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38. BLOOD TRANSFUSION.—LOWER (Richard). An Account of the Experiment of Transfusion, practised upon a Man in London. 4to. Pp. 557-564 in *Philosophical Transactions,* Number 30, December 9, 1667. $250

Garrison-Morton 2014: "First transfusion of blood performed on a human in England, Nov. 23, 1667." Complete issue, bound in full cloth, continued to page 580.

BLOOD TRANSFUSION see also no. 239.

# PHILOSOPHICAL TRANSACTIONS.

Monday, *December* 9. 1667.


## The Contents.



## An Account Of the Experiment of *Transfusion*, practised upon a *Man* in *London*.

*This was perform'd,* Novemb. 23. 1667. *upon one Mr.* Arthur Coga, *at* Arundel-house, *in the presence of many considerable and intelligent persons, by the management of those two Learned Physicians and dextrous Anatomists Dr.* Richard Lower, *and Dr.* Edmund King, *the latter of whom communicated the Relation of it, as followeth.*

THe Experiment of Transfusion of Blood into an *humane* Vein was made by Us in this manner. Having prepared

the *Carotid* Artery in a young Sheep, we inſerted a Silver-Pipe into the Quills to let the Blood run through it into a Porringer, and in the ſpace of almoſt a *minute*, about 12 ounces of the Sheeps bloud ran through the Pipe into the Porringer; which was ſomewhat to direct us in the quantity of Bloud now to be transfus'd into the Man. Which done, when we came to prepare the *Vein* in the Man's Arm, the Vein ſeem'd too ſmall for that Pipe, which we intended to inſert into it; ſo that we imployed another, about one third part leſs, at the little end. Then we made an inciſion in the Vein, after the method formerly publiſht, *Numb.* 28; which method we obſerv'd without any other alteration, but in the ſhape of one of our Pipes; which we found more convenient for our purpoſe. And, having open'd the Vein in the Man's Arm, with as much eaſe as in the common way of Venæ-ſection, we let thence run out 6 or 7 ounces of Blood. Then we planted our ſilver Pipe into the ſaid Inciſion, and inſerted Quills between the two Pipes already advanced in the two ſubjects, to convey the *Arterial* bloud from the Sheep into the Vein of the Man. But this Blood was near a *minute*, before it had paſt through the Pipes and Quills into the Arm; and then it ran freely into the Man's Vein for the ſpace of 2 *minutes* at leaſt; ſo that we could feel a *Pulſe* in the ſaid Vein juſt beyond the end of the ſilver Pipe; though the Patient ſaid, he did not feel the Blood *hot*, (as we reported of the ſubject in the *French* Experiment) which may very well be imputed to the length of the Pipes, through which the blood paſſed, loſing thereby ſo much of its heat, as to come in a temper very agreeable to Venal Blood. And as to the quantity of Blood receiv'd into the Man's Vein, we judge, there was about 9 or 10 ounces: For, allowing this Pipe $\frac{1}{3}$ leſs than that, through which 12 ounces paſs'd in *one* minute before, we may very well ſuppoſe, it might in 2 minutes convey as much blood into the Vein, as the other did in the Porringer in one *minute*; granting withall, that the Blood did not run ſo vigorouſly the ſecond *minute*, as it did the firſt, nor the third, as the ſecond, *&c.* But, that the Blood did run all the time of thoſe two minutes, we conclude from thence; *Firſt*, becauſe we felt a Pulſe during that time. *Secondly*, becauſe when upon the Man's ſaying,

He

He thought, he had enough, we drew the Pipe out of his Vein, the Sheeps blood ran through it with a full ſtream; which it had not done, if there had been any ſtop before, in the ſpace of thoſe two minutes; the blood being ſo very apt to coagulate in the Pipes upon the leaſt ſtop, eſpecially the Pipes being ſo long as three Quills.

The Man *after* this operation, as well as *in* it, found himſelf very well, and hath given in his own Narrative under his own hand, enlarging more upon the benefit, he thinks, he hath received by it, than we think fit to own as yet. He urg'd us to have the Experiment repeated upon him within 3 or 4 days after this; but it was thought adviſable, to put it off ſomewhat longer. And the next time, we hope to be more exact, eſpecially in weighing the Emittent Animal before and after the Operation, to have a more juſt account of the quantity of Blood, it ſhall have loſt.

## *A Relation*

## *Of ſome Trials of the ſame Operation, lately made in* France.

1. *M. Denys*, Profeſſor of the *Mathematicks* and *Natural Philoſophy* at *Paris*, in a Letter of his to the *Publiſher* relateth, That they had lately tranſmitted the Blood of four *Weathers* into a *Horſe* of 26 years old, and that this Horſe had thence received much ſtrength, and more than an ordinary ſtomach.

2. The ſame perſon was pleaſed to ſend to the ſame hand a printed *Letter*, written to the Abbot *Bourdelot* by M. *Gadroys*, being an *Anſwer* to a Paper of one M. *Lamy*, and confirming the *Tranſfuſion* of Blood by new Experiments. In this *Anſwer* the *Author* is vindicating the *Tranſfuſion* from Objections; where firſt he takes notice, That, whereas the *Objector* undertakes to refute the Experiments made, by ſimple *Ratiocinations*, it ought to be conſidered, that the *Quodlibetical* Learning of the *Schools* is capable enough to find Arguments *for* and *againſt* all ſorts of Opinions, but that there is nothing, but *Experience*, that is able to

