

*An Account of some Books.*I. *ELEMENS de GEOMETRIE*; par le P. Ignace Gaston Pardies, *dela Comp. de L.* A Paris 1671, in 12°.

THE Learned Author of this Tract declareth, that in it he hath given a short and easy Method to learn what is necessary to be known of *Euclid*, *Archimedes*, *Apollonius*, and of the best Inventions of the Ancient and Modern Geometricians. Of which Method he hath now publish't the first 9 Books; reserving to another time the remaining *Seven*, which, *he saith*, are to explain the more profound and sublime inventions of this Science, but are not so necessary to those, that have a mind to *begin* the Study of it; for whose greater conveniency he seems to have taken the pains to divulge this first part, In which he treateth of what he thought most considerable in the 15 Books of *Euclid*; and besides, What *Archimedes* hath demonstrated of the Quadrature of the Circle, as also the Doctrine of Logarithms, of *Sinus's*, &c. He shews the admirable proprieties of the Numbers, which *Euclid* hath demonstrated in the 7, 8, and 9th. of his *Elements*. He affirms, to have found a new way of Teaching the Doctrine of *Incommensurables*, and given Directions in four or five small pages, perfectly to comprehend what very few persons, even of those that meddle with Geometry, are able to understand.

Besides this, he treateth of divers kinds of *Progressions*, chiefly insisting on the Two most famous ones, *viz.* the *Geometrical* and *Arithmetical*; and comparing them one with another, he treateth of *Logarithms*, and shews the Art of them by the means of a Geometrick Line, by him esteem'd very useful for the Resolution of all sorts of Algebraical Problems; by the help of which he saith to have formerly squared the *Hyperbola*.

He concludeth this *first* Part with a short *Practical* Geometry; wherein, besides the more easy and more common Operations

Operations, he saith he hath delivered the Principles not only of measuring the Magnitudes and Distances of places Inaccessible; of making the Map of a place or a Province; of finding the *Sinus's*, *Tangents* and *Secants* of all Angles; but in short, of coming to the Knowledge of what ever appertains to this part of Geometry.

In his *Preface* he promiseth to give us, *next*, his Algebra, his Doctrine of Conical Sections, Sphericks and Staticks; but, above all, to establish Five or six General Rules, whence afterwards, by way of Corollaries, may be drawn the demonstration of an Infinity of Propositions, which pass for great ones in Geometry: Where, *he adds*, shall be found the nature and measure of *Asymptotick* spaces, as the most admirable knowledge in the World; those spaces being of an extent actually infinite, comprised between two lines, which being infinitely prolonged do never meet; but of which yet it may be demonstrated, that they are equal to a Circle or another determined figure; so that *Infinite* it self, as immense and innumerable as it is, may notwithstanding be reduced to a *calculus* and to a Geometrical measure, and that the Mind of Man, being greater than it, is capable to comprehend it; For since Imagination cannot attain so far as to represent unto us what is Infinite; the demonstration, we make of the nature and proprieties of this immense and infinite *Asymptotick* extension, convinceth us at the same time, that we have within us a power capable to represent unto us this infinite Extension. For, *saith he*, as, for measuring with a Rule and Compass a Figure represented upon paper, I must have this Figure present to mine eyes and hands, that so, by applying the Instruments to its angles and sides, I may take all the dimensions of it, and so determine its Magnitude; even so, for taking with the rule of my Reason the measures of this *Asymptotick* space, I must have an *Idea* thereof inwardly presented to my Mind, and this Mind by applying it self, as it were, to this *Idea* and Interior figure, must take the dimensions of it, determine its bigness, and demonstrate all its proprieties, &c.

In the same *Preface* the Author deduceth largely, wherein his Method of Teaching *Geometry* differs from the Methods of others, as to facility and intelligibleness: which we forbear to transcribe, because it would take up too much of that room, which we shall need for giving some account of Two other Authors.

