

XVI.

S u p e r

Longitudine geographica

Speculae astronomicae Regiae, quae Monachii est, ex
occultationibus siderum inerrantium a se observatis et ad calculos
revocatis nunc primum definita

a

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Commentatio prior lecta in consessu academico III. Nonarum Septembris
clō DCCC VIII.

Inest occultatio α^2 cancri.

Cum Augustissimus Rex MAXIMILIANUS JOSEPHUS speculam
astronomicam in agro prope Ramersdorf a me electo construi apud
se consitisset, eodem in loco speculam parvam, a principi specula
30 passus versus occidentem distantem, quae interim, usque dum
specula princeps constructa fuerit, observationibus inservire possit,
erigi decrevit.

Quo quidem aedificio 23. Decembris 1804 incepto, die 25.
Julii 1805 ad finem perducto, fundamentisque marmoreis circuli
astro-

astronomici repetitoris, tubi culminatorii meridiani (inscriptione subter basin circuli in camera lateritia recondita) circuli azimuthalis et quinque horologiorum pendulorum (quorum quatuor frigoris calorisque effectus compensant) ita jactis, ut instrumenta, eorumque fundamenta marmorea 5 pedum subter terram eximie firmata, neque trabium concamerationem, neque totius aedificii fabricam ullo puncto contingerent, ideoque, quaecumque fuerit aedificii tempestatisque mutatio, ne minimam inde variationem experiri possent, instrumentis ad amussim correctis exacteque positis, observationes orsus sum, quarum omnium praecipuas, quae ad positionem speculae geographicam faciunt, et quidem occultationes siderum inerrantium a me observatas et ad calculos revocatas primum edere e re erit.

Quodcumque vero et aedificii excellens positio, circulo aspectum nostrum finiente quaquaversus amplissimo, et instrumentorum eximia supellex ad sublimis astrorum scientiae augmenta effecerint, ad Augustissimum Regem, ad Uraniae protectorem de Montgêlas, Regi a Secretis principem, optimum, tamquam liberalissimorum animorum documentum pie et grate referet Urania.

I.

Occultatio α^2 cancri tubo achromatico Dollondii 275^{ies} augente a me
observata 1806 Decembris 27^{mo}.

Immersio 17.^h 46.' 47,"64 }
Emersio 18.^h 37.' 36,"2 } tempore solari medio.

Coelum apprise serenum, observatio exacta.

Immersio computata.

Monachii.			Locus solis.								
1806. 27 ^{mo} Dec. 17. ^h 46.' 47,"64 temp. med. = 28 ^{vo} Dec. 5. ^h 9.' 41,"64. temp. med. civ. Parisino.											
	Longitudo ☉	Perigeum.	M.	A.	B.	C.	D.	E.	F.	N.	
Aeq. secul.	- - - 0,5	- - - 0,03									
1806.	9s.09°.56'.43,"2	9s.09°.35'.15,"00	839	344	278	154	836	733	546	230	
28 ^{vo} Dec.	11.25. 49. 07, 1	- - 01.01, 30	101	225	989	606	526	83	34	53	
Lg. med. ☉	9.05.45. 50,8	9. 09. 36. 16,33	940	569	267	760	362	816	580	283	
5. ^h - -	- 12. 19,2	9. 05. 58. 33,90	20 = Corr. A.								
9.' - -	- - 22,2		7	7	1	1					
41,"64.	- - 01,7	11. 26. 22. 17,57									
☉	9s.05°.58.33",90	11. 26. 22, 293	947	596	268	761	362	816	580	283	
Aeq. Cent.	11.29. 51. 47,31	11. 26, 371 Anom. med.									
Var. sec.	- - - 0,03										
A - -	- - - 03,26										
2da 3tia part.	- - - 0,20										
B. C. - -	- - - 16,87	Obliquitas med. 1800 = 23°. 27.' 57,"00									
B. D. - -	- - - 07,47	6,994 anni = 6,994 × 0",521 - - - 03, 64									
B. E. - -	- - - 12,43	Nut. ☉ - - - - - - - 01, 98									
B. F. - -	- - - 0,95	Nut. ☉ - - - - - - - 00, 40									
Nut. ☉	- - - 17,64										
Nut. ☉	- - - 0,20										
Aberr. ☉ -	- - - 0,33	Obliquitas apparens Eclipt. = 23°. 27', 50,"98									
Lg. vera ☉	9s.05°.51'19,"87	Longitudo vera ☉ = - - 275. 51. 19, 87									
☉	9. 05. 58. 33,90	Longitudo med. ☉ = - - 275. 58. 51, 54									
Nut. ☉	- - 17,64	Anom. media ☉ = 11s. 26°.22.' 17,"57									
Lg. med. ☉	9s.05°.58'.51",54	Motus horarius ad long. relatus = 02.' 32,"9									

Emer-

Emersio computata.

Monachii.			Locus solis.									
27 ^{mo} Dec. 18. ^h 37'.36," ₂ temp. med. = 28 ^{vo} Dec. 6 ^h 0.' 30," ₂ temp. Parisino medio.												
1806.	Longit. med. ☉		Perigeum.	M.	A.	B.	C.	D.	E.	F.	N.	
28 ^{vo} Dec.	98.05°.	45'.50," ₈	98.09°.	36'.16," ₃₃	940	569	267	760	362	816	580	283
6. ^h - -	- -	14. 47, 1	9. 06. 00. 39, 10		20=Corr.A.							
30," ₂ - -	- - -	01, 2	11.26. 24. 22,' ₇₇	8	8	1	1					
☉	9. 06. 00. 39, 10		11.26. 24. 379	948	597	268	761	362	816	580	283	
Aeq. centr.	11.29, 51.51, 58		11.26, 406	Anom. med. ☉								
Var. sec. -	- - -	0, 03										
A. - -	- - -	03, 24										
2da 3tia pars	- - -	0, 20										
B. C. -	- - -	16, 87										
B. D. -	- - -	07, 47										
B. E. -	- - -	12, 43										
B. F. -	- - -	0, 95										
Nut. ☿ -	- - -	17, 64										
Nut. ☉ -	- - -	0, 20										
Aberr. ☉	- - -	0, 33										
Lg. vera ☉	98.05°.	53'29," ₃₂										
☉	9. 06. 0. 39, 10											
Nut. ☿ -	- - -	17, 64										
Lg. med. ☉	98.06°.	0'.56," ₇₄										

Immersio computata.

Immersio Monachii.

Locus Lunae.

1806. 27mo Dec. 17h 46'.47'',64 temp. med. astr. = 28vo Dec. 5h .9'.41'',64
temp. Paris. civ.

Argg.	Long. med. ☾	Anom. med.	Argg.	Suppl. Nodi.
Aeq. secul.	- - - 10, 30	- - - 44, 8	- - -	- - - — 8,5
1806.	18.21°.42'.30'',00	108.02°.10'.23'',6	- - -	28. 22°.47'.24'',0
28vo Dec.	2. 16. 40. 44. 70	1. 06. 27. 43. 2	- - -	0. 19. 07. 0,8
5h	0. 02. 44. 42. 30	0. 02. 44. 18. 7	- - -	- - - 39,7
9.	- - 04.56, 50	- - 04.54, 0	- - -	- - - 01,2
41'',6.	- - - 22, 84	- - - 22, 6	- - -	- - - - 0,1
☾	4. 11. 13. 26,64	11. 11. 27. 26, 9	N XVII.	3. 11. 54. 57,3
☉	9. 05. 51. 19,87	- - - - -	A. -	11. 11. 27. 26,9
D.	7. 05. 22. 06,77	Aequat. long. -	aeq. A.	11. 28. 01. 26,0
I.	11. 26. 22. 17,57	- - 0°.12'.43'',3	24. aeq.	0. 03. 23. 41,2
II.	7. 01. 44 - -	- - - 14, 0	XXV.	11. 12. 52. 34,1
III.	7. 09. 0 - -	- - - 19, 5	XXVI.	7. 04. 46. 38,5
IV.	6. 16. 49 - -	- - - 08, 2	XXVII.	4. 03. 21. 23,4
V.	7. 23. 55 - -	- - 01. 21, 5	XXVIII.	7. 23. 05. 48,3
VI.	2. 29. 17 - -	- - 2. 53. 29, 9	24. aeq.	0. 03. 23. 41,2
VII.	1. 22. 12 - -	- - - 14, 3	25ta -	11. 26. 0. 50,6
VIII.	4. 06. 22 - -	- - - 01, 3	☾ -	4. 11. 13. 26,6
IX.	11. 15. 05 - -	- - - 49, 8	☾'	4. 10. 37. 58,4
X.	2. 07. 07 - -	- - 01.49, 6	26ta -	0. 01. 12. 37,8
XI.	2. 14. 22 - -	- - 03.13, 6	☾'' -	4. 11. 50. 36,2
XII.	7. 20. 17 - -	- - - 00, 3	27ma -	- - - 49,5
XIII.	2. 25. 39 - -	- - 05.04, 2	28va -	11. 29. 13. 28,5
XIV.	3. 02. 55 - -	- - 01.47, 5	Nut. ☾	- - - 17,6
XV.	1. 18. 34 - -	- - - 03, 9	☾ ^v -	4. 11. 05. 11,8
XVI.	1. 25. 50 - -	- - - 02, 3	* Cum Tabula Illustris Delam- bre ad sinus simplicum sit con- structa, aequationem XIXnam ad formulam ipsam celeberr. Bürg XVtam computaveris. Ex illustris Triesnecker formula — 8'',8 sin. 2 Dist. ☾ a Ω — 2 anom. med. ☾ prodit aequatio — 05'',2.	
XVII.	3. 11. 55 - -	- - - 03, 4		
XVIII.	0. 17. 46 - -	- - 01.23, 7		
* XIX.	8. 11. 41 - -	- - - 06, 3		
XX.	5. 10. 01 - -	- - - 16, 4		
XXI.	6. 17. 06 - -	- - - 0, 8		
XXII.	8. 15. 48 - -	- - - 02, 4		
XXIII.	11. 12. 59 - -	- - - 08, 0		
XXIV.	10. 05. 54 - -	- - - 17, 1		
24. Aequat. = - - 03.° 23.' 41'',2				

Immersio computata.

