

Observationes. 2. 1761. et 3. Junij.

In Observatorio Monachi

et

In Collegio Pollingano.



Math

1132



# OBSERVATIO.

Transitus ♀ per discum ☉ die astrono-  
mica 5<sup>ta</sup> Junii 1761.

IN

## OBSERVATORIO MONACENSI,

Cujus Elevatio poli 48. 9. 55" observata est, dif-  
ferentia vero horaria à Meridiano observatorii Parisini supponitur

36. 50" (cum nullâ hucusque certa observatione definiri  
potuerit.)

### F A C T A.



pe quadrantis radio trium pedum Parisinorum descripti cui  
Tubus dioptricus 3.  $\frac{1}{2}$ . circiter pedum affixus. Microme-  
trum ejus constat quatuor Filis immobilibus in Foco Tubi  
sefe ad angulos semirectos interfecantibus, & uno mobili horizontali  
Filo parallele incedenti. Pendulum astronomicum ab artifice Weilhei-  
mensi fabrefactum adhibitum fuit, cujus acceleratio supra motum me-  
dium ☉ intra 24. horas erat 10. Sec.

Tempus penduli die 5. ta Junii in meridie vera erat.  $h$  23. 57. 53"

Die 6. ta sequenti . . . 23. 58. 17.

Circa finem Observationis diameter Solis apparens inventa fuit  $13. \frac{82}{100}$ .

Revolut. micrometri sive 1898. "ergo 1 Revol.  $137 \frac{24}{100}$  sec. circa Maximi

Diameter ♀ apparens  $\frac{38}{100}$ . Revol. sive 52."

A

I. OB-

100 Revol. = 22.5 tertium

52 : 1898 :: 1 : 36.5



# I. OBSERVATIO. *Fig. I.*

Tempus penduli.

- IV. h. 44. 11. Limb. ☉. bor. ad fil. horiz. B.  
 AC 56  
 92. diff. 1. 32" 45. 7. Limb. ☉. occid. ad Fil. Vertic. D.  
 46. 39. centr. ♀. ad Fil. vert. I.  
 diff. 38" 47. 17. centr. ♀. ad Fil. horiz. H.  
 47. 47. Limb. ☉. austr. ad Fil. horiz. O.  
 48. 2. Limb. ☉. or. ad Fil. vert. Q.

# II. OBSERVATIO. *Fig. I.*

- V. h. 51. 57. Limb. ☉. bor. ad Fil. horiz. B.  
 diff 67" 53. 4. Limb. ☉. occ. ad Fil. Vert. D.  
 71" 54. 15. centr. ♀. ad Fil. Vert. I.  
 15" 54. 30. centr. ♀. ad Fil. horiz. H.  
 56. 18. Limb. ☉. or. ad Fil. Vert. Q.

*aquatio  
temporis  
1. 46*

Contactus Limbi ♀. occ. cum Limbo ☉. occid. contigit in tempore  
 penduli 21. 4. 0. ergo in temp. vero 21. 5. 46. Emerfio totalis ♀.  
 five contactus ejus Limbi orientalis cum Limbo ☉. occid. contigit in

tempore penduli 21. 22. 2. ergo in tempore vero 21. 23. 48.

Differentia emerfionum igitur 18. 2.

consequenter Emerfio centri, tempore vero 21. 14. 47.

100. temporis motus Solis in paralello efficiunt 1010. part. centesim.

Revol. microm.

*1 Hora  
= 3600  
Revolut.*

*motu hora* *Revol = 10 secundum a pen. poez in tempore*  
 Overas 2. 121. in equatore = 141. Ex

*♀ in orbit 3. 58 = 239*



Ex his datis sequitur.  
**Calculus ad I. Observat. Fig. I.**

**Data.**

**Quæsitæ.**

AC. = <sup>Temp.</sup> 56. = 565<sup>6</sup>/<sub>10</sub>. part. microm.

AF. = 108. = 1090<sup>2</sup>/<sub>10</sub>. p.

