

## 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

CAROLO FELICI SEYFFER.

Commentatio prior lecta in consessu academico III. Nonarum Septembris  
a<sup>o</sup> DCCC VIII.

Inest occultatio  $\alpha^2$  cancri.

Cum Augustissimus Rex MAXIMILIANUS JOSEPHUS speculam  
astronomicam in agro prope Ramersdorf a me electo construi apud  
se consituisset, eodem in loco speculam parvam, a principi specula  
30 passus versis 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 firinata, 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 Montg  las, Regi a Secretis principem, optunum, tamquam liberalissimorum animorum documentum pie et grate referet Urania.

## I.

Occultatio  $\alpha^2$  cancri tubo achromatico Dollondii 27<sup>5</sup><sup>ies</sup> augente a me  
observata 1806 Decembris 27<sup>mo</sup>.

Immersio 17.<sup>h</sup> 46.' 47,"64 }  
Emersio 18.<sup>h</sup> 37.' 36,"2 } tempore solari medio.

Coelum apprimè serenum, observatio exacta.

*Immersio computata.*

| Monachii.                                                                                                                                            |                   |                                                | Locus solis.  |     |     |     |     |     |     |     |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|--|
| 1806. 27 <sup>mo</sup> Dec. 17. <sup>h</sup> 46.' 47,"64 temp. med. = 28 <sup>vo</sup> Dec. 5. <sup>h</sup> 9.' 41,"64.<br>temp. med. civ. Parisino. |                   |                                                |               |     |     |     |     |     |     |     |  |
|                                                                                                                                                      | Longitudo ☉       | Perigeum.                                      | M.            | A.  | B.  | C.  | D.  | E.  | F.  | N.  |  |
| Aeq. secul.                                                                                                                                          | - - - 0,5         | - - - 0,03                                     |               |     |     |     |     |     |     |     |  |
| 1806.                                                                                                                                                | 95.09°.56'.43,"2  | 9.509°.35'.15,"00                              | 839           | 344 | 278 | 154 | 836 | 733 | 546 | 230 |  |
| 28 <sup>vo</sup> 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. <sup>h</sup> - -                                                                                                                                  | - 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                              |               |     |     |     |     |     |     |     |  |
|                                                                                                                                                      |                   | 11. 26. 22, 293                                | 947           | 596 | 268 | 761 | 362 | 816 | 580 | 283 |  |
| ☉                                                                                                                                                    | 95.05°.58.33",90  | 11. 26, 371 Anom. med.                         |               |     |     |     |     |     |     |     |  |
| Aeq. Cent.                                                                                                                                           | 11.29. 51. 47,31  |                                                |               |     |     |     |     |     |     |     |  |
| Var. sec. -                                                                                                                                          | - - - 0,03        | Obliquitas Eclipticae.                         |               |     |     |     |     |     |     |     |  |
| A - -                                                                                                                                                | - - - 03,26       |                                                |               |     |     |     |     |     |     |     |  |
| la 3 <sup>ia</sup> part.                                                                                                                             | - - - 0,20        |                                                |               |     |     |     |     |     |     |     |  |
| B. C. - -                                                                                                                                            | - - - 16,87       | Obliquitas med. 1800 = 23°. 27.' 57,"60        |               |     |     |     |     |     |     |     |  |
| 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 ☉                                                                                                                                           | 95.05°.51'10,"87  | Longitudo vera ☉ = - - 275. 51. 19, 87         |               |     |     |     |     |     |     |     |  |
| ☉                                                                                                                                                    | 9. 05. 58. 33,90  | Longitudo med. ☉ = - - 275. 58. 51, 54         |               |     |     |     |     |     |     |     |  |
| Nut. ☉                                                                                                                                               | - - 17,64         | Anom. media ☉ = 115. 26°.22.' 17,"57           |               |     |     |     |     |     |     |     |  |
| Lg. med. ☉                                                                                                                                           | 95.05°.58'.51",54 | Motus horarius ad long. relatus = 02.' 32,"9   |               |     |     |     |     |     |     |     |  |

Emer-

*Emersio computata.*

| Monachii.                                                                                                                                                        |                   |                    | Locus solis.  |     |     |     |     |     |     |     |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|---------------|-----|-----|-----|-----|-----|-----|-----|--|
| 27 <sup>mo</sup> Dec. 18. <sup>h</sup> 37. <sup>'</sup> 36, "2 temp. med. = 28 <sup>vo</sup> Dec. 6 <sup>h</sup> 0. <sup>'</sup> 30, "2<br>temp. Parisino medio. |                   |                    |               |     |     |     |     |     |     |     |  |
| 1806.                                                                                                                                                            | Longit. med. ☉    | Perigeeum.         | M.            | A.  | B.  | C.  | D.  | E.  | F.  | N.  |  |
| 28 <sup>vo</sup> Dec.                                                                                                                                            | 9s.05°.45'.50, "8 | 9s.09°.36'.16, "33 | 940           | 569 | 267 | 760 | 362 | 816 | 580 | 283 |  |
| 6. <sup>h</sup> - -                                                                                                                                              | - - 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, 05       |                    |               |     |     |     |     |     |     |     |  |
| Nut. ☿ -                                                                                                                                                         | - - - 17, 64      |                    |               |     |     |     |     |     |     |     |  |
| Nut. ☉ -                                                                                                                                                         | - - - 0, 20       |                    |               |     |     |     |     |     |     |     |  |
| Aberr. ☉                                                                                                                                                         | - - - 0, 33       |                    |               |     |     |     |     |     |     |     |  |
| Lg. vera ☉                                                                                                                                                       | 9s.05°.53'29, "32 |                    |               |     |     |     |     |     |     |     |  |
| ☉                                                                                                                                                                | 9. 06. 0. 39, 10  |                    |               |     |     |     |     |     |     |     |  |
| Nut. ☿ -                                                                                                                                                         | - - - 17, 64      |                    |               |     |     |     |     |     |     |     |  |
| Lg. med. ☉                                                                                                                                                       | 9s.06°.0'.56, "74 |                    |               |     |     |     |     |     |     |     |  |

