

An Account of some Books.

I. *GEOMETRIÆ PARS UNIVERSALIS, Quantitatum Curvarum transmutationi & mensura inferviens, Auth. F. ACOBO GREGORIO Scoto, PATAVII, 1668. in quarto.*

Numb. 30. We gave an account of a small Tract, entitul'd *Quadratura Circuli & Hyperbolæ in propria sua Proportionis specie inventa & demonstrata*, à Jac. Gregorio Scoto; and intimated, that it would be reprinted here, and accordingly the Impression was begun; but since then, the Author writing to a member of the *R. Society*, signifies, that it is now reprinting at *Venice* (and possibly not without some enlargement;) which hath caused the design to be laid aside here. Mean time, the same Author hath sent over his other Book of his own compofure also: in the *Preface* whereof he observes, That the defect of *Algebra* (which is most manifest in the Mensuration of Curved quantities) may in some manner be supply'd, if out of some essential property of any Figure there to be given a method of changing it into another Figure (equal thereto) that hath known properties, and of that into another and so forward, until at last you change it into some known quantity: And he modestly saith, that his own Treatise hath so far pursued this Method, that it refuseth no particular figure yet consider'd by Geometry.

After this, he answers such objections, as either have been, or such as himself could conceive might be made against his former Book of the *Quadrature* of the *Circle* and *Hyperbola*.

For such, as would square a *Circle organically*, or divide an *Angle* in a given *ratio*, he supposeth, that there is no easier way of doing it, then by the common *Linea Quadratrix*, (the properties whereof are largely handled in *Leotaudi Cyclomathia*, Lugduni, 1663. in quarto.)

Then he discourseth, that all things concerning *Logarithms* and the *Composition* of *Ratio's* may be perform'd by help of a Curved Line, drawn through the Tops of a Rank of Lines in continual Proportion, standing as Perpendiculars on a right line and at equal distance; that the Operations perform'd thereby are not to
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be accounted *a-geometrical*, because they are not perform'd by the Sole aid of Ruler and Compass; which he suggests to be well observ'd à *Subtilissimo Mathematico D. Carolo Reinaldino in Geometra suo promotò, dum tractat de novis illis Lineis, quas Medicæ appellat*: Concerning which Author, he saith thus, p. 132. *Qui autem desiderat plenam Analyseos & Equationum doctrinam, expectet absolutissimum Caroli Reinaldini Opus de Resolutione & Compositione Mathematica, quod nunc sub prælo est.* It seems, that the Book will be three large Volums in folio; the first whereof, being *Introductory*, and containing the *Algebra* of the Antients, is already in *England*.

And for the Confirmation of what hath been asserted, the Author thus demonstrates, that no *Cubick Equation* (that is irreducible to a *Quadratick*) can be resolv'd by the sole aid of Ruler and Compass. For every *Cubick Equation* hath either but one or three real roots, which if they could be found by the said sole aid of Rule and Compass, or by the Interfection of a Circle and a Right Line, then a Right Line should cut a Circle either in one Point or three; either of which is most absurd. And for the like reason a *Cubick Equation*, having three real roots, can never be reduced to a *pure Equation*, which hath but one onely root; for in these *Equations*, *Reduction* shall no wise profit, forasmuch as 'tis impossible, by aid thereof to change an Imaginary root into a real one, and the Converse.

As to the *Argument* of the Book it self, it contains these several Heads,

1. The Mensuration of sundry Solids, with General Methods to that purpose; concerning which the Author saith, p. 123. *Totus namque Archimedis Tractatus de Sphæra & Cylindro facillè demonstratur ex hujus 3. ad modum hujus 46. & aliquot sequentium: Liber de Conoidibus & Spheroidibus, & tota Luca Valerii doctrina, ex hujus 21. Tota Guldini, Johannis de la Faille, & Andrea Tacqueti doctrina, ex hujus 35. & aliquot sequentium.* And as a Corollary of Prop. 62. he Cubeth or measureth either of the Segments of a Parabolical Conoid cut with a Plain, parallel to the Axis. Hence we observe, that supposing such a Segment, again cut with a Plain, erect to the former Plain, the *Proposition* may be well apply'd to the *Gauging* of Cask part out, when

when the Liquor falls between the heads, which are supposed erect to the *Horizon*.

2. The Mensuration or Plaining of the Surfaces of divers Solids and Spiral Spaces, unknown to Antiquity, and not treated of by any modern Authors, till of very late years; from whom the Author differs in his Method: *Particularly* he finds a Circle equal to the Surface of

A $\left\{ \begin{array}{l} \text{Parabolical} \\ \text{An} \left\{ \begin{array}{l} \text{Hyperbolical} \end{array} \right\} \end{array} \right\}$ Conoid, resembling a Cup or Bowl; *viz.*
 when the Revolution is about their Axes,
Prop. 46. & 49.

The Parabolical Hour-Glass or Solid, when the Revolution is about a Touch-line passing through the *Vertex*, *Prop. 52.*

A $\left\{ \begin{array}{l} \text{Long} \\ \text{Broad} \end{array} \right\}$ Spheroid, *Prop. 47. 48.* And *Pr. 67.* He finds the surface of any segment of a *Cone*.

