

R S Corpora equalia, vel R corpus majus, S corpus minus.
 a Centrum Gravitatis sive ansa Libra. Z summa velocitatum utriusque corporis.

$$\left. \begin{array}{l} R e \\ S e \end{array} \right\} \text{veloc. corp.} \left\{ \begin{array}{l} R \\ S \end{array} \right\} \text{ante impulsu data} \left. \vphantom{\begin{array}{l} R e \\ S e \end{array}} \right\} \begin{array}{l} S o \\ R o \end{array} \left\} \text{veloc. corp.} \left\{ \begin{array}{l} S \\ R \end{array} \right\} \text{ante impulsu} \\ \text{OR} \\ \text{OS} \end{array} \left\} \text{veloc. corp.} \left\{ \begin{array}{l} R \\ S \end{array} \right\} \text{post impulsu. quasita} \left. \vphantom{\begin{array}{l} R e \\ S e \end{array}} \right\} \begin{array}{l} e S \\ e R \end{array} \left\} \text{veloc. corp.} \left\{ \begin{array}{l} S \\ R \end{array} \right\} \text{post impulsu.} \\ \text{quasita.} \end{array}$$

[Lege syllabas (quamvis disjunctas) R e S e o R o S vel R o S o e S e R in Linea cujuslibet Casus, & harum quæ scribitur in Schemate more Hebraico, ea indicat motum contrarium motui, quem notat cujusvis syllaba scriptio Latina: Syllaba conjuncta quietem Corporis denotat.]

$$\text{Calculus} \quad \begin{array}{l} R \vdash S : S :: Z : R a \\ R \vdash S : R :: Z : S a \end{array} \mid \begin{array}{l} R e - 2 R a = o R \\ 2 S a \vdash S e = o S \end{array} \mid \begin{array}{l} S o - 2 S a = e S \\ 2 R a \vdash R o = e R \end{array}$$

Natura observat regulas Additionis & Subductionis Speciosæ.

An Account of two Books.

I. HISTORIA CÆLESTIS; Ex Libris & Commentariis M. Stis. Observationum Vicennialium TYCHONIS BRAHE, Dani, Augustæ Vindelic. An. 1666. in Folio.

THESE Observations of the Noble *Tycho*, as they were procured and preserv'd by those Three Mighty Emperours, RÜDOLPH. II. FERDINAND. II. and III; so they were lately by the Command of his Imperial Majesty LEOPOLD made publick. They are usher'd in by a *Liber Prologomenos*, compendiously representing the Observations made from the time of the very Infancy of Astronomy unto that of its Restauration by the Illustrious *Tycho*; and reduced into 7. Classes, viz.

1. The *Babylonian* Observations; from *A.* before Christ 721. unto *A.* 432.
2. The *Grecian*; from *A.* before Christ 432. unto the beginning of the Vulgar Christian Account.
3. The *Alexandrian*; from *A. Christi* 1. until *A.* 827.
4. The *Syro-Perſian*; from *A. C.* 827. unto 1457.
5. The *Norimbergian*; from *A. C.* 1457. unto 1509.
6. The

6. The *Borussian*; from A. C. 1509. to 1529.

7. *Mixt Observations*; from A. C. 1529. to 1582.

In which year (1582) do begin the Observations of *Tycho* (as is affirm'd in this *Edition*) contain'd in 20 Books, and made in as many years, ending *An. Chr.* 1601, which was the end of *Tycho's* Life: Of which time yet there being wanting one year (*viz.* 1593) of the *Brabean Observations*, that is supply'd by the *Hessian*; and by a *Catalogue* of the *Fixt Stars*, made and digested by the Authority and Care of that Renowned Prince for Learning and Magnanimity, *William*, Landgrave of *Hessen*, and by the Labours of *Rhotmannus* and *Birgius*.

To all these is added a Continuation of such Astronomical Observations as were made from the time of *Tycho's* death unto *An.* 1635, by *Masilinus* and *Schickardus*.