*Immersio computata.*

| Immersio Monachii.                                                                                                         |                    |                    | Locus Lunae.      |                    |       |
|----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|-------------------|--------------------|-------|
| 1806. 27 <sup>mo</sup> Dec. 17 <sup>h</sup> 46'.47'',64 temp. med. astr. = 28 <sup>vo</sup> Dec. 5 <sup>h</sup> 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 | -     |
| 28 <sup>vo</sup> Dec.                                                                                                      | 2. 16. 40. 44, 70  | 1. 06. 27. 43, 2   | - - -             | 0. 19. 07. 0,8     | -     |
| 5 <sup>h</sup>                                                                                                             | 0. 02. 44. 42, 30  | 0. 02. 44. 18, 7   | - - -             | - - -              | 39,7  |
| 9 <sup>h</sup>                                                                                                             | - - - 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        |                   |                    |       |
| III.                                                                                                                       | 7. 09. 0 - -       | - - - 19, 5        | XXV.              | 11. 12. 52. 34,1   | -     |
| IV.                                                                                                                        | 6. 16. 49 - -      | - - - 08, 2        | XXVI.             | 7. 04. 46. 38,5    | -     |
| V.                                                                                                                         | 7. 23. 55 - -      | - - - 01. 21, 5    | XXVII.            | 4. 03. 21. 23,4    | -     |
| VI.                                                                                                                        | 2. 20. 17 - -      | - - 2. 53. 29, 9   | XXVIII.           | 7. 23. 05. 48,3    | -     |
| VII.                                                                                                                       | 1. 22. 12 - -      | - - - 14, 3        |                   |                    |       |
| VIII.                                                                                                                      | 4. 06. 22 - -      | - - - 01, 3        | 24. aeq.          | 0. 03. 23. 41,2    | -     |
| IX.                                                                                                                        | 11. 15. 05 - -     | - - - 49, 8        | 25 <sup>ta</sup>  | 11. 26. 0. 50,6    | -     |
| X.                                                                                                                         | 2. 07. 07 - -      | - - - 01. 49, 6    | ☾                 | 4. 11. 13. 26,6    | -     |
| XI.                                                                                                                        | 2. 14. 22 - -      | - - - 03. 13, 6    |                   |                    |       |
| XII.                                                                                                                       | 7. 20. 17 - -      | - - - 00, 3        | ☾'                | 4. 10. 37. 58,4    | -     |
| XIII.                                                                                                                      | 2. 25. 39 - -      | - - - 05. 04, 2    | 26 <sup>ta</sup>  | 0. 01. 12. 37,8    | -     |
| XIV.                                                                                                                       | 3. 02. 55 - -      | - - - 01. 47, 5    |                   |                    |       |
| XV.                                                                                                                        | 1. 18. 34 - -      | - - - 03, 9        | ☾''               | 4. 11. 50. 36,2    | -     |
| XVI.                                                                                                                       | 1. 25. 50 - -      | - - - 02, 3        | 27 <sup>ma</sup>  | - - - 49,5         | -     |
| XVII.                                                                                                                      | 3. 11. 55 - -      | - - - 03, 4        | 28 <sup>va</sup>  | 11. 29. 13. 28,5   | -     |
| XVIII.                                                                                                                     | 0. 17. 46 - -      | - - - 01. 23, 7    | Nut. ☾            | - - - 17,6         | -     |
| * XIX.                                                                                                                     | 8. 11. 41 - -      | - - - 06, 3        |                   |                    |       |
| XX.                                                                                                                        | 5. 10. 01 - -      | - - - 16, 4        | ☾ <sup>v</sup>    | 4. 11. 05. 11,8    | -     |
| 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                                                                                         |                    |                    |                   |                    |       |

\* Cum Tabula Illustris Delambre ad sinus simplicum sit constructa, aequationem XIXnam ad formulam ipsam celeberr. Bürg Avtam computaveris. Ex illustris Triesnecker formula — 8'',8 sin. 2 Dist. ☾ a ☉ — 2 anom. med. ☾ prodit aequatio — 05'',2.

*Immersio computata.*

| Immersio Monachii.                             |                                    |                            |  | Locus Lunæ.            |              |                   |          |
|------------------------------------------------|------------------------------------|----------------------------|--|------------------------|--------------|-------------------|----------|
|                                                |                                    |                            |  | Motus horar. Longitud. |              |                   |          |
|                                                | Argumenta<br>Latitudinis.          | Aequation.<br>Latitudinis. |  | Imi<br>ordinis.        |              | Idi<br>ordinis.   |          |
| ☾''                                            | 4 <sup>s</sup> . 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   |
| ☾'''                                           | 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, 30        | 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                    |  | XXVII. -               | 0, 02        | 25bis -           | 0, 054   |
| XI. -                                          | 7. 24. 40 - -                      | - 0, 9                     |  | XX. -                  | 0, 55        | 26bis -           | 0, 468   |
| XII. -                                         | 4. 11. 12 - -                      | - 14, 0                    |  | XXIII. -               | 0, 01        | 27bis -           | 0, 000   |
|                                                |                                    |                            |  | XXIV. -                | 0, 03        | 28bis -           | - 2, 284 |
| Lat. = - 4°. 09'. 11''. 0 Parall. aequatorial. |                                    |                            |  | XXV+I. -               | 0, 75        |                   |          |
|                                                |                                    |                            |  | V. - -                 | - 45, 93     | Idi ord.          | - 0, 092 |
|                                                | XXV. -                             | - 58'. 56'', 2             |  | Aequat. -              | 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   |                   |          |
|                                                | XXIII. -                           | - 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 praecedenti. |          |