Immersio Monachii.				Eocus Lunæ.			
				Motus horar. Longitud.			
Argumenta Latitudinis.		Acquation. Latitudinis.		Imi ordinis.		IIdi ordinis.	
Q"	4s. 11° 50' 36", 2			I. - -	0. 0, 03	IV. -	0, 005
Aeq. 27.	- - - 49, 5			II. - -	- 0, 20	VII. -	0, 037
const.	11. 29. 20.			III. - -	- 0, 05	IX. -	0, 002
				IV. - -	- 0, 13	X. -	0, 000
Q'''	4. 11. 11. 25, 7			V. - -	- 0, 11	XI. -	0, 000
I. -	7. 23. 05. 48, 4	93° 56' 28", 4		VII. - -	- 0, 64	XIII. -	0, 000
II. -	6. 17. 34 - -	- 11. 27, 9		VIII. - -	- 0, 01	XIV. -	0, 000
III. -	7. 26. 44 - -	- - 0, 5		IX. - -	- 0, 58	XV. -	0, 000
IV. -	8. 11. 39 - -	- - 34, 3		X. - -	- 1, 39	XX. -	0, 004
V. -	9. 0. 12 - -	- - 0, 0		XI. - -	- 1, 67	VI. -	0, 001
VI. -	9. 18. 45 - -	- - 0, 1		XIII. - -	- 1, 13	XXV. -	1, 442
VII. -	6. 13. 56 - -	- - 11, 2		XIV. - -	- 0, 24	XXVI. -	0, 025
VIII. -	6. 21. 12 - -	- - 05, 0		XV. - -	- 0, 14	XXVII. -	0, 007
IX. -	5. 29. 01 - -	- - 02, 2		XVI. - -	- 0, 05	XXVIII. -	0, 147
X. -	7. 06. 07 - -	- - 06, 5		XVIII. -	- 0, 02	25bis -	0, 054
XI. -	7. 24. 40 - -	- - 0, 9		XX. -	- 0, 55	26bis -	0, 468
XII. -	4. 11. 12 - -	- - 14, 0		XX. -	- 0, 01	27bis -	0, 000
				XXIII. -	- 0, 03	28bis -	2, 284
				XXIV. -	- 0, 75		
				XXV + I. -	- 45, 93		
				V. - -		IIdi ord.	0, 092
Lat. = - 4° 09' 11" 0	Parall. æquatorial.						
		XXV. -	58' 56", 2	Aquat.	0' 53", 66		
		VI. -	- 37, 8	XXV. -	34. 35, 38		
		XXVI. -	- 37, 0	25bis -	- 05, 95		
		I. -	- 0, 0	XXVI. -	- 56, 11		
		V. -	- 01, 8	26bis -	- 10, 49		
		VII. -	- 0, 1	XXVII. -	- 01, 45		
		IX. -	- 0, 4	27bis -	- 10, 08		
		X. -	- 01, 0	XXVIII. -	- 10, 18		
		XI. -	- 01, 0	28bis -	- 09, 74		
		XIII. -	- 01, 1				
		XIV. -	- 0, 6	Imi ord.	36. 53, 56		
		XXVIII. -	- 0, 7	2di ord.	- 0, 09		
		XXVII. -	- 01, 3				
	Parallaxis	=	60' 19", 0	Motus hor	36. 53, 47	hora sequenti.	
	Semi Diam.	=	16. 27, 74		36. 53, 65	hora præcedenti.	

Emersio computata.

Emersio Monachii.			Locus Lunae.	
1806. 27mo Dec. 18.h 37'. 36'', 2 temp. med. astr. = 28vo Dec. 6h .0'. 30'', 2. temp. med. civ. Parisino.				
1806.	Longit. med. ☾	Anom. med.		Suppl. Nodi.
28vo Dec.	4s.08°.23'.25'',0	11s.08°.38'.51'',6	- - -	3s.11°54'.16'',3
6.h - -	- 03. 17. 38, 8	- 03. 15. 53, 5	- - -	- - - 47, 7
30'',2 - -	- - - 16, 4	- - - 16, 3	- - -	- - - 0, 0
☾	4. 11. 41. 20,2	11. 11. 55. 06,4	N. - -	3. 11. 55. 04,0
☉	9. 05. 53. 29,8		A. - -	11. 11. 55. 06,4
D.	7. 05. 47. 50,4	Aequat. long. -	Aeq. A.	11. 28. 01. 25,2
I. - -	11. 26. 24. 22,0	- 0°. 12'. 43'',1	24 aequat.	0. 03. 23. 41,0
II. - -	7. 02. 12 - -	- - - 13,9		
III. - -	7. 09. 23 - -	- - - 19,5	XXV. -	11. 13. 20. 12,6
IV. - -	6. 17. 43 - -	- - - 08,1	XXVI. -	7. 05. 15. 27,6
V. - -	7. 23. 53 - -	- - 01. 21,5	XXVII. -	4. 03. 56. 22,7
VI. - -	2. 29. 41 - -	- 02. 53. 20,6	XXVIII. -	7. 23. 37. 07,6
VII. - -	1. 23. 31 - -	- - - 13,5		
VIII. - -	4. 05. 51 - -	- - - 01,3	24 aequat.	0. 03. 23. 41,0
IX. - -	11. 15. 31 - -	- - - 50,0	25ta -	11. 26. 03. 56,2
X. - -	2. 08. 0 - -	- - 01. 50,0	☾	4. 11. 41. 20,2
XI. - -	2. 15. 12 - -	- - 03. 13,9		
XII. - -	7. 20. 17 - -	- - - 0,3	☾'	4. 11. 08. 57,4
XIII. - -	2. 26. 05 - -	- - 05. 04,3	26ta -	- 01. 12. 50,7
XIV. - -	3. 03. 17 - -	- - 01. 47,5		
XV. - -	1. 19. 55 - -	- - - 04,0	☾''	4. 12. 21. 48,1
XVI. - -	1. 27. 07 - -	- - - 02,4	27ma -	- - - 49,9
XVII. - -	3. 11. 55 - -	- - - 03,4	28va -	11. 29. 13. 31,5
XVIII. - -	0. 17. 48 - -	- - 01. 23,6	Nut. ☾	- - - 17,6
XIX. - -	8. 11. 41 - -	- - - 06,3		
XX. - -	5. 11. 17 - -	- - - 16,6		
XXI. - -	6. 17. 27 - -	- - - 0,8	☾ ^v	4. 11. 36. 27,1
XXII. - -	8. 15. 50 - -	- - - 02,4		
XXIII. - -	11. 12. 29 - -	- - - 07,9		
XXIV. - -	10. 06. 19 - -	- - - 17,1		
24 Aequationes = 03°.23'.41'',0				

Emersio computata.

Emersio Monachii.				Locus Lunae.			
				Motus horarius longitud.			
	Argumenta latitudinis.	Aequationes latitudinis.			Imi ordinis.		Ildi ordinis.
☾''	4s. 12°. 21'. 48'', 1			I. -	0'. 00'', 03	IV. -	0,005
27ma	- - - 49, 9			II. -	- 0,20	VII. -	0,038
const.	11. 29. 20 - -			III. -	- 0,05	IX. -	0,002
☾'''	4. 11. 42. 38,0	93°. 58'. 00'', 2		IV. -	- 0,13	X. -	0,000
I. -	7. 23. 37. 07,6	- 11. 31,8		V. -	- 0,12	XI. -	0,000
II. -	6. 18. 02 - -	- 0,5		VII. -	- 0,66	XIII. -	0,000
III. -	7. 27. 13 - -	- 34,3		VIII. -	- 0,01	XIV. -	0,000
IV. -	8. 11. 42 - -	- 0,0		IX. -	- 0,58	XV. -	0,000
V. -	8. 29. 47 - -	- 0,1		X. -	- 01,37	XX. -	0,004
VI. -	9. 17. 52 - -	- 11,2		XI. -	- 01,64	VI. -	0,001
VII. -	6. 14. 26 - -	- 05,1		XIII. -	- 01,11	XXV. -	1,432
VIII. -	6. 21. 38 - -	- 02,2		XIV. -	- 0,24	XXVI. -	0,020
IX. -	5. 29. 57 - -	- 06,5		XV. -	- 0,14	XXVII. -	0,007
X. -	7. 06. 07 - -	- 01,0		XVI. -	- 0,05	XXVIII. -	0,146
XI. -	7. 24. 12 - -	- 13,0		XXVII. -	- 0,03	25bis -	0,054
XII. -	4. 11. 43 - -			XX. -	- 0,55	26bis -	0,468
Lat. = - 4°. 10'. 55'', 8 Parall. aequator.				XXIII. -	- 0,01	27bis -	0,000
				XXIV. -	- 0,03	28bis -	- 2,284
				XXV+I. -	- 0,75	Ildi ord. -	0,107
				VI. -	- 45,64		
				XXV. -	34. 36,03		
				bis -	- 05,95		
				XXVI. -	- 55,44		
				bis -	- 10,47		
				XXVII. -	- 01,46		
				bis -	- 10,08		
				XXVIII. -	- 10,18		
				bis -	- 09,73		
				Imi ord. -	36'. 53'', 22		
				Ildi ord. -	- 0,11		
				Mot. hor. -	36. 53,11	hora sequenti.	
					36. 53,33	hora praecedenti.	