II. *Regnerus de Graaf de SUCCO PANCREATICO.*
Lugduni Batavorum, An. 1671, in 12°.

THAT the Reader may not think, we twice serve up the same matter, forasmuch as we may seem to have described this very Tract long ago, *viz.* in Numb. 10, p. 178; we must inform him, that *this Edition* is by the Author himself esteem'd to deserve in a manner the Name of a New Treatise, by reason of several New Observations added, and divers Objections solv'd therein. Besides, that there is annexed to it the Author's Ingenious Letter to D. *Lucas Schacht*, Professor of Physick at *Leyden*, *de Partibus Genitalibus Mulierum*; of which subject he therein summarily delivers, what he intends to compose hereafter a Book of.

De quo quidem Argumento ne nihil dicamus, linguâ minus communi rem totam, ab Authore hîc traditam, compendiosè studebimus.

Ait itaque, Vasa præparantia Mulierum breviora esse quam Virorum: Testes Muliebres nullam cum Virilibus similitudinem obtinere, cum non sint vascula seminaria, sed perfectissima ova in se contineant, ad quæ vasa præparantia excurrant: Ova in Testibus illis contenta fecunda reddi, quatenus seminalis Aura, ex Utero per patentès ejus Tubas ad Testes pervadens, in Ovis inibi latitantibus fermentationem excitat: eoque ipso Testiculorum substantiam ad expellenda Ova disponit, quæ à simbria, Tubarum extremitate, excepta, per Tubas ad Uterum transeant: Ligamenta Uteri nil aliud esse quàm membranas multis vasculis refertas quorum extremitates in pinguedine Pubis terminentur & evanescent: Arterias Hypogastricas, plures disseminare propagines ad Uterum, quàm ad Vaginam ejus; earum, quæ ad Uterum excurrunt, præcipuam
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miro ductu utrinque ad Uteri fundum pertingere, atque Arteriis præparantibus sive spermaticis tam affabrè uniri, ut peritiores etiam Anatomici dubitare possint, utrum ab Hypogastricis, an verò à Præparantibus Arteriis sanguinem suum arteriosum Testes ac Tubæ hauriant: Venas Hypogastricas, etiam ad Uterum, Vaginam & reliquas partes tendentes, sibi invicem tot tàmque patentibus nexibus copulari, ut inflatâ vel minimâ venulâ protinus totius Uteri, Vaginæ, Tubarum atque Testium venæ distendantur: Utero secundùm longitudinem per medium diviso, dissectorum vasorum orificia quamplurima conspici, atque Uteri cavitatem tantùm unicam reperiri, eâmq; ab interno Uteri osculo usque ad magnam suam capacitatem rugosam esse, pluribusque foraminulis præditam, ex quibus, presso Utero, pituitosa & viscida materia prodeat: Adhæc, in rugosa Vaginæ tunica hinc inde etiam porulos conspici, sed longè pauciores ac minores, quàm in collo Uteri, nisi prope Vaginæ orificium, ubi, in Superiori inprimis parte, prope meatum urinarium, & in ipso, tam magni ductus sive lacunæ reperiantur, ut stylum crassiusculum admittant, ex quibus in salacioribus, non minùs quàm ex iis, qui sunt in Uteri collo, materia seroso-pituitosa (improprie semen vocata) cum impetu erumpit. Denique, Clitoridi, ut Membro virili, arterias, venas & nervos communicari, & quoad substantiam cum Pene virili aliquam similitudinem habere; carere tamen Urethrâ, & duobus tantùm Musculis instrui, licèt plerique quatuor numerent, sub horum Musculorum carnosis expansionibus spongiosum quoddam reperiri corpus, ex multis vasculis & fibrillis constatum, quod propriâ membranâ cingatur, & ad latera Vaginæ, propè ejus orificium, ab inferiori parte ad membranosam usque Clitoridis substantiam utrinque ascendat, uti, si infletur, conspiciendum se præbeat.