*Emersio computata.*

| Emersio Monachii.                                                                                                                     |                   |                    | Locus Lunae.       |                  |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|--------------------|------------------|
| 1806. 27 <sup>mo</sup> Dec. 18. h 37'. 36'', 2 temp. med. astr. = 28 <sup>vo</sup> Dec. 6h .0'. 30'', 2.<br>temp. med. civ. Parisino. |                   |                    |                    |                  |
| 1806.                                                                                                                                 | Longit. med. ☾    | Anom. med.         |                    | Suppl. Nodi.     |
| 28 <sup>vo</sup> Dec.                                                                                                                 | 48.08°.23'.25'',0 | 118.08°.38'.51'',6 | - - -              | 35.11°54'.16'',3 |
| 6. h - -                                                                                                                              | - 03. 17. 38, 8   | - 03. 15. 58, 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. 29,6     | 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         | 25 <sup>ta</sup> - | 11. 26. 03. 56,2 |
| X. - -                                                                                                                                | 2. 08. 0. - -     | - - 01. 52,0       | ☾                  | 4. 11. 41. 20,2  |
| XI. - -                                                                                                                               | 2. 15. 12. - -    | - - 03. 13,9       |                    |                  |
| XII. - -                                                                                                                              | 7. 22. 17. - -    | - - - 0,3          | ☾'                 | 4. 11. 08. 57,4  |
| XIII. - -                                                                                                                             | 2. 26. 05. - -    | - - 05. 04,3       | 26 <sup>ta</sup> - | - 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         | 27 <sup>ma</sup> - | - - - 49,9       |
| XVII. - -                                                                                                                             | 3. 11. 55. - -    | - - - 03,4         | 28 <sup>va</sup> - | 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         | ☾ <sup>v</sup>     | 4. 11. 36. 27,1  |
| XXI. - -                                                                                                                              | 6. 17. 27. - -    | - - - 0,8          |                    |                  |
| 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<br>latitudinis.                            | Aequationes<br>latitudinis. |                          | Imi<br>ordinis. | Idi<br>ordinis.   |
| ☾''<br>27ma<br>const.                       | 4s. 12°. 21'. 48'', 1<br>- - - 49, 9<br>11. 29. 20 - |                             | I. -                     | 0'. 00'', 03    | IV. - 0,005       |
| ☾'''                                        | 4. 11. 42. 38,0                                      | 93°. 58'. 09'', 2           | II. -                    | - 0,20          | VII. - 0,038      |
| I. -                                        | 7. 23. 37. 07,6                                      | - 11. 31,8                  | III. -                   | - 0,05          | IX. - 0,002       |
| II. -                                       | 6. 18. 02 -                                          | - - 0,5                     | IV. -                    | - 0,13          | X. - 0,000        |
| III. -                                      | 7. 27. 13 -                                          | - - 34,3                    | V. -                     | - 0,12          | XI. - 0,000       |
| IV. -                                       | 8. 11. 42 -                                          | - - 0,0                     | VII. -                   | - 0,66          | XIII. - 0,000     |
| V. -                                        | 8. 29. 47 -                                          | - - 0,1                     | VIII. -                  | - 0,01          | XIV. - 0,000      |
| VI. -                                       | 9. 17. 52 -                                          | - - 11,2                    | IX. -                    | - 0,58          | XV. - 0,000       |
| VII. -                                      | 6. 14. 26 -                                          | - - 05,1                    | X. -                     | - 01,37         | XX. - 0,004       |
| VIII. -                                     | 6. 21. 38 -                                          | - - 02,2                    | XI. -                    | - 01,64         | VI. - 0,001       |
| IX. -                                       | 5. 29. 57 -                                          | - - 06,5                    | XIII. -                  | - 01,11         | XXV. 1,432        |
| X. -                                        | 7. 06. 07 -                                          | - - 01,0                    | XIV. -                   | - 0,24          | XXVI. 0,020       |
| XI. -                                       | 7. 24. 12 -                                          | - - 13,0                    | XV. -                    | - 0,14          | XXVII. 0,007      |
| XII. -                                      | 4. 11. 43 -                                          |                             | XVI. -                   | - 0,05          | XXVIII. 0,146     |
| Lat. = — 4°. 10'. 55'', 8 Parall. aequator. |                                                      |                             | XXVIII. -                | - 0,03          | 25bis - 0,054     |
|                                             |                                                      |                             | XX. -                    | - 0,55          | 26bis - 0,468     |
|                                             |                                                      |                             | XXIII. -                 | - 0,01          | 27bis - 0,000     |
|                                             |                                                      |                             | XXIV. -                  | - 0,03          | 28bis - 2,284     |
|                                             |                                                      |                             | XXV + I. -               | - 0,75          | Idi 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   |                   |
|                                             |                                                      |                             | Idi 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  $\alpha$  2 Cancri.

$$\text{AR med. 1800} = 131^{\circ}.53'.02'', \text{an. var.} = +49'', 26. \delta = 12^{\circ}.37'.24'', \text{var.} = -13'', 37$$

$$6\text{an.}, 99 \times 49'', 26 = - + 05'.44'', 3. - 13'', 37 \times 6\text{an.}, 99 = - 01'.33'', 4$$

$$\text{AR. med. 1806, 28}^{\text{vo}} \text{ Dec.} = 131^{\circ}.58'.49'', 3 = \alpha - - - - \delta = 12^{\circ}.35'.50'', 6$$

## Aberratio.

$$\text{Long. } \odot = 9\text{s. } 05^{\circ}. 59'.$$

$$A = - 29,9$$

$$\odot + A - \alpha = 143^{\circ}. 13'.$$

In AR.

In  $\delta$ .

$$\log. a = - - 1.3061.n. - - 1.3061.n$$

$$\log. \cos. \odot + A - \alpha = 9.9051 \quad \log. \sin = 9.7743$$

$$C. \log. \cos \delta = 0.0106.n \quad \log. \sin = 9.3386$$

$$1.2218 - - - 0.4190.n$$

$$\text{Aberratio in AR.} = +16'', 66 \quad \text{In } \delta \text{ pars} = -2, 62$$

$$\odot + \delta = -1, 29$$

$$\odot - \delta = +0.47$$

$$\text{Aberr. in } \delta = -3, 44$$

$$\text{AR. med.} = 131^{\circ}. 58'.46'', 3$$

$$\text{Aberr. in AR.} = - - + 16, 66$$

$$\text{Nut. in AR.} = - - + 17, 05$$

$$\text{AR. app.} = 131^{\circ}. 59'.20'', 01$$

## Nutatio.

$$\Omega = 8\text{s. } 18^{\circ}.05'$$

$$B = - 03. 55$$

$$\Omega + B - \alpha = 122^{\circ}. 12$$

$$c = + 16'', 18$$

In AR.

