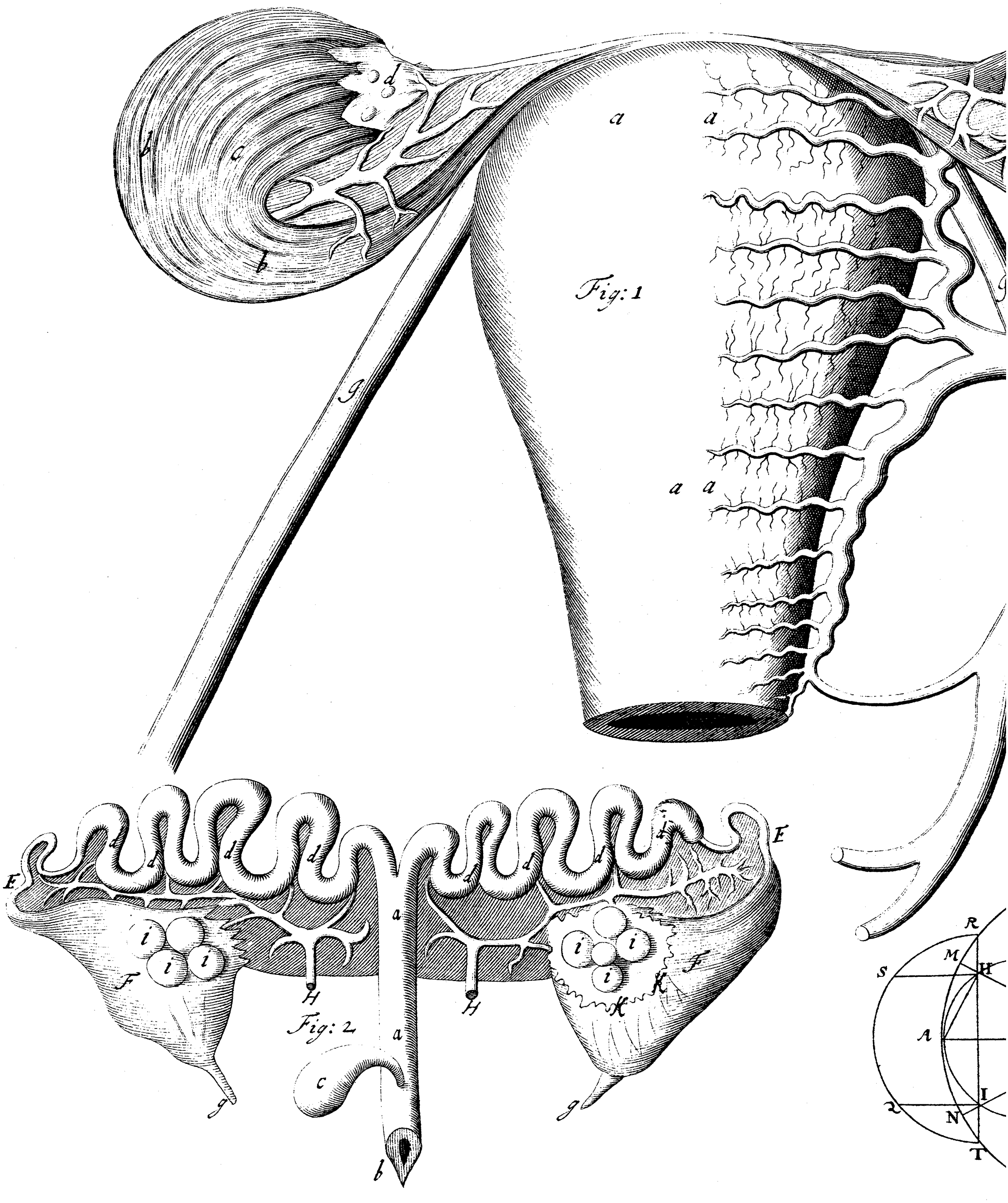
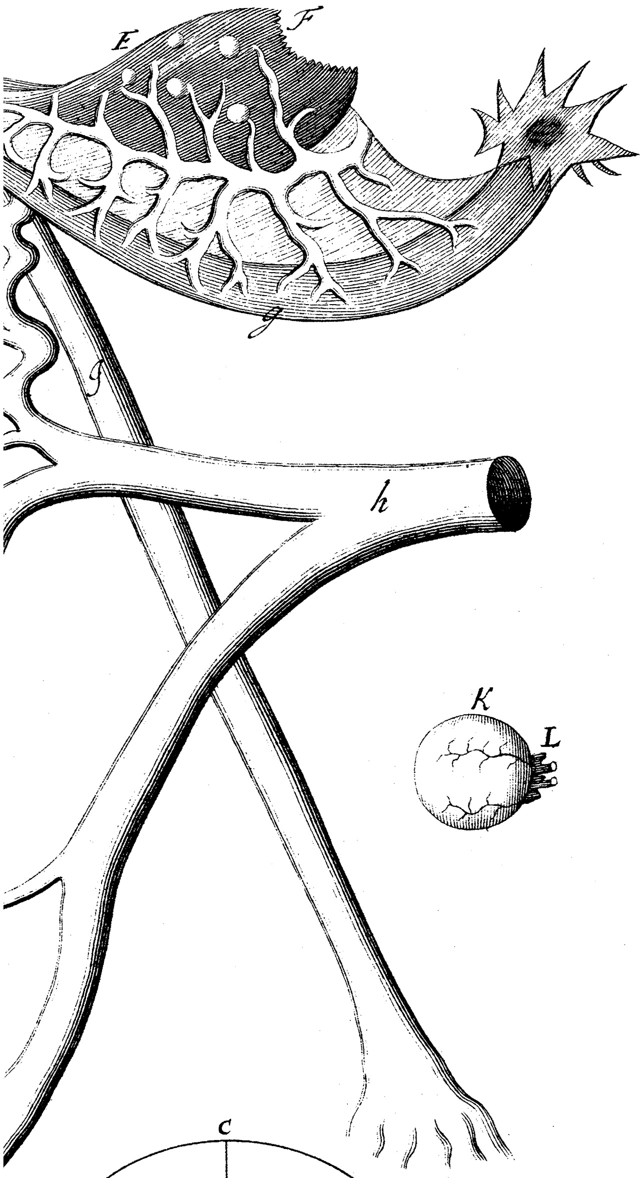


