

MANUSCRIPTA  
INSTITUTI OSSOLINIANI

III. 382

N<sup>o</sup> Inuv. 382.

Jamiuski.

Gregorius

h. inv. 382

246  
806.

Architectura Militaris

Nova

1648.



382

806

# Ad Scribendas figuras Equilateras in Circulo

## Operatio de Prima figura

Quia Radius (sive Semidiameter) sexties per circumferentiam circumvolvitur, una sectio relicta dabit figuram trium laterum in Circulo.

## Operatio Secunda figura

Ut ponamus quadrilaterum in Circulo, oportet prius ducere diametrum  $ACB$ . et ex centro  $C$  elevare perpendiculararem Lineam  $HI$ . Si ducantur recta  $AH$ ,  $HB$ ,  $BI$  &  $IA$  quadrilaterum aequiangulum & aequilaterum erit in Circulo descriptum.

## tertia figura Operatio.

Ad scribendum pentagonum aequilaterum in Circulo, ducenda est diameter  $AB$ , & ex centro  $C$  perpendiculararis  $CD$ . postea dividatur  $BC$  equaliter in  $E$ , ex centro  $E$  describatur arcus  $DF$  secans  $AC$  in  $F$ . Recta Linea  $DF$  erit latus Pentagoni in Circulo.

## quarta Figura Operatio.

Quia Radius sexties circumvolvitur per Circumferentiam, erit ipsemet latus Hexagoni in eodem Circulo.

## Quinta Figura Operatio.

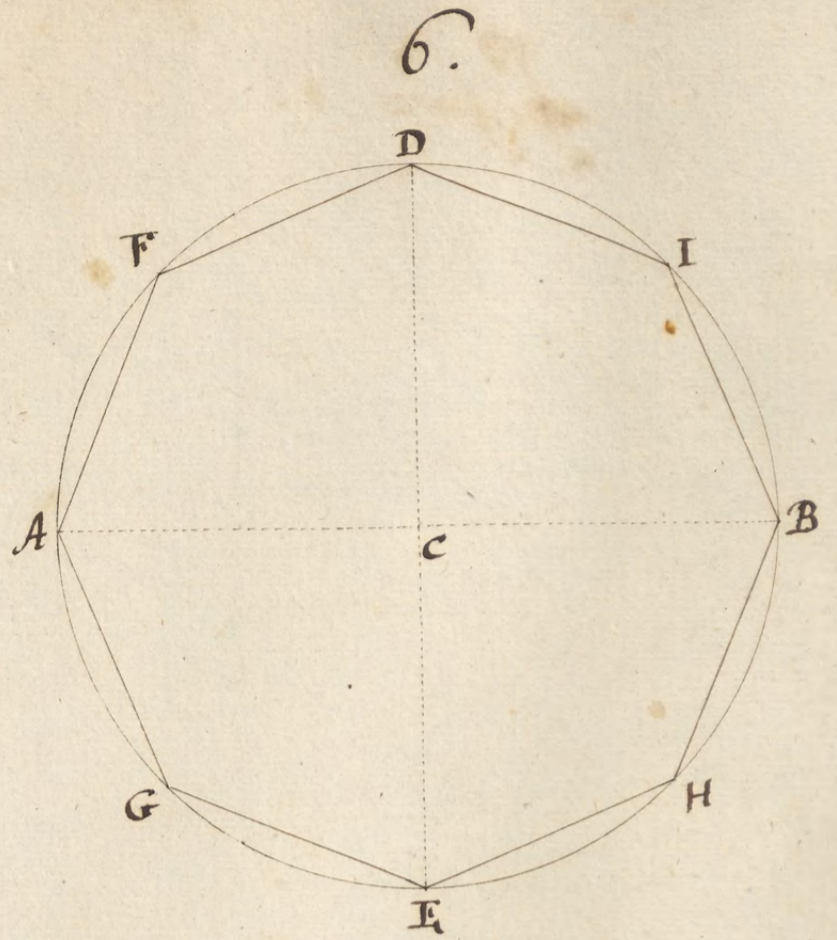
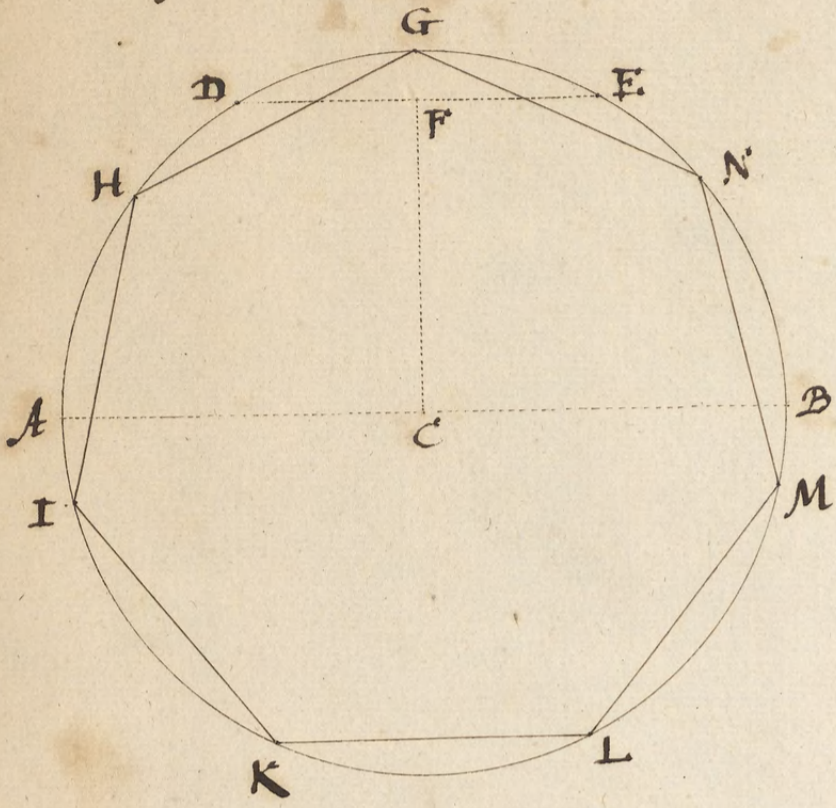
Ad scribendum Heptagonum aequilaterum in Circulo. oportet prius in eodem Circulo describere Hexagonum. & perpendiculararis cadens e centro ad latus Hexagoni, erit latus Heptagoni in eodem Circulo mechanicè.

## Sexta Figura Operatio

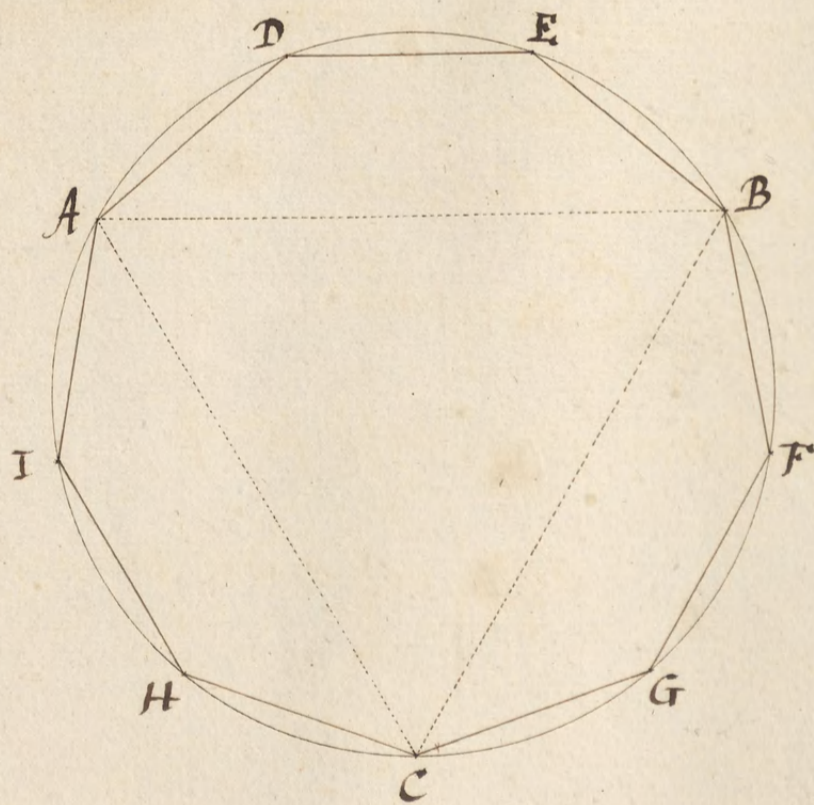
Ad scribendum Octagonum aequilaterum in Circulo. oportet prius in eodem Circulo describere quadrilaterum per secunda figure operationem & dividere unamquomque quartam partem circumferentia in duas equales partes habebimus Octagonum in eodem Circulo.



quinta.

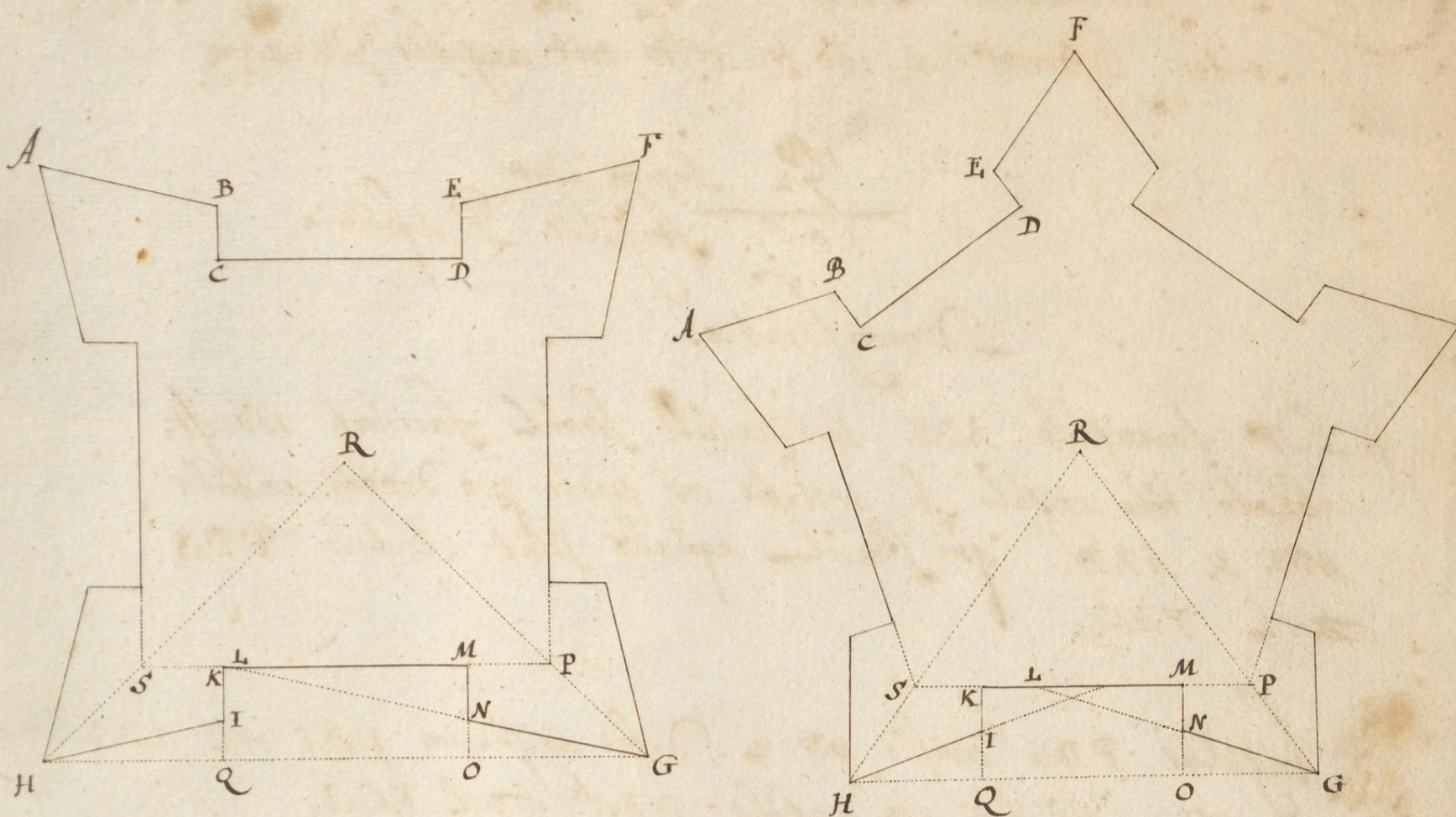


7.



Ad scribendum Enneagonum Equilaterum in Circulo. oportet per operationem prima figura in eodem circulo ponere trigonum Equilaterum  $ABC$ . & dividere unam tertiam circumferentia partem in tres aequales partes. & habebimus Enneagonum  $ADEBFGCHI$ .

# Propositio Prima



Ad Inveniendum Angulum Centri de unaquaque Figura  
 Oportet Circumferentiam totam hoc est 360 grad: dividere per numerum  
 Angulorum & quotus erit angulus centri.  
 Exemplum.

In Figura quadrilatera 360 divisus per 4.

$$\frac{360}{4} = 90 \text{ gradus pro angulo centri.}$$

In Pentagono. per 5.

$$\frac{360}{5} = 72 \text{ gradus pro angulo centri}$$

In Hexagono per sex et sic in ceteris.

Ad Inveniendum Angulum Periferia PDG. Oportet Angulum  
centri subducere a 100 gr: resta erit angulus Periferia

$$\frac{100}{72} \text{ Angulus Centri.}$$

$$\frac{100}{100} \text{ Angulus Periferia}$$

Demonstratio.

De triangulo ADE tres anguli simul faciunt 100 gr:  
ablato uno angulo A. restabit 100 gradus pro duobus angulis  
ADE & AED. qui simul aequales sunt Angulo PDG.  
vel FEQ.

Angulus PDG divisus per 2. dabit angulum PDA vel ADG.  
qui etiam aequalis est angulo DBN vel ECO.

$$\frac{100}{22} \left\{ \begin{array}{l} 54 \text{ gr: pro angulo ADG. vel DBN} \end{array} \right.$$

Ad inveniendum Angulum GLH qui gallice vocatur l'angle flanquante  
interieur, Oportet prius habere l'angle Teanque hoc est angulus RBH.  
qui hoc modo invenitur: ad angulum ADG qui est 54 gr: oportet addere 20  
per Regulam generalem. Summa erit angulus RBH.

$$\frac{54}{20}$$

$$74 \text{ pro angulo RBH}$$

$$\frac{74}{27} \left\{ \begin{array}{l} 37 \text{ pro angulo DBH} \end{array} \right.$$

Medietas anguli Periferia RBH erit pro angulo DBH ut supra.

Angulus DBH subductus ab angulo DBN. restabit angulus HBN

$$\frac{54}{37}$$

$$17 \text{ pro angulo HBN, qui aequalis est angulo GLH.}$$

Angulus GLH subductus a 90 gr: Restabit angulus GHL.

$$\frac{90}{17}$$

$$73 \text{ pro angulo GHL.}$$



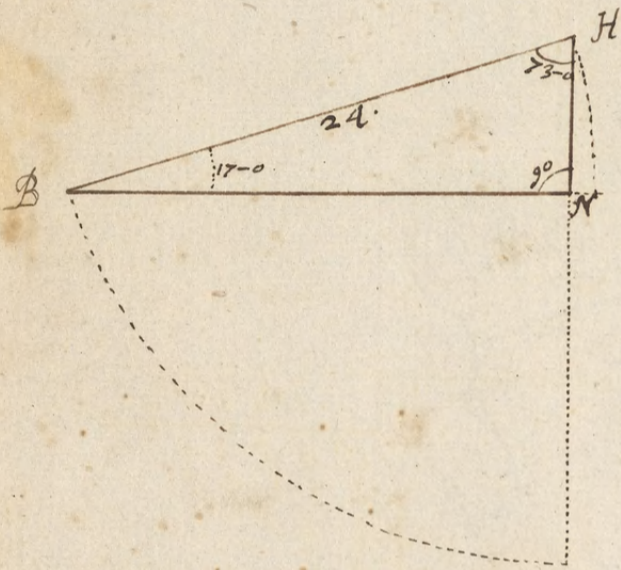


# Calculatio Linearum de Fortificatione Pentagona

*Linea cognita*      BH      24.  
                                  HG      7.  
                                  GF      36.

Prima Operatio ad inveniendum HN.

De triangulo Rectangulo BNH, tres anguli sunt Cogniti. & Hypothenusa BH.

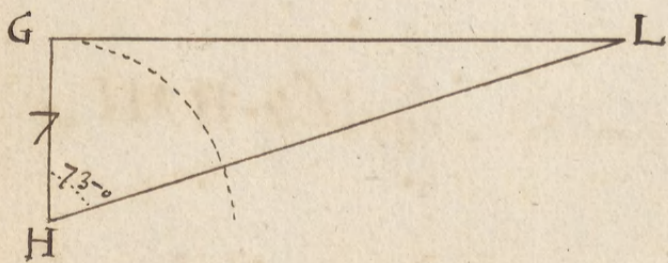


$$\begin{array}{r}
 100000 \text{ --- } 29237 \text{ --- } 24. \\
 \underline{\phantom{100000} 24} \\
 116940 \\
 50474 \\
 \hline
 701600
 \end{array}$$

7.017 ③ pro HN.  
Le flang prolonge

$$\begin{array}{r}
 100000 \text{ --- } 95630 \text{ --- } 24 \\
 \underline{\phantom{100000} 24} \\
 302520 \\
 19126 \\
 \hline
 2295120
 \end{array}$$

22951 ③ pro BN.  
La surface



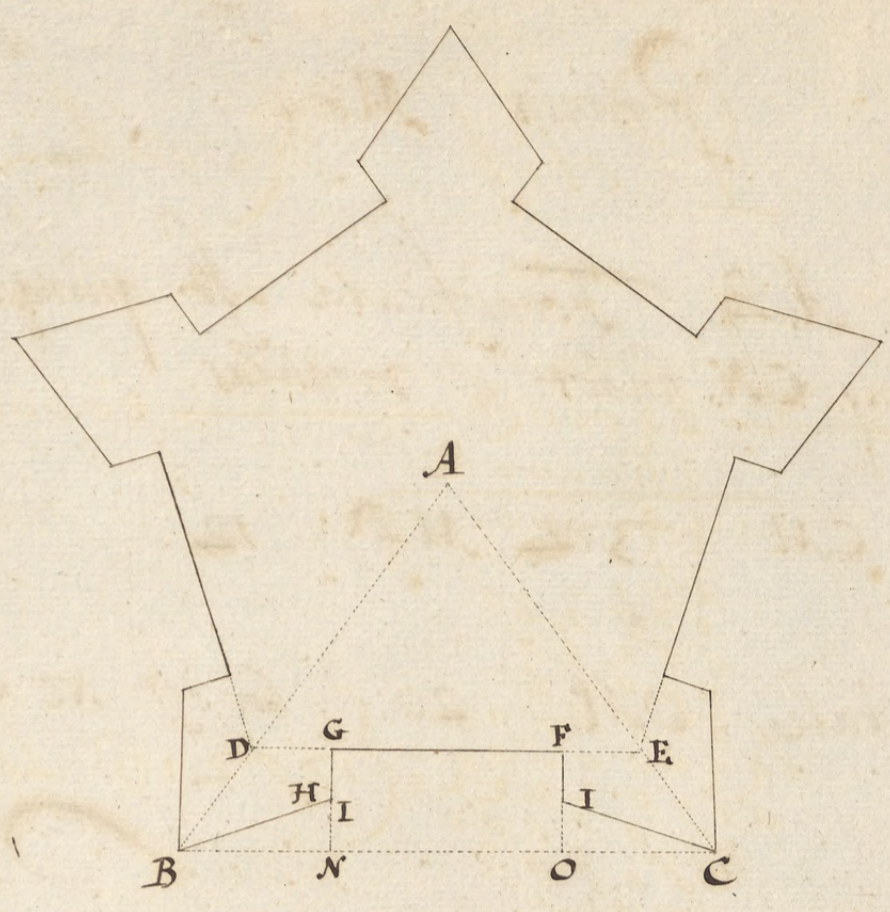
$$\begin{array}{r}
 100000 \text{ --- } 327005 \text{ --- } 7 \\
 \underline{\phantom{100000} 7} \\
 2209595 \\
 22096 ③ GL.
 \end{array}$$

$$\begin{array}{r}
 100000 \text{ --- } 342030 \text{ --- } 7 \\
 \underline{\phantom{100000} 7} \\
 2394210 \\
 23942 ③ HL
 \end{array}$$

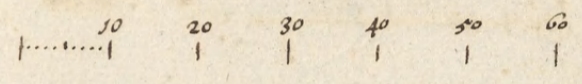
$$\begin{array}{r}
 36000 ③ \\
 22096 ③ \\
 \hline
 13104 ③ \text{ pro LF.} \\
 \text{Le second flang.}
 \end{array}$$







BC. 60 verges.



$$\begin{array}{r}
 01902 \text{ --- } 22951 \text{ --- } 60000 \\
 \underline{\hspace{10em} 60000 \hspace{1em}} \\
 1377060000
 \end{array}$$

*Handwritten calculations:*  
 x 241  
 6 7 8 9 A  
 7 2 0 0 7 6  
 4 2 0 0 2 6 3 7  
 5 1 0 0 0 4 0 4 0 4  
 x 3 7 7 6 6 6 6 6 0  
 0 1 9 0 2 2 2 2 2  
 0 1 9 9 9 9 9  
 0 1 9 9 9 9

16,013(3) La surface BN.

$$\begin{array}{r}
 01902 \text{ --- } 7017 \text{ --- } 60000 \\
 \underline{\hspace{10em} 60000 \hspace{1em}} \\
 421020000
 \end{array}$$

*Handwritten calculations:*  
 A  
 x 7  
 3 3 1  
 1 6 5 1 9 0 2  
 x 2 1 0 7 0 6 6 0  
 0 1 9 0 2 2 2 2  
 0 1 9 9 9 9  
 0 1 9 9 9

5,140(3) flangz prolonge NI

$$\begin{array}{r}
 01902 \text{ --- } 69670(3) \text{ --- } 60000 \\
 \underline{\hspace{10em} 60000 \hspace{1em}} \\
 4000200000
 \end{array}$$

*Handwritten calculations:*  
 x 241  
 6 3 8 6 6  
 7 7 2 7 3  
 0 4 1 2 2 4 0 4  
 4 0 0 2 0 6 6 0 0  
 0 1 9 0 2 2 2 2 2  
 0 1 9 9 9 9 9  
 0 1 9 9 9

49,010(3) Radius AB.

$$\begin{array}{r}
 49010(3) \\
 1269 \\
 \hline
 37.120 \text{ AD.}
 \end{array}$$

# Linea Recta Fortificatio

## Primus Modus

Linea Recta AB Fortificata est quinque propugnaculis  
ita ut Tang CN habet 8 virgulas.

La gorge CM vel MD 12

La Capitale OM 20. hoc est NC & CM simul sumpta

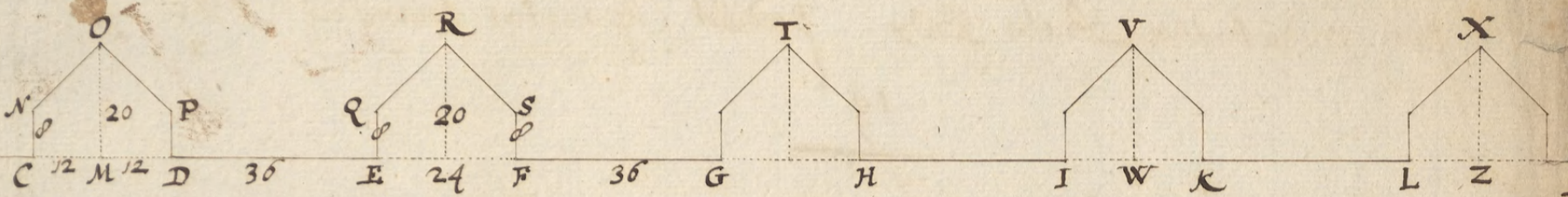
## Secundus Modus

Propugnaculum E. appellatum Ravilin. aequale est  
propugnaculo CNOPD.

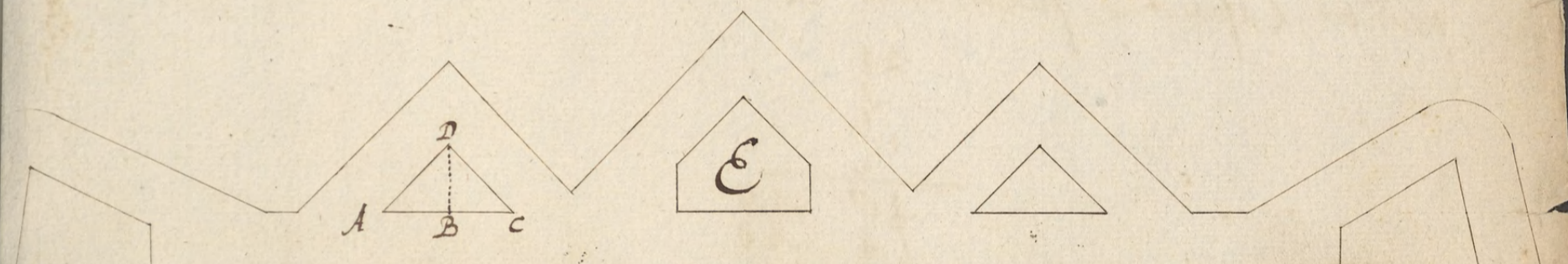
Sed de Ravilino ADC. AB vel BC habet 12 virgulas  
& Capitalis BD etiam 12.