In  $\delta$ .

$$\log. b = 0.8636.n - - - 0.8636.n$$

$$\log. \cos. \Omega + B - \alpha = 9.7266.n \quad \log. \sin = 9.9274$$

$$\log. \text{tg. } \delta = 9.3501 - - - 0.7910.n$$

$$9.9403 - \text{numerus} = 0, 87$$

$$c = 16, 18$$

$$\text{Nut. in AR.} = +17.05$$

$$\text{Nut. in } \delta = - 6, 18$$

$$\delta \text{ med.} = 12^{\circ}.35'.50'', 6$$

$$\text{Aberr. in } \delta = - - 03, 44$$

$$\text{Nut. in } \delta = - - 06, 18$$

$$\delta \text{ app.} = 12^{\circ}.35'.40'', 98$$

Ascensionem rectam ex Bradley, Declinationem ex Bradley et celeberr. Piazzii: stellarum inerrantium Positiones mediae Panorm. 1803 cum variationibus desumpti, 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. \*

$$\begin{array}{rcl}
 \sin AR. & = & 0.8711493 \\
 \cot. \delta & = & 0.6508293 \\
 \hline
 \text{tg. } x & = & 0.5219786 \quad - \quad x = 73^{\circ}.16'.04'',9 \quad - \quad \cos. x = 0.4592341 \\
 & & \text{obliq.} = 23. 27. 50, 9 \\
 & & y = 96. 43. 55, 8 \quad - \quad \cos. y = 0.0690326 \\
 & & \cos. y = 0.6097985 \\
 & & \cos. x = 0.3385637 \\
 & & \sin \delta = 0.3385637 \\
 & & \sin lat. = 0.9483622 \\
 & & * \text{ Latitudo} = -5^{\circ}.05'.38''.3 \\
 \text{tg. lat.} & = & 8.9498827 \\
 \text{tg. } y & = & 0.9279630 \\
 \hline
 \sin long. & = & 0.8778457 = 49^{\circ}. 0'.35'',9 \\
 & & 180^{\circ} \\
 \text{Long.} & = & - 49. 0'. 35'',9 \\
 \text{Long. } * & = & 130^{\circ}. 59'. 24'',1
 \end{array}$$

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

## IV.

## Correctio Latitudinis.

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

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

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

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

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

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

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

$$\begin{aligned}
 \phi - \phi' &= 618''.4836 \sin 2\phi - 0''.9273 \sin 4\phi + 0''.0018 \sin 6\phi - \\
 &= + 10'.14'',805 + 0'',2007 \quad - \quad 0'',0017 \\
 &= 10'.15'',005
 \end{aligned}$$

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

## 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       | $= \phi =$   | 48. 07. 33         |
| Latitudo correcta          | $= \phi' =$  | 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'. 10'', 87 | 275°. 53'. 29'', 32 |
| Media - - -                                        | - - - | -     | 275. 58. 51, 5      | 276. 0. 56, 74      |
| Longitudo vera $\mathcal{E} = L$                   | - - - | -     | 131. 05. 11, 8      | 131. 36. 27, 1      |
| Latitudo $= B$                                     | - - - | -     | 4. 09. 11, 0        | -4. 10. 55, 8       |
| Parallaxis $\mathcal{E} = \pi$                     | - - - | -     | 60. 19, 0           | - 60. 19, 3         |
| Semidiameter $\mathcal{E} = \frac{1}{2}d$          | - - - | -     | 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 $\mathcal{E}$ longitud. $= p$           | - - - | $= -$ | 20. 06, 5           | - - - 24. 06, 1     |
| Latitudo $\mathcal{E}$ correcta $= B'$             | - - - | $= -$ | 4. 54. 10. 0        | - 4. 58. 52, 3      |
| Semidiameter $\mathcal{E}$ auct. $= \frac{1}{2}d'$ | - - - | -     | 997, 9              | - - - 995, 8        |

## VI.

## Longitudo et Latitudo Nonagesimi.

$$\text{Tg } x = \sin \mu \cdot \cot \varphi'$$

$$\text{Sin latitud. Nonag.} = \sin b = \frac{\sin \varphi' \cos (\omega + x)}{\cos x}$$

$$\text{Sin longit. Nonag.} = \sin l = \text{tg } b \cdot \text{tg } (\omega + x)$$

| Immersio.                     |                             |                    | Emersio.            |     |                               |
|-------------------------------|-----------------------------|--------------------|---------------------|-----|-------------------------------|
| Longit. med. ☉                | =                           | 275°. 58'. 51'', 5 | 276°. 0'. 56'', 74  |     |                               |
| Temp. med.                    | =                           | 266. 41. 54, 6     | 279. 24. 03, 00     |     |                               |
| Nut. ☿                        | =                           | - - 17, 6          | - - - 17, 64        |     |                               |
| $\mu$                         | =                           | 182°. 41'. 03'', 7 | 195°. 25'. 17'', 38 |     |                               |
| $\cot \varphi' = 9.9551233$   |                             |                    | 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           | -   | $\omega + x = 9. 58. 34, 0$   |
|                               | $\sin \varphi' =$           | 9.8707661          | 9.8707661           |     |                               |
|                               | $\text{C. } \cos x =$       | 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°.                         | $\text{tg } b =$            | 9.9836800          | 0.0573867           | - - | 180°.                         |
| $21^\circ. 45'. 06'', 7$      | $-\sin l =$                 | 9.5688904          | 9.3027564           | - - | $11^\circ. 35'. 0'', 7$       |
| $l = 158^\circ. 14'. 53'', 3$ |                             |                    |                     |     | $l = 168^\circ. 24'. 59'', 3$ |