give the Verdict and the laſt Deciſion, eſpecially in matters of *Natural Philoſophy* and *Phyſick:* That a hundred years ago, there were no Arguments wanting to prove, that *Antimony* or the *Vinum Emeticum* was poyſon; the uſe of it being then forbidden by a *Decree* of the *Faculty* of *Phyſicians*; and that at this day there are no Arguments wanting, to prove the contrary, and to aſſert, That it is a *Purgative* of great importance, follow'd with wonderful effects, the ſame *Faculty* having publiſh'd a *Decree* the laſt year, by which it permits, and even ordains the uſe thereof. So that it ought to be ſaid, that *Sole Experience* hath determin'd this matter, and that the Recovery of many perſons, and amongſt them, of the *Moſt Chriſtian King* himſelf, hath more conduced to convince Men of its uſefulneſs, than all the bare Ratiocinations, that could be employed to defend it. And ſo it is with all *Remedies*, there being not one, that is not approved by ſome *Phyſician* or other, who thinks to have reaſon on his ſide, and diſapprov'd at the ſame time by others of that Profeſſion, who conceive to have it on theirs: Whereas *He* certainly is to be eſteemed the moſt *Rational*, that in theſe matters is guided by good *Experience*. And ſince the *Transfuſion* of *Blood* is a *new* thing (unknown for ought we know) to all former Ages, ingenious Men, and lovers of the Increaſe of the Stock, ſerving for the relief and conveniencies of Human Life, do no more, in this particular, than propoſe and recommend it to generous and unprejudicate *Phyſicians*, to judge of its agreeableneſs to *Human* Bodies, and to make trials of it accordingly; themſelves eſteeming, that ſince it concerns the Health and Life of Man, it cannot be examin'd too ſeverely; though at the ſame time they conceive, that 'tis unequal to ſtand herein to the verdict of ſuch arrogant Men, who from a ſelf-conceit of knowing all things already, are very impatient at any thing diſcover'd, which they have not thought on themſelves: Thoſe Men being the beſt adviſed and the moſt to be relied on, who do not precipitate their Judgment, but ſtay for many Experiments, carefully made, to conclude themſelves by. For which purpoſe, the Author wiſhes, that *Perſons* in power would cauſe a good number of Experiments of this Invention to be made, and examin them either themſelves, or give order to prudent and free-ſpirited *Phyſicians* and *Chirurgeons* to do ſo.

Among

Among the *Objections*, (which the Author finds to be generally grounded upon inconſiderations, miſtakes, and a ſuppoſition, as if peremptory Affirmations touching the effects of this Transfuſion were obtruded, whereas all is left to the ſucceſs of Experiments faithfully made) there is one, directed againſt the *effects* of that operation, which appeared in the young Man, who (by Mr. *Denys*'s Relation in his printed *Letter* to Monſieur *De Montmor*) after he had received the Arterial Blood of a Lamb, was cured of an extraordinary *Lethargy*, conſequent to a violent Feaver, wherein he had been let blood 20 times. And the *Objection* is, That the lively apprehenſion the ſaid young Man had of a remedy ſo unuſual, and whereof the ſucceſs could not but appear very dubious to him, and ſo render him exceedingly anxious, did ſo rouſe his ſpirits, and put them into ſuch motion, as to diſengage them from that embaraſment, which hindred their diffuſion; upon which diſentanglement follow'd all the other good effects, that are imputed to the Transfuſion.

To this Conceit the *Anſwerer* replies, That if the *Apprehenſion* could have cured this young Man, the Cure would doubtleſs have been effected 24 hours before the *Transfuſion*, becauſe he then happen'd to have a very great one, by falling down ſtairs; as was alſo obſerved in Mr. *Denys* his *Relation* of this Experiment. Beſides, that this Patient was noted to be ſo far from apprehending or fearing this Operation, that he did not ſo much as know, what the *Transfuſion* was; but thought, the Lamb was only applied to his Arm, to ſuck from him his ill Blood, as he was made to believe, after an ancient and uſual way.

To that Objection, wherein ſome put weight, *viz*, That there is a great difference between the *Fleſh* we eat for food, and the Blood that is tranſmitted *immediately* into the Veins; the *former* undergoing a great Alteration, which the *latter* does not: Our *Author* replies, That of the three principal Digeſtions of the Aliment, that have been always diſtinguiſh'd by Authors, the *Firſt*, which is made in the Stomach, is not conſiderable in compariſon of the two others, which are made of the *Chyle* and the *Blood*, in the Heart, the Liver, and generally in all the parts that receive nurrition, which he illuſtrates by this: That as the Concoction, which is made of the Juices of the Earth in the Root

and

and Heart of the Trunk of a Tree, does not ſo much ſerve to the production of this or that Fruit, as the laſt *Filtration*, that is made of thoſe Juyces in the ſmall *Fibres* of the Grafts; ſo alſo all thoſe Digeſtions, which are ſuppoſed to be made in the Stomach and the Heart or the Liver of Animals, do not ſo much ſerve to give the particles of the Aliment thoſe *Figures*, which they require to be converted into the ſubſtance of Man, as the *diverſity* of *Pores*, that ſtrain them laſt of all, and differ in the Bones, Fleſh, Cartilages, and other parts; in which the Ancients for this reaſon did admit as many different Aſſimilating faculties. Now, *ſaith he*, though the new Blood, which is given in the *Transfuſion*, undergoes not the *firſt* Concoction, made in the Stomach, yet it ſuffers the two others, in making many Circulations together with the *native* blood; and that therefore nothing hinders, but it may be fit to be changed into the ſubſtance of Man, without inconvenience.

The reſt of the *Objections*, here alledged, ſeeming to be of no moment, though anſwer'd by our *Author*, we ſhall here paſs by, and, for a general anſwer to all, employ Experience, and the ſeveral ſucceſsful Transfuſions, he relates; as thoſe of *Lambs-blood* into *Dogs*, which, after the ſpace of ſeveral months from the time of the Operation, do not only live, but are very well, and ſome of them grown fatter than they were before; and of *Kids blood* into a little *Spaniel bitch* of 12 years of age, which, a little while after the Operation, grew vigorous and active, and even proud in leſs than eight days. To which, he adds a conſiderable Experiment, lately made upon a perſon, that had been for three weeks afflicted with the complicated Diſtempers of an Hepatick Flux, a Lientery, and a bilious Diarrhæa, accompanied with a very violent Feaver; and had been attended by four Phyſicians, who having blouded, purged, and clyſtered him, as much as they thought fit, he grew at laſt ſo weak, that he was unable to ſtir, loſt his ſpeech and ſenſes, and vomited all he took: whereupon they altogether deſpairing of and abandoning the Patient, and declaring that they did ſo, in the preſence of divers perſons of *honor*, conſented to have the *Experiment* of *Transfuſion* made upon the *Patient*, which his *Relations* had propoſed, as the laſt *Refuge*; very unwilling to omit any thing, that might ſeem probable to reſcue a dying Man.

