Exanthematologia: or, an attempt to give a rational account of eruptive fevers, especially of the measles and small pox. In two parts. Part I. Of the blood, the air, venoms, infection; fevers of all kinds in general and of such in particular as are morbillous with spots, or variolous with pustules ... with their varieties, descriptions, names &c.;, but more professedly and fully of the true measles. To which is prefix'd a delineation and comparison of the old and new philosophy ... Part II. Of the smallpox. To which is added, An appendix concerning inoculation / [Thomas Fuller].

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EXANTHEMATOLOGIA:

Or, An ATTEMPT to Give a

Rational ACCOUNT

Tim°. OF Morellon

Eruptive FEVERS,

ESPECIALLY OF THE

Measles and *Small Pox.*

In TWO PARTS.

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To which is prefix'd,

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In a Dialogue. By an unknown Hand.

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To which is added,

An APPENDIX *concerning* INOCULATION.

The whole Illuſtrated with many New, Curious, and Uſeful Particulars.

By THOMAS FULLER, *M. D.*

LONDON:

Printed for CHARLES RIVINGTON, and STEPHEN AUSTEN, in St. *Paul's* Church-yard.

M.DCC.XXX.

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TO

Sir HANS SLOANE, *Bar^t.*

PRESIDENT of the

COLLEGE *of* PHYSICIANS;

AND

To the FELLOWS *of the ſame.*

SIRS,

IN antient Times, when Phyſic was in its Nonage, it was ſo far from being an Art or Science, that it was not ſo much as a Profeſſion.

IT is reported by *Herodotus* and *Strabo*, that the old *Babylonians* and *Egyptians* were wont to bring forth their Sick, and lay them in the Streets and Highways, that all Comers who had ever ſeen or heard of the like Maladies, might adviſe for them ſuch Remedies as they had known ſucceſsful. And they uſed to keep a Regiſter of their Cures in the Temples of *Æſculapius* and *Diana*.

AMONG the firſt Phyſicians, whoſe Names we find recorded in Books, were *Æſculapius*, (who was ſaid to be Seven Hundred Years before *Hippocrates*) *Machaon*, *Podalirius*, *Chiron*, *Diocles*, *Empedocles*, *Melampus*, *Polybius*, and others of leſs Note.

MOST of theſe were only Surgeons, and underſtood little, but ſtanching of Blood, and healing of Wounds and Ulcers.

AND as to thoſe that pretended more eſpecially to Phyſick, they had no ſettled Philoſophy, nor Anatomy, nor medical Skill. They had ſome little traditionary Knowledge of the Virtues of Herbs; and practiſed (juſt as our wiſe Women do) wholly by Receipt Books.

THIS blind Practice went on, till between four and five Hundred Years before Chriſt, when the Divine *Hippocrates* aroſe. His great Genius, and inquiſitive Temper, put him upon ſearching the Temple-Regiſters; making diligent Obſervations, joining Philoſophy to Phyſick, and ſettling a Rationale.

AND truly, conſidering his Time, he proceeded in theſe Works much farther than it might have been thought any one could poſſibly have done.

HE left many Books behind him; but afterwards it happened, that ſeveral of them periſhed when

when the *Alexandrian* Library was burnt; and ſeveral more in the Year 640, when the Calif took *Alexandria*; and cauſed the Books of another fine Library, that had been collected there again, to be burnt. Several of his other Writings were devoured by Time and Moths; and as for the reſt, they were univerſally diſperſed; and ſo moſt of his Works were, as 'twere, loſt.

ADD to this, that divers Sectaries ſprang up; ſuch as *Aſclepiades*, *Themiſon*, *Theſſalus*, and others; who made Parties, and ſet up for themſelves, and decry'd and kept down others, as much as they could.

FOR theſe Reaſons, the Hippocratic Phyſic was under a Cloud; was diſregarded, and almoſt forgot; till about Six Hundred Years after him, a glorious bright Star appeared (the illuſtrious *Galen*). He diſpelled the Darkneſs of the Age; he took *Hippocrates* out of his long Obſcurity; learnedly Explained, powerfully Vindicated, and Reſtored him to as much Reputation as ever he had enjoyed before.

THIS extraordinary Man wrote a vaſt deal; but part of his Writings had the ſame Fate with thoſe of *Hippocrates*, being likewiſe conſumed when the Temple of *Peace*, and the Emperor's Library were burnt.

1

He was a great Philoſopher, and Anatomiſt: He made a moſt wonderful Progreſs; improved Theory, Practice and Pharmacy; and carried Phyſic many Degrees farther than any, or even all had done ſince *Hippocrates.*

After him, about the fourth, fifth, ſixth and ſeventh Centuries, followed the Four famous *Grecians*, *Oribaſius*, *Ætius*, *Alexander Trallianus*, and *Paulus Ægineta.*

All theſe were excellent Compilers, and made great Collections out of *Galen* and others: And commented upon them, and added, every one of them, many Things of their own. Yet they ſtudied, and depended upon their Authors ſo much, that they themſelves diſcovered little that was new and uſeful; and ſo left the Art not much better than they found it.

From Five Hundred and Sixty, to One Thouſand and Sixty, Five Hundred Years, there is a Chaſm: For the barbarous Nations making many Incurſions and Devaſtations, and *Athens* and *Alexandria* (thoſe famous Schools of Learning) being deſtroyed, Ignorance and Darkneſs came in like a Flood and univerſally prevailed; and all good Literature, Arts and Sciences (through both the Eaſtern and Weſtern Empire) fell miſerably low, and Phyſic, among the reſt, dwindled down into ſuch

ſuch a poor State, that it was not much better, than it was in the old Times before *Hippocrates.*

YET *Actuarius* was a Perſon of good Note, he flouriſhed about the Twelfth Century; and *Myrepſus* about the Fourteenth; and he was the laſt of the *Greek* Phyſicians.

BUT in thoſe middle Times, when all was now gone from the *Greeks* and *Latins*; Learning paſſed to the *Saracens*, and flouriſhed in *Aſia*, *Africa* and *Spain*, from the Ninth Century to the Fourteenth, full Four Hundred Years. But to give ſome Account of them.

1. THEY wrote in the *Arabian* Tongue, Books almoſt enough to furniſh a pretty good Library. And they took a world of Pains; not in giving us any thing of their own, that might be practical and uſeful; but in Tranſlating and Commenting upon others. But foraſmuch as they did not thoroughly underſtand the *Greek* Language, they miſerably corrupted *Hippocrates*, *Galen* and *Ariſtotle*, ran into many Miſtakes; and fiercely combated one another upon them.

HOWEVER, to give them their due, it was they that firſt obſerved, and wrote of the Small Pox: But unleſs that Diſtemper were much different in their Times and Countries, from what it is now among us, their Performances are ſo monſtrouſly Defective and Erroneous, that if we ſhould manage our variolous

variolous Patients, wholly by their Books and Rules, all the World would cry out of us.

2. They (eſpecially *Meſue*) have left us an infinite Number of Forms of *Galenical* Medicines; conſiſting often of ſuch worthleſs, inconſiſtent, and ſometimes noxious Simples; that it is manifeſt the Compoſers of them had no tolerable Notion of their Virtues.

And generally their Ingredients were ſo unreaſonably numerous, and ſo ſenſeleſly choſe; that it is impoſſible to judge, *a priori*, what Effects ſuch Gallimaufries could produce.

We were wont to have abundance of them in our Shops; but our Phyſicians now a-days, who are able to Preſcribe ſuch Bills as are ſhort, neat and effectual; nauſeate the *Arabian* monſtrous Medleys, and ſeldom order any of them.

Syrups (it's true) were an *Arabian* Invention; but they rather ſerve to render Medicines pleaſant, than to conſerve any Virtues of Ingredients in themſelves. And therefore Phyſic would ſuffer no great Damage by it, if moſt of them were thrown out of the Shop.

As they had brought Pathologie and Pharmacy out of *Greece*; ſo they fetched Chymiſtry out of *Egypt*. They worked much in Metallourgie, *viz.* in the exalting and tranſmuting of Metals; but

but I think very little in Chymiatrie: For I do not know that we have from them ſo much as one good ſtandard chymical Medicine this Day among us. All that they can pretend to, is, That they invented diſtilled Waters.

In fine, their Works are of ſo little Eſteem with us, in this Age, that I never knew any Student read the *Arabian* Authors: And I am of Opinion, that Phyſic was ſo far from getting any ſubſtantial Improvement from them, that it ſcarce kept its own in their Times.

After them medical Affairs miſerably declined; inſomuch that there was found but only here and there, a Man of Genius and Learning, that was rightly brought up in the Study and Practice of Phyſic; and thoſe that were ſo (ſuch was the Faſhion) did little elſe in their Writings, but endeavour to make it out, that their Opinions exactly ſquared with thoſe of *Ariſtotle* and *Galen*.

For the main Buſineſs of Curing, lay then in the Hands of illiterate Monks, and odd-headed Chymiſts; thus it was for ſeveral Ages.

But upon the happy Invention of Printing, preſently the World being, as 'twere, awaked out of a dull Lethargy; a new Spirit every where brake out, and a marvellous Light ſprang forth: And many extraordinary Men aroſe, and ſet themſelves upon the Advancement of Learning,

and

and Acquiſition of Knowledge; and eſpecially of that of Medicine.

THESE excellent publick ſpirited Perſons, by their Ingenuity and Induſtry, became Benefactors to Mankind, and were famous in their Generations.

THEIR Works (it may be confeſſed) are not free from Miſtakes and Imperfections; but as Times and Circumſtances then were, the Authors could not well avoid them: For,

1. THEY knew nothing of Natural Philoſophy beyond *Ariſtotle*'s Elements and Qualities; and were taught wholly to acquieſce in them; and therefore they never had a Thought of making ſuch Experiments, and Searches into the Mechaniſm and Powers of Nature, as the curious *Literati* of our Times have ſince made.

2. They lived in the Days of the ſubtle Schoolmen; the Mode that then reigned, was, not to enter into the Inſides of Things; and get plain and diſtinct Notions of them; but to Define, Diſtinguiſh, Syllogiſe, and talk Scholaſtically; and to believe *Ariſtotle*, *Hippocrates* and *Galen* implicitely.

3. IT was their Infelicity to be born before the many grand Diſcoveries of ſeveral conſiderable Parts and Paſſages of the Body were made; before

that

that principal one of the Circulation of the Blood was found out, or Sanguification, Animal Oeconomy, the Cauſes of Fevers; and of moſt other Diſeaſes, were tolerably accounted for; or the Bark of *Peru*; and many other great Medicines, and excellent Methods, that Practice now mainly depends upon, were known and brought into Uſe.

To theſe I think I may add, that in their Age an Enthuſiaſtic Alchymy, and a Fanatical Aſtrology crept in among the Practiſers; which (like an *Ignis Fatuus*) dazling the Eyes of their Underſtanding, led many of them out of their Way into Briars and Bogs, Difficulties and Errors; ſuperſtitious Obſervations, and ſilly Methods.

Upon theſe, and many other Accounts, Phyſic wanting proper Helps, and meeting with unſurmountable Hindrances, all the Parts and Pains of the Students and Profeſſors, could not then ſuffice to bring it (as to many Particulars) much beyond Gueſs and Empiriciſm.

But you, Gentlemen, of our Age, having the Advantages of peruſing all that hath hitherto been written of natural Philoſophy, Chymiſtry, and Microſcopy, have made ſuch luciferous Experiments, and imparted to us ſuch uſeful Diſcoveries in Anatomy, Pathology, Practice, Pharmacy, both Galenical and Spagyrical; have led us into Botany, and all the *Materia Medica*, have furniſhed the

Shops with choice Simples, and experienced Compounds; and have brought Phyſic, and all its Parts, to ſuch a Degree of Perfection, as all the *Virtuoſi* and *Æſculapians* were never able to do before you. And now you are at this Day univerſally and undeniably acknowledged the moſt learned, and moſt skilful Body of Philoſophers and Phyſicians, that ever were yet upon the Face of the Earth.

And ſince to all this, the Royal Conſtitution hath placed you in a ſuperior Station, at the Head of the Faculty, we look upon you as, in ſome ſort, appointed to be proper Cenſors and Judges of the Writings of your Country-men.

For theſe Reaſons, I preſent you with this my Attempt, to give a Rational Account of Eruptive Fevers; and particularly of the Small-Pox.

And though the World is ſo ill-natured, that few Authors can ſtand ſafe alone, and even our great *Harvey* himſelf had need of Apologiſts; yet I do not deſire you to indulge me ſo partially, as to Patronize and Defend any thing you ſhall diſlike in it.

All that I ask is, That you would pleaſe to favour me ſo far, as to protect and recommend whatever you ſhall in it judge to be Reaſonable and Uſeful.

I look

I look upon myſelf to be the more in Danger of ill Treatment, becauſe I have ventured to take a large Liberty of Thinking by myſelf, and that differently from others; and perhaps may ſtart ſome Things which none ever thought of before.

Amongst other Matters, I have, with Reſpect to Philoſophy, ever been of Opinion, that our Naturaliſts (to the end that they might make Art ſhort, becauſe Life is ſo) have been unreaſonably Scanty to Nature; when they grant her ſo ſmall a Number of Elements to make all Things out of.

For that the Four of the *Ariſtotelians*, the Three of the *Carteſians*, the like Number of the *Paracelſians*, and Five of the *Williſians*, are not all, and the whole Number of the Principles that Bodies are conſtituted of; and that all and every one of them are not in every Body; and that they may be tranſmuted into one another, has been ſufficiently made out by Mr. *Boyle*, and others.

It remains therefore, that we admit for ſuch, *Democritus*'s Atomical Corpuſcles, allowing them particular Sizes, Figures, Situations, Contacts, Adheſions, Compoſitions and Motions almoſt infinite.

And upon this Foundation I erect all the Notions I have of Simple and Compound Bodies; with all the Qualities and Powers Inherent, and Operative in them.

As to the Matter of Philoſophizing, every Country and every Age, have had their governing Faſhion; that of this preſent one among us, is, to ſolve and explain all the Phænomena of Nature; all Animal Oeconomy, Cauſes of Diſeaſes, Reaſons of Cure, and Operations of Medicines by Mathematical Modes.

But as to myſelf, when I began my Studies, it was not the Way in *Cambridge*, to apply Mathematics to this Uſe; Corpuſcularian, Mechanical Philoſophy was all we went upon. And I then formed my Thoughts and Apprehenſions of Things according thereto, and Time hath ſo eſtabliſhed them in me, that I find I cannot now eradicate them, and plant others in their ſtead.

And tho' I have not ſo given up my Reaſon, as to pin my Faith upon *Cartes* or *Willis*, and blindly and ſlaviſhly to believe all they tell me; yet I muſt confeſs I have a certain Hankering after the Genius and Manner of their Philoſophy. And I indulge myſelf the more in it, becauſe it puts me on upon Thinking ſtill farther and farther, and upon ſearching into the Receſſes and Fineneſſes of Nature without End.

Whereas Mathematics, when once they bring us to a ſuppoſed Demonſtration, they chain us faſt down upon it, not ſuffering us to doubt, tho' we

are

are never ſo wrong, nor permitting us to ſtep one Foot farther for more Diſcoveries.

MATHEMATICAL Demonſtrations (I allow) are in themſelves, when rightly made, as infallibly true, as the Rules and Operations of Arithmetic are; yet he that worketh them may be as eaſily miſtaken as one may that caſteth up a Sum.

FOR while the Abſtruſeneſs of its Nature employeth our whole Mind, it may eaſily put us upon taking up with uncertain Suppoſitions, inſtead of true Data.

AND while the Niceneſs of its Operation makes us fall into puzling Methods, it may well, inſtead of giving clear Demonſtrations, confound our Underſtandings, and impoſe upon us groſs Abſurdities, and intricate Falſities.

HERE I could prove what I ſay, and produce monſtrous Miſtakes of our Mathematical Phyſicians, but forbear them, becauſe my Temper and Reſolution is never directly and deſignedly (when I can well avoid it) to oppoſe and combat a Writer.

ONLY I beg leave, juſt for one Specimen, to note a Paſſage in Dr. *James Keill*'s Eſſays on Animal Oeconomy.

BORELLI (ſaith he, p. 79.) hath taken the Pains in Eleven Propoſitions, to determine it, that the

the Force of the Heart is equal to more than an Hundred Thirty-five Pounds Weight.

And *Keill* himſelf by Mathematical Operations and Methods, and Reaſonings, which he affirms are certainly juſt, determines (p. 87.) that the Force of the Heart is equal to the Weight of Five Ounces; upon which he might well make the Reflection he does, p. 80. that ſo much Geometry employed to ſo little Purpoſe, by ſo great a Man, has undoubtedly deterred others from attempting it. Thus far he.

I do believe with all my Heart, that Nature doth Geometrize in all her Works, and conſtantly keepeth exact Proportion, Meaſure and Number; but withal, I am as much aſſured, that we have not Capacities to take in the diſtinct Knowledge of them.

And where there are not, and cannot be given certain determinate Points, Lines and Angles; there cannot poſſibly be any Demonſtration made, or Concluſions drawn.

But to come to Particulars: Can any Man, can all the Men in the World, tho' aſſiſted by Anatomy, Chymiſtry, and the beſt Glaſſes, pretend poſitively and certainly to tell us, what Particles, how ſized, figured, ſituated, mixed, moved, and how many of them are requiſite to produce a Quar-

Quartan Ague, and how they ſpecifically differ from thoſe of a Tertian; what peculiar and ſpecial Corpuſcles thoſe others are, that cauſe an Epilepſy, Diabetes, or Gout?

CAN they make it undeniably evident to us, what Medicines have ſuch little ſpecific Bodies, as will directly and electively fly at, engage, correct or conquer hoſtile morboſe Atoms?

AND if they could do all this, could they alſo give us a perfect Relation of the Manner of the Encounter; whether it be *cominùs* or *eminùs*, *punctim* or *cæsim*; whether it be by knapping off the Points of the Enemies Spears, breaking aſunder their Swords, dulling or ſheathing their Edges, knocking the combined Atoms to Pieces, ſwallowing them up, or blaſting them away, as 'twere, with tormentary Exploſions.

THESE, and a Thouſand more, muſt be clearly, diſtinctly and undeniably made out; and without this, the Phænomena in Phyſic can never be brought to mathematical Demonſtrations.

BUT that which giveth me great Diſſatisfaction is, that as to Matter of Fact, it doth not appear, that *Borelli*, *Bellini*, *Pitcairn*, or any other of that Way, were more skilful, or more ſucceſsful in the finding out, or curing any one Diſeaſe, than we who work not by Algebra, Rule and Compaſs.

THEY

THEY that are of Sentiments different from mine, may pardon me this; for I only tell what are my Thoughts, and I am not againſt their publiſhing of theirs in like manner, if it ſhall pleaſe them ſo to do. But to come to the Subject of my Book.

THE Small-Pox having of late Years moſt dreadfully broken into not only *Pauperum Tabernas*, but *Regum Turres* alſo, and made diſmal Havock among all Degrees and Ages of People; I hoped I might do ſome Good to the Public, by bringing forth ſuch Things, as by long Practice, Obſervation and Study, I had found out myſelf, and collected from others, concerning the Nature, Cauſes, Prevention and Cure of this moſt horrible Diſeaſe.

MANY of the Matters I here offer, are properly and peculiarly my own; for I have been more than half a Century of Years ſolitary in a Country Practice, and could never be ſo happy as to enjoy the Neighbourhood of an ingenious and friendly Phyſician, with whom I might converſe and exchange Notions.

AND therefore, it could not otherwiſe be, but that I, continually thinking alone by myſelf, muſt fall into ſuch Opinions, and find out ſuch Ways, as were perfectly new.

THO'

THO' the Things here preſented ſeem to me to be rational and uſeful, yet not being a proper Judge of them myſelf, I ſubmit them to you; not doubting but that you will make handſome Allowances for the Imbecility of human Underſtanding, the Difficulty of Philoſophical Searches, and the different Apprehenſions that one Man hath from another.

IT is true, if Phyſicians had a Medical Bible, written by Divine Inſpiration, containing all Things needful to be underſtood, believed, and practiſed; then, indeed, it would be a moſt wicked Affront to the *Optimus Maximus* Author, to doubt of the leaſt Tittle of it; and the moſt flagrant Inſolence in the World to pretend to amend it, by altering it, or adding human Inventions to it, and impoſing them authoritatively upon the reſt of Practiſers.

BUT ſince the Nature of particular Men and Things is every where different, and Caſes and Circumſtances are innumerable, and therefore ſuch a compleat Syſtem of Phyſic and infallible Guide never was, nor poſſibly could be revealed, it is plain we have no Means left, but for every one of us to fall to work, and make the beſt he can of his own Obſervations and Ratiocinations, and ſo be in Phyſic (tho' not in Divinity) a Free-Thinker.

GOD ſeems to delight in Variety; and, for ought we know, no two Perſons living think exactly alike in all Things; therefore if ſome of my Conceptions diſagree with thoſe of others, I ſee no Reaſon why I may not, for all that, remain in full Peace with all the World of Writers.

FOR I declare, where-ever I differ in Opinion from any one, I do it not by way of perverſly thwarting and fighting him, but only of producing my own Thoughts: And if ſuch an one would but coolly conſider, that I am no more oppoſite to him, than he is to me, and that all of us may claim a Right to give and take a Liberty of being ſo, we might be even again without a Quarrel.

THIS, together with what I have before ſaid, I would have ſtand as an Apology for the Freedom I have taken of leaving Books, common Opinions, and vulgar Practice, where-ever it ſuited with my Reaſon ſo to do, and to go alone in the Paths I have beat out by myſelf.

AND as to the Imperfections to be met with all along throughout my Performance, I expect to be rather pitied than blamed for them; for none can conceive what Difficulties I have ſtruggled thro', and what Pains I have taken to patch up this Piece.

FORMERLY,

FORMERLY, when I was in my Golden Age, and lived in the Land of Light, I thought I could labour hard, and dive deep into *Democritus* his Well, and fetch up Knowledge and Truth; could penetrate into the Inſides of Things; could form Notions with Eaſe, and expreſs them with Pleaſure.

BUT now, Time hath laid its Hands upon me, Age hath broken me, and I find my Imagination, Judgment, and Memory miſerably ruined: I apprehend and think ſlowly; and whatever I am upon, I am forced to do it over and over before I can bring it into any Shape.

ADD to this, the Gout hath much diſabled me, taking ſometimes my Stomach, and ſometimes even my Head.

ADD to theſe another moſt lamentable Misfortune hath befallen me; I am almoſt blind with Cataracts in both my Eyes, and thereby I am cut off from all my Books, and have loſt all my Papers, that I had been compoſing and collecting from my Youth, all my Life long, and had unhappily written in an exceeding ſmall Hand.

AND being now compelled to read and write with other Eyes and Hands, I find I can make but poor Work of it with an Anagnoſtes and

Amanuenſis, eſpecially ſuch as I can procure here in the Country.

Da mihi Mæoniden, & tot circumſpicre caſus,
Ingenium tantis exidet omne malis:

As theſe, together with frequent Interruptions of Buſineſs, have made it a moſt fatiguing Work to get through, ſo they make it an impoſſible Thing for me to go over it again, to ſtrike out many Repetitions, pare off Excreſcencies, tranſcribe abundance of Particulars out of my *Adverſaria*, and give all a new Turn, and a finiſhing Poliſh.

All which Things, if they could be accompliſhed, would ſo alter the Matter and Structure of theſe Papers, as to make them a vaſtly different Piece from what they now are.

