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IUSTUM HENRICUM WETZEL

SCHOLÆ PUBLICÆ, QUÆ EST CASSELLIS, RECTOREM,

ET IN

ILLUSTRI COLLEGIO
CAROLINO,

PROFESSOREM THEOLOGIÆ NATURALIS

IN

PROXIMUM ANNUM MDCCLXXI

CONSTITUTUM

PRORECTOREM,

COMMENDAT

IO. MATTHIAS MATSKO.

(ARGUMENTUM SCRIPTIIONIS SUNT OBSERVAT. ASTRON.)

CASSELLIS. MDCCLXX D. ULT. DEC.

TYPIS HENRICI SCHMIEDT, TYPOGR. AUL.

JUSTUM HENRICUM WETZEL
SCHOLAE PUBLICAE, QUAE EST IN VILLAGIO S. MARTINI
CIVITATIS CASSELLIS

ILLUSTRI COLLEGIO
CAROLINO

PROFESSOREM THEOLOGIAE NATURALIS
PROXIMUM ANNUM MDCCXXI

CONSTITUTUM
PROMOTORIUM

1
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IO. MATTHIAS MATSKO
(ARGUMENTUM TUM SCRIPTIONIS SUAE OBSERVATIONES)

CASSELLIS. MDCCXXI. B. H. F. DEC.

TYPIIS HENRICI SCHNEIDER, TYPOGRAPHI





Aleitudines solis meridianas correspondentes d. 5. Maii
hoc ordine mensus sum:

mane VIII ^h 0' 49''		30° 24' 0''			amer. III ^h 56' 0''	
10	13	32	47	0	46	28
14	10	33	23	30	42	32
18	20	34	0	30	38	22
22	4	34	33	30	34	46
25	14	35	1	30	31	35
28	0	35	25	30	28	52
31	30	35	58	0	25	16
38	22	36	56	30	28	26

Ex his colligo momentum meridiei horologii incidisse in
horam XI, min. 58 sec. 23
atque adhibita emendatione — 14
in horam XI, min. 58 sec. 9.



d. 6. Maii,

mane VII ^h 37' 48''	28° 7' 0''	a mer. IV ^h 18' 16''
40 4	28 28 0	16 4
42 45	28 53 30	13 21
45 44	29 21 30	10 20
48 24	29 45 0	7 43
51 20	30 13 0	4 45
53 37	30 33 30	2 29
56 6	30 55 30	0 3
59 17	31 25 30	III ^h 56 49

Meridies ergo d. 6. Maii, incidit

in horam XI, min. 58, sec. 3
 emendatione adhibita — 15

in horam XI, min. 57, sec. 48.

Cum meridies d. 5. Maii

inciderit in horam XI, min. 58, sec. 9, sequitur horo-
 logium motum suum retardasse secundis 21.

Quodsi igitur horæ, minuta, secunda horologii exponant
 h, m, s; diei solaris H, M, S, sequitur fore $24^h - 21^s =$
 24^h , atque adeo

$$H = h - \frac{21}{24} \text{ sec.}$$

$$= h * * - 52 \text{ tert.} - 30 \text{ quart.}$$

Pono h = x. M, atque hinc

m = x. S.

s = x. T.

t = x. Quart.

q = x. Quint.

H =



$$H = x. M - 52. x. \text{Quart.} - 30. x. \text{Quint.}$$

$$= Hx \left(\frac{1}{60} - \frac{52}{60^4} - \frac{30}{60^5} \right)$$

$$= Hx \left(\frac{60^4}{60^5} - \frac{52 \cdot 60^2}{60^5} - \frac{30}{60^5} \right)$$

$$x = \frac{60^5}{60^4 - 52 \cdot 60 - 30} = \frac{77760000}{1295685} = 60' 0'' 52''' 30'''' 45'''''$$

$$\text{Est ergo } h = x. M = 60' 0'' 52''' 30'''' 45'''''$$

$$m = x. S = 60 0 52 30$$

$$f = x. T = 60 0 52$$

Transit β leonis per meridianum, indicante horologio, horam VIII, min. 44, sec. 2. Momentum ergo observationis a meridie horologii numeratum incidit in horam 8, min. 45, sec. 53.

