

Alte Drucke

**EPHEMERIDES || COELESTIVM || MOTVVM || IO. ANTONII
MAGINI || PATAVINI, AD ANNOS XL. || Ab anno Domini
1581. vsque ad annum 1620. secundum Copernici ...**

Magini, Giovanni Antonio

Venetiis, 1582

IOANNIS ANTONII MAGINI PATAVINI ISAGOGICARVM TRACTATVS TERIVS De
Reuolutionibus, seu annuis reuersionibus.

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IOANNIS ANTONII MAGINI PATAVINI

ISAGOGICARVM

TRACTATVS TERTIVS

De Revolutionibus, seu annuis reuersionibus.



REVOLVTIO, seu annua conuersio est reditus Solis ad eundem punctum, quem tempore alicuius initij siue natiuitatis, siue alterius rei occupauerat. Etsi autem permulti ad tale temporis momentum inueniendum, quo annuus reditus præcisè accidit, laborauerunt: tamen hucusq; certū modum, qui maximo errori non sit obnoxius, nemo adinuenire potuit. Nos autē trade-

mus faciliorem modum, ceterisq; certiorē ex vigesimo tertio Prutenicarum præcepto deductum, qui talis est. Ad datum tempus illius initij, siue natiuitatis, aut alterius rei habeas verum Solis locum in gradibus, scrupulis, & secundis per tabulas Prutenicas, aut alias ex Prutenicis resolutas exactissimè suppuratam, similiter inquiras verum Solis locum ad meridiem consimilis diei illius principij in anno, cuius reuolutionem optas, & alterum ab altero subducendo, constabit quantum Sol à loco radices, siue retro, siue post absit, si igitur meridiano tempore diei reuolutionis locus Solis radices locum excedit, tempus annuæ conuersionis meridiem antecedit, sed si minimè locum radices superat, tempus subsequitur, seu accidit post meridiem, sed ad hoc tempus inueniendum habeas motum Solis diurnum per 18. Prutenicarum præceptum, & per 19. horarium motum Solis, inde differentiam per subtractionem supra inuentam diuide per motum Solis horarium, sic enim defines temporis momentum, quo fit annua Solis conuersio, siue ante, siue post meridiem. Verum ad hunc laboriosum modum fugiendum, non solum motum Solis in gradibus, scrupulis, & secundis

dis in nostris Ephemeridibus exactissimè conscripsimus, verum tabulam etiam exquisitissimam ad tempus reuolutionis faciliter, & absq; labore inueniendam cōpilauimus. Igitur si ex nostris Ephemeridibus verū tempus reuolutionis inquirere vis, tali pacto operaberis. Primo oportet vt motum Solis ex tabulis supradictis ad datum radices principium saltem supputatum in gradibus, scrupulis, & secundis habeas, quia error vnius primi scrupuli in motu Solis, 24. scrupulorum temporis ferè semper errorem parit, postea quæras in Ephemeridibus locum Solis proximè minorem radices, & hoc ad annum, cuius reuolutio desideras, & subtrahendo locum Solis radices à loco ☉ ad diem reuolutionis in Ephemeridibus reperto, illico tibi constabit superatio, seu differentia, deinde subtrahere locum Solis diei reuolutionis à loco diei subsequētis, vt inde ☉ diurnus motus exeat, postremo inuenias motum Solis diurnum in fronte tabulæ Reuolutionis infra scriptæ, & à latere minuta, & scrupula differentia, & in angulo communi habebis horas reuolutionis quæsitæ, hoc tamen aduertendum est, q̄ quando minuta à latere præcisè non inueniuntur, duplex fit lateralis ingressus, primo inueniendo maiorem numerum, postea residuum, similiter fit cum secundis, quæ omnia in angulo communi comperta reponenda sunt sub suis congruis denominationibus, & simul coaceruanda. Insuper quando in fronte tabulæ præcisè motus diurnus non inuenitur, vtendum est parte proportionali, cum tabula singulis duobus secundis procedat. Denum obseruabis, vt in reuolutionibus locus Solis radices absq; æquatione dierum naturalium sit supputatus. Verum his duobus exemplis res penitus plana fiet.

Primum Exemplum.

SIT erigenda annua Solis conuersio primæ natiuitatis suppositæ, quæ fuit Serenissimi Venetiarum Ducis ad annum Domini 1582. Primo supra inuentus fuit locus Solis ad momentum genituræ in gr. 4. 18. 54. $\approx$, & hoc diebus æqualibus. Ingredior itaque Ephemerim ad annum Domini 1582. & mihi die 14. Ianuarij offertur locus ☉ proximè loco radices minor, nempe gr. 3. 50. 11. hunc autem deduco à loco radices, sic, vt inde differentia amborum exeat.

locus

4	18	54	locus Solis radices.
3	50	11	locus Solis ad diem reuolutionis.
0	28	43	differentia.

Deinde subtrahendo locum Solis diei reuolutionis à loco diei subsequentis, inuenio motum Solis diurnum, vt hic apparet.

4	51	6	locus Solis ad diem 15.
3	50	11	locus Solis ad diem 14.
1	0	55	motus Solis diurnus.

Hunc itaq; motum diurnum Solis inquiero in superiori parte tabulæ reuolutionis: sed quoniam minimè exactè mihi offertur, ideo capio proximè minorem, videlicet gr. 1.0'.54". & à latere ingrediendo cum scrupulis, & secundis differentiæ supra inuentæ, colligo in area tabulæ tempus reuolutionis, prout infra vides.

H.	1	11	111	
7	52	54	0	cum 20. scrupulis
3	9	10	0	cum 8. scrupulis
0	15	45	49	cum 40. secundis
0	1	10	56	cum 3. secundis

} Differentiæ.

11 19 0 45 Tempus reuolutionis quæsitæ.