Upon theſe Conſiderations, no reaſonable Man can expect it ſhould be a perfect Treatiſe, but only a rough Draught, and, as 'twere, a poſthumous Work.

But as it is, I conceive hopes it may prove worth the Peruſal, eſpecially to ſuch as have not yet finiſhed their Studies, and formed a Body of Phyſic in their Minds; for I dare promiſe them, they may find ſundry Things in it no where elſe to be met with; ſome of which may ſerve to gratify Curioſity, ſome to diſcover Errors, and ſome to direct Practice.

AND tho' I do not pretend to inform You of any thing worth Notice, that you know not already, yet who can tell but that even ſome of your learned Body may light upon ſomething in theſe Papers, from whence they may catch a Hint capable of being wrought up by an ingenious thinking Man into Matters of conſiderable Importance.

THUS I have heard, that our famous Dr. *Harvey*, in a caſual Converſation with an inquiſitive Country Gentleman, when he was asked what was the Uſe of the Heart's Motion? told him, it was to drive the Blood forth into the Body: And being asked again what became of it there? was ſtartled with this (tho' ſo very obvious a) Queſtion; and from it ſtruck up a Thought, and purſued it, and never left it till he found out the Circulation of the Blood.

AND I can almoſt ſuſpect, that our celebrated Sir *Iſaac Newton* might fetch the firſt Hint of his Notions of Attraction and Gravitation, from a little ludicrous *Spaniſh* Book, intitled, *The Man in the Moon.*

For *pag.* 46. it is ſaid, "I found by this Experi-
"ment that which no Philoſopher ever dreamed of,
"*viz.* That thoſe Beings which we call heavy, do
"not ſink towards the Center of the Earth, as
"their natural Place, but are drawn by a ſecret

"Property

" Property of the Globe of the Earth, or rather, " ſomething within the ſame; in like Sort as the " Loadſtone draweth Iron, within the Compaſs " of the Beams of Attraction."

But to return. Since it is now no ways in my Power to put my Book out better, a civil benign Gentleman will not, for my Good-will to Mankind, expoſe my Failings; and as for a malignant Snarler, I regard him not. *Auſonius* will tell him how he may know himſelf.

Stultorum proprium eſt, velle, & non poſſe nocere.

Now to ſhew both the Folly and the Baſeneſs of ill Uſage towards me: Put Caſe a Man, after he hath been at great Expences and Pains to contrive and make a Garden, ſhould courteouſly ſet open his Gates to all Comers, and permit them to walk in it when and where they pleaſe, and to gather Herbs, Flowers, and Fruits, whatever they had a mind to:

And among the reſt, there ſhould one come bruſhing in, who ſhould ſtalk, and ſtare, and huff about in a ſurly Manner, and ſhould ſcrape down, and trample upon the Beds and Borders, and ſhould take no Notice of the fine Plants, and ſhould pry and ſearch about for Weeds; and when he had chanced to find a Dock or a Nettle, ſhould ſwear and curſe, and fall out with the Gardener, and fling

fling Dirt in his Face, and clamour and abuſe him where-ever he came:

SUCH an one will loſe all the Pleaſure and Profit he might have taken, and will put himſelf to the Torture of a needleſs Chafe, andun reaſonable Quarrel, and will manifeſt himſelf to be a ſilly, ill-natured, abuſive Fellow. I need not apply this to a malignant Fault-finding Reader.

SIRS,

THE more we ſtudy a Matter, the deeper we get into it; and the more Particulars we conſider, the clearer Notions we have of it: And therefore I think myſelf more a Maſter of my Subject now, than I was when I firſt entered upon it: And if I were this Day in my middle Age, and were to work it up again, I am certain I could make it a tranſcendently compleater Piece; even as a Man, if he were to build his Houſe a ſecond Time, he could make it a much finer and better Edifice.

BUT my advanced Age, and bad Eyes (as before ſaid) render me utterly uncapable to review and amend it.

AND the Small Pox being a Matter of the greateſt Concern, it meriteth the Care of the beſt conſtituted College of Phyſicians in the World, therefore I wiſh you would pleaſe to delegate one or more

more of your Society to dig deeper in this Mine, which I have been labouring in alone; and to order them to have their Eye more upon the public Good, than their own Glory.

For (as a late Author ſaith) to do good merely to gain Reputation, and transfer a Name to Poſterity, is a vicious Appetite, and will certainly enſnare the Perſon who is moved by it, on ſome Occaſions, into a falſe Delicacy for fear of Reproach; and at others, into Artifices that will taint his Mind, tho' they may enlarge his Fame.

And I ſhould like it well to oblige them to put their Names to their Performances, that it might make them careful to preſent us with nothing, but what they need not be aſhamed to ſet their Hands to.

The forbearing of this is commonly a meer cunning counterfeit Modeſty; for the Authors who conceal their Names, are yet more vain than they who publiſh them: Both indeed may aim at your Applauſe; but the mock Diſguiſe of themſelves in the former, is but a more ſubtle Arrogance, at once to enjoy your Eſteem, and the Reputation of contemning it.

No Man that is qualified for this Undertaking, ought to be ſo weak-hearted as to refuſe it for fear of a Scratch in his Credit. He is a poor little ſelfiſh Wretch indeed, that weigheth his Name againſt the Public Good.

A gallant Man (and one may be an Hero in Phyſic that ſaves Lives, as well as in Polemics that deſtroy them) will ſeek out, and rejoice to find Adventures, and Occaſions of ſerving his Country, tho' he run the Hazard thereby of loſing his Blood, Limbs, Life, Reputation and all, in the Action.

As for my Part, I can do no more; and being ſenſible that I am not far from my Journey's End, therefore here will I make a Stand, and look back upon what is paſt: Upon the Review, I (to my Comfort) remember and well know, that I have made it my great and conſtant Endeavour, faithfully to ſerve and ſuccour the Diſtreſſed, and to do whatever Good I could all my Life long.

And now upon my going off, the ardent Deſire of my Soul is to do Good when I am dead alſo; and therefore I bequeath theſe my Labours to Poſterity, without Proſpect, or even Poſſibility of receiving from Man any Retribution for the ſame.

For there is a great Gulph fixed between the Dead and the Living, which entirely cuts off all Communication.

And tho' the Omniſcient Maker of all Things ſeeth every ſingle Atom in the Univerſe, as perfectly and as diſtinctly as he doth the great Body

of the Earth, and preſerveth all in Being, and ſuffereth nothing to be loſt out of the World; yet with us ſo it is, that when a Man doth die, he is as much loſt to the Living, as a Drop of Water is that falleth into the Ocean, where it is not ſeen or heard of any more for ever.

THEREFORE let a Man's Life have been never ſo illuſtrious, or his Merits never ſo great; yet when once he is dead, Praiſe and Thanks can never reach him; and if they could, they would ſoon be forgot, and ſunk into nothing.

Ubi nunc fidelis Oſſa Fabricii *jacent:*
Quid Brutus, *aut rigidus* Cato!
Signat ſuperſtes Fama tenuis pauculis
Inane Nomen literis:
Sed quòd decora novimus Vocabula;
Num ſcire Conſumptos datur?
Jacetis ergò prorsùs ignorabiles,
Nec Fama notos efficit;
Quòd ſi putatis longiùs vitam trahi
Mortales Aurâ nominis:
Cùm ſera vobis eripiet hoc etiam dies,
Jàm vos ſecunda Mors manet.

Worthy and honoured Gentlemen, give me Leave to ſubſcribe myſelf,

Your moſt humble Servant,

THO. FULLER.

EXANTHEMATOLOGIA.

Of PHILOSOPHY.



THIS little Rarity was given me, written in an obſcure Hand, in the Year 1676. I know not who was its Author; but it treats ſo pleaſantly of the old and new Philoſophy, and modern Inventions, that I thought it worth preſerving; and have therefore thruſt it in here.

" THERE was a certain Husbandman, who occupied " a Farm, with an ancient Manſion Houſe ſtanding in " the Fields, remote from any Town; where there was " an old Iron Clock, in a large wooden Frame; which " had been a long while out of kelter: And becauſe he " was much troubled to know how the Time paſſed, " that he might order his Buſineſs accordingly, he re- " ſolved to get this Clock repair'd, and while he was " conſidering where to find a Man able to do it, it for- " tuned that a certain Peripatetick Artificer, ſomething " above the Degree of a Tinker, came that Way, and " undertook to mend it. But after he had beſtowed a " great deal of Work in oiling the Wheels, filing the " Teeth, and hanging on more Weight, and all to no

" Purpoſe, at laſt gave it up for naught; and told him it
" could not be mended. The Farmer, partly out of
" Curioſity, and partly in Hope to find out the Defect,
" deſired this Artificer to ſhew him the Nature of Clock-
" work, and what was requiſite to make up a perfect
" Clock: He, though he knew very little what be-
" longed to it; yet being a Talkative Fellow, and very
" loth to confeſs his Ignorance in any thing, began a long
" Story, that the Nature of Clock-Work in general,
" was a Principle and Cauſe of Motion and Reſt, by
" means of an inward Device, of its own Accord and not
" by Chance: But this Clock having no ſuch Nature, it
" was indeed no Clock, and could not move: He told
" him alſo, that there are Three Things go to the making
" of a Clock, the Materials and the Shape, and the
" want of that Shape, before it was made; for it was
" not a Clock before it was made. Now the Materials
" of a Clock are Four, Iron, Wood, Cords and Lead;
" and beſides theſe there is a Bell at the Top, that is of a
" Fifth Kind, diverſe from the other Four, that hath a
" Trick of ſounding, when the Hammer ſtrikes upon it.
" Iron is a Material very black, and ſomewhat hard;
" Wood is very hard and ſomewhat white; Cord is very
" white and ſomewhat ſoft; Lead is very ſoft and ſome-
" what black. Here the Farmer interpoſed and told him,
" he would never believe but the Iron was harder than
" the Wood; but the Clock-mender reply'd, That in the
" Art of Clock-making, Softneſs was nothing but being
" eaſily melted: The Farmer urged then, Iron would not
" be hard at all; but his Artificer wittily reply'd, It was
" hard to be melted, he was ſatisfied; the Clock-mender
" went on, telling him there were other Properties alſo
" in theſe Materials, derived from the former; as that Iron
" and Wood were ſtiff and unmoving, Cord and Lead
" flexible and moving; here the Farmer interrupted
" him again, telling him the Iron Wheels moved as well
" as the Cord and Lead; and ſo did the wooden Hand

" of

" of the Dial; to which he anſwered, They did not
" move of themſelves as the Cord and Lead did, and
" that they moved only to avoid ſtanding ſtill, which
" is not to be admitted in a Clock; but the Farmer ſtill
" objected, That he ſaw no Neceſſity of any ſuch Material
" as Wood in a Clock, for the ſame might as well be of
" Iron: to which he replied, It was for the Compleat-
" neſs of the Clock. But, quoth the Farmer, the Bell is
" hard and black, as well as the Iron. No, replyed the
" Ingineer, it appears only ſo; but it is not ſo in its
" own Nature, but only hath a Property of ſounding.
" Well (quoth the Farmer) you have told me the Ma-
" terials of a Clock, which I could have told as well my-
" ſelf, but am never the wiſer; for my Jack hath Iron
" and Wood, Cord and Lead, and if I ſhould hang a
" Bell on the Top of it, it would not prove a Clock.
" That's true, ſaid the Clock-man, for it hath not the
" Shape of a Clock: Now the Shape of a Clock is a
" certain Trick of Activity, in a Piece of Wheel-work,
" by the Number of Stroaks on a Bell, to tell the Hour
" of the Day. From this Shape there ariſe ſeveral other
" Properties, as the turning about of the Wheels; the
" playing of the Ballance; a ſecret Quality of the Hand
" pointing to the Hour of the Day, and a ſecret Agree-
" ment between the Hand of the Dial, and the Hammer
" of the Bell; for as often as the Hand points to any
" Figure, the Hammer ſtrikes juſt ſo many Strokes upon
" the Bell. There is alſo a hidden Diſagreement between
" the little Weights, and the great ones; for as faſt as
" theſe go down, thoſe go up. There are alſo ſome
" Clocks of another Kind, ſome with an Alarum, to waken
" a Man at a certain Time of the Night; ſome have
" Chimes to play certain Tunes upon Bells: There are
" alſo imperfect Clocks, call'd Watches, that do not ſtrike;
" but only have a Dial with an Hand turning round;
" there are alſo Sun Dials, that tell the Hour of the Day
" by Shadows: But theſe are imperfect Clocks, and not

" com-

" compounded of all four Materials. He alſo reckoned " up a great many famous Clock-makers of ſeveral Coun- " tries, that he had learnt his Art of; as alſo how many " Clocks he had mended; and concluded with the Praiſe " of *Vulcan* and St. *Eloy*, and the whole Art of Smiths " Work.

" WHILE they were thus diſcourſing, in comes a " Clock-Smith of the next Town, who thought him- " ſelf as well read in Clock Philoſophy, as he that had " read this long Lecture; who therefore began to move " many Controverſies; as, that Clocks might be made of " other Materials, *viz.* Steel, Braſs or Silver, where, by " the Way, they digreſſed into a long Diſpute, whether " Steel and Iron differed in Kind or in Degree only; " that a Bell was not any fifth Kind, but made up of " a Mixture of other Metals; that there were not four " Materials of a Clock; but that it might be made up " of one or two of them; that Cords and Plummets were " no neceſſary Parts of it; for it might be moved by a " Spring without them: And many more Queſtions they " diſputed about, till they were both weary.

" THE Farmer's Son, who was newly come from the " Univerſity, where he had been a Year or Two, and " had read *Magirus*, was much taken with theſe learned " Lectures of an ordinary Mechanick; and began to ſuſpect " he was ſome diſguiſed Scholar; in that he had ſo phi- " loſophically begun with the Definition of Nature *Prin-* " *cipium & Cauſa motus & quietis ejus in quo eſt primo, &* " *per ſe, & non per accidens:* Then proceeded to the " three Principles, Matter, Form and Privation; after " that, to the four Elements of a Clock; with their Pri- " mary and Secondary Qualities, and was well-pleaſed " with his Judgment, in making the Bell a Quinteſſence; " and to contain the Elementary Qualities, not formally " but eminently; and that Softneſs ſhould ſignify Liqua-

" bility,

" bility, anſwered juſt to Humidity ſignifying Fluidity;
" and that it was as eaſy to excuſe the Iron from melting,
" as the Fire from Fluidity: He thought alſo, that he
" diſtinguiſhed well between natural and violent Motions,
" and took Notice how *evitatio vacui*, *& complimentum*
" *Univerſi* did him Knight's Service: So likewiſe he de-
" fined the Form of a Clock very well, *actus primus*
" *corporis artificialis organiſati motum habentis in potentia:*
" And he believed a Trick of Activity was as good an In-
" terpretation of ἐντελεχια, *perfecti habeo*, which *Hermolias*
" *Barbarus* learn'd of the Devil: The Qualities did ad-
" mirably well flow from the Form, eſpecially the occult
" Quality in the Dial, and its Sympathy with the Bell, as
" alſo the Antipathy of the greater and leſſer Weights;
" he alſo ſhewed the ſeveral Species of Clocks; whether
" perfectly or imperfectly mix'd; how Watches had only
" a material vegetative Soul, the Alarum; and Chimes
" reſembled a Rational; but the ordinary Clock was of
" the Order of ſenſative Creatures, and he had excellently
" well deſcrib'd the Nature of the Beaſt. He ſeem'd to
" be well read in the School Tinkers, had ſhew'd that
" *Vulcan* was antienter than *Ariſtotle*, and St. *Eloy* as great
" a Maſter of Clock-work as St. *Thomas*; only the Clock-
" ſmith (he thought) made foul Work, and went as much
" beyond him, as *Carpenter* and *Pemble* the more ortho-
" dox *Magirus:* And yet (he ſaid) he might have
" mov'd a great many more perillous Queſtions, as
" whether the Hammer were the Intelligencer of the Bell,
" and conſequently whether *forma informans* or *aſſiſtens?*
" Whether the Bell did act upon the elementary Parts of
" the Clock, or they upon the Bell? Or if the former,
" whether it do it by the Blackneſs, or its Hardneſs, or
" its Sound, or by certain Influences? And then whether
" the Forms of the Materials did remain in the Clock in-
" tire, or refracted; or a fifth Form reſulting from them
" all? And whether it were a ſubſtantial or accidental
" Form together. A Clock or a Watch were ſpecifically

" or

" or gradually diſtinct? With many more which he for-
" bore to mention, as he told them, becauſe they could
" not underſtand them.

" ALL this while the Landlord was in the Houſe to
" take Order about ſome Reparations; who being an in-
" genious Gentleman, that had uſed to take in Pieces his
" own Watch, and ſet it together again, and therefore
" could not be ignorant of the Fabrick of a Clock, having
" with much Patience heard all this Jargon, at laſt de-
" liver'd the good Man (who tho' no Fool, yet was never
" the wiſer for all this Diſcourſe) from the Impertinences
" of the Clock-mender, and the young Philoſopher;
" ſhewing him, that the Cauſe of Motion was in the
" Weights, which, by the Multiplication of indented
" Wheels and Nuts, was ſo moderated, that the laſt
" Wheel, to the End of whoſe Axel the Hand was
" fix'd, was juſt twelve Hours in turning about; and that
" there were in every twelfth Part of the Wheel, certain
" Pegs that lifted up the Holdfaſt of the Hammer, which,
" by the Motion of other Wheels and Springs, would be
" made to ſtrike ſeveral ſucceſſive Strokes upon the Bell,
" 'till the Holdfaſt catch in the next Notch of a Wheel
" indented at ſeveral Diſtances, according to the Number
" of Strokes at each Time to be ſtruck: He ſhew'd him
" alſo, that the Teeth of the great Wheel were ſo worn,
" that it would not anſwer to the juſt Proportion of Time
" it ſhould move in, and therefore he muſt get a new one
" made: In fine, he taught him how the Motion was
" deriv'd from Part to Part, ſo that he throughly under-
" ſtood the whole Fabrick, and could be able to rectify
" any ordinary Fault that ſhould happen in it. But the
" Son all this while, being as inept at underſtanding
" Things, as apt, Parrot-like, to catch at Words, was
" diſſatisfy'd that he ſhould take no more Notice of the
" ſubſtantial Form and Qualities of a Clock; and told
" him,

" him, that he rejected Principles, and therefore he would " not diſpute with him."

How far the Clock-mender's Diſcourſe reſembles the Scholaſtic Philoſophy, or the Gentleman's the Atomical, let others judge: I ſhall only propound this general Query, Whether it be any better Philoſophy to ſay, that Nature makes the Fire to burn, or that it is an inward Principle of Gravity in a Stone that makes it fall down, than it would be mechanical Skill to ſay, that Art makes the Clock ſtrike; or to ſay, that ſome inward Device makes the Hand of the Dial move? For as Art is to Artificials, ſo is Nature to Naturals; and may be he ſpoke more truly than he was aware of, that call'd it *Ars Dei*. Then certainly it muſt be the Office of Philoſophy to find out the Proceſs of this divine Art, in the great *Automaton* of the World, by obſerving how one Part moves another, and how thoſe Motions are vary'd by the ſeveral Magnitudes, Figures and Poſitions of each Part, from the firſt Springs or Plummets (as I may ſay) to the Hand, that points out the viſible and laſt Effects. This, Phyſicians have taken the Boldneſs in part to do in thoſe little Watches, if I may ſo call them, the Bodies of Animals; and *Des Cartes* hath proceeded fartheſt in the like Attempt, in that vaſt Machine the Univerſe; with how good Succeſs, others are better able to judge. But this I dare boldly ſay, it was a noble Effort; and if he had wholly fail'd in it, he would have been more pity'd and leſs envy'd.

THIS farther I ſhall add in the behalf of new and free Philoſophy, that the Theatre of Nature is much enlarg'd ſince *Ariſtotle*'s Time; and there is no Part of the World, wherein there are not ſome notable new Phænomena lately diſcover'd, that muſt needs be of great Account in natural Philoſophy; for in the Heavens, by the Help of Teleſcopes, (a new Invention) there are found an innumerable Company of fix'd Stars unknown

to the Antients; and among the Planets the *Anſulæ* of *Saturn*, and four Moons about *Jupiter*, were never heard of 'till *Galilæo*'s *Nuncius ſiderius* brought the News; the various Phaſes of *Venus*, (and other Planets) as alſo her being ſometimes on this Side the Sun, ſometimes beyond, were the Suſpicions of the *Pythagoreans* of old, and the certain Knowledge of latter Times, but not agreeable with *Ariſtotle*'s Doctrine. Mountains and Vallies in the Moon were never ſeen before this Age; and no body will now venture to deny but that ſhe is as Opaque as the Earth, and borrows as much Light from it as ſhe lends: That the Sun is full of ſcummy Spots, continually generated and deſtroy'd, and that he turns round upon his own Axis, they that will not truſt *Schiner*, may be inform'd by their own Eyes: The appearing of new Stars, and diſappearing of old, was not conſider'd by the Antients, nor their appearing ſometimes bigger, ſometimes leſſer: That the Comets are above the Moon, and the Heavens fluid, ſince *Tycho* few Men have doubted, and therefore *Ariſtotle*'s Intelligencers that mov'd the ſolid Orbs, have leave to play; and ſince that arched Roof is gone, I know not how the Elementary Fire will be kept in. But if it ſhould chance to prove true (and who knows what Poſterity may believe, ſince we have been ſo hardy as to admit Antipodes?) that the Earth is a Planet, and the Sun a fix'd Star, and by conſequence every Planet an Earth, every fix'd Star a Sun, it would make foul Work in the vulgar Philoſophy.

BUT let us deſcend upon the Earth, where we ſhall find Dr. *Gilbert*, inſtead of the *Oxford* Fryar's Great Black Cock at the North Pole, hath perſuaded all Men that the whole Earthly Globe is a Magnet; and tho' the Antients knew no more of the Loadſtone than its Coition, which they improperly call'd Attraction, we now find it to be no leſs remarkable for its polar Direction, (not without ſome Variation in ſeveral Places) as alſo its various Inclinations,

tions, according to its ſeveral Diſtances from the Equator and Poles; but the Nature of the Loadſtone can ſcarce be unknown, ſince we have ſeen the Circles of the Duſt about it. The diſtinct Hiſtory of the Flux and Reflux of the Sea is alſo amongſt the *Nova inventa.* The Antients overlook'd the moſt luciferous, tho' obvious Experiment of the Sling; nor did they know what Uſe to make of the Cryſtal Priſm. They were over-careleſs Spectators of the Rainbow; the Roſy-figured Particles of the Snow eſcap'd their Sight. But it were infinite to purſue Particulars: I will not ſtand to reckon up the ſeveral Diſcoveries we are beholden to the new-invented Microſcope for, nor ſhall I inſiſt upon the many Chymical Experiments that are of uſe in Philoſophy: I paſs by the wondrous Effects of Gunpowder, nor ſhall I mention the Diſcoveries of the Air-Pump, lately exhibited to the World by that noble Gentleman; or the ingenious Experiments of *Galilæo*, Lord *Bacon*, and many others.

