

sidered it in relation to the *Sun*, in respect whereof, its motion is regular, he considers the same in relation to the *Earth*, where *We* observe it; and shews by the means of his *Tables*, what is to be added or substracted, to know, at what time the said *Spot* is to come into the middle of *Jupiter's* Diske, according as he is Oriental or Occidental. He hath also considered it in relation to an unmovable point, which he has supposed to be the first point of *Aries*, because we thither refer here upon *Earth* the beginning of all the Celestial motions, and *there* is the *Primum mobile*, that one would imagine, if we were in *Jupiter*, as we do here imagine Ours of 24. hours.

The Discovery is one of the best, that have been yet made in the Heavens; and those, that hold the Motion of the earth, find in it a full Analogy. For, *Jupiter* turning about the Sun, does nevertheless turn about his *Axis*; and although he be much bigger than the *Earth*, he does nevertheless turn much more swiftly than it, since he makes more than two Turns, and a third part, for its one; and carries with him 4. Moons, as the *Earth* does one.

This Observation ought to excite all Curious persons to endeavour the perfecting of *Optick glasses*, to the end that it may be discovered, whether the other *Planets*, as *Mars*, *Venus* and *Mercury*, about whom no Moon hath as yet been discovered, do yet turn about their *Axes*, and in how much time they do so; especially *Mars*, in whom some *Spot* is discover'd, and *Venus*, wherein *M. Burattini* hath signified from *Poland*, he has observ'd Inequalities, as in the Moon.

It will be worth while, to watch for the seeing of *Jupiter* again this Spring, that this happy Observation may be confirmed in divers places, and endeavours used to make new ones.

An Account of some Books, lately published.

I. *Hydrostatical Paradoxes, made out by New Experiments (for the most part Physical, and Easie)* by the Honourable Robert Boyle. This Treatise, promised in *Numb. 8.* of these Papers, is now come forth: And was occasioned by the perusal of the Learned Monsieur *Paschalls* Tract, *Of the Æquilibrium of Liquors*, and of the *Weight of the Air*: Of which two Subjects, the latter having been more clearly made out in *England* by Experiments, which could not be made by Monsieur *Paschal* and others, that wanted the advantage of such Engines and Instruments, as have here been frequently made use

off ; Our Noble Author insists most upon giving us his thoughts of the former, *videl.* the *Æquilibrium of Liquors*: Which Discourse consisting partly of *Conclusions*, and partly of *Experiments*; the former seem to Him, to be almost all of them consonant to the Principles and Laws of the *Hydrostaticks*; but as for the latter, the Experimental proofs, offered by M. *Paschall* for his Opinions, are by our Author esteemed such, that he confesses, he hath no mind to make use of them: for which he alledges more reasons than ones; which, doubtless, will appear very satisfactory to Intelligent Readers.

Wherefore, instead of those *Paschalian* Experiments, there is in this *Treatise* deliver'd a far more Expedition way, to make out, *not only* most of the *Conclusions*, agreed on by these two Authors, *but* others also; that M. *Paschall* mentions not; and that with so much more ease and clearness, that persons, but ordinarily versed in the common principles of *Hydrostaticks*, may readily apprehend, what is deliver'd, if they will but bring with them a due Attention, and Minds dispos'd to prefer Reason and Experience to Vulgar opinions and Authors.

It not being our *Authors* present Task, to deliver a Body of *Hydrostaticks*, but only some *Paradoxes*, which he conceives to be proveable by his New way of making them out, he delivers them in as many distinct Propositions; after each of which, he endeavours, in a Proof, or an Explication, to show, both that it is true, and why it ought to be so.

The *Paradoxes* themselves (after a premised *Postulatum*) are these:

1. That in Water, and other Fluids, the Lower parts are pressed by the Upper.
2. That a lighter Fluid may gravitate or weigh upon a heavier.
3. That, if a Body, contiguous to the Water, be altogether, or in part, lower than the highest level of the said Water, the lower part of the Body will be pressed upward by the Water, that touches it beneath.
4. That in the Ascension of Water in Pumps, &c. there needs nothing to raise the Water, but a Competent weight of an External Fluid.
5. That the pressure of an External Fluid is able to keep an Heterogeneous Liquor suspended at the same height in several Pipes, though these Pipes be of very different Diameters.