## VII.

## Parallaxis Longitudinis.

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

| <i>Immersio.</i>                                 |  | <i>Emergio.</i>           |                      |
|--------------------------------------------------|--|---------------------------|----------------------|
| $\sin \pi = 8.2441410$                           |  | 8.2441770                 |                      |
| $\cos b = 9.8574917$                             |  | 9.8189014                 |                      |
| $\sin \pi \cdot \cos b = 8.1016327$              |  | 8.0630784                 |                      |
| $\cos B = 0.9973819 \cdot \cos(l-L) = 9.9492549$ |  | 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                 |                      |
| $\sin(l-L) = 9.6594413n$                         |  | 9.7775345n                |                      |
| $p = -20'.06'',5$ - $\text{tg } p = 7.7671360n$  |  | 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  |                                     |
| $-0.0724211 = \sin B \cdot \sin b = 9.8411719$     |  | 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  |                                     |
| $B' = -4^{\circ}.54'.10'', 0. \lg B' = 8.9333824n$ |  | 8.9403069n | $\cdot B' = -4^{\circ}.58'.52'', 3$ |

## IX.

## Augmentum Semidiametri Lunae.

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

| <i>Immersio.</i>                 |                                   |  | <i>Emersio.</i> |       |                               |
|----------------------------------|-----------------------------------|--|-----------------|-------|-------------------------------|
| 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.  $\text{C} : 3600'' = \text{Longit. vera C} - \text{Longit. stellae : x''}$

|                                          |  |  |                    |                  |                |
|------------------------------------------|--|--|--------------------|------------------|----------------|
| 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>                               |
|----------------------------------------------|-----------|-----------------------------------------------|
| $\phi = 17^h.37'.22''.$                      | - - - - - | $\phi = 17^h.37'.20''.$                       |
| $e = 17. 46. 48.$                            | - - - - - | $a = 18. 37. 36.$                             |
| $\frac{1}{2}(\phi + e) = M = 17^h.42'.05''.$ | - - - - - | $\frac{1}{2}(a + \phi) = M' = 18^h.07'.23''.$ |
| $N = 17. 16. 48.$                            | - - - - - | $N' = 18. 07. 36.$                            |
| 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<br>et conjunctionem. | pore conjunctionem inter et emersio-<br>nem. |

## XII.

## Coëfficiens constans h' computatus

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

Tempus  $\sigma$ .

Immersio.

Emersio.

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

NM = Latit. verae Lunae.

 $\vee n$  = Longit. app. }  $\odot$  $\vee N$  = Longit. ver. }  $\odot$  $nN$  = parall. longitud. $S m$  = Semidiametro  $\odot$  correctae. $\vee S$  = Longitud. \*

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

|                                               |                           |                             |
|-----------------------------------------------|---------------------------|-----------------------------|
| $B' = 4^{\circ}.54'.10'',0$                   | - - - - -                 | $B' = 4^{\circ}.58'.52'',3$ |
| $\beta = 5.05.38,3$                           | - - - - -                 | $\beta = 5.05.38,3$         |
| $m n = 11'.28'',3$                            | - - - - -                 | $m n = 06'.46'',0$          |
| $m n = 688'',3$                               | - - - - -                 | $m n = 406'',0$             |
| $\frac{1}{2}d' = 997,9$                       | - - - - -                 | $\frac{1}{2}d' = 995,8$     |
| $f m - m n = 309,6$                           | - 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                   |
| $S N = 481'',21$                              | - log = 2.6823346         | 3.3727095                   |
|                                               | - log $h' = 0.2112034$    | 0.2112622                   |
| $S N' = 782''59$                              | - log $S N' = 2.8935380$  | 3.5839717                   |
| $S N' = 13'.02'',59$                          |                           |                             |
| Tempora observation. = 17h.46'.47'',6         | 18h.37'.36'',2            |                             |
| $S N' = - 13.02,6$                            | - 1.03.56,8               |                             |
| Eximmers.igit. prod. $\sigma = 17h.33'.45''0$ | 17h.33'.39'',4            | = $\sigma$ ex emersione.    |

## XIII.

Eadem  $\alpha$  2 Cancri occultatio in specula astronomica Fani Gabromagi  
a celeberr. Derflinger observata.

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

## XIV.

## E l e m e n t a.

$$\begin{array}{l} \text{Obliquitas Eclipticae} = \omega = 23^{\circ}.27'.50'',98 \\ \text{Latitudo stellae} = \beta = - 5. 05.38, 3 \\ \text{Longitudo stellae} = 130. 59.24, 1 \\ \text{Latitudo geographica} = \phi = 48. 03.36 \\ \text{Latitudo correcta} = \phi' = 47. 53.20, 9 \\ \text{Differ. merid. suppos.} = - - - 47. 12 \\ \text{Mot. hor. solis in longit.} = - - - 02.32, 9 \\ \text{Depressio sphaerae telluris} = 33\frac{1}{4} \end{array}$$

| Tempore Immersionis.              |                        |                               |                               | Emersionis. |
|-----------------------------------|------------------------|-------------------------------|-------------------------------|-------------|
| Longitudo vera $\odot$            | = - - -                | 275 <sup>o</sup> .51'.22'',86 | 275 <sup>o</sup> .53'.33'',94 |             |
| - - media                         | = - - -                | 275. 58.54, 44                | 276. 01.01, 24                |             |
| Longitudo vera $\zeta$            | = L = - -              | 131. 05.57, 7                 | 131. 37.34, 4                 |             |
| Latitudo - -                      | = B = - -              | - 4. 09.13, 6                 | -4. 10.59, 5                  |             |
| Parallaxis $\zeta$                | = $\pi$ = - -          | 60. 19, 0                     | - 60. 19, 3                   |             |
| Semidiameter $\zeta$              | = $\frac{1}{2}d$ = - - | 16.27, 82                     | - 16. 27, 82                  |             |
| Motus horar. $\zeta$ 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 $\zeta$ longitud.      | = p = -                | - 21.15, 1                    | - 24.54, 9                    |             |
| Latitudo $\zeta$ correcta         | = B' = -               | 4. 54.50, 5                   | -4. 59.33, 4                  |             |
| Semidiameter $\zeta$ auct.        | = $\frac{1}{2}d'$ = -  | 997,4                         | - - 995,3                     |             |

## XV.

## Longitudo et Latitudo Nonagesimi.

Immersio.

Emergio.

