

Observations. Which was thought fit to add here, that nothing might be detracted from Mr. *Lifter* for permitting his Notes in the lately mention'd Tract to be published as his own, which really they are.

An Account of some Books.

I. *DE CORPORUM AFFECTIONIBUS cum MANIFESTIS tum OCCULTIS, Libri Duo : Sen Promotæ per Experimenta Philosophiæ Specimen, Auth. J. B. Du Hamel, Ecclesiæ Bajocensis Cancellario, Parisiis, 1670. in 12°.*

THE Learned Author of this Treatise having represented in the *Preface*, that the *Grecian* Philosophy concerning Nature, hath been so far from being able to grow up any thing considerably, that by the more Generous and the more Intelligent men of this Age, it is esteem'd rather to have degenerated and decayed ; giveth here a *Specimen* of Natural Philosophy improved and advanced by Observations and Experiments ; not only endeavouring to explicate, from the Principles of the Modern Philosophers, the Qualities and Powers of Bodies, but also giving an Account of the more notable Experiments, made in this Age in divers places, as *England, France, Italy, Germany, &c.* In the Performance of which he treats,

In his *First* Book, of the Origine and Nature of Qualities in General ; then, of Heat and Cold ; of Fluidity and Firmness and other Tactile Qualities ; of Tasts, Smells, Sounds, Light, and Colours. In the *Second*, Of Medicaments in General ; then, of the Vertue and Use of Preparing, Alterative, Purgative, and Topical Medicines ; as also of Poysons and Antidotes. In the same, he proceeds to consider Magnetisme, Electricity, Gravity in general, and the Accelerated motion of Heavy Bodies : Concluding the whole with the consideration of Librated Liquors, and the Weight of the Air.

All

All which is deliver'd not only with a singular brevity and plainness, but also with that ingenuity, that the Author every where candidly acknowledgeth, to whom he is chiefly obliged in these Essays, alledging among the *English* Philosophers most frequently and very honourably, the Noble *Robert Boyle*, and not forgetting the Illustrious *Bacon* and *Digby*, the Learned *Gilbert, Harvey, Glisson, Goddard, Merret, Willis, Hook*. Among the *French*; the famous *Gassendi, Descartes, Pascal, Fabry, Magnan, Du Clos, Morin, Petit, Cordemoy*: Among the *Italians*; the Excellent *Galilæo, Torricelli, Gævus, Zucchius, Riccius*: Among the *Dutch*; the Curious *Otho de Gerick, Grimaldus, Bontius, Piso, Walæus, Sylvius, Tachenius, Vossius*: And among the *Danes*, the Learned *Erasmus Bartolin*.

In the mentioning of which candour in our Author, we must yet take notice of one particular, alledged by the same, relating to that Honourable person, whose Writings he so often maketh use of (I mean *Mr. Boyle*;) Which is, That, when *Mr. Du Hamel* declareth p. 57, his dissent from *him* in the Explication of the manner, how the World once framed, and the Course of Nature once established, are preserved, he understands him, who discourses thereof in his Treatise of the *Origine of Forms and Qualities* p. 104. as if he excluded from the Generation and Growth of Living Creatures, the Creator's *New Concourse*; and esteems, that to the admirable structure of Animals, and the wonderfull variety, use and distinction of their Organs, there is more required, than can be accounted for by the Common Laws of motion. In answer to which, we desire, it may be observed, that as *M. Du Hamel* declareth not for the necessity of a *particular Concourse* of the Creator in the Phœnomena insisted on by him, so that judicious writer, whom he reflects upon, will not be found to deny that new Concourse, pleaded for by *Du Hamel*; but rather, by asserting the *continued* general and ordinary support and influence of the First Cause implyeth that that preservation and concourse ever and constantly perpetuated

perpetuated is *ever new*, and consequently keeps things in their pristine state and vigour, at least so far, as the Creator did once determine they should be kept. In short, the Great Architect and Superintendent of the Universe, having once by a signal guidance contrived the Universal matter into the World, and particularly some portions of it into seminal Organs, and Principles, and settled the Laws, according to which the motions and actions of its parts upon one another should be regulated, he doth now by his un-interrupted influence, preserve the Powers and Operations of those Principles or Springs by which they were by him once set a going.