& sic de Ceteris.

# Primus Modus.



# Secundus Modus.



# Civitas.

maculis

vil. sumpta

est

12 virgula

# Ad Inveniendam Capacitatem Valli.

De Triangulo ABO, si Multiplicatur Perpendicularis AO 14.  
per medietatem Basis BO 7. prodibit Capacitas trianguli ABO. 90.

$$\frac{14}{7} \\ \hline 90$$

De Triangulo MNC. perpendicularis MN per medium NC, multiplicata  
vel tota Basis per medietatem Perpendicularis. prodibit Capacitas trianguli  
MNC 49.

$$\frac{7}{7} \\ \hline 49.$$

Longitudo AM, multiplicata per altitudinem valli MN vel AO 14.  
prodibit Capacitas quadrilateri AMNO.

$$\begin{array}{r} 24 \\ 3 \\ 1 \\ 10 \\ 2 \\ \hline 40 \text{ AM} \\ 14 \text{ AO} \\ \hline 192 \\ 40 \\ \hline 672 \text{ pro quadrilatero AMNO} \end{array}$$

In quadrilatero GF'IH si GH multiplicatur per latitudinem GF 3. prodibit  
istius Capacitas

$$\frac{3}{1\frac{1}{2}} \\ \hline 3 \\ 1\frac{1}{2} \\ \hline 4\frac{1}{2} \text{ pro quadrilatero GF'IH.}$$

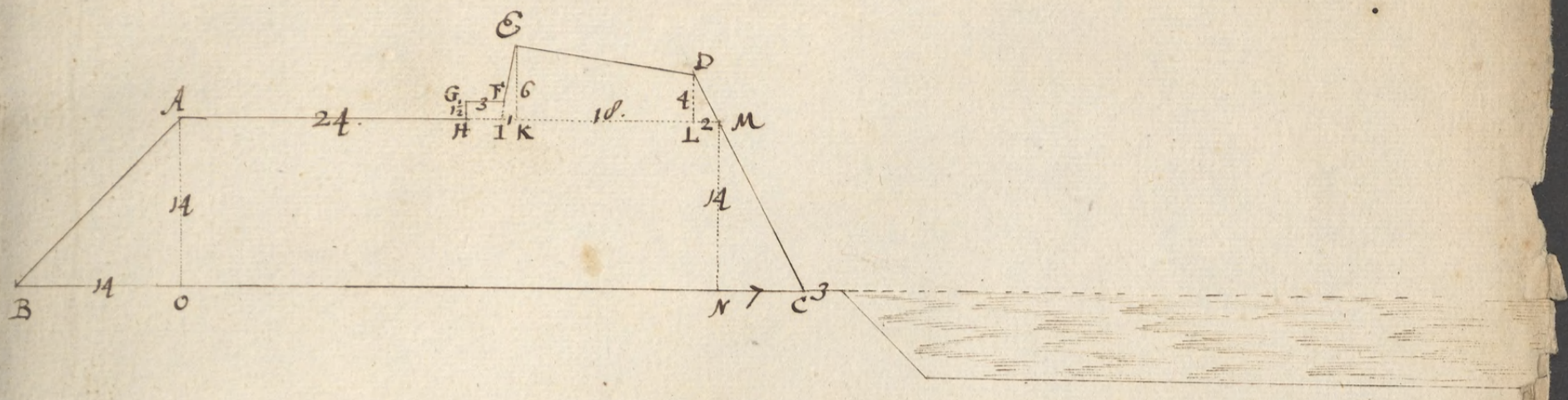
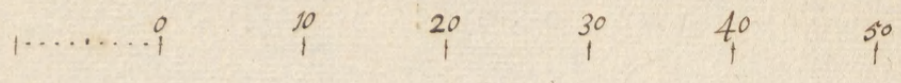
De Triangulo Rectangulo EIK. si Multiplicatur Basis IK 1. per  
medietatem perpendicularis EK 3. prodibit ipsius Capacitas 3.  
sic etiam de triangulo DLM. 4.

Sed de quadrilatero EDLK oportet addere EK 6. ad DL 4. medietas summe  
erit 5. multiplicata per longitudinem KL 10. prodibit Capacitas quadrilateri

$$\frac{10}{5} \\ \hline 90 \text{ pro quadrilatero EKLD.}$$



Schala.



90	AOB
49	MNC
672	AMNO
4 1/2	GFIH
3	EIK
4	DLM
90	EKLD

920 1/2 pro Capacitate totius Figure AB CDEFG

100  
100  
100  
100  
100  
100  
100  
100  
100  
100

---

100

100  
90  
80  
70  
60  
50  
40  
30  
20  
10  
.....

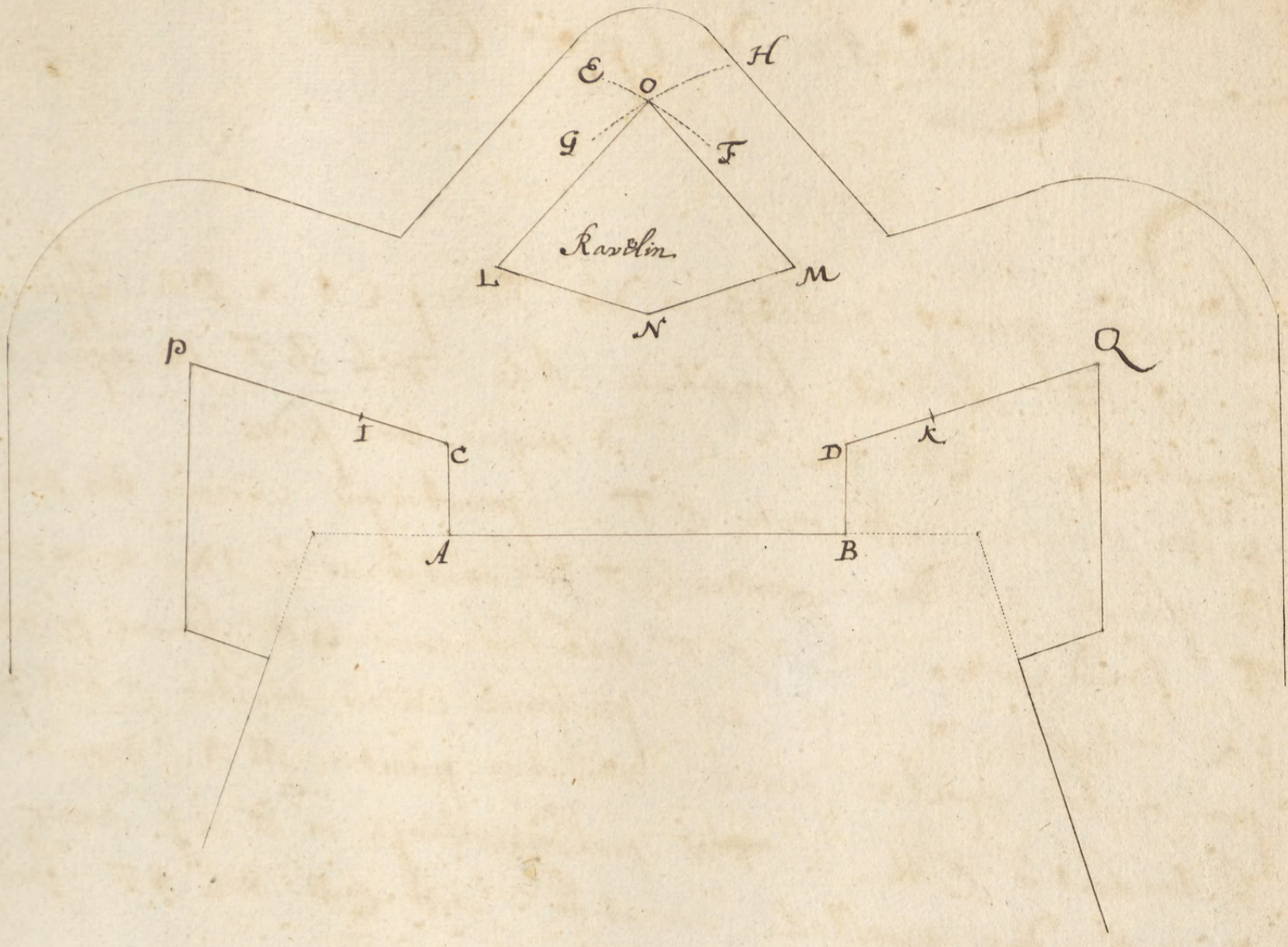


Propositio De Ravelino  
&  
Opere Cornuto.

Regula de Ravelino

Ex centro C. Semidiametro AB. describat<sup>r</sup> Arcus EF  
& ex centro D eadem distantia trahat<sup>r</sup> Arcus GH secans  
EF in puncto O. Dividat<sup>r</sup>que Facies PC, in tres aequales  
partes, in I. & DQ in K, ducant<sup>r</sup> postea. OI ad L et  
OK ad M. Eruntque LNMOL Ravelinum desideratum.

Regula de Opere Cornuto.



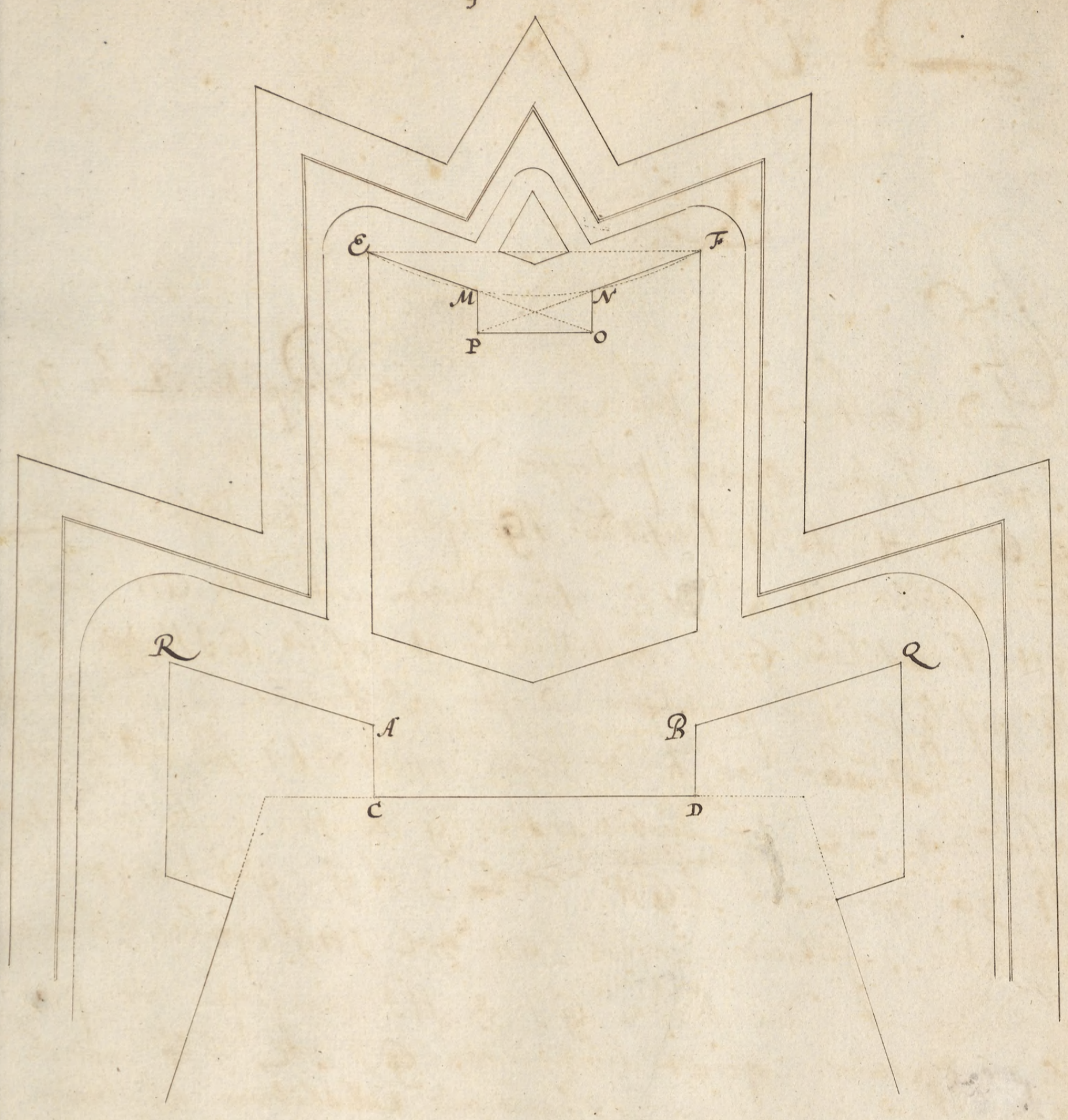
# Regula de Opere Cornuto.

Prius oportet prolongare duo Flanq CA & DB. usque ad  
 E & F ita ut Longitudo AE vel BF sit aequalis  
 Longitudine RD vel CQ ad majus 600 pedes  
 postea ducenda sit recta EF. ponaturque Circulus uno pede  
 in puncto E, Semidiametro EF describatur arcus IK & ex centro  
 F Semidiametro eadem EF trahatur arcus GH secans priorem  
 IK in L. ex centro L. periferia circuli ducatur EMN F  
 quae in tres aequales partes dividatur punctis M. N. dnam  
 si trahantur EM, & FN prolonganturq; in O & P. donec ex  
 M & N duc parallelae ducantur, erit EM vel NF facies  
 MP. vel NO Flanq. & po la Cornute.

Nota

Aliquando ponatur etiam EC aequalis CQ vel DR.

I L H  
g k



# De Opere Coronato.

## Regula

Ad Construendum Opus Coronatum ante Propugnaculum ut in  
sequenti figura, oportet prolongare duo Flancus AB et ED. usque  
ad G & H. ita ut Longitudo AG aequalis sit 600 pedibus vel  
60 virgulis, ita & HE. tunc ducenda erit recta GH super  
GH Triangulum GTH constitutur ut angulus GTH aequalis  
sit angulo polygoni pentagoni id est 108 gradibus, ad istud faciendum  
oportet subtrahere 108 gr. de duobus angulis rectis hoc est de 180  
reستا erit 72 pro duobus angulis G & H. cuius medietas  
est 36. pro angulo FGH vel JHG. quod transportatum  
preparatur, constituendo, angulis JGH vel JHG aequalis 36 - 0.  
ducenda erunt dua linea GF & HF unaquaque erit pro  
polygono Exterior. oportet longitudinem GF vel FH capere  
circino vel calculatione. Invenimus Calculatione hoc modo.  
Sit Exempli gratia Longitudo GF 55 virgula. pro polygono  
Exterior. dicenda Jam est per Regulam de Tri. Si polygonus  
Exterior de figura pentagona 81902 ③ dat Longitudinem Flanc.  
7000 ③ quid dabit 55000 ③. post Operationem prodibit 46990  
pro Longitudinis NM. & sic de ceteris.

Sequitur Operatio Geometrica.





# Preparatio Constructionis Operi Coronati

Ut Geometricè Opus Coronatum Constructur cuius  
Angulus Poligoni aequalis sit angulo poligoni Pentagoni  
Oportet pentagonam Fortificationem prius describere vel  
quintam partem istius ut sequens Figura ostendit,  
ABC. Cuius angulus A est angulus Centri 72—0—  
recta BC poligoni Exterior, trahantur rectae BH, HF, FG &  
ut in precedentibus Figuris, quinta pars Fortificationis pentagoni  
peracta erit. per quam omnia opera Externa Coronata  
describuntur ut sequitur.

Sit Longitudo poligoni Operis Coronati aequalis recta BO.  
ducenda erit OP parallela cum recta BA secans rectam AC  
in puncto M, ponatur BL aequalis CM. Ducaturque recta  
LM, quae aequalis erit BO.

Si in recta BC capiatur aliqua Longitudo exempli gratia Flancq.  
ut BI aequalis TH. Ducaturque recta AI secans LM in puncto Q  
dico QL esse Longitudinem Flancq. quando poligoni Exterior  
erit aequalis recta LM.

Secundo, si in Longitudine BC capiatur BH aequalis DH.  
ducaturque recta AS. secans LM in puncto R. Erit LR Longitudo  
Faciendi ubi poligoni Exterior aequalis est LM.

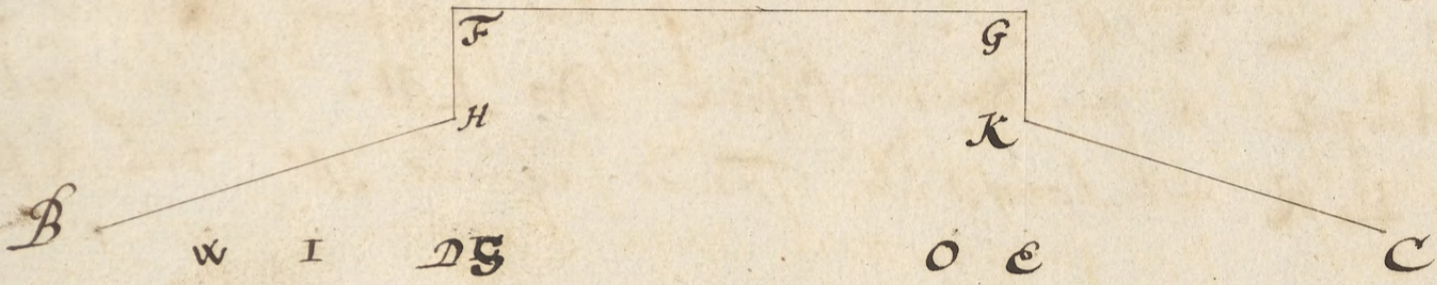
& sic de ceteris lineis.

A

P

L. x a T. R

n



..... 10 20 30 40 50 60

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Adom  
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FG &  
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Bo.  
am AC  
e recta

Flanq  
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OH  
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# Constructio Operis Coronati Geometricæ

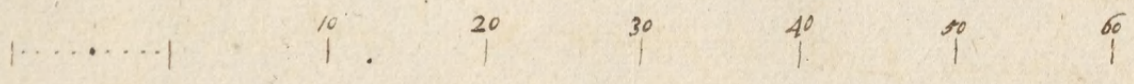
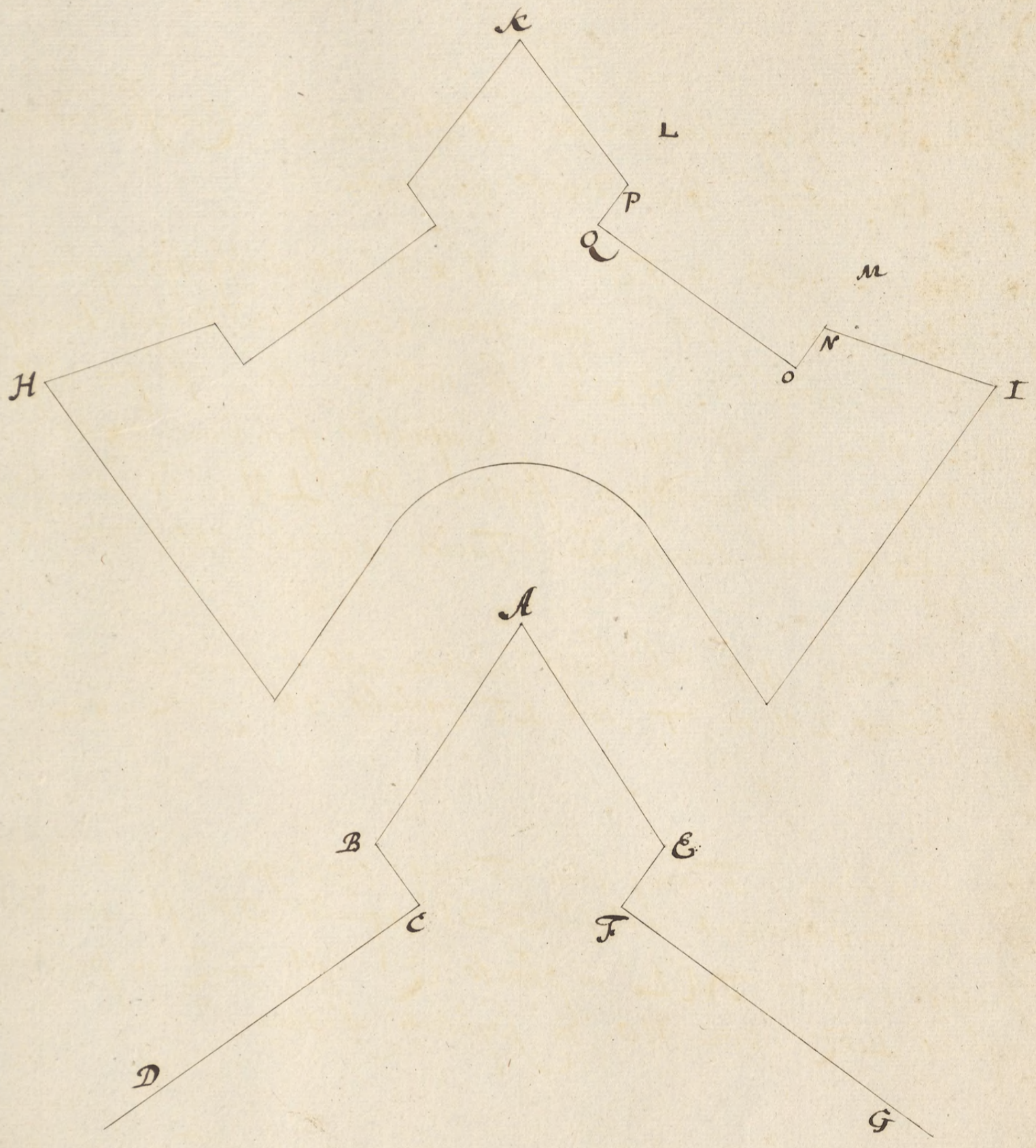
Ante Propugnaculum  $ABCDEF$  Constructendum erit  
Opus Coronatum Geometricæ hoc modo.

prolongantur  $CB$  &  $FE$  ad  $H$  &  $I$ . ut inuisquisq; æqualis sit bo  
trahatur recta  $HI$ . Super quam Constituentis erit triangulus  
 $HKI$ . ut angulus  $HKI$  sit  $100-0$ . hoc est pro angulo  
 $KHI$  vel  $KIH$   $36-0$ . Capiatur polygonis Exterior  $KI$ .  
ponaturque in præcedenti figura Pro  $LM$ . ut ibi factum  
est,  $LR$  erit Longitudo Faciei æqualis  $IN$ . vel  $KP$ .

Ad habendam  $IM$  Surface, ducenda erit in præcedenti figura  
Ad secans  $LM$  in  $T$  erit  $LI$  æqualis  $IM$ . vel  $KL$ .

Ad habendam Flanq; cum Flanq; prolonge. scilicet longitudo  $LQ$   
oportet in præcedenti figura ubi  $BI$  æqualis  $DF$  est trahere  $AI$   
secans rectam  $ML$  in puncto  $Q$  erit  $LQ$  in præcedenti figura  
æqualis  $LQ$  vel  $MO$  in sequenti figura.