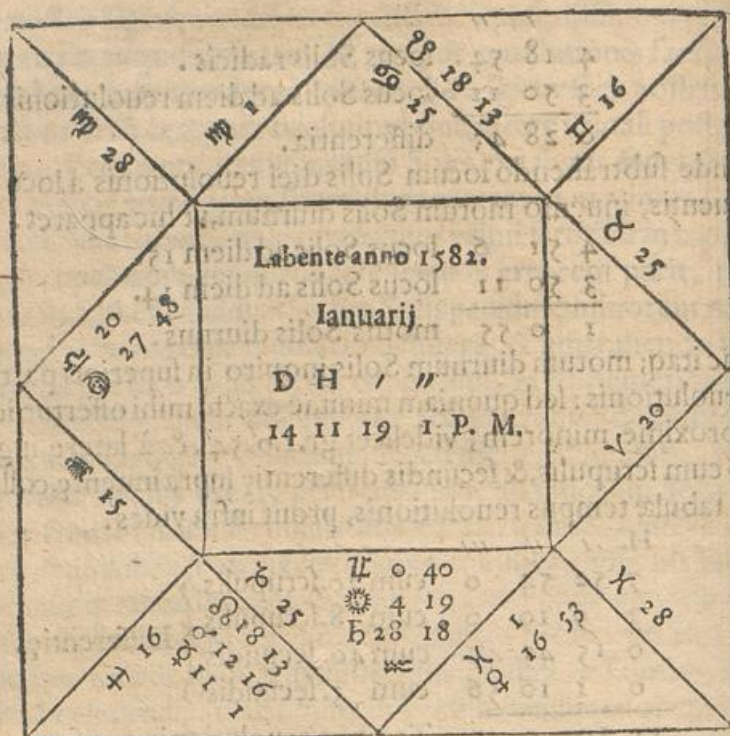
Sed si aliquando scrupulosè hæc operare volueris, ingredi te rum reuolutionis tabulam cum motu Solis diurno proximè maiori, qui est gr. 1.0'.56". eliciasq; hoc modo tempus.

7	52	39	0	cum 20. scrupulis integris.
3	9	4	0	cum 8. residuis scrupulis.
15	45	18		cum 40. secundis integris.
1	10	54		cum 3. reliquis secundis.

11 18 39 12 summa omnium.

Differentia igitur à priori tempore inuento est sec. 22. pro quibus adhibita parte proportionali, exactū tempus erit H. 11.18'.50". & ad hoc demum tempus reuolutionis computanda sunt planetarum loca iuxta 8. capituli doctrinam, & iuxta 10. construenda est celestis figura, quæ sicut infra se habet.

Sequitur figura Reuolutionis primæ genitura.



Iuxta tabulam quantitatis anni à Stadio in suis Ephemeridibus positam eadem reuolutio si quærat, accidet H.9.32'.53". quia cum hæc sit 90. reuolutio, in tabula Stadij respondet tempus H.4.53'.56". addendum tempori natiuitatis. Quanta autem sit inter vtrunq; modum differentia, vident studiosi, cum minus quadrante horæ reuolutio ex Stadiana tabella antecedit, nec vlli esse dubium debet, anni tropici quantitatem non eandem in diuersis Zodiaci locis respondere, quemadmodum etiam nec singulorum annorum quantitas annua inter se conuenit, sed de his alio loco differemus, utq; studiosos nostris conatibus adiuuemus, tabulam nostram ingressus Solis in singula dodecatemoria, seu Zodiaci signa ad multos annos, tum ante, tum retro, prope diem & absolue- mus & eis cōmunicabimus, siquidem ex ipsa reuolutionum tem- pora faciliter, citraq; laborem haberi poterunt. Sciant tamen mo- dum nunc à nobis traditum cæteris certiorē esse, cum ut recte Erasmus Reinoldus in 23. Prutenicarum præcepto dicit, ad eum ceteri omnes modi, sicut ad lydium lapidem, examinari possint.

Secundum

Secundum Exemplum.

Construenda sit similiter secundæ genituræ reuolutio, quæ est Illustris Comitis Antonij Insulani, ad annum Domini 1614. quæ erit 76. supra igitur locus Solis tempore natiuitatis est in gr. 17. 40. 57. Ω , quate ingredior Ephemerim dicti anni 1614. & mihi die 10. Augusti anni Gregoriani, qui congruit cum die ultimo Iulij iuxta anni veteris rationem, offertur Solis locus proximè loco genituræ minor in gr. 17. 11. 40. qui à loco radicis subducendus est, vt differentia eorum nota sit.

17	40	57	locus Solis radijs.
17	11	40	locus Solis diei reuolutionis.
0	29	17	differentia.

Postea motum diurnum Solis tempore reuolutionis inuenio iuxta supradictum modum, vt hic apparet.

18	9	21	locus Solis ad diem 11.
17	11	40	locus Solis ad diem 10.
0	57	41	motus Solis diurnus.

Deinde hunc motum Solis diurnum quero in tabula reuolutionum; verum cū hic præcisè in tabula haud appareat, ideo absq; errore capi, seu proximè minor, seu proximè maior potest, itaque tempus sub columna motus Solis proximè minoris acceptus, qui est gr. 0. 57. 40. ex laterali ingressu cum scrupulis, & secundis differentia tale erit.