Having given the Reader this short Account, I find my self obliged to give him notice withall of a Paper publish'd this year, entituled *Specimen Recognitionis nuper editarum Observationum Astronomicarum*, Nob. Viri *Tychois Brahe*, printed at *Copenhagen* in 4°: wherein are remark'd by *Erasmus Bartolinus* the more considerable Errors in the Observations of *An.* 1582. In this Edition of the *Histor. Caelestis*, by comparing it with the *Original*, in the power of the present King of *Denmark*. In which Paper hopes also are given of a more correct Edition, and that of the *Original* itself; together with the Observations both from *An.* 1563. to *An.* 1582. and those of *An.* 1593; all wanting in this Edition of *Ausburgh*.

II. R. P. ANDREÆ TACQUET e Soc. ꝑ. Opera Mathematica; with many Schematisms thereto belonging. Antwerp. 1669. in Fol.

These Works contain,

I. Of *Astronomy* 8 Books, wherein the Author hath explain'd the whole Doctrine of that Science in such a gradual Scientifick Order, that now (as himself in his own Preface intimates) a Student without the Aid of a Master may learn the whole by his own Study, which was formerly not easie to attain with the best Instructions.

It may be, the Inquisitive Reader will be desirous to know, what *Systeme of the World* it is, this Author insists on; concerning which we shall give you his own words, p. 326.

Hanc controversiam (sc. de Motu Terræ) Joh. B. Ricciolus Almag. l. 9. ea tum eruditione tum copia prosecutus est, ut facile omnes in hoc negotio superaverit. Primo, Copernicanorum pro Motu Terræ Argumenta 49. deducit ac destruit; pari deinde cura, qua contra Terræ Motum afferri solent & possunt Argumenta, vid. 77. recenset. Mibi vero, cum nihil hactenus in utramvis partem adductum videam, quod Probabilitatis metam excedat, his immorari non est animus. Unum est tamen ex omnibus contra Terræ Motum

pfus Riccioli *Argumentum a Gravium descensu petatum*, cui vim ipse Demonstrationis inesse putat; quod examinare hoc loco accuratius opera pretium judicavi.

This with other Arguments he refutes; but declareth p. 330. That, though he knows no Argument, demonstrating the *Rest* of the *Earth* and *Motion* of the *Sun*; yet the Authority of Holy Writ, now seconded by that of the Sacred Congregation of the Cardinals, put it out of doubt.

Concerning the Doctrine of *Motion*, the Author saith thus, p. 15. *Motuum Compositorum Contemplatio digna sane est, qua a Geometris excolatur. De solo motu Volutionis conscripsi Tractatum integrum, quem cum libris Cylindricorum & Annularium in lucem edidi. De Motu Projectorum, qui & ipse Compositus est, subtilissimi existant Libri Galilæi & Torricellii: Et præter hæc, alia supersunt innumera, de quibus integra Nova Scientia condi possit.* (Which is accordingly done by the Excellent Dr. *Wallis* in his Book now in the Press.)

For the ease of Calculating an *Eclipse* of the *Sun*, we find, that this Author p. 177. determines, in what part of the *Earth* such an *Eclipse* shall appear, without the Aid of *Parallax*, and that the *Sun's Parallax*, as to the determination of *Celestial Motions*, may be safely neglected. And p. 40. he rejects the *Sensible Inequality* of the *Solar* or *Tropical* years; as also p. 60. the *Irregularity* of the *Obliquity* of the *Ecliptick*, of the *Procession* of the *Equinoxes* and *Excentricity*. Pag. 127. he solves that Doubt of *Ricciolus*, That it cannot be exactly and evidently known by any *Natural Observations* made of the *Moon* or any *Star*, what the *Parallax* is, without the fore-knowledge of the *Parallax*, or distance from the *Earth*. And p. 193. avoids these Inconveniences in assigning the *Declinations* of the *Fixed Stars*. P. 338. this Author asserts, that the *Comets* and *New Stars*, that have appear'd since 1572, have been far *above* the *Moon*; and that *Ricciolus* about this Controversie seem'd too favourably inclined to *Claramontius*, asserting the contrary.

Concerning the Cause of the *Secondary light* of the *Moon* before and after the *New*, to wit, the obscure part of her appearing like kindled glittering *Athes*, our Author assigns it to be the *Sun's rays* reflected from the bright Hemisphere of the *Earth* to the darker portion of the *Moon*, and thence again directly reflected to the *Earth* destitute of the *Sun's light*. This *Phenomenon* he saith, is learnedly explain'd in *Philos. Optica Nic. Zucchii* from p. 247 to p. 260.