Quorum quidem solis et lunae elementorum calculi subducti sunt ad perfectissimas nostrae aetatis tabulas astronomicas: Tables astronomiques publiées par le Bureau des Longitudes de France. Première Partie. Tables du Soleil par M. Delambre. Tables de la Lune, par M. Bürg à Paris 1806.

II.

Aberratio et Nutatio α 2 Cancr.

$$\begin{aligned} \text{AR med. 1800} &= 131^{\circ}.53'.02''. \text{an. var.} = +49'',26. \delta = 12^{\circ}.37'.24''. \text{var.} = -13'',37 \\ 6 \text{ an. } 99 \times 49'',26 &= - +05'.44'',3. - 13'',37 \times 6 \text{ an. } 99 = -01'.33'',4 \\ \text{AR. med. 1806. 28}^{\text{vo}} \text{ Dec.} &= 131^{\circ}.58'.49'',3 = \alpha - - - - \delta = 12^{\circ}.35'.50'',6 \end{aligned}$$

Aberratio.

$$\begin{aligned} \text{Long. } \odot &= 93. 05^{\circ}. 59'. \\ A &= - 29,9 \\ \odot + A - \alpha &= 143^{\circ}. 13'. \end{aligned}$$

In AR.

In δ .

$$\begin{aligned} \log. a &= - - 1.3061.n. - - 1.3061.n. \\ \log. \cos. \odot + A - \alpha &= 9.9051 \quad \log. \sin = 9.7743 \\ \text{C. log. } \cos \delta &= 0.0106.n. \quad \log. \sin = 9.3386 \\ &1.2218 - - - 0.4190.n. \end{aligned}$$

$$\begin{aligned} \text{Aberratio in AR.} &= +16'',66 \quad \text{In } \delta \text{ Ipars} = -2,62 \\ &\odot + \delta = -1,29 \\ &\odot - \delta = +0,47 \\ \text{Aberr. in } \delta &= -3,44 \end{aligned}$$

$$\begin{aligned} \text{AR. med.} &= 131^{\circ}. 58'.46'',3 \\ \text{Aberr. in AR.} &= - - + 16, 66 \\ \text{Nut. in AR.} &= - - + 17, 05 \\ \text{AR. app.} &= 131^{\circ}. 59'.20'',01 \end{aligned}$$

Nutatio.

$$\begin{aligned} \Omega &= 83.18^{\circ}.05' \\ B &= - 03. 55 \\ \Omega + B - \alpha &= 122^{\circ}.12 \\ c &= + 16'',18 \end{aligned}$$

In AR.

In δ .

$$\begin{aligned} \log. b &= 0.8636.n. - - - 0.8636.n. \\ \log. \cos. \Omega + B - \alpha &= 9.7266.n. \quad \log. \sin = 9.9274 \\ \log. \text{tg. } \delta &= 9.3501 - - - 0.7910.n. \\ 9.9403 - \text{numerus} &= 0,87 \\ c &= 16,18 \\ \text{Nut. in AR.} &= +17,05 \\ \text{Nut. in } \delta &= - 6,18 \end{aligned}$$

$$\begin{aligned} \delta \text{ med.} &= 12^{\circ}.35'.50'',6 \\ \text{Aberr. in } \delta &= - - - 03, 44 \\ \text{Nut. in } \delta &= - - - 06, 18 \\ \delta \text{ app.} &= 12^{\circ}.35'.40'',98 \end{aligned}$$

Ascensionem rectam ex Bradley, Declinationem ex Bradley et celeberr. Piazzii: stellarum inerrantium Positiones mediae Panorm. 1803 cum variationibus desumsi, aberratione et nutatione ad formulas generales celeberr. Gauss 1808 computatis. Caeterum de formulis, earumque notatione et concisione vid. Lexell, Lagrange, Delambre, Cagnoli, Klügel, Olbers, Bohnenberger, Wurm, Scriptores in calculis parallacticis longe principes.

III.

Apparens Longitudo et Latitudo. *

$$\sin AR. = 9.8711493$$

$$\cot. \delta = 0.6508293$$

$$\text{tg. } x = 0.5219786$$

$$x = 73^{\circ}.16'.04'',9$$

$$\cos. x = 9.4592341$$

$$\text{obliq.} = 23. 27. 50, 9$$

$$y = 96. 43. 55, 8$$

$$\cos. y = 9.0690326$$

$$\cos. y$$

$$\cos. x = 9.6097985$$

$$\sin \delta = 9.3385637$$

$$\sin lat. = 9.9483622$$

$$* \text{ Latitudo} = -5^{\circ}.05'.38''.3$$

$$\text{tg. lat.} = 8.9498827$$

$$\text{tg. } y = 0.9279630$$

$$\sin long. = 9.8778457 = 49^{\circ}. 0'. 35'',9$$

$$180^{\circ}$$

$$\text{Long.} = -49. 0'. 35'',9$$

$$\text{Long. } * = 130^{\circ}. 59'. 24'',1$$

De formulis vid. illustris Cagnoli Trigonometrie. Seconde Edition. 1808.
§. 1449. 1450.

IV.

Correctio Latitudinis.

$$\phi = 48^{\circ}.07'.33'', = \text{Latitudini speculae astronomicae regiae.}$$

$$\text{Posita depressione sphaerae telluris} = \frac{1}{334}$$

$$\log \frac{n^2}{m^2} = 9.9973956$$

$$\text{tg } \phi = 0.0474811$$

$$\phi' = 47^{\circ}.57'.18'',0 - - \text{tg } \phi' = 0.0448767 = \text{Tg Latitudinis geocentricae.}$$

$$\text{Sive; } x = \frac{a^2 - b^2}{a^2 + b^2}; a = 334; b = 333$$

$$\phi - \phi' = x \sin 2\phi - \frac{1}{2}x^2 \sin 4\phi + \frac{1}{3}x^3 \sin 6\phi - - -$$

$$\phi - \phi' = 618'',4836 \sin 2\phi - 0'',9273 \sin 4\phi + 0'',0018 \sin 6\phi - - -$$

$$= + 10'.14''.805 + 0'',2007 - 0'',0017$$

$$= 10'.15'',005$$

$$\phi' = 47^{\circ}.57'.18''. = \text{Latitudini geocentricae.}$$

V.

Elementa igitur ita se habent:

Obliquitas Eclipticae	$= \omega =$	23°. 27'. 50'', 98
Latitudo stellae	$= \beta =$	5. 05. 38, 3
Longitudo stellae	$=$	130. 59. 24, 1
Latitudo geographica	$= \varphi =$	48. 07. 33
Latitudo correcta	$= \varphi' =$	47. 57. 18
Differ. merid. suppos.	$= - - =$	37. 06 tempore.
Mot. hor. solis in longit.	$= - - - =$	02. 32, 9

Tempore Immersionis.				Emersionis.
Longitudo vera $\odot$	- - - -	275°. 51'. 19'', 87		275°. 53'. 29'', 32
Media - - - -	- - - -	275. 58. 51, 5		276. 0. 56, 74
Longitudo vera $\odot = L =$	- - - -	131. 05. 11, 8		131. 36. 27, 1
Latitudo $= B =$	- - - -	4. 09. 11, 0		- 4. 10. 55, 8
Parallaxis $\odot = \pi =$	- - - -	60. 19, 0		- 60. 19, 3
Semidiameter $\odot = \frac{1}{2}d =$	- - - -	16. 27, 82		- 16. 27, 82
Motus horar. in longitud.				
1) hora sequenti - - - -	$= +$	36. 53, 47	$+ 36. 53, 11$	
2) hora praecedenti - - - -	$= +$	36. 53, 65	$+ 36. 53, 33$	
Variatio motus semihoraria - - - -	$=$	0, 092	- 0, 107	
Parallaxis $\odot$ longitud. $= p =$	- - - -	20. 06, 5	- 24. 06, 1	
Latitudo $\odot$ correcta $= B' =$	- - - -	4. 54. 10. 0	- 4. 58. 52, 3	
Semidiameter $\odot$ auct. $= \frac{1}{2}d' =$	- - - -	997, 9	- 995, 8	

VI.