I SHALL only touch upon one Topic more, which is the Improvement of Anatomy, and the Knowledge of the Fabrick of Animals. No Man thinks himſelf bound to believe, that the Nerves are deriv'd from the Heart, and by Conſequence, that to be the Seat of common Senſe, becauſe *Ariſtotle* tells us ſo; nor yet, tho' he could tell us no ſuch Thing, to disbelieve the Circulation of the Blood found out by Dr. *Harvey:* What ſhould I mention thoſe learned Obſervations of the ſame Author concerning the Generation of Animals! I omit *Aſellius* his *Vena lactea*, as alſo the *Ductus Chyliferus*, *Vaſa Lymphatica*, with many more of the like Nature, which do as much alter the Face of the leſſer, as thoſe other before rehearſed of the greater World.

MUST we now, after all theſe, and many more Diſcoveries about natural Bodies, confine ourſelves to what we find in *Ariſtotle*, who never dream'd of any ſuch

Things? Is it poſſible that ſo many new Appearances ſhould not alter the Frame of Philoſophy, nay rather hazard the pulling down of the old ruinous Houſe that had too narrow Foundations, that it may be built again with more Magnificence? Since we find daily Generations and Corruptions in the Heavens, and that the Stars themſelves are not free from that Fate, how can we ſatisfy ourſelves with the Four Elements of *Ariſtotle*, or the Three Principles of the Chymiſts, which, at beſt, can be but the Ingredients of Terreſtrial Bodies; beſides, that they are not ſo ſimple as to deſerve thoſe Titles? And truly, to them that have once taſted of the mechanical Philoſophy, Forms and Qualities are like to give as little Satisfaction, as the Clock-mender did to the intelligent Gentleman in the Story I before told you.

No Man would be ſo ridiculous, as ſince *Columbus* diſcover'd the new World of *America*, as big as the old, or ſince the inlarg'd Knowledge of the North of *Europe*, the South and Eaſt of *Aſia* and *Africa*, beſides the new Diviſions, Names, and Inhabitants of the old Parts, to forbid the Reading of any more Geography than is found in *Strabo* or *Mela*; or ſince the *Portugueze* have ſailed to the *Indies* by the *Cape of Good Hope*, to admit of no other *Indian* Commodities than what are brought on Camels to *Aleppo*; or if Poſterity ſhall find out the North-Eaſt or North-Weſt Way to *Cathajo* and *China*, or ſhall cut the *Iſthmus* between the *Red Sea* and *Mediterranean*, will it be unlawful to uſe the Advantage of ſuch noble Atchievements? Why then muſt Philoſophy alone be bound up ſtill in its Infant ſwaddling Bands? and there being the ſame Reaſon, why ſhould we not allow the ſame Liberty of expatiating? If any Man love Acorns ſince Corn is invented, let him eat Acorns; but 'tis very unreaſonable he ſhould forbid others the Uſe of Wheat. Whatever is Solid in the Writings of *Ariſtotle*, theſe new Philoſophers will readily embrace, and they that are moſt

accuſed

accuſed for affecting the New, doubt not but they can give as good an Account of the old Philoſophy, as their moſt violent Accuſers, and are probably as much converſant in *Ariſtotle*'s Writings, tho' they do not much value thoſe ſmall Wares that are uſually retail'd by the Generality of his Interpreters.

BUT methinks I hear ſome Men ſay, All Innovations are dangerous; Philoſophy and Divinity are ſo interwoven by the Schoolmen, that it cannot be ſafe to ſeparate them: New Philoſophy will bring in new Divinity; and Freedom in the one, will make Men deſign a Liberty in the other. The very ſame Argumentation the Presbyterians uſed when they bore Rule in the Univerſity, and the new Philoſophy was interdicted in ſome Colleges upon that Account. But what was the Event? it was ſo much the more eagerly ſtudy'd and embrac'd. There was a Time when all Learning was upon the ſame Pretence diſcountenanc'd, *Græcè noſci ſuſpectum erat, Hebraicè, plane hæreticum*; and there was a College in *Cambridge* that ſhut their Gates againſt the *Greek* Teſtament: But all their Endeavours were but vain; they might as well have hindred the Sun from riſing, or being up, from filling the Horizon with Light: Learning and Knowledge will break forth like Fire, and pierce like Lightening thro' all Impediments: Politeneſs and Elegancy have long ago ſubdued monaſtic Barbariſm: *Eraſmus* and *Melanchon*, with the reſt of thoſe Reſtorers of Learning, have made *Holcot* and *Bricot* quite out of Faſhion; and the inquiſitive Genius of later Years, like a mighty Wind, hath bruſh'd down all the Schoolmens Cobwebs. There is an infinite Deſire of Knowledge broken forth in the World, and Men may as well hope to ſtop the Tide, or bind the Ocean with Chains, as hinder free Philoſophy from overflowing; it will be as eaſy to ſatisfy Mens corporal Appetites with Chaff and Straw, as the Deſires of their Minds with empty Words and Terms. The Church of *Rome* quickly

quickly ſaw her Error in this Point, and forbore to ſtrive againſt the Stream; for when ſhe perceiv'd that Learning would be in Faſhion, ſhe preſently ſent her Children to School; and who ſo great Scholars in all Kinds as they? And ſhe hath been ſo wiſe ever ſince, that there ſhall be no Piece of Learning, but ſome of her Sons ſhall be Maſters of it; and if they will but give her reſpectful Words, they may be as free Philoſophers as they pleaſe; and I dare ſay, ſhe would take it very ill, if any one ſhould deny *Des Cartes* or *Gaſſendus* to be hers: *Galilæo* indeed fell under Correction for holding the Motion of the Earth; but the true Crime was, his abuſing his Holineſs in his Dialogues under the Name of *Simplicius*; for others have with Impunity adventur'd on as great Paradoxes, but they had the good Manners to make a Leg and ſay, *Omnia Eccleſiæ Authoritati ſubmittimus.*

I WILL never therefore believe that the Church of *England* can be more ſtingy than the Beldame of *Rome*; but will do that of Choice, the other doth of Neceſſity: True Philoſophy can never hurt ſound Divinity: The Chriſtian Religion was never bred up in a Peripatetic School, but ſpent her beſt and healthfulleſt Years in the more religious Academy amongſt the primitive Fathers; but the Schoolmen afterwards raviſh'd her thence, and ſhut her up in the decay'd Ruins of *Lyceum*, where ſhe ſerv'd an hard Servitude, and contracted many Diſtempers: Why ſhould ſhe not at laſt be ſet at Liberty, and ſuffer'd to breathe in a free Air? Let her alone to be Miſtreſs, and chuſe her Servants where ſhe beſt likes; let her old loving Nurſe the Platonic Philoſophy be admitted again into her Family: Nor is there any Cauſe to doubt, but that the Mechanic alſo will be faithful to her, no leſs againſt the open Violence of Atheiſm, than the ſecret Treachery of Enthuſiaſm and Superſtition, as the excellent Works of a late learned Author have abundantly demonſtrated? Nor will it be poſſible otherwiſe to free Religion from

Scorn

Scorn and Contempt, if her Prieſts be not as well skill'd in Nature as the People, and her Champions furniſh'd with as good Artillery as her Enemies. How ſhall the Clergy be able to maintain their Credit with the ingenious Gentry, who begin generally to be acquainted with the Atomical Hypotheſis, and know how to diſtinguiſh between a true Gem and a *Briſtol* Diamond? Or how ſhall they encounter with the Wits (as they are call'd) of the Age, that aſſault Religion with new Kinds of Weapons? Will they acquieſce in the Authority of *Ariſtotle* or St. *Thomas*, or be put off with *contra negantem principia?* Let not the Church ſend out her Soldiers arm'd with Dock Leaves and Bulruſhes to encounter Swords and Guns; but let them wear as good Braſs and Steel as their Enemies, and fight with them at their own Weapons, and then having Truth and Light on their Side, let them never deſpair of Victory.

SIR,

Yours, &c.

S. P.

Of the BLOOD.

WHILE it circulates in the Body, it appears like an homogeneous Liquor; but when it is let out into a Porringer, as it groweth cool, it ſeparates into its conſtitutive Parts: which I take to be, 1ſt, *Spirits*; 2d, *Serum*; 3d, *Gore*; 4th, *Fibres*; 5th, *Size*.

Of the SPIRITS.

THEY are the minuteſt Atoms, and ſubtileſt Matter, that the Blood can poſſibly be elaborated into by the Operation and Help of Animal Warmth, Digeſtion, Agitation, Colliſion, Percolation, Cohobation, and Admixture with fine Æther.

How high Nature (that is God's Art, as I may ſay) may work them up, we can make no Eſtimate; perhaps they may be finer than the Effluvia of the Magnet; perhaps more ſubtle than the Particles of Sound, and even of Light itſelf.

FROM the never-ceaſing Motion and Evaporation of Spirit of Sal Armoniac, we may frame ſome Notion of the Activity and Agency of our Spirits.

FROM the Particles ſtruck off between a Steel and Flint, which whirl with ſuch a Pernicity as to become Fire, we may conceive ſomething of their Rapidity and Heat.

THEY

THEY are Vital and Animal; the firſt reſide in the Blood and carnous Parts, the other in the Brain and nervous Parts.

Of the VITAL SPIRITS.

THESE are firſt begun to be made in the circulating Maſs of Blood by the Operations aboveſaid; but they are render'd expanſible, volatile, and are perfected in the Lungs by Conquaſſation and Admixture of pure Elaſtic Æthereal Air.

As the Blood is the Life of the Animal, ſo are the Vital Spirits the Life of the Blood.

ARISTOTLE ſomewhere ſaith, the Blood is of its own Nature cold: As I underſtand him, he means it is cold as Water is cold; which is always ſo, unleſs when heated by Fire (or ſomething analogous) mix'd into its Body, and putting its Particles into ſuch a Motion as cauſeth Heat; and whenever thoſe calorific Particles are gone out of it, it grows cold again, as it was before.

NOW that which as the efficient Cauſe gives Heat to the Blood, is only the Vital Spirit; and proportionably to the Degrees of its Action and Impetus, the Heat of the Blood is more or leſs.

BUT as all Sorts of Subjects ſet on fire do not produce a like Heat; as Straw yields not ſo fierce a Fire as ſolid Wood; and boiling Water is not ſo intenſely hot as melted Lead; ſo the more the globulous and ſolid Parts abound in the Blood, the hotter it may be made; and the more mucilaginous and thick it is, the longer it will retain its Heat.

THAT the Blood hath no proper Heat of its own, but receives it all from the Spirit, plainly appears by this, that when it is let out of a Vein warm into a Porringer, as the Vital Spirit evaporateth, it groweth as cold as the ambient Air is.

HEAT is the gentle friendly Mication which gives that inteſtine Motion of Parts that makes Liquidity and Briskneſs, and keepeth all its Elements in Mixture and Equability; fits the Maſs for Circulation; cauſeth Digeſtion, Sanguification, Diſtribution, Nutrition; and mainly contributes to Depuration, and the throwing off of heterogeneous Matter of Recrements: And laſtly, they afford Matter for the Animal Spirits to be diſtill'd and rectify'd out of.

IF the Blood, by Reaſon of its Poverty, ſome great Sickneſs, or enormous Evacuation foregoing, be not able to furniſh out a ſufficient Penus of Spirits, the Vital Functions will ſuffer, and be but indifferently perform'd; and alſo the Animal Spirits will fail for want of a due Supply.

THEY being inconceivably ſubtile, volatile, and diſſipable, continually evaporate, and ſuffer great Waſtes; and are in Time of Health proportionably recruited and repaired by new ones daily produc'd in the Maſs of Blood.

WHEN they are much ſpent and flown, if the Occaſion of it was only Labour, and great Evacuations, and the Party at the ſame Time be pretty well, and his Vital Functions continue to be not ill perform'd, he will ſoon breed more Spirits, and be repair'd again.

BUT if this be greatly waſted by a Fever, or other Illneſs, and Sanguification be hurt and deprav'd, they cannot be rightly ſupply'd with freſh ones, 'till Nature does

does at length recover, and reſtore the Vital Functions, which cannot be in a ſhort Time.

WHENEVER they are much irritated, they fly into exploſive Diſorders, and raiſe preternatural Commotions in the Blood, and are the efficient Cauſe of all Sorts of Fevers.

IF they rage impetuouſly, ſharp Symptoms ariſe; if they fail, the Fever is long and hazardous; and if they are quite ſpent or conquer'd, Nature gives out, and Death follows.

IF in Fevers, becauſe of diſagreeable, and eſpecially malignant and venomous Mixtures, they are driven into furious Exorbitances, then they will impart a like Effect upon the Animal Spirits, and will cauſe and occaſion ſuch Diſeaſes and Symptoms, as the Brain and Nerves are capable of, and liable to.

Of the ANIMAL SPIRITS.

THEY are ſo call'd becauſe they perform muſcular Motion, Senſe, Perception, and all the Animal Functions and Faculties; and are not Æther, but the Vital Spirits diſtill'd, rectify'd, and filter'd.

FOR when the Vital are brought by the Blood thro' the carotid and cervical Arteries, into the Laboratory of the Brain, and that conſiſting of the incomparably minuteſt Fibrillulæ, and exquiſiteſt Texture of any Thing in the whole Body, ſuffers none but the very pureſt Quinteſſential Atoms to enter into the Glands and Tubules of its Cortex; and all the reſt, which is not ſo fine, flows back, and returns into the Veins again.

AND this Colation of the Vital Spirits thro' theſe Fineneſſes, doth ſo depurate and refine them, that they become as ſubtile, expanſive, and agile, as even the very pureſt Æther; and perhaps are as much finer than the Vital, as thoſe Particles which conſtitute the Light of the Sun, are than thoſe which cauſe the Heat.

THUS as the Lungs (which I ſhall ſay in its Place) perpetually new make the Blood and Vital Spirits; ſo the Brain new makes the Animal Spirits, and ſends them thro' the Nerves into the Membranes and Muſcles; ſome of which it is probable are ſtationary, and reſide in the nervous Fibres; and others are ſent forth and back upon the Occaſions of Senſe and Motion.

AND when they have done their Buſineſs there, thoſe of them which are not evaporated and ſpent, run into the general Maſs of Blood again, where, having taken up groſs and foul Copula, they are new mix'd up in the Lungs, and made Vital; and after that, are diſtill'd off in the Brain as before.

AND thus as there is a Circulation of the Blood, ſo is there of the Spirits likewiſe.

Of the SPONTANEOUS SPIRITS.

I Am gotten into an Opinion, that beſides the Vital Spirits reſiding in the Province of the Blood, for the Uſe of the Vital Functions; and the Animal in the Nervous, for voluntary Motion; there is a third Sort (as Dr. *Willis* believes) in the Cerebellum, for the Spontaneous Motions of the Heart, Lungs, and Inteſtines.

PERHAPS theſe may be no other than Animal Spirits ſent out of the Brain into the Cerebellum, to be there new

new drawn off and rectify'd, and form'd and fitted for their proper and peculiar Operations.

HOWEVER, that they are a perfectly diſtinct Sort, muſt of Neceſſity be allow'd, in regard, that whereas the Animal Spirits, upon hard and long Duty, will grow tired and weary, and require Ceſſation of voluntary Motion and Senſe, and muſt have Reſt and Sleep, in which Time they are chiefly recruited again with freſh Supply from the Vital; theſe never ſleep at all, tho' they may be ſometimes ſtopp'd, eſpecially in Apoplectic or other Fits.

ALSO, this farther ſeems plain from hence, that oftentimes where the Animal Spirits fall into great Diſorders, and ſtop, as in Phrenzies, Convulſions, Palſies, theſe notwithſtanding ſhall go on as they uſed to do, and continue the Spontaneous Periſtaltic Motion of the Inteſtines, and that of Pulſation and Reſpiration, by themſelves.

NOT but that they have ſo much Dependance upon the other Spirits, as to admit of Alterations from their different State, Sufferings, and Actings.

THIS is manifeſt; for we ſee that Pulſing and Breathing are accelerated, retarded, or ſome way or other perverted or alter'd, by running one's ſelf out of Breath; by great Ebullition and Heat of the Blood; by noxious febrile Matter giving Offence in its Paſſage thro' the Heart and Lungs.

BUT above all, if the Animal Spirits be ſo far exhauſted or perverted, as not to be any longer able to furniſh out a ſufficient Supply for theſe, then the Motion of the Machine ſtopping, Vitality and Animality ceaſe.

NOW as the others are call'd Vital and Animal Spirits, ſo theſe, becauſe they are always upon conſtant Duty,

and,

and, as long as the Animal hath Life in it, are perpetually ſtreaming forth from a never-failing Spring, might be term'd *Perennial*; but in regard that they receive not their Orders from the Will, but act of themſelves, I think fit to call them *Spontaneous* Spirits.

Of the SERUM.

IT conſiſts of two diſtinct Parts, namely, the Potulent and the Lymphatic.

THE firſt is no elementary Part of the Blood, but is only that which is taken in by drinking, and is not by Nature's Appointment to continue long in it; for when it hath ſerv'd the Purpoſes it was deſign'd for, it paſſeth out again by Urine, Sweat, inſenſible Tranſpirations, *&c.*

ITS Uſes are, to quench Thirſt, abate Heat and Drought in the Mouth, Oeſophagus, and Stomach; to moiſten the Food; to render the Maſs of Aliments, when ſubacted, thin, and fit to be percolated into the Lacteal Veſſels, and paſs into the Blood; and there to dilute it, and hinder the Globuli from cluſtering together and coagulating; and to be a Vehicle for Salts, for the liquifying and carrying them, together with other ill Matters, off by the Breath, urinary Paſſages, and the Pores of the Skin.

THE other Part is the Lympha, which the conglobate Glands ſtrain out of the Blood into the Lymphatic Veins, and they pour it into the Maſs again thro' the Subclavian Vein.

IF the Lymph be heated over the Fire, it will be turned into a thick Coloſtrum, like the Whites of Eggs fry'd, and not evaporate away ſo much as Urine and Sweat will do, which contain a greater Proportion of the Potulent Part.

HOWBEIT,

HOWBEIT, tho' theſe two be different in Nature, yet becauſe they are ſo united as to appear in one uniform Liquor, and perform many Offices together jointly, I ſhall not here divide them, but treat them as tho' they were but one, by the Name of *Serum*.

IT giveth the Maſs of Blood Liquidity and Mixture, and ſuch a fluid Conſiſtence, as fits it to flow freely thro' the minuteſt and remoteſt Pipes and Paſſages of the Veſſels and carnous Fibres, without Stagnation, Obſtruction, or undue Separation of Parts.

IT reſtrains the diſtemper'd Effects of the Vital Spirits, intervenes between the Globuli, and hinders them from Coalition and Febrile Conflagration.

IT is the proper Menſtruum for the laſt and fineſt Diſſolution of Chyle, and Diſtribution of Aliment into all the inmoſt Receſſes and ſmalleſt Vacuities it is to be carry'd into.

IT is of neceſſary Uſe for the Extrication and Separation of either worn out, effete, or noxious Recrements: And theſe are ſpecifically, mechanically, and, as it were, electively perform'd, according to the different Fibres, Contextures, Configurations, Convolutions of the Glands and Strainers, whoſe Pores are adapted to receive and tranſmit ſuch Particles only, as, when they come together, conſtitute a peculiar Species of Liquids, as Urine by the Kidnies, Sweat by the Cutaneous Glands, Bile by the Liver, *&c.*

FOR it is in Animals as it is in Vegetables, the Percolatory giveth the Specificalneſs to the Matter percolated. Thus we ſee a Crab Stock maketh Crab Juice, as far as its Body goeth; but where it is grafted, that Graft alters that which was up to that Place Crab, into Pippin, or ſome other determinate Apple, according to the particular Figure and Size of the Pores of that Graft.

IT

IT moiſtens and lubricates the Fibres of all Sorts, and keeps them ſupple and ſlippery, extenſile and contractile, without which they could not perform their Motions and Operations.

IT is the Receptacle and Vehicle of all Animal Salts. When it is over ſeaſon'd with muriatic Salt, it occaſions Scurvy, Catarrhs, Coughs, Conſumptions, Putrefactions, cutaneous Eruptions, Ulcers, *&c.*

WHEN heterogeneous, diſproportion'd, malignant, or venomous Corpuſcles are either bred in it, or brought into it, it is the Cauſe of Fevers, putrid, malignant, contagious, or peſtilential.

WHEN the Serum is diſproportionate, and abounds too much, it cauſeth Coldneſs of Conſtitution, Thinneſs and Poverty of Blood, Rheums, Dropſies, Chloroſis, and Tumours by Congeſtion.

WHEN it is not plentiful enough, (eſpecially the Lymphatic Part) there follows Thickneſs of Blood, Obſtructions, Inflammations, hot dry Conſtitution, hectic Fever, and Atrophy.

AND in that Caſe, drinking plentifully of any Sort of Liquor whatſoever, tho' it pour Moiſture into the Veſſels, yet that will in no wiſe ſupply the Want of Lymph; for the potulent Part (as ſaid before) being no conſtituent Part of the Blood, mixeth not intimately ſo as to become one uniform Body with it; and when it hath a little ſuperficially diluted the Maſs, and waſhed out the Veſſels, it forthwith runneth out of the Body again.

HENCE it may appear, why Diaphoretic and Diuretic Medicines, tho' they may provoke Sweat and Urine plentifully enough, yet very often ſignify little towards the diſcharging

diſcarging the Blood of ſuch Maladies as are ſeated in or occaſion'd by the Lymph; for ſuch Medicines act not ſo much upon the Lymphatic Element, which is a real Part, and cannot be without Difficulty ſeparated, as upon the Potulent, which, only ſwimming in it, and not intimately mixing, may eaſily be driven off.

BUT in Febrile Diſtempers, where the morboſe Matter is got no further than the Lymph, and hangs but looſely in it, Nature generally can ſeparate and expel it without any troubleſome Symptoms or Ebullition. An Example of this is the Cryſtalline Small-Pox.

Of the GLOBULOUS PART.

IT is that Part which in a Blood-Porringer ſettles into a clotted Maſs, and is chiefly compoſed of Globules.

THE Nature of theſe Globules is ſuch, that whenever they come to touch, they run into one another, and join as Particles of Quickſilver do.

AND they may be ſubdivided into almoſt infinite little ones, even till they loſe their Colour; and by this Means become capable of paſſing thro' the Arteries, Veins, Interſtices, Muſcles, Fibres, Glands and Strainers, be they never ſo minute: Nay, they can paſs where even the Air cannot, as hath been proved by two Experiments in *Philoſophical Tranſactions abridg'd*, Vol. III. p. 208.

THE Exiguity of theſe Globules is aſtoniſhing, and cannot well be eſtimated; but *Leewenhoeck*, in his *Epiſtle* to *Aſton*, finds by his Method of Computation, that a common Globule, ſuch an one as tinges the Blood, is a Million of times leſs than an ordinary Grain of Sand. And in his *Epiſtle to the Royal Society*, p. 175. he ſaith, (I think he means not a common bigger Sort of Globule,

but ſuch an one as hath undergone many Diviſions) "The "Globules that make the Blood red are ſo ſmall, that "*Centena Myriadum Millia*, an Hundred Thouſand Millions "are not equal in Bulk to a pretty large Grain of Sand.

THAT they are actually divided into ſuch very ſmall ones, as to loſe their Redneſs, appears in the Matter of Bluſhing, where the Face that was without Colour, by Reaſon of the Exiguity of the Globuli and Veſſels, fluſheth into a Redneſs, when Shame hath forced the Spirits into it, and they the Blood; whereupon the Globuli joining, become larger, and the Veſſels more conſpicuous.