CP. = 87<sup>1</sup>/<sub>2</sub>. = 883<sup>8</sup>/<sub>10</sub>. p.

IH. = 38. = 383<sup>8</sup>/<sub>10</sub>. p.

IM = 243.

PM = 227.

IP = 470.

PG = 297<sup>8</sup>/<sub>10</sub>.

decl. ♀ à centr. ☉ IG = 363<sup>2</sup>/<sub>10</sub>. =  $\sqrt{IP^2 - PG^2}$

DC. = AB. = 691. --- p.

*Amid ☉ 15.49.*

AF. = 1090<sup>8</sup>/<sub>10</sub>.

AC = 565<sup>6</sup>/<sub>10</sub>.

FC = 525<sup>2</sup>/<sub>10</sub>.

PC = 883<sup>8</sup>/<sub>10</sub>.

PF = 358<sup>6</sup>/<sub>10</sub>. p.

AF: AB = AH: IM.

1090<sup>8</sup>/<sub>10</sub>: 691. = 383<sup>8</sup>/<sub>10</sub>: 243.

AF: AB = PF: PM.

1090<sup>8</sup>/<sub>10</sub>: 691. = 358<sup>6</sup>/<sub>10</sub>: 227.

AF: AB = IP: PG.

1090<sup>8</sup>/<sub>10</sub>: 691. = 470: 297<sup>8</sup>/<sub>10</sub>.

# 343<sup>8</sup>/<sub>10</sub>. in tempus con-

versa dant. 34. partes addenda ad

PG = 46.  
 PG = 297<sup>8</sup>/<sub>10</sub>.

A 2

343<sup>8</sup>/<sub>10</sub> #

# in part. circuli 8. 19. = 499 <sup>13820:1898:3632</sup> ad 499.

+ 34. faciunt in partibus æquatoris 8. 30.

7. 32. = cm in fig. 2

quæ est differentia Ascensionum rectarum tempore Observationis 1. mæ ubi nempe centr. ♀ attigit fil. vert. tempore vero.

16. 48. 30.

tempus à cont. limbi ☉ occ. ad fil. vert. usque ad contact. centri ♀ ad

idem filum est 92. sive in part. microm.

929 = <sup>8</sup>/<sub>10</sub> DL  
 PC. = 883<sup>8</sup>/<sub>10</sub>

*Temp. med.  
 16. 46. 39  
 + 1. 50.  
 16. 48. 30.*

*1382: 1898 = 363<sup>2</sup>/<sub>10</sub>: 499. #  
 vel gm fig.*

*243  
 227  
 470*



# Calculus ad 2.<sup>dam</sup> Observat. *Fig. 1.* Data. Quælitæ.

AC = 67" = 676  $\frac{8}{10}$  p. part. microm. AF = 974  $\frac{7}{10}$  p.

PC = 97" = 979  $\frac{8}{10}$  p. IM = 107  $\frac{4}{10}$  p.

IH = 15" = 151  $\frac{5}{10}$  p. PM = 478  $\frac{8}{10}$  p.

DC = AB = 691 p. IP = 586  $\frac{2}{10}$  p.

$\sqrt{(PC^2 - DC^2)} = PD = 694 \frac{5}{10}$  p. decl. ♀ a cent. ☉ = IG = 413  $\frac{5}{10}$  p.

PD: PC = AB: AF. † in partibus circuli 9'. 28" *Fig. 1.*  
PG = 416  $\frac{5}{10}$  p.

694  $\frac{5}{10}$ : 979  $\frac{8}{10}$  = 691: 974  $\frac{7}{10}$ . 15" faciunt in partibus æquatoris.

AF = 974  $\frac{7}{10}$ . † 3'. 45" *cl in fig. 2*

AC = 676  $\frac{8}{10}$ . quæ est differentia Ascensionum  
rectarum tempore Observationis  
2. dæ ubi nempe centr. ♀ attingit.

FC = 298 --- h 1' 11" *æquat temp. 1.52*

PC = 979  $\frac{8}{10}$ . filum vert. tempore vero 17. 56. 7.