$$\text{Cum itaque sint } 8 \text{ h} = \begin{matrix} 60' & 0'' & 52''' & 30'''' & 45''''' \\ & & & & 8 \end{matrix}$$

$$\begin{array}{r} 8 \text{ H } \quad 0' \quad 6'' \quad 4''' \quad 6'''' \quad 0''''' \\ \hline \quad \quad \quad 56 \quad \quad 0 \end{array}$$

$$\begin{array}{r} 8 \text{ H } \quad 0' \quad 7'' \quad 0''' \quad 6'''' \quad 0''''' \\ \hline \quad \quad \quad 60'' \quad 0''' \quad 52'''' \quad 30''''' \end{array}$$

$$45 \text{ m} = \begin{matrix} & & & & 45 \end{matrix}$$

$$\begin{array}{r} 45 \text{ M. } \quad 0'' \quad 39 \quad 22 \quad 30 \\ \hline \quad \quad \quad 60'' \quad 0''' \quad 52'''' \end{array}$$

$$53 \text{ f} = \begin{matrix} & & & & 53 \end{matrix}$$

$$\begin{array}{r} 53 \text{ S. } \quad 0 \quad 45 \quad 56 \end{array}$$

$$\Lambda 2 \qquad \qquad \qquad 8 \text{ H}$$



8 H	0'	7''	0'''	6''''	= H
	45	0	39	22	
		53	0	45	

sequitur esse, 8 H 46' 0'' 40''' 13'''' =

Tempus observationis verum transitus β leonis per meridianum. Cum margo lunæ occidentalis ad verticale tubi filum, appulerit, indicante horologio horam 8, min. 53, sec. 36, eadem qua prius methodo tempus observationis verum colligo fuisse horam 8, min. 55, sec. 34.

Cum ascensio recta β leonis, 1750 fuerit $51^{\circ} 24' 16''$ variatio decem annorum = $7' 47''$, atque aberratio maxima in asc. r. = $19''$, fit necesse est, ascensio recta stellæ 1770 d. 5. Maii = $51^{\circ} 24' 20' 3''$.

Locus nodi lunæ correctus = $8^{\circ} 0' 6''$
 locus solis = $1^{\circ} 15' 17' 43''$
 argumentum aberr. annuum in asc. r. = $4 8 15 31$.
 hinc vero colligitur ascensio r. apprens d. 5. Maii 1770 = $51^{\circ} 24' 20' 27''$.

Declinatio β leonis 1750 = $15^{\circ} 58' 10''$; variatio decem annorum = $- 3' 19''$. 5, aberratio maxima decl. = $8''$. 9, ergo declinatio vera β leonis d. 5. Maii

= $15^{\circ} 51' 26''$ bor.

declinatio apprens $15^{\circ} 51' 16$.

— Tempus, quod a momento culminationis stellæ, ad momentum, quo margo lunæ occidentalis, verticale in plano meridiani

ridiani extensum filum attingit, effluxit, æquatur $9' 34''$, cui ascensionis rectæ gradus respondent $2^{\circ} 23' 53'' 24'''$.

Cum horologium motum suum a meridie 5 Maii ad meridiem sextæ diei, $21''$ retardauerit: addo inuentæ ascensionis rectæ, minuta duo secunda, estque adeo differentia ascensionum rectarum stellæ et marginis lunæ = $2^{\circ} 23' 55'' 24'''$, cumque β leonis præcesserit lunam, addita differentia ascensionum rectarum ad apparentem stellæ ascensionem d. 5. Maii 1770, summa $5^{\circ} 26' 44' 22'' 24'''$ ascensionem rectam marginis lunæ occidentalis indicat.