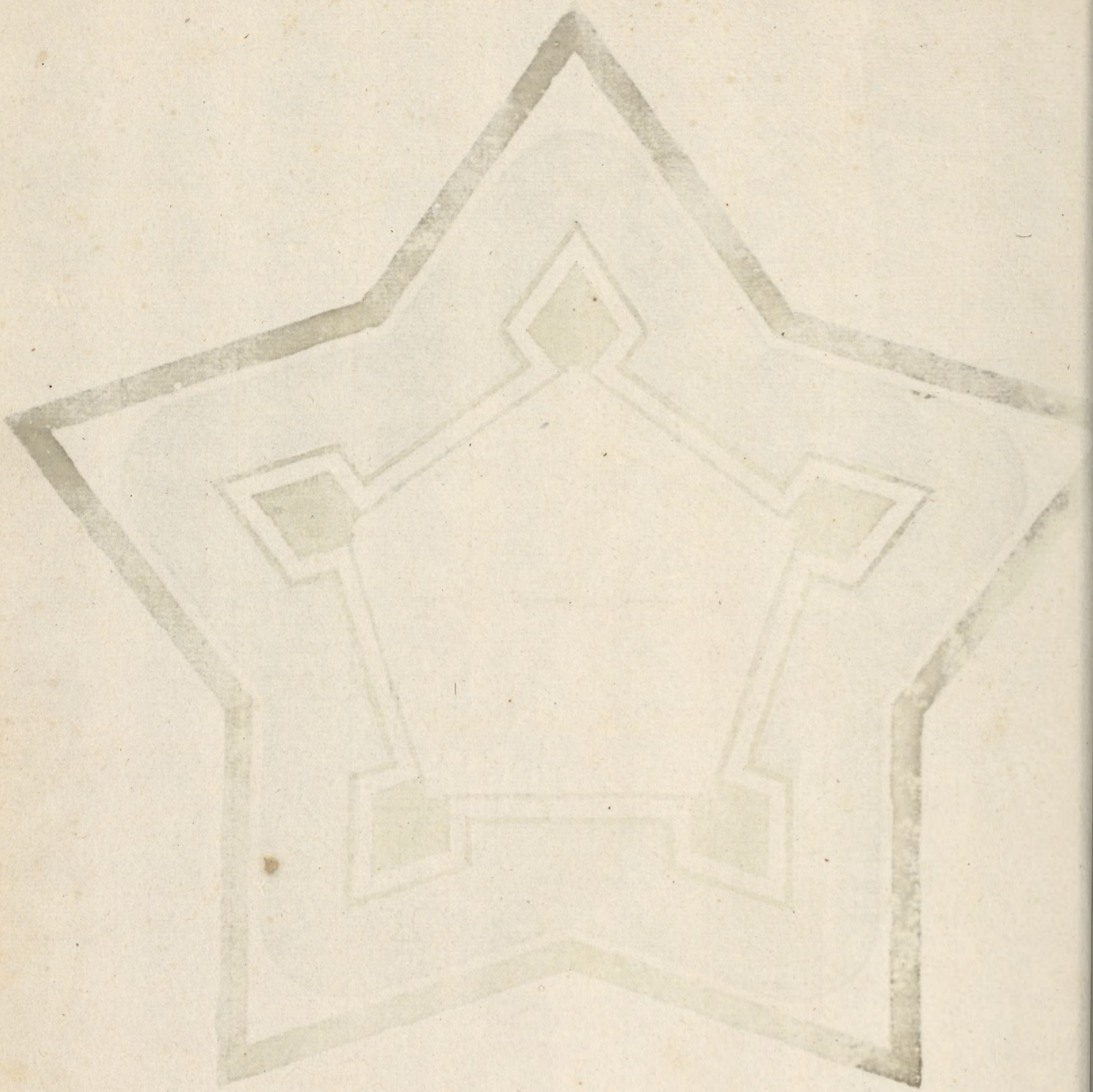
denique ad habendam Longitudinem  $LP$  Flanq; prolonge.  
in præcedenti figura ponatur  $BW$  æqualis  $HD$  ducaturque recta  
 $AW$  secans rectam  $LM$  in puncto  $X$  erit  $LX$  pro Longitudine.  
Flanq; prolonge in hac sequenti figura pro  $LP$  vel  $MN$ .  
ducanturque rectæ  $KP$ ,  $PQ$ ,  $QQ$ ,  $ON$  &  $NI$  opus Coronatum  
peractum erit.



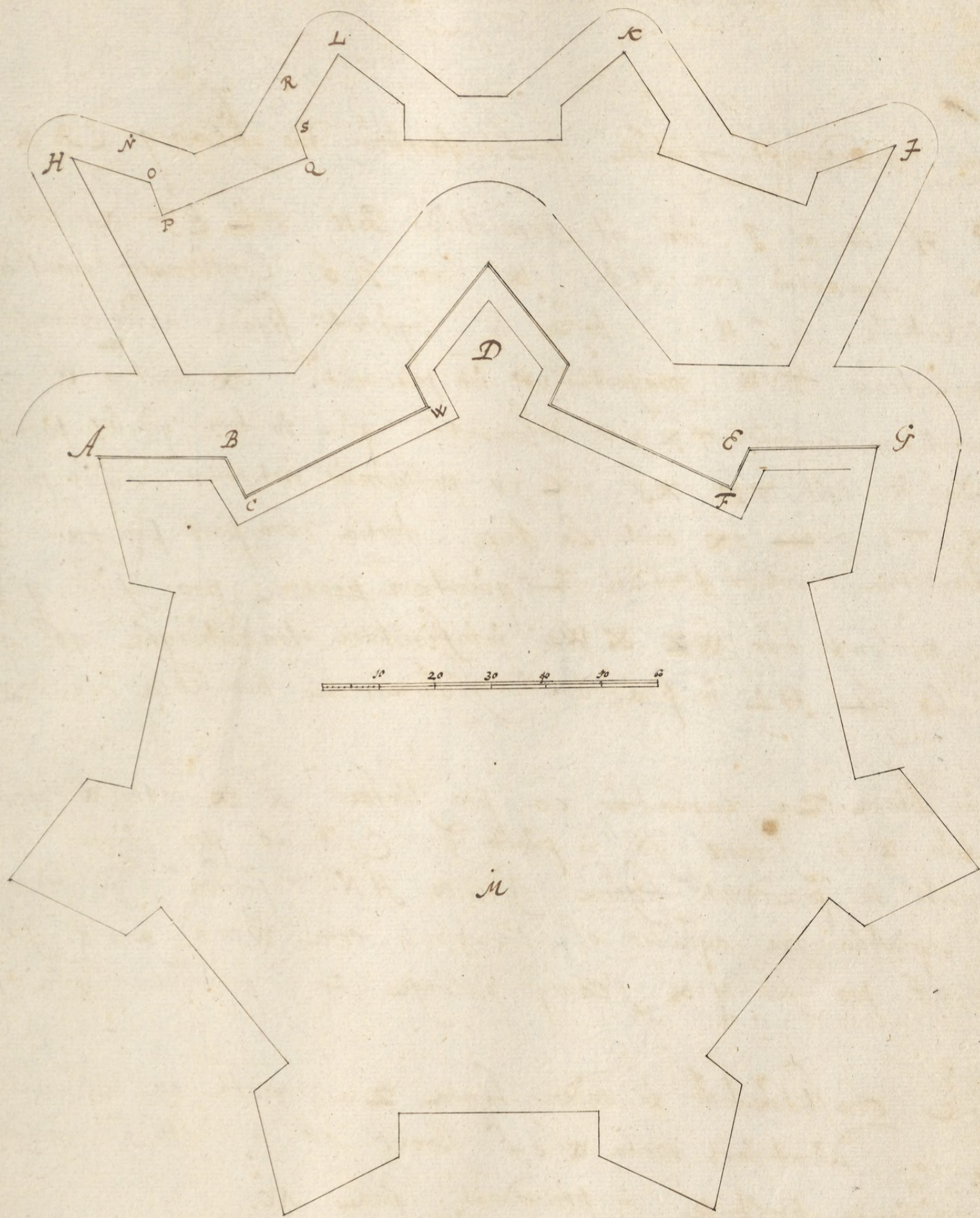
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Constructio Operis Coronati duobus propugnaculis integris  
et duobus propugnaculis medijs Geometrice.

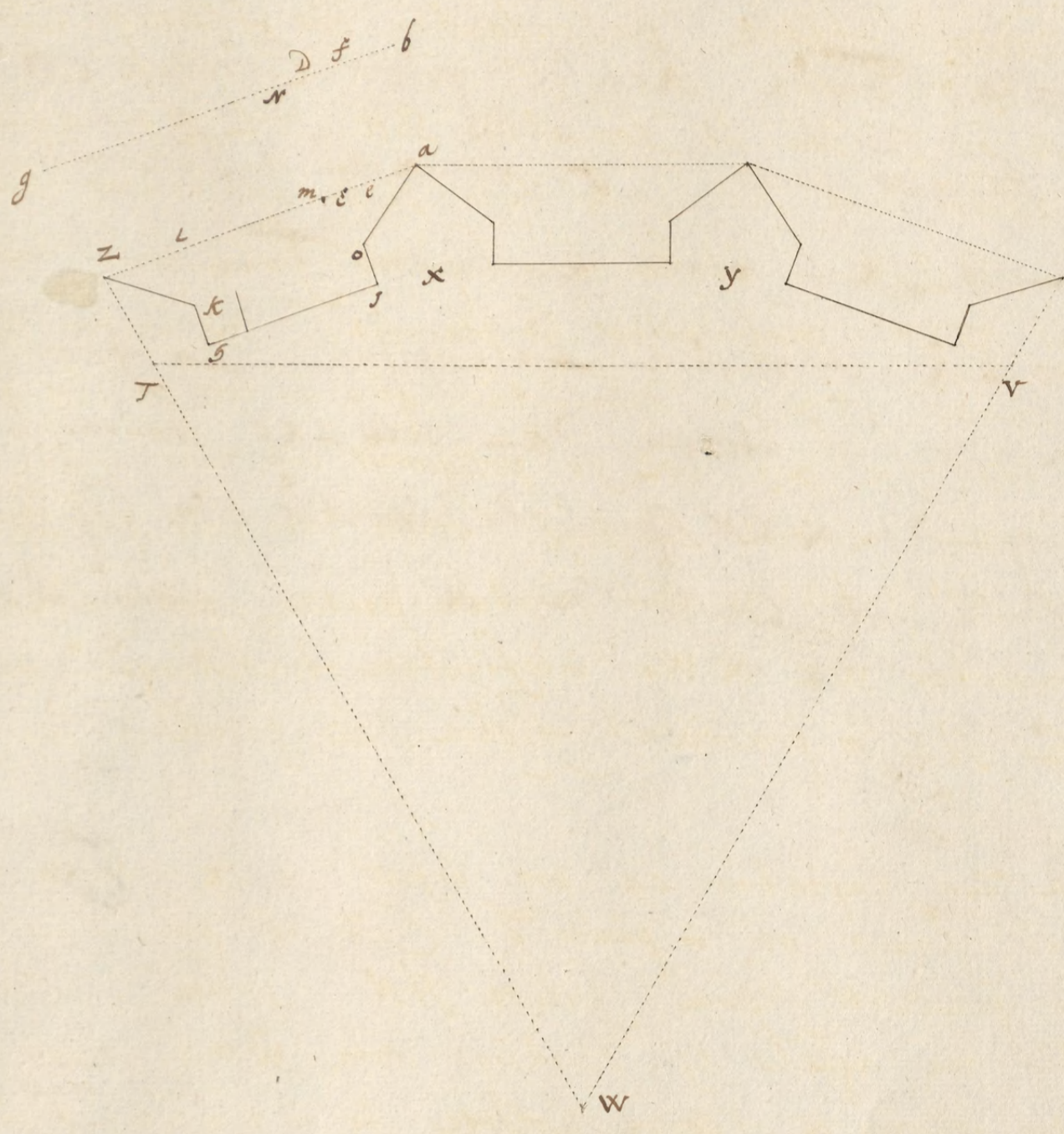
In precedenti figura prolongantur duo flancq CB & F  
ad H et ad F ita ut longitudo BH vel EF aequalis sit  
AW. trahatur recta HF. & super HF constituatur triangulus  
aquilatorius HJM. postea in sequenti figura alius triangulus  
aquilatorius TVW. magnitudine ut placebit. ex centro W. circulus  
ferentiam circuli TXyv describitur. quae in tres aequales partes  
dividatur erit TX, xy, vel yv polygonus interior, cuius quinta  
pars, TS vel IX erit la forge. tertia vero pars pro facie TZ  
differentia inter tertiam et quintam partem pro flancq BK  
Jam prolongantur WZ & Wa, in infinitum trahaturque gb, quae  
aequalis est HL in precedenti figura, hic parallela cum Za.

Si in linea Za capiatur ca pro superficie. & ex centro W recta  
ducatur Wcd secans gb in puncto d. erit db pro superficie operis  
coronati in precedenti figura scilicet HN. postea si in eadem  
Za. capiatur ma aequalis cj. ducaturque recta Wmn. secans gb in  
Erit nb pro flancq & flancq prolonge ut in precedenti figura pro  
np.

Denique constituatur in eadem linea Za recta ea aequalis La  
vel co. ducaturque recta Wef secans gb in puncto f. erit fb  
pro flancq prolonge in precedenti figura NO.

ultimo si in precedenti figura ex centro M. circulus describitur  
cuius diameter aequalis erit longitudine Cortine pq omnes  
flancq facillime per istum describuntur ad angulos rectos

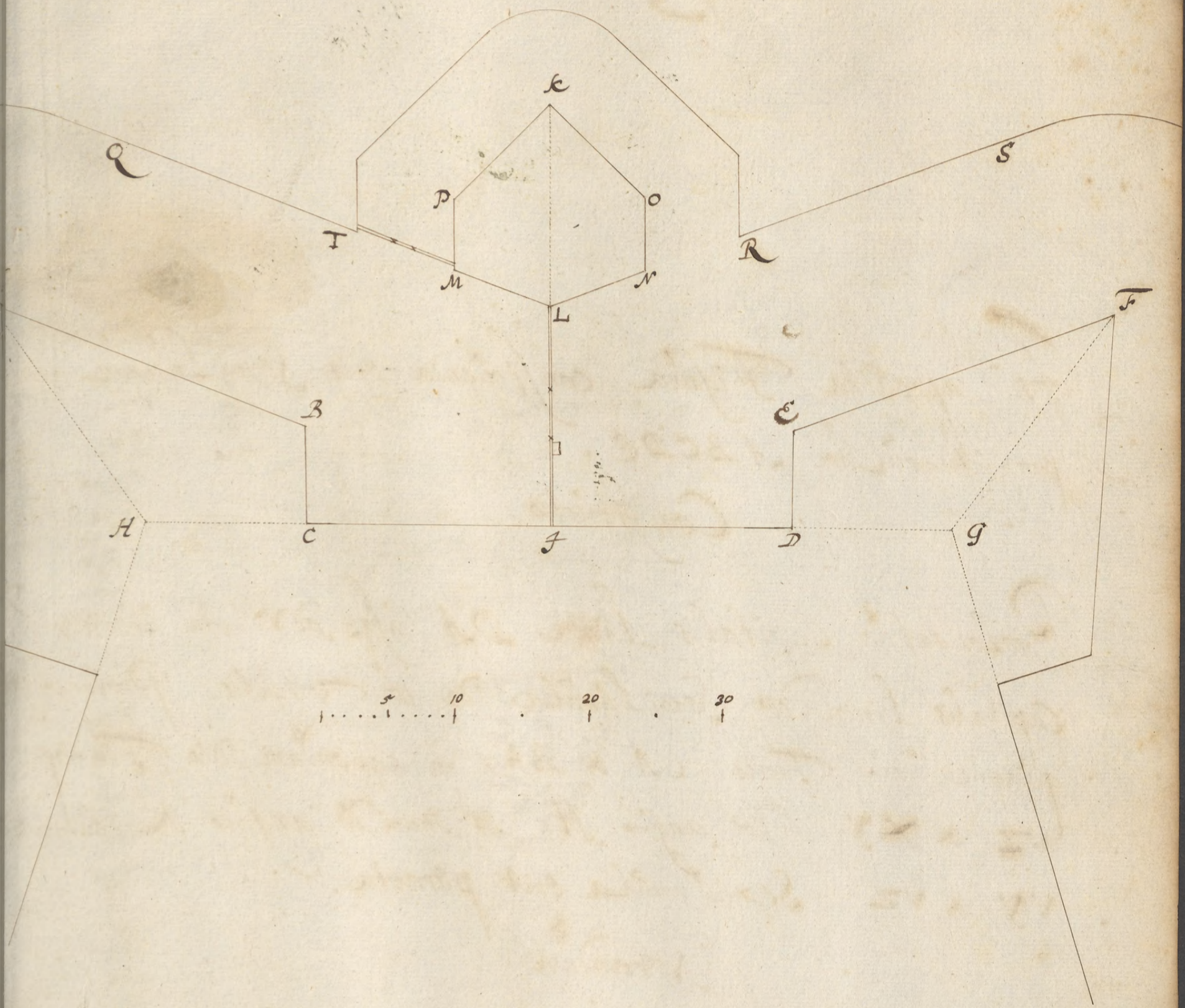
is integ  
 B & F E  
 nalis sit  
 triangulis  
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 W. circum  
 partes  
 is quinta  
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 ang b k  
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 e oporis  
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 e gb in a  
 nra pro  
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 rectos



Propositio de Ravelino cum duobus Flancqz

In proposita Figura Regulari oportet Courtinam  $CD$  dividere  
in duas Aequales partes in  $F$ . et ex puncto  $F$  elevatur  
perpendicularis  $IK$ , secans extremitatem Fossae in puncto  $L$ .  
ponatur pro  $IK$  15 virgula La Capitale, La face  $PK$   
10 virgula, angulus uterque  $PKL$  vel  $LKO$  semirectus.  
duo Flancq  $PM$  &  $ON$  parallela dicantur cum Capitale  $KI$   
& Ravelinum erit constructum & sic de ceteris Ravelinis

acqz  
divert  
L.  
Pk  
ak K  
in Lins



Regula de SemiLunulis quae Constructio  
ante Propugnaculum.

In apposita Figura construenda erit SemiLunam ante  
propugnaculum<sup>3</sup> ABCDE.  
Constructio.

Prolongatur<sup>3</sup> capitalis Linea DA usque ad V. Ita ut WV  
Capitalis Linea de SemiLunula de 15 virgulis. Prolongantur  
quoque duo Facies CA & BA. ad habendam duo Flancij  
a Z & XY. de angulo H. et itam de angulo K. distantur  
vy. & vz, SemiLunula erit peracta.

Notandum<sup>3</sup>

Quod SemiLunula non potest commode defendi sine  
duobus Ravelinis, ut in sequenti figura apparet.

Latitudo Fossae de SemiLunula erit de 5 usque ad 7 virgulis

Fructu

ante

WV

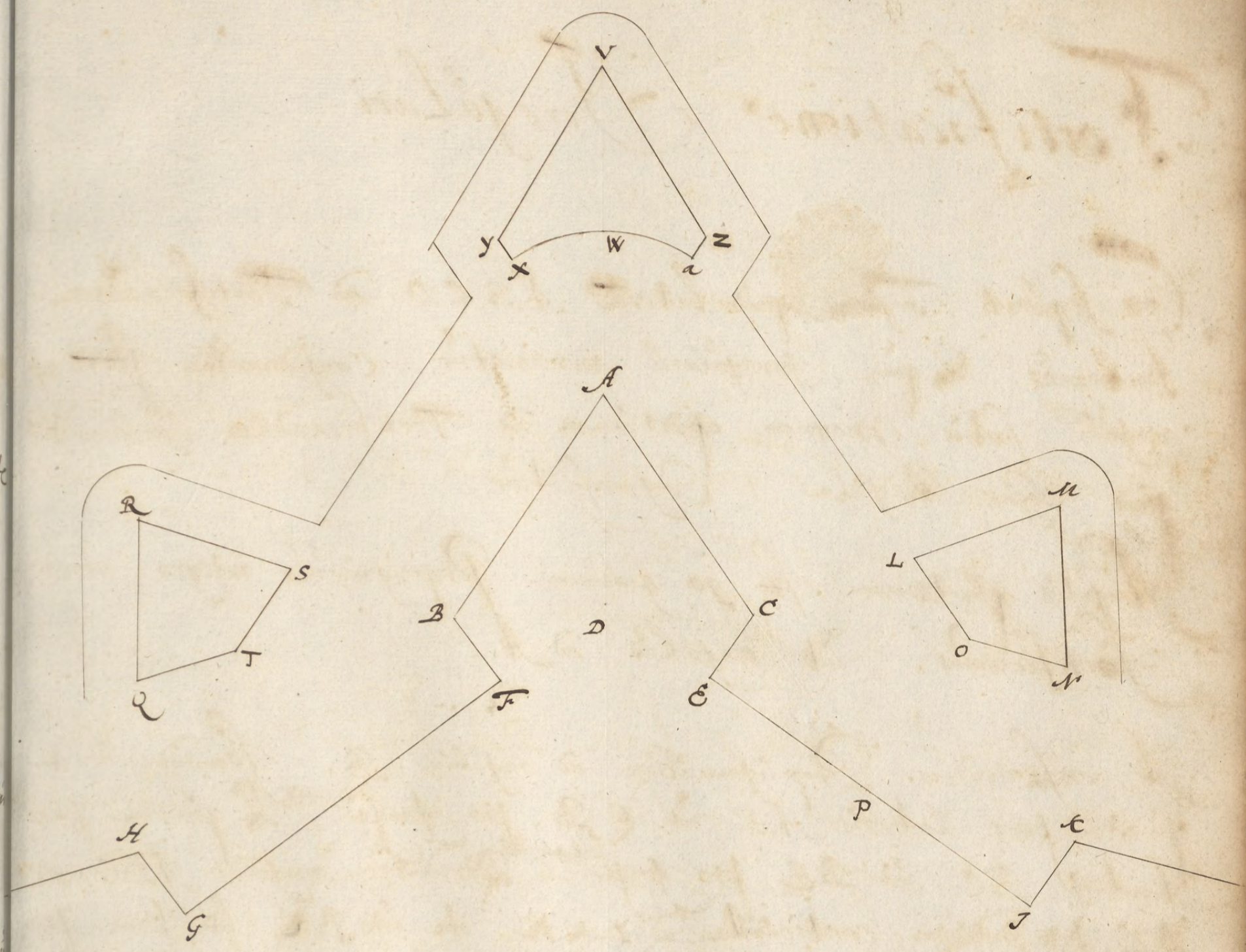
longitudin

lancy

distanti

line

7 virg



# Tractatus

DE

## Fortificatione Irregulari.

In sequenti Figura quadrilatera ABCD ad Fortificandam habemus. & quia Irregularis invenietur, Considerandum est si anguli satis Magnam aperturam ad Fortificandum habeant quod hac Regula Cognoscitur.

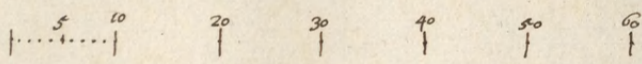
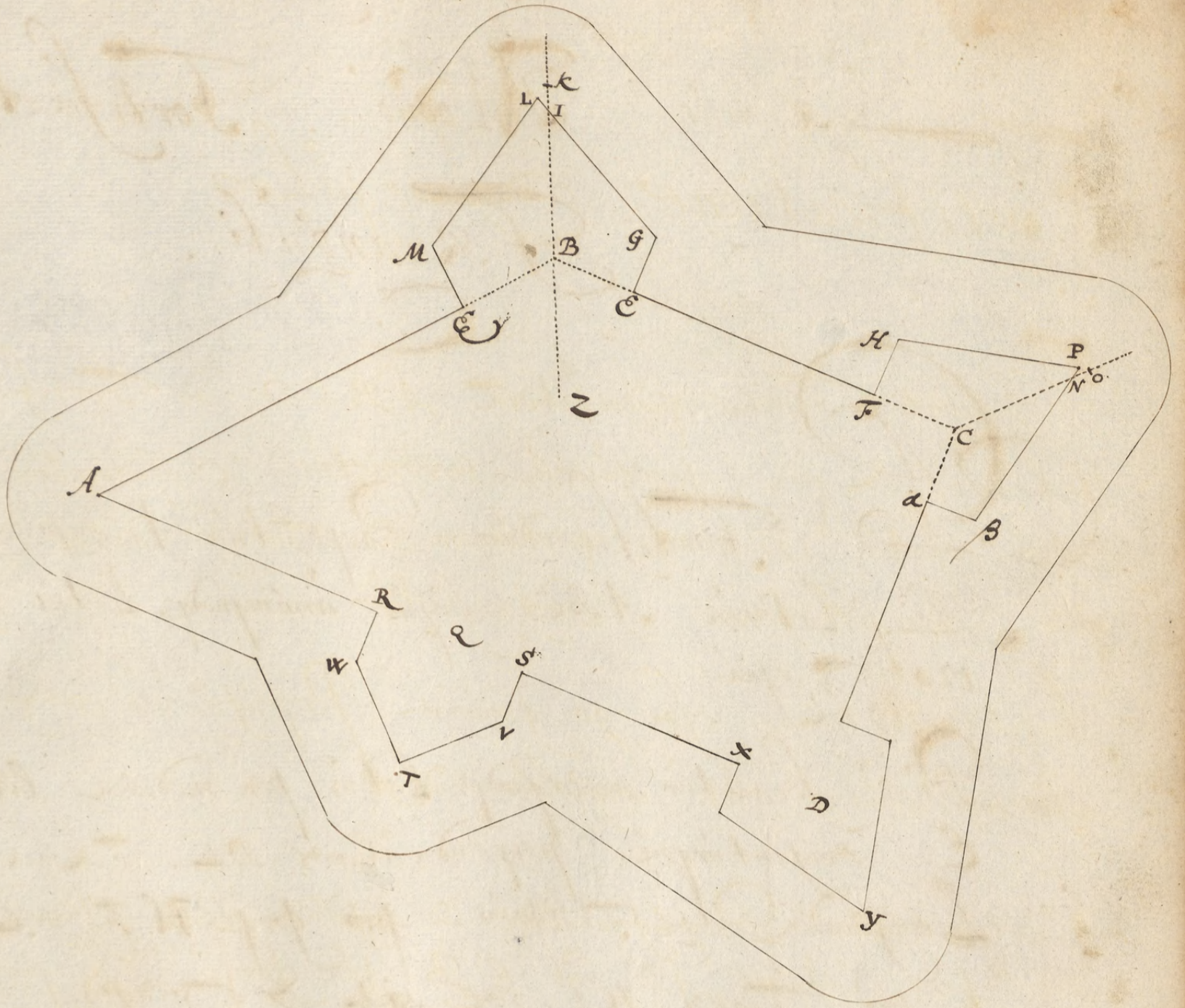
Angulus qui minor est 90 graduum Propugnaculo integro non Fortificamus. ut angulus ad A.

Ad construendum Propugnaculum ad angulum B. sumenda erit quinta pars lateris AB ut EB. pro gorge. <sup>ad latus AB</sup> & quinta pars lateris BC, ut BE. pro gorge. <sup>ad latus BC</sup>. Dividatur angulus ABC recta BZ per medium, continuataq; ad I & K. ita ut BK sit tertia pars lateris AB & BI tertia pars lateris BC. Flanq; ME, est differentia tertia & quinta partis AB. & Flanq; GE, est differentia inter tertiam & quintam partem lateris BC. Deniq; ducantur duae lineae GI & MK sese secantes in puncto L. propugnaculum EM L GE erit constructum. Per eandem Regulam propugnaculum FH p p a etiam constructur.