BECAUSE theſe Globuli are heavier than the Serum, and ſink down in it, I take them to be not hollow Bubbles, but ſolid Moleculæ, which conſiſting of ſoft Pulp equally yielding on all Sides, are therefore capable of receiving any Figure, according as the Limitation of ambient Bodies giveth Shape: but are, when free from Preſſure, ſpherical; as a Drop of Water, or other Liquor, when left to itſelf, runneth naturally into a Globule, or round Figure.

THESE Globuli take not their Colour from any thing, but are of their own Nature red: and all the Redneſs of the Blood and Body is owing wholly to them; but when they are kept from the Air, and compreſs one another, and join together in Thrombs, they loſe their Floridneſs, and look blackiſh, as is to be ſaid hereafter.

IT is theſe that give the Blood its main ſubſtantial Richneſs, and (by the Agency of the Spirits) Heat; they, as it were, hatch, and breed, and conſerve the Vital Spirits. Theſe mix with the Chyle, when brought into the circulating Maſs, and digeſt and work it up into perfect Blood: And they afford the Matter of Nouriſhment to all thoſe Parts that are properly Fleſh, or carnous Parenchyma. When the Blood is not ſufficiently

ſtored

ſtored with theſe, it is crude, cold, pale, poor, unfit to warm and nouriſh where it flows. It is alſo unable to ſeparate Heterogeneities, and throw off Recrements: whence are occaſion'd a ſickly Conſtitution, Weakneſs, Cachexy, Dropſy, Menſium Carentia.

WHEN the Maſs is diſproportionably over-ſtock'd with them, they make an hot feveriſh Conſtitution; and when upon any Occaſion they are looſened from their Mixture with the other Elements, or are irritated by diſagreeble Matter got in among them, and ſo running together in Combinations, grow exorbitant and turgid; they then (by the Help of the Spirits) exagitate the whole Maſs, and make it boil vehemently, and ſo produce Inflammations, Fevers, Hæmorrhagies, and Diſorders in the Head, Lungs, Stomach, Viſcera, *&c.*

WHEN a Quantity of Febrile Matter is gotten in among the Globuli, they will riſe up againſt it with Heat and Hurry, either to ſubdue or expel it; and according as the Nature of that Matter is, benign, malign, or virulent, ſuch a Fever reſpectively will they produce.

IN peſtilential, or other venomous Fevers, when the poiſonous Particles have ruined the Craſis of the Blood, and ſo broken the Globules into their Minima, that they cannot be contained in the Veſſels, thoſe broken Globules will either come out in the Skin in Spots, or in great red Fluſhings, or produce Hæmorrhagies.

WITH leave I mention this by the bye: I have ſeen Countrymen, at the Death of a Buck, drink a good large Draught of his warm, and, as yet, live Blood, for the Cure of a Jaundice: Perhaps it may, in that impoveriſh'd State of Blood, bring in a Supply of freſh Globules, and renew it, and be a Sort of Transfuſion of Blood.

I CONCEIVE each primary Globule, as it ſwimmeth in the bigger Veſſels, is comparatively a large one, made up of many ſecondary little ones.

ALWAYS when it cometh to minute Pipes and Pores, it breaketh into ſuch little Secondaries, as are ſmall enough to enter and paſs thro'.

AND when they come again where there is Room enough, they run together and unite, (as ſmall Drops of Water do into greater) and become ſuch large Primaries as they were before.

AND without this conſtant dividing and uniting of Globules, according to the Wideneſs or Narrowneſs of the Paſſages, Obſtructions would every where happen, and Circulation could not proceed as it muſt do, to continue Health and Vitality: But ſometimes a Fever will boil up their Pulp into ſuch a ſolid and firm Conſiſtence, that they cannot break and divide ſo much as is requiſite.

SOMETIMES it will ſo break the Bonds of Union, that they will fall aſunder, as well in the larger Canals, as ſmaller Rivulets, and ſo harden the Secondaries that they can ſcarcely unite again; and ſo the Blood becomes a fluid uncongealable Maſs, which is that which is called Putrid.

SOMETIMES when an ardent Fever is kindled up by very inflammable Matter, it will ſcorch, and, as 'twere, calcine the pulpoſe Corpuſcles into ſomething like Cinders and Aſhes, and ſo render the Maſs of Blood aduſt, and foul it with acrid Fæces.

BUT when a Fever is cauſed by Matter that is exceedingly hoſtile to Nature, eſpecially if it be of a true venomous Kind, its Particles may tenaciouſly fix upon the Secondaries, Atom for Atom; and with them form ſuch ferine

ferine Moleculæ as will fire and tear where-ever they go. And at the ſame time being utterly unfit to paſs along in the common Streams, will break out of the Bounds of Circulation, and ruſh either into the inward or outward Parts in little Spots, large Efflorescencies, Puſtules, Tumours, inflammatory or other Sorts.

Of the FIBRES.

IF Blood be let out of a Vein into warm Water, or a Clot of freſh Gore be waſhed in it, ſo as to have its red Globules ſeparated from it, innumerable ſmall white Fibres will come to ſight, ſwimming in the Water, and, if kept quiet awhile, will ſink and fall to the Bottom.

AS the Globules give the Blood its Richneſs, ſo theſe Fibres give it Firmneſs and Strength; for they knit the Elements together, and hold up Conſiſtence: Alſo they afford alimentary Supplies to all the nervous fibrous Parts, Membranes and Bones.

IF they are too many in Proportion to the other Principles, they take off ſomething from its Fluidity, and hinder its Current, eſpecially if they be boiled up together with the mucilaginous Part into a Size, which is the Caſe of inflammatory Fevers; for in thoſe Caſes their congealed Portions, fixing and ſtagnating in the Extremities and Streights of the capillary Veſſels and Interſtices, obſtruct Circulation, and produce Extravaſation, as in Quinzies, Pleuriſies, and muſcular Rheumatiſms, *&c.*

THE Reaſon why letting of Blood avails ſo greatly in ſuch Caſes, ſeems to me (beſides Inanition and Reſorption of extravaſated Blood) to be from the leſſening the Quantity of theſe Fibres, (for in theſe Caſes the Blood is found always remarkably ſizey) and ſo takes away Part of the old Stamina, which having been parboiled, and thereby

thereby grown too ſtiff to run freely thro' the intricate Meanders, ſmalleſt Veſſels, and inward Receſſes, occaſions Stops and Inundations. And I take it to be a good Rule in Practice, to repeat Bleeding in all inflammatory Caſes of this Sort, till the Size be for the moſt Part drawn off, and not much ſeen in the Porringer: And when we obſerve it is almoſt all gone, and the liquid Serum begins to be pretty plentiful, then, and not before, to ſtay one's Hand, and forbear taking away more Blood.

IF the Blood hath not in it a ſufficient Proportion of Fibres, tho' at the ſame time it may contain Globules enough, and appear highly red, yet it will be too thin and weak, and apt to run into Separation of its Parts.

IF the Fibres be eroded and broken, as it happens in malignant and venomous Fevers, and alſo from ſome Sorts of Poiſons, and Bites of venomous Animals, it is obſerved that the Blood taken out by Phlebotomy, or iſſuing forth by Hæmorrhagies, will not fairly ſeparate into Serum and Gore, but remain in the Porringer a blackiſh middle half-liquid Subſtance.

AND this breaking, eroding, and Comminution of the Fibres and Craſis is one Cauſe, in ill Fevers, of various Eruptions, Spots, and Puſtules.

BULL'S Blood was formerly ranked in the Claſs of Poiſons, cauſing Pain in the Stomach, Difficulty of Breathing, Fainting, Epilepſy, Apoplexy, and even Death: And we have it related in Books that *Midas*, *Pſammegiſtus*, and *Themiſtocles* were killed by drinking it.

NOW if this was really ſo, and true Matter of Fact, we may impute it to the many groſs and ſtrong Fibres in this Sort of Blood, which hinder it from being digeſted in

in the Stomach, carried thro' the Lungs, and ſent clear out of the Brain.

WHERE theſe Fibres are too coarſe and ſtiff, they make the Craſis and Contexture of the Maſs too groſs and ſtrong to divide into ſuch Exiguities, as it muſt of Neceſſity do, when it comes to paſs thro' the leſs than capillary Veſſels.

WHERE they are too ſlender and lax, they make it thin and weak, and unable to hold Conſiſtence.

IF a Febrile Heat dry them, ſo as to deprive them of their Tone and Lubricity, that internal Motion of Particles, which conſtituteth Liquidity, will ſuffer Prejudice: And the Blood will not ſlip ſo eaſily and freely thro' the fine Meanders and Strainers of the Body.

BUT if an ardent Fever ſhould ſo over-ſcorch them, as to make them ſhrink up and curl, as it were, like Snips of Parchment in the Fire, (which I take to be the Caſe of Liquors that have contracted an Empyreuma) they will run into ſuch little Concreſcencies, as will lay Obſtructions in the inmoſt Receſſes, and produce chronical Maladies.

Of the SIZE.

IT is a peculiar gummy and oily Subſtance, ſomething like the Decoction of Calves Feet.

IF the Fore-finger and Thumb be dipped into either the Serum or Gore in a Blood Porringer before it be cold, and then held cloſe together till dry, they will cleave and ſtick faſt, as tho' they were ſized or glewed. And if the Hands be waſhed in warm Blood, it will be found to be very ſlippery.

THIS

THIS is that Gelatinous Subſtance which is ſhed into the Joints by the Mucilaginous Glands.

'TIS of this Sort which is boil'd out of Hartſhorn for Jelly; out of the Fiſh *Huſa* to make Iſinglaſs; out of Skins, Shreds of Parchment, and Leather, to make Size and Glew.

THE Uſes of it are to blunt and ſheath up the Points and Edges of Acrid Salts; to make the Blood ſoft; to thicken the Serum, and that not as Starch doth, by filling up the Pores; but as Gum Dragon doth Water, by ſticking to its Particles, and making them bigger.

TO cement and hold the ſeveral Parts of the liquid Maſs together.

TO impart to the circulating Maſs a Lubricity, by means of which, altho' it be a thick Subſtance to ſee to, yet it can eaſily inſinuate itſelf, and ſlip thro' all the fineſt Paſſages every where.

TO keep all the Fibres and Veſſels ſupple and moiſt, and qualify'd for Extenſion, Contraction, and Relaxation, and all their Motions, Offices, and Uſes.

TO make the Alimentary Juices, when carry'd into the innermoſt Receſſes, ſtick and ſtay there, 'till they be aſſimulated and fix'd; and not fall out again, as we ſee they do (for want of this Size) in Hectic waſting Fevers.

TO line and defend the Cartilages and Bones in the Joints from rubbing and fretting one another.

LASTLY, (in my Opinion) to be the chiefeſt Nouriſhment of the nervous Fibres, Membranes, Tendons, Cartilages, and Bones; for out of them ſuch a Matter is extracted by boiling.

IT abounds more in young Bodies than in old. Thus Veal Broth is Gelatinous, but not that made of old Beef.

NATURE's Reaſon for this is, becauſe the Bones and ſolid Parts being thoſe that give and limit the Bigneſs and Length of Animals, it hath, during the Term of Growth, need of ſuch a Plenty of Nouriſhment, as may increaſe its Dimenſions; and all that Time the conſtituent Fibres are (like young Twigs of Trees) moiſt, pliable, and extenſible to receive it.

BUT when once the Age comes to be ſuch that the Fibres grow hard and ſtiff, and admit not of ſo much Aliment, then Nature prepares not ſo much of this Gelatinous Nutriment, as it did when there was want of a Plenty; and ſo the vegetative Augment ſtops.

IF there be in the Blood too much of this Size in Proportion to the other Parts, it clogs them, and hinders the Faculties of the Body from being vigorouſly executed, intangles and detains what ſhould be ſeparated, makes the Craſis of the Blood (tho' not rich, yet) too thick, and unfit for Circulation; upon which Obſtructions are ingender'd in the Glands, Viſcera, and ſolid Parts, as well as in the Canals and Pores; and Serum and Crudities are heap'd up, and Vital Spirits are not plentifully bred.

IT is likely alſo, that the Fibres, through and by which the liquid Maſs paſſeth, are by too much Oleagenous Mucilage more lubricated, ſuppled, and relaxed than they ought to be; and conſequently becoming looſe, lither, have their Tone weaken'd, or their Action impair'd; hence alſo will proceed that ſluggiſh Inactivity and Drowzineſs which attends very fat People, whoſe Nerves, Membranes, and other Parts, that ought to be tenſe and tonically braced, are relaxed by the too great Proportion of Oilineſs in the Blood.

BUT if this Size, Mucilage, and Oil be deficient, the Conſtitution will become hot, dry, lean, and meagre; and the fretting corroding Humours and Salts being not ſufficiently attemper'd, corrected, and ſheath'd, will excite Uneaſineſs and Pains, and will injure eſpecially the Membranes and moſt ſenſible Parts.

BUT moſt remarkably the Lungs; through which the Blood hath ſuch a Thoroughfare, and whoſe vaſcular Subſtance and extremely minute Veſſels are ſo tender, as to be more eaſily annoy'd and hurt than any other almoſt in the whole Body: And ſo hence commonly happen Hectic Fevers and Conſumption.

SOME who have been ſo curious as to taſte the Serum of Perſons let Blood in a nervous Rheumatiſm, (for the true muſcular Rheumatiſm is not often ſeen now-a-days) never found it more ſalt or ſharp than uſual in other Diſeaſes; and therefore take up an Opinion, that this Diſtemper is not cauſed by any morboſe Acrimony of the Blood, but by its mucilaginous Thickneſs, which not finding free Current through the Capillaries, ſtops, or, at leaſt, creeps on but ſlowly, and ſheds often Serum into the Parts; which extending and tearing aſunder the Fibres of the Membranes beyond their natural eaſy Tone, excites Pain.

CONSENTANEOUS to this a Phyſician told me, that in a Rheumatiſm, he hoping to ſheath the pricking Points of the Salts, gave for ſome conſiderable Time three Ounces a Day of Gum Arabic diſſolv'd in a watery Vehicle; but he thought the Diſtemper grew more painful and obſtinate by its Uſe, and ſo was forced to leave it off.

Of CIRCULATION *of the* BLOOD *and* SANGUIFICATION.

THE Blood, by the Pulſation of the Heart, is driven out of the left Ventricle, thro' the Arteries, into every the minuteſt Paſſage and remoteſt Particle of the whole Body, and imparteth all along as it goeth, natural Heat, Vitality, and Nouriſhment.

IN the doing of this, it ſpends much of its Vital Spirit, and leaves its fineſt Alimentary Juices in the Parts to be nouriſh'd; and in its Paſſage grows foul with effete Recrements flowing into it from all Parts, according as their Nouriſhment growing old and uſeleſs falls off into it.

AND then the Blood being by theſe means become vapid, lifeleſs, and blackiſh, is in that Condition taken up by the Veins, to be carry'd back to the Heart and Lungs, where it is to be new wrought up and vivify'd again.

IN its Paſſage thither it receives into it, from the left Subclavian Vein, a continu'd Supply of freſh Chyle or Lymph, which falls down with it by the *Vena Cava Deſcendens* into the right Ventricle of the Heart; but is as yet nothing different from venal Blood, appearing every whit as black and groſs.

BUT when it is transferr'd thence into the Lungs, it undergoeth a great Operation, and notable Change.

FOR by the Admiſſion of Air in every Inſpiration, (20 or 24 of which are uſual in one Minute) by the never-ceaſing Labour of the Lungs, by Conquaſſation, mutual Colliſion of Parts, by fine Percolation and kindly Warmth, every Atom of it is ſucceſſively and perpetu-

ally ſubtilized, new beat up, and intimately mixed, and alſo by every Expiration depurated from fuliginous Particles: By theſe Means it is recover'd into a bright, ſplendid, coccineous Colour, and render'd a ſparkling, ſpirituous, vital, ſcarlet Liquor of Life.

AND thus being new made up and freſh, it runs into the left Ventricle, to be thence ſent out again into all the Parts of the Body as aforeſaid, by the Name of *Arterial* Blood.

FOR the illuſtrating of this Matter, let us conſider the incomprehenſible Exility of the ſanguiferous Veſſels, concerning which Dr. *Power* (*Experim. p.* 59.) ſaith, Certainly if we can at a Lamp Furnace draw out ſuch ſmall Capillary Pipes of Glaſs, that the reddeſt Liquor in the World ſhall not be ſeen in them (as I have often done) how much more curiouſly can Nature form the Veſſels of the Body? nay, and bore them too with ſuch a Drill, as the Art of Man cannot excogitate.

BESIDES, we ſee even in our own Eyes, that the ſanguineous Veſſels that run along in the White of the Eye, are not diſcernable, but when they are preternaturally diſtended in an Ophthalmia, and ſo are turgid and conſpicuous.

NOW the Blood, which ſtreams through ſuch marvellous narrow Channels, muſt, to be admitted into them, conſiſt of Particles almoſt infinitely ſmall.

AND becauſe abundantly leſs than Capillary Arteries branch into the furtheſt Extremities, and minuteſt Receſſes of the Lungs, and are ramify'd all along with the Air Veſſels in all their leaſt Diviſions, every the leaſt Atom of Blood muſt needs be mix'd with the like Atoms of Air.

THE

THE Conſequence of this will be, that if we ſuppoſe one Ounce of Blood paſſeth through a Man's Lungs every Pulſe, and a common Pulſe beat 80 in a Minute, then 80 Ounces will be divided into Particles, cohobated, mix'd with freſh Æther, and new made up every Minute.

AND this continual Operation of the Lungs, and perpetual Renovation of the Blood, is that moſt wonderful Contrivance which Nature hath inſtituted, and makes uſe of to conſerve the Liquidity, Mixture, and Craſis of the precious Liquor, and to continue Circulation, Warmth, and Vitality; and without this, or ſome equivalent Artifice, it would be (as far as we know) utterly impoſſible for Animals (perhaps even Mites) to live at all.

THIS great Office of the Lungs hath not, as yet, (unleſs I have overlook'd it) been enough and ſufficiently taken Notice of and explain'd by our Anatomiſts; who now-a-days, that they may not foul their Fingers too much, nor make themſelves ſick with offenſive Smells, ſearch for, and ſhew their Pupils little elſe but the Origin and Inſertion of Muſcles, eſpecially ſuch as make a Sound, as *Sphenopharyngæus*, *Cephalopharyngæus*, and the like; not much regarding the infinitely fine Contrivances of Nature in the Animal Oeconomy, which is the Foundation upon which ſhould be built the true Theory of Diſtempers, and rational Practice of Phyſic.

Of the ARTERIAL BLOOD.

THE Arterial Blood is much redder and brighter than the Venal; and that this Alteration is made not in the Heart, but in the Lungs, is evident to Sight; for if (in live Diſſection) the Arteria Pulmonalis, which carries from the Heart to the Lungs, be open'd, the Blood flowing

ing from it will appear ſwarthiſh, like the Venal; but if the Vena Pulmonalis, which carries from the Lungs to the Heart, be open'd, it will, before it arrive at the Heart, be florid and bright like Arterial.

THIS fine Scarlet Colour of the Arterial Blood is cauſed,

1. BY the Admixture of glittering Aerial Particles. 2. By the Beating of it up anew into innumerable little Bubbles (like thoſe of fermenting Liquors). 3. By ſtraining the Globules (like Mercury thro' Leather) whereby they being cleared and freed from the foul Copula's they had contracted, have Power to exert their natural elaſtic Force, and recover their ſpherical Figures; and by that Means reflect the Rays of Light like ſo many convex Glaſſes.

Of the VENAL BLOOD.

IT is (while in the Veins) blackiſh, as before ſaid; but when it is let out into a Porringer, its Superficies is commonly ſeen as bright and coccineous as the Arterial.

THIS is cauſed not only by the gliſtering Atoms of either mixed in with it, but by its lying open in the free Air without Preſſure, whereby the elaſtic ſizy Moleculæ, by a Motion of Reſtitution, ſpring out again into their natural globular Figures, and, like a Multitude of Bubbles, look bright.

AT the ſame Time the Maſs under it will be blackiſh; the Reaſon of which is, becauſe upon the exhaling of the Spirits, the pulpoſe Moleculæ ſink down cloſe together, whereby each ſingle Globule is compreſs'd and ſqueez'd flattiſh, and ſo the Maſs, inſtead of being an Heap of Convex Glaſſes to reflect the Light briskly, is now

now become a dead cavernous irregular Clot, which abſorbs the Rays, and remains of a ſwarth Colour.

HENCE alſo is known why, when the coagulated Blood in a Porringer is turn'd upſide down, the Bottom of it, at the firſt turning up, appears blackiſh; but (if the Spirit be not wholly flown off) will, in a little Time, turn to a brighter Red; namely, both becauſe Air comes to it, and becauſe its Globules being now free, recover their Convexities.

IT is obſerv'd, that the Blood which in Phlebotomy, or out of the Noſe or Lungs, comes Drop by Drop, is generally of a bright Red; but that which runs from the ſame Perſon out of a large Orifice, and ſtreams apace with a Radius from the Arm, is moſtly ſwarth.

THE Reaſon is, becauſe the Air cometh to touch the Drops all round, and the Globules, in ſuch ſmall Bulks, cool and grow conſiſtent enough to maintain their Convexities before the Spirits have left them; and ſo when they come to compoſe Clots, they are not wholly preſs'd out of Shape.

BESIDES the Caſes and Cauſes aforeſaid, an high Scarlet Blood will be cauſed by muriatic acrid Salts; as it uſually is ſeen in a Pſora, Leproſy, and other cutaneous Affections.

MORBOSE, febrile, and venomous Particles in the Blood, will frequently produce a lively florid Colour in it; but this portends ill; is often ſeen in malignant peſtilent Fevers; and, I believe, is always ſo in the Bleeding Small-Pox.

Of

Of the PASSAGE *of the* BLOOD *out of the* ARTERIES *into the* VEINS.

I Hear it is the current Opinion of our modern Anatomiſts, that the Arteries, when they are run out into their ſmalleſt Pipes, have no proper Extremities, but there become Veins, making with them but one continu'd Channel; and therefore the Blood throughout the whole Body is always invaſated.

AND for this they think they have ocular Demonſtrations, when they plainly ſee (with a Microſcope) the Blood running ſwiftly and without ſtop, its Circle in the Tail of a little Fiſh, Tadpole, or Lungs of a Frog.

BUT tho' this Motion be undeniably viſible, and tho' they cannot diſcern the Blood diffuſing itſelf from the Ends of the Arteries into any Parenchyma, or other Subſtance ſituated between the Arteries and Veins, yet this is no certain Proof of there being no ſuch Thing.

FOR the Exilities of Nature, where ſhe is upon her fine Works, are utterly undiſcoverable. *Leewenhoeck* reports, that he had traced the Arteries, till he ſaw them twenty thouſand times leſs than an Hair of his Beard, and yet could never perceive where they anaſtomatiſed with Veins, nor where they ended. And perhaps *Ruyſch* hath had no better Succeſs with his admirable Injections.

THIS Opinion ſeems to me to labour under ſeveral inſuperable Difficulties: For if the Blood be always ſhut up in Arteries and Veins, it would follow, That,

1. ARTERIAL and Venal Blood muſt be the very ſame; for by this Suppoſition, nothing can paſs out of it,

it, and nothing can come into it, except Lymph and Chyle; and theſe too not till they arrive at the Subclavian Vein, where the whole Circle is almoſt compleated; and therefore to that Place the Venal Blood muſt be unalter'd from the Arterial; which Experience tells us is not ſo.