Altitudo marginis lunæ inferioris obseruata fuit = $34^{\circ} 11' 8''$, quæ adhibita tabula refractionum BRADLEII mutatur in $34^{\circ} 9' 44''$.

Cum diameter lunæ horizontalis d. 5 Maii hor. 8 min. 55 æquetur $31' 11''$; aucta pro ratione altitudinis $17''$ (exp. du calcul astr.) æqualis erit $31' 28''$. Ergo altitudo centri lunæ æqualis est $33^{\circ} 54'$.

Ex altitudinibus meridianis sequentium quintæ et sextæ dierum, marginis lunæ inferioris, variationem declinationis lunæ, qua intra horæ spatium mutatur, collegi æqualem $11' 59''$.

Cum mora transitus disci lunaris per meridianum d. 5 Maii hora 8, min. 55, æquetur $2' 10''$: sequitur centrum lunæ, momento, quo margo lunæ occidentalis filum verticale in plano meridiani attingit, $12''$ altius appariturum fuisse, quam eo, quo ipsum in plano fuit meridiani. Est itaque altitudo centri lunæ, momento obseruationis = $33^{\circ} 54' 12''$.



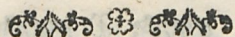
Parallaxis lunæ horizontalis momento obseruationis
 $\equiv 57' 6''$, atque angulus lineæ verticalis Cassellarum et radii
terræ $\equiv 19' 30''$. Ducta ergo illa in sinum anguli $56^\circ 25' 18''$
est parallaxis altitudinis apparentis $\equiv 47' 22''$. Hinc vero se-
quitur altitudinem centri lunæ veram, æqualem esse $34^\circ 41' 34''$.

Altitudo β leonis meridiana, adhibita iterum tabula re-
fractionum BRADLEII obseruata est $54^\circ 32' 38''$, cumque
altiludo lunæ reperta fuerit $\equiv 35^\circ 12' 57''$, erit $19^\circ 50'$
 $52'' - 15^\circ 51' 16'' \equiv 3^\circ 59' 48''$ declinatio lunæ vera
tempore obseruationis.

Semidiameter lunæ horizontalis æquatur $15' 35''$, et
complementum declinationis lunæ $\equiv 86^\circ 0' 22''$. Illa ita-
que ad sinum huius applicata, inuenitur ascensio recta semidia-
metri lunæ $\equiv 15' 32''$. Hac ergo ad ascensionem rectam
marginis occidentalis lunæ $5^\circ 26' 44' 22''$ addita est ascensio
recta centri lunæ $\equiv 5^\circ 26' 59' 59''$.

Datis ascensione recta et declinatione lunæ, longitudinem
et latitudinem eius, per notas astronomis regulas inuestigo,
subductoque calculo, longitudinem $\equiv 5^\circ 28' 50' 2''$, lati-
tudinem australem $\equiv 4^\circ 51' 34''$ reperio.

Alti-



Altitudines solis correspondentes d. 26 Iun.

mane VII ^h	22' 44''	29° 46' 30''	a merid. IV ^h	46' 14''
	27 6	30 35 30		41 48
	29 41	30 55 30		39 24
	31 52	31 18 30		37 10
	34 36	31 44 30		34 24
	37 1	32 7 0		31 59
	41 49	32 52 30		27 5
	44 20	33 15 0		24 36
	46 30	33 35 0		22 26
	48 11	33 50 30		20 49

Incidit ergo meridies d. 26 Iun. in horologii

horam XII, min. 4, sec. 29.

adhibita correctione

-+ 1'

in horam XII, min. 4, sec. 30.

sequente quidem die, d. 27 Iun. mane solis altitudines saepius obseruatae sunt, sed a meridie pluuiarum prohibuerunt, quo minus altitudines correspondentes obseruari potuerint.

Die vero 28 Iun. eundem laborem hoc ordine susceptum

IX ^h	29' 20''	48° 51' 30''
	33 55	49 28 0
	37 9	49 55 0
	38 34	50 7 30
	40 57	50 25 30
	43 0	50 40 0

B

44'



44' 39''	50° 53' 30''	11 ^h 25' 44''
47 8	51 13 0	
50 4	51 36 0	

nubes fere defluerent, cum non nisi unica altitudo correspondens obseruari potuerit.