Longitudo et Latitudo Nonagesimi.

$$\begin{aligned} \text{Tg } x &= \sin \mu \cdot \cot \phi' \\ \text{Sin latitud. Nonag.} &= \sin b = \frac{\sin \phi' \cos (\omega + x)}{\cos x} \\ \text{Sin longit. Nonag.} &= \sin l = \text{tg } b \cdot \text{tg} (\omega + x) \end{aligned}$$

Immersio.		Emersio.	
Longit. med. $\odot$	$= 275^{\circ}.58'.51'',5$	$276^{\circ}.0'.56'',74$	
Temp. med.	$= 266.41.54,6$	$279.24.03,00$	
Nut. $\odot$	$= - - 17,6$	$- - - 17,64$	
μ	$= 182^{\circ}.41'.03'',7$	$195^{\circ}.25'.17'',38$	
	$\cot \phi' = 9.9551233$	9.9551233	
	$\sin \mu = 8.6705593n$	$9.4247468n$	
$x = -02^{\circ}.25'.06'',6$	$\text{tg } x = 8.6256826n$	$9.3798701n$	$x = -13^{\circ}.29'.07'',9$
$\omega = 23.27.50,9$			$\omega = 23.27.50,9$
$\omega + x = 21.02.44,3$	$\cos = 9.9700188$	9.9933800	$\omega + x = 9.58.34,0$
	$\sin \phi' = 9.8707661$	9.8707661	
	$C. \cos x = 0.0003870$	0.0121422	
$b = 43^{\circ}.55'.25'',4$	$\sin b = 9.8411719$	9.8762883	$b = 48^{\circ}.46'.28'',2$
	$\text{tg} (\omega + x) = 9.5852104$	9.2453697	
$180^{\circ}.$	$\text{tg } b = 9.9836800$	0.0573867	$180^{\circ}.$
$21^{\circ}.45'.06'',7$	$-\sin l = 9.5688904$	9.3027564	$11^{\circ}.35'.0'',7$
$l = 158^{\circ}.14'.53'',8$			$l = 168^{\circ}.24'.59'',3$

VII.

Parallaxis Longitudinis.

$$\text{Tg } p = \frac{\sin \pi \cdot \cos b \sin (L \oslash l)}{\cos B - \sin \pi \cdot \cos b \cdot \cos (L \oslash l)}$$

Immersio.

Emersio.

$\sin \pi = 8.2441410$	8.2441770		
$\cos b = 9.8574917$	9.8189014		
$\sin \pi \cdot \cos b = 8.1016327$	8.0630784		
$\cos B = 0.9973819$	$\cos (l-L) = 9.9492549$	9.9034361	$\cos B = 0.9973765$
0.0112431	$- - - 8.0508876$	7.9665145	$- - - 0.0092579$
0.9861388	$- N = 9.9939380$	9.9948091	$- - - 0.9881186$
$CN = 0.0060620$	0.0051909		
$\sin \pi \cdot \cos b = 8.1016327$	8.0630784		
$\sin (l-L) = 9.6594413n$	$9.775345n$		
$p = -20'.06'',5$	$- \text{tg } p = 7.7671360n$	$7.8458038n$	$- - - p = -24'.06'',1$
$p = -1206'',5$			$p = -1446'',1$

VIII.

Latitudo Lunae correcta.

$$\text{Tg. } B' = \frac{(\sin B - \sin \pi \cdot \sin b) \cos p}{\cos B - \sin \pi \cdot \cos b \cdot \cos (L \oslash l)}$$

$\sin \pi = 8.2441410$	8.2441770		
$-0.0724211 = \sin B$	$\sin b = 9.8411719$	9.8762883	$\sin B = -0.0729278$
0.0121706	$- - - 8.0853129$	8.1204653	$- - - 0.0131967$
-0.0845917	$- - - 8.9273278n$	$8.9351267n$	$- - - 0.0861245$
$\cos p = 9.9999926$	9.9999893		
$C.N = 0.0060620$	0.0051909		
$B' = -4^\circ.54'.10'',0$	$\text{tg } B' = 8.9333824n$	$8.9403069n$	$- B' = -4^\circ.58'.52'',3$

IX.

Augmentum Semidiametri Lunae.

$$\sin \frac{1}{2} d' = \frac{\sin \frac{1}{2} d. \cos p. \cos B'}{\cos B - \sin \pi. \cos. b. \cos (L \oslash 1)}$$

*Immersio.**Emergio.*

C.N = 0.0060620	0.0051909		
$\sin \frac{1}{2} d = 7.6802119$	7.6802119		
$\cos p = 9.9999926$	9.9999893		
$\cos B' = 9.9984081$	9.9983567		
$\frac{1}{2} d' = 16'.37'',9$	$\sin \frac{1}{2} d' = 7.6846746$	7.6837488	$\frac{1}{2} d' = 16'.35'',8$
$\frac{1}{2} d' = 997'',9$			$\frac{1}{2} d' = 995'',8$

X.

Tempus ad conjunctionem propius accedens.

Motus hor. $\text{C} : 3600'' = \text{Longit. vera } \text{C} - \text{Longit. stellae} : x''$

L = 131°.05'.11'',8		L = 131°.36.27'',1	
* = 130. 59. 24, 1		* = 130. 59. 24, 1	
05'.47'',7 - log = 0.7630534	1.5687882	- - - - -	37'.03'',0
Motus horar. log 3600'' = 3.5563025	3.5563025		
hora praeced. C. log 36',89 = 8.4330913	8.4331502	= C. log 36',885	
565'',52 = x - - - - 2.7524472	3.5582409	- - - - x =	3616'',1
x = 9'.25'',52			x = 60'.16'',1
Tempus observationis = 17h.46'.47'',6	18h.37'.36'',2		
x = - 09. 25, 5	-1.00. 16, 1		
Conjunctio prop. acced. = 17h.37'.22'',1	17h.37'.20'',1		

XI.

Correctio motus horarii Lunae computati.

<i>Immersio.</i>		<i>Emersio.</i>
$\delta = 17^h.37'.22''$	- - - - -	$\delta = 17^h.37'.20''$
$e = 17.46.48$	- - - - -	$a = 18.37.36$
$\frac{1}{2}(\delta + e) = M = 17^h.42'.05''$	- - - - -	$\frac{1}{2}(a + \delta) = M' = 18^h.07'.28''$
$N = 17.16.48$	- - - - -	$N' = 18.07.36$
Var. mot. semihor. = $-0''.092$	- - - - -	$-0''.107$
$M - N = 25'.17''$	- - - - -	$M' - N' = -0'.08''$
$30' : -0''.092 = 25'.17'' : x$	- - - - -	$30' : -0''.107 = -0'.08'' : x$
$x = -0''.08$	- - - - -	$x = +0''.0004$

Hinc

Motus horar. momenti N = $36'.53''.65$	$36'.53''.33$
$x = -0.08$	$+0.00$
$M = 36'.53''.57$	$36'.53''.33 = M' =$ Motui medio tem-
Motus medio tempore immersionem inter et conjunctionem.	pore conjunctionem inter et emersio-
	nem.

XII.

Coëfficiens constans h' computatus.

$\log. 3600'' = 3.5563025$	3.5563025
$\log. H = 3.3450991$	$3.3450403 = \log. \text{ motus horar. : } \mathfrak{C}$
$\log h' = 0.2112034$	0.2112622

Tempus δ .

Immersio.

Emersio.

Sit nm = Latit. $\odot$ appar. — latit. app. *

NM = Latit. verae Lunae.

 γn = Longit. app. } γN = Longit. ver. } $\odot$

nN = parall. longitud.

Sm = Semidiametro $\odot$ correctae. γS = Longitud. *

$$\text{erit } S n^2 = \frac{(f m + m n) (f m - m n)}{\cos B' \cdot \cos \beta}$$

$B' = 4^{\circ}.54'.10'',0$	- - - - -	$B' = 4^{\circ}.58'.52'',3$
$\beta = 5.05.38,3$	- - - - -	$\beta = 5.05.38,3$
$mn = 11'.28'',3$	- - - - -	$mn = 06'.46'',0$
$mn = 688'',3$	- - - - -	$mn = 406'',0$
$\frac{1}{2}d' = 997,9$	- - - - -	$\frac{1}{2}d' = 995,8$
$f m - m n = 309,6$	- log = 2.4908010	2.7707048
$f m + m n = 1686,2$	- log = 3.2269091	3.1466861
$C. \cos B' = 0.0015919$	-	0.0016433
$C. \cos \beta = 0.0017186$	-	0.0017186
$p = 1206'',5$	- log $f n^2 = 5.7210206$	5.9207528
$f n = 725,29$	- log $f n = 2.8605103$	2.9603764
$SN = 481'',21$	- log = 2.6823346	3.3727095
	- log $h' = 0.2112034$	0.2112622
$SN' = 782''59$	- log $SN' = 2.8935380$	3.5839717
$SN' = 13'.02'',59$		
Tempora observation. = 17h.46'.47'',6		18h.37'36'',2
$SN' = 13.02,6$		1.03.56,8
Ex immers.igit. prod. $\delta = 17h.33'.45''0$		17h.33'.39'',4 = δ ex emersione.

XIII.

Eadem α 2 Cancri occultatio in specula astronomica Fani Gabromagi
a celeberr. Derflinger observata.

$$\begin{array}{l} \text{Immersio} = 17^{\text{h}}.58'.06'',4 \\ \text{Emersio} = 18^{\text{h}}.49'.32'',0 \end{array} \left. \vphantom{\begin{array}{l} \text{Immersio} \\ \text{Emersio} \end{array}} \right\} \text{ tempore solari medio.}$$

XIV.