The Author hath not framed nor annex'd any *Tables* to his Book, although he abundantly shews, How they may be computed: referring his Reader to those of *Tycho*, *Reinholdus*, *Longomontanus*, *Kepler*, *Lansberg*, *Wendelinus*, *Bullialdus*, *Petavius*, *Reimerius*, *Ricciolus*; to which may be added those of *Duret*, *Rilly*, *Street* (which last fixes the *Nodes* and *Aphelions*) and *Wings*, now in the Press.

To the end of these 8 Books are annex't *Proportions* for the 28 Cases of
Spherical

Spherical Trigonometry. Those that desire to be farther satisfied, may read *Trigonometria Britannica* of Gellibrand and Newton, the *Idea Trigonometria* by the Lord Bishop of Sarum, Dr. Seth Ward; and also Bonavent. Cavalerii *Trigonometria*, and his *Directorium Universale Uranometricum*, but especially his *Compendio delle Regole Trigonometriche & Centuria di Problemi*.

2. Of *Practical Geometry* 3 Books.

In the *First* the Author handleth

The Construction of the Tables of *Sines*, *Tangents*, and *Secants*.

The Resolution of Right-lined Triangles.

The Mensuration of the distance of Objects, as well unaccessible as accessible.

The Heights of Mountains, Towers, Clouds, Rainbowes: the Depths of Wells and Vallies. He concludes the perpendicular height of the burning Mountain *Ætna* to exceed 5 *Bononian* Miles; of Mount *Caucasus* beyond the *Caspian-Sea* to be 51. Mount *Athos* of *Greece* 28. *Casius* of *Syria* 20. the *Alpes* of *Italy* and *Pic* of *Tenariffe* 10 Miles. The Circumference of the Earth, the Distances of the Sun, Moon, and Earth.

In the *second* Book, he handles the Dimension of Plain Surfaces, either Regular or Irregular, and takes the *Ichnography* or Description in Paper, of any Figure given of the surface of the Earth: Asserts the Possibility of the *Quadrature* of the Circle; and handles the Transformation of Plain Figures, to wit, their Addition, Subtraction, Augmentation, Diminution, Comparison; further the dividing of a Plain Triangle, in a given Reason by a line passing through a Point any where assigned: This he doth largely in 16 *Propositions*, because upon it chiefly depends the Division of other Right-lined Figures; and because he found divers Determinations wanting, when the point is given within. Those that are desirous to see this *Analytically* done, may find it in *Herigon* with a Construction thereof; as also a *Geometrick* Construction thereof in *Van Schootens* *Miscellanea*; and another most excellent Construction at the end of *Van Ceulen de Circulo & Adscriptis*.

Afterwards our Author proceeds to the dividing of other Figures, in a given Reason, or by parallel lines, and sheweth how to apply the whole to *Practice* in the Field.

In the *third* Book the Author first measureth such Solids as are contained under a Plain Surface. Secondly, such as are contained under a Curved Surface. Thirdly, He measureth the *Mundane Bodies*, as the Surface of the whole Earth; where he is pleased to conclude, that at the Day of Judgment, a less portion of it then *England*, will serve to hold all its Inhabitants, and their Infants, that ever have been, or in likelihood may be hereafter, till then, supposing the World should last 10000 years. He measureth also the Solidity of the Earth, and Ocean; the Magnitude of the Sun, Moon,

and Earth. The Increase, and Diminution, the Transformation and Comparison of divers Solids, and the Mensuration of divers of their Surfaces.

3. *Of Opticks 3 Books.*

In the *first*, he handleth the *simple* and *direct* Appearances of Objects meaning such appearances as are not liable to Reflection or Refraction; and herein he saith, that passing by slight matters, he onely treats of such as are either new, or of the better esteem; such as are the Properties of the sight, the manner of its perceiving a Distance; and the Place of the Eye being assigned, to find that Height, in which a greater Length or Breadth shall appear equall to a lesser Length or Breadth, or any assigned Length or Breadth shall appear in a given Proportion. He likewise finds the Portion of a *Cone* or *Cylinder*, seen according to the Magnitude of the Figure, and Position of the Eye, and explains the Moons *Phases*.