Hactenus Industrius juxtâ ac Doctus hic Author; Cujus amplio rem de hac materia Dissertationem, fratris Observationibus & Experimentis nixam, impensè desideramus; inprimis verò, ut liquidius, quàm hactenus factum, ostendatur, quo scilicet meatu Ova ista quarumvis fœmellarum è Testibus in Tubas, & per Tubas, quæ aliquâ sui parte imperviæ habentur, in Uterum devolvantur. Spes interim haud levîs me fovet, Controversiam hanc de mulierum Ovariis, cum ea hoc ipso tempore Peritissimorum quorumque in

Anglia, Gallia, Belgio, &c. *Anatomicorum tribunali se stiterit, brevi ab ipsis, in rei Anatomice incrementum, penitus elucidatum iri.*
 Vid. Numb. 70. p. 2136.

III. *Physico Mathematicis de LUMINE, COLORIBUS
 & IRIDE, &c. Auth. Franc. Maria Grimaldo S.F.
 Bononiæ, 1665. in 4°.*

THis Learned Treatise was not to be altogether omitted in these *Philosophical Occurrences*, though an Account of it hath been deferr'd (too long,) it being but lately fallen into the *Publisher's* hands.

The Author then finding, that much obscurity was left in the Doctrines of *Light*, and esteeming it rather commendable than presumptuous, to endeavor the clearing of it, especially if that be done by *Experiments* (which he judgeth an exceedingly conducive way for the Improvement of all *Natural Knowledge*;) undertaketh in *Two* parts to deliver his *Tryals* and *Meditations* on this Subject.

In the *First* are contained the several *Experiments*, which may favour the Doctrines of the *Substantiality* of *Light*, together with the *Ratiocinations* thence arising.

In the *Second* is represented, What may be answered to all those *Arguments*, so as to save the *Peripatetick* Opinion of the *Accidental*ity of *Light*: Which yet is done in such a manner, as that the Author leaveth a liberty to the *Judicious Reader*, to embrace which of these two *Opinions* he shall think the more probable.

But, more particularly, in the *former* part he explains, How many ways *Light* is propagated or diffused, *viz.* not only *directly*, and by *refraction*, and *reflexion*, but also by *diffraction*; which last, according to him, is done, when the parts of *Light*, separated by a manifold dissection, do in *the same medium* proceed in different ways. *Next*, he considers the Nature of *Light*, as also *Daphaneity*, and *Opacity*; and taketh notice, that most *Bodies*, whether *Solid* or *Fluid*,
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are *porous*; on which occasion he ventures to explain almost the whole Philosophy of *Magneticks*. Then he discusseth the Question, Whether the diffusion of Light be *Instantaneous*, and concludeth it in the *Negative*, though the Duration of it be imperceptible. This done, he examines the nature of Reflexion and Refraction, and seems to acknowledge, that, supposing Light to be a *Substance* very fluid and very subtile, an account may easily be given, why it is reflected and refracted, and why it observes such *Laws* in its reflexion and refraction, as really it doth.

Further, he discourseth of *Colours*, and considers, How Light is changed into Colour, sometimes by Reflexion alone, sometimes by Refraction alone, sometimes without either and without the change of the *Medium*, *vid.* by *Diffraction*. He explains also, How Light by the sole intrinsic modification of it self, passeth sometimes into a colour that is commonly called *Apparent*: Where he declareth, that the reason, why Light passeth into an Apparent colour, is not some determinate Angle, at which the rays amongst themselves are inclined; but that that Colour is produced by the intension and density of Light. He teaches also, That to the Vision of things permanently colour'd, there are not required any *intentional species*, transmitted from them, and contradistinct to Light; but that the Light, which is diffused, or at least reflected from things colour'd, is sufficient; yet with such a Modification, as is to be found in Light *apparently* coloured: On which occasion many particulars are delivered concerning *Reflex* Vision, together with an Explication of that *Quere*, How the Place of the thing seen is perceived? &c. To all which is added, that the Modification of Light, by which it is both *permanently*, and (as they speak) *apparently* coloured, or made sensible under the representation of Colour, may not improbably be said to be a determinate and most finely furrow'd Undulation of the same, and a kind of tremulous diffusion, with a certain very subtile floating, whereby it doth, in a peculiar way of application, affect the Organ of Vision: Which is illustrated and confirmed by what is by Philosophers

taught of *Sound* and *Hearing*. Upon which 'tis inferr'd, that Colours are not any thing permanent in visible things, not of themselves lucid, when they are not illuminated; but that they are the Light it self, under some peculiar Modification made sensible by the Sight.