Hac vero posita meridies horologii d. 28 Jun. incidit
in horam XII, min, 5, sec. 6.

correctione vero + 2 adhibita
in horam XII, min. 5, sec. 8.

Cum itaque d. 26 Jun. tempore meridiei horologium indicauerit XII^h 4' 30''

d. 28 Jun. XII 5 8

sequitur, motum suum a die 26, ad 27 Jun. accelerasse 19''.

Quodsi ergo h, m, s, t etc. horas, minuta, secunda horologii, H, M, S, T etc. diei solaris exponant, sequitur fore

$$H = h + \frac{19}{24} f.$$

$$= h * * + 47 t + 30 q.$$

$$H = x. M + 47. x. Q + 30. x. Quint.$$

$$= Hx \left[\frac{1}{60} + \frac{47}{60^2} + \frac{30}{60^3} \right]$$

$$= Hx \left[\frac{60^2}{60^3} + \frac{47. 60}{60^3} + \frac{30}{60^3} \right]$$

$$x = \frac{60^3}{60^2 + 47. 60 + 30} = \frac{77760000}{1396285} = 59'$$

59'' 12''' 30''''.

Ergo





Ergo h = x. M = 59' 59" 12''' 30''''
 m = x. S = 59 59 12
 f = x. T = 59 59

Satelles Iouis secundus d. 26 Iun. tubo Campaniano 16 ped.
 primum apparuit hora vespertina X, min. 26 sec. 46, clarif-
 sine autem 27' 6''. Cum meridies horologii, d. 26. Iun.
 inciderit in horam XII, min. 4, sec. 30, sequitur momen-
 tum obseruationis a meridie in horologio numeratum, esse
 horam X, min. 22, sec. 16.

Cum ergo sint 10 h =

59' 59" 12''' 30''''
 10

9^h 9 2 5 9
 50 50

9^h 59' 52" 5''' 0''''
 59' 59''' 12''''

22 m =

21' 21 4 24
 38 38

21' 59" 42''' 23''''
 59''' 59''''

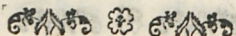
16 f =

15" 15 44
 44

15" 59''' 44

B 2

9 H



9 H 59' 52'' 5''' 0''''

21. 59 42 24

15 49 44

10 H 22' 7'' 37''' 8''''

Sequitur, satellitem Iouis secundum, d. 26 Iul. primum apparuisse Hor. X, min. 23, sec. 7, tert. 37, quart. 8 tempore vero.

Die 17 Iul. altitudines solis obseruatae fuere

mane

IX ^h	48' 17''	30° 8' 0''	IV ^h	47' 28	2 ^h	17' 52½
	51 49	30 42 0		43 58		53
	53 56	31 1 30		41 46		51
	56 1	31 21 0		39 33		47
	58 31	31 45 30		36 59		45
X ^h	1 34	32 12 30		33 56		45
	3 5	32 26 0		32 26		45
	4 49	32 43 30		30 44		46

Sole ergo planum meridiei transeunte horologiam indicauit

II^h 17' 48''

correctio meridiei $-$ 5

meridies verus II^h 17' 53.

d. 18 Iul.

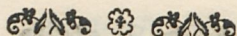
mane	alt. solis	a meridie	meridies
IX ^h 45' 41''	29° 44' 30''	VI ^h 49' 16	2 ^h 17' 28½''
48 32	30 6 0	46 34	17 33
53 36	30 44 0	42 34	35

		alt. folis	a meridie	meridies
	54' 11''	31° 1' 0''	VI ^h 40' 43	27''
	55 56	31 16 0	39 5	30 ¹ / ₂
	57 50	31 35 0	37 5	27 ¹ / ₂
X ^h	0' 52	32 3 30	34 4	28
	3 23	32 25 30	31 42	32 ¹ / ₂
		Meridies horologii	2 ^h 17' 30''	
		corr. meridiei	-+ 5	
		meridies verus	2 ^h 17' 35''	

Postero die, obseruatis iterum altitudinibus folis correspondentibus intellexi, horologium 24 horis folis motum suum retardasse 27''.