Generally Prop. 36. The Surface of every Round Solid is equal to a Rectangle, whose *Base* is the Circumference of the Figure, by the Rotation whereof the Solid is begot, and the *Height* equal to the Circumference, which the Center of Gravity of the Perimeter of the Figure describeth.

3. A Method for streightning of Curved lines in the first 6 Propositions; and in particular he finds a *Right* line equal to a *Parabolical Curve*, *Prop. 51*

4. Divers *optick* Propositions towards the end of the Book, concerning the Imperfection of the Eye, and the Confusion of the Sight; the apparent Magnitude of the Sun, low and high; the Tails of Comets; what Proportion the Earths illumination by the Sun at the Full of the Moon bears to the illumination of the Earth by the Moon; and the like comparison between the *Sun* and *Sirius*; That vision by aid of a Telescope or Microscope, is not deceitful: And an Observation of the likeness between the Earth and the Moon.

This same Author in his Letter to Mr. *F. C.* suggests, that *Cassini* hath observed the Motion of *Jupiter* about his Axis in 10 hours; of *Mars* in 23 hours; that *Venus* hath the like Rotations: but the precise period not yet known; that *Cassini* hath

hath publish'd *Tables* of the Motion of the *Satellites* of *Jupiter*, with an *Ephemeris* of the same for this present year: All which are there much applauded. The like *Tables* have been formerly publish'd by the Learn'd *John Baptist Hodierna* at *Rome* about 1656. which we intimate, because that and other Works of that knowing Author are here scarcely known *nomine tenus*.

In another Letter of this Author to the same *F. C.* (which is an answer to a *Quære*, whether *Antimo Farby*, by some suppos'd to be *Hon. Fabry*, the Author of a Tract entitul'd *Opusculum Geometricum de linea Sinuum & Cycloide*, printed at *Rome An. 1659.* had publisht the Treatises promised in the Preface thereof, *viz.* a *Century de Maximis & Minimis*; and some other Geometrical Tracts, as precursory to his intended *General Body of Geometry*) answers, that none of these Treatises are extant; that *Mich. Angelo Ricci* only, (since *Viviani*) hath written *de Maximis & Minimis* in two sheets, but to extraordinary good purpose. The Argument, doubtless, concerns either the *Limits of Geometrical Problems*, or of *Aequation*. Concerning the latter, we shall here intimate, that *Erasmus Bartholinus* hath well handled the same in his Treatise, entitul'd, *Dioristice sive Methodus Aequationum prima & secunda*, *Hafniae*, 1663; which are different from those of *de Beaune* formerly publisht: At the end of which Treatise the said *Bartholinus* promiseth a *General Body of Algebra*, wherein the Precepts shall be explain'd by *Examples*. The same Author hath publisht other Treatises, which we do not find to have been brought over; as one, *De Arte Analytica inveniendi omnia Problemata Proportionalium maximé Harmonicorum*; *Hafniae*, 1657. in 4^o. Another, *de Problematibus Mathematicis*, *ibid.* A. 1665. in 4^o.

II. AN INTRODUCTION TO ALGEBRA, Translated out of *High-Dutch* into *English* by *THO. BRANKER, M. A.* much alter'd and augmented *Dr. F. P.* Also a *Table* of such odd Numbers, as are less than one hundred thousand, shewing those that are *Incomposit*, and resolving the rest into their *Factors* or *Coefficients*. Printed at *London* in 4^o.

First, as to the *Method* of this Book, it is New, such as contains

tains much in a little, each distinct step of Ratiocination or Operation hath a distinct Line: the Author putting small Letters for unknown Quantities, and great Letters for known ones; and the Method is such, that most of the Book, if not all, may be understood by those not vers'd in the *English* Tongue, that are vers'd in *Specious Algebra*; most of the Questions being propounded in *Symbols*, and the progress of the work so described by the Marginal quotations, that for those exercis'd in *Algebra*, that would transcribe a *Problem* in this Method, it were sufficient, only to take the *Margent*, omitting the work it self, till farther leisure is afforded to perform it.

Next, as to the *Matter*, the Book consists of many excellent *Problems*; some whereof are such, as *Bachet* (that famous Commentator on *Diophantus*) either confesseth he did not attain, or at least left obscure: and others of them are such, as the celebrated *DesCartes*, and *Van Schooten* have left doubtful, as not being by them thoroughly understood. And some of them are such, as being unlimited, have for their Answers certain ranks or *series* of all possible whole or *rational* Numbers, whereby the *Student* may be accomplisht for the resolution of other Questions of the like Nature.

Thirdly, as to the *Table* of *Incomposits*, no Book but this, extends it to above Ten thousands; some of the uses whereof are declared in the *Title*, others in the *Book*; and even in *Common Arithmetick*, it is of excellent Use for the Abbreviation of Fractions, and for giving of all the *aliquot* parts of a Number proposed, useful for the Depression and Resolution of *Æquations*, as is taught by *Albert Gerard*, and *Van Schooten*. Besides, it is observable in this Treatise, that the Author declineth the *Exegesis numerosa* of *Vieta*, which following Writers use for the finding of the Roots of *Æquations*.