Elementa.

$$\begin{array}{l} \text{Obliquitas Eclipticae} = \omega = 23^{\circ}.27'.50'',98 \\ \text{Latitudo stellae} = \beta = 5.05.38,3 \\ \text{Longitudo stellae} = 130.59.24,1 \\ \text{Latitudo geographica} = \phi = 48.03.36 \\ \text{Latitudo correcta} = \phi' = 47.53.20,9 \\ \text{Differ. merid. suppos.} = - - - 47.12 \\ \text{Mot. hor. solis in longit.} = - - - 02.32,9 \\ \text{Depressio sphaerae telluris} = 3\frac{1}{4} \end{array}$$

Tempore Immersionis.				Emersionis.
Longitudo vera $\odot$	= - - -	=	$275^{\circ}.51'.22'',86$	$275^{\circ}.53'.33'',94$
- - media	= - - -	=	$275.58.54,44$	$276.01.01,24$
Longitudo vera $\odot$	= L = - -	=	$131.05.57,7$	$131.37.34,4$
Latitudo - -	= B = - -	=	$4.09.13,6$	$-4.10.59,5$
Parallaxis $\odot$	= π = - -	=	$60.19,0$	$-60.19,3$
Semidiameter $\odot$	= $\frac{1}{2}d$ = - -	=	$16.27,82$	$-16.27,82$
Motus horar. $\odot$ in longitud.				
1) hora sequenti	- - -	= +	$36.53,47$	$+36.53,11$
2) hora praecedenti	- - -	= +	$36.53,65$	$+36.53,33$
Variatio motus semihoraria	- - -	= -	$0,092$	$-0,107$
Parallaxis $\odot$ longitud.	= p = - -	=	$21.15,1$	$-24.54,9$
Latitudo $\odot$ correcta	= B' = - -	=	$4.54.50,5$	$-4.59.33,4$
Semidiameter $\odot$ auct.	= $\frac{1}{2}d'$ = - -	=	$997,4$	$-995,3$

XV.

Longitudo et Latitudo Nonagesimi.

Immersio.

Emersio.

$$\mu = 185^{\circ}.30'.48''.08 | 198^{\circ}.24'.18''.84$$

Latitudo.

$x = -4^{\circ}.57'.48''.3$	- - - - -	$x = -15^{\circ}.55'.43''.0$
$\omega = 23.27.50, 9$	- - - - -	$\omega = 23.27.50, 9$
$\omega + x = 18.30.02, 6$	- - - - -	$\omega + x = 7.32.07, 9$
$b = 44^{\circ}.55'.22''.6$	$\sin b = 9.8489020$	$b = 49^{\circ}.53'.23''.5$

Longitudo.

$$l = 160^{\circ}.30'.21'', 1. - \sin l = 9.5233700 | 9.1959968 - - - l = 170^{\circ}.57'.54'', 6$$

XVI.

Parallaxis Longitudinis.

$p = -21'.15'', 1$	$\tan p = 7.7911734n$	$7.8602089n$	- - -	$p = -24'.54'', 9$
$p = -1275'', 1$	- - - - -	- - - - -	- - -	$p = -1494'', 9$

XVII.

Latitudo Lunae correcta.

$$B' = -4^{\circ}.54'.50'', 5. \tan B' = 8.9343837n | 8.9413079n - - B' = -4^{\circ}.59'.33'', 4$$

XVIII.

Augmentum Semidiametri Lunae.

$\frac{1}{2}d' = 16'.37'', 4$	$\sin \frac{1}{2}d' = 7.6844848$	7.6835316	- - -	$\frac{1}{2}d' = 16'.35'', 3$
$\frac{1}{2}d' = 997'', 4$	- - - - -	- - - - -	- - -	$\frac{1}{2}d' = 995'', 3$

XIX.

Tempus δ .

<i>Immersio.</i>		<i>Emersio.</i>	
$B' = 4^{\circ}.54'.50''.5$	- - - - -	$B' = 4^{\circ}.59'.33''.4$	- - - - -
$\beta = 5, 05.38, 3$	- - - - -	$\beta = 5, 05.38, 3$	- - - - -
$mn = 10'.47''.8$	- - - - -	$mn = 06'.04''.9$	- - - - -
$mn = 647''.8$	- - - - -	$mn = 364''.9$	- - - - -
$\frac{1}{2}d' = 997''.4$	- - - - -	$\frac{1}{2}d' = 995''.3$	- - - - -
$fm - mn = 349''.6$	- - - - -	$fm - mn = 630''.4$	- - - - -
$fm + mn = 1645''.2$	- - - - -	$fm + mn = 1360''.2$	- - - - -
$fn = 761''.29$	- log. = 2.8815539	$fn = 929''.59$	- - - - -
$p = 1275''.1$	- - - - -	$p = 1494''.9$	- - - - -
$SN = 513''.81$	- log. = 2.7108026	$SN = 2424''.5$	- - - - -
$SN' = 835, 61$	- log. = 2.9220060	$SN' = 3943''.5$	- - - - -
$SN' = 13'.55'', 61$	- - - - -	$SN' = 1h.05'.43'', 5$	- - - - -
Tempora observat. = 17h.58'.06'', 4	18h.49'.32'', 0		
- $SN' = 13.55, 6$	- 1. 05.43, 5		
Ex immersione prodit $\delta = 17h.44'.10''.8$	17h.43'.48'', 5 = δ ex emersione.		

XX.

Occultatio a 2 Cancri in specula astronomica Ochsenhusii Algoviae
a celeberr. Philippo Kyene observata.

Immersio = 17h.40'.16''5 }
Emersio = 18. 29. 51, 0 } tempore solari medio.

XXI.

Elementa.

Obliquitas Eclipticae	$\equiv \omega =$	23°. 27'. 50 ⁰⁰ ., 9
Latitudo stellae	$\equiv \beta =$	5. 05. 38, 3
Longitudo - -	$\equiv$	130. 59. 24, 1
Latitudo geographica	$\equiv \phi =$	48. 03. 52, 5
Latitudo correcta	$\equiv \phi' =$	47. 53. 37, 5
Mot. hor. solis in longit.	$\equiv - - - =$	02. 32, 9
Depressio sphaerae telluris	$\equiv \frac{1}{334}$	
Differ. merid. suppos.	$\equiv - - =$	30. 31, 6

Celeberrimus Basilius Perger, olim subtilis et acutus Astronomus, observationes ad speculae suae positionem geographicam facientes a se exactius definitam mihi amicissime communicavit, ex quibus subductis calculis, velut:

ex 200 occultationibus satellitum Jovis	$\equiv$	30'. 34". 50
ex 4 Eclipsibus $\odot$	$\equiv$	30. 31, 45
ex 9 occultationibus fixarum	$\equiv$	30. 28, 99

Constitui differentiam meridianorum omnium mediam $\equiv 30'. 31". 6$ Lutetiam Parisiorum inter et Ochsenhusium.

Tempore Immersionis.				Emersionis.
Longitudo vera $\odot$	$\equiv$	- - - -	275°. 51'. 20 ⁰⁰ ., 6	275°. 53'. 26 ⁰⁰ ., 24
- - media	$\equiv$	- - - -	275. 58. 51, 7	276. 0. 53, 8
Longitudo vera $\oplus$	$\equiv L =$	- - - -	131. 05. 15, 5	131. 35. 44, 1
Latitudo - -	$\equiv B =$	- - - -	-4. 09. 11. 1	-4. 10. 53, 6
Parallaxis $\oplus$	$\equiv \pi =$	- - - -	60. 19, 0	- - 60. 19, 3
Semidiameter $\oplus$	$\equiv \frac{1}{2}d =$	- - - -	16. 27, 82	- - 16. 27, 82
Motus horar. $\oplus$ in longitudine				
1) hora sequenti	- - - -	- - - -	+ 36. 53, 47	+ 36. 53, 11
2) hora praecedenti	- - - -	- - - -	+ 36. 53, 65	+ 36. 53, 33
Variatio motus semihoraria	- - - -	- - - -	- 0, 092	- - - 0, 107
Parallaxis $\oplus$ longitud.	$\equiv p =$	- - - -	- 19. 29, 3	- - 23. 36, 8
Latitudo $\oplus$ correcta	$\equiv B' =$	- - - -	- 4. 53. 44, 8	-4. 58. 22, 8
Semidiameter $\oplus$ aucta	$\equiv \frac{1}{2}d' =$	- - - -	998, 2	- - - 996, 2

XXII.

Longitudo et Latitudo Nonagesimi.

Immersio.

Emersio.

$$\mu = 181^{\circ}.03'.16''.8 \mid 193^{\circ}.28'.56''.4$$

Latitudo.

$x = -0^{\circ}.57'.10''.9$	- - - - -	$x = -11^{\circ}.53'.55''.3$
$\omega = 23.27.50, 9$	- - - - -	$\omega = 23. 27.50, 9$
$x + \omega = 22.30.40, 0$	- - - - -	$x + \omega = 11. 33.55, 0$
$b = 43^{\circ}.16'.20''.7$	$\sin b = 9.8359872$	$b = 47^{\circ}.58'.13''.4$

Longitudo.

$$l = 157^{\circ}.02'.05''.1, - \sin l = 9.5912569 \mid 9.3561061 - - - l = 166^{\circ}.52'.37''.3$$

XXIII.

Parallaxis Longitudinis.

$p = -19'.29'',3$	$\operatorname{tg} p = 7.7535270$	7.8369134	- - -	$p = -23'.36'',8$
$p = -1169'',3$	- - - - -	- - - - -	- - -	$p = -1416'',8$

XXIV.

Latitudo Lunae correctæ.

$$B' = -4^{\circ}.53'.44'',8, - \operatorname{tg} B' = 8.9327580 \mid 8.9395883 - - B' = -4^{\circ}.58'.22'',8$$

XXV.

Augmentum Semidiametri Lunæ.

$\frac{1}{2}d' = 16'.38'',2$	$\sin \frac{1}{2}d' = 7.6847901$	7.6839174	- - -	$\frac{1}{2}d' = 16'.36'',2$
$\frac{1}{2}d' = 998'',2$	- - - - -	- - - - -	- - -	$\frac{1}{2}d' = 996'',2$

XXVI.

Tempus δ .