man. M. *Denys* and M. *Emmerey* were beſought to employ this laſt ſuccours. But they, ſeeing the deplored ſtate of the Sick, abſolutely refuſed to make the tryal, alledging, that the Transfuſion was not a means to reſtore either the ſolid parts, or to cure a Gangrene, which was apparently in his Inteſtines; they ſhould have uſed it ſooner, and at the very time, when the great evacuations of blood were made in the Patient. But, notwithſtanding all this, they were exceedingly preſs'd to comply with their deſires, and not to let their Friend dye without trying all means poſſible. They, being overcome by this importunity, and having ſecured their honour and ſafety, by the declaration above mentioned of the Phyſicians, and by their conſent to the tryal of this Experiment, transfuſed into his Veins a ſmall quantity of *Calves* blood in a morning; whereupon, though this Patient was already in a Lethargy, and convulſive, and had a very low and creeping pulſe, yet, behold, an unexpected change happen'd to him. His pulſe grew higher in an inſtant, and became more vigorous, his Convulſions ceaſed, he look'd fixedly on the Byſtanders ſpoke pertinently, and in divers Languages to thoſe that ſpoke to him, and fell into a very quiet ſleep. Awakening three quarters of an hour after, he took ſeveral Broaths for the reſt of the day, not vomiting at all, nor having any ſtool, although for three days before he could take nothing at the Mouth, nor had had any intermiſſion of his looſneſs ſince the very beginning of his ſickneſs. Having thus remained for 24 hours, his forces began to diminiſh again, and his pulſe to grow low, and the looſneſs to return. His Friends then urged a ſecond Transfuſion, which being at laſt performed the next morning, the Patient indeed recover'd ſome vigour again, but that was of a ſhort duration. For though then alſo he took his broath well, without vomiting, yet he voided ſtill by ſtool, and at noon he began to decline, and about 5 at night he died, without the appearance of any convulſions. His body being open'd before the Phyſicians, the *Ileon* was found return'd into it ſelf from the top to the bottom, and below that knot unto the *anus* the Bowels were all livid, gangren'd, and of an unſupportable ſtench. His *Pancreas* was extraordinarily hard, and ſo obſtructed, that the *Pancreatick* Juice had no liberty to diffuſe it ſelf into the Guts.

His

His *Spleen* was very thick, and his *Liver* big, and in ſome places livid. The *Heart* very dry, and, as 'twere, burnt. And having found the Vein, by which the Transfuſion had been made, there was, from the place of the opening of the Arm, to the Heart, almoſt no blood found in it, no more than in the other Veins, nor in the Ventricles of the Heart, for as much as that little, he received, had been imbibed by his hot and dry Fleſh. All which this *Author* aſſures, can be atteſted both by a dozen perſons of great veracity, who were preſent at this diſſection, and confirmed by the *Certificates* given by the Phyſicians themſelves, to be ſent to the *Parents* of the deceaſed Stranger; who is the very ſame with him, of whom a leſs punctual account was given, *Numb.* 28. *p.* 519.

## *Some new Experiments*

### *Of injecting Medicated Liquors into Veins, together with the conſiderable Cures perform'd thereby.*

*This was lately communicated in a Letter from* Dantzick *written by Dr.* Fabritius, *Phyſician in Ordinary to that* City, *which out of the Latin we thus Engliſh.*

FOraſmuch as we had a great deſire to experiment, what would be the effects of the Chirurgery of injecting Liquors into *Humane* Veins, three fit Subjects preſenting themſelves in our Hoſpital, we thought good to make the *Tryal* upon them. But ſeeing little ground to hope for a manifeſt operation from only *Altering* Medicines, we eſteemed, the Experiment would be more convenient and conſpicuous from *Laxatives*; which made us inject by a Syphon about two Drachms of ſuch a kind of Phyſick into the *Median* Vein of the right Arm. The *Patients* were theſe. *One* was a luſty robuſt Souldier dangerouſly infected with the *Venereal Diſeaſe*, and ſuffering grievous protuberatings of the bones in his Arms. He, when the purgative Liquor was infuſed into him, complained of great pains in his Elbows, and the little valves of his Arm did ſwell ſo viſibly, that it was neceſſary by a gentle compreſſion of ones fingers to ſtroke up that ſwelling towards the Patients ſhoulders. Some 4 hours after, it began to work, not very troubleſomly; and ſo it did the next day, inſomuch that the Man had five good ſtools after it. Without any other

other remedies thoſe protuberances were gone, nor are there any footſteps left of the abovementioned Diſeaſe.

The *two* other Trials were made upon the *other* Sex. A married Woman of 35, and a ſerving Maid of 20 years of age, had been both of them from their Birth very grievouſly afflicted with *Epileptick* fits, ſo that there was little hopes left to cure them. They both underwent this operation, and there was injected into their Veins a *Laxative Roſin*, diſſolved in an *Anti-Epileptical* Spirit. The *firſt* of theſe had gentle ſtools, ſome hours after the Injection, and the next day the fits recurring now and then, but much milder, are ſince altogether vaniſh'd. As for the other, *viz.* the *Maid*, ſhe went the ſame day to ſtool four times, and ſeveral times the next; but by going into the Air, and taking cold, and not obſerving any diet, caſt her ſelf away.

'Tis remarkable, that it was common to all three to vomit ſoon after the injection, and that extreamly and frequently; the reaſon whereof we leave to intelligent Phyſicians to aſſign.

## *An Extract*

*Of a Letter, written from the* Bermudas, *giving an account of the Courſe of the* Tides *there; of* Wells *both* ſalt *and* ſweet, *digg'd near the Sea; of the* Whale-fiſhing *there practiſed anew, and of ſuch* Whales *as have the* Sperma Ceti *in them.*

*This Letter was written* June 18. 1667. *by that intelligent Gentleman Mr.* Richard Norwood, *living upon the place, and relating as follows.*

*SIR,*

I Received your Letter of *October* 24. 1666. but, whereas you mention another formerly ſent, that never came to my hands: Neither had I, before the receipt of yours, the leaſt intelligence of the Inſtitution of the *Royal Society*, founded by the King; but am very glad, that God hath put into the heart of his Majeſty, to advance ſuch a noble Deſign, and ſhould rejoyce, I were able to add my Mite for the furtherance of it. As to the particulars you recommend to me, I ſhall anſwer to them, as I can, in the order I find them.

*Firſt*, touching the Conjunction of *Mercury* with the *Sun*,

which you ſay you gave me notice of in your firſt, not received, and which happened *Octob.* 25. 1664. I had alſo notice of it from Mr. *Street*, and had provided in ſome meaſure to obſerve it; but the sky was ſo overcaſt, that the Sun could ſcarce be diſcerned all that day.