2. NO Animal Spirits can be made; becauſe the Blood being continually ſhut up in the Arteries and Veins, cannot enter into the Glands of the Cortex Cerebri, to be as 'twere diſtill'd, or rather ſtrain'd into Spirits.

3. NO Part, that is not itſelf an Artery or Vein, can be moiſten'd and nouriſh'd, any more than a Garden can by Water in a cloſe Pipe laid through it, without any Apertures for that Water to iſſue out at. And if this were ſo, I do not ſee of what Uſe the Blood can be, but juſt to bring Warmth into the Parts.

4. THERE being a daily Meaſure of Chyle brought into the Blood Veſſels, and they having no excretory Vent out again, and alſo nothing (unleſs we allow a ſmall Matter of ſpirituous Halitus) being able to break out thro' the Coats of the Arteries, the Veſſels muſt burſt, and Life cannot be continu'd after Nouriſhment is begun to be carry'd in.

5. THE Blood cannot be depurated, and freed from veterane Recrements; becauſe in the ſuppoſed cloſe vaſcular Canal there are no Glands to ſequeſter ſuch Matters, and fit them to be carry'd off by the Ways of Expiration, Perſpiration, inteſtinal Dejection, *&c.* And if it were thus, then all the Colatures of the Body can be of no manner of Uſe at all.

6. WHERE there is no Wound, no Hæmorrhage can poſſibly happen, unleſs the Veſſels break to let the Blood burſt out. But none will think this can be the Caſe of

common Bleedings from the Noſe, Hæmorrhoids, Uterus, *&c.* ſince it is a much more eaſy and natural Account to ſay, all theſe, and the like Iſſues of Blood, are from and out of the Extremities of the Arteries.

7. IF the Blood and Humours were always cloſe kept up in the Veſſels, and could not find Paſſage out, it would follow, that there could be no Tranſpiration nor Sweat; no Spots or Puſtles could be ſent out in eruptive Fevers, neither could there be at any Time any Inflammations or Tumours of any Sort.

ALL Phlebotomy muſt be effectually the ſame; namely, meerly evacuatory, and ſerve to no particular Uſe of Revulſion, Derivation, *&c.* and it would be all one which Vein were open'd, either in the upper or lower Province of the Body.

MY Notions of theſe Matters I endeavour to explain thus.

1. EVERY Artery in its Progreſs from the Heart, divideth into leſs and leſs Sprigs.

2. THESE run into, and terminate in Interſtitia, or Subſtances between the Capillary Arteries and Veins.

3. THESE Interſtitia conſiſt of Glands and carnous Fibres, ſtitch'd together, as 'twere, with nervous Fibres, to keep them firm.

THE Blood that is brought to the conglomerate Glands, parteth there with ſuch Serum, as is to be carry'd by the lymphed Ducts into the common circulating Maſs.

THAT which is brought to the Conglobate ſheddeth off, and ſendeth, by proper excretory Ducts, ſuch Liquids, as the peculiar Conſtruction of each Gland produceth,

duceth, *viz.* Saliva, Sweat, Urine, Pancreatic Juice, Bile, Fæces, into the Inteſtines, *&c.*

THE little Arteries aforeſaid carry Blood and Vital Spirits, not only into the Glands, but into the hollow carnous Fibres alſo; and that for the following Uſes:

1. TO ſupply Nouriſhment to them; and daily to repair the Waſtes of Nature.

2. TO receive into it, and as a Vehicle to carry off the Recrements of worn-out Nouriſhment; which, when they have ſerv'd their Time, and are of no further Uſe, drop out of their Loculi into the common Maſs.

3. TO remain, and be conſtant and ſtationary there, for the cauſing and keeping up of natural Heat, Vigour, and Vitality.

4. TO be a main Inſtrument of muſcular Motion.

THAT all theſe hollow Fleſh Fibres are continually replete with Blood every where, ſeems manifeſt from this, That if any muſcular Fleſh be prick'd with a Needle, it will ſend out Blood at the Puncture.

AND that theſe Fibres are not Arteries, we may conclude,

1. BECAUSE they pulſe not.

2. BECAUSE they are not white, but red; and therefore have not four Coats, like Arteries; but only ſuch a ſuperfine Tunicle each, in the Manner of a minute Sacculus, to contain Blood.

3. BECAUSE if a Finger, or any Part where there is Fleſh, be cut, the divided Fibres will emit Blood, till all their ſtationary Store be run out, and then the Bleeding will ſtanch of itſelf; which it would not do if all the

wounded Part were Arteries and Veins, and nothing elſe.

THIS Opinion of ſtationary Blood in the carnous Fibres, ſeems to be further confirm'd by the great Quantity of Gravey iſſuing out of a boil'd Rump of Beef, or Leg of Mutton.

THAT there is Blood in this Gravey appears to the Eye, if it be not thoroughly boil'd; but that it is not Blood alone is as plain; becauſe, boil Blood how you will, you ſhall never bring it to be Gravey.

I ſay, therefore, I take it to be partly Blood, and partly nutritious Juice, not yet abſolutely aſſimulated into Fleſh; both which run out of the Fleſh Fibres when they are cut aſunder, and not out of the Blood Veſſels; which being ſo very ſmall that they cannot be diſcern'd, cannot therefore at an Inſtant pour forth ſo great a Quantity as we ſee will guſh out.

FROM what hath been here ſaid of the carnous Fibres being always replete with a permanent Stock of Blood, appeareth a Reaſon why letting of Blood near the Part affected, is uſually more effectual towards the removing of a Malady, than it would be at a Diſtance; for it directly and immediately emptieth the ſanguineous Fibres, that are actually affected, or thoſe that are near to it.

AND alſo, why at the ſame Time of letting Blood, the firſt Porringer ſhall moſt commonly differ from the ſecond, and that from the third; namely, becauſe at firſt that which is drained out of thoſe Fibres mixeth variouſly with that which cometh out of the Veins; and when that is all come away, the Variety ceaſeth, and all that runneth out afterwards is meerly Venal; and by it we may make a better Judgment of the general State of the Blood,

Blood, than by that which came out firſt, and was mixed with ſtationary local Blood.

AND here I take Leave to make an Excurſion, and explain my particular Notions concerning the internal Habit.

THE furtheſt Journey the Arterial Blood can go, is into the foreſaid Glands and carnous Fibres, or whatſoever elſe there may be of Rete mirabile of nervous ſolid Fibres, that conſtitute the Interſtitia.

AND theſe I account to be the Extremities of the Body, let them be in the inner or outer Parts, or near or remote from the Heart, where the Circulation beginneth and endeth.

AND whenever I ſpeak of the internal Habit, I mean theſe Parenchymatous Interſtitia; and I conceive this Habit to be the Seat of many abſtruſe, obſtinate Chronical Diſeaſes.

FOR when the ſtationary Blood is there detain'd, till it be polluted with effete Recrements of worn-out Nouriſhment, or till it become rancid, acrid, fermentative, or otherwiſe corrupt, noxious, and offenſive, it will obſtruct the minute Paſſages, foul the Blood, diſorder the Spirits, and by theſe Means produce Cachectic, Scorbutic, Hyſteric, Hypochondriac Spaſms, Vapours, and other Valetudinarian Conſtitutions and Affections.

AS to Vapours, I have formerly (in my *Pharmac. Extemp.*) expreſs'd my Notions of them thus:

THEY are what *Helmont* calls *Gas Sylveſtre*, an inviſible, impalpable, and incoercible Spirit, and may perhaps be liken'd to that of flying bottled Ale, the wild Part of which no Chymiſt can catch.

THEY

THEY ſeem to be produced by an highly exalted and volatilized acrid Juice, which, by fermenting with a rancid viſcous Matter in the innermoſt Loculi of the Body, where the Extremities of the Arteries have thrown out and depoſited it, drives the touchey elaſtic Spirits (reſiding in and flowing into thoſe Parts) into divers wonderful Trepidations, Vermiculations, Startings, Exploſions, *&c.* cauſe Tenſions, windy Pains, and other Diſorders in the Hypochondria, and Fancies and Fears in the Brain, and are what are uſually call'd *Vapours* and *Spleen.*

THESE Affections are very hard to be dealt with, and that upon two Accounts.

1. BECAUSE their Situations and Places being the very innermoſt Receſſes and Depths of the Body, the Nature and Eſſence of their material Cauſe cannot be plainly, diſtinctly, and certainly known.

2. BECAUSE, if the Matter of them were never ſo perfectly underſtood, yet the Medicines that are employ'd to go ſo far in queſt of the Maladies, muſt needs, by mingling in with the Blood and Humours, and paſſing thro' the many Colatories, be very much alter'd from their proper Natures, and ſpoil'd of their ſpecific ſanative Powers; and therefore cannot perform an abſolute Cure.

BUT to return.

THE Arteries have their Original from the left Ventricle of the Heart; and from thence carry out the Blood into all the Precincts and Parts of the Body.

THE Aorta is their firſt Beginning; and that (contrary to the Manner of our Rivers) continually, as it proceedeth, divaricates into leſs and leſs Rivulets, till at

at length it dwindleth into leſs than Capillary Rills; each of which enter into the ſaid Interſtitia, and there loſe themſelves.

THE Veins are the Reverſe; for they take their Riſe where the little Arteries end, and are as minute as they.

THEIR Office and Buſineſs is, to ſuck into their little Mouths whatever occurs to them in the Interſtitia, that is fluxile, and fit for Entrance and Paſſage.

AND all along as theſe Venulæ run, other the like falling in with them, (like Ditches and Drains into a River) they at length unite, and become one great Channel, (the Vena Cava) which poureth all the Blood into the Heart.

I know not whether the following Particulars may make my Notions plain to the Apprehenſion of the Reader.

1. SUPPOSE a large River divided as it paſſeth along into innumerable little Rills;

THE Aorta divided into Capillary Twigs.

2. EACH of theſe Rills entereth into, and terminateth in a ſmall Moraſs, with Moſs and Ruſhes growing in it.

EVERY Arterial Twig runneth into, and endeth in a Parenchymatous Subſtance, ſituate between the Arteries and Veins, and conſiſting of carnous Fibres and Glands.

3. THE Streams of Water out of theſe Rills, preſerve a middle ſtrait Current thro' their Moraſſes.

THE Blood is ſeen (with a Microſcope) to flow in a direct Courſe in the Tail of a little Fiſh.

4. YET

4. YET ſome of the Water ſpreadeth laterally, and ſo irrigateth the Moſs and Ruſhes, that they are never dry.

THE Blood from the Capillaries, not only glides directly on, but ſome of it gets in among every Particle of the Glands and Fibres.

5. THE Water that laterally irrigateth the Moraſs, runneth not out of it ſo faſt, as that doth which keeps the middle Channel, and therefore there is always a Portion of it left there.

THE Blood which is got in among the Glands and Fibres, floweth but ſlowly in Compariſon with that thro' the middle Channel; and therefore thoſe intermediate Parts are continually repleniſh'd with Blood.

6. THE freſh Water that inceſſantly floweth, in having a free Communication with that which remain'd in the Moraſs, preſerveth it from Corruption, and continueth it a living Water.

THE Blood conſtantly flowing in freſh, preſerveth Vitality in that which was almoſt ſtagnant in the Interſtitia.

7. THE Water that floweth in, waſheth off the Mud and Foulneſs which would otherwiſe gather and ſettle upon the Moſs and Ruſhes, and by that Means prevents the Moraſs from being choak'd up, and becoming a filthy Mire.

THE Blood that runneth into the Interſtitia, waſheth off from the Glands and Fibres the old worn-out Nouriſhment, effete Recrements; and thus preſerveth them from Obſtructions and Putrefactions.

THUS

THUS much of the Blood brought into the Interſtitia by the Arteries.

8. RILLS equally ſmall with the former, ariſing in the Subſtance of the Moraſſes, receive into their Mouths, not only that Water which runneth directly thro', but that foul Water alſo which ſoaketh out of the Moraſs, and carrieth it to bigger and bigger Rivulets; till in their Progreſs they joining together, conſtitute a great River that poureth all into the Sea.

THE little Twigs of the Veins, having their Riſe from among the intermediate Glands and Fibres, ſuck in not only that which flowing in a direct Courſe is truly Arterial, but that alſo which coming out of the Interſtitia is foul and venal: Theſe they convey from leſs to bigger Veins, till they uniting make the Vena Cava, and that poureth them into the Heart.

Of the AIR.

THE Air is that vaſt Collection of liquid Matter, which incloſing the Body of the *Sun*, as Centre; and including the Orbit of *Saturn*, as Circumference, takes up the inconceivable Space of our Solar Syſtem, and conſtitutes *Immenſum Aeris Mare*, (as *Lucretius* calls it) that immenſe Ocean which the Planets ſwim in.

FOR it doth not conſiſt with my Way of Thinking, to believe, that when the great Architect contriv'd and ſet out our World, he left all that boundleſs Expanſion of the Planetary Regions a wild Waſte, and a meer Vacuum, with no ſenſible Matter in it.

AND I ſee no Neceſſity of ſuch a Suppoſition; for I can conceive, that if it were replete with Æther and Air,

yet the Planets and Comets might as commodiouſly glide thro' it, as the Whales can ſwim thro' the more groſs Waters of the Sea.

IT conſiſts (as to my Apprehenſion) of Æther, proper Air, and Atmoſphere.

Of ÆTHER.

I Take Æther to conſiſt of elementary Atoms, made in the Creation of our World, which being ſimple Corpuſcles, are infringible and unalterable in themſelves; but being compounded together, are capable of infinite different Coalitions.

NATURE every where delights in Variety, and therefore we are to believe theſe Atoms to be of innumerable Sorts, perfectly differing in Sizes and Shapes.

AND ſince they are all real Bodies, it is certain that every Individual hath its own Quality, Cauſality, Agency, and Energy, according to its ſpecific and particular Nature.

THEY are ſo agile, as to fly as quick as Light; ſo minute, as to penetrate and pervade all Things: Some are agreeable and friendly to our Spirits, Humours, and Bodies; ſome hoſtile and hurtful, and the rankeſt Poiſons in the World; and infinite others, it is certain, there be that affect us different Ways.

THO' the Æther be in ſome Proportion mix'd in with the Air and Atmoſphere, yet it is undoubtedly more pure and powerful near the Body of the Sun; and this I call the higheſt Region.

Of

Of PROPER AIR.

I Apprehend it to be little ſpringey Atoms, capable of Compreſſion and Dilatation; and when they are ſqueez'd and bent, they have a Power (when the Force is taken off) of Reſilition, and perpetually endeavour to unbend and expand themſelves again.

THE Rarety of the Air is from this elaſtic Force, and is really beyond human Conception.

MR. *Boyle* affirmeth by undoubted Experiment, that the ſame Proportion of Air, by only having the Preſſure of the Atmoſphere taken off in the Air-Pump, is capable of being unbent to ſuch a ſtrange Degree, that it would poſſeſs thirteen thouſand times its natural Space in Dimenſion: That is, one Point would be rarefy'd to more than two hundred Buſhels.

AND Dr. *Pemberton* ſaith, p. 242, that Sir *Iſaac Newton* found, that a Globe of ſuch Air as we breathe here on the Surface of the Earth, which ſhall be one Inch only in Diameter, if it were expanded to the Degree of Rarety, which the Air would have at an Height equal to the Semi-diameter of the Earth, would fill all the Planetary Regions, even to the very Sphere of *Saturn*, and far beyond.

THIS indeed paſſeth my Conception; for if it could do thus, ſince no ſingle Corpuſcle can be at one time bigger and leſs than at another time; and ſo much Body hath ſo much Bulk; every Particle of Air muſt ſtand many Miles diſtant from all the reſt.

AND ſuch a Diſtance of Particles, with nothing at all between them, is to me a ſtrange Notion of Rarefaction.

IF Ten Men be in a Company, and thence walk off, and ſtand each of them ſingly many Miles aſunder; I ſhould not be apt to ſay that Company was rarefy'd.

THIS middle Region I conceive to conſiſt chiefly of proper Air and a Mixture of Æther; but hath none of the groſs Atmoſphere in it.

Of the ATMOSPHERE.

IT is that Part of the Sky which reacheth down to the Earth, and is the General Receiver of Æther, Air, and whatſoever can come and abide in it.

THE Poroſity of Water is ſo great, that there is at leaſt forty times as much Space as Matter in it; but the Atmoſphere being (as our great Mathematicians have computed it) an hundred and ſixty times lighter than Water, muſt have Interſtices and Capacities proportionable thereto.

THE main Body and Bulk of it is proper Air.

ITS Contents partly fall down from the higher Heavens, and partly riſe up from the Terraqueous Globe.

THE upper Regions, at vaſt Diſtance from us, by Reaſon of Vacuities (which our modern Philoſophy alloweth) every where interſpers'd among the Cœleſtial Corpuſcles, are in ſo rarefy'd a State, that they cannot ferment or run into any Diſorder, or admit of Tempeſts or Fires; but ever did, and ever will remain a quiet, calm, and ſmooth Æquor for the Planets and Comets to ſwim in, without Impediment or Inequality in their Courſes.

BUT yet I know not why we may not put it about as a likely Suppoſition, that theſe remote Regions may either by

by the Courſe and Force of Cauſes, as ſettled at firſt by the great Author of Nature, or by the particular Command of God himſelf, dart down into our Atmoſphere Particles of all Sorts and Qualities, ſome agreeable and ſanative, and at other times others, ſo far remov'd from our Natures, as to be in the higheſt Degree deadly.

AND how can we tell but that the malevolent Spirits, our mortal Enemies, being Princes of the Air, and having their *Ubi* in it, may be ſome times permitted (as we ſee Diabolical Princes among us are) to work Miſchief, and bring Deſtruction on the Inhabitants of the Earth, by collecting, compounding, ſending down, and ſhooting off among us venomous and peſtilential Vapours in epidemical mortal Seaſons.

FOR we certainly know, by many direful Inſtances, as that of *Job*, that the curſed Spirits have Malice, Skill, and Materials enough, to be the greateſt Antiphyſicians in the World, when they are let looſe upon us.

CÆLIUS Rhodiginus, l. 2. c. 7. p. 51. reporteth, that at *Conſtantinople* Hobgoblins in human Shape came amongſt Men, and gave them a Stroke, upon which, like People poſſeſs'd by the Devil, they loſt all manner of Senſe and Memory. A Fever enſued, but without any high Colour or Heat. Tubercles broke out, but not upon all in the ſame Parts of the Body, or Time of the Diſeaſe.

SOME lay in a profound Sleep; others were delirious, and would leap out of their Beds, to jump into (as they imagin'd) Rivers of Water to cool them, and quench their ardent Thirſt. And a great Wonder it was that this Diſtemper was not at all contagious.

AND thus I would bring down from Above, from the high Planetary Region, (that inexhauſtible Ocean, the

Matter

Matter of all Epidemic Fevers, eſpecially ſuch as are either malignant or peſtilent; which the great *Hippocrates* ſeems to have ſome Notion of, when he called it a τι θεῖον, a Something that fell from Heaven.

AND I need not fetch it from Beneath out of the Bowels of the Earth, ſending up viroſe Vapours from Mineral Fermentations, no-body knows what, nor for what Reaſon, nor where, eſpecially in ſuch Countries as breed not Mercury, Antimony, Arſenic, or any other poiſonous Minerals.

ALSO from the ſaid remote high Region cometh down into our Atmoſphere, as I conceive, the Nitre, that pure, fine, ſubtle, active, and penetrant Part, which gives Vitality to the Air, and renders it ſo abſolutely neceſſary, that no Animal nor Vegetable can live without it.

AS to the innumerable other Corpuſcles which inceſſantly fall down to us, and whoſe Effects were formerly attributed to the Aſpects and Influences of the Planets, theſe no human Underſtanding can poſſibly take any Cognizance of; and therefore Aſtrology, which is built upon fanciful Obſervations of them, is a meer Caſtle in the Air, and ſtands upon no Foundation.

AND thus much concerning thoſe Matters, which being ſent down from the Planetary Regions, make up the moſt ſubtle and active Part of our Atmoſphere.

BUT beſides the Contents which come from above, its far greater and more groſs Part ariſeth from beneath, out of the Terraqueous Globe.

SOME of the bigger and drier Particles may be ſeen by the naked Eye, when the Sun ſhineth thro' a Hole into a darkiſh Room, Myriads of longiſh Ramenta, like Duſt flying in the Rays; and it's certain that thoſe little Flyers

Flyers are really in the Air at all times, tho' we cannot diſcern them but thus.

CLOUDS, Rain, Wind, Storms, Thunder, and all Meteors, are from Vapours and Exhalations out of the Earth and Water.

AQUEOUS Vapours are made by the expanding of an Atom of Water into a Bubble, which by Reaſon of its thin Pellicle, and increas'd Superficies, is become ligher than an equal Bulk of Air, and ſo aſcends as a light Thing will in Water; even as a Leaf of Gold, tho' that Metal be of its own Nature near twenty times heavier than Water, yet being beaten out into ſo large a Superficies, will ſwim upon its Surface.

IT'S a vaſt Quantity of Vapours that Marſhes, Rivers, Lakes, *&c.* ſend up; but the Seas furniſh out immenſe Meaſures. Dr. *Hally* (*Philoſ. Tranſ.* N° 189.) proves by Experiments, that the *Mediterranean* Sea alone muſt loſe in Vapours in one Summer's Day, Five thouſand two hundred and eighty Millions of Tuns: And addeth alſo, that Waters are ſometimes lick'd up by the Winds, faſter than they are exhaled by the Sun.

THE Surface of the Earth affordeth unknown Quantities, according to its Climate, Temperature, Situation, Soil, Dryneſs, and Moiſture; the Sun rarefying and extracting, the Wind driving, and the Pores of the Air abſorbing them.

THUS in an hot parching Seaſon, if a Shower fall, a ſenſible fragrant Exhalation out of the Ground fills and perfumes all the Air.

DRYER Exhalations, Wind, Spirits, Mephytic Anathymiata, deadly Damps long pent up in the Bowels of the Earth, in filthy cavernous and deep Abyſſes, and bred

bred by ſubterraneous Poiſon, Lakes and Seas, Steams from Mineral Ferments, and forced up by Earthquakes, Falls of Rocks, Inundations, Fires, Exploſions thro' gaping Chaſms or private Vents, ſometimes poiſon great Tracts of the Atmoſphere.

THESE Sorts of virulent Miaſmata, by reaſon of their Subtilty and Spirituality, work not as groſſer Poiſons do, openly, by corroding, inflaming, and mortifying the Stomach, Inteſtines, or other ſolid Parts; but perpetrate their Miſchief clandeſtinely and ſuddenly, by ſeizing directly upon the Spirits, diſſipate, ſtupify, or downright kill them both, Vital and Animal together.

MORE than all theſe, we cannot but believe the Atmoſphere is full of Animalcles, and their Seed in their Seaſons infinitely ſmall, and, as 'twere, meer living Points.

LEEWENHOEK aſſures us, he has diſcover'd ſome ſo inconceivably minute, that an hundred thouſand Millions of them would not make a Bulk bigger than a Grain of Sand; and Dr. *Hook* (ſee *Ray's Wiſdom, p.* 387.) ſaith, Millions of Millions may be contain'd in one Drop of Water.

TO this Purpoſe ſome (and particularly *Kircherus*) are of Opinion, that Animalcles have been the Cauſes of malignant and peſtilential Fevers in Epidemic Times, which differ in Eſſence and Symptoms, according to the Nature and Venoms of thoſe Creatures.