PF = 681  $\frac{8}{10}$ . tempus à contactu limbi ☉ occid.  
ad Fil. vert. usque ad contact. centri

PC: PD. = HI: IM. ♀ ad idem Fil. est 71. et in partibus  
micrometri.

979  $\frac{7}{10}$ : 694  $\frac{5}{10}$  = 681  $\frac{7}{10}$ : 478  $\frac{8}{10}$ . - - - 717  $\frac{1}{10}$ .

PC: DC = IP: IG. PC. = 979  $\frac{7}{10}$ .

979  $\frac{7}{10}$ : 691 = 586  $\frac{2}{10}$ : 413  $\frac{5}{10}$ . part. micr. subtr. à PG = 262  $\frac{6}{10}$ .

PC: PD. = IP: PG. PG = 416  $\frac{5}{10}$ .

979  $\frac{7}{10}$ : 694  $\frac{5}{10}$  = 586  $\frac{2}{10}$ : 416  $\frac{5}{10}$ . 153  $\frac{2}{10}$ .

1382: 1898 = 413  $\frac{5}{10}$ : 568". 154. in tempus conversa dant. 15" #

Ex

*Handwritten notes:*  
1515  
1071  
478  
586

*Handwritten notes:*  
9.28



Ex his duplici Calculo datis fit calculus  
sequens. Fig. 2.

Sit S T arcus paralleli motus diurni ☉  
U Z Ecliptica.

Angulus quem efficit Ecliptica cum meridiano tempore

Observationis 83. 52. hinc cum parallelo 6. 8. erunt.

I Observ. 16. 48. 30. II. Observ. 17. 56. 7 diff. 1. 7. 37  
Data. Quæsitæ.

I observ. GM = BC = 499" in part. circ. AB = 125" in part. circ.  
II observ. HL = 568. AC = 624.  
HF = 69. AG = 486.

CI = 949. " semid. circ. " diam. 31. 38 CD = 605.

BG = CM = 472. DI = 731.

FG = LM = 261. AD = 160.

$\sqrt{\frac{FG^2 + HF^2}{2}}$  = GH = 269. DG = 326.

ang. ACR = 6. 8. GI = 405.

AD + DI = AI = 891.

FG: HF = BG: AB.

ang. CAR = 75. 11. 30."

261: 69 = 472: 125.

ARC = 98. 40. 30"

FG: GH = BG: AG.

CR = 610.

261: 269 = 472: 486.

AR = 67.

AG: BG = AC: CD.

DR = 93.

486: 472 = 642: 605.

RG = 419.

contin. verbe pag.

(A 3)

Data.

AG 486  
GH 269

temp  
269 - 4857 - 217 = 3273 = 52



Data.

$$\sqrt{CI^2 - CD^2} = DI = 731.$$

$$AG: AB = AC: AD.$$

$$486: 125 = 624: 160.$$

$$\sin. ARC: AC = \sin. CAR: CR.$$

610.

$$\sin. ARC: AC = \sin. ACR: AR.$$

67.

tempus à prima Observatione ad 2.dam elapsum, quando nempe in utraque centrum ♀ attigit filum verticale est  $1^h 7' 37''$  sive  $4057''$ . hoc nimirum tempore centrum ♀ in disco ☉ emensum est spatium  $HG = 269''$  part. circuli.

$$HG: temp. = GI: temp.$$

$$\text{Est ergo } 269: 4057 = 405: 6107 \text{ sive } 1^h 45' 47''$$

$$\text{subtract. à tempore 1.mæ Observat. } 16. 48. 30''$$

$$\text{habetur tempus ingressus centri ♀ in disc. ☉ } 15. 6. 43''$$

$$\text{subtr. semi. differ. temp. Immersion. } 9. 1'' = \text{semid. ♀ in tempore.}$$

$$\text{habetur prim. contact. limbi ♀ occ. cum limbi ☉ or. } 14. 57. 42''$$

$$\text{add. tota differentia Immersionum. } 18. 2''$$

$$\text{habetur Immersio totalis ♀ in disc. ☉ } 15. 15. 44''$$

H.G.