Fig: 1
Fig: 2


E
F
g
h
K
L

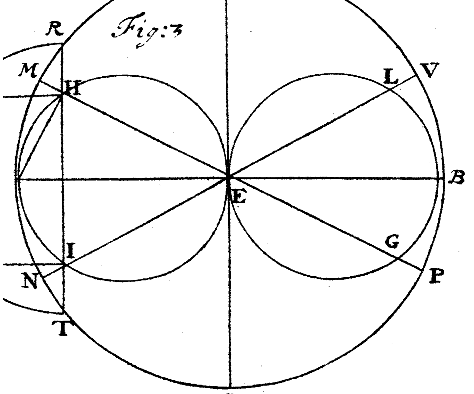


Fig:3
C
R
M
H
L
V
B
E
G
I
N
P
T
D

Vigilies, and a conſtant Trepidation, with a reiterated ſnatching up of the lower Mandible, making ſigns as if he would have bit at any thing that was offered him. His Voice was uttered with a Canine hoarſeneſs, and had an extraordinary reſemblance to the barking of a Dog. He was moreover infeſted from that time with a *Singultus*, and foaming at the Mouth. Thus he continued the moſt part of the Day: being with him for a conſiderable time, to obſerve theſe wonderful *Phænomena*, I took the occaſion (out of Curioſity) to preſent a Looking-glaſs before him, but found him ſo extreamly diſturbed thereat, that I immediately took it away: He was no ſooner ſenſible of the Reflection, than that he threw his Head backwards with great violence, and continued barking, and ſnapping at every thing near him: In the Evening, notwithſtanding ſuch Alexipharmicks as had been exhibited, he ſunk under the Oppreſſion of theſe cruel Symptoms. I would very deſirouſly have opened his Body, but it was forbidden by his Parents. The *Abdomen*, I perceived, was exceſſively inflated, his Limbs convuls'd, and the ſuperfice of the Body of a livid colour; the Muſcles of the Face were drawn into ſuch a form as did nearly repreſent a *Spaſmus Cinicus*.

VI. Solutio Problematis Florentini de Teſtudine Veliformi Quadrabili, a *Davide Gregorio*, M. D. ac R. S. S. Communicata.