H.	1	11	111	
8	19	25	0	cum 20. scrupulis
3	44	44	0	cum 9. scrupulis
0	4	9	43	cum 10. secundis
0	2	54	48	cum 7. secundis

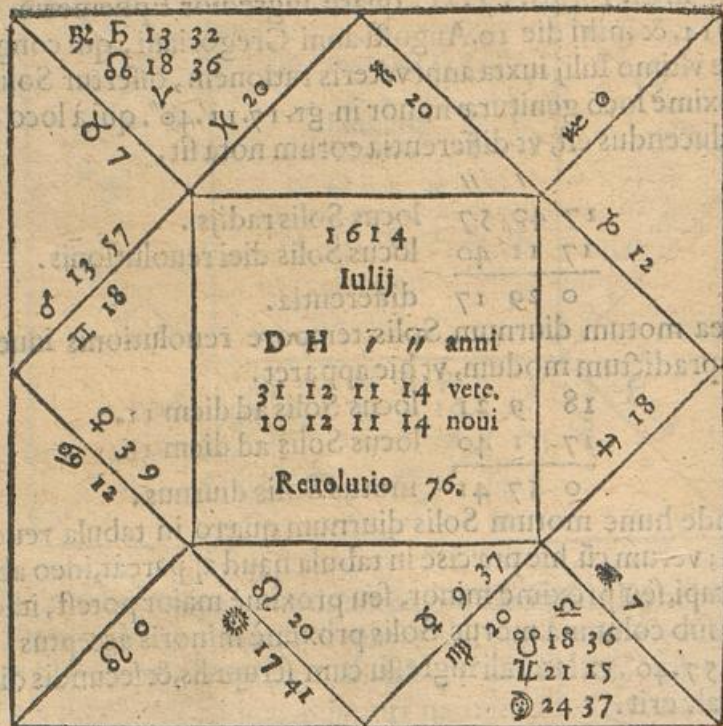
} Differentia.

12 11 13 31 Tempus reuolutionis.

Tempus igitur annuæ reuolutionis 76. secundæ genesis accidet H. 12. 11. 14. quàmuis secundum Stadium hora vna & dimidia ferè sit posterior, vt ex eius tabula excerpti potest.

Postremo ad hoc tempus supputanda sunt planetarum loca, & construendum est celeste schema, quemadmodum apparet infra.

Sequitur Figura Reuolutionis secundæ genitura.



Sequitur Tabula Reuolutionum iuxta motum
Solis diurnum computata.

Tabula Revolutionum:

Motus diurnus.

Diff.	0 57' 16"	0 57' 18"	0 57' 20"	0 57' 22"	0 57' 24"	0 57' 26"
1 ^{er}	H / /	H / /	H / /	H / /	H / /	H / /
2 ^{ec}	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 25 9	0 25 8	0 25 7	0 25 6	0 25 5	0 25 4
2	0 50 17	0 50 16	0 50 14	0 50 12	0 50 10	0 50 9
3	1 15 26	1 15 24	1 15 21	1 15 18	1 15 16	1 15 13
4	1 40 35	1 40 31	1 40 28	1 40 24	1 40 21	1 40 17
5	2 5 44	2 5 39	2 5 35	2 5 30	2 5 26	2 5 22
6	2 30 52	2 30 47	2 30 42	2 30 37	2 30 31	2 30 26
7	2 56 1	2 55 55	2 55 49	2 55 43	2 55 37	2 55 30
8	3 21 10	3 21 3	3 20 56	3 20 49	3 20 42	3 20 35
9	3 46 19	3 46 11	3 46 3	3 45 55	3 45 47	3 45 39
10	4 11 27	4 11 19	4 11 10	4 11 1	4 10 52	4 10 44
20	8 22 55	8 22 37	8 22 20	8 22 2	8 21 45	8 21 27
30	12 34 21	12 34 56	12 33 29	12 33 3	12 32 37	12 32 11
40	16 45 49	16 45 14	16 44 39	16 44 4	16 43 29	16 42 54
50	20 57 17	20 56 33	20 55 49	20 55 5	20 54 21	20 53 38
60	25 8 44	25 7 51	25 6 59	25 6 6	25 5 14	25 4 21

Motus diurnus.

Diff.	0 57' 28"	0 57' 30"	0 57' 32"	0 57' 34"	0 57' 36"	0 57' 38"
1 ^{er}	H / /	H / /	H / /	H / /	H / /	H / /
2 ^{ec}	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 25 3	0 25 3	0 25 2	0 25 1	0 25 0	0 24 59
2	0 50 7	0 50 5	0 50 3	0 50 2	0 50 0	0 49 58
3	1 15 10	1 15 8	1 15 5	1 15 3	1 15 0	1 14 57
4	1 40 14	1 40 10	1 40 7	1 40 3	1 40 0	1 39 57
5	2 5 17	2 5 13	2 5 9	2 5 4	2 5 0	2 4 56
6	2 30 21	2 30 16	2 30 10	2 30 5	2 30 0	2 29 55
7	2 55 24	2 55 18	2 55 12	2 55 6	2 55 0	2 54 54
8	3 20 28	3 20 21	3 20 14	3 20 7	3 20 0	3 19 53
9	3 45 31	3 45 23	3 45 16	3 45 8	3 45 0	3 44 52
10	4 10 35	4 10 26	4 10 17	4 30 9	4 10 0	4 9 51
20	8 21 10	8 20 52	8 20 35	8 20 17	8 20 0	8 19 43
30	12 31 44	12 31 18	12 30 52	12 30 26	12 30 0	12 29 34
40	16 42 19	16 41 44	16 41 10	16 40 35	16 40 0	16 39 25
50	20 52 54	20 52 10	20 51 27	20 50 43	20 50 0	20 49 17
60	25 3 29	25 2 37	25 1 44	25 0 52	25 0 0	24 59 8

Motus

Motus diurnus.