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

## Latitudo.

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

## Longitudo.

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

## XVI.

## Parallaxis Longitudinis.

|                                                                           |                      |                                                                                             |
|---------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------|
| $\begin{array}{rcl} p & = & -21'.15''.1 \\ p & = & -1275'',1 \end{array}$ | $\lg p = 7.7911734n$ | $\begin{array}{rcl} & & 7.8602089n \\ p & = & -24'.54''.9 \\ p & = & -1494'',9 \end{array}$ |
|---------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------|

## XVII.

## Latitudo Lunae correcta.

$$B' = -4^{\circ}.54'.50'',5. \lg B' = 8.9343837n | 8.9423079n \quad B' = -4^{\circ}.59'.33''.4$$

## XVIII.

## Augmentum Semidiametri Lunae.

|                                                                                                |                                  |                                                                                                                 |
|------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------|
| $\begin{array}{rcl} \frac{1}{2}d' & = & 16'.37'',4 \\ \frac{1}{2}d' & = & 997'',4 \end{array}$ | $\sin \frac{1}{2}d' = 7.6844848$ | $\begin{array}{rcl} & & 7.6835316 \\ \frac{1}{2}d' & = & 16'.35'',3 \\ \frac{1}{2}d' & = & 995'',3 \end{array}$ |
|------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------|

## XIX.

Tempus  $\delta$ .

| <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 | 2.9682942                   | - - - $fn = 929'',59$       |
| $p = 1275'',1$                | - - - - -          | - - - - -                   | - - - $p = 1494'',9$        |
| $SN = 513'',81$               | - log = 2.7108026  | 3.3846223                   | - - - $SN = 2424'',5$       |
| $SN' = 835, 61$               | - log = 2.9220060  | 3.5958844                   | - - - $SN' = 3943'',5$      |
| $SN' = 13'.55'',61$           | - - - - -          | - - - - -                   | - - - $SN' = 1h.05'.43'',5$ |
| 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              | = $\delta$ ex emersione.    |



## XX.

Occultatio  $\alpha$  2 Cancri in specula astronomica Ochsenhusii Algoviae  
a celeberr. Philippo Ryene observata.

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

## XXI.

## Elementa.

|                             |                         |                   |
|-----------------------------|-------------------------|-------------------|
| Obliquitas Eclipticae       | $\equiv \omega =$       | 23°. 27'. 50'', 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 | $\equiv \frac{1}{3}d =$ |                   |
| 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  $- - = 30. 28, 99$

Constitui differentiam meridianorum omnium mediam  $\equiv 30'. 3r'', 6$  Lutetiam Parisiorum inter et Ochsenhusium.

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

|                                                    |             |                              |
|----------------------------------------------------|-------------|------------------------------|
| $x = -0^{\circ}.57'.10''.9$                        | - - - - -   | $x = -11^{\circ}.53'.55''.3$ |
| $\omega = 23.27.50, 9$                             | - - - - -   | $\omega = 23. 27.50, 9$      |
| $x + \omega = 22.30.40, 0$                         | - - - - -   | $x + \omega = 11. 33.55, 6$  |
| $b = 43^{\circ}.16'.20'', 7. - \sin b = 9.8359872$ | $9.8708713$ | $b = 47^{\circ}.58'.13'', 4$ |

## Longitudo.

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

## XXIII.

## Parallaxis Longitudinis.

|                    |                      |              |       |                    |
|--------------------|----------------------|--------------|-------|--------------------|
| $p = -19'.29'', 3$ | $\lg p = 7.7535270n$ | $7.8369134n$ | - - - | $p = -23'.36'', 8$ |
| $p = -1169'', 3$   | - - - - -            | - - - - -    | - - - | $p = -1416'', 8$   |

## XXIV.

## Latitudo Lunae correcta.

$$B' = -4^{\circ}.53'.44'', 8. - \lg B' = 8.9327580n \mid 8.9395883n \quad - - \quad B' = -4^{\circ}.53'.22'', 8$$

## XXV.

## Augmentum Semidiametri Lunae.

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

## XXVI.

Tempus  $\delta$ .

| <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 $\delta = 17h.27'.34'',5$ |                         | $17h.27'.03'',7$            | = $\delta$ ex emersione. |

## XXVII.

Occultatio  $\alpha$  2 Cancri Vindebonae in specula academica observata  
a celeberr. Francisco de Paula Triesnecker.

$$\left. \begin{array}{l} \text{Immersio} = 18h.05'.73'',4 \\ \text{Emersio} = 18.57.59,75 \end{array} \right\} \text{ tempore solari vero.}$$

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 ☉

| <i>Immersio.</i>                                                                                                                                                                                                          |           | <i>Emersio.</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------|
| Temp. med. Vind. = 18h.07'.15'',05                                                                                                                                                                                        | - - - - - | 18h.59'.38'',50 |
| Temp. ver. observ. = 18. 05. 37, 40                                                                                                                                                                                       | - - - - - | 18. 57. 59, 75  |
| Hinc ex tabulis colli-                                                                                                                                                                                                    |           |                 |
| igitur aequat. temp. = + 01'.37'',65                                                                                                                                                                                      | - - - - - | = + 01'.38'',75 |
| quam quidem aequationem, cum iusto major videbatur, ad formulam viri in uni-<br>versa Mathesi limati et subtilis, illustr. Lagrange: (Mem. de l'Acad. royale des<br>sciences, année 1772. I. part. Paris 1775. pag. 609.) |           |                 |

$$dT = -2ies \sin(\varphi - \alpha) - itg^2 \frac{1}{2} \omega \sin 2\varphi \\
- 2i(e - \frac{1}{2}k)k \sin 2(\varphi - \alpha) + \frac{1}{2}itg^4 \frac{1}{2} \omega \sin 4\varphi \\
- 2i(e - \frac{2}{3}k)k^2 \sin 3(\varphi - \alpha) + \frac{1}{3}itg^6 \frac{1}{2} \omega \sin 6\varphi \\
- \text{etc.} \quad - \quad - \quad - \quad - \quad - \quad + \text{etc.} \quad - \quad - \quad -$$

penitus de integro computavi, denotantibus

e. Excentricitatem solis,

 $\varphi$ . Longitudinem veram solis, $\alpha$ . Longitudinem apogei, $\omega$ . Obliquitatem apparentem eclipticae;

positis

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

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

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

$$\text{Ineunte 1801} = 0,01685318 \quad - \quad \text{Var. sec.} = - 0,000041632 \\
\text{Var. 6 annorum} = - 0,00024979 \\
1806 \text{ Dec.} - e = 0,01660339$$

Illustris Delambre Tables du ☉

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

## XXVIII.

Coëfficientes formulae ad anni 1806 Decembris 28<sup>rum</sup> computati.