Nota.

Quod Latus AD nimis longum est ad Fortificandum per Superiorem Regulam, ad Angulum ergo D. constructur propugnaculum commodum A in Medio, ad Q describitur Propugnaculum RWTVS. ita ut RQ vel QS sit 10, vel 12 virgulae Capitalis QT aequalis QR & R Simul, & RW vel SV 7. virgulae.  
& semper per eandem Regulam angulus WTV erit rectus.



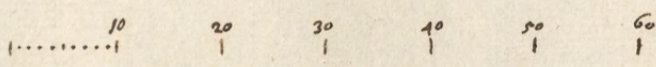
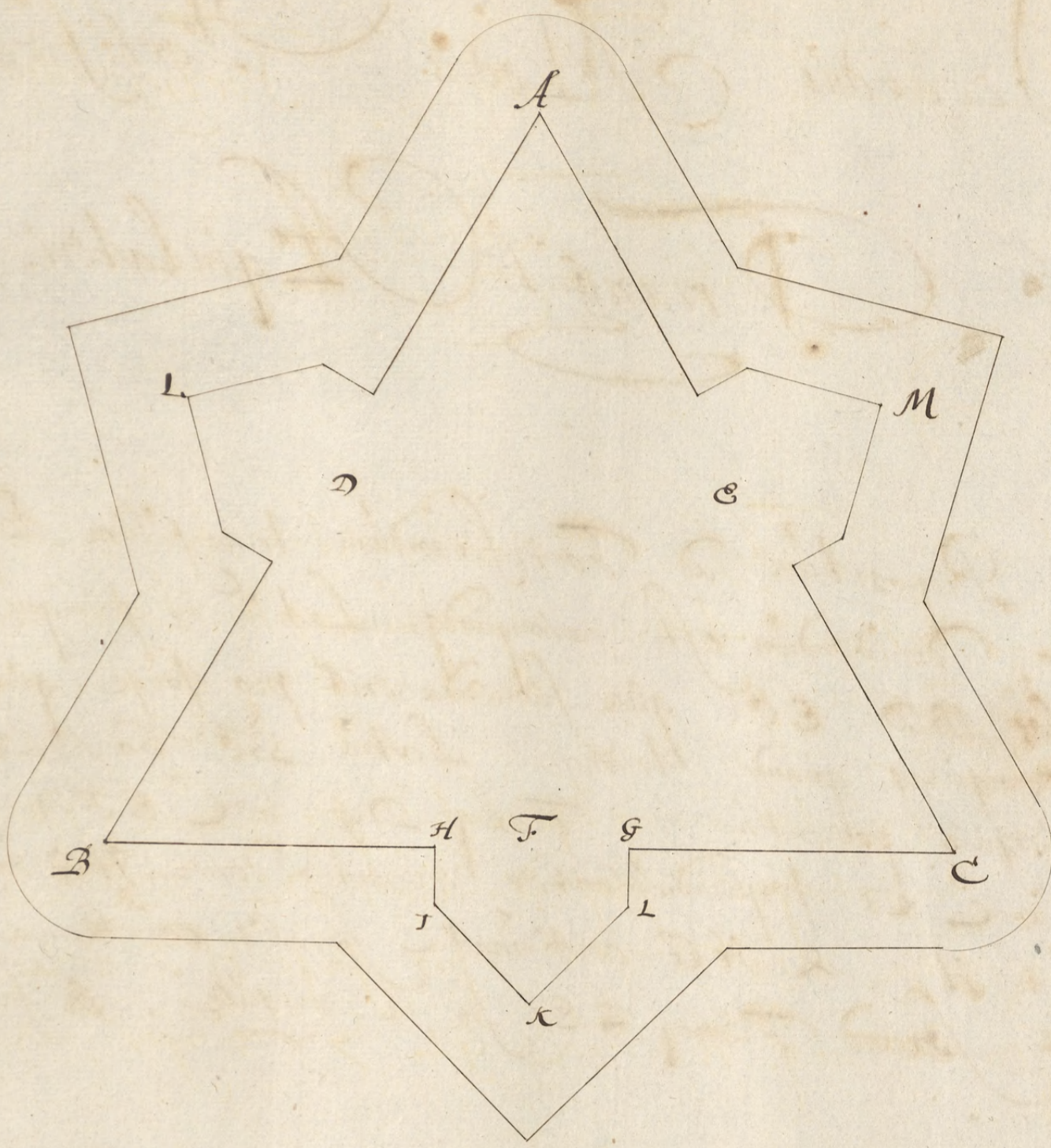


iam  
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 C recta  
 ia pars  
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 diffon  
 ducant  
 idm  
 ugnacul  
 iorim  
 mmodu  
 ut  
 RR & R

Primus Modus Fortificationis  
Trianguli.

Ad Fortificandum Propositum triangulum  
Æquilaterum ABC. cuius unumquodque Latūs non excedet  
120 virgulis.

Prims secabitur unumquodque Latūs per medium, literis D. F.  
E. eriganturque perpendicularares DL. FK & EM.  
Longitudine 19 virgulis. pro Jorje HI. vel FG 12  
& pro Flancij HI. vel GL. 7 virges. & sic de  
ceteris.



Exidet  
 i D. F  
 M.  
 FG 12  
 de

# Secundus Modus Fortificationis

## Trianguli Aequilateri.

Sit Propositum ad Fortificandum Triangulum Aequilaterum  
ABC. Dividendum est unumquodque Latius in quinque partes  
aeguales BD. EC. quia sumenda erit pro Forge, quia habet  
12 Virgulas quando Trianguli Latius BC. 60 habet virgulas  
7 Virgula ponentur pro Flancq. DG vel EF. perpendiculariter  
BH vel CI perpendiculariter elevatur donec HG eam secet  
in puncto H. & HG continuata secabit curtainam in Z.  
Ita ut secundum Flancq. ZE. sit 12 virgulae. & sic de  
caeteris.

fionis

inlatam

partes

habent

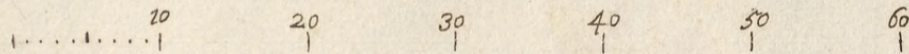
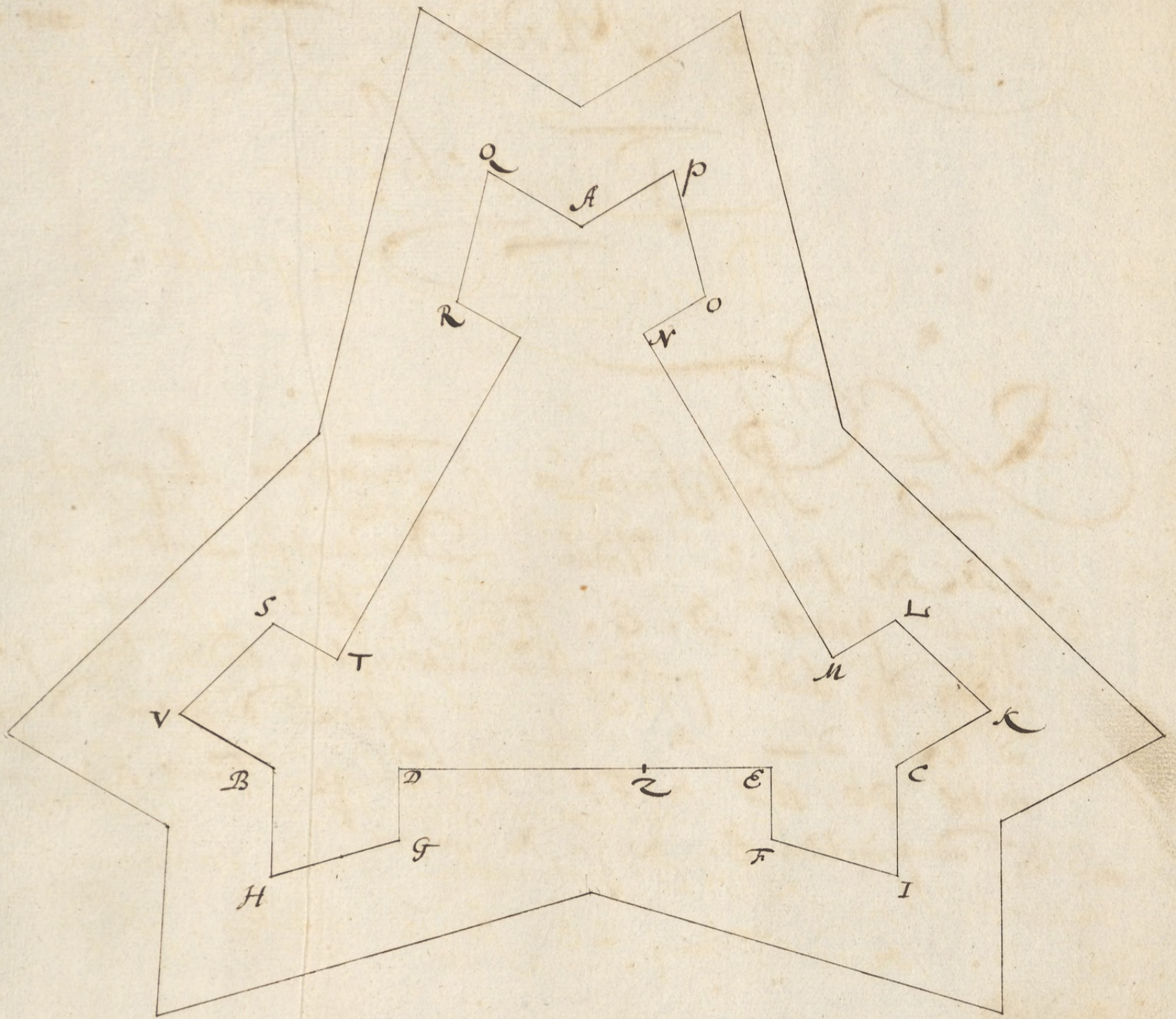
quodlibet

circuli

in Z.

in Z.

de



Tertius Modus Fortificationis

Trianguli.

Ad Fortificandum

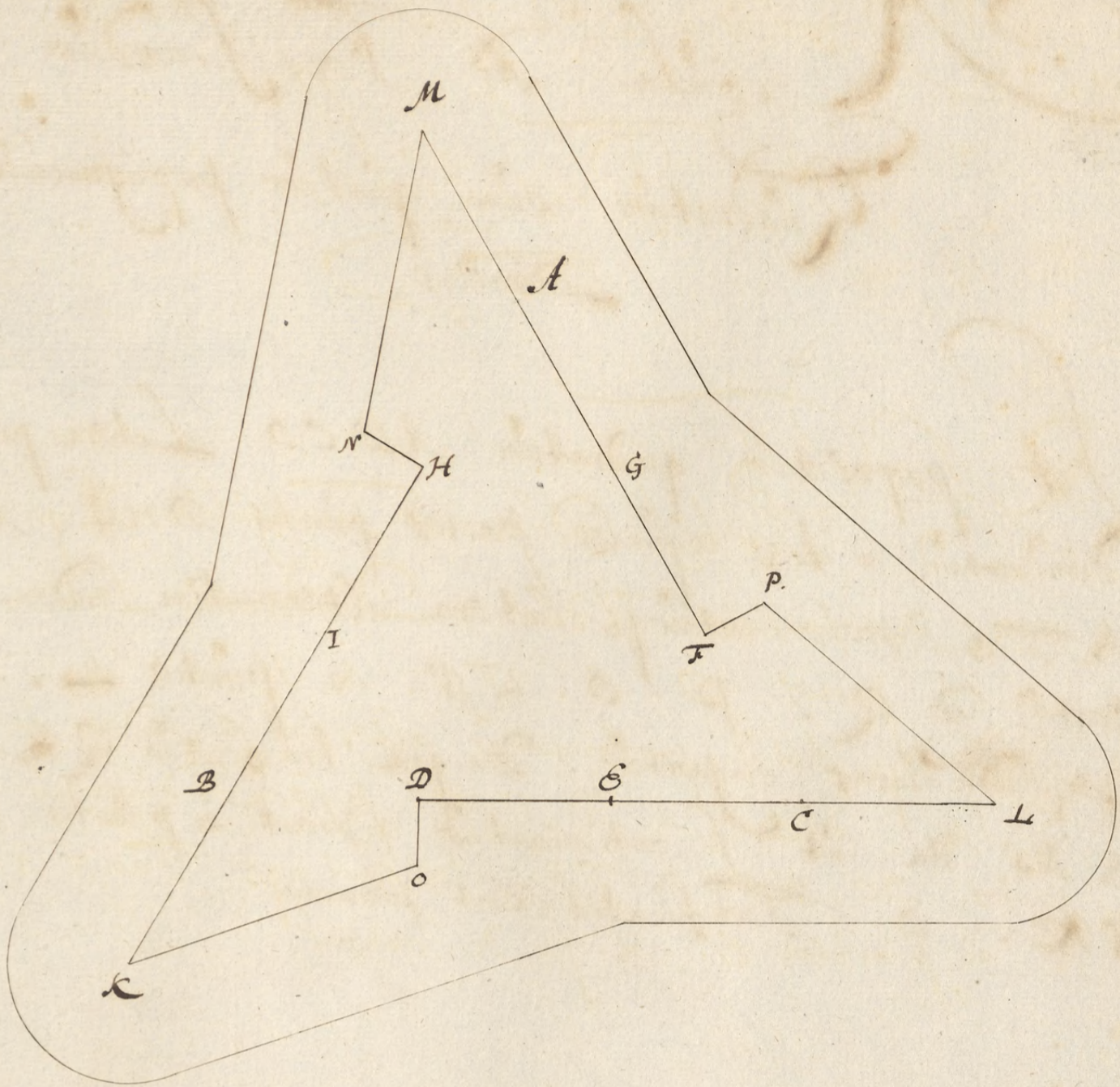
Triangulum Equilaterum

ABC. Per tertium Modum.

Dividantur latera in tres

aequales partes: D. E. F. G. & H. I.

inimquodque latera prolongantur alternatim eadem tertia parte  
ad K. ad L. & ad M. postea ducantur ad angulos  
rectos DO, HN. & FP. trahanturque Facies KO, de puncto  
K ad punctum E. & sic de ceteris.



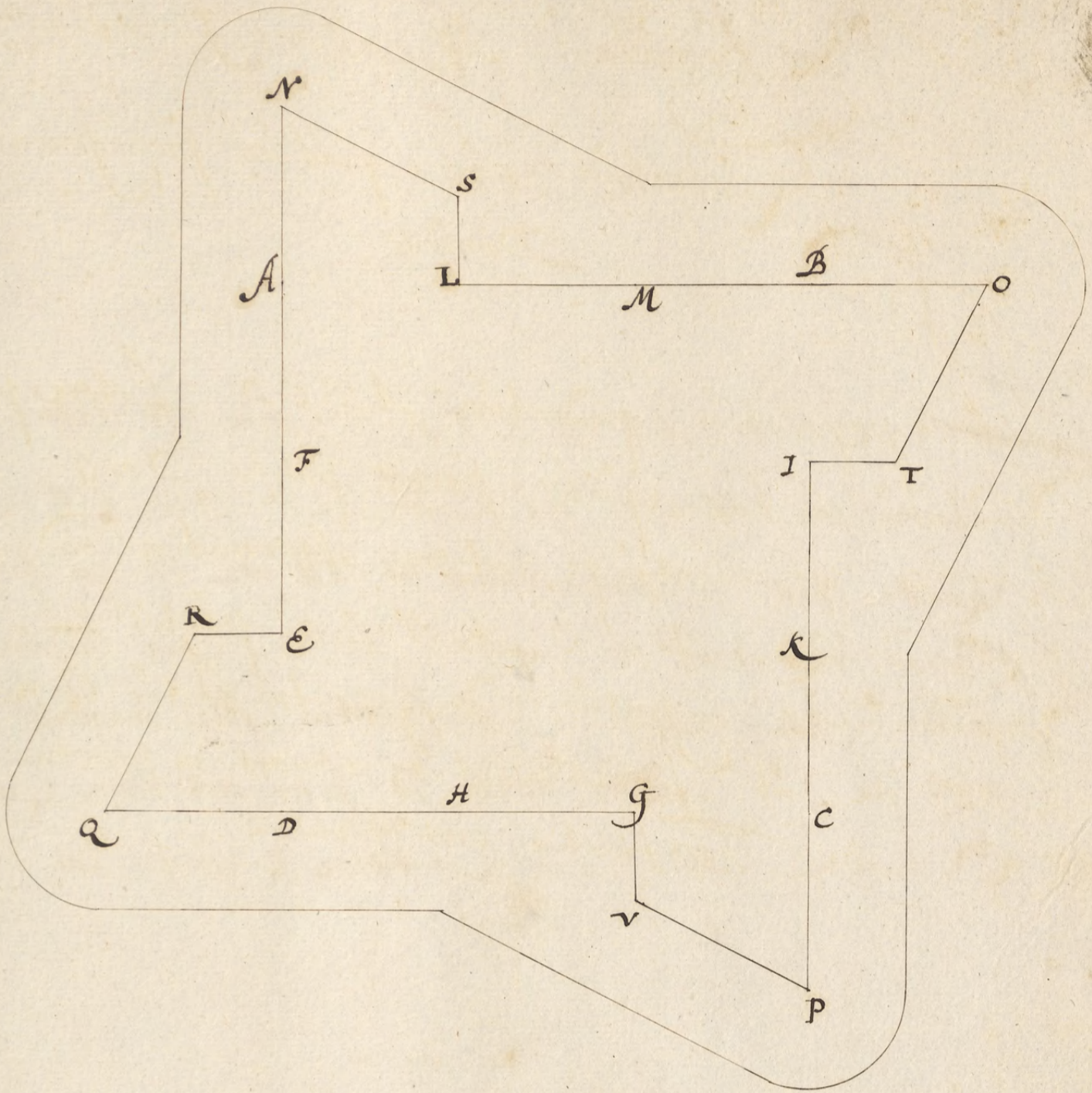
3  
 drum  
 n tres  
 partie  
 angulos  
 de pinct



Regula Ad Fortificandum  
Quadratum cum quatuor propugnaculis  
Dimidijs.

Sit propositum quadratum ABCD. Lateralia prius  
dividantur in tres aequales partes. punctis DHG, KI, ML  
& JE prolonganturque lateraliter alternatim. eadem tertia  
partes ad Q, P, O, & N. a punctis L, I, G, E  
perpendicularares erigantur, denique trahantur QR, PV, OT  
& NS ita ut si continuantur veniant in punctis H, F, M  
& K. & Fortificatio erit perfecta.



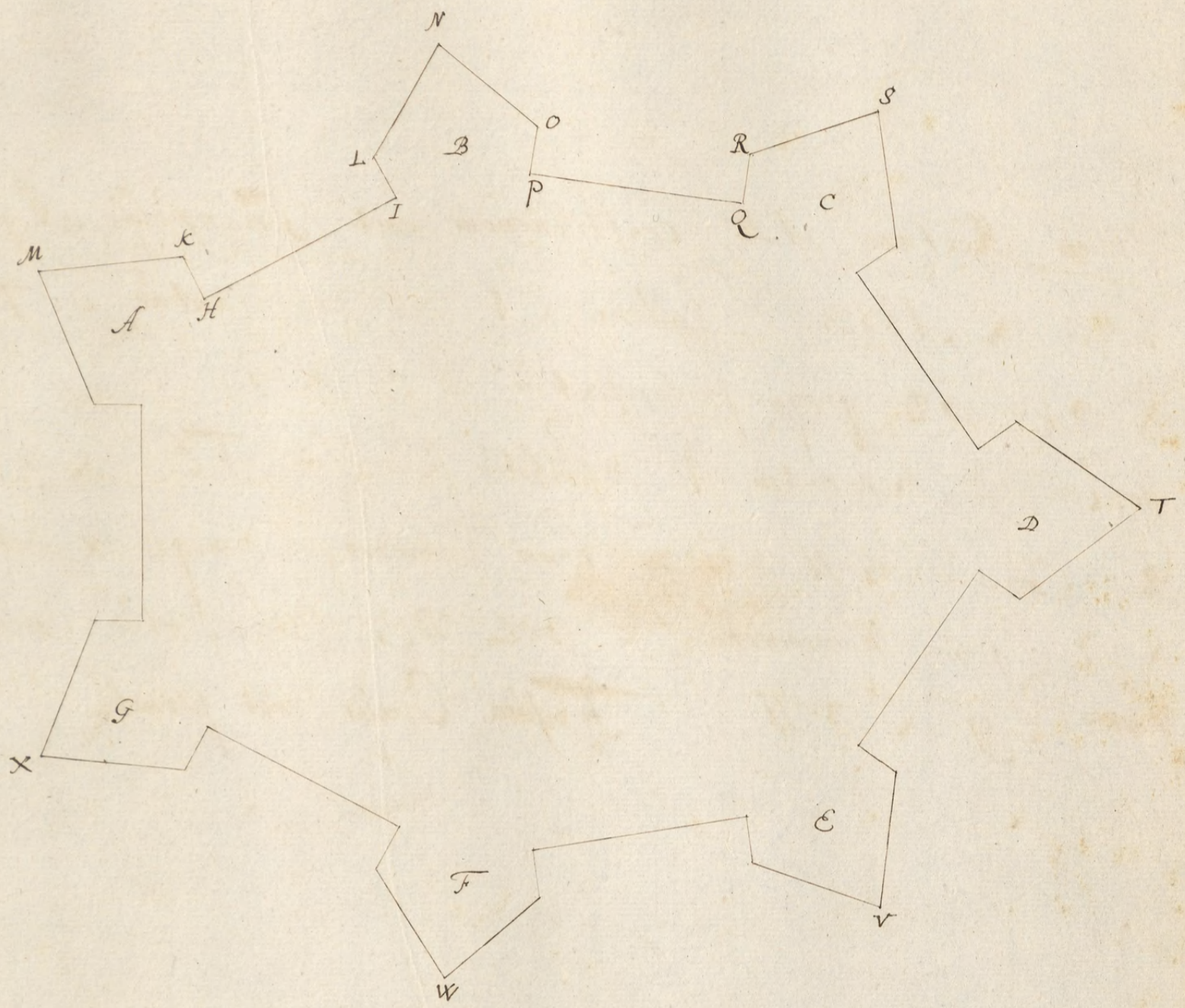


. ML  
 . 1874  
 G E  
 DV, OT  
 . F.M

Fortificatio Figura Ovalis seu  
Ellipsis.

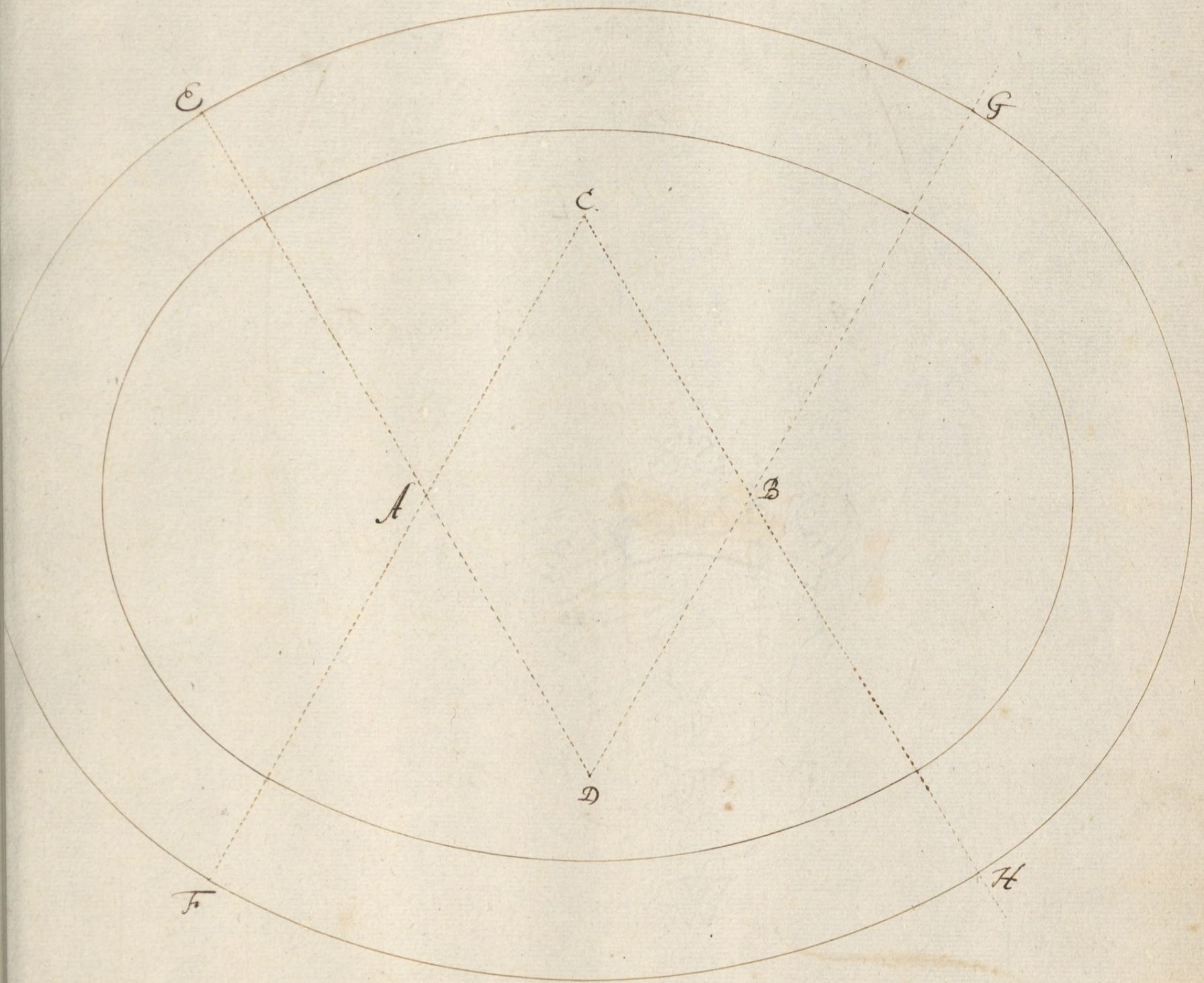
In Ellipsi ABCD & FGH descripta est Figura Heptagona  
ut polygoni interioris AB. BC. CD. DE. EF & FG ostenditur.  
Quinta pars polygoni interioris ut AH vel IB pro gorge sumenda erit.  
Tertia vero pars pro Capitali linea, quae ducenda erit, hoc  
modo. Omnes anguli Circumferentiae, quia inaequales sunt, secandi  
erunt in duas aequales partes & sector erit linea Capitalis.  
Differentia inter lineam Capitaalem & Gorge erit Longitudo Flancus.