In the 2d. He handles the Theory and Practice of the *Perspective* or *Scenographick Projection*, or Transcription of a given Magnitude into a Plain, which cuts the Optick *Pyramid*; wherein he explains the *Direct* appearance, and the *Monstrous* deformation of an Object, which at a certain place shall appear beautiful.

In the 3d. He treats of the *Astronomick Projections* of the *Sphere*, and thence derives the triple *Astrolabe*, and shews their uses, and the Conveniences or Inconveniences of each Projection: *viz.* the Projection on the Plain of the *Equator*, the Eye being in one of the *Poles*; or on the Plain of the *Colure* of the *Solstices*, the Eye being in one of the *Equinoctial Points*; and the *Orthographick* Projection, by Perpendiculars, falling from the respective Points of the *Circles* of the *Sphere*, on the Projecting Plain: Such a Projection, if the Plain be the *Meridian*, *Ptolomy* called the *Analemma*.

If the Eye be in the *Zenith* or *Nadir* projecting on the Plain of the *Horizon*, the Author sheweth, that the Projection will be the same, as if the Eye were in one of the *Poles* projecting on the Plain of the *Equator*, onely the names of *Circles* are changed.

Pag. 205. *Nam Circulus qui in illa referebat Equatorem, in hac Horizontem representat; & Projectura Tropicorum reliquorumq; Equatori parallelorum in illa, in hac sunt Projectura parallelorum Horizonti seu Almicantharath: rursum qui in illa sunt Projectura Horizontis, Almicantharath & Verticalium, in hac projectura erunt Equatoris & Parallelorum ejus, ac Meridianorum. Postremo recta linea, qua per Centrum Projectionis ducta, erant projectura Meridianorum in illa, in hac erant Verticalium Projecturae; quare qui illum Projectionis modum probe intellexerit, hanc quoq; nullo negotio perficiet.*

If this had been well observed, there had been no need of Controversing, Whether the *Horizontal Projection* had been a *New Invention*: It is as Ancient as *Ptolomy*, and all the 4 *Quadrants* of several contrivances published by Mr. *John Collins**, are derived from the *Western side*, or the continuance thereof, admitting but a meer Mutation of the Names of *Circles*, and a projecting of more *Parallels*.

* *Theſe Quadrants, printed, may very conveniently be paſted on Copper-Plates, and varniſht; which done, they will be not only very cheap and portable (to be had at John Marks at the Sign of the Golden Ball near Somerſet-Houſe) but alſo ſerviceable enough, being preſerv'd by the Varniſh from the accidental injuries of Ink and Dirt; and for theſe very cauſes made publick, ſerving for an Example to introduce the like way for other Mathematicall Inſtruments.*

4. Of *Catoptricks* 3 Books; in the *First* of which the Author treats of *Catoptricks* or *Reflection*.

In the *Second*, of the affections of *Plain Glaſſes* ſimply, or of many ſuch, placed either in a *Parallel* or *Inclined* Poſition to each other.

In the *Third*, of *Curved Glaſſes*, and therein firſt the chief affections of *Convex Sphærick Glaſſes*; afterwards of *Concave Sphærick Glaſſes*: laſtly of *Burning Glaſſes* of ſeveral kinds.

The death of the Author prevented him from Writing of the *Dioptricks*, which was very far advanced by *Des Chartes*, and hath been further promoted ſince by *De Beaune*, *Honorato Fabri*, *Manzini*, and in the Century of *Optick Problems* of *Eſchinardus*; and we may hope that ere long the learned Mr. *Barrow* will enrich the World with his Labours of this and other kinds; alſo Mr. *James Gregorie*, the Author of *Optica Promota*, hath a Treatiſe of this Subject in good forwardneſs for the Preſs.

5. Follows the Authors Treatiſe of *Military Architecture* or *Fortification*; in which he hath collected ſix ſeveral ways of *Regular Fortification*, and hath likewiſe divers ways for *Irregular* ones, when the Situation of the place ſo requires; and interperſeth divers queſtions, and relates ſome *Transactions* in the late eminent Sieges of *Chriſtendome*.