*Next*, concerning the *Tides*, I have only taken a general notice of them; as, that it is high water about 7 of the clock on the *Change* day (in ſome Creeks an hour or two later.) The water riſeth but little, as about 4 foot at a high water; but at the Spring-tides it may be a foot more. The Tides *without* are very various in their ſetting. Sometimes the Tide of Floud ſets to the *Eaſtward*, ſometimes to the *Weſtward*: but in fair, calm, and ſetled weather, the ſaid Tide ſets from the *South-eaſt* toward the *North-weſt*, as they ſay.

We dig *Wells* of *freſh water* ſometimes within 20 yards of the Sea or leſs, which riſe and fall upon the Floud, and ebb as the Sea doth; and ſo do moſt of the Wells in the Country, though further up (as I am inform'd.) Whereſoever they digg Wells here, they digg till they come almoſt to a Level with the ſuperficies of the Sea, and then they find either *freſh* water or *ſalt*. If it be *freſh*, yet if they digg two or three foot deeper, or often leſs, they come to *ſalt* water. If it be a ſandy ground, or a ſandy crumbling Stone, that the water ſoaks gently through, they find uſually *freſh* water; but if they be hard Limeſtone-Rocks, which the water cannot ſoak through, but paſſeth in chinks or clefts between them, the water is ſalt or brackiſh. Yet (to mention that by the by) I never ſaw any Sand in the Country ſuch as will grind Glaſs, or whet Knives, *&c.* as in *England*, but a ſubſtance like Sand, though much ſofter; neither have we any *Peble-ſtones* or *Flint*.

For the *killing* of *Whales*, it hath been formerly attempted in vain, but within theſe two or three years, in the Spring-time and fair weather, they take ſometimes one, or two, or three in a day. They are leſs, I hear, than thoſe in *Greenland*, but more quick and lively, ſo that if they be ſtruck in deep water, they preſently make into the deep with ſuch violence, that the Boat is in danger to be haled down after them, if they cut not the Rope in time; therefore they uſually ſtrike them in ſhoal-water. They

have

have very good Boats for that purpoſe, mann'd with ſix Oars, ſuch as they can row forwards or backwards, as occaſion requireth. They row up gently to the Whale, and ſo he will ſcarcely ſhun them; and when the Harpineer, ſtanding ready fitted, ſees his opportunity, he ſtrikes his Harping-Iron into the Whale about or before the Fins, rather than toward the Tail. Now the Harping-Irons are like thoſe, which are uſual in *England* in ſtriking Porpoiſes; but ſingular good metal, that will not break, but wind, as they ſay, about a man's hand. To the Harping-Irons is made faſt a ſtrong lythe Rope, and into the Socket of that Iron is put a Staff, which, when the Whale is ſtruck, comes out of the Socket; and ſo when the Whale is ſomething quiet, they hale up to him by the Rope, and, it may be, ſtrike into him another Harping-Iron, or lance him with Lances in ſtaves, till they have kill'd him. This I write by relation, for I have not ſeen any kill'd my ſelf. I hear not, that they have found any *Sperma Ceti* in any of *theſe* Whales; but I have heard from credible perſons, that there is a kind of ſuch as have the *Sperma* at *Elutheria*, and others of the *Bahama* Iſlands (where alſo they find often quantities of *Amber-greece*) and that thoſe have great Teeth (which ours have not) and are very ſinewy. One of this place (*John Perinchief*) found one there dead, driven upon an Iſland, and, though I think ignorant in the buſineſs, yet got a great quantity of *Sperma Ceti* out of it. It ſeems, they have not much Oyl, as ours, but this Oyl, I hear, is at firſt like *Sperma Ceti*; but they clarifie it, I think, by the fire. When I ſpeak with him (whom I could not meet with at preſent, and now the Ship is ready to ſet ſail) I ſhall endeavour to be further informed; but at preſent with the tender of my humbly ſervice to the *Royal Society*, and commending your Noble Deſign to the bleſſing of the Almighty, I take my leave, *&c.*

## *A Method*

*For finding the* Number *of the* Julian Period *for any Year aſſign'd, the* Number *of the* Cycle *of the* Sun, *the* Cycle *of the* Moon, *and of the* Indictions *for the ſame year, being given; together with the* Demonſtration *of that Method.*

IN theſe *Tranſactions*, *N°* 18. *p.* 324. is a *Theorem* for finding the Year of the *Julian Period* by a new and very eaſie Method, which was taken out of the *Journal des Scavans*, *N°* 36. as it had been propoſed and communicated by the Learned Jeſuit *De Bill.*

Multiply the { *Solar* / *Lunar* } *Cycle* } by { 4845. / 4200. / 6916. } Then divide the *Indiction.*

ſum of the Products by 7980 (the *Julian Period*) the Remainder of the Diviſion, without having regard to the Quotient, ſhall be the Year inquired after.

Some Learned Mathematicians of *Paris*, to whom the ſaid *P. de Billy* did propoſe this Problem, have found the Demonſtration thereof as the ſame *Journal* intimates.

There being no further Elucidation of the ſaid *Theorem* ſince publiſh'd, Mr. *John Collins*, now a Member of the *Royal Society*, communicated what follows, *viz.*

That the *Julian Period* is a Baſis, whereon to found *Chronology* not liable to Controverſie, as the Age of the *World* is: And 'tis the Number aboveſaid, to wit, 7980, which is the Product of { 28 / 19 / 15 } the { *Solar* / *Lunar* / *Indiction.* } *Cycle.*

Concerning this *Julian Period*, the late Archbiſhop of *Armagh*, *Uſher*, in the Preface to his Learned Annals, advertiſeth, that *Robert Lotharing*, Biſhop of *Hereford*, firſt obſerved the Conveniencies thereof; 500 years after whom, it was fitted for Chronological uſes by *Joſeph Scaliger*, and is now embraced by the Learned as ſuch a limit to *Chronology*, that within the ſpace of 7980 Years, the *Number* of the *Sun*'s *Cycle*, the *Prime*, and the year of the *Roman Indiction* (which relates to their ancient Laws and

and Records) can never happen alike. And theſe Remarques being given, the year of the *Julian Period* is by the former Rule infallibly found.

This *Period* is uſed by the ſaid Archbiſhop in his *Annals*, and is by him accounted to exceed the Age of the *World* 709 years. Thoſe that deſire further ſatisfaction about *Æra's*, *Epocha's*, and *Periods*, may repair to many Authors, and among them to *Gregory's Poſthuma* in Engliſh, *Helvici Chronologia*, *Ægidii Strauchii Breviarium Chronologicum*, who is one of the lateſt Authors.

