An Account of some Books.

I. GEOMETRIÆ PARS UNIVERSALIS, Quantitatum Curvarum transmutationi & mensuræ inserviens, Auth. JACOBO 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, á* 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 composure 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 supplyed, 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 *Logarithmes* 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 be

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 promoto, dum tractat de novis illis Lineis, quas* Mediceas *appellat:* Concerning which Author, he ſaith thus, p. 132. *Qui autem deſiderat plenam Analyſeos & Æquationum doctrinam, exſpectet 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 Æquation* (that is irreducible to a *Quadratick*) can be reſolv'd by the ſole aid of Ruler and Compaſs. For every Cubick Æquation 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 Interſection 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 Æquation*, having three real roots, can never be reduced to a *pure Æquation*, which hath but one onely root; for in theſe Æquations, *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 facilè demonſtratur ex hujus 3. ad modum hujus 46. & aliquot ſequentium: Liber de Conoidibus & Sphæroidibus, & tota Lucæ Valerii doctrina, ex hujus 21. Tota Guldini, Johannis de la Faille, & Andreæ 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 *Guaging* 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 { *Parabolical* / *Hyperbolical* } 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 { Long / Broad } Sphæroid, *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 *Satellits* 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 *J. C.* (which is an anſwer to a *Quære*, whether *Antimo Farby*, by ſome ſuppos'd to be *Hon. Fabry*, the Author of a Tract entituled *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 *Æquation*. Concerning the *latter*, we ſhall here intimate, that *Eraſmus Bartholinus* hath well handled the ſame in his Treatiſe, entitul'd, *Dioriſtice ſive Methodus Æquationum prima & ſecunda*, Hafniæ, 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 maximè Harmonicorum*, Hafniæ, 1657. in 4°. *Another*, de *Problematibus Mathematicis*, ibid. A. 1665. in 4°

II. *AN INTRODUCTION TO ALGEBRA*, Tranſlated out of *High-Dutch* into *Engliſh* by *THO. BRANKER. M. A.* much alter'd and augmented Dr. *J. 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 4o

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 exerciſed 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 throughly 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 treates of the *Geometrical Compoſition* or *Delineation of Æquations* by and 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 ſubticetur) *Leodii Eburonum* 1659 4°, 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 *Æquations*, 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 *Scientifical* 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 *Genus'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 addreſſes 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 fart 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 æneis illuſtratos, exhibet:* Altera, *continet Hiſtoriam* 415. *Cometarum, à tempore Diluvii ad A.* 1665. *cum* 25. *Figuris, & accurato indi-*

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eulo non tantum triſtium, ſed & lætorum Eventuum, eos ſecutorum: in qua ſimul Synopſis quædam Hiſtoriæ Univerſalis propo-itur; & Theatri Cometici Exitus ſive de. ſignificatione Cometarum. Opus Mathematicum, Phyſicum, Hiſtoricum, Politicum, Ethicum, Oeconomicum, Chronologicum. Amſtelodami *A.* 1668. in Fol.

ERRATA.

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

FINIS.

In the *SAVOY*,

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