6. Follow his *Annularia & Cylindrica*; the firſt 4 Books whereof were firſt publiſht in 1651, and are common enough to be had here; which may make the Reader wonder at their being reprinted; eſpecially conſidering, that though they have deſervedly received much applauſe, yet they have likewiſe been cenſur'd for oppoſing and neglecting other Methods, whereby the Author might have rendred, what he delivers, more univerſally and briefly. Concerning the firſt 4 Books, *Ant. Lalovera* in his Book *de Geometr. veterum promot* a thus;

Scro venerunt in manus noſtras R. P. Tacqueti lib. 4. Cylindricorum & Annularium: Opus conſemus abſolutiſſimum, ejuſq; Authori, qui primus hæc de re ſuas lucubrations vulgavit, iſtam coronam debitam eſſe agnoſcimus.

And *Stephen Angeli* in his Treatiſe *de Inſiſſiſ Parabolis, deque Inſiſſiſ Scælidis, &c.* (printed at Venice 1659.) in the *Preface* begins thus.

Publici Juris fecimus elapso anno 1658. libellum quendam, cui titulus, Sexaginta Problema Geometrica: In hujus calce Appendiculam adjunximus, in qua occurritur Mario Bettino, Cavaleriana Indivisibilia veluti Dæmonas parenti. Paucis vero transactis diebus a modo dicti Libelli impressione, incidimus forte Venetiis in opus Aureum And. Tacquet, CYLINDRICA & ANNULARIA nuncupatum; in quo cum incidereamus in Schol. prop. 12. l. 1. Authorem carpere Indivisibilia invenimus.

Dolimus vehementer (sicut Angeli) Opus tanta eruditione refertum non prius ad manus nostras pervenisse; censure autem in ipso contra Indivisibilia pronunciata, parum aut nihil nos turbat: Vetera enim continet & non nisi eorum modica, & imbecilliora, quæ prius ab ipso Cavalerio in Prefat. Geometriæ Indivisibilium, & a Guldino in Centro-baryca objiciuntur; quibus satis superque occurrit ipse Cavalerius.

And Angeli in the Preface of his Treatise *De Infinitorum Spatiarum Mensura* (Venetiis 1660.) having occasion to mention the fruitless endeavour of *Guldin* in finding the Center of Gravity of a Spiral Line, and a Right line equal thereto, saith thus;

P. Guldinus, *Centro-baryca* (Anno 1635. & 1640. edita) Author famosus (at Cavalerianorum Indivisibilium contemptor & irrisor, qui dum Indivisibilibus irrisit, seipsum ridiculum præbuit) altius omnibus volatum sumpsit, at conatu irrito, & Icarum sine, ut ipsemet fatetur.

But *Guldinus* doth not confess himself in an error in opposing *Cavalier's Geometria Indivisibilium*, published 1632; but saith, he was very aged, of an infirme memory, and that he had not (as we may gather) leisure to peruse it throughly, when he had health, nor health when he had leisure. The Controversie, and the Reply about it, is exceeding pleasant, and to be found with other considerable Miscellanies in the *Geometr. Exercitatio* of *Cavalerius* printed at *Bononia* 1647. Which Book if *Tacquet* had seen (for he quotes it not) he would probably not have made any such opposition.

Angeli doth not only answer what is objected by *Tacquet*, but shews, what famous Authors he hath on his side, who have derived many excellent Inventions from this Method of Indivisibles, viz. *Beaugrand*, *Rocca*, *Magiottus*, *Van Schoten*, *Rich. White*, *Bullialdus*, *Toricellius*, who calls *Cavalier's* First Book the *Ocean of Indivisibles*, and the *Fountain of Inventions*. Of which Doctrine he renders many excellent Examples.

Moreover the same *Angeli* in the Preface to his said Tract, *De Infinit. Spiral. Spatiarum Mensura*, hath these words:

Pro Indivisibilibus est veritas ipsa, stantque illi omnes præclarissimi Geometrae, quos in Epist. ad Lectorem Operis nostri De Infinitis Parabolis recensuimus; quibus nuper ultro se associavit Vinc. Viviani l. 1. De Maximis & Minimis, monito post Prop. 17. ubi ait, Ut hoc loco, ex adverso indirectæ Antiquorum viæ per duplicem positionem, luce clarius pateat, quantum facilitatis, brevitatibus, atque evidentia nanciscatur e nova directæque methodo (recte

tamen cauteque usurpata) acutissimi Cavalerii; per Indivisibilium doctrinam nobis amicissimam.