II. *ELEMENTA PHYSICA, sive Nova Philosophiæ Principia; ubi Cartesianorum Principiorum falsitas ostenditur, ipsiusque errores ac paralogismi ad oculum demonstrantur ac refutantur, à Francisco Wilhelmo Libero Barone de Nuland, &c. Hagæ Comitum, 1667. in 12°.*

THough the Author of this small Treatise, which came to our view by a particular friend, (our Stationers having as yet procured no Exemplars of it) lays down an *Hypothesis* of Natural Philosophy; yet will he not be understood to be *resolved* to adhere unchangeably to it; but rather judges it more useful to employ great care and much time in observing the Effects of Nature; highly commending, for that method, the two lately founded Philosophical Academies in *England* and *France*, which by Observations and Experiments, faithfully made, labour to attain the knowledge of Truth.

Concerning *M Des-Cartes*, though our Author declareth a high esteem of his Ingeniosity, yet is he of opinion, that the fondness, which that great man had for his Systeme of the World, and for the admirable Symmetry and congruity found therein, did so blind him, that he could not see

his Errors in its contrivance. For, saith he, if he had but more attentively considered (for example) the nature of *Circular Motion*, he would never have found any *conatus* or endeavour in Bodies circularly moved to recede from the Center, but seen that that motion differed in nothing from another motion; (which he pretends to have demonstrated,) and consequently would not have superstructed so many things upon that endeavour, which, upon the overthrow of the foundation, must fall of themselves.

To the Book is prefixed an Extract of a Letter of M. *Hugens*, declaring *first*, that the Dispute touching the *Idea's*, and the proof of the Existence of God by the way of *Des-Cartes*, is very obscure. *Secondly*, that he (Monsieur *Hugens*) is of the opinion of this Author, in that he allows not *Solidity* or *Hardness* to be separable from the nature of Body; which is repugnant to *Des-Cartes*, who maketh a Body to consist only in *Extension*. And *Thirdly*, that in what *Des-Cartes* hath written of Motion, 'tis certain he did somewhat force himself, to avoid the condemnation of his Philosophy at *Rome*, for having supposed the Earth to move.

In the Book it self, is observed this Method: *First*, the Author declareth, how of nothing all the Matter of the Universe hath been made and condensed; shewing withall the nature and properties of Matter, and wherein it differs from Space or a *Vacuum*, and making it his business to restore to Philosophy that *Vacuum*, which he judgeth to have been ungroundedly proscribed by *Des-Cartes*, and which together with *Matter* is esteemed by him to constitute all the diversity and variety of Bodies in the whole Universe. *Next*, he teacheth, that the Form of the Universe consists in its *Figure*, shewing, How of one and the same matter so many different things could be produced. *Then* he evinceth the Efficient Cause of the World to be a most Potent and Eternal Being, but by a proof different from that of *Des-Cartes*; and maketh it out, that that Being hath produced all the Bodies that are in the World by no other instrument,

strument, but Motion ; whose Nature therefore and Laws he investigateth, *viz.*

1. Two Equal Bodies, moved with *equal* celerity, if they meet one another, will reflect, without loosing any thing of their celerity.

2. Two Equal Bodies, moved with *unequal* celerity, if they meet one another, that which moveth more slowly, can give nothing of its celerity to the other.

3. Neither can that, which moveth with greater celerity, communicate its whole motion to the other.

4. If two Equal Bodies, moved with *unequal* celerity, meet one another, they will reflect ; and the motion which the Body, that moveth more swiftly, communicateth to the less swift, shall be to its whole motion, as celerity is to celerity.

5. If there be two Equal Bodies, whereof the one moveth infinitely swifter ; after their mutual encounter, that which moved more swiftly, shall be quiescent, by communicating all its motion to the other.

6. If two Bodies be *unequal*, and the lesser do move in that proportion, wherein the other exceeds it in bigness, they shall reflect after the encounter, so as to loose no degree of celerity.

7. If two Bodies be to one another in any Proportion given, but the lesser move infinitely swifter ; if the other be quiescent, it shall impell it, how big soever it be.

8. If there be a proportion of Equality, the moved Body will be quiescent by communicating its whole motion to the other.

9. But if that which is moved, be lesser, it will be reflected loosing a part of its celerity, which it will impart to the other.