<i>Immersio.</i>		<i>Emersio.</i>	
$B' = 4^{\circ}.53'.44'',8$	- - - - -	$B' = 4^{\circ}.58'.22'',8$	- - - - -
$\beta = 5.05.38,3$	- - - - -	$\beta = 5.05.38,3$	- - - - -
$mn = 0^{\circ}.11'.53'',5$	- - - - -	$mn = 0^{\circ}.07'.15'',5$	- - - - -
$mn = 713'',5$	- - - - -	$mn = 435'',5$	- - - - -
$\frac{1}{2}d' = 998'',2$	- - - - -	$\frac{1}{2}d' = 996'',2$	- - - - -
$fm - mn = 284'',7$	- - - - -	$fm - mn = 560'',7$	- - - - -
$fm + mn = 1711'',7$	- - - - -	$fm + mn = 1431'',7$	- - - - -
$fn = 700'',7$	- log. $fn = 2.8455605$	2.9539695	- - - $fn = 899'',4$
$p = 1169'',3$	- - - - -	- - - - -	- - - $p = 1416'',8$
$SN = 468'',6$	- log. $= 2.6708023$	3.3647761	- - - $SN = 2316'',2$
$SN' = 762,0$	- log. $= 2.8820057$	3.5760383	- - - $SN' = 3767'',3$
$SN' = 12'.42'',0$	- - - - -	- - - - -	- - - $SN' = 1h.02'.47'',3$
Tempora observat.	- $= 17h.40'.16'',5$	$18h.29'.51'',0$	- - -
	$SN' = 12.42,0$	$-1.02.47,3$	- - -
Ex immersione prodit δ	$= 17h.27'.34'',5$	$17h.27'.03'',7$	$= \delta$ ex emersione.

XXVII.

Occultatio α 2 Cancri Vindebonae in specula academica observata
a celeberr. Francisco de Paula Triesnecker.

Immersio $= 18h.05'.73'',4$ } tempore solari vero.
Emersio $= 18.57.59,75$ }

Cum celeberr. Triesnecker per observatarum calculisque subductarum occultationum segetem edoctus animadverteret, discrepantiam longitudinis geographicae haud contemnendam saepius ex eo oriri, quod diversi Astronomi dissimilem temporis aequationem in calculos invexerint, haud temere fuit auctor, ut observatarum occultationum tempora vera notarentur a speculatoribus; acute quidem et argute; datur enim cuique optio, aequationes temporis ex eadem formula computandi, aequabilemque exinde efficiendi conclusionem. Primum igitur tempora vera Vindebonae ad media eadem methodo, qua aliis in locis habitas observationes computasti, reduxeris.

Aequa-

Aequatio Temporis.

Vindebonae

ad illustris Delambre Tables du ☉

Immersio.

Temp. med. Vind. = 18h.07'.15'',05

Temp. ver. observ. = 18. 05. 37. 40

Hinc ex tabulis colli-

igitur aequat. temp. = + 01'.37'',65

Emersio.

18h.59'.38'',50

18. 57. 59. 75

= + 01'.38'',75

quam quidem aequationem, cum iusto major videbatur, ad formulam viri in universa Mathesi limati et subtilis, illustr. Lagrange: (Mem. de l'Acad. royale des sciences, année 1772. I. part. Paris 1775. pag. 609.)

$$dT = -2iesin(\varphi - \alpha) - itg^2 \frac{1}{2} \omega \sin 2\varphi$$

$$- 2i(e - \frac{1}{2}k)k \sin 2(\varphi - \alpha) + \frac{1}{2}itg^4 \frac{1}{2} \omega \sin 4\varphi$$

$$- 2i(e - \frac{2}{3}k)k^2 \sin 3(\varphi - \alpha) + \frac{1}{3}itg^6 \frac{1}{2} \omega \sin 6\varphi$$

$$- \text{etc.} \quad - \text{etc.} \quad - \text{etc.}$$

penitus de integro computavi, denotantibus

e. Excentricitatem solis,

φ . Longitudinem veram solis,

α . Longitudinem apogei,

ω . Obliquitatem apparentem eclipticae;

positis

$$ik = \frac{e}{1 + \sqrt{1 - e^2}}$$

$$i = \frac{m}{150}; m = \text{radio trigonometr. scrupulis secundis expresso.}$$

Ufus sum perillustris La Place (Expos. du syst. du monde pag. 117. troisième edit. 1808.) ratione excentricitatis ad semiaxem majorem telluris:

$$\text{Ineunte 1801} = 0,01685318 \quad - \quad \text{Var. sec.} = - 0,000041632$$

$$\text{Var. sec. 6 annorum} = - 0,00024979$$

$$1806 \text{ Dec.} - e = 0,01660339$$

Illustris Delambre Tables du ☉

$$\text{Obliquitas eclipticae} = \omega = 23^{\circ}.27'.50'',9 \quad - \quad - \quad 1806. 28^{\text{mo}} \text{ Decemb.}$$

Coëfficientes formulæ ad anni 1806 Decembris 28^{rum} computati.

$$\begin{aligned}
 i &= 13750'',9 \\
 -2ie &= -456'',62 = \text{coëfficienti primo.} \\
 -itg^2 \frac{1}{2}\omega &= -593'',05 = - - - - 2do \\
 -2i(e - \frac{1}{2}k)k &= -2'',84 = - - - - 3tio \\
 +\frac{1}{2}itg^4 \frac{1}{2}\omega &= +12'',78 = - - - - 4to \\
 -2i(e - \frac{2}{3}k)k^2 &= -0'',02 = - - - - 5to \\
 +\frac{1}{8}itg^6 \frac{1}{2}\omega &= +0'',36 = - - - - 6to
 \end{aligned}$$

Ad epocham anni 1806 Decembr. formula igitur abit in

$$\begin{aligned}
 dT &= \text{I.} - 456'',62 \sin(\varphi - \alpha) - 593'',05 \sin 2\varphi - - - - \text{II.} \\
 &\text{III.} - 2'',84 \sin 2(\varphi - \alpha) + 12'',78 \sin 4\varphi - - - - \text{IV.} \\
 &\text{V.} - 0'',02 \sin 3(\varphi - \alpha) + 0'',36 \sin 6\varphi - - - - \text{VI.}
 \end{aligned}$$

atqui habebis:

$$\begin{array}{rcl}
 \varphi = 275^\circ.38'.36'',8 & - & - & - & - & - & \varphi = 275^\circ.38'.36'',8 \\
 \alpha = 99.36.16,3 & - & - & - & - & - & 2\varphi = 191.17.13,6 \\
 \varphi - \alpha = 176.02.20,5 & - & - & - & - & - & 4\varphi = 22.34.27,2 \\
 2(\varphi - \alpha) = 352.04.41,0 & - & - & - & - & - & 6\varphi = 213^\circ.51'.40'',8 \\
 3(\varphi - \alpha) = 168^\circ.07'.01'',5 & & & & & &
 \end{array}$$

Hinc neglectis interim terminis V et VI:

$$\begin{aligned}
 \text{I} &= -31'',54 - \log. \text{I} = 1.4988938n \mid 2.0647449n = \log. \text{II.} \text{II.} = +116'',07 \\
 \text{III} &= +0'',39 - \log. \text{III} = 9.5929204 \mid 0.6910265 = \log. \text{IV.} \text{IV.} = +04'',91
 \end{aligned}$$

$$\text{II} = +116'',07$$

$$\text{III} = +0,39$$

$$\text{IV} = +4,91$$

$$\text{I} = -31,54$$

$$\text{Summa} - - = +89'',83 = +1'.29'',83 = \text{aequationi temporis propius veram.}$$

Immersio.

$$\begin{aligned}
 \text{Tempus verum} &= 18^{\text{h}}.05'.37'',4 - - 18^{\text{h}}.57'.59'',75 \\
 \text{Aequat. temporis} &= + 01.29,8 - - + 01.29,83 \\
 &\quad 18^{\text{h}}.07'.07'',2 - - 18^{\text{h}}.59'.29'',58 = \text{tempori medio pro-} \\
 &\quad \text{pius accedenti.}
 \end{aligned}$$

Emersio.

His vero temporum momentis conveniunt:

$$\begin{aligned}
 \varphi &= 275^{\circ}.51'.23'',0 - - - - - \varphi = 275^{\circ}.53'.36'',0 \\
 \alpha &= 99.36.16,0 - - - - - \alpha = 99.36.16,0 \\
 \varphi - \alpha &= 176^{\circ}.15'.07'',0 - - - - - \varphi - \alpha = 176^{\circ}.17'.20'',0
 \end{aligned}$$

$$\begin{aligned}
 \text{I} &= - 29'',85 - - \log \text{I} = 1.4749342n - 1.4706382n - - \text{I} = - 29'',55 \\
 \text{II} &= + 120,39 - - \log \text{II} = 2.0806056 - 2.0832983 - - \text{II} = + 121,14 \\
 \text{III} &= + 0,37 - - \log \text{III} = 9.5691956 - 9.5649178 - - \text{III} = + 0,36 \\
 \text{IV} &= + 05,08 - - \log \text{IV} = 0.7062307 - 0.7088069 - - \text{IV} = + 05,11 \\
 \text{V} &= - 0,004 - - \log \text{V} = 7.6119022n - 7.6076550n - - \text{V} = - 0,004 \\
 \text{VI} &= - 0,21 - - \log \text{VI} = 9.3261264n - 9.3279640n - - \text{VI} = - 0,21 \\
 \text{I} &= - 29'',85 - - \text{III} = + 0'',37 - - + 0'',36 - \text{I} = - 29'',55 \\
 \text{V} &= 0,00 - - \text{II} = 120,39 - - 121,14 - \text{V} = 0,00 \\
 \text{VI} &= 0,21 - - \text{IV} = 05,08 - - - 05,11 - \text{VI} = 0,21 \\
 &\quad - 30'',06 - - + 125'',74 - - + 126'',61 \\
 \text{Prodit denique aequatio} &+ 30,06 - - - 29,76 \\
 \text{temporis exacta} &= + 95'',68 - - + 96'',85 \\
 &= + 01'.35'',68 + 01'.36'',85
 \end{aligned}$$

XXIX.