Septagona  
offendi  
limenda et  
it, hoc  
+ secundo  
lis.  
indo flamm



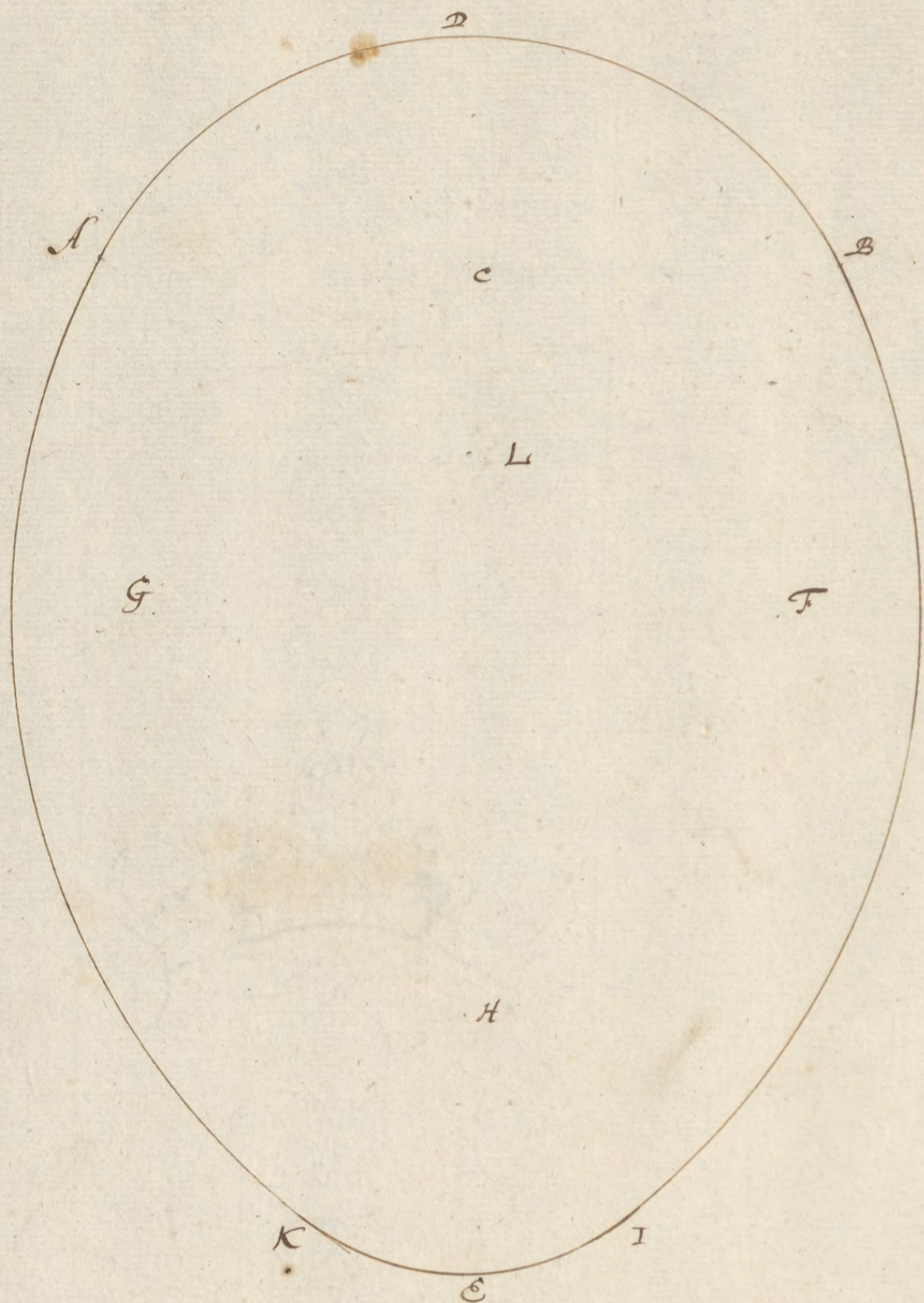
# Descriptio Ovalis.

Super Rectam  $AB$ . constituendus erit Triangulus Equilaterus  
 $ABC$  &  $ADB$ . Lateralia  $CA$ .  $CB$  prolongantur ad  $F$  &  $H$ .  
&  $DA$ ,  $DB$  quoque prolongantur ad  $E$  &  $G$ .  
postea si ex centro  $A$ . describitur Circulus  $FE$ . & ex centro  
 $B$ . Circulus  $GH$ . eodem semi diametro. Denique ex centris  $C$ .  
&  $D$ . semi diametro  $CF$  vel  $DE$ . describuntur Circumferentiae  
partes  $EG$  &  $FH$ , Figura Ovalis erit perfecta.



gimlatom  
F & H.  
centro  
tris C  
circumferent

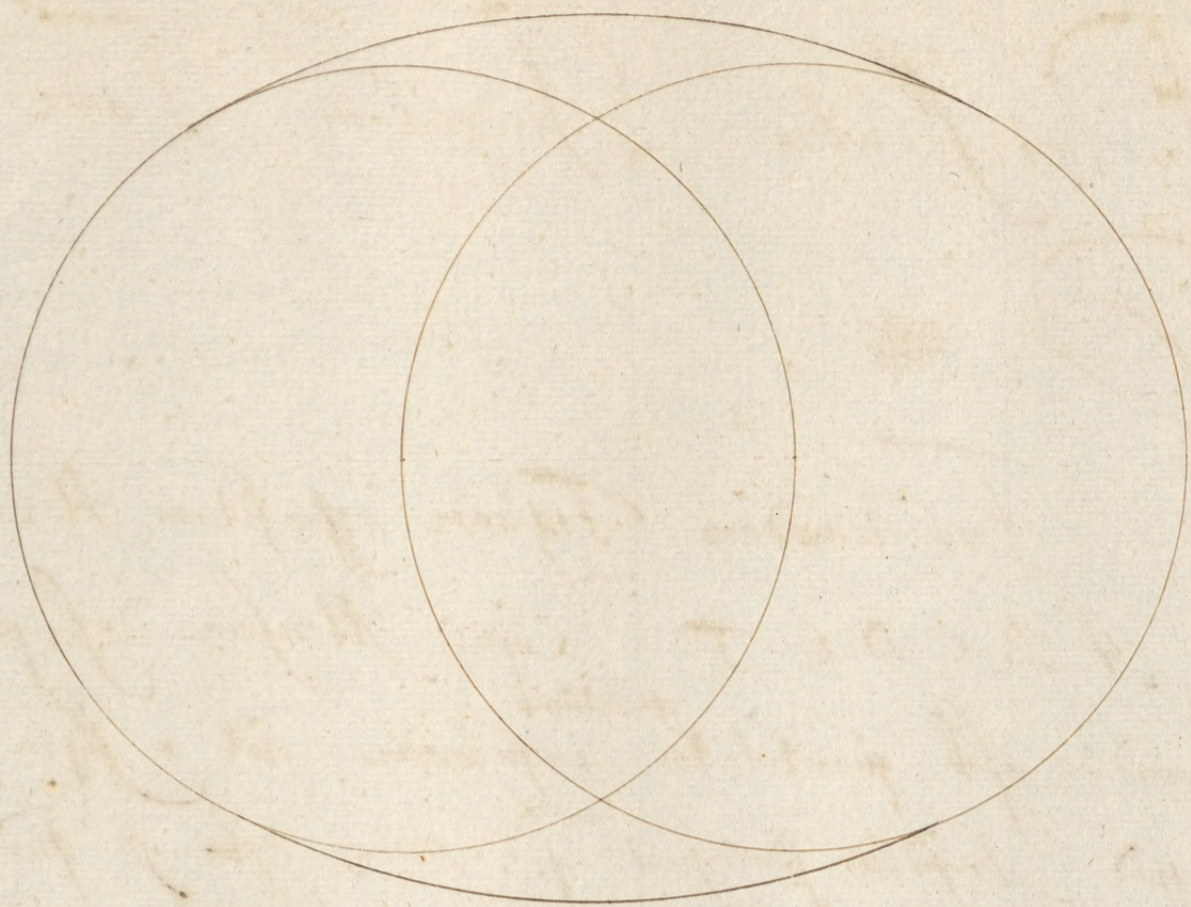
# Varii Modi Constructionis



## Figura Ovalis.

eiusdem Constructio.

Primum Ducatur recta AB. cuius Medietas C. trahatur ad Angulos  
 rectos DE. in linea CE capiatur aliquod punctum L. et ex centro L  
 Radio LA. describatur peripheria circuli ADB. Ducanturque rectae BL  
 ALF trahantur quoque GHI ut libet et per punctum H quoque  
 Ducatur FHK. Jam ex centro F Radio FA describatur peripheria  
 & ex centro G, describatur peripheria BI. ultimo ex punto H Ra  
 HI vel HK peripheriam KEI delinietur & Figura erit perfecta



Angulus  
x centro L  
recta BL  
H quopz  
longitudinis  
to H P  
et peract

# Fortificatio Irregularis Figura Hexagona

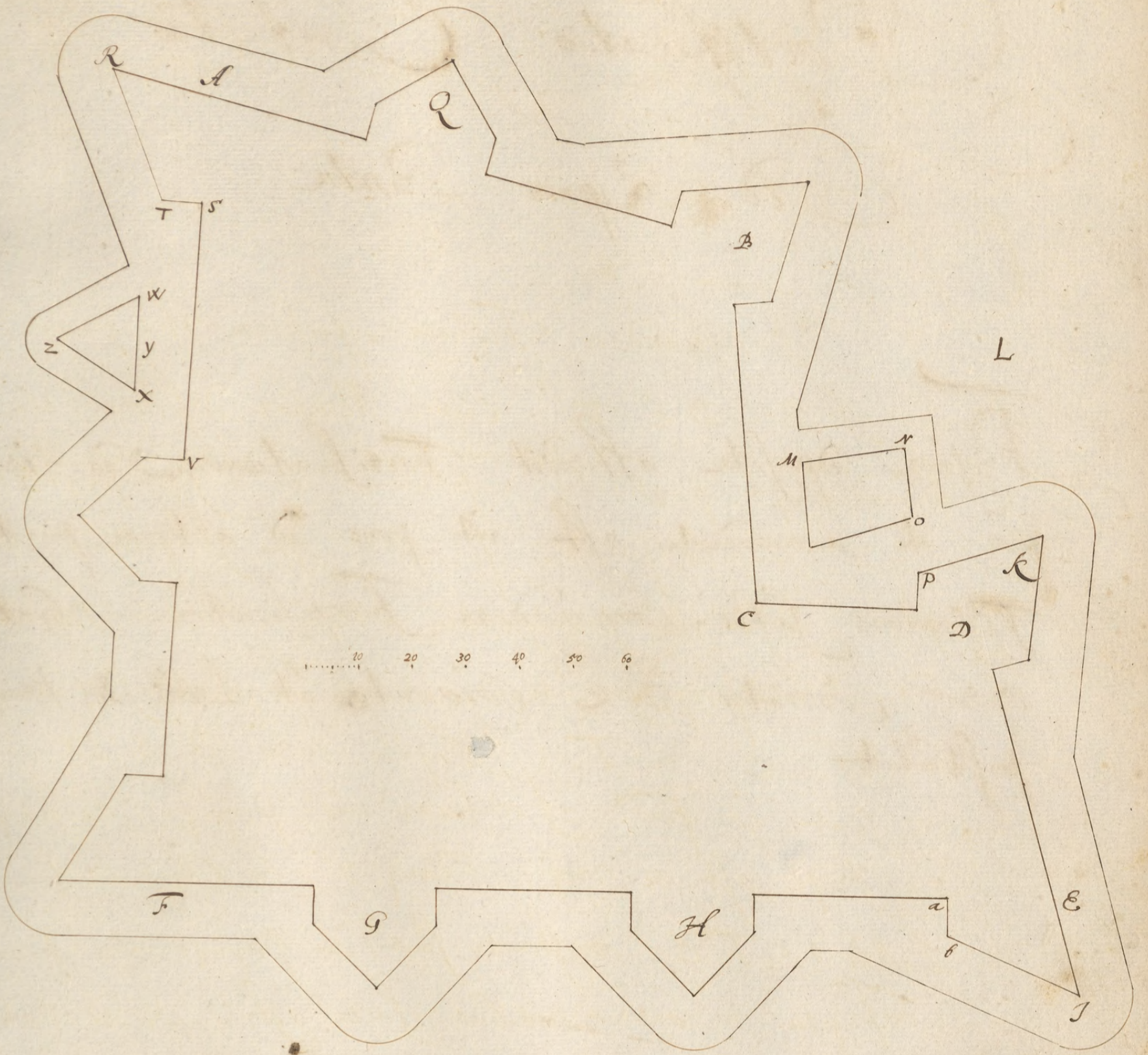
## PL

Ad Fortificandam Figuram affositam Hexagonam Irregularem  
Latom A B C D E F cuius Mensura descripta Scala ostendit.  
Considerandum est quantitates <sup>graduum</sup> angulorum, ut in supra scriptis ostendimus.  
quod Angulus Polygoni qui minor est 90 graduum non fortificandus est cum Propugnaculo integro sed cum Medietate  
sive Dimidio propugnaculum, ut in sequenti figura anguli A. E. & F. Angulos vero B & D. quia  
maiores sunt 90 grad. fortificavimus Propugnaculis integris  
ubi La force est 12 virg. Flancq 7. & Capitalis linea 15  
Ad Latas F. E. constructa sunt duo Propugnacula plana  
cuius descriptio in antecedentibus facta est. & ad latera  
A. F. & A. B. iuxta propugnaculum. quia vero distantia  
vs. nimis magna invenitur, descripsimus Ravilimum WX  
ita ut Capitalis linea zy habeat 15 virgulas, et angulus  
z 60 graduum.

Sequitur Modus construendi Ravilimum ad angulum C.  
intermedium. quod perficitur hoc modo.

Primo dividatur recta CL angulum BCD per Medietatem. Ducto  
NO & NM ita ut angulus N sit rectus. & NO continuata  
seriat faciem PK in P. quod accommodatur secundum  
Positionem figurae.



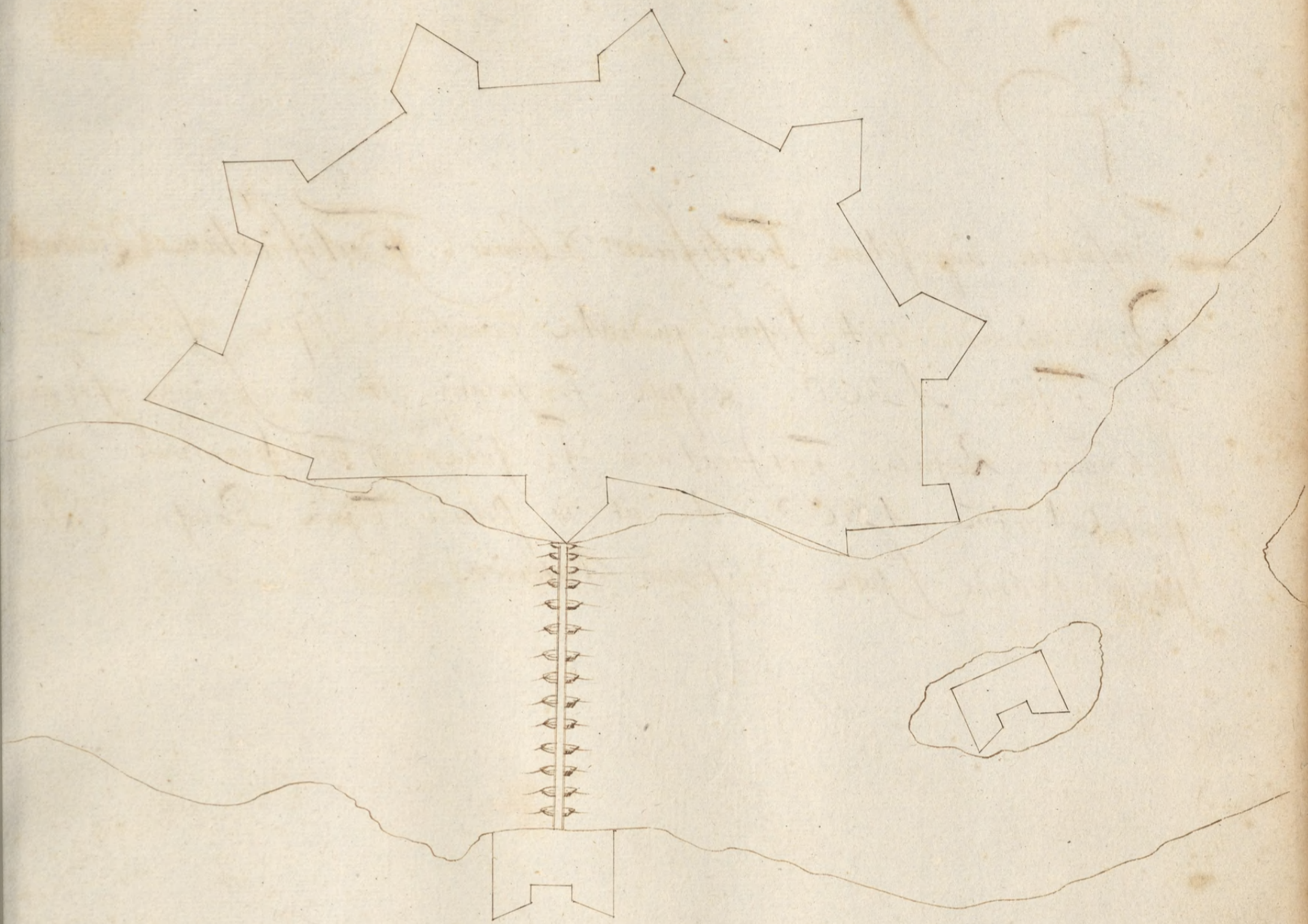


hexagona  
 nam frons  
 scala of  
 riptis of  
 m. non  
 Modum  
 ipira  
 D. quia  
 is mtepid  
 e linea  
 plana  
 d latera  
 distantia  
 in WX  
 angulis  
 lim C.  
 dila. Du  
 imata  
 dila

Fortificatio Civitatis  
Ad Ripam Posita.

Figura adposita ostendit Fortificationem ad Ripam  
quia ita accommodata est ut pons ad alteram partem  
Fluminis satis commodam Fortificationem habeat  
opere cernito vel coronato ut locus et tempus  
postulat.

Ripam  
partem  
Gabat  
tempus



# Fortificatio Insulae.

Insulam adpositam Fortificare debemus Fortificatione Quadrata  
Primo ducenda erit figura quadrata commoda supra insulam  
ut figura ABCD. & quia Irregularis est, in secunda figura  
secundum Regulas Fortificationis Irregularis Fortificavimus idem  
quadrilaterum ABCD. Ita ut in prima figura Polygonus Exterior  
sit in secunda figura Polygonus Interior.

Prima Figura.

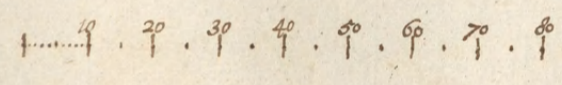
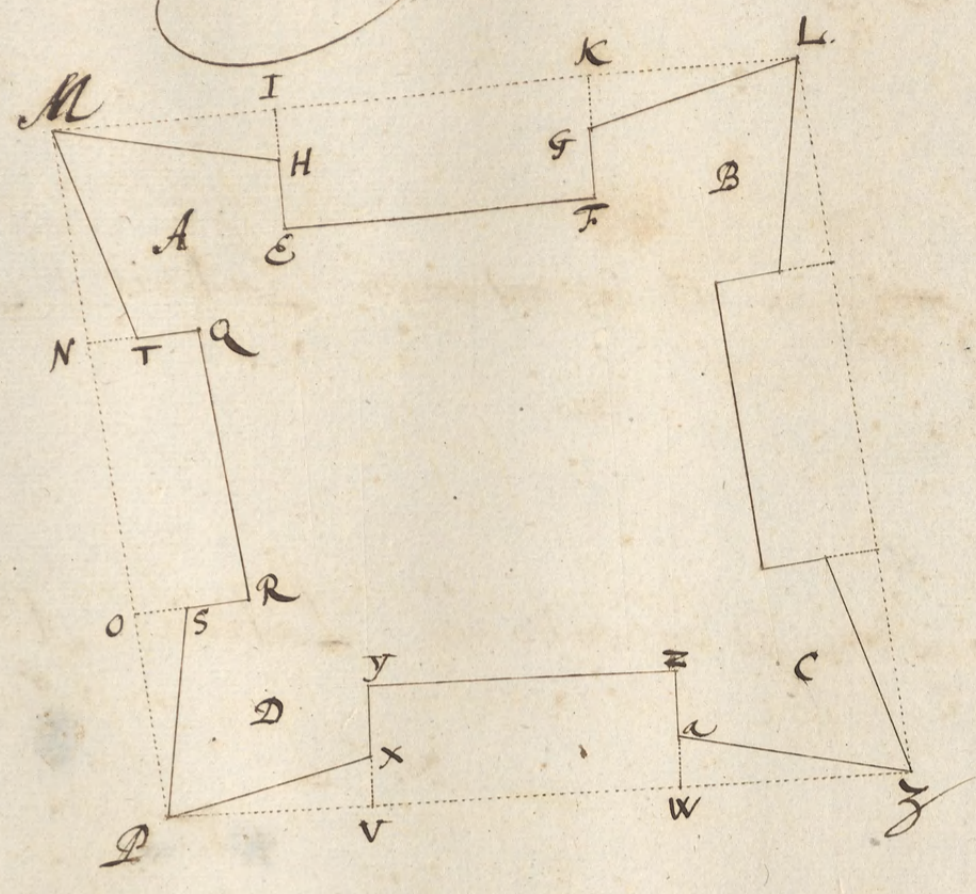


Quadrata  
 figura  
 nem  
 is Exterior

Figura quadrilatera in secunda hac figura ABCD. Exterior  
fortificavimus secundum Regulas quas in fortificatione  
Irregulari descripsimus ut sequens figura ostendit.  
postea.

omnes Flancq prolongari debent usque ad Polygon Exterior.  
& ut ista figura transportatur supra nostram Insulam.  
paranda erit tertia Figura. a. b. c. ut bc. sit polygon  
Exterior Pz. & fe contra ipsum parallela & aequalis.  
poligono DC Exterior. sit bh aequalis Pv. & dc aequalis  
Wz. by aequalis Vy. & kc aequalis Wz Ducantur ad  
punctum a. lineae ag. ab. ad. ak. ai. & secantes  
fe in punctis l. m. n. o. p. erit fm. surface pro fortit  
tione supra insulam. DE. & ne pro surface HC. & sic de  
ceteris.

# Secunda Figura



# Tertia

# Figura

f l m n o p e

b g h i k

Exterior  
 fication  
 Exterior  
 am.  
 polygon  
 ialis.  
 equalis  
 r ad  
 mtes  
 bro fortit  
 & sic de

Quarta figura ad inventionem lateris BC pertinet.

Quinta figura ad inventionem lateris AB.

Sexta figura ad inventionem lateris AD pertinet.