THUS the Atmoſphere and Air is fill'd, both from Above and Beneath, with innumerable Millions of Millions of Species or Corpuſcles, Aporrhæa's, Steams, Vapours, Fumes, Duſt, little Inſects, *&c.* all which make it ſuch a wonderful Chaotic Compoſt of Things, that contains the Seeds of all Good and Evil to Man, as ſurpaſſeth the Underſtanding

Underſtanding (as I ſuppoſe) of even the higheſt Order of Archangels.

IT conſiſting, for the moſt Part, of diſſimular Bodies, commonly undergoeth moſt terrible Fermentations and Conturbations, cauſing Hurricanes, Tempeſts, Thunders, prodigious Fires, *&c.* which horribly claſhing and daſhing together, break and tear all Connexions and Bonds of Continuity to Pieces, and explode Blaſts and Torrents of Corpuſcles and Compounds in our Skies.

AND we may well believe, that vaſt Tracts of our lower Region are as different from one another, as thoſe are in different Lands, and as thoſe are of the Sea, which, when look'd down upon overboard at ſome Places, appear green, at others blue, others white; which being ſo in the deep Waters, muſt be attributed to the meer Nature of the Waters, and not to the Colour of the Sand, Earth, or Rocks at the Bottom.

OUR modern Aſtronomical Philoſophers ſay, the Atmoſphere hath poſitive Weight; and that a perpendicular Column of it weigheth upon, and compreſſeth the lower Parts of it, and maketh the Particles of the Air it containeth, to be in a bent State, like Springs, or a Lock of Wooll preſs'd; and that, more or leſs, according as the ſuperior Atmoſphere becometh heavier or lighter.

THE Expanſion of the Air increaſeth in Proportion, as the incumbent Weight and Preſſure of the Atmoſphere decreaſeth; and therefore, at the Height of 41 Miles, they compute it, that the Air is ſo rarefy'd, as to take up 3000 times the Square it occupy'd here with us; and at 53 Miles Height, it would be expanded to 300000 times.

SOME have thought the Atmoſphere riſeth above the Earth to the Height of 7 Miles; and others to more than

45 Miles: But perhaps it is a vain Attempt to go about to limit and determine it.

FOR by Reaſon of the innumerable Alterations caus'd in it by the Mixtures of Ætherial Atoms, and the Influences and Agencies of the Planetary Region, which it is impoſſible we ſhould come at any Knowledge of:

AND alſo by Reaſon of the great Fires, Tempeſts, and other Meteors, cauſing vaſt Conturbations, Mutations, different Degrees of Heat, Cold, Moiſture, and Drought; it muſt be liable to ſuch Compreſſions and Dilatations, that it never ſtands at any Stay; but ſometimes riſeth higher, and ſometimes ſinketh lower, as we ſee that in the Barometer doth.

AND further, if there were no ſuch Commotions in the Atmoſphere, yet its Denſity, according to the different Weight of its Contents, muſt gradually go off, and its Subſtance grow thinner and thinner, all along as it reacheth higher, till at laſt all the Terreſtrial Ramenta being left behind, it becometh pure Air and Æther.

AND therefore it cannot be ſuch a preciſely bounded Portion of Air, as to extend itſelf juſt ſo high, and no higher; and there part from the next Region, and lie under it in ſo diſtinct a Body, as Water lieth under Oil. And for theſe Reaſons, I ſay, it is impoſſible for Man to judge of the Height of the Atmoſphere.

THE Atmoſphere affords to all Animals, even to Fiſhes, and even the little Inſects, the Matter of Reſpiration, without which they cannot live; and muſt be rightly fit for the Lungs, or other equivalent Parts.

THE Air that is fit for Reſpiration, muſt be of a due Conſiſtence, as to Fineneſs and Groſſneſs; of a right Temper, as to Heat and Cold; of a proper Compoſition, as to its Contents.

AND

AND muſt be ſufficiently ſtored with Ætherial Nitre, to make it freſh and lively.

FOR it hath been try'd, that if Air be baked in a hot Oven, ſo as to drive out of it all the Nitre, and it be ſtopped in a great Bottle, and cooled again, no Sort of Animal will live in it.

SUCH Air as is not vivify'd by a competent Proportion of ætherial and elaſtic Particles, whoſe Expanſion is of ſo neceſſary Uſe for the Opening of the minute Air and Blood-Veſſels in the Lungs, that Reſpiration cannot be perform'd without them; ſuch an Air, tho' it contain not one Particle of Poiſon, yet is deadly.

AN Inſtance of this is that of *Le Grotto del Cane* in *Italy*, where a Fume, having no ætherial or elaſtic Particles in it, and therefore holding down viſibly, and being ſo heavy as not to riſe from the Bottom of the Cave a Foot in Height, is mortal to Dogs, and other Animals that, hanging down their Heads, take in that Fume for Breath: But Man, and other Creatures, that, bearing up their Heads, breathe above it, receive no Manner of Harm by it.

FOR from want of this ætherial Air, and alſo from the Admixture of ſuch recremental Fumes, as being now effete, foul, and of no further Uſe in the Body, but becoming cadaverous, and abominable to the Lungs, are thrown out of the Blood by every Expiration; the Air that is breathed will hinder, yea, and quite ſtop the Office of Reſpiration.

HENCE appears a Reaſon, why breathing often the ſame Air in a ſmall Room, and in a great Concourſe of People, makes Reſpiration difficult and painful. Hence alſo, why in a Diving-Bell there is an abſolute Neceſſity of renewing freſh Air.

TO this Purpoſe Air that hath been long pent up in Caves and Caverns, for want of Ventilation and Communication with freſh Air, may loſe its vivifying Parts; and tho' it ſhould have no heterogeneous Matter brought into it, may yet in time fall into ſuch putrefactive, or other Changes, as to be much diſagreeable to our Lungs and Blood, yea, unwholſome, and even deadly.

THE Animals which ſuffer a Metamorphoſis, will require ſuch a particular Air as is agreeable to that State and Species they are changed into.

THE *German Ephemerides* ſpeak of little Animals, like Eels, which live in Vinegar for a while, and then creep out upon the Side of the Veſſel to breathe the Air; where they are chang'd into Aurelias, which produce ſmall Flies; and theſe Flies betake themſelves to the Vinegar again, and there they breed, and bring forth a new Generation of young ones as before.

IF our Air were all pure Æther, its Particles would be all Fire, Darts, and Swords; and we could no more live in it, than a Fiſh can in Brandy.

IF it be too thin, ſharp, cold, and diſproportionate to our Lungs, we cannot breathe and bear it. Thus upon the exceeding high Mountains of *Periæcaca* in *Peru*, which, *Acoſta* ſaith, look as much higher than the *Alps*, as Towers do common Houſes, and perhaps are the higheſt Mountains in the whole Earth; he and his Companions on the Top of theſe were taken with Difficulty of Breathing, and Vomiting.

YET Eagles and other Birds that ſoar high, and live much in the Sky; as alſo thoſe that are made for cold Climates, may breathe and live beſt in ſuch Air.

IF it be thick, and ſo clogg'd with groſs Contents, as to be unfit to paſs and repaſs the minute Tubicles of the Bronchiæ freely and eaſily, as it is in moory Grounds, that ſend up Plenty of ſuch Vapours as foul the Air, it is ſcarce to be borne by ſuch as have weak and obſtructed Lungs.

YET Worms, Moles, and the Subterranean Animants, may be ſo framed by Nature, as to breathe beſt in ſuch an Air.

IF it be too full of ſuch Contents as are not poſitively bad of themſelves, and do not greatly irritate or heat the Lungs; yet it is frequently found diſagreeable to ſome Men, and not to others. Thus the Air of *London*, which is naturally very wholeſome, yet is ſuch, by reaſon of the Sea-Coal Smoak, and the Aporrhæa's from Millions of Millions of Things, that many People cannot live in it: And ſome again, who cannot bear ſharp nitrous Air, cannot live any where ſo well out of it.

IF it contain ſuch Particles as are offenſive to the Lungs and Spirits, it makes Breathing heavy and painful, and hard to be reciprocated: Thus it is in Rooms fill'd with Smoke.

THE Smoke of Charcoal, if one be ſhut up with it in a cloſe Cloſet, will ſuffocate and kill; yet Colliers (by Uſe) can breathe freely in ſuch Clouds of Charcoal Smoke as they can ſcarce be diſcern'd in.

IF it carry in with it ſuch Corpuſcles as put the Lungs to Pain, and irritate them vehemently, 'twill be intolerable. Thus the Smoke of *Guiney* Pepper burnt, will create continual violent Coughings, Sneezings, Straining, and Vomiting.

THE Smoke of Sulphur burnt, hath in it ſuch acid ſharp Points and Edges, as prick and cut through the Membranes of the Bronchiæ and Capillary Blood-Veſſels; ſtop the Spirits and Reſpiration, and ſo becometh deadly.

DAMPS in Mines, the Lake *Avernus* in *Campania*, and many others, ſend up ſuch viroſe Exhalations, as kill even the Birds that fly over them.

THE febrile Atoms that are in the Air, and are ſuck'd in by Inſpiration, produce ſuch Fevers, as, according to their Natures, are benign, malign, or directly venomous.

Of Different AIRS.

THE Air of different Regions is different, and that from many Cauſes; namely, from Climate, Situation, as to North, South, Eaſt, and Weſt; from their Reſpect to Sea, Land, Mountains, Vallies, Plains, dry Land, Moraſſes, Soil, Foſſils, Trade-Winds, *&c.*

BESIDES theſe plain Reaſons and Cauſes of Difference, there are thouſands of others which are occult, and unknown to us.

THUS *Candia* and *Ireland* will neither breed nor bear venomous Animals; and it deſerves Inquiry, whether they are obnoxious to peſtilential and venomous Fevers?

'TIS ſaid the Plague never breeds in cold Countries; but may be brought into them *aliunde*.

THOSE Countries that produce Lead or Quickſilver, it's obſerv'd very ſeldom have the Plague.

MOLUCCA,

MOLUCCA, *Java*, *Sumatra*, and all thoſe Lands whereſoever Pepper groweth, are very ſubject to peſtilential Fevers.

IN *Tercera*, an Iſland of the *Azores*, if Iron or Steel be let lie in the Air, 'twill preſently take Ruſt.

IN the Weſtern Coaſts of *Africa*, the Sky being moſtly ſerene and calm for long times together, the Air is unwholſome and ſickly.

IN St. *Thomas*'s Iſland, from the Winter Solſtice, to the Summer one, if the Winds are down for two Months, or more, the Inhabitants generally grow ſickly, and a great many die, unleſs the Winds riſe to ventilate and purify the Air; and in ſuch a Calm, ſo many Seamen have ſometimes died a Ship-board, that there have not enough ſurviv'd to ſail the Ship.

IN *Guiney*, and ſome other Parts of *Africa*, after Rain the Earth exhales ſuch venomous Vapours, that it is not ſafe for the Inhabitants then to be out of Doors; and if the Cloaths be rain'd upon, they will breed little Worms.

BONTIUS affirms, that the Plague is never in St. *Helena*, nor in any adjacent Iſland.

IN *Egypt* it rains very ſeldom; but when it doth (as reported) it bliſtereth the Body where it wetteth.

AT *Alexandria* in *Egypt*, and *Grand Cayro*, every Year from *September* to *March*, that is, till the *Nile* increaſeth, and the *Eteſian* Winds blow, peſtilential Fevers rage.

AS to the Small-Pox and Meaſles, they are wonderfully different in different Airs and Countries: They are reported to be much more favourable at Sea than at Land;

Land; as alſo in *Scotland* and *Holland*, than in *England* and *France*.

Ett-Mull. Vol. II. p. 404. b. ſaith, The Meaſles are more dangerous in *Italy* and *Spain*, than the Small-Pox are in *Germany*. The Meaſles in *France* are always with a Fever; but the Small-Pox ſometimes have been obſerv'd without it: On the contrary, in *Germany* Fevers always accompany the Small-Pox, and uſually run higher than in the Meaſles. *Bartholin* reports, that in *Iſeland* the Small-Pox come periodically every Twenty Years; in *Japan* they are very common. The Meaſles at *Amboyna* are a peculiar Sort, differing from ours.

Of VENOMS.

THE Atoms of venomous Effluvia are of ſuch an Adamantine Hardneſs and Firmneſs, as to be utterly infringible and invincible.

THEY are ſo pointed and edged, and perhaps jagged, crooked, and barbed, that they cut, tear, bruiſe, ſtick faſt in, and deſtroy, where-ever they come; and can ſcarce be drawn or driven out by any Thing or Means.

THEY are of ſuch Minuteneſs, as to be able, when let looſe, to paſs and repaſs freely into, and out of the leaſt and inmoſt Pores and Receſſes of the Solids, as well as Liquids, of the Body.

IT's likely they are of innumerable Figures and Sizes, and ſo become the Elements of all the different Species of Poiſons.

WHEN they cluſter together, they turn into ſuch Compoſits, as the Pores and Receptacles of our Bodies are fit to receive into them; even as a Mortice is fitted

to

to a Tennant: Hence may ſome Reaſon be excogitated, why particular Animals are affected by peculiar Poiſons.

THEY are inconceiveably Volatile, and in continual ſwift Motion, unleſs when conglomerated into Moleculæ, they remain as 'twere in a crude State, and lie dormant and inviſcated in ſome Humour or Matter for a Time, till it happen that ſome evident active Cauſe concoct and bring them forth; which Thing happens, as we daily ſee, in contagious, malignant, and venomous Fevers, which break not out till a while after Infection taken.

THEY have Power in their ſmall Bulk, to turn great Maſſes of Liquids into the ſame Nature with themſelves, and communicate to them a like Power alſo of turning others; even as a ſingle Spark of Fire kindles Part beyond Part ſucceſſively, till all be in a Flame: And they are ſo multiplicative and operative, that if the leaſt Point or Particle come into the Body, it is capable of increaſing almoſt infinitely, and fermenting every where.

THE Conſideration of what Diviſions and Exiguities Matter is capable of, ſurpaſſes all Wonder. *Magnenus* ſaith, that if a Piece of Frankincenſe but as big as a Pea, be thrown into the Fire, it will yield elementary fumoſe Atoms to the Number of Seven hundred ſeventy ſeven thouſand ſix hundred Millions of Millions.

AND ſo if a Poiſon be thus divided, it's eaſy to conceive, that it may be fit and able to touch and act upon every Atom of Blood, every ſingle Spirit, and every Particle of ſolid Parts in the whole Body.

AND therefore we are not to think that ſo much Sordes, or putrid Matter, as is ſeen in the Small-Pox, pre-exiſted in the Body while ſound and well; but that the powerful peregrine Ferment, expanding and multiplying itſelf,

turn'd and converted the natural nutritive Juices, and other Contents of the Body, into its like.

TO every individual Particle in Being, there belongs a particular Bulk and Shape; and from theſe, and their endleſs Compoſition, there reſults a ſeminal Power and natural Agency peculiar to each, tho' in ſmall Things they are impoſſible to be particulariz'd.

FOR ought we know, there may be ſuch particular Congruities and occult Attractions between ſome Bodies and ſome Poiſons, as there are between the Magnet and Iron, which affect no other Bodies, that we know of, but themſelves.

AND, on the contrary, there may be as peculiar Enmities and Avoidances.

HENCE are to be deducted the Varieties of Poiſons, and their different Operations; ſome affecting one Species of Animals, and no others.

THUS there is one Sort of Peſtilence that ſtriketh Man only, and no other Animal; another Horſes; another great Cattle; another Sheep, Hogs, *&c.*

THUS even the Meat of one, is Poiſon to another; Apes and Turkeys eat Spiders; Starlings, Henbane; Quails, Hellebore; Linnets, Poppy Seeds: And the moſt venomous Vegetables breed and nouriſh their own proper Inſects according to their Kinds. An Horſe will take at one Doſe, for many Days together, an Ounce of powder'd Crocus Metallorum, without any ſenſible Effect; whereas a Man cannot take one Scruple.

SIR *Hans Sloane*, in his Voyage Vol. II. p. 3. giveth an Account of the *Mancannillo* Tree, that tho' there be ſcarce ſuch another Poiſon Plant in the World, and that it kills Cats, Dogs, Land Crabs, and Fiſh, *&c.* yet Goats feed

feed upon the Fruit, when fallen from the Tree, greedily and plentifully; and yet neither their Fleſh, nor (which is more wonderful) their Milk, is in the leaſt poiſonous; but eaten indifferently as other Milk.

YET *Melampus*, in old Times, before *Hippocrates*, grew famous for his Cure of *Pretus* his Daughters, (who had loſt their Wits) by purging them with Goats Milk that had eaten Hellebore: And it is a common Thing now-a-days to give wet Nurſes Cathartics, that their Sucklings may be purged thereby.

NAY, the Particularity and ſpecifical Energy of Things is ſuch, that they will operate upon, and affect particular Matters, as it were electively. Thus Aqua Fortis will diſſolve Silver, and not touch Gold; and Aqua Regia will diſſolve Gold, and not touch Silver.

QUICKSILVER acts upon the Serum of the Blood, and not upon the Globuli; Opium upon the Spirits, and not the Humours; the Peruvian Bark upon the Humours, and not the Spirits; Steel upon the Globuli, and not the Serum; Cantharides on the Bladder, and not the Kidnies.

DR. *Grew* teaches us, that White Hellebore and Pyrethum make the chiefeſt of their taſtable Impreſſion upon the Lips, wild Cucumber upon the Baſis of the Tongue, deadly Nightſhade upon the Roof of the Mouth, Jalap in the Throat, Wormwood in the Gullet, *&c.*

THE Matter, Make, and Qualities of our Bodies are ſo ſingular and various, that the ſelf-ſame Venom may act in one Man chiefly upon the Head, in another the Heart or Lungs, in another the Stomach and Guts, *&c.* or ſuch other Parts, whoſe Contexture or Contents have ſuch Loculi, as are fit for the Reception of its Preſence

and Impulſe; and there it ſtirs up ſuch Diſorders, as are congruous to its ſpecific Form.

THE Effect of venomous Effluvia (for we have no Occaſion to ſpeak of Solid Poiſons in this Place) act upon the Vital and Animal Spirits, the Blood, and Solid Parts.

1*ſt*. As to the Vital Spirits, they ſeize upon, overcome, and kill them. 2. Or they drive the Spirits quite out of the Body. Or, 3. They provoke them into Fury and febrile Commotions.

As to the Animal Spirits in the Brain and Nerves, they either hinder their Generation, or load them with diſagreeable Copulæ; whence flying into Exploſions, they cauſe Headach, Watching, Phrenzy, *&c.* or overpowering them, they cauſe Sleepineſs, Stupor, and Coma.

2*dly*, As to the Maſs of Blood, they pervert its Subſtance, and deſtroy its Contexture, variouſly ſharpen the Serum, break the Globuli, cut aſunder the Fibres, and either coagulate or diſſolve it.

3*dly*, As to the Solid Parts, they corrode and tear to Pieces the Fibrillæ; they attract Blood and Humours; inflame, ulcerate, and diſſolve them into Putrefaction; ſubvert the Tone of the Viſcera; ſtop, or otherwiſe ſpoil the Glands and Colatories.

Of ANTIDOTES.

EVERY Operation of one Body upon another is truly mechanical; but the Matter, Forms, and Numbers of Poiſons are ſo utterly unknowable to us, that no Study or Experiment can ever direct us to find out ſuch Antidotes as are endued with ſuch Qualities and Powers, as

are

are fitted Atom for Atom to meet, with combat, and conquer particular Venoms.

ONLY we can, in a general looſe Way, ſay, that Points and Edges may be broken off and ſheath'd, by ſuch Things as are properly ſuited for ſuch Purpoſes: So Alcalies can correct Acids; and in like manner Acids can Acrids, *&c.*

BUT if we come cloſe to Individuals, Particulars, and Peculiars, we cannot poſſibly affirm, that This Medicine directly oppoſeth Variolous Venoms, or That ſpecifically Morbillous; and a Third Peſtilential Poiſons.

AND therefore we are not to take it for granted, that Serpentaria, Contrayerva, Bezoar, Theriaca, *&c.* are real Specifics and Antidotes againſt variolous Miaſm; but only that, by their Aromatic Virtue, they ſtir up and invigorate the Spirits and Blood, and cauſe them to fly on with the more Force upon the Enemy.

BUT whenſoever the Spirits and Blood are too much exagitated and heated before, theſe hot Things will prove ſo far from being Antidotes, that, by raiſing up the Orgaſm into a Confuſion, they will drive Nature out of her Way, exalt the Viroſity, and become Deleterious, inſtead of Salutiferous.

Of INFECTION.

THE chief and commoneſt Way of taking contagious Fevers, Small-Pox, and Meaſles, is by Infection; that is, by receiving with the Breath, or thro' the Pores, ſuch viroſe Corpuſcles, as are peculiar for the Breeding of them.

PLATERUS was of Opinion, that all morboſe, innate, and inherent Venoms, were actually in ſome Body or other ever ſince the Fall of Man; and that they lie hid ſomewhere; and that they never breed anew, or ever happen but by Infection; being carry'd corporeally from one to another by way of Halitus or an Aura.

AND, I think, that Dr. *Sydenham* is ſomewhere nearly of the ſame Sentiment; and adds, that a ſuitable Diatheſis of the Air is it that makes it Epidemic.

NOW, tho' the Air may be polluted and made unwholeſome, from Atoms both falling into it from Above, and alſo riſing into it from Beneath, yet I never met with a convincing Proof, that the Air alone, beyond, and out of the Sphere of Activity of the Aporrhæa's of the ſick and infected Things, gave the Small-Pox or Meaſles.

IN Epidemic Seaſons, the Atmoſphere that we live and breathe in, hath interſpers'd Vacuities, fit for the Reception of ſuch Particles, as render our Bodies apt to take Infection.

FOR our Bodies do more or leſs ſympathize with the preſent tonical Tenſion or Relaxation, and Contents of the Air; and they act upon both our Spirits, and the Air that is ſhut up in our Bodies; and if they find Humours and Matter in us eaſily diſpos'd to a further Degree of Fermentation than is conſiſtent with Health, ſo as to produce a febrile Commotion, the Fever thereupon ariſing, muſt of Neceſſity prove variolous, morbillous, or ſuch as is the reſpective Nature of the infecting Venom.

IN Epidemic Conſtitutions of the Air, which produce not the Small-Pox or Meaſles, but other malignant or venomous Fevers; it ſo comes to paſs, becauſe the particular

ticular Venom taken into the Body, meets not with Seminaries of a Species fit to be impreſs'd by it.

THE virulent Corpuſcles floating in the Air, may be made abundantly more malignant and miſchievous, than they are of their own Nature, by meeting and incorporating with other poiſonous Particles.

EVEN as Quickſilver, that may be taken inwardly ſafely enough when crude, unmix'd, and undivided, is, when ſublimed and conſolidated with Vitriol, Nitre, Salt, one of the moſt corroſive of all Poiſons; for the ſharp Points and Edges of the Salts being finely concreted on it, make it prick and cut; and the ponderous and agile Particles of Mercury giving them Weight and Force, makes it penetrate the deeper, and cut the greater Wounds.

THEREFORE in a variolous Time, if the Air have nothing in it but only ſuch Atoms as are analogous to the Small-Pox, without other Venoms, it will produce a regular Small-Pox.

IF, together with the variolous Atoms, it be charg'd with ſuch corruptive Corpuſcles as cauſe putrid Fevers, 'twill breed an anomalous Sort, with its proper Symptoms.