Cum igitur maxime prope fidem sit, aequationem ex tabulis illustr. Delambre desuntam, justo majorem esse, ipsam ex formula (Tables astronomiques publiées par le Bureau de longitudes 1ere Partie feuille c. 3.) et apprime coefficientem 2di termini formulae Delambrianæ computavi.

$$\text{Idus Terminus} = + \frac{a}{15} (1+t) \cos \pi \sin L$$

$$\text{Anno 1810 erit } a = 1^{\circ}.55'.27''.$$

$$t = \lg^2 \frac{1}{2} \omega; \omega = 23^{\circ}.27'.50''$$

$$\pi = 98.09^{\circ}.39'.$$

$$(1+t) = 1''.043127$$

$$\frac{a}{15} = 461''.846$$

$$\text{Coëff.} = 80''.757 - - - \log \text{coëff.} = 1.9071837$$

Anni 1806 27mo Dec. erat $L = 275^{\circ}.46'$ circiter;
et formula illustr. Delambre ita se habebit:

I.

$$dT = 0''.047 + 80''.757 \sin L + 435''.840 \cos L - - - \text{VII.}$$

$$\text{II.} - 596, 878 \sin 2L + 1, 628 \cos 2L - - - \text{VIII.}$$

$$\text{III.} - 3, 424 \sin 3L - 18, 801 \cos 3L - - - \text{IX.}$$

$$\text{IV.} + 12, 949 \sin 4L - 0, 073 \cos 4L - - - \text{X.}$$

$$\text{V.} + 0, 142 \sin 5L + 0, 848 \cos 5L - - - \text{XI.}$$

$$\text{VI.} - 0, 373 \sin 6L + 0, 003 \cos 6L - - - \text{XII.}$$

$$+ \frac{2}{15} P + 0''.09925 \sin N + 0, 117 \sin (2L + N + 500) - 0'', 013 \sin (2L - N)$$

$$L = 275^{\circ}.46'$$

$$\text{I} = - 80'', 34 - - - \text{VII} = + 43'', 79$$

$$2L = 191^{\circ}.32'$$

$$\text{II} = + 119'', 33 - - - \text{VIII} = - 01'', 59$$

$$3L = 107^{\circ}.18'$$

$$\text{III} = - 03'', 26 - - - \text{IX} = + 05'', 59$$

$$4L = 23^{\circ}.04'$$

$$\text{IV} = + 05'', 07$$

$$\text{II} = + 119'', 33 - - \text{I} = - 80'', 34$$

$$\text{IV} = 05, 07 - - \text{III} = 03, 26$$

$$\text{VII} = 43, 79 - - \text{VIII} = 01, 59$$

$$\text{IX} = 05, 59 - - - 85'', 19$$

$$+ 173'', 78$$

$$\text{Aequat. temp. ad verum} - 85, 19$$

$$\text{propius accedens} = + 88'', 59 = 1', 28'', 59$$

Im-

<i>Immersio.</i>		<i>Emersio.</i>
Tempus verum = 18h.05'.37",4	- - - - -	18h.57'.59",75
Differ. Merid. = 56.10	- - - - -	56.10
Temp. civ. verum		
Lutetiae Parisior. = 5.09.27,4	- - - - -	6.01.49,75
Aeq. temp. approp. = + 01.28,6	- - - - -	+ 01.28,50
temp. approp. med. = 5h.10'.56",0	- - - - -	6h.03'.18",34

Quibus momentis conveniunt tempore

<i>Immersio.</i>		<i>Emersio.</i>
L = 275°.58'.36"	- - - - -	L = 276°.0'.45"
I = 80",31	- - - - -	I = 80",31
II = + 45",38	- - - - -	II = + 45",65
2L = 191°.57'.12"	- - - - -	2L = 192°.01'.30"
III = + 123",60	- - - - -	III = + 124",35
IV = 01",59	- - - - -	IV = 01",59
3L = 107°.55'.43"	- - - - -	3L = 108°.02'.15"
V = 03",26	- - - - -	V = 03",24
VI = + 05",79	- - - - -	VI = + 05",82
4L = 23°.54'.24"	- - - - -	VII = + 05",27
VII = + 05",24	- - - - -	VIII = 0",07
VIII = 0",07	- - - - -	4L = 24°.03'
5L = 299°.53'	- - - - -	IX = 0",12
IX = 0",12	- - - - -	X = + 0",42
X = + 0",42	- - - - -	6L = 216°.04'.36"
6L = 215°.51'.36"	- - - - -	XI = + 0",22
XI = + 0",22	- - - - -	XII = 0",00
XII = 0",00	- - - - -	

		+	0,05		+	0,05		
I = - 80",31	- -	II = 45",38	II = 45",65	- -	I = - 80",31			
IV = 01,59	- -	III = 123,60	III = 124,35	- -	IV = 01,59			
V = 03,26	- -	VI = 05,79	VI = 05,82	- -	V = 03,24			
VIII = 0,07	- -	VII = 05,24	VII = 05,27	- -	VIII = 0,07			
IX = 0,12	- -	X = 0,42	X = 0,42	- -	IX = 0,12			
XII = 0,00	- -	XI = 0,22	XI = 0,22	- -	XII = 0,00			
Summa = - 85",35	- -	+ 180",70	+ 181",78	- -	- 85",33			
		- 85,35	- 85,33					

Summa = 95",35 - - + 96",45 = quantitati, quam

Tab. VIII. illustr. Delambre exhibere debuerit; at

VIII. Tab. = + 01'35",35 + 01'36",45

Var. fec. = - - 0,46 - - 0,46

Perturb. Planet. = - - 0,2 - - 0,2

Ergo aequat. temp. ex

form. Delambr. efficitur = + 01.36",01 + 01.37",11

quae

quae ab illustri Lagrange

$$= + 01'.35'',68 - - + 01'.36'',85 \text{ supra computata haud abludit.}$$

Tandem ergo

Tempus verum	=	18h.05'.37'',4	- -	18h.57'.59'',75
Aequat. temp.	=	+ 01.36, 1	- -	+ 01.37, 11
Temp. med. Vind.	=	18h.07'.13'',5	- -	18h.59'.36'',86
Diff. Meridian.	=	- 56. 10	- -	- 56. 10
Temp. civ. med. Paris.	=	05h.11'.03'',5	- -	06h.03'.26'',86

XXX.

Elementa.

Obliquitas Eclipticae	= α =	23°.27'.50'',9
Latitudo stellae	= β =	- 5. 05.38, 3
Longitudo - -	=	130. 59.24, 1
Latitudo geographica	= ϕ =	48. 12.36
Latitudo correcta	= ϕ' =	48. 02.21, 2
Differ. Merid. suppos.	= - -	+ 56. 10. tempore.
Mot. hor. $\odot$ in longit.	= - - -	- 02. 32, 9
Depressio telluris	=	$\frac{1}{334}$

Tempore Immersionis.				Emersionis.
Longitudo vera $\odot$	=	- - - -	275°.51'.23'',2	275°.53'.36'',8
- - media	=	- - - -	275. 58. 54, 8	276. 01. 04, 0
Longitudo vera $\odot$	=	L =	131. 06. 03, 3	131. 38. 16, 0
Latitudo - -	=	B =	-4. 09. 13. 8	-4. 11. 02, 0
Parallax $\odot$	=	π =	- 60. 19, 0	- 60. 19, 3
Semidiameter $\odot$	=	$\frac{1}{2}d$ =	- 16. 27, 82	- 16. 27, 82
Motus horar. $\odot$ in longitudine				
1) hora sequenti	- - - -		+ 36.53, 47	+ 36.53, 11
2) hora praecedenti	- - - -		+ 36.53, 65	+ 36.53, 33
Variatio motus semihoraria	- - - -		- 0,092	- 0, 107
Parallax $\odot$ longitud.	= p =	- - - -	- 21. 57, 1	- 25.20, 6
Latitudo $\odot$ correcta	= B' =	- - - -	- 4. 55.28, 1	-5. 0.10, 8
Semidiameter $\odot$ aucta	= $\frac{1}{2}d'$ =	- - - -	- 997'',1	- 994'',8

XXXI.

Longitudo et Latitudo Nonagesimi.

Immersio.

Emersio.

$$\mu = 187^{\circ}.47'.29'',4 \mid 200^{\circ}.55'.30'',8$$

Latitudo.

$x = -06^{\circ}.56'.59'',9$	- - - - -	$x = -17^{\circ}.48'.13'',3$
$\omega = 23.27.50,9$	- - - - -	$\omega = 23.27.50,9$
$x+\omega = 16^{\circ}.30'.51'',9$	- - - - -	$x+\omega = 5^{\circ}.39'.37'',6$
$b = 45^{\circ}.54'.23'',5$	$\sin b = 9.8562489 \mid 9.8905305$	$b = 51^{\circ}.0'.16'',4$

Longitudo.

$$= 162^{\circ}.10'.50'',6. - \sin l = 9.4857440 \mid 9.0878450 - - - l = 172^{\circ}.58'.06'',1$$

XXXII.

