	♄	20	20	4	5	0	39	4	0	18	9	4	0	45	34	6	25
1715	♄	26	52	5	0	7	10	5	0	22	42	5	0	57	35	6	37
1716	♄	3	23	6	7	13	42	6	0	27	14	6	1	8	36	6	48
1717	♄	14	27	7	2	20	13	7	1	1	46	7	1	19	37	7	0
1718	♄	20	58	8	10	1	17	8	1	6	18	8	1	31	38	7	11
1719	♄	27	30	9	5	7	49	9	1	10	51	9	1	42	39	7	22
1720	m	4	2	10	0	14	20	10	1	15	23	10	1	53	40	7	34
Mens. Anni Com.	Med. Motus			11	7	20	52	11	1	19	55	11	2	5	41	7	45
	s o .			12	3	1	56	12	1	24	28	12	2	16	42	7	56
				13	10	8	27	13	1	29	0	13	2	27	43	8	8
Fan. Febr.	0 0 0			14	5	14	59	14	2	3	32	14	2	39	44	8	19
	4 20 41			15	0	21	30	15	2	8	5	15	2	50	45	8	30
Mar.	8 27 46			16	8	2	34	16	2	12	37	16	3	1	46	8	42
Apr.	1 18 27			17	3	9	6	17	2	17	9	17	3	13	47	8	53
Maii	6 4 37			18	10	15	37	18	2	21	42	18	3	24	48	9	4
Jun.	10 25 18			19	5	22	9	19	2	26	14	19	3	35	49	9	16
Julii	3 11 27			20	1	3	13	20	3	0	46	20	3	47	50	9	27
Aug.	8 2 9			40	2	6	26	21	3	5	18	21	3	58	51	9	38
Sept.	0 22 50			60	3	9	38	22	3	9	51	22	4	9	52	9	50
Oct.	5 8 59			80	4	12	51	23	3	14	23	23	4	21	53	10	1
Nov.	9 29 41			100	5	16	4	24	3	18	55	24	4	32	54	10	12
Dec.	2 15 50			120	6	19	17	25	3	23	28	25	4	43	55	10	24
<i>In Anno Bissextili post Februa- rium adde unius Diei motum.</i>								26	3	28	0	26	4	55	56	10	35
								27	4	2	32	27	5	6	57	10	46
								28	4	7	5	28	5	17	58	10	58
								29	4	11	37	29	5	29	59	11	9
								30	4	16	9	30	5	40	60	11	21

Motibus mediis Satellitum ad hunc modum constitutis, proveniunt Revolutiones eorum jam veris proximæ, scilicet

	D	h	'	"
<i>Primi sive Intimi</i>	1.	21.	18.	26 $\frac{1}{2}$
<i>Secundi Penintimi</i>	2.	17.	41.	10 $\frac{1}{2}$
<i>Tertii sive Medii</i>	4.	12.	25.	10
<i>Quarti Hugeniiani</i>	15.	22.	41.	28
<i>Quinti sive Extimi</i>	79.	7.	46.	00

Posito autem, juxta regulam Naturæ (saltem in hoc nostro Systemate) universalem quæque tam in Jovialium ac Lunæ motibus, quam Planetarum Primariorum circa Solem, obtinet, Vires centrum Saturni petentes esse in duplicata ratione distantiarum reciprocè, ac proinde Cubos distantiarum à centro esse ut quadrata Temporum periodicorum; ex data distantia & periodo *Hugeniiani*, fiunt reliquorum distantia ut sequitur.

	Semidiam. Annuli	Semidiam. Globi $\frac{1}{2}$
<i>Dist. Primi</i>	1.9289	4,3400
<i>Secundi</i>	2.4708	5,5593
<i>Tertii</i>	3.4508	7,7643
<i>Quarti</i>	8.0000	18,0000
<i>Quinti</i>	23.3146	52,4578

Quæ quidem distantia cum D. *Cassini* observatis satis quadrant. Quatuor autem interiores Satellites juxta planum Annuli Saturni orbitas suas describunt proximè; in plano, sc. Æquatoris nostri plano quoad sensum parallelo, quicquid in contrarium proferant nonnulli. Quintum vero orbem situ paulo diversum à cæteris describere, nuper apprehendit D. *Jac. Cassinus* prioris filius & virtutum hæres, ut videre est in Actis Academiae Scientiarum *Parisiensis* Anni 1714. Sed hæc autem omnia propriis oculis contemplari, atque penitus introspicere jam ipsi accingimur.