Heri vesperi indicante horologio hor. XI, min. 4. sec. 1, obseruata est sectore Grahami trium fere pedum differentia declinationum cordis scorpii (antares) et Iouis = 3° 40' 13'', differentia ascensionum rectorum = 0^h 41' 36'', adhibita refractionum tabula CAILLII.

Cum igitur meridies horologii d. 18 Iul. inciderit in 2^h 17' 35'' sintque 86373 sec. horol. = 86400 secundis diei solaris, sequitur cor scorpii transisse planum circuli declinationis 8^h 46' 36'' tempore vero. Secutus est Iupiter 41' 36'' tardius, quod temporis interuallum 10° 25' 42'' aequatur, quibus ob motum penduli 27'' tardiozem, 11'' addo, estque adeo differentia ascensionum rectorum Iouis et cordis scorpii = 10° 25' 53''.



Ascensio recta cordis scorpion 1770 æqualis est $244^{\circ} 50' 12''$

aberratio $+ 13$

pars nutationis 1. $+ 9$

correctio $- 4$

pars nut. altera $+ 3$

Ergo ascensio recta apparens cordis scorpion d. 18 Jul. 1770
 $= 244^{\circ} 50' 33''$, cumque scorpion præcesserit Iouem, sequi-
 tur ascensionem rectam apparentem Iouis esse $= 255^{\circ} 16' 45''$.

Declinatio α sc. 1770 d. 18 Jul. $25^{\circ} 54' 10''$

aberratio $+ 3$

nutatio $- 5$

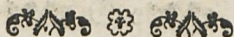
Ergo apparrens declinatio α scorpion $= 25^{\circ} 54' 8''$ austr.

Altitudo meridiana α scorpion obseruata est, adhibita tab. refra-
 ctionum CAILLII nec neglecto errore quadrantis $46'' = 12^{\circ}$
 $46' 51''$. Reductionibus omnibus adhibitis declinatio Iouis
 apparrens $= 22^{\circ} 15' 2''$.

Die 28 Iulii alt. solis

VI ^h	28,	6''	27 ^o	15'	0''	IV	43'	22''	XII ^h	5'	44''
	29	46		28	30		41	45			$45\frac{1}{2}$
	32	12		52	0		39	25			$48\frac{1}{2}$
	33	56	28	7	0		37	35			$45\frac{1}{2}$
	36	45		35	30		34	50			$47\frac{1}{2}$
	40	20	39	6	0		31	14			47
	42	0		23	0		29	33			$46\frac{1}{2}$
	43	38		38	30		27	53			$45\frac{1}{2}$

Meri-



Meridiei ergo momentum verum d. 28 Jul. fuit horologio
indicante

XII^h 5' 46 $\frac{1}{2}$ ''

corr. meridiei

+ 1 $\frac{1}{2}$ ''

XII^h 5' 48'' meridies corr.

Die 29 Jul.

VII ^h 15' 19''	25 ^o 4' 0''
17 30	23 0
19 15	41 30
21 4	57 30
24 22	26 27 30
26 2	46 0
28 6	27 5 30
30 18	25 30
35 12	28 11 0
38 21	40 0
41 25	29 28 30
44 36	39 0
55 12	31 15 30

Hoc omni tempore a meridie,
præter ultimo observationis
momento, coelum nubi-
bus obductum fuit.

IV^h 15' 56''.

Ultima vero solis observatio, si recte se habeat, necesse est
momentum meridiei fuisse, indicante horologio

XII^h 5' 34''

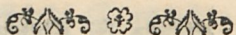
corr. merid.