BUT if farther, it be fill'd with ſuch malignant and viroſe Particles, as naturally produce malignant and peſtilential Fevers, 'twill bring forth ſuch a venomous Sort, as will, proportionably to the Virulency of the Poiſon, prove more or leſs dangerous or mortal.

THE Particles which conſtitute the material and efficient Cauſe of the Small-Pox, Meaſles, or other venomous Fevers, are of ſpecific and peculiar Kinds; and as eſſentially different from one another, as Vegetables, Animals,

Animals, and Minerals of different Kinds are from one another.

AND ſince it is moſt certain that no Effect can be produced but by its own proper Cauſe, I am hard to believe, that the Small-Pox or Meaſles can be produc'd by ſuch Things as have no manner of Affinity with them; ſuch as are Fevers of any other Sort; cadaverous Steams from Men that dy'd of other Diſeaſes; from putrefy'd Carrion; Exhalations from fermenting Minerals; Vapours out of deep Vaults that had been long ſhut up; from Tempeſt, Thunder, Earthquakes; nor from foul ways of living, Naſtineſs, corrupt Meats and Drinks.

PANAROLUS, indeed, *Cent.* 1. *Obſ.* 18. relates of a Vault where a great many Children that dy'd of the Small-Pox were laid, which grew ſo peſtilent, that thoſe who went down into it, inſtantly fell down dead. But that lethiferous Damp, tho' it was firſt begun by the Small-Pox, did not give the Small-Pox; as is manifeſt from that it kill'd ſo ſuddenly, which the Small-Pox never doth; but it muſt be a different Sort of corrupted Poiſon Air there ſhut up, and compounded of cadaverous and variolous Atoms blended together; and withal being ſomething analogous to human Nature, enter'd in an Inſtant, and became deadly to Man; but perhaps would not have been ſo to any other Sort of Animal.

CONCERNING Infection, St. *Auſtin de Civ. Dei, l.* 3. *c.* 31. *p.* 152. ſaith, that a prodigious Number of Locuſts being drown'd in the Red Sea, and caſt out upon the Coaſt of *Africa*, caus'd ſuch a Peſtilence by their Stink, that 80000 Men dy'd only in *Maſſaniſſa*'s Kingdom; and of the 30000 *Roman* Soldiers that were at *Utica*, there remain'd only Ten alive.

EUTROPIUS ſaith, there dy'd of this Sickneſs 90000 Men. But concerning this Matter, I believe the Air

Air being ſo poiſon'd, made that Plague, which might be there before, ſo very infectious and mortal, and did not truly breed it; or, if it did, it was a particular Peſt *ſui generis.*

THAT a Plague ſhould all of a ſudden break out, and deſtroy in one Night 185000 Men, 2 *Kings* xxix. 35. was a Miracle needful at that Time. And ſuch being above the common Cauſalities and Rules of Nature, are out of our way of Reaſoning, and therefore cannot be accounted for.

SOMETHING like this, as to its Suddenneſs, happen'd at *Oxford* 1572: As they were actually holding the Aſſizes, a peſtilent Vapour ſuddenly came among them, whereby the Judge and ſeveral Noblemen, and more than 300 others, dy'd within three Days Time.

OF an unaccountable Vapour ſuddenly coming, I have this Relation from *Richard Humphrey*, my Neighbour, and a Man of Veracity, that on *Wedneſday April* 27, 1727, as he and one *Walter* were travelling a-foot from *Canterbury*; when they came to *Rainham*, they were aſſaulted with ſuch a ſtrong loathſome Stink, as he thought was like the Stench from a corrupted human Corpſe. They were ſo offended at it, as thinking it was from Carrion in that Town, that they would not ſtay there to reſt and refreſh themſelves; but travell'd on for about two Hours, moſtly in the Stench, but ſometimes out of it, till they came to the Hill that leads down to *Chatham*; and there they went clear out of it, and ſmelt it no more.

THE Sky was at that Time clear, without the leaſt Cloud: The Wind was Weſt, blowing over the firm Land, and ſo this Vapour could not come from the Iſle of *Sheppey*, (that is accounted to have an unwholeſome Air) nor from the muddy Banks of the River *Thames* or *Medway*, nor from *Rumney* Marſhes. It is very obſervable,

that theſe Men did not grow ſick upon it, and never found they had taken any Hurt.

THAT Carrion-Stenches may infect the Air around for a great Space, appears, in that Kites and Ravens will ſcent a dead Horſe, and fly to it from a long Way off. It's reported, that Vultures have come 50 Miles, and that Eagles have paſs'd over Sea, out of *Italy* into *Africa*, to devour Carcaſſes ſlain in Battle.

THE *Arabian* Leproſy deſcrib'd in *Leviticus*, ſent forth ſuch Multitudes of Effluvia, that not only the Bodies of Men, but even their Garments and Houſes, were ſo infected, as to ſhew viſible red and green Streaks.

AND theſe were ſo pernicious and contagious, that the diſeaſed Perſons were driven out from among Men in their Camp, their Cloaths were burnt, and their Houſes were pull'd down.

BESIDES the contagious Aporrhæa's taken immediately from the Sick, and the Rooms they lie in, they may be convey'd in Beds at Inns, Coaches in *London*, Chairs, Shops, Play-Houſes, and even Churches.

THEY may be carry'd from one Houſe to another by Dogs, Cats, Rats; but eſpecially by Cloaths, or any thing that is lax and porous.

PERHAPS ſolid Subſtances, that have not very open Pores and Capacities, ſuch as Minerals, Money, *&c.* (unleſs directly from the Sick, whoſe Fingers may have left a variolous Smear upon it) can hardly be thought to carry Infection.

ACCORDINGLY, concerning peſtilent Infection, I have the following from a Gentleman, who reſided many Years in the Eaſtern Countries.

IT is a receiv'd Notion in *Egypt*, and among the *Europeans* there, that Corn, Bread, and Fleſh in the Markets carry no Infection; nor any Metals, further than that the Sweat of the Perſon's Hands from whom it came, may not be dry'd off before the Receiver touches them.

To prevent which, they receive every thing at a Window, in a Basket made (as is the Rope alſo) of the Leaves, *&c.* of the Date Trees, which, they ſay, carries no Infection; and paſs every thing, that will bear it, thro' a large Tub of Water before we touch it.

YET *Zacu. Luſit. prax. admit. Obſ.* 87. gives this *Exemplum Stupendum*, as he calls it, of Venom ſticking a long time to a Sword. A Gentleman kill'd a mad Dog with his Sword. After eight Years he wounded three Men with the ſame Sword: They were cured of their Wounds, and continu'd well three Years, and then grew mad, and dy'd raving.

AND we know it for Matter of Fact, that *Damaſco* Sword Blades will retain for a great many Years the ſweet Odour put upon them at their making.

THE Contagion even of the Great Pox may ſtick in Cloaths, and infect the Wearers, if it be true which *Stalpartius* reports, *Cent.* 1. *Obſ.* 100. *p.* 428. I remember (ſaith he) I heard *Wallæus*, our Profeſſor of *Leyden*, ſay, he knew a young Lady, who, out of a Frolick, put on a Man's Cloaths, and danced in them with a Company of young Folks: The Event was, that afterwards, when ſhe was marry'd, tho' ſhe was never in the leaſt ſuſpected to be diſhoneſt, yet all her Children came forth tainted with the foul Diſeaſe; and that was imputed to the Man's Cloaths ſhe had long ago worn.

THE variolous Infection will lie ſometimes a Month, nay, I myſelf have known it ſix Weeks before it broke out; but this is not very common: Perhaps the New and Full of the Moon may have ſome Influence upon it, to occaſion its Expanſion at ſuch Times.

DR. *Willis* (of malign Fevers) ſaith, a Garment may infect ſome Months, or haply Years, after the Impreſſion.

OF the Peſtilence itſelf, which is the moſt volatile perhaps of all Poiſons, *Sennertus*, *Tom.* 2. *p.* 149, aſſerteth, it hath been often ſeen, that from Cloaths and Beds laid up cloſe for many Years, whole Families and Towns have been infected with the Plague.

ALEXANDER BENEDICT. de Peſte reports, of a Bed which having been ſuſpected to be infected, was therefore thrown by into the remoter Parts of the Houſe, was remov'd ſeven Years after, and rais'd the Plague.

TRINCAVEL, *L.* 3. *Conſ.* 17. tells of Ropes which had been uſed to draw away Men that dy'd of the Plague, and were flung behind a Cheſt; and after they had lain there twenty Years, rais'd a Peſtilence, of which 5900 dy'd within twenty Weeks: And that the peſtilent Contagion having lain in Linnen fourteen Years, brought forth the Plague in the Year 1558. And he ſpeaks of a Pigeon that carry'd Infection.

DR. *HODGES de Peſt. p.* 65, ſaith, one fell ſick of the Plague a Month or two after Infection taken.

DIEMERBROECK, *Hiſt.* 103. *p.* 257. gives a Relation of one that had been three Months infected, before the Signs of the Plague ſhewed upon him.

AND now, if ſo volatile and fugitive a Thing as a peſtilential Miaſm can be ſhut up, and lie ſo long a time

in

in ſo looſe a Thing as Cloaths, much more may that of the Small-Pox.

I was told, by thoſe who very well knew the Thing, of Linnen that had been folded up and laid by for full half a Year, and upon Opening gave the Small-Pox.

BUT *Diemerbroeck de Peſt. p.* 19. will have it, that when the Epidemic Seaſon is ſpent and gone off, and the Air alter'd, and quite clear of its contagious Effluvia, it perſiſts not in any Fomes, but totally goes away, and infects no more. The Truth and Certainty of which Opinion can no way appear, but by Matter of Fact, which he cannot produce, and which the former Obſervations ſeem to contradict.

NOW how ſuch ſubtile and volatile venomous Particles can lie dormant and unactive in the Body for a long time, I conceive may be in ſome Sort underſtood by Gunpowder; which, as long as it remaineth in entire Grains and little Lumps, gives no manner of Diſturbance; but when a Spark, tho' it be never ſo little, toucheth them, each inſtantly burſts out into a thouſand igneous Atoms.

EVEN ſo, all the while the peſtilent Corpuſcles continue ſwimming in the Blood in little Cluſters, and an unconcocted State, they are perfectly quiet; but when they come to be fired by contagious Particles taken in, they explode and fly aſunder, and blow up, burn, and ruin all within their Reach.

NOW how venomous Corpuſcles can be reſident in one determinate circumſcrib'd Tract, and not be diſpers'd, and driven away by Winds or Tempeſts, great Fires, or Exploſions of great Guns, tho' the whole Body of the Atmoſphere may be ſo alter'd thereby, that in a Sea-Fight they will ſhoot away the Wind, and make a perfect

fect Calm; this may exerciſe the Wits of the greateſt Philoſophers.

BUT I think it is as ſtrange in the Matter of Sound; for tho' the Winds and Guns may for a while overpower the ſonorific Particles, yet they cannot drive them out of the Air: And Sounds will arrive at our Ears as ſoon againſt the Wind, as with it; only they will not ſtrike with ſo much Force, nor be ſo loud.

Of Epidemic SEASONS *and* INFECTIONS.

IN Epidemic Times, the Air muſt be fitly diſpos'd for the Reception of thoſe peculiar Venoms that cauſe the Diſeaſes then reigning.

AND when that Conſtitution of Diſeaſes is worn out, it after receives other Particles, which are different, and ſometimes direct Antidotes to the former; and then another Conſtitution commences.

WHEN the interſpers'd Vacuities of the Air are fill'd with morboſe, and particularly variolous Steams, they are eaſily communicated to ſuch as are pre-diſpos'd and fit for them.

A Pre-diſpoſition in us, is ſome Suitableneſs of Atoms and Pores, of Contagion and Ovula; and muſt be ſuch as are in a ſpecifical Manner diſcordant to the Spirits and Blood.

AN Aptneſs will be, when ſome Procatarctic Cauſe hath bred in us a peculiar Humour, and made ſuch a Diſpoſition in it, that its Pores and Tone having an Affinity with the variolous Particles floating in the Air, it readily attracts, and receives them into it.

AND therefore all Bodies are not equally capable of being infected with the ſame Infections, Air, or Steams. Thus we ſee Mercurial Unguents will not at all, or with great Difficulty, ſalivate ſome Perſons, by reaſon of the Unfitneſs of the Pores it is to paſs, and the Conſtitution of the Blood it is to diſſolve.

ONE Reaſon why venomous Corpuſcles are deſtructive to ſome Sorts of Animals, and harmleſs to others, ſeems to me (as I elſewhere note) to be, becauſe that particular Venom acts as a Male only on its own proper Female, and the Ovula of its own Kind, and never impregnates any other.

MANY of the Symptoms in an Epidemic Seaſon are the ſame, or much alike, becauſe of the incongruous Diatheſis of the Blood, which the ſame preceding Intemperance of the Air indifferently communicated to all within the Sphere of its Activity, and conſequently gave them an equal Capacity of entertaining the exotic Venom.

Of taking INFECTION.

1. CONTAGIOUS Venoms are moſt apt to be taken in Summer and Autumn, becauſe in thoſe Times of the Year the Spirits are much exhauſted and ſpent, and are not ſo able to keep out the hoſtile Particles; and alſo the Craſis and Conſiſtence of the Blood is ſomething weaken'd and hurt by the Summer Heats, and plentiful Diaphoreſis.

2. WHEN the Temperature of the Air is hot and moiſt, and in ſuch Days as the Mercury in the Barometer is obſerv'd to fall; for in ſuch Weather, not only the Pores of our Bodies are moſt open, but the contagious Particles will lie longeſt; as I have obſerv'd, that the Scent

Scent of an Hare will then lie longeſt for Hounds to hunt by; which Hunters may take Notice of.

3. WHEN the Spirits are confus'd, beat down, ſuppreſs'd, and put by their natural Functions, and Operations; as by Frights, Terrors, Grief, ſtrong Imaginations, *&c.*

4. WHEN the Body is much out of Order, and a Fever threatens; by catching Cold, Surfeiting, or in time of a Diarrhæa.

5. IN an Epidemic Seaſon, one in any other Fever, is in Danger to have it turn into the Small-Pox.

Who are moſt apt to take INFECTION.

1. THOSE whoſe Pores and Receptacles either of the Skin or Lungs, (thoſe common Avenues and Places of Reception) are ſuitable to the Figures and Bulk of the venomous Atoms.

2. THOSE whoſe Blood harbours ſuch Impurities as are ſomething analogous to the virulent Taints; for there muſt be a Similitude and Fitneſs between the Receiver and Received; even as there is between the Mortiſe and its Tenant.

3. SUCH whoſe Make, conſiſting of fine Fibres, are naturally of a weakly Conſtitution; whoſe Texture and Tone, and open Pores, are not ſo reſiſtive of hoſtile Impreſſions and Aſſaults from without.

WHEREAS thoſe of a robuſt Make, whoſe Fibres are ſtrong and ſpringey, and whoſe Habit of Body is good and ſound, theſe, with leſs Hazard of Health, are able to endure Changes of Air, and to reſiſt and beat off Enemies.

BUT

BUT when a Fever hath once got in, and ſeiz'd ſuch an Athletic Perſon, the Combat will be fought with great Violence, and commonly prove fatal.

THUS very frequently we ſee ſuch die of the Small-Pox, when thoſe that are of a puny weak Conſtitution, have a more moderate Fever, and uſually eſcape.

4. SUCH as have rich hot Blood, and are apt to Fermentations, Fluſhings, Eryſipelaſes, Fevers.

5. THOSE that have liv'd high, have heated their Blood by drinking ſpirituous Liquors, and Surfeiting.

6. SUCH as are weaken'd and waſted by Sickneſs, hard Labour, or low Living.

7. SUCH as have weak Spirits, and ſtrong Fancies; that are apt to fall into Frights and Terrors, Sadneſs and Sorrows; are Hyſteric, Hypochondriac; and all ſuch whoſe Spirits are not able to oppoſe the aſſaulting Enemy, but fly, and let him in.

8. SUCH as have open Pores, and thin Skins; ſoft flabby Fleſh; and are tender, apt to ſweat, and take Cold.

9. CHILDREN, becauſe their Nature is too weak to reſiſt and keep out contagious Spicula; for their young Fibres are apt to be relax'd, and ſo leave open the Doors and Pores of the Skin. But *Stalpartius* (*Cent. poſt. Obſ.* 43.) ſaith, it is certain that *Italian* and *Spaniſh* Children ſeldom have the Small-Pox.

THE Small-Pox was wont to be accounted a Diſeaſe of Children, and Authors uſe to treat of them under that Head; but Experience tells us, it commonly ſeizeth Adults alſo, and even very antient People. *Thiermannus*

ſpeaks of a Man that had the Small-Pox at 70 Years old, *Lieburgius* at 80, *Borellus* at 118.

YET grown Perſons are leſs obnoxious to Contagion, becauſe their Spirits being more robuſt, oppoſe the light Miaſm, and keep it out; or if it be a little got in, drive it out before it have Power to enter into the Blood.

10. THOSE that come out of the freſh Country to *London*, and have not been uſed to that Air, are apt to catch the Small-Pox preſently; for beſides the ſtrange Motion that the vaſt Concourſe of Men, that Hurry of Buſineſs, and infinite Noiſes, will have on the Mind, the Breathing of the City Air, which is ſo compound a Body, and ſo different from that in the Country, will commonly put the Body into a Fluſh, (eſpecially in hot Weather) and that Commotion of the Blood will cauſe it to ſuck in the variolous Ramenta flying in the Air.

11. WOMEN about the monthly Times may eaſily take the Infection, eſpecially if they are then uſually wont to be much indiſpos'd.

12. WHETHER thoſe that have running Sores or Iſſues are not more obnoxious to Infection on that Account, I am not abſolutely reſolv'd, but ſuſpect they are; and upon this Suppoſal, in times of Peſtilence it hath been advis'd to dry up Iſſues.

AND *Crato* writes to *Jordan* (in *Epiſt.* 1. *Scolt.* 2. *Collect. Epiſt.* 139.) of a Sort of a Plague in *Moravia*, which ſeiz'd only ſuch as were cupped and ſcarify'd, and that Way the Venom made its Entrance into the Blood and Spirits; as we ſee now a-days it doth by Inoculation. *Th. Jordan* wrote a Tract concerning this Peſt, which *Schenckius* hath inſerted into his 6th Book of Obſervations.

13. WHETHER

13. WHETHER thoſe, who, when Infants, had not the Red Gum enough, or other Breakings out in their Heads, are not more ſuſceptible of Infection than others, I cannot poſitively determine; but this Suppoſition ſeems to me to ſmell ſtrong of the *Arabian* Hypotheſis, concerning maternal Taints before Birth.

BUT we know aſſuredly by Experience, that the Itch will not prevent the Small-Pox, neither will the Small-Pox cure the Itch.

14. SOME ſay, thoſe are not apt to catch the Small-Pox, nor breed them, whoſe Parents never had them; but I think common Obſervation contradicts this Opinion.

15. SOME believe the having had the Meaſles, or other Sorts of variolous Diſtempers, will either wholly prevent the Small-Pox, or, at leaſt, render it kind and regular; but they have no Ground for this Conceit, ſince every Cauſe produceth nothing but its own proper Effect.

16. SOME have held, that Kindred and Affinity of Blood will diſpoſe Men readily to catch the Small-Pox from one another; not only becauſe of a great Concern of Mind for near Relations, but of an analogical Conſtitution; for they having a certain Likeneſs and Propriety of Nature, that Venom which is actually operating in one, may well work likewiſe in the other.

AS for Brothers and Siſters taking the Small-Pox at a great Diſtance from one another, I ſhall not mention it, becauſe the Doctrine of diſtant Sympathies and Antipathies, that was much in Vogue in Sir *Kenelm Digby*'s Days, is now generally laid aſide.

Of FEVERS.

A Fever is a diſorderly Commotion of the Blood, caus'd by a preternatural Irritation of the Vital Spirits, which violently expanding themſelves, and exagitating the Maſs, make it boil, rarefy, ſwell the Veſſels, inflame the Parts, and circulate rapidly and unequally.

IT is uſually attended with great Heat, Thirſt, quick Pulſe, and difficult Reſpiration.

THIS may in ſome Sort be conceiv'd by Wine, which, if Fat, or any other very diſagreeable Subſtance be dropp'd into it, will boil ſo violently, as to run out of the Veſſel; or, if it find no Vent, burſt it open.

THIS Irritation of the Spirits is made either by ſome accidental Cauſe, ſuch as Paſſion, Pain, great Labour, *&c.* when the Blood itſelf is really in no manner of Fault;

OR by ſomething in the Blood, which being heterogeneous and diſproportionate, and therefore confuſedly jumbled, and not kindly taken into its Subſtance, ſo as to be aſſimilated, juſtles the Spirits, and drives them into Diſorders and Exploſions.

THESE febrile Commotions continue, till either,

1. THE Spirits are appeas'd again, and reſtor'd to their regular, uſual, and natural Way of Mication:

2. OR till the hoſtile Matter be ſubdu'd, evenly diſpos'd of, and incorporated with the Maſs:

3. OR till the Matter be extricated and expell'd, ſo as the Blood may be clear and clean; and all its Principles,

and

and whole Subſtance may be reſtored, re-inſtated, and re-ſettled in their former Situation, proper Conſiſtence, and natural Way of Circulation and Operation.

4. BUT if theſe Things cannot be effected, then the febrile Commotion never ceaſeth, till the Spirits being vanquiſh'd, exhauſted, and ſpent, the Functions of the Heart and Lungs fail; Circulation goes on heavily; the Bands of Continuity break; the Maſs becomes putrid and inanimate.

AND at length, it commonly happens that the Animal and Spontaneous Spirits alſo ſuffer, languiſh, and periſh; and then all Vitality and Animality ceaſing, the human Engine, like a Clock broken all to Pieces, goes no more.

UPON theſe Foundations I would build the Doctrine of Fevers.

I DIVIDE them into three Sorts, 1ſt Intermittents, 2d Continueds, 3d Continuals.

I. *Of* INTERMITTENTS.

THESE come by periodical Paroxyſms; and when they are regular, leave the Party in a manner free, and perfectly well between each Paroxyſm.

THEY are Quotidian, Tertian, Quartan, and their reſpective Duplicates; which I explain thus:

IF the Ague return every Day, but each other Fit anſwers not in the Times of Acceſſion; *viz.* one comes a *Sunday* and *Tueſday*, at 8 in the Morning, and the other on *Monday* and *Wedneſday*, at 2 in the Afternoon; tho' this Ague invades every Day, yet it is not a Quotidian, but a double Tertian.

IF it cometh two Days together, and miſſeth the third Day, and each other Fit correſpond as to Time, one coming a *Sunday* at 8 in the Morning, and the other on *Monday* at 2 in the Afternoon, and it quite miſs *Tueſday*, and ſo forward in the ſame Manner, it is a double Quartan Ague.

II. *Continued* FEVERS.

THESE, while they continue ſuch, go not ſo perfectly and totally off, as to let the Party feel himſelf any thing well at any Time, till they do ſo for good and all.

YET have they their plain and diſtinct Exacerbations and Remiſſions, like thoſe that are Intermitting, and uſually obſerve pretty regular and cuſtomary Hours.

I CALL theſe, from the Times they come and go at, Continued Quotidians and Tertians; for I think they ſcarce ever are Quartans.

THEY ſometimes end by a viſible Criſis, but more commonly ſuffer a Change; and being of a middle Nature between Intermittents and Continuals, if Nature prevail, they dwindle into the former; but if it bear not up well, run into the Claſs of Continuals.