Differ.	0 57' 40"	0 57' 42"	0 57' 44"	0 57' 46"	0 57' 48"	0 57' 50"
scr.	H / /	H / /	H / /	H / /	H / /	H / /
sec.	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 24 58	0 24 57	0 24 57	0 24 56	0 24 55	0 24 54
2	0 49 57	0 49 55	0 49 53	0 49 51	0 49 50	0 49 48
3	1 14 55	1 14 52	1 14 50	1 14 47	1 14 44	1 14 42
4	1 39 53	1 39 50	1 39 46	1 39 43	1 39 39	1 39 36
5	2 4 51	2 4 47	2 4 43	2 4 38	2 4 34	2 4 30
6	2 29 50	2 29 44	2 29 39	2 29 34	2 29 29	2 29 24
7	2 54 48	2 54 42	2 54 36	2 54 30	2 54 24	2 54 18
8	3 19 46	3 19 39	3 19 32	3 19 25	3 19 18	3 19 12
9	3 44 44	3 44 37	3 44 29	3 44 21	3 44 13	3 44 6
10	4 9 43	4 9 34	4 9 25	4 9 17	4 9 8	4 8 59
20	8 19 25	8 19 8	8 18 51	8 18 33	8 18 16	8 17 59
30	12 29 8	12 28 42	12 28 16	12 27 50	12 27 24	12 26 58
40	16 38 51	16 38 16	16 37 41	16 37 7	16 36 32	16 35 58
50	20 48 33	20 47 50	20 47 7	20 46 24	20 45 40	20 44 57
60	24 58 16	24 57 24	24 56 23	24 55 50	24 54 49	24 53 57

Motus diurnus.

Differ.	0 57' 52"	0 57' 54"	0 57' 56"	0 57' 58"	0 58' 0"	0 58' 2"
scr.	H / /	H / /	H / /	H / /	H / /	H / /
sec.	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 24 53	0 24 52	0 24 51	0 24 51	0 24 50	0 24 49
2	0 49 46	0 49 44	0 49 43	0 49 41	0 49 39	0 49 38
3	1 14 39	1 14 37	1 14 34	1 14 32	1 14 29	1 14 26
4	1 39 32	1 39 29	1 39 25	1 39 22	1 39 19	1 39 15
5	2 4 25	2 4 21	2 4 17	2 4 13	2 4 8	2 4 4
6	2 29 19	2 29 13	2 29 8	2 29 3	2 28 58	2 28 53
7	2 54 12	2 54 6	2 54 0	2 53 54	2 53 48	2 53 42
8	3 19 5	3 18 58	3 18 51	3 18 44	3 18 37	3 18 30
9	3 43 58	3 43 50	3 43 42	3 43 35	3 43 27	3 43 19
10	4 8 51	4 8 42	4 8 34	4 8 25	4 8 17	4 8 8
20	8 17 42	8 17 25	8 17 7	8 16 50	8 16 33	8 16 16
30	12 26 33	12 26 7	12 25 41	12 25 15	12 24 50	12 24 24
40	16 35 23	16 34 49	16 34 15	16 33 40	16 33 6	16 32 32
50	20 44 14	20 43 37	20 42 48	20 42 6	20 41 23	20 40 40
60	24 53 5	24 52 14	24 51 22	24 50 31	24 49 39	24 48 48

Tabula Revolutionum.

Motus diurnus.

Differ.	0 58' 4"	0 58' 6"	0 58' 8"	0 58' 10"	0 58' 12"	0 58' 14"
1	0 24 48	0 24 47	0 24 46	0 24 45	0 24 45	0 24 44
2	0 49 36	0 49 34	0 49 32	0 49 31	0 49 29	0 49 27
3	1 14 24	1 14 21	1 14 19	1 14 16	1 14 14	1 14 11
4	1 39 12	1 39 8	1 39 5	1 39 2	1 38 58	1 38 55
5	2 4 0	2 3 55	2 3 51	2 3 47	2 3 43	2 3 38
6	2 28 48	2 28 43	2 28 37	2 28 32	2 28 27	2 28 22
7	2 53 36	2 53 30	2 53 24	2 53 18	2 53 12	2 53 6
8	3 18 24	3 18 17	3 18 10	3 18 3	3 17 56	3 17 49
9	3 43 11	3 43 4	3 42 56	3 42 48	3 42 41	3 42 33
10	4 7 59	4 7 51	4 7 42	4 7 34	4 7 25	4 7 17
20	8 15 59	8 15 42	8 15 25	8 15 8	8 14 5	8 14 34
30	12 23 58	12 23 33	12 23 7	12 22 42	12 22 16	12 21 51
40	16 31 58	16 31 24	16 30 50	16 30 15	16 29 41	16 29 7
50	20 39 57	20 39 15	20 38 32	20 37 49	20 37 7	20 36 24
60	24 47 57	24 47 5	24 46 14	24 45 23	24 44 32	24 43 41

Motus diurnus.

Differ.	0 58' 16"	0 58' 18"	0 58' 20"	0 58' 22"	0 58' 24"	0 58' 26"
1	0 24 43	0 24 42	0 24 41	0 24 40	0 24 39	0 24 39
2	0 49 26	0 49 24	0 49 22	0 49 21	0 49 19	0 49 17
3	1 14 9	1 14 6	1 14 3	1 14 1	1 13 58	1 13 56
4	1 38 51	1 38 48	1 38 45	1 38 41	1 38 38	1 38 34
5	2 3 34	2 3 30	2 3 26	2 3 21	2 3 17	2 3 13
6	2 28 17	2 28 12	2 28 7	2 28 2	2 27 57	2 27 52
7	2 53 0	2 52 54	2 52 48	2 52 42	2 52 36	2 52 30
8	3 17 43	3 17 36	3 17 29	3 17 22	3 17 16	3 17 9
9	3 42 26	3 42 18	3 42 10	3 42 3	3 41 55	3 41 47
10	4 7 8	4 7 0	4 6 51	4 6 43	4 6 35	4 6 26
20	8 14 17	8 14 0	8 13 43	8 13 26	8 13 9	8 12 52
30	12 21 25	12 21 0	12 20 34	12 20 9	12 19 44	12 19 18
40	16 28 33	16 28 0	16 27 26	16 26 52	16 26 18	16 25 44
50	20 35 42	20 35 0	20 34 17	20 33 35	20 32 53	20 32 10
60	24 43 50	24 41 59	24 41 9	24 40 18	24 39 27	24 38 36

V Motus

ISAGOGICARVM

Tabula Reuolutionum :

Motus diurnus.