Now as to the *Problem* it ſelf, it may be thus propoſed:

*Any number of Diviſors, together with their Remainders after Diviſion, being propoſed, to find the Dividend.*

This thus generally propoſed is no *new* Problem, and was reſolved long ſince, by *John Geyſius*, by the help of particular Multipliers, ſuch as thoſe above-mentioned, and publiſh'd by *Alſtedius* in his *Encyclopædia* in *Ann.* 1630. and by *Van Schooten* in his *Miſcellanies*.

We ſhall clear up, what Authors have omitted concerning the *Definition* and *Demonſtration* of ſuch fixed Multipliers, *&c.* And therefore ſay, that each Multiplier is relative to the Diviſor, to which it belongs, and thus define it;

*It is ſuch a Number, as divided by the reſt of the Diviſors, or their Product, the Remainder is* 0; *but divided by its own Diviſor, the Remainder is an* Unit.

We require the Diviſors propoſed to be *Primitive* each to other, *i. e.* that no two or more of them can be reduced to leſſer terms by any common Diviſor: For if ſo, the Queſtion may be *poſſible* in it ſelf, but not reſolvable by help of ſuch Multipliers, ſuch being impoſſible to be found. The reaſon is, becauſe the Product of an Odd and Even Number is always Even, and that divided by an Even Number, leaves either Nothing, or an Even Number.

Diviſors 28, 19, 15 } The Multipliers relative thereto are { 4845, 4200, 6916

The *Definition* affords light enough for the diſcovery of theſe Numbers. To inſtance in the *firſt*: The Product of 19 and 15 is

is 285, which multiply by all numbers ſucceſſively, and divide by 28, till you find the Remainder required. Thus twice 285 is 570, which divided by 28, the remainder is 10; alſo thrice 285 is 855, which divided by 28, the remainder is 15. Thus if you try on ſucceſſively, you'l find, that 17 times 285, which is 4845, is the Number required, the which divided by 28, the Remainder is an *Unit*. Hence then we ſhall find, that

4845, 4200, 6916 } is equal to the Solid or Product of { 19, 15, 17. / 28, 15, 10. / 28, 19, 13.

More eaſie ways of performing this *poſtulatum*, are to be found in *Van Schooten's Miſcellanies*; and *Tacquet's Arithmetick*, which perchance are not ſo obvious to every underſtanding.

For illuſtration of the *Rule* propoſed, take this Example.

| | | | | | | |
|---|---|---|---|---|---|---|
| In the | *Cyclus Solis* | 25 | The | 4845 | Pro- | 121125 |
| year | *Cyclus Lunæ* | 16 | Multi- | 4200 | ducts. | 67200 |
| 1668. | *Indictio* | 6 | pliers. | 6916 | | 41496 |
| | | | | The Sum of the Products | | 229821 |

The which divided by 7980, the remainder is 6381, for the year of the *Julian Period*; from which ſubtracting 709, there remains 5672, for the Age of the World, according to Archbiſhop *Uſher*.

For DEMONSTRATION of this *Rule* we thus argue:

1. *Each Multiplier multiplied by its Remainder, is meaſured or divided by its own Diviſor, leaving ſuch a Remainder as is propoſed.*

For before, each Multiplier was defined to be a *Multiplex* of its own Diviſor, *plus* an *Unit*: Wherefore multiplying it by any Remainder, it doth only render it a greater *Multiplex* in the ſaid Diviſor, *plus* an *Unit*, multiplied by the Remainder, which is no other than the Remainder it ſelf; but if 0 remain, that Product is deſtroyed.

2. *The Sum of the Products, divided by each reſpective Diviſor, have the Remainder aſſigned.*

For concerning the firſt Product, it is by the firſt *Section* meaſur'd

ſur'd by its own Diviſor, leaving the remainder propoſed; and if we add the reſt of the Products thereto, we only add a *Multiplex* of its own Diviſor, which in Diviſion enlargeth the *Quote*, but not the *Remainder*.

Particularly the ſecond Multiplier is 28 + 15 + 10 + Remainder, all which is but a *Multiplex* of 28.

And ſo the third Product is 28 + 19 + 13 + Remainder.

And what hath been ſaid concerning the ſum of the Products, being divided by the firſt Diviſor, and leaving the Remainder thereto aſſign'd, may be ſaid of each reſpectively.

3 *The ſum of the Products divided by the ſolid of the three Diviſors, leaves a Remainder ſo qualified as the ſaid Sum.*

For concerning the ſaid Sum, 'tis evident by the *ſecond* hereof, that it is no other than the firſt Product, increas'd by *adding* a juſt *Multiplex* of the firſt Diviſor, that thereby we did only *enlarge* the *Quote*, not *alter* the *Remainder*. By the like reaſon, the *ſubtracting* a juſt *Multiplex* thereof, doth only *alter* the *Quote*, not the *Remainder*; but the Solid of all three Diviſors, multiplied *here* by the *Quote*, as *there* by the *Remainder*, is no other than a juſt *Multiplex* of the firſt Diviſor. Wherefore the Remainder, after this Diviſion is perform'd, is of the ſame Quality as the ſum of the Products, and divided by the firſt Diviſor, leaves the Remainder proper thereto. And the like may be ſaid concerning each Diviſor.

AS in the Method hitherto deliver'd, we requir'd the Diviſors be *Primitive* to each other; ſo, if we take the *Problem* as generally propoſed, in the Preface to *Helvicus* his *Chronologia*, we are told, common Arithmetick fails in the ſolution thereof, and *Tacquet* denies it to be performable by the *Regula Falſi*, and being unlimited, we muſt do it by Tryals. Wherefore,

*When any two Diviſors with their Remainders are propoſed, try the Multiplices of one of them, increaſed by its Remainder, and divide by the other: If you find ſuch Remainders as are not for the purpoſe, and that they are repeated, the Problem is impoſſible.*

*Example.* Diviſors 6. 8. Remainders 3. 5.

The

The Multiplices of 8, increaſed by 5, are . . } 13. 21. 29. 37. 45. 53.

Thoſe divided by 6, the Remainders are . . } 1. 3. 5. 1. 3. 5.