Quarta Figura

Quinta Figura

i

κ λ μ σ

e

i e f

b

α ε ζ γ c

b

α γ δ c

Sexta Figura

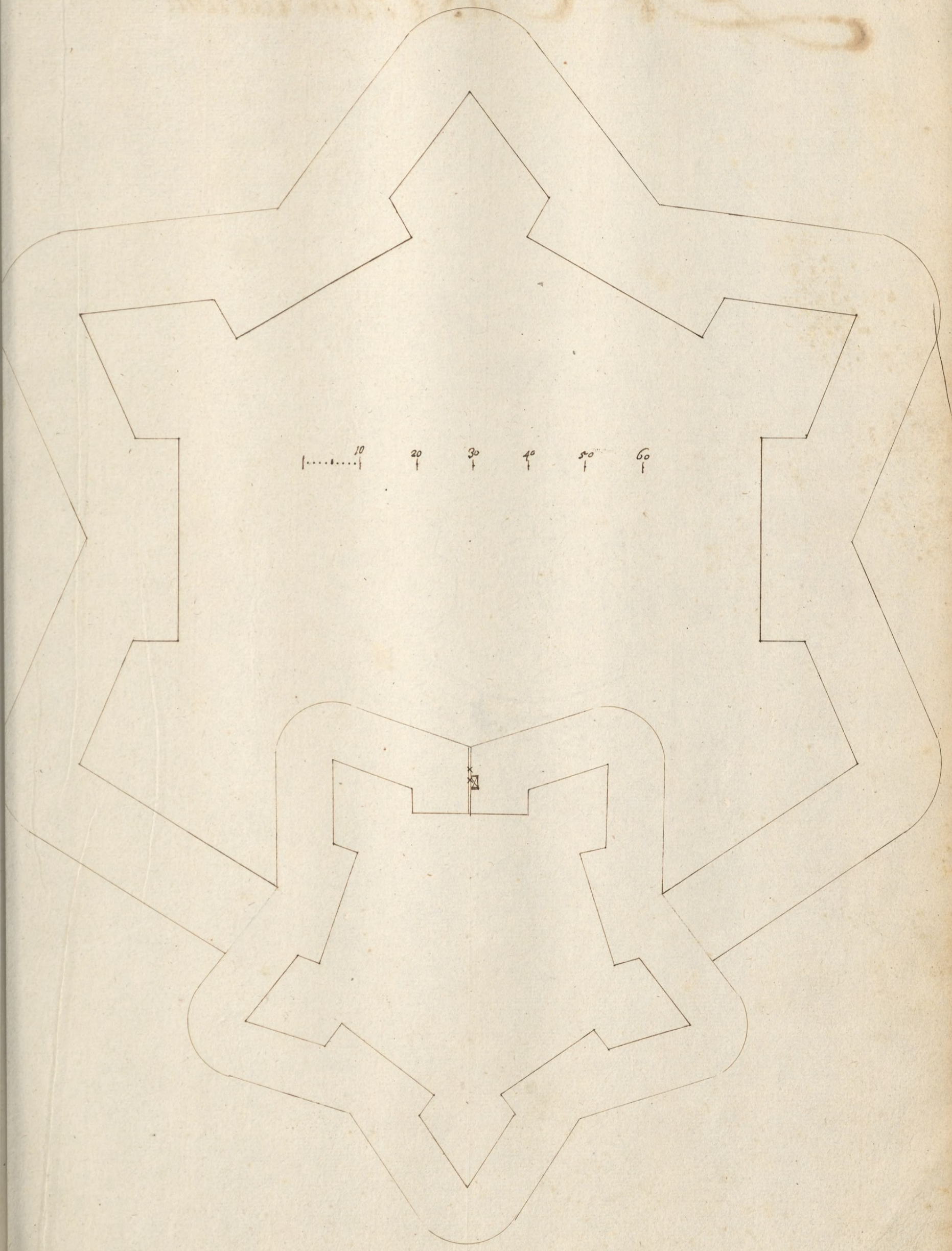
e

f

b

α γ δ c

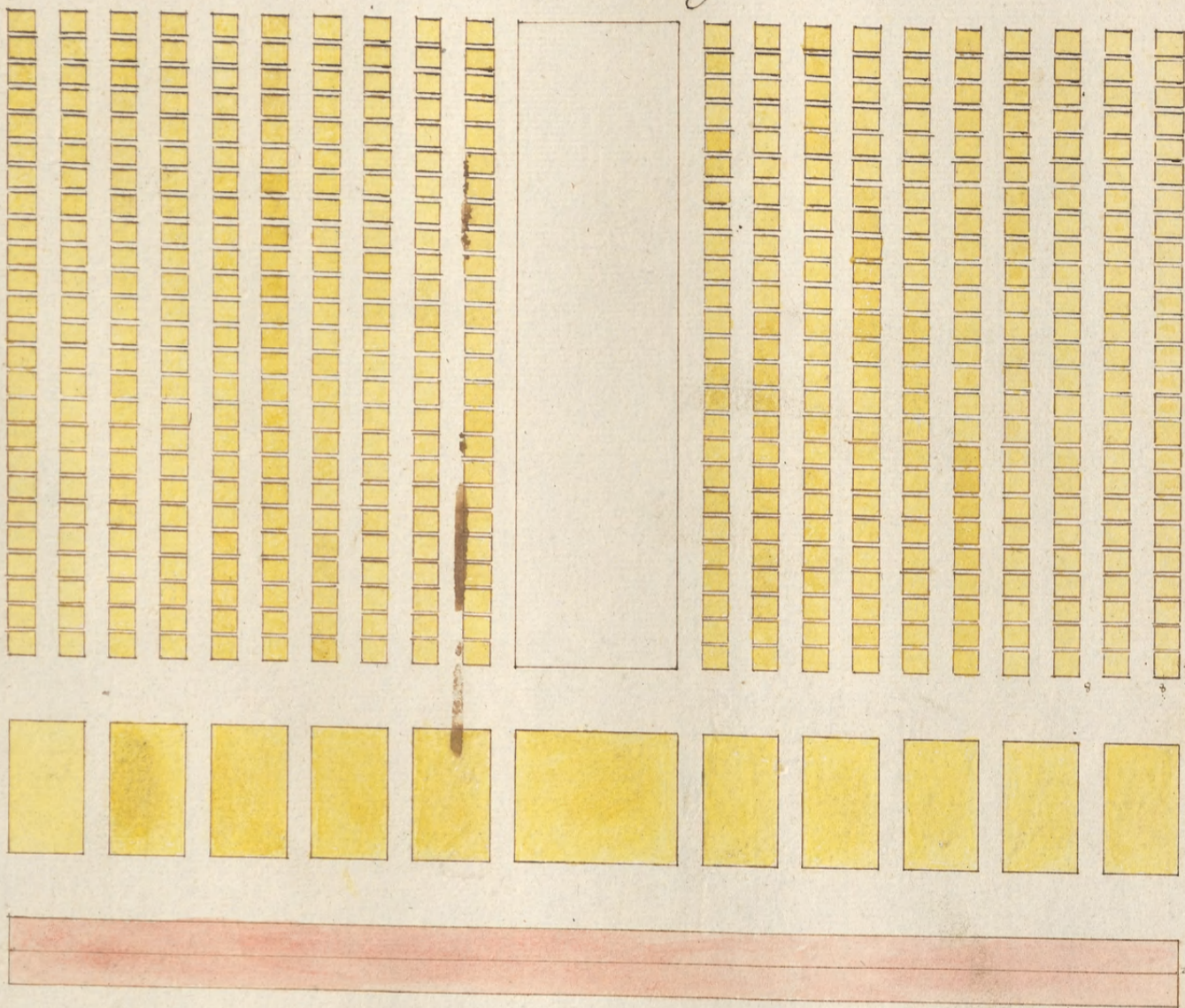




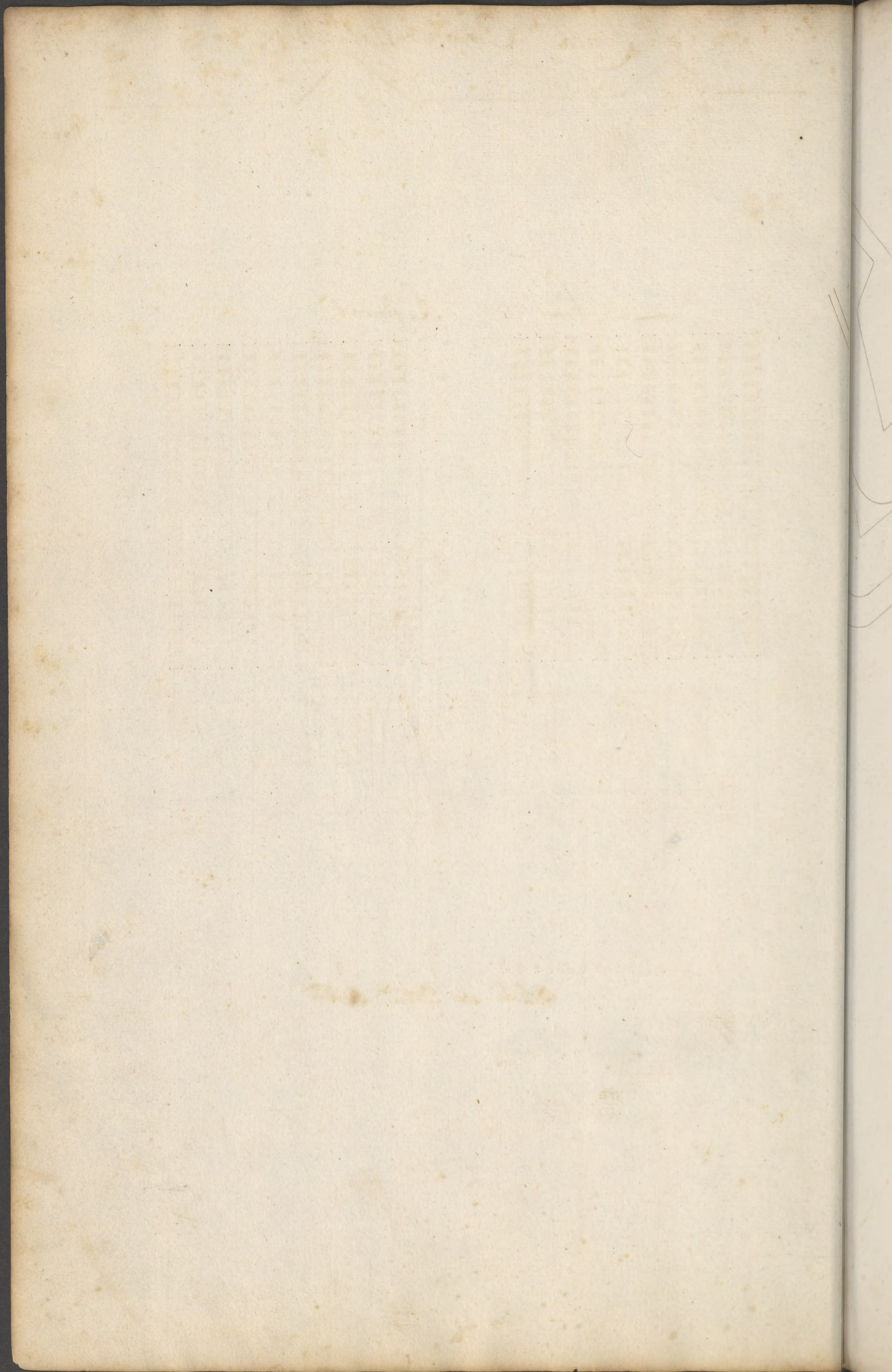
De Castrametatione



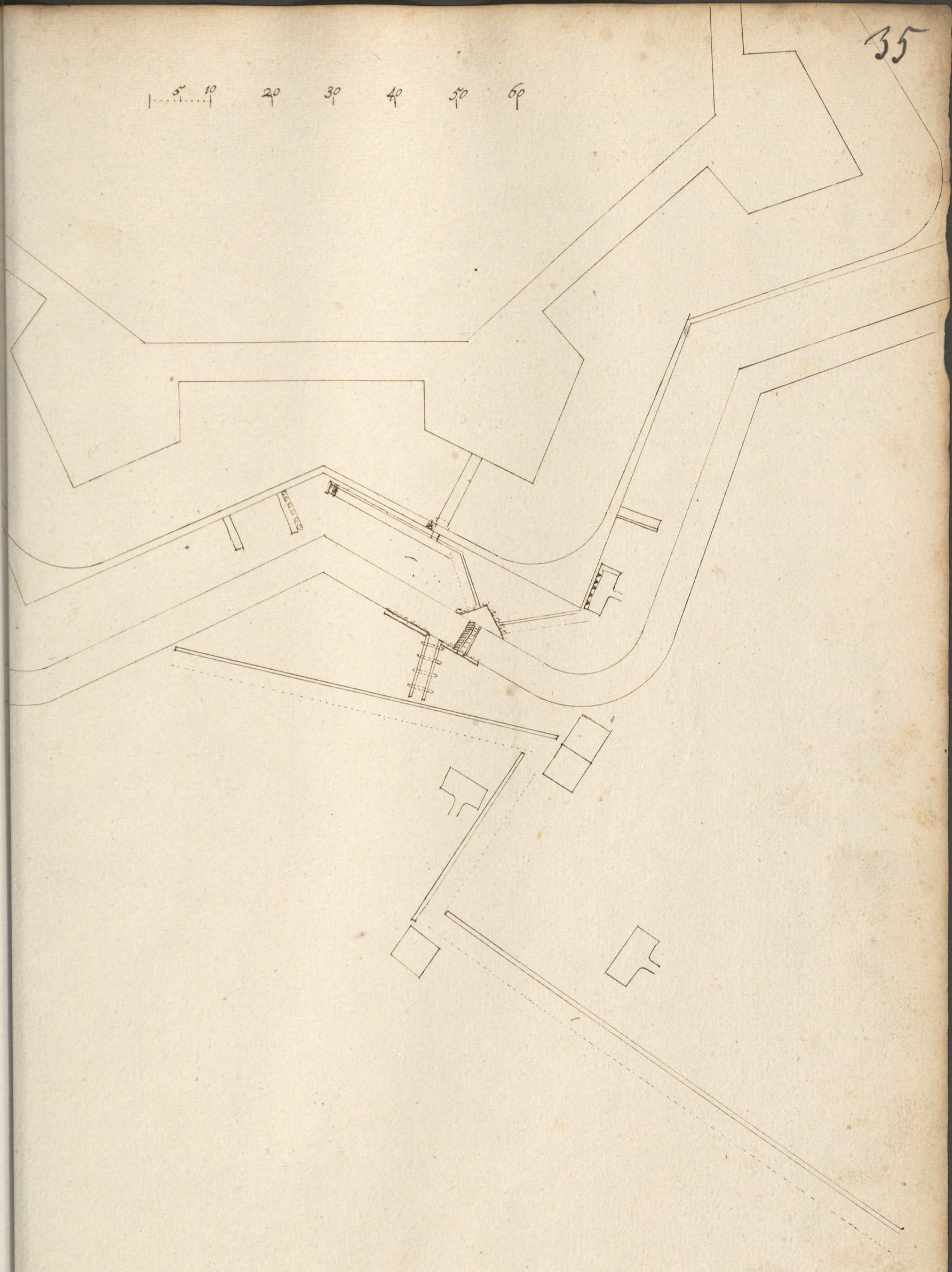
Le Front d'ü Regiment.