Differ.	0 58' 28"	0 58' 30"	0 58' 32"	0 58' 34"	0 58' 36"	0 58' 38"
scr.	H / "	H / "	H / "	H / "	H / "	H / "
sec.	/ " "	/ " "	/ " "	/ " "	/ " "	/ " "
1	0 24 37	0 24 36	0 24 36	0 24 35	0 24 34	0 24 33
2	0 49 15	0 49 13	0 49 12	0 49 10	0 49 8	0 49 7
3	1 13 53	1 13 50	1 13 48	1 13 45	1 13 43	1 13 40
4	1 38 31	1 38 27	1 38 24	1 38 20	1 38 17	1 38 14
5	2 3 8	2 3 4	2 3 0	2 2 56	2 2 52	2 2 47
6	2 27 46	2 27 41	2 27 36	2 27 31	2 27 26	2 27 21
7	2 52 24	2 52 18	2 52 12	2 52 6	2 52 0	2 51 54
8	3 17 2	3 16 55	3 16 48	3 16 41	3 16 35	3 16 28
9	3 41 39	3 41 32	3 41 24	3 41 17	3 41 9	3 41 2
10	4 6 17	4 6 9	4 6 0	4 5 52	4 5 44	4 5 35
20	8 12 35	8 12 18	8 12 1	8 11 44	8 11 28	8 11 11
30	12 18 52	12 18 27	12 18 2	12 17 37	12 17 12	12 16 46
40	16 25 10	16 24 36	16 24 3	16 23 29	16 22 56	16 22 22
50	20 31 28	20 30 46	20 30 4	20 29 22	20 28 40	20 27 58
60	24 37 45	24 36 55	24 36 4	24 35 14	24 34 24	24 33 33

Motus diurnus.

Differ.	0 58' 40"	0 58' 42"	0 58' 44"	0 58' 46"	0 58' 48"	0 58' 50"
scr.	H / "	H / "	H / "	H / "	H / "	H / "
sec.	/ " "	/ " "	/ " "	/ " "	/ " "	/ " "
1	0 24 32	0 24 31	0 24 31	0 24 30	0 24 29	0 24 28
2	0 49 5	0 49 3	0 49 2	0 49 0	0 48 58	0 48 57
3	1 13 38	1 13 35	1 13 33	1 13 30	1 13 28	1 13 25
4	1 38 10	1 38 7	1 38 4	1 38 0	1 37 57	1 37 54
5	2 2 43	2 2 39	2 2 35	2 2 31	2 2 26	2 2 22
6	2 27 16	2 27 11	2 27 6	2 27 1	2 26 56	2 26 51
7	2 51 49	2 51 43	2 51 37	2 51 31	2 51 25	2 51 19
8	3 16 21	3 16 15	3 16 8	3 16 1	3 15 55	3 15 48
9	3 40 54	3 40 47	3 40 39	3 40 31	3 40 24	3 40 17
10	4 5 27	4 5 18	4 5 10	4 5 2	4 4 53	4 4 45
20	8 10 54	8 10 37	8 10 21	8 10 4	8 9 47	8 9 31
30	12 16 21	12 15 56	12 15 31	12 15 6	12 14 41	12 14 16
40	16 21 49	16 21 15	16 20 42	16 20 8	16 19 35	16 19 2
50	20 27 16	20 26 34	20 25 52	20 25 11	20 24 29	20 23 47
60	24 32 33	24 31 53	24 31 3	24 30 13	24 29 23	24 28 33

MOMI

Tabula Revolutionum:

Motus diurnus.

Differ.	0 58' 52"	0 58' 54"	0 58' 56"	0 58' 58"	0 59' 0"	0 59' 2"
Sec.	H / / /	H / / /	H / / /	H / / /	H / / /	H / / /
1	0 24 27	0 24 26	0 24 26	0 24 25	0 24 24	0 24 23
2	0 48 55	0 48 53	0 48 52	0 48 50	0 48 48	0 48 47
3	1 13 23	1 13 20	1 13 18	1 13 15	1 13 13	1 13 10
4	1 37 50	1 37 47	1 37 44	1 37 40	1 37 37	1 37 34
5	2 2 18	2 2 14	2 2 10	2 2 6	2 2 2	2 1 57
6	2 26 46	2 26 41	2 26 36	2 26 31	2 26 26	2 26 21
7	2 51 14	2 51 8	2 51 2	2 50 56	2 50 50	2 50 45
8	3 15 41	3 15 35	3 15 28	3 15 21	3 15 15	3 15 8
9	3 40 9	3 40 2	3 39 54	3 39 47	3 39 39	3 39 32
10	4 4 37	4 4 28	4 4 20	4 4 12	4 4 4	4 3 55
20	8 9 14	8 8 57	8 8 41	8 8 24	8 8 8	8 7 51
30	12 13 51	12 13 26	12 13 1	12 12 37	12 12 12	12 11 47
40	16 18 28	16 17 55	16 17 22	16 16 49	16 16 16	16 15 43
50	20 23 6	20 22 24	20 21 43	20 21 1	20 20 20	20 19 39
60	24 27 43	24 26 53	24 26 3	24 25 14	24 24 24	24 23 34

Motus diurnus.