10. But if it be greater, it will move the same way, loosing also a part of its celerity, which the other will receive,

III. *A Discourse of LOCAL MOTION, Englisht out of French.*
London, 1670. in 12°.

THis Discourse undertaketh to demonstrate the *Laws* of *Motion*, and withall to prove, that of the *Seven Rules* deliver'd by *Des-Cartes* on this Subject, he hath mistaken *six*. In the doing of which, the Author particularly insists on, considering the communication of Motion in *Percussions*; declaring, that, though this Subject hath been handled by very Eminent men, yet he taketh it otherwise in hand than they have done; forasmuch as without making any particular *Hypothesis*, he maketh it his business to search into the very Sources of Nature, the Causes of all the Effects we find in Motions; and undertakes to give the demonstrations of them. He is not ignorant of what hath been lately publish't by some famous Mathematicians of the Royal Academies of *London* and *Paris*. Neither doth he contest with those persons about that, which they pretend to, of having found the secret of the *Laws* of *Motion*. He only saith, that 'tis now three years that he gave abroad what he delivers in this Discourse; and that, his Rules being compared with theirs, there may possibly be found conformity enough to make men believe, that he hath lighted together with them upon the truth, but that yet there will also be found difference enough, to make men judge, that he hath not learnt it from them. Besides (*saieth he*) they have done no more than meerly propos'd their Rules without proving them; whereas he undertaketh to *demonstrate* all those, he advanceth: Adding, that though *M. Hugen*s hath given us hopes of publishing shortly a Book, wherein he will prove all his Rules, yet he dares affirm, that the *Hugenian* Method will be quite different from his, forasmuch as he (*M. Hugen*s) hath already explained himself sufficiently, to give us to understand, that his demonstrations are grounded upon particular *Hypotheses*.

The chief Heads, explained in this Discourse, are, That

1. A Body is in it self indifferent to Rest or Motion.
2. If a Body be once at Rest, it will ever remain therein.
3. And if it be once in Motion, it continues to move *alwayes*.
4. That *Rest* is not a meer Negation; and that there is as much Positive Action in Rest, as in Motion.
5. The Bodies which we move, do cease to move because they are impeded.
6. A Body successively receiving many Determinations, remains only affected with the last.
7. A free Body cannot be determin'd to move in a *Curve* line, nor with unequal celerity.
8. Every Body that moveth about a Center, endeavors to recede from it.
9. How a Body may be moved Circularly.
10. One Body moving against another Body gives it its whole Motion.
11. In the meeting of two Bodies there is made a Percussion which is mutual, and equally received in both.
12. A moving Body, meeting another Body that is Quiescent, gives it all its Motion, and remains it self moveless.
13. What is meant by *Absolute* and *Respective* Velocity.
14. The Percussions are as the respective Velocities.
15. Two Bodies meeting one another, turn back, making an exchange of their Velocity.
16. Two Bodies moving toward the same places, continue after their encounter by exchanging their Velocities.
17. An hard Body coming to hit another Body that cannot be shaken, is reflected with its whole Motion.
18. The Angle of Reflection is equal to the Angle of Incidence.
19. It may be imagin'd, that the Oblique motion is compos'd of two Motions.
20. A general Rule of all Percussions.
21. There is alwaies equal quantity of *respective* motion.
22. The midst of two Bodies is alwaies uniformly mov'd in a direct line.

23. All these Rules are true, whether the bodies be equal or unequal.
24. A body moveth in *pleno* as freely as in *vacuo*.
25. The Percussions of *equal* bodies are made in *pleno* as in *vacuo*. But when the bodies are *unequal*, the Percussions are made in *pleno* otherwise than in *vacuo*.
26. The Percussions of unequal bodies cannot be reduced to one General Rule.
27. Of Refraction.
28. An Appendix containing a Review of this Discourse.

IV. *Congietture Physico-Astronomiche della Natura del Universo, da Pietro M. Cavina; in Faenza, 1669. in 4o.*

THESE Conjectures are raised by the Author upon some Celestial observations about the *Fixed Stars* at *Faenza*. The whole Tract consists of three parts; Considerations, Observations, and Reflections.