And when thus carefully to apply it, of that see *Lalovera's Elementa Tetragonismica Tolosa* 1651. where more *Archimedeo* he demonstrates the truth of this Method; which Book if *Angeli* had seen, he would certainly have quoted it, and admired the Author

For want of this Method, it was, saith *Angeli*, by way of complaint, of *Tacquet*, that he omitted some Theorems, which by aid thereof he might easily have found out. See him in his Preface to his *Infinite Spirals*; but especially at *Schol. 3. Prop. 15. l. 2.*

si ergo *Tacquet* receperisset doctrinam Cavalerii, potuisset non solum Cubare portionem Cylindrici Parabolici super quacunque Infinitarum Parabolarum per Basin Parabolæ & Punctum in latere; sed etiam ex iis, quæ in Exercit. 4. Cavalerii tradunt ipse & *Beaugrand*, potuisset Cubare segmenta portionis cujuscunque Cylindrici Parabolici ressectæ planis sectioni maxima parallelis: Imo ex doctrina Cavalerii potuisset etiam Cubare, & portionem Cylindrici super Hyperbola per basin Hyperbolæ & Punctum in latere, & segmenta hujus portionis ressectæ planis sectioni maxima parallelis (supposita tamen Hyperbolæ Quadratura.)

Angeli finds afterwards another deservedly famous Man, viz. *Dr. John Wallis*, owning and using the Method of *Indivisibles*, and advancing it to admiration in his *Arithmetica Infinitorum*; who in his Book *de Cycloide* at *Oxford* 1659, saith thus, *Pag. 9.*

Supponimus enim (quod et facile, si opus est, probabitur) Planum quodvis tantumdem hujusmodi Conversione (seu Rotatione) producere, quantum est quod fit ex eodem Plano in lineam ipsius Centro gravitatis descriptam ducto; quod & de linea quavis sive recta sive curva, in eo Plano descripta, pariter intelligendum est: Quod quidem enim ipse olim me primum invenisse putaverim, monitus mox eram, nonnihil apud *Guldinum* extare quod huc spectet. Id autem si animadvertisset *Tacquetus*, dum de Cylindricis & Annularibus acutum Opus conscripsit, non parum illi fuisset adjumento, multaque quæ illic extant, tum Universalius tum contractius forte fuissent edita.

All which is not recited here, to disparage our Author, but to take off the prejudice, which he may beget in his Readers against the Method of *Indivisibles*, which hath been owned by other famous Men, besides those already recited; viz. by *Mengolus*, who from the Excellencies of this Method; *Archimedes*'s Method, and *Vieta*'s Specious Algebra, compos'd his *Geometria Speciosa*; by *Antimo Varby*, alias (as 'tis suggested) *Hon. Fabri* in *Tract. De Linea Sinuum & Cycloide*; by *Pascal*, alias *Dettonville*; by *Des Cartes* himself Vol. 3. of Letters, who saith, that by it he squared the *Cycloid*; and lately by the excellent *Stuytus*, &c. 2. To remove the other prejudice that may be against this Author as defective: for the 5th Book *Cylindricorum & Annularium* (now printed with the rest) the *Prefacer* asserts to be first extant in 1659. And because we presume, the rest of these Books are already known and common, and that this hath not formerly been expos'd to sale in *England*; and because also it supplies and compensates those defects, we think fit to acquaint the Reader with the Argument thereof. The Author divides this Fifth Book into six parts:

1. In the first he demonstrates (in 6 Lemmas and 9 Propositions) That, if any Plain Surface have a Rotation about its Axis in any Situation whatsoever, and at any distance whatsoever, or none, it produceth a Round Solid equal to an Upright Solid, whose Base is the begetting Figure, and Height is equal to the Circumference described by its Center of Gravity. (This Universal Rule was invented by *Guldin*, and is the Basis of most of his Doctrine; but he could not demonstrate the same, though 'twas much desired.)