6. If a Body be placed under Water, with its uppermost Surface parallel to the Horizon; how much Water soever there may be on this or that side above the Body, the direct pressure sustained by the Body (for we now consider not the Lateral nor the Recoiling pressure, to which the Body may be exposed, if quite environed with Water) is no more, than that of a Column of water, having the Horizontal Superficies of the Body for its Basis, and the Perpendicular depth of the Water for its height.

And so likewise,

If the Water, that leans upon the Body, be contained in Pipes open at both ends; the pressure of the Water is to be estimated by the weight of a pillar of Water, whose Basis is equal to the lower Orifice of the Pipe (which we suppose to be parallel to the Horizon) and its height equal to a perpendicular, reaching thence to the top of the Water; though the Pipe be much inclined towards the Horizon, or though it be irregularly shap'd, and much broader in some parts, than the said Orifice.

7. That a Body, immersed in a Fluid, sustains a Lateral pressure from the Fluid; and that increased, as the depth of the immersed Body, beneath the Surface of the Fluid, increaseth.

8. That Water may be made as well to depress a Body lighter than it self, as to buoy it up.

9. That, whatever is said of Positive Levity, a parcel of Oyl lighter than Water, may be kept in Water without ascending in it.

10. That the cause of the Ascension of Water in Syphons, and of its flowing through them, may be explicated without having a recourse to Nature's abhorrency of a *Vacuum*.

11. That a Solid Body, as ponderous as any yet known, though near the Top of the water it will sink by its own weight; yet if it be placed at a greater depth, than that of twenty times its own thickness; it will not sink, if its descent be not assisted by the weight of the incumbent Water.

These are the *Paradoxes*, evinced by our Authour with much evidence and exactness, and very likely to invite Ingenious men to cultivate and to make further disquisitions in so excellent a part of Philosophy, as are the *Hydrostaticks*; an Art deserving great *Elogiums*, not only, upon the account of its *Theorems* and *Problems*, which are most of them pure and handsome productions of Reason, very delightful and divers of them surprising, and besides, much conducing to the clear explication and thorow-understanding

ing of many both familiar and abstruse *Phænomena* of Nature ; but also, upon the score of its *Practical* use, since the Propositions, it teaches, may be of great importance to Navigation, and to those that inquire into the Magnitudes and Gravities of Bodies, as also to them, that deal in Salt-works : Besides, that the *Hydrostaticks* may be made divers waies serviceable to *Chymists*, as the Author intimates, and intends to make manifest, upon several occasions, in his yet unpublisht part of the *Usefulness of Natural and Experimental Philosophy*.

These Propositions are shut up by two important *Appendixes*, whereof the *one* contains an Answer to seven Objections by a late learned Writer, to evince, that the upper parts of water press not upon the lower ; the *other*, solves that difficult *problem*, why *Urinator*s or *Divers*, and others, who descend to the bottom of the Sea, are not oppress'd with the weight of the incumbent water? where, among other solutions, *that* is examined, which occurs in a printed Letter of Monsieur *des Cartes*, but is found unsatisfactory.

I I. *Nicolai Stenonis de Musculis & Glandulis Observationum specimen cum duabus Epistolis Anatomicis*. In the *specimen* it self, the Author, having described in *general*, both the *Structure* and the *Function* of the *Muscles*, applies that description to the *Heart*, to demonstrate that *that* is also a *true Muscle*: Observing *first*, that in the substance of the *Heart* there appears nothing but *Arteries*, *Veins*, *Nerves*, *Fibres*, *Membrans*; and that that, & nothing else is found in a *Muscle*; affirming withall, that which is commonly taught of the *Muscles*, and particularly of the *Heart's Parenchyma*, as distinct from *Fibres*, is due, not to the *Senses*, but the *Wit* of *Anatomists*: so that he will not have the *Heart* made up of a substance peculiar to it self, nor considered as the principle of *Innate heat*, or of *Sanguification*, or of *vital spirits*. He observes *next*, that the *Heart* performs the like *operation* with the *Muscles*, to wit, to contract the *Flesh*; which action how it can have a different cause from that of the *Contraction* made in the *Muscles*, where there is so great a parity and agreement in the *Vessels*, he sees not. And as for the *Phænomena*, that occur, of the *Motion* of the *Heart*, he undertakes to explicate them all, from the *Ductus* or *Position* of the *Fibres*; but refers for the performance of this undertaking to another *Treatise*, he intends to publish.