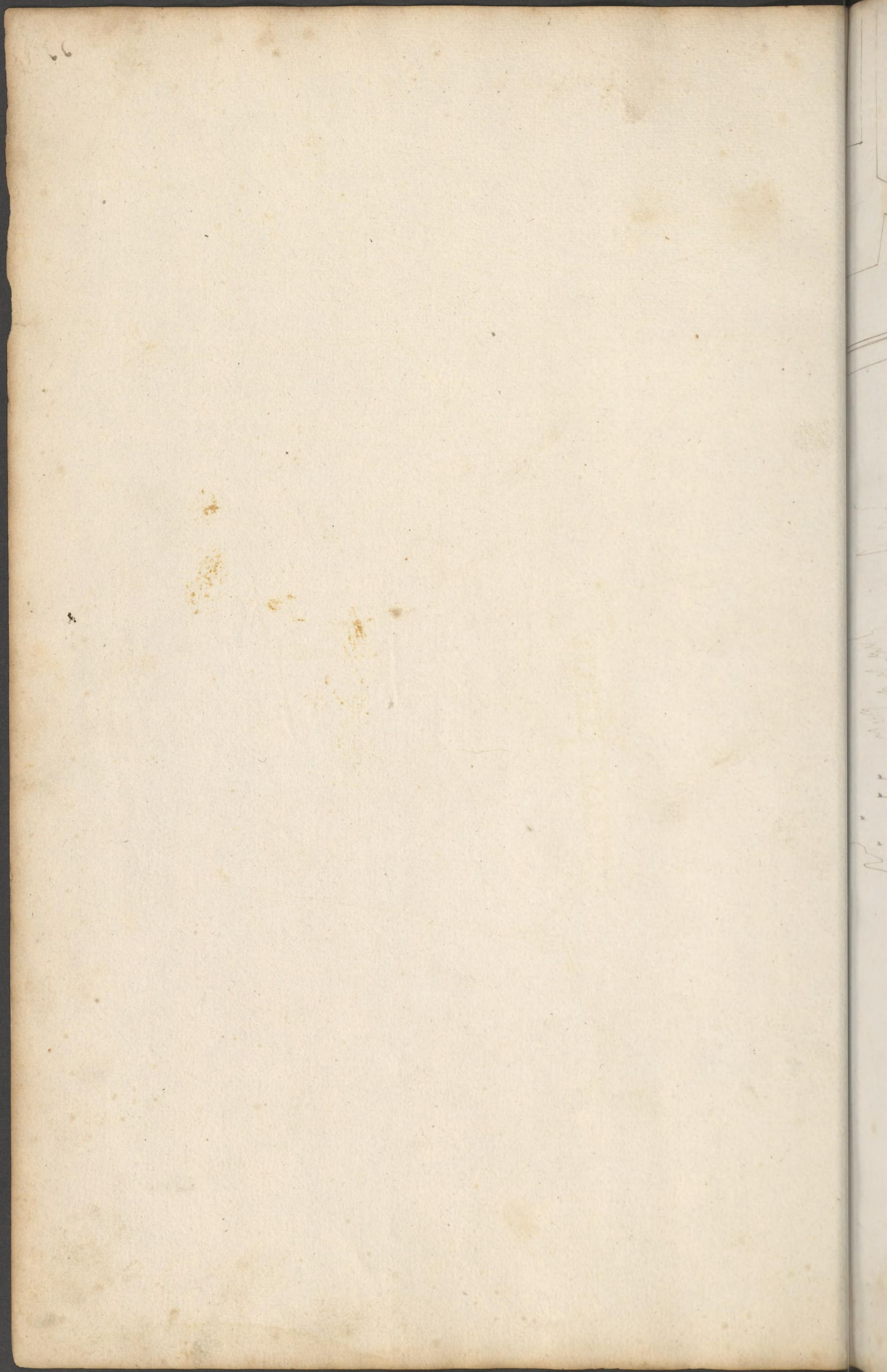


10 20 30 40 50 60 70 80 90 100 200 300  
Scala 300 Pedum Rhonor

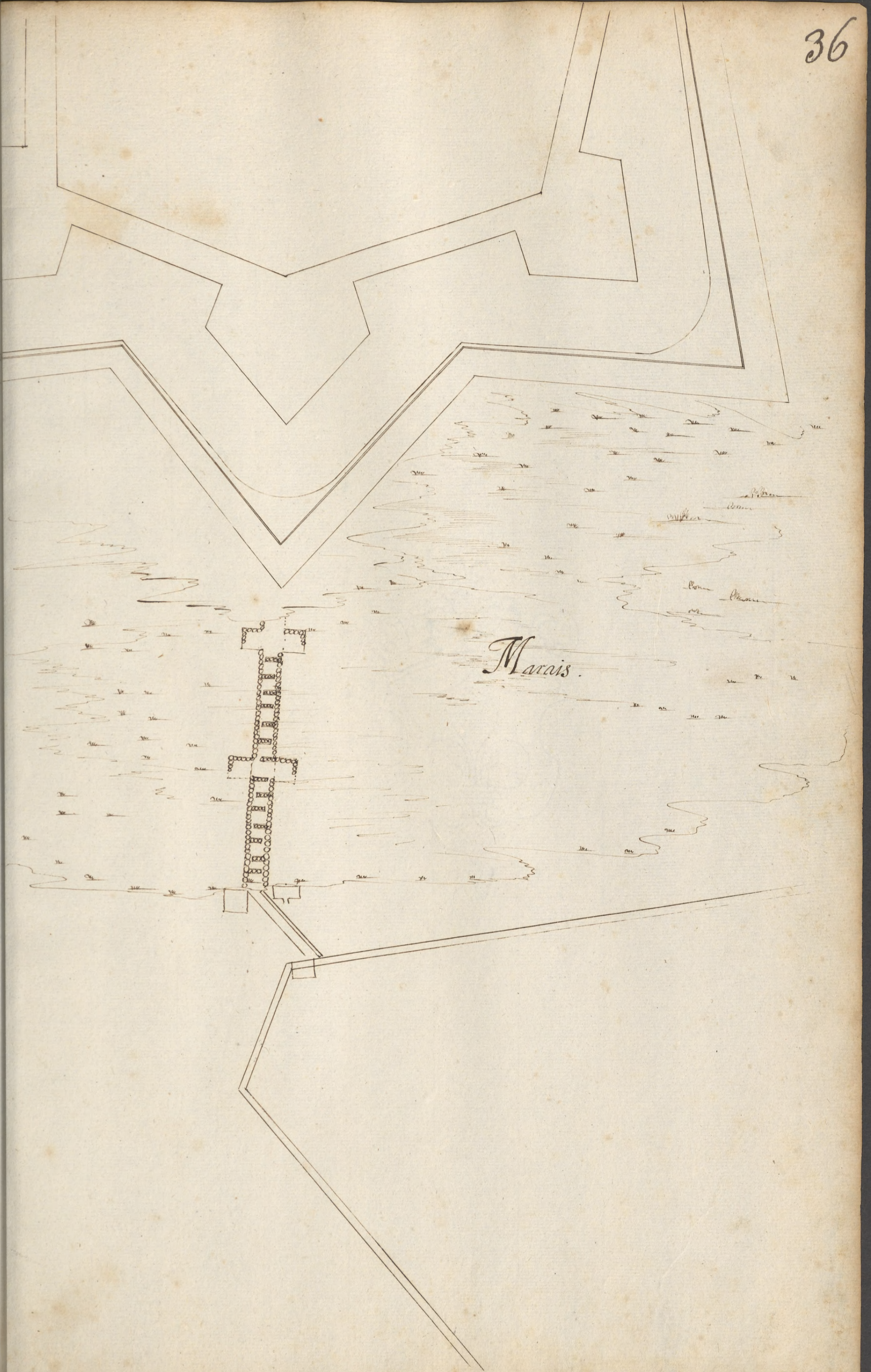


5 10 20 30 40 50 60



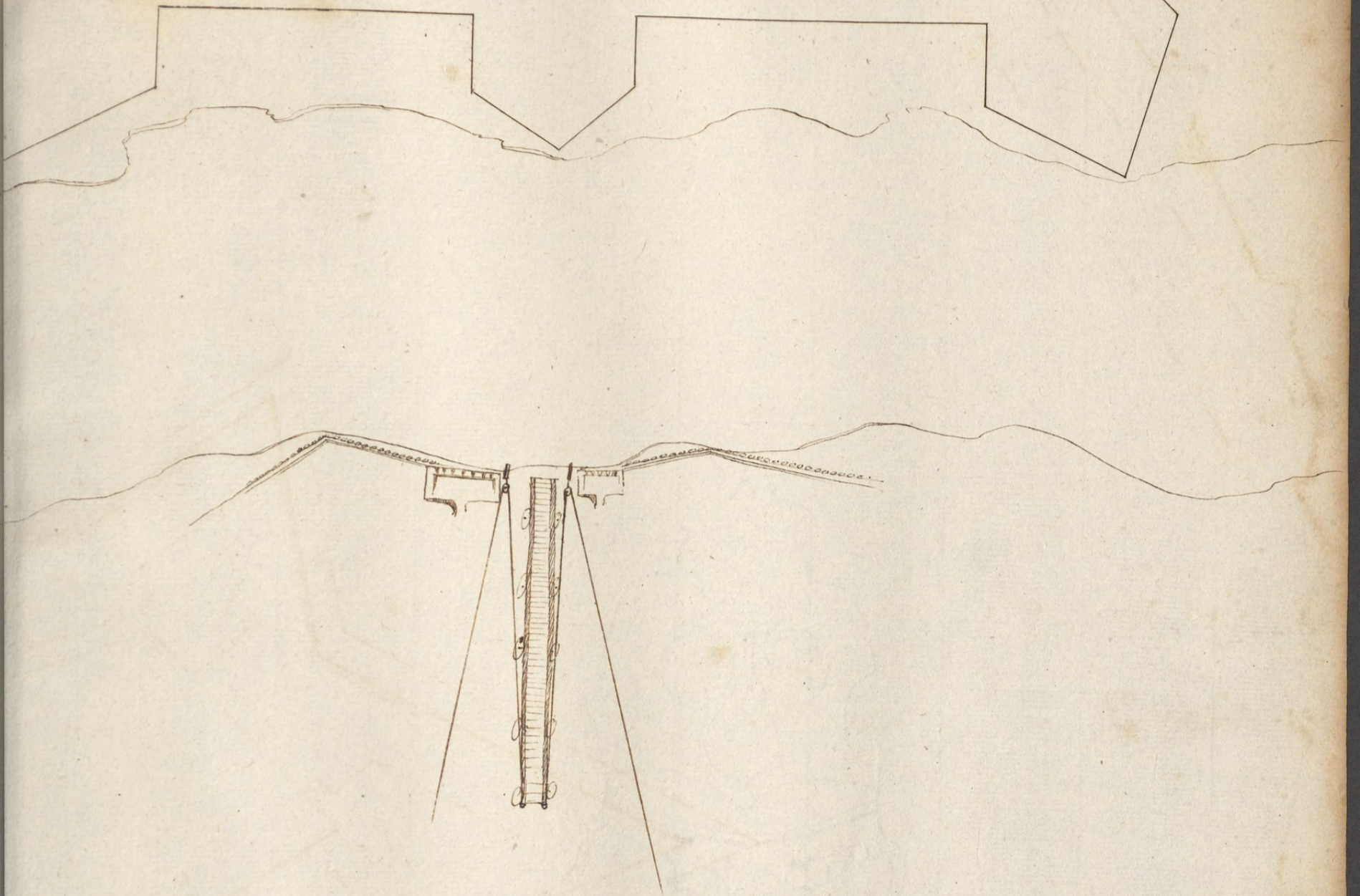






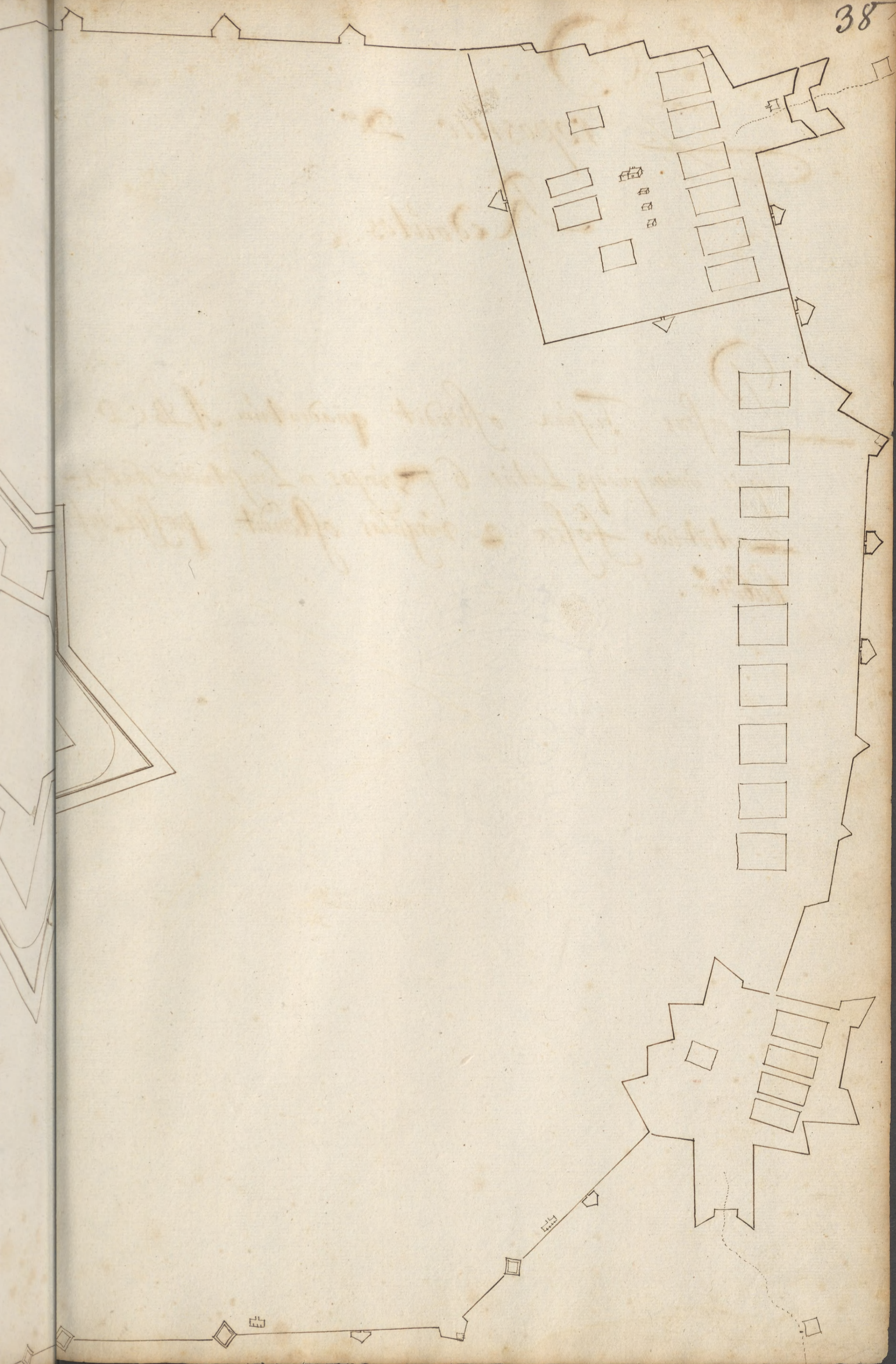
116





78

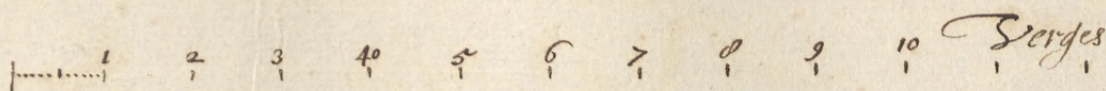




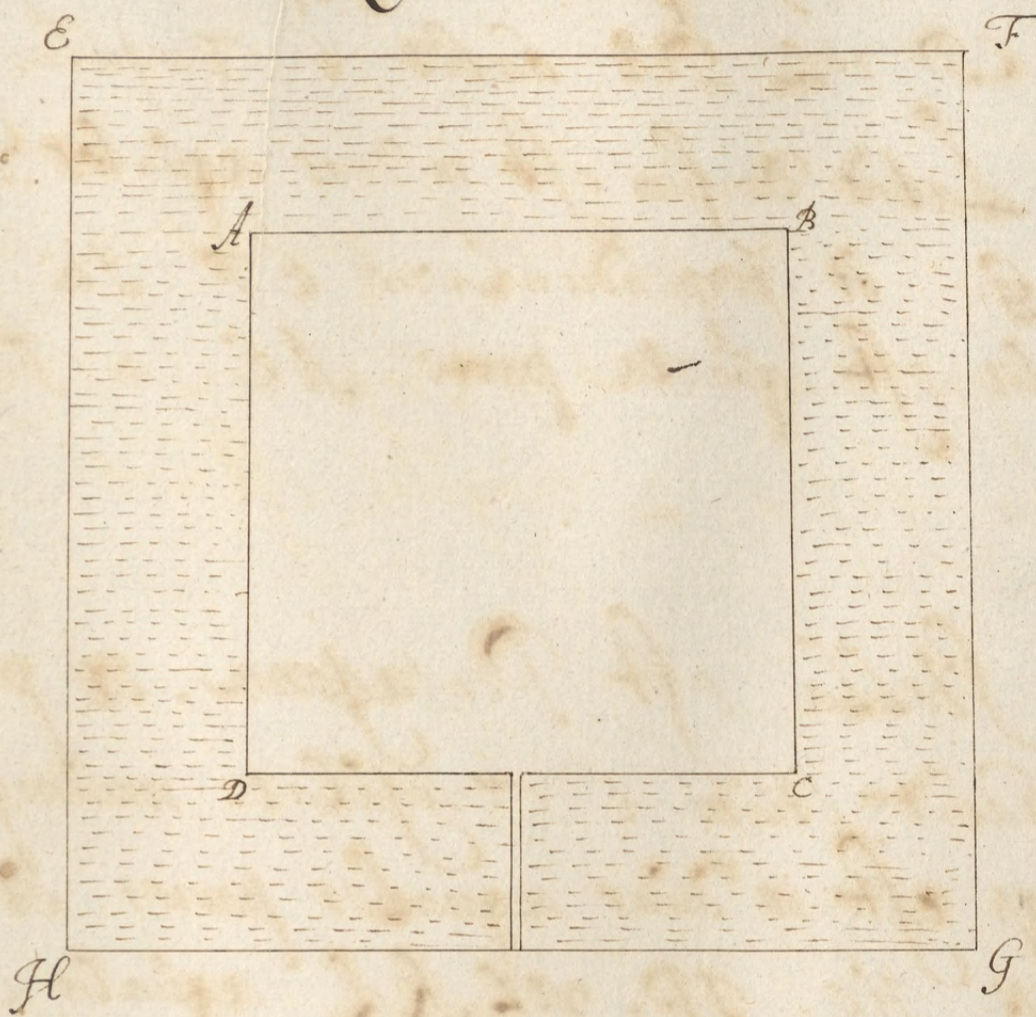
Propositio De  
Reductos.

Præsens Figura ostendit quadratum ABCD  
cujus unumquodque Latūs 6 Virgas in Longitudine habet.  
Latitudo fossæ 2 virgulas ostendit. profyl inferius  
habetur.

# Schala.

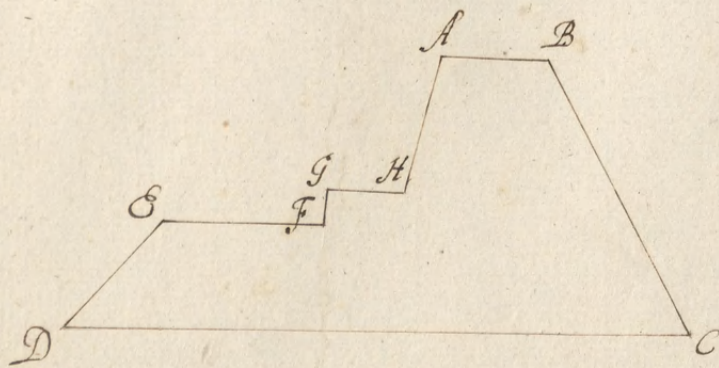
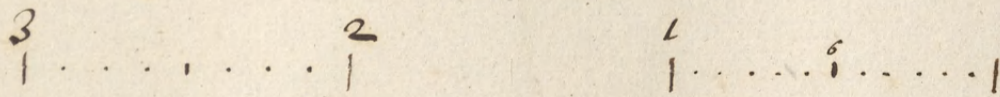


# Redoute



# Profil

Schala.



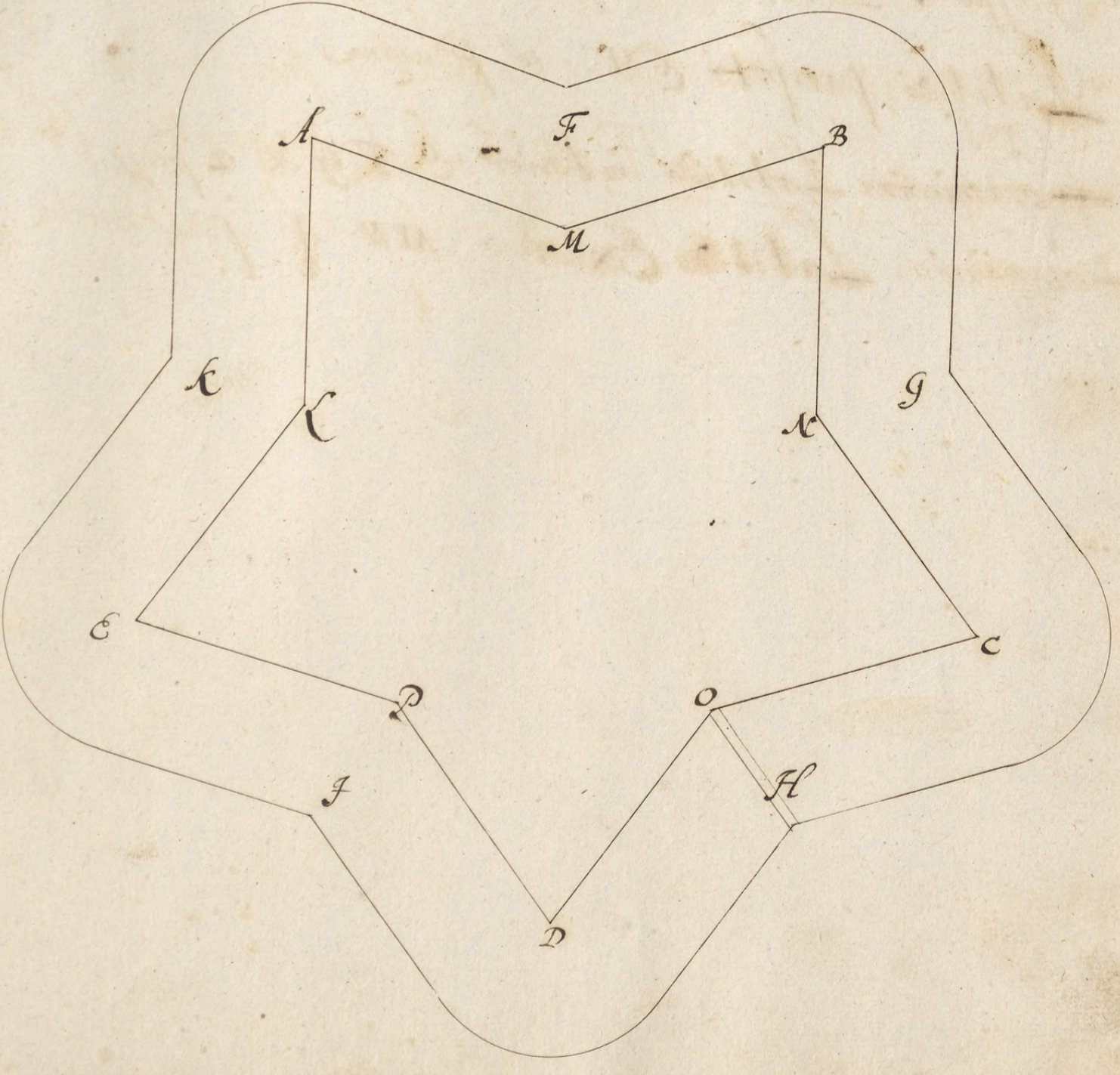
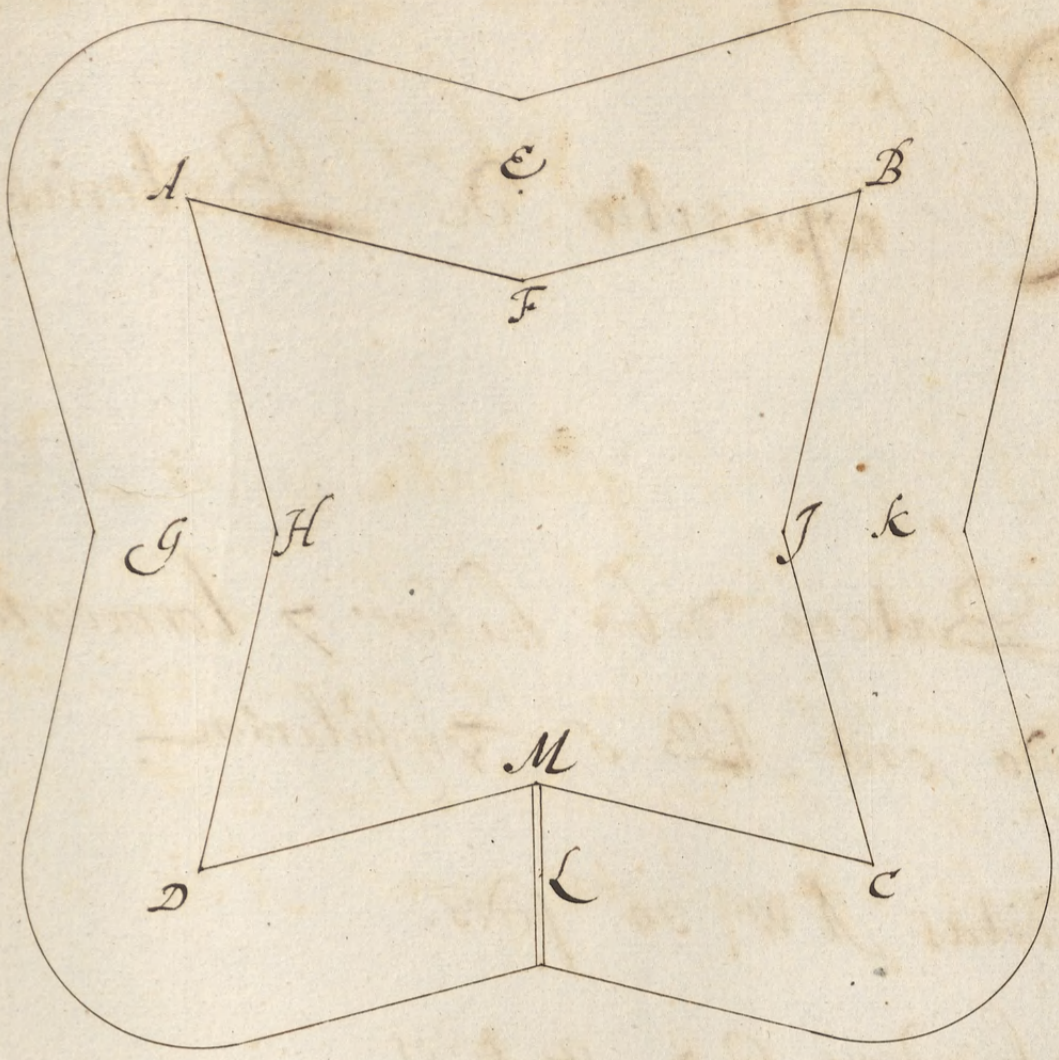
# Propositio de Fortificatione Stellata

Prima Stella est quadrata cuius Polygon Exterior  
AB. BC. CD vel DA habet 6 Virgulas  
minimèquodq; Latus divisum est in duas aequales Partes. in E.  
K. L. & G. A perpendicularis EF. IK. ML vel  
GH. aequalis est quarta parte AE. & Figura erit  
constructa.

Secunda Stella est Pentagona. et pro polygone  
Exteriori habet etiam 6 Virgulas. minimèquodq; Latus  
divisum quoq; est in duas aequales partes. et perpendicularis  
FM. GN. HO. IP. vel KL aequalis est tertia  
parte AF. et Figura stellata erit constructa.



1 2 3 4 5 6 Singula



terior  
m E  
vol  
erit

lidone  
s. Latia  
ondicula  
tertia

Propositio de Bateria.

Si Bateria debet habere 7 tormenta. ipsius  
Latitudo erit AB & singularium.

Profunditas AW 36 pedes.

Via ascendens QR 12 pedes

Locus pulveris T. 10 pedes.

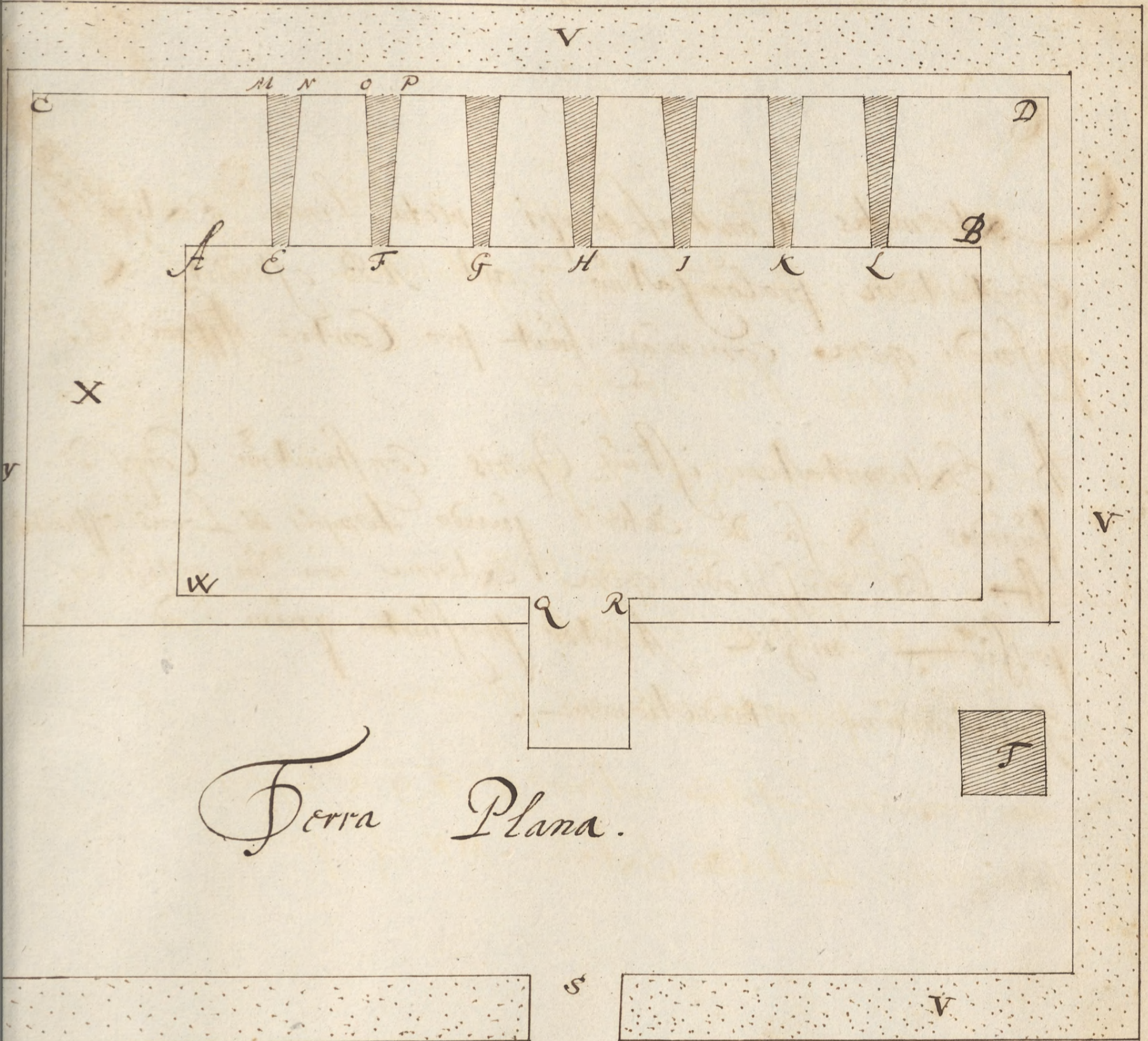
Fossa V Latitudo & pedum.

Latitudo parapeti EM. 10 pedum

Foraminum Latitudo interior. E. F. G & 2 pedes.

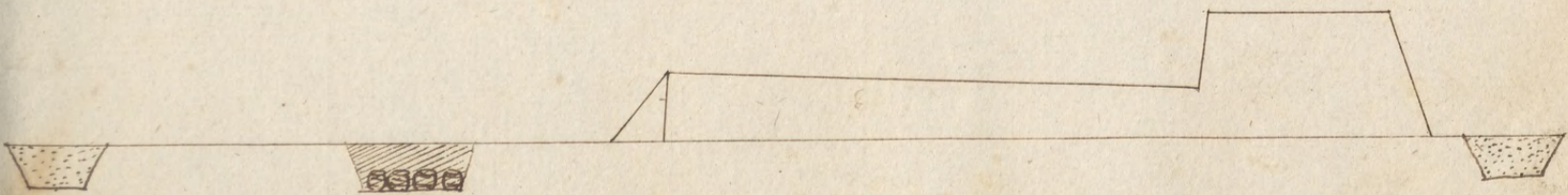
Foraminum Latitudo Exterior MN 4 pedes.

Schala.



Terra Plana.

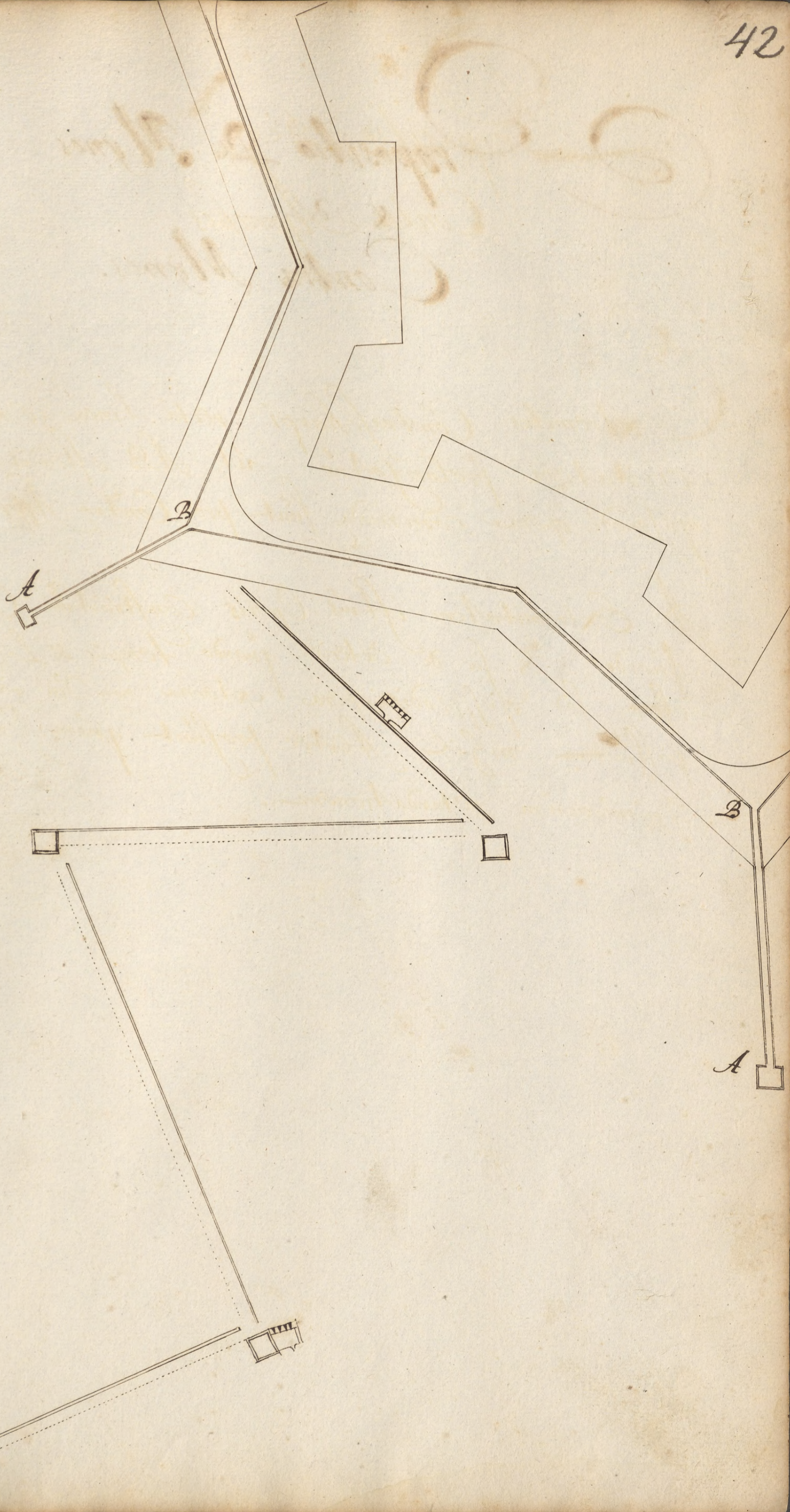
Profil



Propositio De  
Contre Approches.