Differ.	0 59' 4"	0 59' 6"	0 59' 8"	0 59' 10"	0 59' 12"	0 59' 14"
Sec.	H / / /	H / / /	H / / /	H / / /	H / / /	H / / /
1	0 24 22	0 24 21	0 24 21	0 24 20	0 24 19	0 24 18
2	0 48 45	0 48 43	0 48 42	0 48 40	0 48 38	0 48 37
3	1 13 8	1 13 5	1 13 3	1 13 0	1 12 58	1 12 55
4	1 37 31	1 37 27	1 37 24	1 37 21	1 37 17	1 37 14
5	2 1 53	2 1 49	2 1 45	2 1 41	2 1 37	2 1 33
6	2 26 16	2 26 11	2 26 6	2 26 1	2 25 56	2 25 51
7	2 50 39	2 50 33	2 50 27	2 50 21	2 50 16	2 50 10
8	3 15 2	3 14 55	3 14 48	3 14 43	3 14 35	3 14 29
9	3 39 24	3 39 17	3 39 9	3 39 2	3 38 55	3 38 47
10	4 3 47	4 3 39	4 3 31	4 3 23	4 3 14	4 3 6
20	8 7 35	8 7 18	8 7 2	8 6 45	8 6 29	8 6 12
30	12 11 22	12 10 57	12 10 33	12 10 8	12 9 43	12 9 19
40	16 15 10	16 14 37	16 14 4	16 13 31	16 12 58	16 12 25
50	20 18 57	20 18 16	20 17 35	20 16 54	20 16 12	20 15 31
60	24 22 45	24 21 55	24 21 6	24 20 16	24 19 27	24 18 38

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Tabula Revolutionum:

Motus diurnus.

Differ.	0 59' 16"	0 59' 18"	0 59' 20"	0 59' 22"	0 59' 24"	0 59' 26"
sec.	H / /	H / /	H / /	H / /	H / /	H / /
1	0 24 18	0 24 17	0 24 16	0 24 15	0 24 15	0 24 14
2	0 48 36	0 48 34	0 48 32	0 48 31	0 48 29	0 48 27
3	1 12 53	1 12 51	1 12 49	1 12 46	1 12 44	1 12 41
4	1 37 11	1 37 8	1 37 5	1 37 1	1 36 58	1 36 55
5	2 1 29	2 1 25	2 1 21	2 1 17	2 1 13	2 1 9
6	2 25 47	2 25 42	2 25 37	2 25 32	2 25 27	2 25 22
7	2 50 5	2 49 55	2 49 53	2 49 48	2 49 42	2 49 36
8	3 14 23	3 14 16	3 14 9	3 14 3	3 13 56	3 13 50
9	3 38 40	3 38 33	3 38 26	3 38 18	3 38 11	3 38 4
10	4 2 58	4 2 50	4 2 42	4 2 34	4 2 25	4 2 17
20	8 5 56	8 5 40	8 5 24	8 5 7	8 4 51	8 4 35
30	12 8 55	12 8 30	12 8 5	12 7 41	12 7 16	12 6 52
40	16 11 53	16 11 20	16 11 47	16 10 14	16 9 42	16 9 9
50	20 14 51	20 14 10	20 14 29	20 12 48	20 12 7	20 11 26
60	24 17 49	24 17 0	24 16 11	24 15 22	24 14 33	24 13 44

Motus diurnus.

Differ.	0 59' 28"	0 59' 30"	0 59' 32"	0 59' 34"	0 59' 36"	0 59' 38"
sec.	H / /	H / /	H / /	H / /	H / /	H / /
1	0 24 13	0 24 12	0 24 11	0 24 10	0 24 10	0 24 9
2	0 48 26	0 48 24	0 48 23	0 48 21	0 48 19	0 48 18
3	1 12 39	1 12 36	1 12 34	1 12 31	1 12 29	1 12 27
4	1 36 52	1 36 48	1 36 45	1 36 42	1 36 39	1 36 35
5	2 1 5	2 1 0	2 0 56	2 0 52	2 0 48	2 0 44
6	2 25 17	2 25 13	2 25 8	2 25 3	2 24 58	2 24 53
7	2 49 30	2 49 25	2 49 19	2 49 13	2 49 8	2 49 2
8	3 13 43	3 13 37	3 13 30	3 13 26	3 13 17	3 13 11
9	3 37 56	3 37 49	3 37 42	3 37 34	3 37 27	3 37 20
10	4 2 9	4 3 1	4 1 53	4 1 45	4 1 37	4 1 29
20	8 4 18	8 4 2	8 3 46	8 3 30	8 3 13	8 2 57
30	12 6 27	12 6 3	12 5 39	12 5 14	12 4 50	12 4 26
40	16 8 37	16 8 4	16 7 32	16 6 59	16 6 27	16 5 54
50	20 10 46	20 10 5	20 9 24	20 8 44	20 8 3	20 7 23
60	24 12 55	24 12 6	24 11 17	24 10 29	24 9 40	24 8 51

Motus

Tabula Revolutionum:

Motus diurnus.

Differ.	0 59' 40"	0 59' 42"	0 59' 44"	0 59' 46"	0 59' 48"	0 59' 50"
Gr.	H / /	H / /	H / /	H / /	H / /	H / /
Sec.	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 24 8	0 24 7	0 24 6	0 24 6	0 24 5	0 24
2	0 48 16	0 48 14	0 48 13	0 48 11	0 48 10	0 48
3	1 12 24	1 12 22	1 12 19	1 12 17	1 12 14	1 12 1
4	1 36 32	1 36 29	1 36 26	1 36 22	1 36 19	1 36 1
5	2 0 40	2 0 38	2 0 32	2 0 28	2 0 24	2 0 2
6	2 24 48	2 24 43	2 24 39	2 24 34	2 24 29	2 24 2
7	2 48 56	2 48 51	2 48 45	2 48 39	2 48 34	2 48 28
8	3 13 4	3 12 58	3 12 51	3 12 45	3 12 39	3 12 32
9	3 37 12	3 37 5	3 36 58	3 36 51	3 36 43	3 36 36
10	4 1 20	4 1 12	4 1 4	4 0 56	4 0 48	4 0 40
20	8 2 41	8 2 23	8 2 9	8 1 52	8 1 36	8 1 20
30	12 4 1	12 3 37	12 3 13	12 2 49	12 2 24	12 2 0
40	16 5 22	16 4 49	16 4 17	16 3 45	16 3 13	16 2 40
50	20 6 42	20 6 2	20 5 21	20 4 41	20 4 1	20 3 21
60	24 8 3	24 7 14	24 6 26	24 5 37	24 4 49	24 4 1

Motus diurnus.