In the *first*, this Writer taketh notice, 1. That men for many Ages have so much doted upon *Aristotle*, as to deny Faith to Sense, and Proof to Experience. 2. That one of the received, and much contended for, *Aristotelian* opinions is that of the *Ingenerability* and *Incorruptibility* of the Celestial Bodies; but that Heaven it self, impatient, as 'twere, to be so little known, hath generated *New Stars*, brighter than the known ones; thereby to strike the eyes of men, that are curious and diligent in the investigation of truths. And hence he proceeds to the

second part, containing the *Observations* themselves; whereby he affirms to have found considerable changes in divers of the *Fixed Stars* from what *Bayerus* and others have remarked of them, as to Magnitude and Number; instancing in *Ursa* both *Minor* and *Major*, in the *Dragon*, *Cefeus*, *Bootes*, *Corona Septentrionalis*, *Hercules*, *Lyra*, *Cygnus*, *Cassiopea*, *Perseus*, and the *Via Lactea*.

Whereupon in the *third* part, having premised his method of observing and Measuring, he maketh these *Reflections*; *viz.*

viz. 1. That the Stars of the *First Magnitude*, their apparent Diameter being supposed to be $18''$, and the Diameter of the Annual Orbe in the *Copernican Hypothesis* being asserted, are at least 71677713000 bigger than the Earth; and those of the *Sixth Magnitude*, supposing their apparent Diameter to be $4''$. $24'''$, are 4378454048 times bigger, if *Ricciolo* have calculated aright in *Almag.* l. 7. p. 717. 2. That in the doctrine of the Earths Rest, the Distance of the Fixt Stars is 100000 Semidiam. of the Earth; and, according to the *Copernican Systeme*, 47439800 such Semidiameters. 3. That, according to *Copernicus*, a star of the *Second* magnitude cannot become of the *First*, but it must grow 2562569939 bigger than the Earth, or approach nearer to the Earth by 1263841 Semidiameters of the Earth. 4. That in that part of Heaven, where one Star is grown bigger; another, not far off, is grown less, and *vice versâ*; so that, if those augmentations and diminutions could be exactly calculated, the sums would be found equal.

From all which, the Author deduceth these Conjectures: 1. That the Heaven of the Fixt Stars is liquid 2. That it is Generable and Corruptible. 3. That the motion of the Earth is still more improbable. 4. That these Variations of the Fixt Stars are Effects of the Sun; and that they are but moderately distant from the Sun, 5. That those Stars are of a matter easily dissipable; and like unto Lamps, which for want of aliment are extinguisht, and by an accession of aliment are magnified. 6. That all the Fixt Stars are in the Concave superficies of their Heaven. 7. That both the Annual and Diurnal Motion of the Earth have no place, according to these Observations.

V. *Dimostrazione Fisico-Matematica delle sette Propositioni, che promesse Donato Rosetti. In Firenze 1668. in 4°.*

These seven Propositions, which this Author pretends to have here demonstrated, are these;

1. *What is the true Physical Cause of Equilibrium?*

2. *The*

2. *The Doctrine of Archimedes, importing, That a Floating body sinks beneath the Level of the water so far, as that a mass of water, equal to the part immersed, doth absolutely weigh as much as the whole floating Body; is false.*

3. *'Tis very probable, that there is no Æther, and that consequently there is a vast Vacuum.*

4. *There is a very easy, short, and infalible way, exactly to know how much is the absolute weight of the Air, that is impendent over any particular place.*

5. *With little less easiness and brevity, but with the same infalibility may be weighed any one part of the said Air; for example, a Cubical foot.*

6. *The only way of measuring the height of the Atmosphere.*

7. *How it may be experimented, whether Light at the distance of 40 or more miles be moved in any observable Time?*

These Propositions have occasioned very warm disputes in *Italy*, where they were first stated; as may appear by what hath been publisht against this Author by Signior *Montanari* and Signior *Finetti*, to which we must refer the Reader. We shall only take notice here, that the second of these Propositions sounding harsh, our Author, somewhat to mollify it, alledgeth, That he intends not at all to oppose the Doctrine of *Archimedes*, much less that of *Galileo*, concerning *Floating Bodies*; but that he would consider every body equilibrated, and how far every thing retains its *Moment* in this Universe, (where we find the whole to gravitate,) in order to examine the *Torricellian* Experiment; which is to serve him for the main ground to weigh the Air, and to measure the Atmosphere: In which case (*saieth he*) the Floating Body, if it did absolutely weigh as much, as the mass of water, equal to its part immersed, it would not make the Equal Sectors of that Sphere, which the Equilibrated Fluids do constitute, Equal in Moment.

E R R A T A.

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L O N D O N.

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