PRodiit Florentiæ Anno MDCXCII. *Ænigma Geometricum de miro opificio Teſtitudinis Hemiſphæricæ quadrabilis quod eo ſpectabat ut detractis ex Hemiſphærica Teſtudine quatuor æqualibus ſimilibus ſimiliterque poſitis feneſtris, reliqua Hemiſphærica ſuperficies ſit quadraturæ verè*

verè Geometricæ capax. Nec diu post Ænigmatis Auctor constructionem Problematis ingeniose admodum & expedite dedit in tractatu Italico de formatione & mensura Testudinum omnium ad Sereniss. Etruriæ Principem ubi & nomen suum profiteri dignatus est, nempe à V. V. postremo Galilæi Discipulo, cum antea dispositis horum verborum ut in Anagrammate elementis sub ficto nomine D. Pio Lisci pusillo Geometra tectus latuisset.

Verum constructionis demonstrationem celat Author. Illam, cum Viris Doctis non ingratam futuram pro comperto haberem, libuit paucis proferre. Præsertim cum nunc primum assignetur portio superficiei Sphæricæ quadrato æqualis. Ænigma igitur ab Auctore in sequens Problema convertitur.

Super hæmisphærii superficiem assignare portionem dato quadrato æqualem quod sic construit.

Sphæra cujus Axis æqualis lateri dati quadrati exponatur per circulum ACBD *in propositaSphæra verticalem, cujus* Vid. Fig. 3. *diameter horizontalis est* AB, *centrum* E. *Perforetur Sphæra duobus cylindris rectis quorum communes sectiones cum plano* ACBD *sunt circuli* BLEG, AHEI *diametris* EB, EA *descripti. Dico factum; hoc est à quolibet hemisphærio Ver. Gr. superiori* ACB *ablatas esse per Cylindros perforantes quatuor figuras bilineares, duas sc. in parte antica & duas in postica æquales similes & similiter positas, ita ut residua superficies hemisphærica sit æqualis quadrato rectæ* AB. *Et quoniam hemisphærica superficies, demptis spatiis quatuor bilinearibus prædictis, refert velum vento inflatum & tensum, Testudinemve hemisphæricam quatuor fenestris interruptam quæ circulari basi* AEB *imposita, ipsi ad puncta* A, E, E, B *innititur, hanc pro jure suo appellat Testudinem Veliformem Florentinam quadrabilem*, Vela Quadrabile Fiorentina.

Auctor deinceps in memorato tractatu plurima ad praxin attinentia profert, ut ope Torni & Terebræ cylindricæ tam hujus quam reliquarum quinque Testudinum fiant exemplaria: Atque in hanc rem alia quædam Problemata subtilia

construit

construit quorum omnium demonstrationes ab Auctore consulto ommissæ facillime ex nunc proferendis consequuntur

Quod quatuor fenestræ in hemisphærio ut dictum est extructæ sint figuræ æquales similes & similiter positæ satis liquet, reliquum est ut ostendamus reliquam superficiem hemisphæricam tetragonismi vere Geometrici esse capacem.

Ad Planum C A D B *in puncto* E *erigi intelligatur normalis recta æqualis* E A; *& super peripheriam* A C B D *superficies cylindrica recta ejusdem altitudinis. Vulgo notum est portionem superficiei Sphæricæ inter quælibet duo plana circulo* A B C D *parallela comprehensam æqualem esse portioni superficiei cylindricæ inter eadem plana; & horum annulorum similes portiones resectas à planis in erecta ex* E *normali se mutuo intersecantibus esse etiam æquales. Si jam ducendo innumera plana basi* A C B D *parallela dicto modo designari intelligantur in superficie cylindrica partes respondentibus Sphæricis æquales, quæ è regione superficiei perforatione ablatæ designatur illi æqualis est. Quare patet residuam à perforatione superficiem æqualem esse residuæ superficiei cylindricæ dempta illa quæ è regione ablatæ per dicta innumera plana designatur. Ducatur diameter quælibet* P M *secans peripheriam* A H E *utcunque in* H. *Jungatur* H A, *per* H *ducatur* R T *normalis ad* A B *& parallela ad* C D *per* E *ductam, occurrens peripheriæ* ACBD *in* R *&* T *& peripheriæ* A I E *in* I. *Super* R T *diametro fiat semicirculus cujus peripheriæ occurrant* H S, I Q *ad* R T *normales in* S *&* Q. *Hujus semicirculi planum intelligatur normaliter erectum ad circulum* A B C D. *Unde peripheria* R S Q T *erit in superficie hemispherica, rectaque* H S *nunc ad planum* A C B D *normalis, erit altitudo superficiei cylindricæ perforantis supra baseos punctum* H. *Idemque de quolibet puncto superficiei cylindricæ perforantis verum est, siz. ejus altitudinem usque ad superficiem Sphæræ supra quodvis in basi punctum* H, *esse rectam* H S *ut dictum est, genitam, sed* H S *æqualis est* H A *sinui recto arcus* M A, *quoniam tam hæc quam illa est media Geometrica inter* P H