Differ.	0 59' 52"	0 59' 54"	0 59' 56"	0 59' 58"	1 0' 0"	1 0' 2"
Gr.	H / /	H / /	H / /	H / /	H / /	H / /
Sec.	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 24 3	0 24 2	0 24 2	0 24 1	0 24 0	0 23 59
2	0 48 6	0 48 5	0 48 3	0 48 2	0 48 0	0 47 58
3	1 12 10	1 12 7	1 12 5	1 12 2	1 12 0	1 11 58
4	1 36 13	1 36 10	1 36 6	1 36 3	1 36 0	1 35 57
5	2 0 16	2 0 12	2 0 8	2 0 4	2 0 0	1 59 56
6	2 24 19	2 24 14	2 24 10	2 24 5	2 24 0	2 23 55
7	2 48 22	2 48 17	2 48 11	2 48 6	2 48 0	2 47 54
8	3 12 26	3 12 19	3 12 13	3 12 6	3 12 0	3 11 54
9	3 36 29	3 36 22	3 36 14	3 36 7	3 36 0	3 35 53
10	4 0 32	4 0 24	4 0 16	4 0 8	4 0 0	3 59 52
20	8 1 4	8 0 48	8 0 32	8 0 16	8 0 0	7 59 44
30	12 1 36	12 1 12	12 0 48	12 0 24	12 0 0	11 59 36
40	16 2 8	16 1 36	16 1 4	16 0 32	16 0 0	15 59 28
50	20 2 40	20 2 0	20 1 20	20 0 40	20 0 0	19 59 20
60	24 3 12	24 2 24	24 1 36	24 0 48	24 0 0	23 9 12

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Tabula Revolutionum:

Motus diurnus.

Differ.	1 0' 4"	1 0' 6"	1 0' 8"	1 0' 10"	1 0' 12"	1 0' 14"
scr.	H / //	H / //	H / //	H / //	H / //	H / //
sec.	/ // ///	/ // ///	/ // ///	/ // ///	/ // ///	/ // ///
1	0 23 58	0 23 58	0 23 57	0 23 56	0 23 55	0 23 54
2	0 47 57	0 47 55	0 47 54	0 47 52	0 47 50	0 47 49
3	1 11 55	1 11 53	1 11 50	1 11 48	1 11 46	1 11 43
4	1 35 54	1 35 50	1 35 47	1 35 44	1 35 41	1 35 38
5	1 59 52	1 59 48	1 59 44	1 59 40	1 59 36	1 59 32
6	2 23 50	2 23 46	2 23 41	2 23 36	2 23 31	2 23 27
7	2 47 49	2 47 43	2 47 38	2 47 32	2 47 27	2 47 21
8	3 11 47	3 11 41	3 11 34	3 11 28	3 11 22	3 11 15
9	3 35 46	3 35 38	3 35 31	3 35 24	3 35 17	3 35 10
10	3 59 44	3 59 36	3 59 28	3 59 20	3 59 12	3 59 4
20	7 59 28	7 59 12	7 58 56	7 58 40	7 58 24	7 58 8
30	11 59 12	11 58 48	11 58 24	11 58 0	11 57 36	11 57 13
40	15 58 56	15 58 24	15 57 52	15 57 20	15 56 49	15 56 17
50	19 58 40	19 58 0	19 57 20	19 56 40	19 56 1	19 55 21
60	23 58 24	23 57 36	23 56 48	23 56 0	23 55 13	23 54 25

Motus diurnus.

Differ.	1 0' 16"	1 0' 18"	1 0' 20"	1 0' 22"	1 0' 24"	1 0' 26"
scr.	H / //	H / //	H / //	H / //	H / //	H / //
sec.	/ // ///	/ // ///	/ // ///	/ // ///	/ // ///	/ // ///
1	0 23 53	0 23 53	0 23 52	0 23 51	0 23 50	0 23 49
2	0 47 47	0 47 45	0 47 44	0 47 42	0 47 41	0 43 39
3	1 11 41	1 11 39	1 11 36	1 11 34	1 11 31	1 11 29
4	1 35 35	1 35 31	1 35 28	1 35 25	1 35 22	1 35 19
5	1 59 28	1 59 24	1 59 20	1 59 16	1 59 12	1 59 8
6	2 23 22	2 23 17	2 23 12	2 23 8	2 23 3	2 22 58
7	2 47 15	2 47 10	2 47 4	2 46 59	2 46 53	2 47 48
8	3 11 9	3 11 3	3 10 56	3 11 50	3 11 44	3 11 37
9	3 35 3	3 34 56	3 35 48	3 35 41	3 34 34	3 35 27
10	3 58 56	3 58 48	3 58 40	3 58 33	3 58 25	3 58 17
20	7 57 53	7 57 37	7 57 21	7 57 5	7 56 49	7 56 33
30	11 56 49	11 56 25	11 56 1	11 55 38	11 55 14	11 54 50
40	15 55 45	15 55 13	15 54 42	15 54 10	15 53 39	15 53 7
50	19 54 41	19 54 2	19 53 22	19 52 43	19 52 3	19 51 24
60	23 53 38	23 52 50	23 52 3	23 51 15	23 50 28	23 49 40

Motus

Tabula Revolutionum:

Motus diurnus.