As to his Observations about *Glanduls*, he affirms, that he has been the *First*. that has discover'd that *Vessel*, which by him is call'd
Salivare,

Salivare Exterius, passing from the *Parotides* (or the two chief Arteries that are on the right and left side near the Throat) into the Mouth, and conveying the *Spittle*: Where he also gives an account of several other Vessels and Glanduls, some about the *Lips*; others under the *Tongue*; others in the *Pallate* &c. To which he adds the Vessels of the *Eye-lids*, which have their root in the *Glanduls* that are about the Eyes, and serve for the *shedding of Tears*. He mentions also several things about the *Lymphatick vessels*, and is of opinion, that the knowledge thereof may be much illustrated by that kind of *Glanduls* that are called *Conglobata*, and by their *true* insertion into the veins; the mistake of the latter whereof, he conceives to have very much misled the Noble *Ludovicus de Bills*, notwithstanding his excellent method of *dissection*. And here he observes first, that all the *Lymphatick vessels* have such a commerce with the *Glanduls*, that none of them is found in the body, which either has not its origine from, or is inserted into a *Glandule*: And then, that *Glanduls* are a kind of *Strainers*, so form'd, that whilst the Blood passes out of the Arteries into the Veins through the small *Capillary* vessels, the *Serous* parts thereof, being freed from the *Sanguineous*, are by vertue of the heat expell'd through fit pores into the *Capillaries* of the *Lymphaticks*; the direction of the *Nerves* concurring.

Of the two annex'd *Epistles*, the *First* gives an account of the dissection of two *Raja's* or *Skates*, and relates that the Author found in the bellies of these Fishes a *Haddock* of $1\frac{1}{2}$ span long, and a *Sole*, a *Plaife*, and nine middle-sized *Sea-crawfishes*; whereof not only the three former had their flesh, in the fishes stomach, turn'd into a *fluid*, and the *Gristles* or *Bones* into a *soft* substance, but the *Crawfishes* had their shels comminuted into very small particles, tinging here and there the *Chyle* near the *Pylorus*; which he judges to be done not so much by the heat of the Fishes stomach, as by the help of some digesting juyce. Coming to the *Uterus* of these Fishes, he takes occasion to examine, with what ground several famous *Naturalists* and *Anatomists* have affirm'd, that Eggs are the *uterus* exposed or ejected out of the body of the Animal. Taking a view of their *Heart*, he there finds but *one* ventricke, and discourses of the difficulty arising from thence. As for the *Lungs*, he saw no clearer footsteps of them in these, than he had done in other Fishes: but within the mouth he trac'd several *gaping fissures*, and found the recesses of the *Gills* so form'd, that the water taken in at the mouth, being let out by these doores, cannot by them re-enter, by reason of a skin, outwardly passing over every hole, and covering it. Where he intimates, that though Fishes have not *true* Lungs, yet they want not a *Succedaneum* thereto; to wit, the *Gills*; and if *water* may be to Fishes, what *Air* is to terrestrial Animals, for Respiration: asserting, that wheteas nothing is so necessary for the conservation of Animal life, as a reciprocal Access and Recess of the *Ambient* to the sanguineous vessels, tis all one, whether that be done by receiving the *Ambient* *within* the body, or by its gentle passing by the *Prominent* vessels of the *Gills*.