Here you ſee 21 and 45 for the purpoſe, and take the Progreſſion, adding the common Difference 24 (which is the leaſt Dividend meaſured by 6 and 8) and you have 21. 45. 69. 93. 117. 141.

Admit, the Queſtion had concerned theſe three Diviſors:

6, 8, 9 } the Remainders being } 3, 5, 6 | Then dividing the former Progreſſion by 9, the Remainders are 3. 0. 6. 3. 0 6.

Wherefore I conclude, that the third and ſixth of theſe Numbers are thoſe ſought, to wit, 69 or 141, and ſo on progreſſively; whereas, if you had propounded the Remainder of 9 to have been any other Number than 3, 0, 6, the *Problem*, as concerning all theſe, had not been poſſible.

## *Some eaſie Caſes of the Problem are theſe:*

When the Remainder of ſome Diviſor is 0, and of each of the reſt of the Diviſors, an *Unit*, or leſs by an *Unit*, than the Diviſor.

In which Caſes you are to find ſuch a *Multiplex* of the Product or leaſt Dividend meaſurable by thoſe Diviſors that have Remainders, which increas'd or diminiſh'd by an *Unit*, may be a juſt *Multiplex* of that Diviſor that hath no Remainder. Theſe Caſes are handled by *Tacquet*, and *Bachet* in his *Problemes plaiſans & delectables*.

## PROBLEM.

*To find the Year of the Julian Period for any year of our Lord propoſed.*

It is neceſſary to be furniſhed with the *Sun's Cycle*, the *Prime Number*, and the Number of the *Roman Indiction*, which the induſtrious Mr. *Street* thus performs:

*When*

*when* 1. 9. 3. *to the Year hath added been,*
*Divide by* 19. 28, *fifteen.*

The Remainders are the Numbers ſought. And hereby we found them for the year 1668. in the former Example.

The uſe of the *Prime* is, to find the *Epact*, and thereby the *Moons Age*, time of *High Water*, &c.

A farther uſe of the *Suns Cycle* is, to attain the *Dominical Letter*, and thereby to know the *Day* of the *Week*, on which any Day of the Month happens. But this is more eaſily and with leſs caution obtain'd, by finding on what Day of the Week the firſt of *March* happens for ever, according to ſuch *Rules* and *Verſes* as I have elſewhere publiſhed. In brief thus:

To the Number . . . . . 2.
Add the Year of our Lord, ſuppoſe 1669.
And its even 4*th* part, neglecting what remains, if any . . } 417.

The Sum . . . . . 2088. Divide by 7, noting the Remainder, which ſhews the Number of the Day of the Week, accounting *Sunday* firſt. If 0 remain, the *firſt* of *March* falls on a *Saturday*. In this Example there remains 2, ſhewing the *firſt* of *March* to fall on *Monday*.

If it were required to perform this for years *preceding* our *Saviour's Nativity*, then take this *Rule:*

To the Year add its even fourth part, the Sum divide by 7, the Remainder ſhews the Day of the Week, accounting *Sunday* firſt, *Saturday* ſecond, and ſo backward.

## PROBLEM.

*To find what day of the Month in the firſt Week of each Month, happens to be on the ſame day of the Week as the firſt of March.*

Uſe the (plain) following *Verſes*, in which the twelve Words relate to the twelve Months of the Year, accounting *March* the firſt:

*Ask endleſs Comfort, God enough beſtows,*
*From Divine Axioms Faith confirmed grows.*

The Alphabetical Number of the firſt Letter of the word, proper to the Month propoſed, is the Anſwer.

*Example.*

If the Month were *April*, the word proper thereto is *Endleſs*, and *E* is the fifth Letter in the Alphabet. Wherefore conclude, That the firſt of *March* and *fifth* of *April* do for ever happen on the ſame day of the Week; which for the year 1669. will be on *Monday*.

## PROBLEM.

*To find on what day of the Week the firſt day of each Month happeneth.*

Suppoſing the firſt of *March* known, it might be reckoned from the former *Problem*, but the following *Verſe*, beginning with *March*, as the former, is more ready for the purpoſe:

*A dreadful Fire, Beholders daily Gaze,*
*Chaſtized* England. *Ah cruel fatal Blaze.*

*Explication.*

In the Year 1669, the *firſt* of *March* is *Monday*; I would know on what *day* of the *week* the *firſt* of *October* happens. The word proper to the Month is *England*; then count Alphabetically to *E*, *viz. A.* Monday, *B.* Tueſday, *C.* Wedneſday, *D.* Thurſday, *E.* Friday, which is the day ſought. Whence conclude, that the 1*st*, 8*th*, 15*th*, 22*th*, 29*th* days of *October* are all *Fridays*. Thence it is eaſie to reckon, on what day of the Week any day of that Month happened; and ſo for all other Months.

## PROBLEM.

*To find on what Day of the Month the Sun enters into any Sign of the Zodiack.*

For this, *ex ſuper abundanti*, we give the following Verſe:

Charles *brought Content, divers Effects enſue,*
*Envy, Fear, Dolour, Danger, bids adieu.*

Here again the twelve Words relate to the twelve Months, *March* being the firſt.

To

To the number of the Letter of the *Alphabet* the word begins with, add 7.

Example. *Fear* is the word for *October*, and *F* the ſixth Letter: Wherefore the Sun enters into the 8*th* Sign, to wit, *Scorpio*, on the 13*th* of *October*.

## An Account of ſome Books.

### I. PETRI LAMBECII LIB. PRIMUS PRODROMI *HISTORIÆ LITERARIÆ*, &c. ——

THe Author of this Book is now the *Hiſtoriographer* and *Library-keeper* to the Emperour. He publiſh'd this Volume ſome few years ago at *Hamburgh*, the place of his Birth, (whence an Exemplar was but lately ſent to the *Publiſher*.) He was excited to this Work by the complaint made by the illuſtrious Lord *Verulam*, (*Lib.* 2. *cap.* 4. *de Augm. Scientiarum*) of the want of a compleat *Hiſtory* of *Learning*, that might give a *ſatisfactory* Account of the Riſe, Progreſs, Tranſmigrations, Interruptions, Declinations, and Reſtaurations of all kind of Learning, Sciences, Arts, and Inventions; together with the *occaſion* of Inventions through *all* Arts; the *method* of teaching, and the *manner* of improving and advancing them: Adding the various *Sects*, and the moſt famous *Controverſies* among the Learned; the *Encouragements* they received; the chief *Writings* they compoſed; their *Schools*, *Academies*, *Societies*, *Colledges*, *Succeſſions*, *Orders*, and whatever belongs to the *ſtate* of Learning.