Differ.	1 0' 28"	1 0' 30"	1 0' 32"	1 0' 34"	1 0' 36"	1 0' 38"
Gr.	H / /	H / /	H / /	H / /	H / /	H / /
Sec.	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 23 49	0 23 48	0 23 47	0 23 47	0 23 46	0 23 45
2	0 47 38	0 47 36	0 47 35	0 47 33	0 47 31	0 47 30
3	1 11 27	1 11 24	1 11 22	1 11 20	1 11 17	1 11 15
4	1 35 16	1 35 12	1 35 9	1 35 6	1 35 3	1 35 0
5	1 59 4	1 59 0	1 58 57	1 58 53	1 58 49	1 58 45
6	2 22 53	2 22 49	2 22 44	2 22 39	2 22 37	2 22 30
7	2 46 42	2 46 37	2 46 31	2 46 26	2 46 20	2 46 15
8	3 10 31	3 10 25	3 10 19	3 10 12	3 10 6	3 10 0
9	3 34 20	3 34 13	3 34 6	3 33 59	3 33 52	3 33 45
10	3 58 9	3 58 1	3 57 53	3 57 45	3 57 37	3 57 30
20	7 56 18	7 56 2	7 55 46	7 55 31	7 55 15	7 54 59
30	11 54 27	11 54 3	11 53 39	11 53 16	11 52 52	11 52 29
40	15 52 35	15 52 4	15 51 33	15 51 1	15 50 30	15 49 58
50	19 50 44	19 50 5	19 49 26	19 48 46	19 48 7	19 47 28
60	23 48 53	23 48 6	23 47 19	23 46 32	23 45 45	23 44 58

Motus diurnus.

Differ.	1 0' 40"	1 0' 42"	1 0' 44"	1 0' 46"	1 0' 48"	1 0' 50"
Gr.	H / /	H / /	H / /	H / /	H / /	H / /
Sec.	/ / /	/ / /	/ / /	/ / /	/ / /	/ / /
1	0 23 44	0 23 43	0 23 43	0 27 42	0 23 41	0 23 40
2	0 47 28	0 47 27	0 47 25	0 47 24	0 47 22	0 47 21
3	1 11 13	1 11 10	1 11 8	1 11 5	1 11 3	1 11 1
4	1 34 57	1 34 54	1 34 50	1 34 47	1 34 44	1 34 41
5	1 58 41	1 58 37	1 58 33	1 58 29	1 58 25	1 58 21
6	2 22 25	2 22 20	2 22 16	2 22 11	2 22 6	2 22 1
7	2 46 9	2 46 4	2 45 58	2 45 53	2 45 47	2 45 42
8	3 9 53	3 9 47	3 9 41	3 9 35	3 9 28	3 9 22
9	3 33 38	3 33 31	3 33 24	3 33 16	3 33 9	3 33 2
10	3 57 22	3 57 14	3 57 6	3 56 58	3 56 51	3 56 43
20	7 54 44	7 54 28	7 54 12	7 53 57	7 53 41	7 53 25
30	11 52 5	11 51 42	11 51 18	11 50 55	11 50 32	11 50 8
40	15 49 27	15 48 56	15 48 24	15 47 53	15 47 22	15 46 51
50	19 46 49	19 46 10	19 45 31	19 44 52	19 44 13	19 43 34
60	23 44 11	23 43 24	23 43 37	23 41 50	23 41 3	23 40 10

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Tabula Reuolutionum:

Motus diurnus.

Differ.	1 0' 52"	1 0' 54"	1 0' 56"	1 0' 58"	1 1' 0"	1 1' 1"
Gr.	H / "	H / "	H / "	H / "	H / "	H / "
Sec.	/ " "	/ " "	/ " "	/ " "	/ " "	/ " "
1	0 23 39	0 23 39	0 23 38	0 23 37	0 23 36	0 23 36
2	0 47 19	0 47 17	0 47 16	0 47 14	0 47 13	0 47 12
3	1 10 58	1 10 56	1 10 54	1 10 51	1 10 49	1 10 48
4	1 34 38	1 34 35	1 34 32	1 34 29	1 34 26	1 34 24
5	1 58 17	1 58 14	1 58 10	1 58 6	1 58 3	1 58 0
6	2 21 57	2 21 52	2 21 48	2 21 43	2 21 38	2 21 36
7	2 45 36	2 45 31	2 45 26	2 45 20	2 45 15	2 45 12
8	3 9 16	3 9 10	3 9 4	3 8 57	3 8 51	3 8 48
9	3 32 55	3 32 48	3 32 41	3 32 34	3 32 28	3 32 25
10	3 56 35	3 56 27	3 56 19	3 56 12	3 56 4	3 56 0
20	7 53 10	7 52 54	7 52 39	7 52 23	7 52 8	7 52 0
30	11 49 45	11 49 22	11 48 58	11 48 35	11 48 12	11 48 0
40	15 46 20	15 45 49	15 45 18	15 44 46	15 44 16	15 44 1
50	19 42 55	19 42 16	19 41 37	19 40 58	19 40 20	19 40 1
60	23 39 30	23 38 43	23 37 57	23 37 10	23 36 24	23 36 1

Motus diurnus.

Differ.	1 1' 2"	1 1' 3"	1 1' 4"	1 1' 5"	1 1' 6"
Gr.	H / "	H / "	H / "	H / "	H / "
Sec.	/ " "	/ " "	/ " "	/ " "	/ " "
1	0 23 36	0 23 35	0 23 35	0 23 34	0 23 34
2	0 47 11	0 47 10	0 47 10	0 47 9	0 47 8
3	1 10 47	1 10 46	1 10 45	1 10 43	1 10 42
4	1 34 22	1 34 20	1 34 19	1 34 17	1 34 16
5	1 57 58	1 57 56	1 57 54	1 57 52	1 57 50
6	2 21 34	2 21 32	2 21 29	2 21 27	2 21 24
7	2 45 9	2 45 6	2 45 4	2 45 2	2 44 59
8	3 8 45	3 8 42	3 8 39	3 8 36	3 8 33
9	3 32 21	3 32 17	3 32 14	3 32 10	3 32 7
10	3 55 56	3 55 52	3 55 48	3 55 45	3 55 41
20	7 51 52	7 51 45	7 51 37	7 51 29	7 51 21
30	11 47 49	11 47 37	11 47 25	11 47 13	11 47 2
40	15 43 45	15 43 29	15 43 14	15 42 59	15 42 43
50	19 39 41	19 39 22	19 39 7	19 38 43	19 38 24
60	23 35 37	23 35 14	23 34 51	23 34 28	23 34 5

Motus