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

Ad epocham anni 1806 Decembr. formula igitur abit in

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

atqui habebis:

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

Hinc neglectis interim terminis V et VI:

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

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

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

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

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

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

*Immersio.**Emergio.*

$$\begin{array}{rcl}
 \text{Tempus verum} & = & 18h.57'.37'',4 \quad - - \quad 18h.57'.59'',75 \\
 \text{Aequat. temporis} & = & + \quad 01.29.8 \quad - - \quad + \quad 01.29.83 \\
 & & 18h.07'.07'',2 \quad - - \quad 18h.59'.29'',58 = \text{tempori medio pre-} \\
 & & \text{pius accedenti.}
 \end{array}$$

His vero temporum momentis conveniant:

$$\begin{array}{rcl}
 \varphi = 275^{\circ}.51'.23'',0 & - & - & - & - & - & \varphi = 275^{\circ}.53'.36'',2 \\
 \alpha = 99.36.16,0 & - & - & - & - & - & \alpha = 99.36.16,0 \\
 \varphi - \alpha = 176^{\circ}.15'.07'',0 & - & - & - & - & - & \varphi - \alpha = 176^{\circ}.17'.20'',0
 \end{array}$$

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

## 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 apprimé coefficientem 2di termini formulae Delanbrianæ computavi.

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

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

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

$$\pi = 95.09^{\circ}.39'.$$

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

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

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

Anni 1806 27mo Dec. erat  $L = 275^{\circ}.46'$  circiter;

et formula illustr. Delambre ita se habebit:

I.

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

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

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

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

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

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

$$+ \frac{1}{15} P + 0'',09925 \sin N + 0,117 \sin (2L + N + 500) - 0'',013 \sin (2L - N)$$

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

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

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

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

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

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

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

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

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

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

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

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

$$+ 173'',78$$

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

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

| <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, 59    |
| temp.approp.med. =   | 5h.10'.56'',0  | 6h.03'.18'',34  |

Quibus momentis conveniant tempore

| <i>Immersio.</i> |               | <i>Emersio.</i>     |
|------------------|---------------|---------------------|
| I =              | 275°.58'.36'' | I = 276°. 0'.45''   |
| II =             | — 80'',31     | II = — 80'',31      |
| III =            | + 45'',38     | III = + 45'',65     |
| IV =             | 191°.57'.12'' | IV = 192°.01'.30''  |
| V =              | + 123'',60    | V = + 124'',35      |
| VI =             | — 01'',59     | VI = — 01'',59      |
| VII =            | 107°.55'.48'' | VII = 108°.02'.15'' |
| VIII =           | — 03'',26     | VIII = — 03'',24    |
| IX =             | + 05'',79     | IX = + 05'',82      |
| X =              | 23°.54'.24''  | X = 24°.03'.12''    |
| XI =             | + 05'',24     | XI = + 0'',07       |
| XII =            | — 0'',07      | XII = — 0'',00      |
| Summa =          | — 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 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. Viud.       | = | 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.

#### E l e m e n t a.

|                              |              |                    |
|------------------------------|--------------|--------------------|
| Obliquitas Eclipticae        | = $\omega$ = | 23°.27'.50'',9     |
| Latitudo stellae             | = $\beta$ =  | - 5. 05. 38, 3     |
| Longitudo - -                | = ' =        | 130. 59. 24, 1     |
| Latitudo geographica         | = $\phi$ =   | 48. 12. 36         |
| Latitudo correcta            | = $\phi'$ =  | 48. 02. 21, 2      |
| Differ. Merid. suppos.       | = - -        | + 56. 10. tempore. |
| Mot. hor. $\odot$ in longit. | = - - -      | 02. 32, 9          |
| Depressio telluris           | =            | $\frac{1}{34}$     |

| 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   |
| Parallaxis $\odot$                  | = $\pi$ =           | - -     | 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    |
| Parallaxis $\odot$ 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.

|                                      |                          |                                     |
|--------------------------------------|--------------------------|-------------------------------------|
| $x = -06^{\circ}.56'.59'',9$         | - - - - -                | $x = -17^{\circ}.48'.13'',3$        |
| $\omega = 23. 27. 50, 9$             | - - - - -                | $\omega = 23. 27. 50, 9$            |
| $x + \omega = 16^{\circ}.30'.51'',9$ | - - - - -                | $x + \omega = 5^{\circ}.39'.37'',6$ |
| $b = 45^{\circ}.54'.23'',5$          | - - $\sin b = 9.8562489$ | $b = 51^{\circ}. 0'.16'',4$         |

## Longitudo.

$$= 162^{\circ}.10'.50'',6. - \sin l = 9.4857440 \mid 9.5878450 - - - l = 172^{\circ}.58'.06'',1$$

## XXXII.

## Parallaxis Longitudinis.

|                   |                       |                   |
|-------------------|-----------------------|-------------------|
| $p = -21'.57'',1$ | - $\lg p = 7.8052090$ | $p = -25'.20'',6$ |
| $p = -131.7'',1$  | - - - - -             | $p = -1520'',6$   |

## XXXIII.

## Latitudo Lunae correctæ.

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

## XXXIV.

## Augmentum Semidiametri Lunae.

|                              |                                    |                              |
|------------------------------|------------------------------------|------------------------------|
| $\frac{1}{2}d' = 16'.37'',1$ | - $\sin \frac{1}{2}d' = 7.6843158$ | $\frac{1}{2}d' = 16'.34'',8$ |
| $\frac{1}{2}d' = 997'',1$    | - - - - -                          | $\frac{1}{2}d' = 994'',8$    |

## XXXV.

Tempus  $\delta$ .

| 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 $\delta = 17h.53'.03'',8$ |                         | $17h.52'.49'',76 = \delta$ ex emersione. |                       |

## XXXVI.

Occultationis  $\alpha$  2 Cancris Albac Helviorum a celeberr. Flaugnergus  
 observata emersio fuit  $= 18h.06'.27'',4$  tempore solari medio.