This grand *Deſideratum* our Author undertakes to ſupply the World with, and in order thereunto, hath given us the *firſt Book* of the *Prodromus* of this Hiſtory, and with it the *four firſt Chapters* of the *Second Book*, together with an *Appendix*, containing a *Summary* of the chief *Perſons* and *Things* he intends more fully and accurately to treat of in the remaining 32 Chapters, deſigned for the ſame *ſecond Book*: To which, he ſubjoins two Tables of *Univerſal Chronography*, in the firſt whereof he exhibits the ſucceſſion of all Ages from the Creation of the World to the beginning of the common *Chriſtian* Account; in the *other*, a Continuation of them from the beginning of the ſaid Account unto this preſent Age: In which *Tables* he gives a general *Idea* of the Connexion of all Ages, as they are computed in reſpect of the

Vulgar *Chriſtian* account, either by aſcending to the Creation of the World, or by deſcending to our Age: He alſo for the ſake of this Work acquaints the Reader, that he betook himſelf to the Explication and Caſtigation of the *Bibliotheca Chronologica Claſſicorum Authorum* JOHANNIS JACOBI FRISII *Tigurini*; ſubſtituting, *as he affirms*, a true Calculation in the place of the falſe one; reducing the Authors, there enumerated, to the true time of their Age, diſtinguiſhing what is ſuppoſititious from genuine, and adding many things that were unhappily omitted. Which done, *he ſaith*, he proceeded from this Account of the Succeſſion of the illuſtrious Writers, to the Hiſtory of the *Origin*, *Increaſe*, *Nature*, and *Conſtitution* of all Profeſſions, Sciences, and Arts, chuſing the *Eight Books* of *POLYDORE VIRGIL de rerum Inventoribus*; and *DIOGENES LAERTIUS*, *De Vitis*, *& Dogmatibus veteris Græciæ Philoſophorum*; as alſo, the *Eight Books* of *JOHANNES MIDDENDORPIUS De Celebribus Univerſi Orbis* ACADEMIIS.

He excuſeth himſelf for having made no further progreſs in this deſirable Work, alledging the difficulty and trouble of the Undertaking, the unavoidable interruptions he hath met with, and the narrowneſs of a private Man's fortune to carry on ſo chargeable an Attempt, requiring a Royal encouragement and aſſiſtance.

II. *THOMÆ CORNELII Conſentini PROGYMNASMATA PHYSICA.*

This Author, a Friend to the *Carteſian* Philoſophy, entertains the Curious in this Book with ſeven *Exercitations*, viz.

1. *De Ratione Philoſophandi:* Where in the genuine Students of Natural Philoſophy he *firſt* requires the ſtudy of *Mathematicks*, to accuſtom their Minds to a fixed Attention, and to ſtrict Reaſoning; and *next* directs them to ſtudy Nature it ſelf, and to labour after a true Hiſtory of Nature: recommending *laſtly* and particularly the uſe of *Chymiſtry*, as an excellent key to open her Treaſures, and the ſtudy of *Mechanical* Principles, as nearly allied to thoſe of Nature.

2. *De*

2. *De Rerum Naturalium Initiis:* Where he mentions the ſeveral *Hypotheſes* and Principles of Philoſophers, and approves of the *Carteſian*, eſteeming, that none ever looked ſo like truth, as thoſe; though he thinks them defective in this, that how well ſoever they ſhew the production of things out of *Matter* variouſly modified, yet they ſeem not to have ſufficiently accounted for the efficient power thereof.

3. *De Univerſitate:* Where he ſeems to be in a Maze, and thinks, That the *Structure* of the *Univerſe* hath not been underſtood hitherto, nor will eaſily be hereafter.

4. *De Sole:* Which *Luminary* he is inclin'd to believe to be a kind of flaming Fire, appearing in a *Teleſcope*, like a Caldron full of boyling Metal; where alſo he diſcourſes of the nature of *Light*, *Heat*, and *Flame*; and affirms *Light* (as other *ſenſible Qualities*) to be not in the *Object* but the *Sentient*; as *Pain* is not in the *Sword*, but in the *Animal* wounded by the Sword.

5. *De Generatione Hominis:* Where, diſtinguiſhing between *Genitura* and *Semen*, and making the *former* to be that ſubſtance, which either Sex furniſhes to the *Fœtus*, and the *latter*, the Concrete of both Parents, He is of opinion, that that which he calls *Genitura*, conſiſts of two things. *Vid.* a *Craſſe liquor*, manifeſt to ſenſe; and of a very ſubtil and refined ſubſtance, containing all the virtue of Generation, and lodged in the formes as its receptacle: Which having eſtabliſh'd, he affirms, that groſſer part of the *Geniture* not to be Blood elaborated, but a Juice, ſecreted from the Blood, and being ſtrained through the *Corpus varicoſum* or *plexus pampiniformis* (wherein the ſeminal *Arteries* are by innumerable *Anaſtomoſes* ſo combined and interwoven with *Veins*, that very hardly any naked eye can diſcern a Vein from an Artery) it paſſeth into peculiar fit Veſſels, and is of a colour like that of the White of an Egg. As to the *Formation* of the *Fœtus*, he eſteems That, before the appearance of any Blood, or the framing of any Member, there are form'd all the Lineaments of the Animal to come, though indiſcernibly; which he endeavours to make out very particularly, interweaving ſome Animadverſions on Authors of differing ſentiments, and mentioning ſeveral not unphiloſophical Hints.