Lastly, This first part is ended with a large Discourse of the *Rainbow*, its Colours and their Order, its Circular figure, the Concentrickness of Rainbows, &c. Concluding upon the whole, that a Rainbow, both the Primary and Secondary, is generated from the Solar rays, reflected and refracted by the drops of a roid cloud, so that the *Primary* is represented by the rays that are once reflected within those drops; but the *Secondary*, by the rays twice reflected, and which after a double refraction in both cases pass to the Eye, placed in the *axis* of the Rainbow.

The *Second* Part is dispatched in *Six* Propositions; in which the Author taketh pains, notwithstanding all what he hath delivered before, to abet *Aristotle's* opinion, importing, that Light is an *Accident*; though he dissembleth not, that that Philosopher seems to have somewhere favour'd the contrary Opinion; as he also acknowledgeth, that the Experiments and the Reasons thence deduced for the *Substantiality* of Light, approach very near to a Physico-Mathematical evidence, especially with such men as have, either skillfully and carefully made those Experiments, themselves, or attentively beheld them, when made by others. However, he maketh a shift to say something by way of Answer to all the Arguments, produced in the *first* place for the proof of Light's being a Substance: yet denying, that, though Light were an Accident, it would follow, that Colours, call'd *Permanent*, are something distinct from Light, and residing in Bodies when *Light* is absent.

IV. Marci Meibomii de *Fabrica TRIREMIVM* Liber.
Amstelodami 1671. in 4°.

THis Discourse treats *first* of the Occasion and Original of Shipping, and relates, that it began with Oars, and then was improved by Sails, and at last was practised with the use of both.

In the beginning, for Celerity and Fight, they multiplied Oars, and, for some strength, they fortified their ships with strong Beaks, as Birds of pray have strong Wings and a sharp Beak.

He ascribes to the *Sidnians* the first invention of Building long Ships for War, and the contrivance of filling them with Oars in such a manner, that no void spaces might be left. As broader and shorter Ships were built for burthen.

Gallies he distinguishes into *Monocrota*, wherein one or more rows of men do sit in the same level or plain; and *Polycrota*, in which the Rowers sit in divers heights, one above another, as in *Amphi-theaters*; whence the *Biremis*, *Triremis*, *Quadriremis*, and so on to the *Tessaraconteris*, the biggest that we read of, and recorded to have been made by *Philopater*.

In the *Monocrota* he considers the manner of the Sitting of the Rowers; and the *Intersealmium*, or the space between the two Oars of the same *Versus* or Row; referring the *Transstra* to the *Polycrota* Gallies; where he hath occasion to examine the measure of the great and Roman foot and cubits as also to give the meaning of the words *Versus* (Gr. $\sigma\iota\chi\theta$ or $\epsilon\iota\chi\theta$) and *Ordo* (Gr. $\pi\acute{\epsilon}\xi\iota\varsigma$.)

Next he endeavors to explain in the Gallies that are *Polycrota* of 3, 4, 5, or more tires of Rowers, seated in different heights, how those men could be placed. And here he pretends to have been the first, that hath perfected the way of lessening the height of the ancient Gallies, by devising these two Expedients; by the first of which (said to have been published by him 22 years since) he affirms to have shewed, so to place
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the Lateral Rowers, as that he that sits behind an other, may move his hands and Oar *under* the seat of the rower sitting next before him: By which means three lateral Rowers, which, according to *Scaliger's* way, would require the height of $13\frac{1}{2}$ feet, will be content with the space of $7\frac{1}{2}$ feet. By the *other* Invention, which he *now* adds, he pretends to have found a new place in those Ships for almost *half* the number of Rowers; forasmuch as on the side of the aforesaid Rowers, he placeth others in the middle of the Ship, in *transstris* or traverse Seats, which, as he imagines, (how consonantly to use and practice, the Intelligent soon will judge) may thrust out their Oars under the Seats of the Lateral Rowers. By which contrivance he thinks is gain'd in a *Quinqueremis* the space of nine feet in height: which, he saith, *Scaliger*, if alive, would admire. And to all this he subjoyns some passages out of ancient Authors, which he conceives do much strengthen the fitness of these Inventions of his, concerning both the placing of the Lateral Rowers, and those that sit in *transstris*. Here he inserts the Explication of those names of *Thalamita*, *Zygita*, and *Thranita*, in the *Triremis*; the first signifying him that sits in the lowest row; the second, him that sits in *Transstris*; the third, him that sits uppermost.