17. 56. 7  
16. 48. 30  
-----  
1. 7. 37



HG: temp. = RG: temp.

Est porro 269: 4057. = 419: 6320. five  $\begin{matrix} h \\ 1. & 45. & 20. \end{matrix}$

addat. tempus primæ Observat.  $\begin{matrix} h \\ G. & 16. & 48. & 30. \end{matrix}$

habetur tempus conjunctionis veræ  $\begin{matrix} h \\ R. & 18. & 33. & 50. \end{matrix}$

HG: temp. = DR temp.

Est etiam 269: 4057. = 93: 1401. five  $\begin{matrix} h \\ = & 23. & 21. \end{matrix}$

ncmpe different. inter  $\sigma$ . & med. transitûs.

Habetur ergo tempus medii transitus.  $\begin{matrix} h \\ Q. & 18. & 10. & 29. \end{matrix}$

HG: temp. = DI = FD: temp.

Est tandem 269: 4057. = 731: 11024 five  $\begin{matrix} h \\ 3. & 3. & 44. \end{matrix}$  *Q. fig. 2.*

Habetur ergo tempus egressûs centri  $\varphi$  é disco  $\odot$   $\begin{matrix} h \\ 21. & 14. & 13. \end{matrix}$

Subtrahatur semi differentia Emerfionum  $\begin{matrix} h \\ . & 9. & 1. \end{matrix}$

Habetur contact. limbi  $\varphi$  occ. cum limbo  $\odot$  occid.  $\begin{matrix} h \\ 21. & 5. & 12. \end{matrix}$

addatur tota different. Emerfionum  $\begin{matrix} h \\ . & 18. & 2. \end{matrix}$

Habetur tempus totalis Emerfionis  $\varphi$  é disco  $\odot$   $\begin{matrix} h \\ 21. & 23. & 14. \end{matrix}$

differt ergo calculus hic ab Observatione tantum . 34.  
quod in ipsa semita spatium valde exiguum efficit.

Porro CD. est distantia minima centrorum in medio transitus = 605. =

10. 5. Et quia CR = 610. erit latitudo  $\varphi$  temp.  $\sigma$ . 10. 10.

Locus  $\odot$  verus ad hoc momentum supputatus erat  $\begin{matrix} h \\ \Pi & 15. & 35. & 38. \end{matrix}$   
Inde



## Inde jam habentur sequentia Elementa.

Conjunctio ♀ et ☉ vera die 5. <sup>ta</sup> Junij	h	18.	33.	50."
Longitudo ♀ et ☉ Geocentrica hoc momento	o	15.	35.	38."
Latitudo ♀ . Geocentrica pro eod. tempore.			10.	10."
			austr. cresc.	
Differentia inter ♂ et med. transitus			23.	21."
			Subtr.	
Distancia minima centrorum in med. transitus			10.	5."
Semi diameter ☉ . apparens.			15.	49."
Semi diameter ♀ . apparens.				32."
Semi duratio transitus centralis	h	3.	4.	2."
<i>Duratio</i>		6.	8.	4"

### Igitur

Contactus I. mus limbi ♀ occ. cum limbo ☉ orient.	h	14.	57.	42."
Ingressus Centri ♀ in disc. ☉.		15.	6.	43."
Immersio totalis.		15.	15.	44."
Medium transitus		18.	10.	29."
Contact. limbi ♀ . occid. cum limbo ☉ . occid.		21.	5.	46."
Egressus Centri ♀ . é disco ☉.		21.	14.	47."
Emersio totalis		21.	23.	48."

In tubo Dioptrico 9. pedum Micrometro armato semidiameter ♀ inven-

ta est 32." quæ melius calculo respondet, ideo etiam hanc retinere malui in Elementis ad finem positis. Quodsi vero hæc cum superius inventa conferatur, atque ex utraque in unam summam collecta dimidium statuatur, erit semidiameter ♀ apparens 29."





108-115

Observatio