Parallaxis Longitudinis.

$p = -21'.57'',1$	$\operatorname{tg} p = 7.8052090n \mid 7.8676000n$	- - -	$p = -25'.20'',6$
$p = -1317'',1$	- - - - -	- - -	$p = -1520'',6$

XXXIII.

Latitudo Lunae correcta.

$$B' = -4^{\circ}.55'.28'',1. - \log = 8.9353089n \mid 8.9422135n - - B' = -5^{\circ}.0'.10'',8$$

XXXIV.

Augmentum Semidiametri Lunae.

$\frac{1}{2}d' = 16'.37'',1$	$\sin \frac{1}{2}d' = 7.6843153 \mid 7.6833264$	- - - -	$\frac{1}{2}d' = 16'.34'',8$
$\frac{1}{2}d' = 997'',1$	- - - - -	- - - -	$\frac{1}{2}d' = 994'',8$

XXXV.

Tempus δ .

Immersio.		Emersio.	
$B' = 4^{\circ}.55'.28'',1$		$B' = 5^{\circ}.0'.10'',8$	
$\beta = 5.05.38,3$		$\beta = 5.05.38,3$	
$mn = 10'.10'',2$		$mn = 05'.27'',5$	
$mn = 610'',2$		$mn = 327'',5$	
$\frac{1}{2}d' = 997'',1$		$\frac{1}{2}d' = 994'',8$	
$fm-mn = 386'',9$		$fm-mn = 667'',3$	
$fm+mn = 1607'',3$		$fm+mn = 1322'',3$	
$fn = 791'',6$	$\log. fn = 2.8985102$	2.9745137	$fn = 943'',0$
$p = 1317'',1$			$p = 1520,6$
$SN = 525'',5$	$\log = 2.7180863$	3.3915702	$SN = 2463'',6$
$SN' = 849,7$	$\log = 2.9292897$	3.6028324	$SN' = 4007'',1$
$SN' = 14'.09'',7$			$SN' = 1h.06'.47'',1$
Tempora observat.	$= 18h.07'.13'',5$	$18h.59'.36'',86$	
	$SN' = 14.09,7$	$-1.06.47,1$	
Ex immersione prodit δ	$= 17h.53'.03'',8$	$17h.52'.49'',76$	$= \delta$ ex emersione.

XXXVI.

Occultationis α 2 Cancri Albae Helviorum a celeberr. Flauguergues
observata emersio fuit $= 18h.06'.27'',4$ tempore solari medio.

XXXVII.

XXXVII.

Elementa.

Obliquitas Eclipticae	= ω =	23°. 27'. 50'', 98
Latitudo stellae	= β =	5. 05. 38, 3
Longitudo stellae	=	130. 59. 24, 1
Latitudo geographica	= ϕ =	44. 29. 13
Latitudo correctae	= ϕ' =	44. 18. 54, 6
Mot. hor. solis in longit.	= - - -	02. 32, 9
Depressio telluris	= $\frac{1}{334}$	
Differ. Merid. suppos.	= - - -	09. 19, 3

Cum differentiam Lutetiam Parisiorum inter et Vivarium = - 9'. 24'', in recentiori perfectiorique catalogo longitudinum apud illust. Delambre justo majorem censueris, medium observationum, velut:

Occultationum stellarum inerrantium, et errantium,	⊙ Eclipsos	1802 27mo Aug.	=	9'. 16'', 5
	ϕ δ	1798 21mo Aug.	=	9. 23, 3
	γ	1792 7mo Apr.	=	9. 16, 3
	δ γ	1796 14to Mart.	=	9. 20, 0
	Spica	1801 30mo Mart.	=	9. 20, 3
	δ m	1799 25to Febr.	=	9. 19, 7
	1. 2. ω	1799 4to Sept.	=	9. 20, 3
	in calculis suppositi			+ 9'. 19'', 3

Conf. illustr. Bode III. Supplem. p. 71.

Tempore Emersionis.

Longitudo vera ⊙	=	-	-	-	175°. 53'. 20'', 7
- media	=	-	-	-	276. 0. 48, 4
Longitudo vera ☾	=	L	=	-	131. 34. 18, 2
Latitudo -	=	B	=	-	-4. 10. 48, 8
Parallaxis ☾	=	π	=	-	60. 19, 3
Semidiameter ☾	=	$\frac{1}{2}d$	=	-	16. 27, 82
Motus horar. ☾ in longitudine.					
1) hora sequenti	-	-	-	-	+ 36. 53, 11
2) hora praecedenti	-	-	-	-	+ 36. 53, 33
Variatio motus semihoraria	-	-	-	-	- - 0, 107
Parallaxis ☾ longitud.	=	p	=	-	- 24. 41, 3
Latitudo ☾ correctae	=	B'	=	-	-4. 54. 45, 9
Semidiameter ☾ auct.	=	$\frac{1}{2}d'$	=	-	- - 997, 4

XXXVIII.

Longitudo et Latitudo Nonagesimi.

$$\mu = 187^{\circ}.73'.57'',0$$

Latitudo.

$$x = -6^{\circ}.44'.47'',4$$

$$a = 23^{\circ}.27'.50'',9$$

$$a+x = 15^{\circ}.43'.03'',5$$

$$b = 42^{\circ}.44'.25'',0 \quad \sin b = 9,8316626$$

Longitudo.

$$l = 164^{\circ}.55'.36'',5 \quad \sin l = 9,4150618$$

XXXIX.

Parallaxis Longitudinis.

$$p = -24'.41'',3 \quad \operatorname{tg} p = 7,8562262n$$

$$p = -1481'',3$$

XL.

Latitudo Lunae correcta.

$$B' = -4^{\circ}.54'.45'',9 \quad \operatorname{tg} B' = 8,9342690n$$

XII.

Augmentum Semidiametri Lunae.

Emersio.

$$\frac{1}{2}d' = 16'.37'',4 \quad \sin \frac{1}{2}d' = 7,6844717$$

$$\frac{1}{2}d' = 997,4$$

Cele-

Celeberr. Olbers, vir et in eruditione et in acumine ingenii divinus, concisas formulas, elegantemque demonstrationem proposuit, calculisque olim a me Gottingae editis adhibuit. Vid. illustr. Bode astronom. Jahrbuch 1808 p. 196. Jb. 1811. p. 95. Calculos subductos secundis curis perpolienti ex Olbersii formulis mihi prodit

$$p = 24'.41'',0; B' = 4^{\circ}.54'.46'',0; \frac{1}{2}d' = 16'.37'',4$$

XLII.

Tempus δ .

$$B' = 4^{\circ}.54'.45'',9$$

$$\beta = 5.05.38,3$$

$$mn = -10'.52'',4$$

$$mn = -652'',4$$

$$\frac{1}{2}d' = -997,4$$

$$fm - mn = -345'',0$$

$$fm + mn = -1649'',8$$

$$fn = -757'',3$$

$$p = -1481,3$$

$$SN = -2238'',6$$

$$SN' = -3641'',1$$

$$SN' = 1h.0'.41'',1$$

$$\text{Tempus observationis} = 18h.06'.27'',4$$

$$SN' = -1.0.41,1$$

Ex emersione observata

igitur efficitur δ

$$= 17h.05'.46'',3$$

XLIII.

Conclusio.

Cum fere omnes observationes immersionis a Collegis amicis-
simis mecum communicatae notam incertitudinis ab ipsis Astronomis,
in epistolis ad me datis, inustam prae se ferrent, incursio stellae in-
super in partem lunae lucidam accidisset, neque correctiones ele-
mentorum dSm , dB , et $d\pi$ in tempora conjunctionis invehere, neque
ullam immersionem observatam in complexionem inferre cautius exi-
stimavi.

stimavi. Longitudinem igitur nostram geographicam tantum ex emersionibus, quae ex parte obscura lunae prosilientes certitudinis momentum exactaeque observationis testimonium ab Astronomis supra laudatis retulerunt, tuto determinaveris. Atqui evenerunt

					Ergo		
1.	♂ Monachii	-	-	-	17h.33'.39'',4	} = -	10'.09'',1
	Fani Gabromagi	-	-	-	17. 43. 48, 5		- 47. 12, 0
							<u>- 37'.02'',9</u>
2.	♂ Monachii	-	-	-	17h.33'.39'',4	} = +	06'.35'',7
	Ochsenhusii	-	-	-	17. 27. 03, 7		30. 31, 6
							<u>- 37'.07'',3</u>
3.	♂ Monachii	-	-	-	17h.33'.39'',4	} = -	19'.10''36
	Viennae	-	-	-	17. 52. 49, 76		56. 10, 0
							<u>- 36'.59'',64</u>
4.	♂ Monachii	-	-	-	17h.33'.39'',4	} = +	27'.53'',1
	Albae Helviorum	-	-	-	17. 05. 46, 3		09. 19, 3
							<u>- 37'.12'',4</u>

Observationem Vivariensem, cum expresse atque adeo ab Astronomo perpolitissimo notata sit: „Observation très exacte” quamvis paulo plus a caeteris dissidentem, a complexione haud excludere religioni habui, omniumque igitur medium constitui arithmeticum =

$$= - 37'.05'',56 \text{ tempore,}$$

specula quidem Regis, quae Monachii est, a Parisiorum specula Caesaris versus Orientem distante.

Ex quibus jam tandem Longitudo Monachii geographica a coelo devocata, quae inde a Scheineri tempestate, decursis duobus fere seculis, omnis jacuit, conficitur

$$29^{\circ}.16'.23'',4$$