&

& H M, *altera in circulo* M A P *altera in circulo Sphæræ etiam maximo per puncta* M, S & P *transeunte.*

Si in erecta in E *ad planum* A C B D *normali, ab* E *sumatur recta æqualis* H S *aut* H A & *ab extremo ejus puncto ducantur rectæ parallelæ ad* P M & V N, *planum per illas extensum erit ad planum* A C B D *parallelum,* & *rectæ hæ per puncta* S & Q *transibunt,* & *productæ usque ad superficiem cylindricam hemisphærio circumscriptam abscindent ex lateribus cylindri rectas ipsis* H S *vel* H A *itidem æquales; comprehendentque arcus æquales* & *respondentes arcubus* M N & V P. hinc *Quod si alterum planum ~~hinc~~ ad minimam distantiam parallelum similiter ductum intelligatur, hæc duo per supra ostensa designabunt in superficie cylindrica annuli portionem æqualem portioni inter eadem plana à superficie hemisphærica perforatione ablatæ. Quod si similis constructio fieri supponatur ad quodlibet in peripheria* A H E *punctum portiones omnes in superficie cylindrica hemisphericæ circumscripta dicto modo genitæ* & *designatæ erunt æquales superficiei Sphæricæ perforatione ablatæ. Quare residua superficies hemisphærica æqualis erit reliquæ superficiei cylindricæ conflatæ ex rectis omnibus* H A *ad respectiva puncta* M, N, V & P *erectis, seu figuræ sinuum rectorum semiperipheriarum* A C B A D B, *hoc est, per dudum à Geometris cognita, quadruplo quadrato Radii* A E, *sive denique quadrato diametri* A B. *Cumque duæ integræ figuræ comprehensæ à communi sectione prædictæ superficiei cylindricæ perforantis cum superficie Sphærica, æquales sint quatuor ablatis quatuor spatiis bilinearibus* (*ut supra in constructione*) *æqualem esse quadrato diametri* A B. *q. e. d.*

semissibus earundem, restat residuum superficiem hemisphæricam A C B

a

Si semiperipheria A H E *ita inflectatur ut congruat cum æquali quadrante peripheriæ* A R C; *punctum* H *incidet in punctum* M *ob æquales arcus* A H, A M, & H S *altitudo ad* H *superficiei cylindricæ super* A H E *insistentis congruet cum æquali* H A *altitudine ad* M *figuræ sinuum rectorum super* A M C *erectæ; idemque in reliquis punctis fiet*

Unde

Unde curva quæ est communis intersectio superficiei Sphæricæ cum superficie cylindrica super basi AHE, *quamvis non jaceat in eodem plano inflexa, ut dictum est, congruet & proinde æqualis est curvæ terminanti figuram sinuum rectorum; hoc est communi Sectioni superficiei cylindricæ super quadrantalem arcum* ARC *erectæ cum plano secante planum baseos in recta* BA *ad angulos semirectos; sive quadranti curvæ Ellipseos cujus minor Axis est* AB *major vero potest hujus duplum. Adeoque perimeter veli quadrabilis Florentini ex hujusmodi quatuor constans æqualis est perimetro dictæ ellipseos.*

Sed & hoc amplius adnotare non pigebit, superficies cylindrorum duorum perforantium intra Sphæram, æquales esse superficiei Sphæræ post perforationem relictæ, sive duplici Velo Florentino, hoc est duplo quadrato diametri. Atque hoc exinde patet quod Velum Florentinum æquale sit figuris quatuor sinuum rectorum quadrantis & superficies perforans iisdem etiam sit æqualis, quoniam illis congruit si inflectio fiat ut supra.

Hoc tantum addam, Considerationem figuræ sinuum rectorum [cujus etiam partes in quadrata facile mutantur] sufficere ad demonstrationem eorum omnium quæ de aliis solidis torno elaboratis vel cylindro perforatis, eorumque superficiebus ab Acutissimo Geometra V. V. [Vincentio Viviani fallor] dignissimo Galilæi Discipulo proferuntur; dum ni
fabricam & Mensuram Testudinum docet. Speciatim superficies Testudinis Scaphoidis Romanæ Volta a Schifo alla Romana *ex octo figuris sinuum rectorum arcus quadrantalis constat, ac proinde Testudini Veliformi Florentinæ æqualis est. Unde patet quomodo æqualibus quadratis superimponi possunt duæ Testudines quarum altera est undique clausa, altera quatuor fenestris interrupta, utraque quadrati baseos dupla.*

Ex supra demonstratis reliqua facile eliciuntur, cum præcipua quæ celare voluit Auctor hactenus demonstrentur.