## XXXVII.

## XXXVII.

## Elementa.

|                            |                   |                    |
|----------------------------|-------------------|--------------------|
| Obliquitas Eclipticae      | = $\alpha$ =      | 23°. 27'. 50'', 98 |
| Latitudo stellae           | = $\beta$ =       | 5. 05. 38, 3       |
| Longitudo stellae          | =                 | 130. 59. 24, 1     |
| Latitudo geographica       | = $\phi$ =        | 44. 29. 13         |
| Latitudo correctae         | = $\phi'$ =       | 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, vefut:

|                                                    |                        |                 |   |             |
|----------------------------------------------------|------------------------|-----------------|---|-------------|
| Occultationum stellarum inerrantium, et errantium, | ☉ Eclipses             | 1802 27mo Aug.  | = | 9'. 16'', 5 |
|                                                    | $\phi$ $\nearrow$      | 1798 21mo Aug.  | = | 9. 22, 3    |
|                                                    | 4                      | 1792 7mo Apr.   | = | 9. 16, 3    |
|                                                    | $\delta$ 8             | 1796 14to Mart. | = | 9. 20, 0    |
|                                                    | Spica                  | 1801 30mo Mart. | = | 9. 20, 3    |
|                                                    | $\delta$ m             | 1799 25to Febr. | = | 9. 19, 7    |
|                                                    | 1. 2. $\frac{1}{2}$    | 1799 4to Sept.  | = | 9. 20, 3    |
|                                                    | in calculis supposui + |                 |   | 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 ☿                   | = $\pi$ = - -           | - 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.

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

$$s = 23.27.50,9$$

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

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

Longitudo.

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

## XXXIX.

Parallaxis Longitudinis.

$$p = -24'.41'',3 \quad - \quad \lg. p = 7,8562262n$$

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

## XL.

Latitudo Lunae correcta.

$$B' = -4^{\circ}.54'.45'',9 \quad - \quad \lg B' = 8,9312690n$$

## XLI.

Augmentum Semidiametri Lunae.

Emersio.

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

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

Gele.

Celeberr. Olbers, vir et in eruditione et in acumine ingenui divinus, concisae formulas, elegantemque demonstrationem proposuit, calculisque olim a me Gottingae editis adhibuit. Vid. illustr. Bode astronom. Jahrbuch 1803 p. 196. Jb. 1811. p. 95. Calculos subductos secundis curis perpolienti ex Olbersii formulis mihi prodiit

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

### XLII.

Tempus  $\delta$ .

$$\begin{array}{rcl} B' & = & 4^{\circ}.54'.45'',9 \\ \beta & = & 5. 05. 38, 3 \\ \hline mn & = & - 10'.52'',4 \\ mn & = & - 652'',4 \\ \frac{1}{2}d' & = & - 997, 4 \\ \hline fm - mn & = & - 345'',0 \\ fm + mn & = & 1649'',8 \\ fn & = & - 757'',3 \quad - \quad \log fn = 2.8792837 \\ \hline p & = & - 1481, 3 \\ SN & = & - 2238'',6 \quad - \quad \log = 3.3499765 \\ SN' & = & - 3641'',1 \quad - \quad \log = 3.5612387 \\ SN' & = & 1b. 0'.41'',1 \end{array}$$

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

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

$$\begin{array}{rcl} \text{Ex emersione observata} & & \\ \text{igitur efficitur } \delta & = & 17b.05'.46'',3 \end{array}$$

### XLIII.

#### C o n c l u s i o.

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 invchere, neque  
ullam immersionem observatam in complexionem inferre cautius exi-  
stimavi.

stimavi. Longitudinem igitur nostram geographicam tantum ex emer-  
sionibus, quae ex parte obscura lunae prosilientes certitudinis mo-  
mentum 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  |      |                      |
|    |                 |         |                |      | <u>- 47'.12, 0</u>   |
|    |                 |         |                |      | <u>- 37'.02'',9</u>  |
| 2. | ♂ Monachii      | - - - - | 17h.33'.39'',4 | }    | = + 06'.35'',7       |
|    | Ochsenbusii     | - - - - | 17. 27. 03, 7  |      |                      |
|    |                 |         |                |      | <u>30. 31, 6</u>     |
|    |                 |         |                |      | <u>- 37'.07'',3</u>  |
| 3. | ♂ Monachii      | - - - - | 17h.33'.39'',4 | }    | = - 19'.10''36       |
|    | Viennae         | - - - - | 17. 52. 49, 76 |      |                      |
|    |                 |         |                |      | <u>- 56. 10, 0</u>   |
|    |                 |         |                |      | <u>- 36'.59'',64</u> |
| 4. | ♂ Monachii      | - - - - | 17h.33'.39'',4 | }    | = + 27'.53'',1       |
|    | Albae Helviorum | - - - - | 17. 05. 46, 3  |      |                      |
|    |                 |         |                |      | <u>09. 19, 3</u>     |
|    |                 |         |                |      | <u>- 37'.12'',4</u>  |

Observationem Vivariensem, cum expresse atque adeo ab Astronomo  
perpolitissimo notata sit: „Observation très exacte” quamvis paulo  
plus a cacteris 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 spe-  
cula Caesaris versus Orientem distante.

Ex quibus jam tandem Longitudo Monachii geogra-  
phica a coelo devocata, quae inde a Scheineri tempestate, de-  
cursis duobus fere saeculis, omnis jacuit, conficitur

$$29^{\circ}.16'.25'',4.$$



# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Denkschriften der Akademie der Wissenschaften München](#)

Jahr/Year: 1808

Band/Volume: [01](#)

Autor(en)/Author(s): Seyffer Karl Felix von

Artikel/Article: [XVI. Super Longitudine geographica Speculae astronomicae Regiae, quae Monachii est, ex occultationibus siderum inerrantium a se observatis et ad calculos revocatis nunc primum definita 341-374](#)