As to the Remaining part of the Book, as it was published by *John Henry Rohn* in *High Dutch*, reasons may be given, why it was omitted in this *English* Edition.

The First Part of it handles the Taction of *Circles*; about which Argument some Epistles of *Descartes* are published in the Third Volume of his *Posthumous* Letters.

The Second Part of it treats of the *Geometrical Composition* or *Delineation of Equations* by aid of a *Circle* and *Parabola*, wherein the Author seemes to have followed *Descartes*. About this Subject see an Excellent Tract Intituled *Mesolabum, sive Duæ mediæ inter extremas datas infinitis modis exhibitæ*, Auctore *Renato Francisco Sluſio* Canonico Leodiensi (cujus nomen subtitetur) *Leodii Eburonum* 1659 4^o, which Book the Learned Author thereof promiseth to reprint and enlarge this Summer.

The Third Part of it contains 105 *Theoremes* about *Sines*, *Tangents*, *Secants*, &c. the Doctrine whereof, together with what else is omitted in this Edition, and other considerable matters about *Equations*, may be hoped for from the Pen of that excellent Person, that is mentioned in the Epistle to the Reader.

III. AN ESSAY towards a REAL CHARACTER and a PHILOSOPHICAL LANGUAGE, by JOHN WILKINS D.D. Dean of Ripon, and Fellow of the R. Society.

The Reverend and Learned Author of this well-consider'd Work hath digested the things, which to him seem'd most proper and material to be said of this Subject, into four parts.

In the *First*, he premises some things as *Præcognita*, concerning such Tongues and Letters as are already in being, particularly concerning those various *defects* and *imperfections* in them, which ought to be *supply'd* and *provided against*, in any such Language or Character, as is to be invented according to the Rules of Art.

The *Second* contains that which is the great Foundation of the thing here designed, *viz.* a regular *Enumeration* and *Description* of all those *Things* and *Notions*, to which *Markes* or *Names* ought to be assigned according to their respective natures; which may be stiled the *Scientificall Part*, comprehending *Universal Philosophy*: It being the proper End and Design of the several branches of Philosophy, to reduce all things and notions unto such a frame, as may express their natural order, dependence, and relations.

ons. All these things or notions he represents in a Scheme, and reduces them to forty *Genera*'s.

The *Third* part treats of such helps and Instruments, as are requisite for the framing of these more simple Notions into continued Speech or Discourse; which may therefore be stiled the Organical or *Instrumental* Part, and doth comprehend the Art of Natural or *Philosophical Grammar*.

In the *Fourth*, he shews, How these more general Rules may be applyed to particular kinds of Characters, and Languages, giving an Instance of each. To which he adjoyns, by way of *Appendix*, a Discourse shewing the advantage of such a kind of Philosophical Character and Language, above any of those which are now known; more particularly above that, which is of most general use in these parts of the World, namely, the *Latine*.

Lastly, There is added a *Dictionary* of the English Tongue, in which is shewn, How all the words of this Language, according to the various equivocal senses of them, may be sufficiently expressed by the *Philosophical Tables* here proposed.

This is the *Method*, in which the Author hath treated of this considerable subject; concerning which he addresseth his desires to the *R. Society*, to whom he dedicateth this Book, that they would appoint some of their Number, thoroughly to examine and consider the whole, and to suggest, what they judge fit to be amended in it. Which desire of his hath already been so far entertain'd, that several of the Fellows of that *Society* have been nominated, and desired to peruse the Book with attention, and thereupon to make a Report accordingly, for the furthering and facilitating the Practise of what is therein aimed at.

IV. STANISLAI De LUBIENIETZ THEATRUM COMETICUM, duabus partibus constans; quarum Altera, Cometas A. 1664. & 1665. variis Virorum per Europam Clarissimorum, cum quibus Author de hoc Argumento contulit, Observationibus, dissertationibus, animadversionibus, descriptos, & 59. Figuris aeneis illustratos, exhibet: Altera, continet Historiam 415. Cometarum, a tempore Diluvii ad A. 1665. cum 25. Figuris, & accurato indice

eulo non tantum triftinum, fed & letorum Eventuum, eos fecutorum: in qua fimul Synopfis quedam Hiftoriae Univerfalis proponitur; & Theatri Cometici Exitus five de. fignificatione Cometarum. Opus Mathematicum, Phyficum, Hiftoricum, Politicum, Ethicam, Oeconomicum, Chronologicum. Amftelodami A. 1668. in Fol.

E R R A T A.

PAge 667. l. 5. r. Tympanum p. 681 l. 13. r. execta. p. 685. l. 17. r. thence be given. p. 688. l. 14. r. he answers.

F I N I S.

In the S A V O Y,

Printed by T.N. for John Martyn, Printer to the Royal Society, and are to be fold at the Bell a little withow Temple-Bar, 1668.