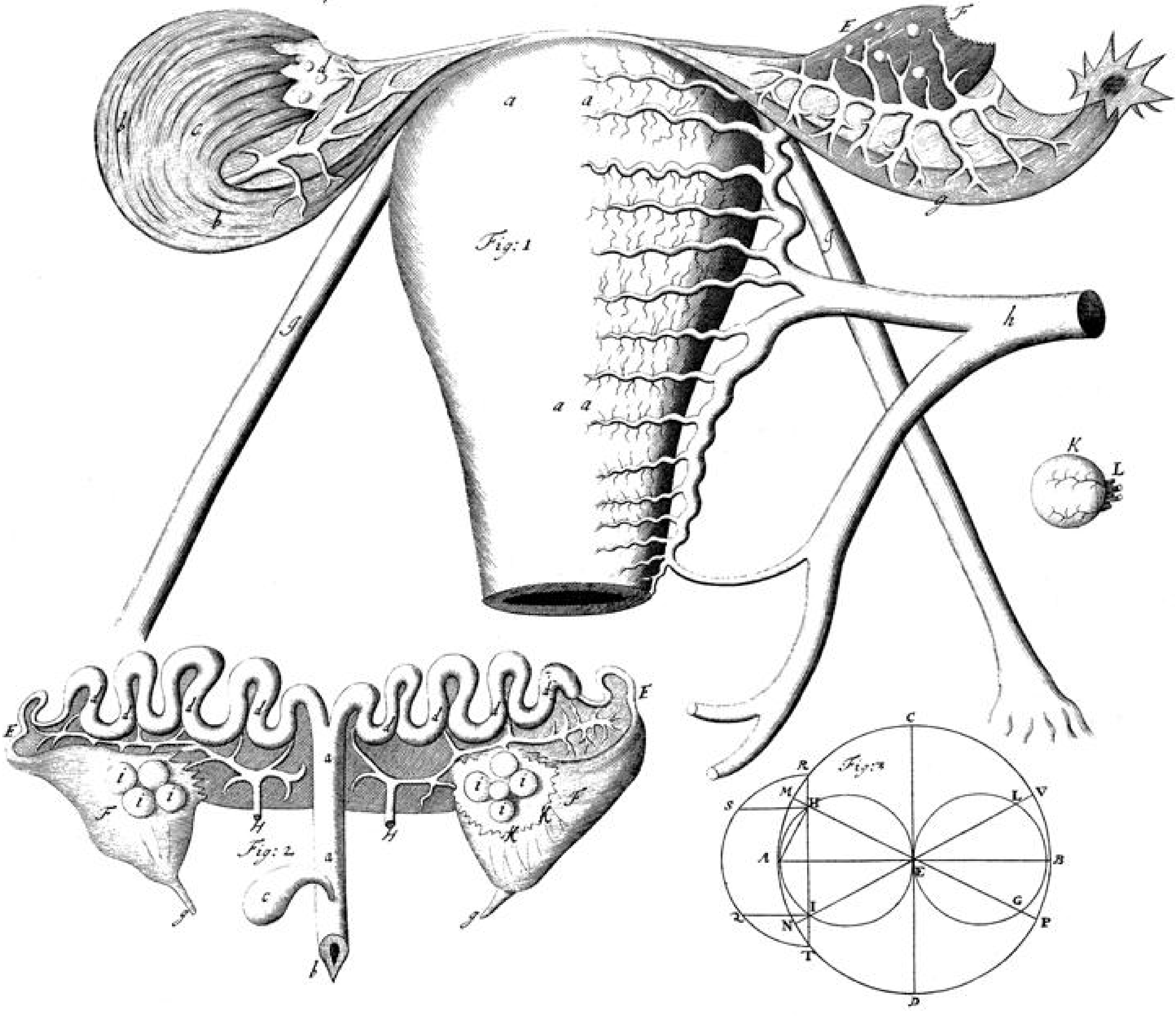


Fig: 1
Fig: 2
Fig: 3