The other *Epistle*, contains some Ingenious Observations, touching the way, by which the Chicken, yet in the shell, is nourish't, *videl.* not by the conveyance of the *Yolk* into the *Liver* by the *Umbilical* vessels, nor into the *Stomack* by the

Conglobate Glanduls are called those, that do consist, as it were, of one continued substance, having an even superficies; whereof there are many in the Mesentery, and in other places: contra distinguished to those, that bear the name of Conglomerate Glanduls, which are made up of several small Kernels, such as the Pancreas, the Salivating Glanduls, &c.

Mouth, but by a Peculiar *ductus*, by him described, into the *Intestins*, where, according to his alledged experience, it is turn'd into *Chyle*: which he affirms, he hath discover'd, by taking an Egge from under a brooding Hen, when the Chicken was ready to break forth, and when he was looking for the passage of the *Yolk*, out of its integument into the *Liver*, by finding it pass thence into the *Intestins*, as he found the *White* to do by the *mouth* into the *belly*. Whence he inclines to infer, that, since every *fetus* takes in at the mouth the liquor it swims in, and since the Chicken receives the *white* of the Egge into the *mouth*, and the *yolk* by the new discover'd *ductus* into the *Intestins*, it cannot be certainly made out, that a *part* of the *Chyle* is convey'd into the *Liver*, before it passes into the *Heart*: Exhorting in the mean time the *Patrons* of the *Liver*, that they would produce Experiments to evince their Ratiocinations.

III. *Regneri de Graeff, de Succo Pancreatici Natura & usu, Exercitatio Anatomico-medica.* In this Tract, the Industrious Author, after he has enumerated the various opinions of *Anatomists* concerning the use of that kernelly substance, call'd *Pancreas* (in *English*, the *Sweetbread*) endeavours to prove experimentally that this *Glandule* was not form'd by Nature, to separate any *Excrementitious* humor, and to convey it into the *Intestins*, but to prepare an *useful* juyce out of the Blood and Animal spirits, of a somewhat *Acid* taste, and to carry the same into the Gut, call'd *Duodenum*, to be there mixt with the Aliment, that has been in some degree already fermented in the Stomack, for a further fermentation, to be produced by the conflux of the said acid *Pancreatick* juyce and some *Bilious* matter, abounding with volatile Salt, causing an Effervescence; which done, that juyce is, together with the purer part of the nourishment, carried into the *Milkie* veins, thence into the common receptacle of the *Chyle* and *Lymphatick liquor*, and so through the *ductus Thoracicus* into the right Ventricle of the Heart.

This Assertion, first advanced (saith the *Author*) partly by *Gothofredus Mebius*, partly by *Franciscus de le Boe Sylvius*, he undertakes to prove by experiments; which, indeed, he has with much industry, tried upon several Animals, to the end that he might collect some of this juyce of the *Pancreas* for a taste: which having at last obtained, and found it somewhat *acid*, he thereupon proceeds to deliver his opinion both of the *constitution* and quantity of this *Succus* in *healthy* Animals, and the vices thereof, in the *unhealthy*: deriving most diseases partly from its too great Acidity, or from its saltness, or harshness; partly from its paucity or redundancy: but especially, endeavouring to reduce from thence, as all *intermittent Feavers* (of all the *Phaenomena* whereof he ventures to assign the causes from this *Hypothesis*) so also the *Gout*, *Syncope's*, *Stranguries*, *Oppilations*, *Diarrhaas*, *Dysenteries*, *Hysterical* and *Colick passions*, &c. All which he concludes with mentioning the waies and remedies to cure the manifold peccancy of this juyce by Evacuati-
ons and Alterations.

This seeming to be a *new* as well as a *considerable* discovery, it is hop'd, that others will by this intimation be invited to prosecute the same by further experiments, either to confirm what this Author has started, if true, or to rectifie it, if he be mistaken.

NOTE.

In *Fig. 1.* of *Num. 9* of these Tracts, the Graver hath placed the bended end of the *Springing Wire* C F, above the *Wire-staple* B, between it and the *Ring* E, of the *Weight* D; whereas that end should have been so expressed, as to pass under the *Wire-staple*, betwixt its two Wires, into the said *Ring*.

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