2. In like manner, If any Perimeter have a Rotation about its Axis in any Situation whatsoever, it begets a round Surface, equal to a right Surface, made by the same Perimeter as a Base (which may be evolvd and made a Plain Surface) whose height is the way or circumference described by its Center of Gravity. This by 5 Lemmas and 10 Propositions.

These

These being two admirable Universal Rules in Geometry, the Reader will find the same (with many others) demonstrated by Dr. Wallis in his Treatise De Cæculo Centæ Gravitate, which together with his other Treatises, De Motu, Statica, Mechanica, are now at the Press in London. The same Rules are likewise demonstrated in Geometriæ parte Universalis Jacobi Gregorii Scoti, Patavii 1660. Of which a competent number of Copies is expected here.

The Methods of these Learned Men are different, and good Arguments might be given, that they have not communicated nor seen the Works of each other.

Goldinus, l. 1. c. 12. shews a Mechanick way to find the Center of Gravity of a Surface or Curv'd Line, by 2 free suspensions, from the points of which, perpendiculars being drawn, do cross each other at the Center of Gravity. This we mention, to keep the Reader from taking the Center of Gravity of a Curv'd Line as such (which is intended in this 2d Rule) to be the same with the Center of Gravity of the Figure thereby terminated in the first Rule.

3. Considers the Affections of Round Solids, begot from a Parabola, in 10 Propositions from Numb. 20. to 29. both inclusive; whereof the 21 and 23 gives the Hoop required by Angeli, which was formerly cubed by Greg. de S. Vincentio. In the 27th Prop. he gives the Proportion of the Parabolical Conoid to the Spindle made of the same Parabola by rotation about its Base, to be, As the Base of the Parabola is to $\frac{16}{15}$ of the Axis; shewing, that Goldinus err'd through forgetfulness. In Prop. 29. he delivers, that the Parabola bears such a proportion to a Circle describ'd about the Base thereof as a Diameter, As the Axis of the Parabola doth to that Circumference of a Circle, whose Radius is equal to the distance of the Center of Gravity of the Semi-Parabola from the Axis.

4. Contains divers endeavors and manifold new ways towards the obtaining the Quadrature of the Circle in 12 Propositions.

5. Contains 10 Propositions, from 41 to 51; in the 42th whereof he finds a Sphere equal to an Hyperbolic Ring-Solid; whence divers ways are open'd towards the attaining the Quadrature of the Hyperbola: And he finds a Sphere equal to a Ring made by the Rotation of a Segment of an Hyperbola, and of the Segment of a Circle thereto annexed, described about the Base of the Hyperbola as a Chord Line: Then he absolutely cubes certain Hoops cut out of an Hyperbolic Cylinder, and thence derives other ways towards the obtaining the Quadrature of the Hyperbola.

6. Delivers 3 Theorems, shewing the proportion between an Hyperbola and a Circle: which are conceived to be wholly new.

But these Theorems suppose the Quadrature of both Figures known, viz. That of a Circle, in requiring the length of the Circumference of a Circle, described by the Center of Gravity of an Hyperbola; which Center cannot be found, without giving the Quadrature or Area of the Hyperbola: which hath been most happily perform'd by M. Mercator in his Logarithmo-Techia and further advanc'd by Dr. Wallis in N. 38. of these Transactions; and by M. Gregorii also further promoted and otherwise perform'd in his Exercitationes Geometricæ, where he shews, the same Methods and Approaches to be likewise applicable to the Circle.

What we have said, being an Account of one of the most considerable Volumes of Mathematicks extant, we hope we may be the better excused for prolixity. This Author formerly publish'd the Elements of Plain and Solid Geometry in 8°, and an Arithmetick in 8°, wherein he promised a Treatise of Algebra.

Errat. P. 865. l. 24. r. m P C; p. 866. l. 3. del. sinistrorsum; ibid. l. 18. r. Gravitationem; ib. l. 24. r. progressivo; ib. l. 22. r. sit 3, p. 867. l. 22. r. improprie.

☞ P. 863. Insert immediately before these words [Lege syllabas, Regula. Re, Se, faciunt oR, oS: Ro, So faciunt eS, eR.

In the S A V O Y,

Printed by T. N. for John Martyn, Printer to the Royal Society, and are to be sold at the Bell a little without Temple-Bar, 1668.