+ 1''

XII^h 5' 35'' merid. ver.

Secundus Iouis satelles, d. 28 Jul. vesperi hor. X. min. 0,
sec. 8'', clarissime visus est ex umbra emerfisse, unde tempus
apparitionis verum facile colligitur.

Hæc

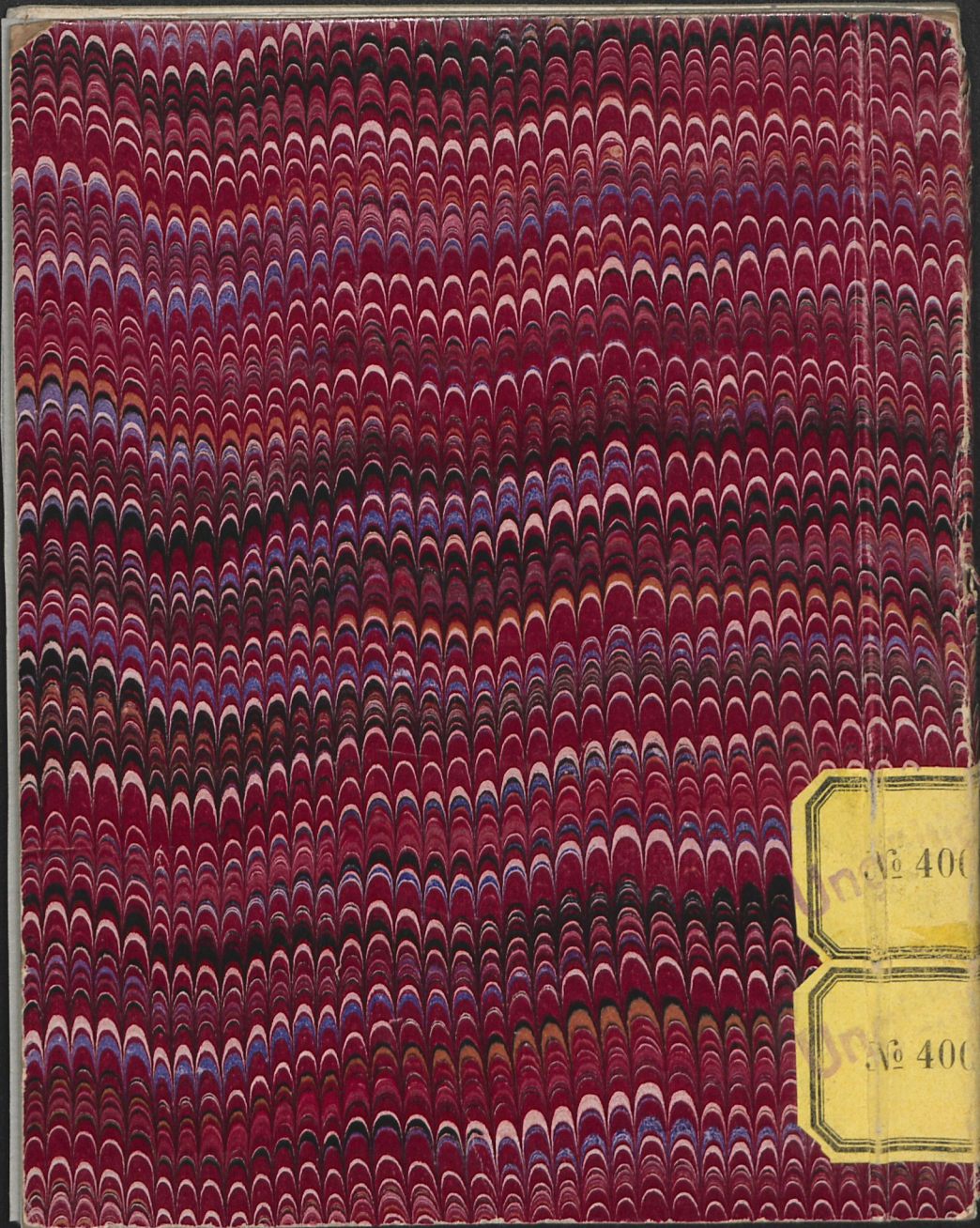


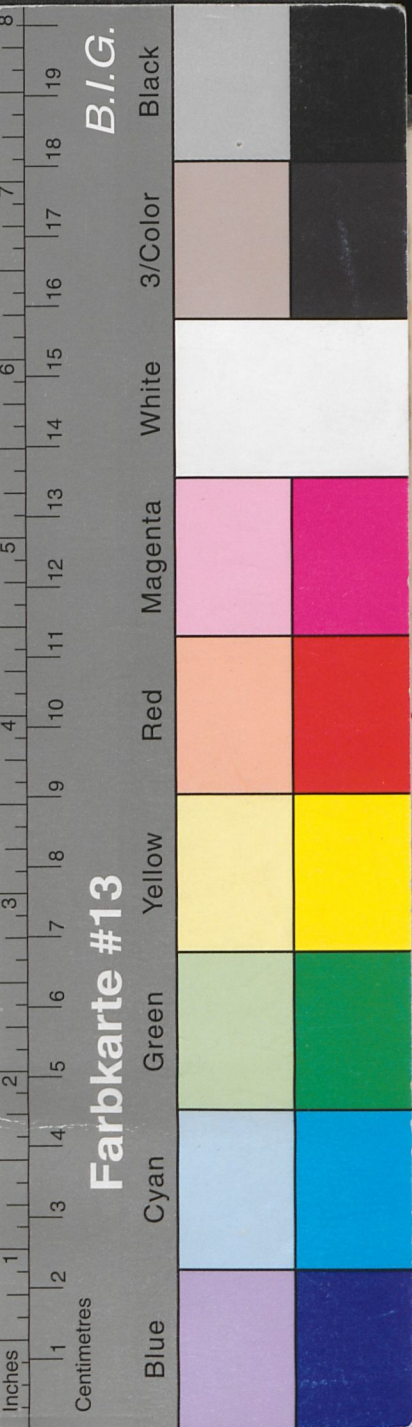
Hæc in observatorio, cuius solum vetustate cariosum, stabili loco ponere instrumenta, observationibus inservientia, prohibet, exercitationis causa contrahendi facultatem observandi fidera. Accuratiores dabimus observationes, ubi extractum fuerit observatorium, quod PRINCEPS SERENISSIMUS, in turri præalta, firmissimis nixa fundamentis splendidissime ædificandum, iamiam clementissime iussit, usus ministro potestatis principalis *Excell. D. WAITZ AB ESCHEN*, cuius nomen, vel ob solam astronomiæ scientiam, venerabundi suspicimus.

Nunc vero aliam agimus rem. Administrandam nempe Prorektoris provinciam in proximum annum, lex sapientissimi PRINCIPIS, detulit in IUSTUM HENRICUM WETZEL, *Schole, quæ est in civitate hac, publica, Rectorem granissimum, atque in Ill. Carol. Professore theologia naturalis*, multis meritis celebrem. Huius ego, ciues carissimi, magistratum, publica ceremonia d. 3 Ian. hor. X, in Collegii Carolini auditorio maiore, ita vobis commendabo, ut intelligatis, efferrî aliquamtulam animo Protectorem, ut solent nimirum egregie factis filiorum suorum gloriari etiam parentes, qui similes plerorumque vestrum, plenos generosissimorum spirituum, regat studiosos. Ita certe Vos hoc anno, non meo magistratu, sed vestra rexistis modestia, ut fuisse Carolinum, cœrum studiorum honestatis, diligentiz, obsequii amantissimorum, publice gratuler. Macti itaque virtute, facilem quoque magistratus decursum reddite WETZELIO, atque oblectatione quæ e conscientia recte factorum, et agenda per virtutem vita sentitur, salui, sospites, fruimini verissima.

78L 1878

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B.I.G.

Farbkarte #13

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