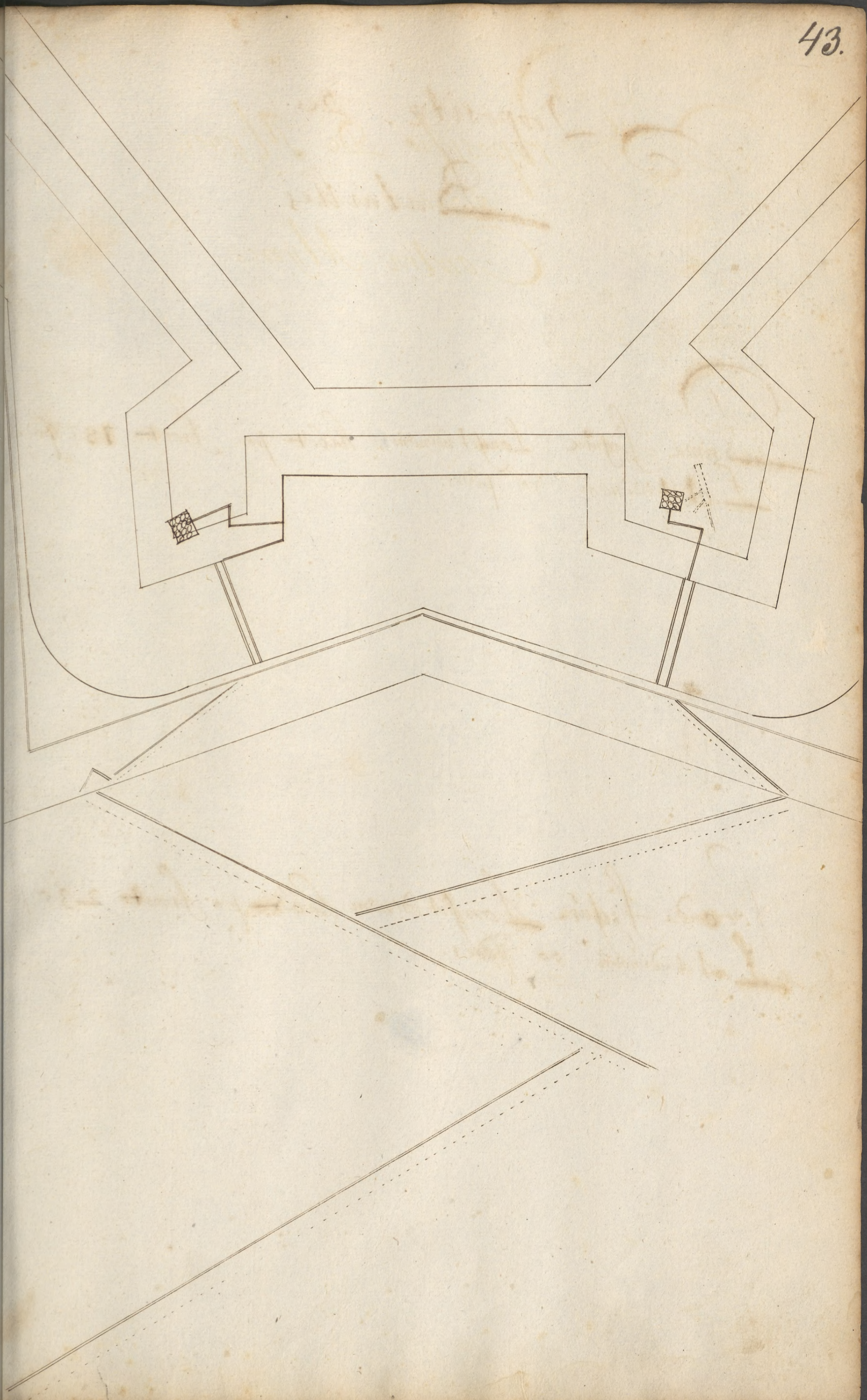
Extremitas Contrascarpus recta linea Extra  
civitatem prolongatur aut AB ostendit &  
ejusmodi opera commoda sunt pro Contre Approches.

Ad Extremitatem istius Operis Constructur Corps des  
Gardes. & sic de ceteris. quando tempus & Locus opportunus  
est. sed ejusmodi opera externa non diu resistere  
possunt. nihil scilicet profunt quam ad  
Inimicorum retardationem.



des  
opportu  
res

Propositio De Mynes  
& de  
Contra Mynes.

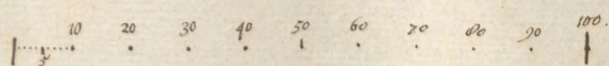


Propositio De  
Batallas

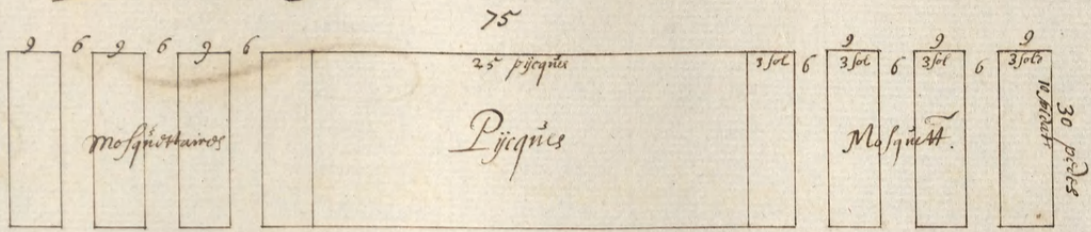
Prima figura Longitudinem habet pro front 183 pedes.  
Latitudinem 30 pedes.

Secunda figura Longitudinem habet pro front 235 pedes.  
Latitudinem 50 pedes.



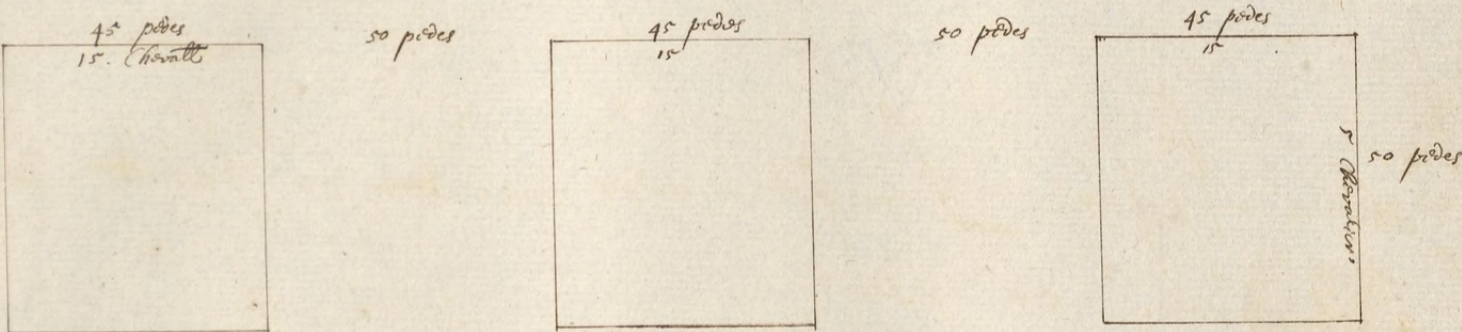


*Le Front du Regiment Infanterie*



3 piques.

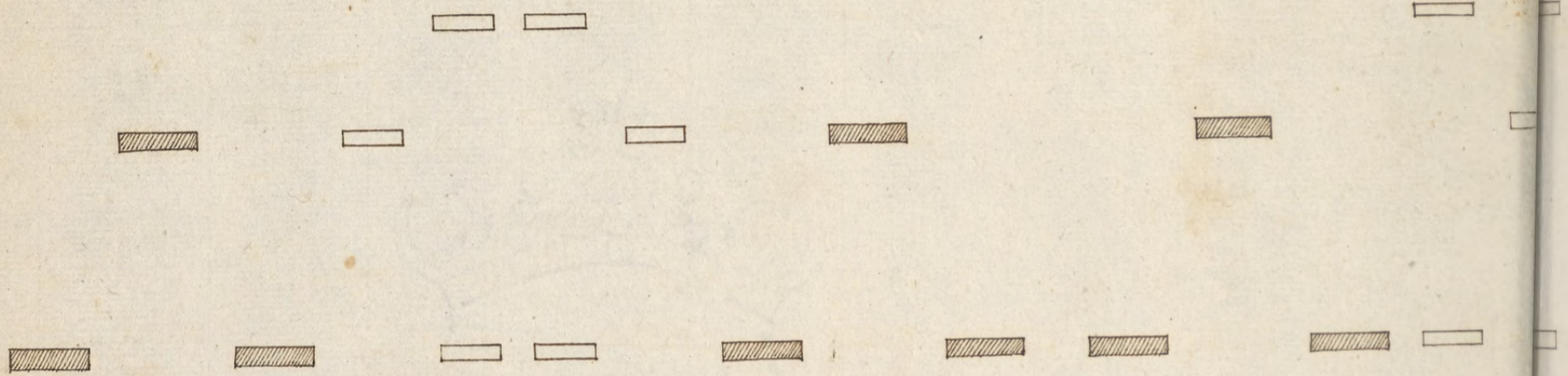
*Le Front du Regiment ou trois Compagnies Cavallerie*



235 piques

*Faint handwritten text at the top of the page.*

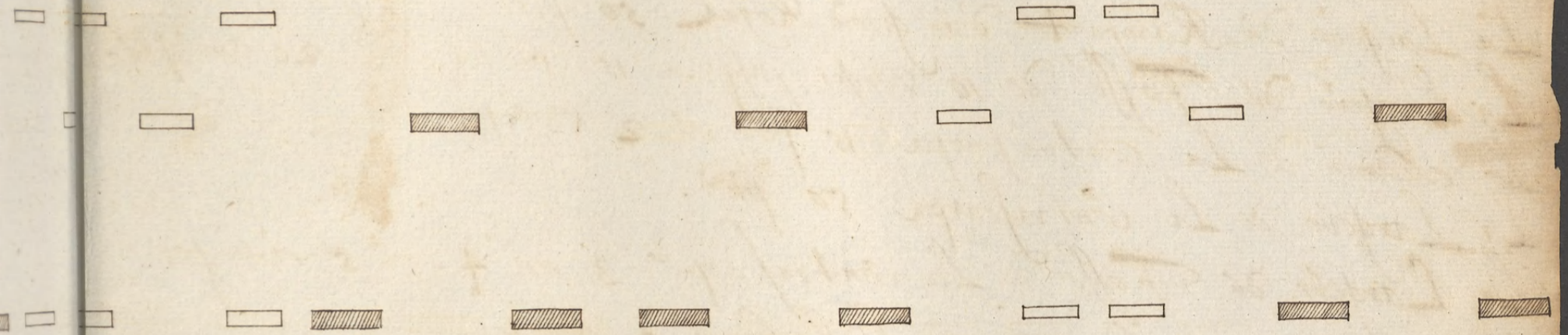
*Le Front de*



*Faint handwritten text at the bottom of the page.*

1000  
2000  
3000  
4000  
5000  
6000  
7000  
8000  
9000  
10000

T  
mont de La Bataille 9009 pied



# Regula Generalis

## Pro Fortificatione Regulari.

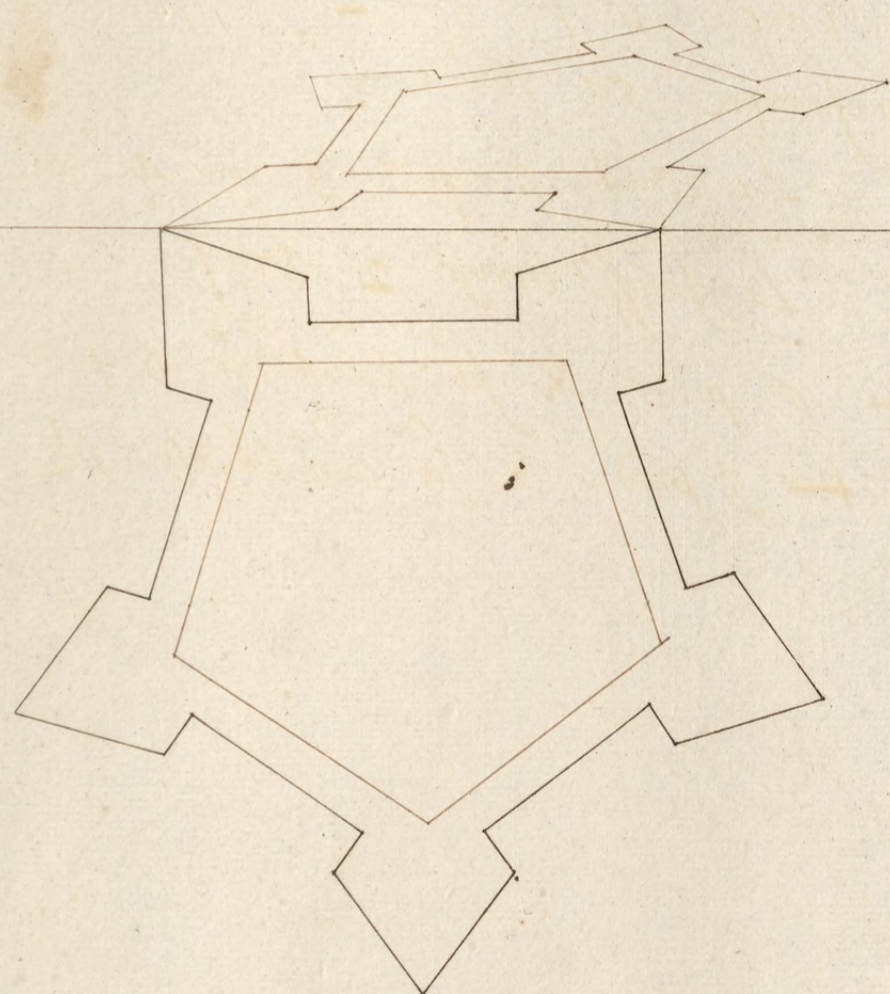
La courtine d'un grand Roial sempre erit 36 virgula.  
La face ----- 24 virg.  
Le flancq d'un quarré 6. d'un Pentagon 7. d'une figure Octogone  
jusque a 12 verges.

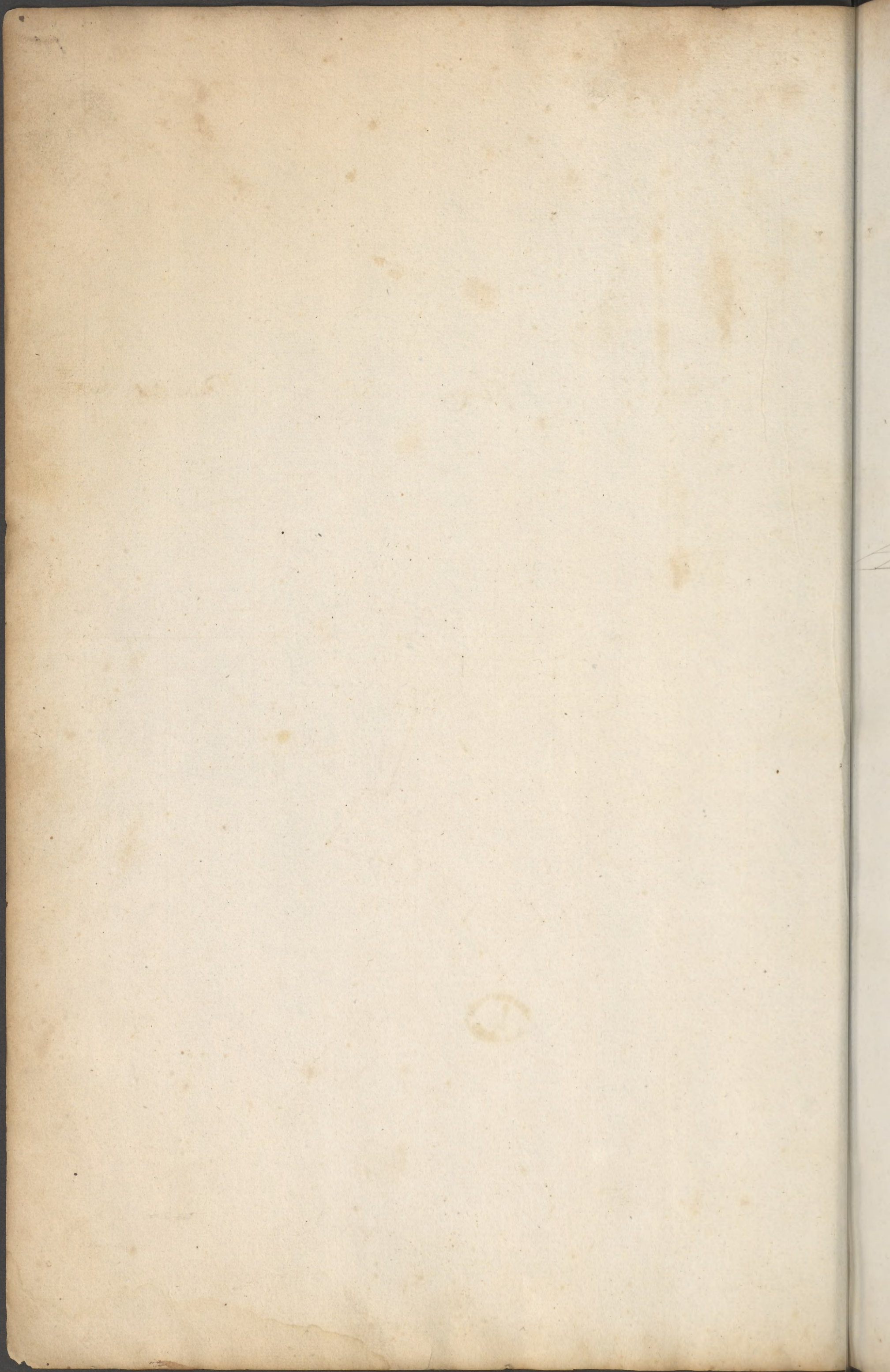
La Largeur du Rampart d'un grand Roial 50 pied  
La Largeur du Fosse de 10 verges jusqz a 15 verges ou 20 verges.  
Le chemin de La contrascarpa 15 pied ou 2 verges.  
La Largeur de La contrascarpa 50 pied.  
La Largeur du Fosse de La contrascarpe 3 ou 4. ou 5 verges.  
La Largeur du Chemin de La fausse Bray 2 verges.  
La Largeur du Parapit 10 pied. & sa hauteur 6 pied.  
La Largeur du Bancquet 3 pied, & sa hauteur 1½ pied.

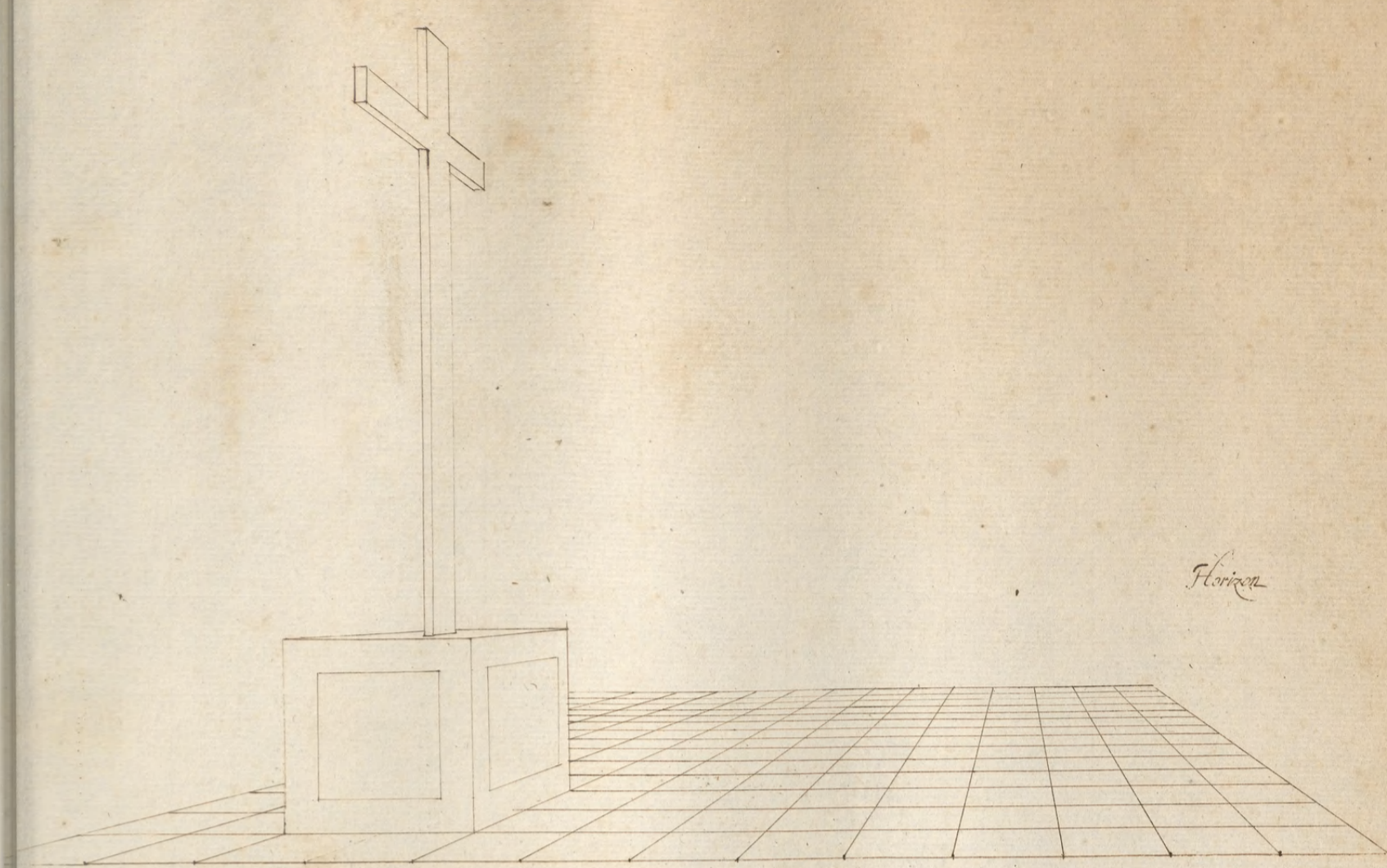
*Punctum Distantia*

*Horizon*

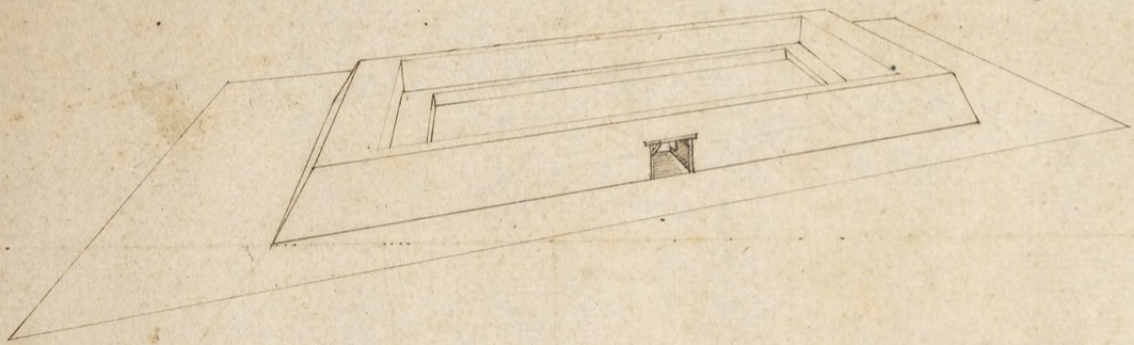
*Punctum Oculi*







Horizon



..... 12 24 36 48 60 72



Der Landkassier  
Joh. Dürschauer  
N<sup>o</sup> 37