6. *De Nutricatione:* Here the *Author* obſerves ſome things in the

the *Structure* of the *Stomach*, which he thinks highly conſiderable for the underſtanding of the action and uſe of this *Viſcus*, and hitherto not taken notice of by others that he knows. *Then* he teacheth, that the Food is not digeſted in the Stomach by *Heat*, nor by *acid* diſſolving *Juices* only, but that many Cauſes concurring to that digeſtion, the Aliment is there fermented both by the warmth of the Stomach it ſelf, and of the neighbouring parts, but eſpecially by the acrimonious ſteams that paſs through the *Gaſtrick* and *Splenick* Arteries into the Stomach, which advances alſo its Concoction by its compreſſing and relaxing motions, and is aſſiſted by an apt Liquor, bedewing, diſſolving, and diluting the Meat, and ſo converting it into a Pulſe or Cream-like ſubſtance. *Next*, he teacheth, that the *Chyle* paſſeth not through the milky Veins (ſo called by *Aſellius*) to the *Liver*, nor *all* of it through the *Channel* of *Pecquet* to the *Heart*, but a great part of it through the common Veins of the Stomach and the Meſentery, to the *Liver*. Nor will he admit, that the *Sanguification* is performed in any *one* part of the Animal, as the peculiar Shop or Elaboratory of it, whether Liver, Heart, Spleen, *&c.* Nor that the parts are increaſed and nouriſhed by the red part of the Blood; but that, as to the *former* action, it is done by the means of a Liquor, and by hot ſteams, giving the red colour to the Chyle, as *Chymiſts* uſe to change *white* Juices into *red*, by the affuſion of *Oyl* of *Sulphur*, or the like Liquors; *that* redneſs being much advanced by the motion and agitation of the blood in the Veins and Arteries. But as to the *latter*, *vid.* the *Nutrition*, it is performed by that whitiſh Juice, which is mixed with the Blood, and ſeparated from it by the ſtraining Glandules of the Body.

To theſe particulars he adds ſeveral not unconſiderable remarks touching the *Gall*, *Spleen*, *Lymphatick Veſſels*, *&c.* Obſerving alſo, that the whole kind of *Birds* is deſtitute of *milky* Veſſels; and occaſionally taking notice, that *Worms* are bred in almoſt all the parts of Animal Bodies; of which he alledges very odd Obſervations and Hiſtories.

7. *De Vita:* This he affirms to conſiſt in the continued motion of the Blood, depending from that of the Heart; yet ſo, that this latter proceeds not from the *heat* of the Blood (as *Des*

*Cartes*

*Cartes* would have it) but the moiſt ſteams and expirations of the Heart.

As for *Reſpiration*, he thinks it a vain opinion, that *thereby* the heat of the Blood is temper'd and allay'd; but affirms, that it is therefore neceſſary, becauſe that the Blood, which out of the *right* Ventricle of the Heart is propelled into the Lungs, in ſuch Animals, as are furniſh'd with them, cannot paſs into the *left*, unleſs the Air, breathed in, do ſwell and diſtend the ſmall branches of the Windpipe; it being from thence, that the ramifications of the *Arterial Vein*, through which the blood muſt paſs, are compreſs'd, and the blood therein incloſed is protruded into the branches of the *venal Artery*: For the proof of which, he alledges divers Obſervations. Adding withall, that ſince Animals, whilſt they are in the Womb, reſpire not, there being peculiar *ductus's*, by which the blood paſſeth into the *Aorta*, without paſſing through the Lungs, as it always doth in Animals deſtitute of Lungs; he doubts not, but that with art and care thoſe Channels may be preſerved unabolisht, and made to grow and to be perfected with the other parts of the Animal, ſo that grown men may be brought to live the life of *Amphibious* Creatures. Nor doth he think this very difficult, in regard, that if their mouths and noſes were from their very infancy often ſtopt every day, and their breath ſo long intercepted, whilſt the blood paſſeth through thoſe Ductus's into the left Ventricle of the Heart and the great Artery, the ſaid paſſages would never be dried up: To confirm the poſſibility whereof, he alledges Examples of *divers*, who from their Childhood being given to ſwimming and diving, and ſo to the holding of their breath, did thereby ſo preſerve thoſe Channels from being dried up, that upon occaſion they could ſtay a great while under water, as *Amphibiums* uſe to do.

*LES ESSAYS PHYSIQUES du Sieur DE LAUNAY, Liv. premier.*

THis Learned Man having propoſed to himſelf to go through the whole Body of *Natural Philoſophy*, by the way of *Eſſays*, divides that *Syſtem* into three Parts; whereof

The *Firſt* being *General*, is to treat of what is common to *all* Bodies,

Bodies, both *Superiour* and *Inferiour*; and is divided again into ſix Books, whereof the *firſt* conſiders the *Univerſe* in *general*; the *ſecond* is to diſcourſe of *Place*, *Vacuum*, and *Time*, things as general as the *World*; the *third*, of the material *Principles* of all Bodies; the *fourth*, of their *efficient* Cauſe; the *fifth*, of their natural *Qualities*; and the *ſixth*, of *Motion*, Generation, and Corruption of Bodies inanimate and animate.

The *ſecond* part is to examine the *Celeſtial Bodies*. The *third* ſhall treat of the *Terreſtrial*, *viz.* the Elements, Meteors, Minerals, Plants, Brutes, Men.

Of this Work is now printed the *firſt* Book of the *firſt* Part, conſiſting of five Diſſertations.

The *firſt* is about the preliminary Queſtions of *Phyſiology*. The *ſecond* inquireth whether the *Univerſe* is compounded of many Worlds. The *third* is of the Syſtem of the World, its *Magnitude*, and *Figure*. The *fourth* examins, whether the World be animated? The *fifth*, whether it hath been or could be from Eternity? The *ſixth* is concerning the End of the World.

IV. *FRANCISCI DU LAURENS SPECIMINA MATHEMATICA, duobus Libris comprehenſa.*

*Horum* Prior, SYNTHETICUS, *agit de Genuinis* Matheſeos *Principiis in* genere; *in* ſpecie *autem de Veris* Geometriæ *Elementis hucuſque nondum traditis.*

Poſterior, ANALYTICUS, *de Methodo Compoſitionis atque Reſolutionis fuſè differit, & multa nova complectitur, quæ ſubtiliſſimam* Analyſeos *Artem mirum in modum promovent.*

ERRATA, forgot to be corrected ſooner.

IN N° 28. Pag. 521. lin. 22, 23. r. *She took dog (even before the wound was heal'd up) was with puppy.* p. 525. l. 8. r. *Anſwers that ſhall.* ibid. l. 20. r. *Mineral Queries.* p. 532. l. 18. dele *viz.* p. 535. l. 2. r. *impelled at the Noſe.* ibid. l. 15. r. *Grand poiſſon.*

In N° 29. p. 541. l. 18. r. *An intimation.* p. 544. l. 5. r. *from the Indexes.* ibid. l. 22. dele *and as.* p. 545. l. 21. r. *breath out.* p. 548. l. 18. r. *with wind or.*

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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 without *Temple-Bar*, 1667.