After this, he inquireth, Whether ever such great Vessels of so many tires of Oars, sitting in so many different heights, were ever actually built? And, if they were, Whether they ever came abroad to Fight? Especially such an one as that of *Philopators* is recorded to have been, of forty tires, requiring above four thousand Rowers; and that of *Ptolemaeus Philadelphus*, of thirty tires, having more than three thousand Rowers; and another of twenty rows, requiring two thousand. Hereupon our Author scruples not to affirm all to be true, what is written of such vast Ships; adding, that he hath made it intelligible, how it may be so, by finding places for the *Zygita*, and a conveniency of moving their Oars under the Seats of those that sat next before them. And here he shews at large, of what determinate bigness those Vessels were, according to his supposition and contrivance;

vance; beginning from a *Triremis*, and shewing, how many Oars and Sea-men it contained, namely two hundred, of which one hundred and eighty were Rowers, and the rest Marriners. So that in the *Athenian Fleet*, of which *Cono* was General, consisting of one hundred and eighty *Triremes*, there were six and thirty thousand Men. Then proceeding to a *Quinqueremis*, with four hundred and twenty Men apiece; of which there were Rowers three hundred, and Souldiers one hundred and twenty. So that three things were stupendious in that *Roman Fleet at Messina*, and the *Carthaginian at Lyliboum*; one is, that the former consisted of three hundred and thirty, and the latter of three hundred and fifty Ships, most *Quinqueremes*, that is, an hundred and fifty feet long; the *second*, that the number of Men, they contained, was one hundred and thirty thousand, and one hundred and fifty thousand Men; the *third*, the *apparatus* and provision necessary: Yet all this affirmed by one of the best of the ancient Historians, *Polybius*; who himself wonders at such a vast Equipage.

Here the Author undertaketh, out of *Polybius*, *Plutarch*, and *Livy*, to refute *Salmasius*, affirming, that hardly any Gallies were built or equipped bigger than of *Nine Tires*, called *ἑννῆμους*.

Hence he proceeds to the Ships of *Eleven Rows* (*ἐνδεκάμους*;) and of *Fifteen Rows* (*πεντεκαδέκαμους*;) and to one of *Sixteen* (*ἑξκαδέκαμους*.)

Having dispatched these particulars (of which we leave Curious and Learned Antiquaries, and good Naval Architects to judge) he proposeth the *Usefulness* of these his Inventions, after that, by the means of them, both the Structure and Ordering of Ancient Shipping hath been explained; and is of opinion, that the *Modern Gallies* and *Galleasses* might, according to his Model, be more conveniently built, both for celerity, strength, and lesser expences. He thinks, that the *Modern form* would be better, if in the Structure the proportion of the long Ships of the Antients were observed. And he conceiveth also, that Five men sitting at one Oar in

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the Modern Galeasses, much strength is wasted to no purpose, because they sit too near to the side or stay (the *fulcrum*;) whereas a lesser number of Rowers, at a greater distance from the said Stay, would give more strength for more swiftness, and require less charge.

To which he adds, that these Gallies are of great use both in Rivers and Un-deep Seas, and therefore convenient for the Baltick and Britannick, as well as the Mediterranean Seas. Further, that they are very serviceable for transporting great Forces.

Occasionally (to add that by the by,) he shews out of *Josephus* lib. 8. c. 7. what is meant by the *Almyggim* Wood in Sacred Writ, 1 *Reg.* 10. 11, 2 *Chron.* 11. 8, &c. אֲמִיגִימ, namely, the Indian Pine or *Fir-tree*, brought out of *Ophir*, excellent both for a shining Whiteness and for Levity; whence very proper for *Musical* Instruments.

L O N D O N

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