III. *Continual* FEVERS.

1. THESE proceed without Apyrexies, or even any manner of obſervable Remiſſions, till either they growing milder, turn into Continueds or plain Intermittents; or, 2. Till they having run thro' all their Stages of Invaſion, Augment, State, and Declination, then

then ceaſe, and go off; or, 3. Till they have extinguiſh'd Life.

Of the CAUSES *of Continual* FEVERS.

THE efficient and operative Cauſe are the Vital Spirits; the material and ſubjective Cauſe are the Globules, or Blood itſelf.

FOR when the Spirits have fired them, they drive all the Particles of the liquid Maſs into great Exagitations, and preternatural Diſorders; the Blood boils and rarefies, and runs rapidly; the Fleſh burns, Reſpiration grows quick and painful; the Pulſe beats high; the Urine becomes red, and all is every where in a Combuſtion.

Of the SPIRITS.

WHEN they are irritated a little by ſome ſlight Cauſe, ſuch as Paſſion, Labour, Pain, Watching, *&c.* and the Blood at the ſame time in good Order, they will not fly into ſuch Furies, as much to exagitate and fire the Globuli, but be ſoon appeaſed; and ſo the little Fever that was raiſed, eaſily and quickly ſinks, and all is quiet again. This I take to be the Manner of an Ephemera.

WHEN the Spirits are ſo provoked as to rage, and raiſe a conſiderable Combuſtion in the Blood; yet not ſo great an one as thoroughly to diſſolve its Craſis, and ſeparate its Principles, the Fever cauſed thereby, will be that which is called a Non-Putrid Synoch.

IF the Spirits be over-match'd by the hoſtile Matter, and put into great Diſorders and Flights, then all the vital Functions will be badly performed.

IF ſo many of the vital Spirits be deſtroy'd, ſpent, and killed, that they cannot flow in a ſufficient Quantity to the Brain, to be there diſtilled, rectify'd, new made, and turned into Animal Spirits; then Trembling, Spaſms, Coma, and the like dire and frightful Symptoms will ariſe, and the Animal Functions will fail.

BUT further yet, if thoſe Spirits which are for the Performance of ſpontaneous Motions, be ſo affected as not to be any longer able to continue Pulſation and Reſpiration, the Party muſt of Neceſſity die.

Of the BLOOD, *or the Material or Subjective* CAUSE *of Continual* FEVERS.

IT is ſuch, either, 1ſt, of Itſelf; or, 2dly, by reaſon of Matter taken into it.

I. *Of* ITSELF.

1. WHEN there is a Plethora *ad vires*; that is, when it is increaſed to ſo great a Quantity, that it hath not ſufficient Room, but throngeth the Veſſels, circulateth troubleſomly and unevenly; and throweth not off its Recrements as it ought to do.

2. WHEN it is too rich, and over-ſtock'd with Globules and Oleoſe Principles, whereby it is apt to take Fire, as it were, upon every Accident, and ſmall Error of Life.

3. WHEN the Serum is become Acrid, and Pungent, and Irritative, which, perpetually provoking the Spirits, driveth them into Ataxies, and the Blood into Effervescencies.

4. WHEN

4. WHEN the fibrous and mucilaginous Parts abound in the ſerous Latex, and are beyond due Proportion to the other Elements; for they being excocted into ſolid Size, lay Obſtructions in the capillary Paſſages, and hinder Circulation; whence ariſe Extravaſations, great Heat and Pain, Inflammatory Fevers, as Quinſey, Pleuriſy, muſcular Rheumatiſms, *&c.* in which Caſes the Blood let out into Porringers is always ſeen to be ſizey.

5. WHEN the Blood inſenſibly and gradually of itſelf, without taking in of any thing *ab extra*, groweth foul and corrupt, and full of diſcordant heterogeneous Matter, that cannot incorporate rightly with the Maſs, nor circulate kindly with it.

FOR then the Spirits meeting with Obſtacles, and Offence, will fly and flaſh violently, and the ill-ſorted Liquids will run into Confuſions, Deliquiums, Tumults, and Fevers.

THIS Depravation of the Blood within itſelf, may proceed from divers Cauſes.

1. FROM ill Courſes and Cuſtoms of Living, in reſpect of the ſix Non-naturals; whence bad Digeſtion, crude and other vitiated Humours, Cacochymia, Plethora, *&c.*

2. FROM ill Secretion of Recrements, Retenſion of Menſes, or Excrements of any Sort.

3. FROM Humours congeſted in the Glands, Viſcera, or Habit of the Body, and there retained till they take up an aliene Nature, from ſcrophulous, gouty, or other Tumours or Ulcers ſupplying Matter, and pouring it into the Blood.

4. FROM Tranſpiration ſtopped; for in that Caſe the veterane Serum, after many Circulations, having ſerved

its Time, and done all that it was to do, becomes of no further Uſe in the Blood; and therefore is expelled into the cutaneous Glands and Pores of the Skin: And being there in a State of Extravaſation, void of Spirits, inanimate, and corrupted, grows ſalt, ſharp, and directly noxious.

AND if when it is ſuch, it be hinder'd from tranſpiring, and evaporating off, and inſtead thereof, be repelled, and licked back again into the living Maſs, it will be as offenſive to Nature as cadaverous Matter would be, and ſo muſt neceſſarily foul the Blood according to its Degree of Depravity.

AND thus much of the Blood itſelf, without Mixture with other Matter, being the Material and Subjective Cauſe of continual Fevers.

Of Continual FEVERS, *cauſed by Matter taken into the* BLOOD ab extra.

IT is of three Sorts, 1ſt Benign, 2d Malign, 3d Venomous.

I. BENIGN MATTER.

IT is ſuch as, having nothing at all of a viroſe venomous Nature, is only incongruous and diſproportionate, and therefore being unfit to be mixed, and united with the Blood, gives it Diſturbance.

IF it be as yet ſeated in the Lymph, and ſcarce got in among the Globules, it will notwithſtanding provoke, and perturb the vital Spirits, and ſo exagitate them as to ſtir up an Effervеſcence, which ceaſeth again as ſoon

as

as the Matter can be concocted and thrown out by inſenſible Tranſpiration, Sweat, Urine, Stools, *&c.*

FOR thereupon the Spirits will be appeaſed, and quietly reſettled in their natural Temper, and uſual Manner of Expanſion and Irradiation.

I apprehend this to be the Caſe and Manner of that Fever called an Ephemera, or Flurry of one Day; tho' it may proceed alſo from the Blood itſelf, without aliene Mixture, as ſaid before.

IF the Effervescence continue longer and riſe higher, inſomuch that not only the Spitits are irritated, but the Lymph be over-boiled; and alſo the Globuli are exagitated in ſome Parts, but not every where, and thoroughly kindled in their inmoſt Particles, it then cauſeth that which is called a Simple Synoch, or a Non-Putrid Fever.

BUT if it proceed ſo far as to be boiled into the Subſtance of the Blood, and be intimately mixed in it, and break the Bonds of Connexion, and let looſe the Globuli, and cauſe them to cluſter together, grow turgid, and fall a burning and diffuſing Inflammation through the whole fluid Maſs, whereby its Craſis is diſſolved, its Tone broken, and the vital Functions impair'd, it produceth that Fever which is called a Putrid Synoch.

II. MALIGN MATTER.

IT is ſuch as is exceſſively Acrimonious and Operative, and highly diſagreeable and offenſive to both the Vital and Animal Spirits, and Blood, but yet is not ſo abſolutely Venomous, as to be directly tending to the Extinction and utter Deſtruction of them.

WHEN ſuch Matter being Heterogeneous, and utterly unfit to incorporate and circulate, remaineth in the

Blood, altering the Diſpoſition of its Parts, diſſolving, coagulating, or otherwiſe corrupting them, and troubling their Motion, and confounding the Action of the Vital Spirits; ſuch is their Activity, Force, and Vehemence, that they will fly out into violent Agitations and Effervescencies, ſo as to ſtir up the Globuli and the other Principles, and make the Maſs of Blood as 'twere flame, and the Body to burn.

AND theſe Turbulencies will never ceaſe, till either the Matter be refringed, ſoftned, edulcorated, and render'd mild, and fit to mix in, and flow peceably with the Blood.

OR if the hoſtile Matter prove untractable, immiſſible, and unaſſimilable, and to the utmoſt Degree provocative, then the Vital Spirits will fly into diſorderly Exploſions, and never come to Reſt, till they have ſubdued, extricated, and expelled, by ſome Way or other, the Enemy.

OR elſe if they fail in their Attempt, and are not able to accompliſh their Work, then they become vanquiſh'd themſelves, and Nature giving out, they fall in the Conflict.

A RECAPITULATION.

1. BY an Ephemera, I mean ſuch a Fever as is cauſed by only a Diſturbance of the Vital Spirits, wherein the Lymph is but little, and the Globuli ſcarce at all, alter'd.

2. BY a Simple Non-Putrid Fever, ſuch an one as affecteth both the Vital Spirits and Lymph; and tho' it heats up the Globuli, and grows pretty ſharp, yet it diſſolves not the Craſis of the Blood. This Fever is not very durable nor dangerous, unleſs it turn to a Putrid.

3. BY

3. BY a Putrid, ſuch an one as not only acts upon the Vital Spirits and Lymph, but the whole Maſs of Blood alſo, diſſolving its Craſis, inflaming the Globules, tearing aſunder its Principles, and bringing them to a State of Corruption and Putrefaction.

4. BY Malignants, ſuch Fevers as, beſides its Devaſtations, which in common with Putrids, they make in the Vital and Sanguineous Province, invade alſo the Brain and Nerves, and animal Province, and commit Outrages there.

AND ſo I make the Difference between Putrid and Malignant Fevers, to conſiſt mainly in this, That Putrid affect primarily and principally the Vital Spirits and Blood; but Malignants, together with theſe, the Animal Spirits.

Of PUTRIDITY *and* MALIGNITY.

BECAUSE they may, and often do, happen together; I offer the following Obſervations and Rules, which perhaps may prove of ſome Uſe in Practice.

1. IF neither Putridity nor Malignity be great, there is no Danger, nor ill Symptoms, nor Difficulty in the Cure.

2. IF Putridity be much, and Malignity not intenſe, the Fever lying harder upon the Vital Functions than the Animal; Phlebotomy, (if uſed in Time) Diluents, and Refrigerants will be proper.

3. IF Malignity ſurpaſs Putridity, the Fever not running up high, and not troubling the Vital Spirits much, but remarkably diſordering and weakening the Animal Functions;

Functions; In this Caſe Bleeding is generally ſpeaking hurtful: Attemperants, Refrigerants, and Paregorics do more harm than good; but warm Cordials, Alexipharmics, Diophoretics, and Epiſpaſtics, are the proper Remedies to be inſiſted on.

4. IF Putridity and Malignity both be in a high Degree, and the Vital and Animal Functions alſo be together at the ſame Time aſſaulted, and thereupon the Fever cauſeth great Heat and rapid Motion of the Blood, and great Diſorder, Oppreſſion, or Exploſions in the Brain, the Caſe is hazardous and difficult.

FOR the Indications being quite different, and almoſt oppoſite, it will exerciſe the beſt Thoughts of a Phyſician exactly to diſtinguiſh, and rightly to judge what he ought to do, and how to time it.

FOR the Ardour, Acrimony, and Rapidity of the Blood, call for Refrigerants, Diluents, and Edulcorants; but the ſinking of the Animal Spirits, for warm ſpirituous aromatic Cordials, volatile Salts, Cephalics, Epiſpaſtics, and Applications to the Feet.

Of the Third Sort of MATTER *being Venomous.*

MY ſettled Opinion is, that in regard every Effect is neceſſarily ſuch as its Cauſe, it muſt needs be, that every Sort of venomous Fevers is produced by its proper and peculiar Species of Virus.

AND that the Manner and Symptoms of every ſuch Fever is not ſo much from the particular Conſtitution of the Sick; as from the different Nature and Genius of their ſpecific Venom which cauſed them.

AND

AND I conceive that venomous febrile Matters differ not in Degree of Intenſeneſs only, but in Eſſence, and *Toto Genere* alſo; and that venomous Fevers are for the moſt Part contagious, but the malignant ſeldom ſo.

OF theſe Fevers I reckon Three Sorts.

The Firſt Sort of VENOMOUS FEVERS.

THESE Fevers diſcharge themſelves by a long Criſis, by way of ſingle Spots, broad Efflorescencies, or elevated Puſtles, and are all of them more or leſs contagious.

THEY are produc'd by ſuch a Venom, as is of its own Nature mild, and almoſt harmleſs; yet if it be overheated, or otherwiſe heighten'd, it will produce horrid Symptoms, and raiſe up ſuch Fevers as are more certainly killing than even the Plague itſelf.

SUCH are the Small-Pox and Meaſles, and the ſeveral ſpurious and ſubaltern Kinds; and of theſe, excluſive of all other Fevers, I deſign to treat *ex profeſſo* in due Place.

The SECOND SORT.

THERE are many Varieties of theſe Sorts of Fevers according to the different Matters which produce them in Epidemic Seaſons, and in ſeveral Countries.

CONSTANTINOPLE and *Grand Cairo*, and other great Cities of the Eaſt, are ſaid to be never free from the Peſtilence; but I rather think they are venomous Fevers of other Kinds that infeſt thoſe Places, where there

there are great Numbers of People, and little Care taken to prevent Infection.

IF it were really that terrible King of Diſeaſes, it would not be limited by any Laws, nor come and go away at ſet Seaſons.

THEY are caus'd by Poiſons that are more ferine and noxious than that laſt mention'd; but yet are not ſo terribly rank and deleterious as is that of the Plague.

THE Nature of theſe Fevers is to be epidemical, multiplicative, contagious, and extremely dangerous.

THEY do not uſually go off by any fair Criſis, tho' they frequently put out pulicar, petechial, and other Spots; for when ſuch happen, they are generally ſymptomatic and irregular, both as to the Times of the Diſeaſe, and Places of the Body, and never bring any Relief to the Sick.

MALIGNANT Fevers, and thoſe that are venomous, have many of the ſame Signs and Symptoms in common, which I ſhall here recount.

ALL theſe happen not in any one; but from ſome of them we may be enabled to form a diagnoſtic Judgment; always remembering, that the Malignant affecteth principally the Vital Spirits and Blood, but the Venomous chiefly the Animal Spirits and Nerves, from almoſt the firſt Onſet.

SIGNS

SIGNS *of both* MALIGNANT *and* VIRULENT FEVERS.

1. WEARINESS and Weakneſs, eſpecially in the Arms and Legs, without any evident Reaſon for it.

2. HORRIPILATIONS ſhivering Cold, and fluſhing Heat ſucceeding one another ſeveral times by Turns.

3. NO very great conſtant Heat at firſt.

4. HEAT and Thirſt in the inward Parts, and at the ſame Time Cold in the outward.

5. PALMS of the Hands hot and dry, when the Backs of the Hands are cold and clammy.

6. VIOLENT Headach, with Pain in the Eye-balls, and in the Limbs.

7. EXQUISITE Pain in the Back and Loins; ſometimes with ſuch torturous convulſive Shoots, that the Sick cannot forbear crying out every Time they come.

8. DULLNESS and Swelling of the Eyes, ſometimes with involuntary Tears.

9. SOMETIMES pertinacious Watchings, and Delirium; ſometimes unconquerable Drowſineſs.

10. SLEEP ſhort and broken; not refreſhing; diſturb'd with Dreams, and Frights, and Terrors; a Senſe of Fires flaſhing; of being murder'd, and awaking ſick.

11. HEART-burning; Sickneſs at Stomach; Nauſea; Vomiting, without bringing up much Choler; Hiccough.

12. THE Brain, Nerves, and Animal Spirits particularly and grievouſly affected; tho', at the ſame time, the Fever ſeem not to run high.

13. OPPRESSION and Pain at the Breaſt, Sighing, Inquietude, Anguiſh, Fainting.

14. SWEATING towards the Beginning, without any manner of Relief thereby; in ſome Parts only, eſpecially the Forehead, Backs of the Hands, upper Parts of the Body, and not the lower.

15. RED Efflorescences, either all the Body over, or in large Area's, ſmooth or rough.

16. SPOTS of divers Sorts and Colours, at irregular Seaſons of the Diſtemper; ſometimes ſeven or more Days after the Onſet of the Fever; and upon Appearance of ſuch, the Sick grows not a whit better, but plainly worſe.

17. URINE like that of People in Health, and yet the Party is at the ſame time extremely ſick, and hath great Complaints; ſometimes Limpid, like that of Hypochondriac and Hyſteric Perſons; ſometimes Turbid, like that of Beaſts.

The Third Sort of VENOMOUS FEVERS,

IS the Peſtilence itſelf, or Plague. This is the moſt intenſe, viroſe, and killing of all Fevers: So operative and powerful, that ſometimes it wants not the Aſſiſtance of diſorder'd Blood and Humours; but falling directly (like Lightening) on the Animal and Spontaneous Spirits,

Spirits, without raiſing any ſenſible Ebullition, or even the leaſt increas'd Fermentation, without any Warning or Notice given, ſtrikes a Man down dead at once.

BUT at other Times, tho' it kindles up but a mild Sort of a Heat, yet it ſtrangely overpowers the Vital Spirits, gets in among the Globules, breaks them into the minuteſt Atoms, cuts the Fibrillæ all to Pieces, diſorders the Compages of the Maſs, throws out purple, livid, black, or blue Spots, Wheals, Tumours, Buboes, Carbuncles, utterly kills both Animal and Spontaneous Spirits, corrupts the ſolid Parts, and turns the Body into Carrion before it be quite dead.

Of CUTICULAR ERUPTIONS *without a* FEVER.

I

THE Matter of theſe is ſometimes only the ſerous Part of the Blood grown ſalt, ſharp, corroſive, or ſome way or other aliene, and unfit to remain any longer in the Maſs. Inſtances of which are Bliſters, Itch, Herpes Miliaris, the Cryſtal Small-Pox, *&c.*

SOMETIMES that Serum, being charg'd with ſuch Feculencies as raiſe no Fever, yet cannot circulate freely, is thrown out leiſurely without any Sickneſs or Trouble; and this is the Caſe of Scurvy Spots.

BUT in Eruptions that have any thing of Redneſs, there is a Mixture of Globules with the Serum; for nothing in the Body is Red, or can give Redneſs, but the Globules.

WHEN they are broken ſmall, if their thinner and finer Part overfloweth the Cutis univerſally and uniformly, it cauſeth a red Efflorеſcence to be ſeen all over thro' the pellucid Cuticula.

SOMETIMES it ſpreadeth large Area's, and leaveth void Spaces between them, and appeareth in broad red Patches.

SOMETIMES it cometh out in ſeveral little diſtinct Particles; and then it produceth either Spots or Puſtles.

WHEN the Blood is pure, without any ill-agreeing Matter in it, yet its meer Heat and Impetus will ſometimes puſh out Colours and Spots, which, as ſoon as that Impetus ceaſeth, will immediately diſappear, and go off again, by returning into the Maſs, and joining with it, as Drops of Water mix in with Water. This ſeems to be the Caſe of Bluſhing, rubefying the Fleſh with Rubbing, Ague Spots.

WHEN the Globules flow languidly thro' the ſmall Veſſels, and ſwell them, but at the ſame time ſuffer little or no Extravaſation, the Redneſs will continue there till the Blood can be reſorb'd, and the containing Veſſels fall and ſhrink again to their natural Size: Blood-ſhot Eyes, and ſlight Inflammations are Inſtances of this.

WHEN there is a ſmall Extravaſation, the Blood having a little broke out of ſome of the Capillaries, and enter'd into the collateral carnous Fibres, and being there, as 'twere, out of the Canal and Current of Circulation, is not vividly mov'd, it will coagulate into Gore, and become black and blue Vibices. This I take to be the Caſe of Contuſions, where the tender Veſſels and hollow Fibres are hurt, diſorder'd, or broken.

THESE livid Spots, if the Portions of Blood cauſing them continue yet living, that is, have Vital Spirits flowing into them, will be diſſolv'd by the Animal digeſtive Warmth, and be return'd again into the living Maſs, and growing yellower, will gradually diſappear.

BUT if theſe Portions reſt there till they have loſt all Irradiation of the Spirits, they will become dead Gore, and can never be admitted into the Blood any more; but will turn into purulent Matter, and go off in Abſceſſes; and if there be any great Quantity of it in any Part, it may ſuffocate natural Heat, and produce Mortification, eſpecially if any malignant Matter be mix'd with it.

OF all Eruptions, it is to be obſerv'd, that the brighter Red they are, ſo much always the better they are; for then they conſiſt of living ſpirituous Blood; but the darker they are, (as Purple, Leaden, Black, Blue) the greater Putrefaction they manifeſt, and the greater Danger of Mortification they portend.

Of FEBRILE ERUPTIONS.

THESE are moſtly caus'd by certain Matter that is diſagreeable to the Blood, which oppoſeth the Mication of the Spirits, troubleth the internal Motion of the Liquids, and thereby exciting a preternatural Conturbation, is ſeparated from the Maſs, and thrown out into the Superficies of the Body.

SOMETIMES the Matter is not of ſo very diſagreeable a Nature, as to irritate the Spirits, and diſorder the Blood much; and then, tho' it circulate not quietly with it, and muſt be thrown out, yet it exciteth little or no Fever. Thus it is in the ſpurious Sorts of Poxes, and in the mildeſt Meaſles and Small-Pox.

SOMETIMES it is ſubtiliz'd and exhal'd away, as in the ſpurious Kinds and Meaſles; ſometimes it is ſuppurated, and turn'd into Abſceſſes, as in the common Small-Pox; ſometimes, after it hath been out for ſome Days, and begun to be putrify'd, it is reſorbed again into the fluent

fluent Maſs: And this I take to be the Caſe of the variolous ſecond Fever.

IN Caſe of the Small-Pox, when the variolous Matter hath intimately join'd the Globuli, Atom for Atom, and, with each of them, form'd ſuch Moleculæ, as cannot circulate thro' all the minute Paſſages quietly; the Force of the Fever rais'd thereby, will puſh them out into the external Parts, and produce Puſtles.

AND there, if they be not totally ſhut off from the Blood, and depriv'd of all Communication with it, they will be continually fed with Serum and Steams, and turn'd into Abſceſſes; which, by the warm Bath of the Blood, will be gradually brought to Maturation. Thus it is in a common regular Small-Pox.

BUT if the Matter be ſo viroſe, as to hurt the Vigour of the Spirits, diſſolve the Craſis of the Blood, cauſe Colliquations, very much break the Globules, and weaken the Tone of the ſolid Parts, it will cauſe an high confluent Sort.

FURTHER, if the morboſe Matter be exalted to ſo high a Degree of Venenoſity, as to putrify the Blood, break many of the Globules into their Minima, and with them form cauſtic Moleculæ, it will force out petechial Spots.

THESE Spots, when vivify'd with Vital Spirits, appear of a lively bright red Colour, and may be ſometimes recoverable.

BUT when they come out at firſt (or afterwards turn to be) deep Purple, or dusky, they are ſo for want of Spirits, and then they are extremely dangerous; but when they are blue or black, they are quite depriv'd of quickening Spirits, and always portend Death.

AND

AND when all the Globules are univerſally, thro'out the whole Maſs of Blood, broken into their leaſt Atoms, and are poiſon'd and ſet a Fire in all Parts, then they cannot be contained any longer in any Veſſels, and will burſt out with a darkiſh Efflorescence, and dreadful Hæmorrhagies every where.

THESE Eruptions are either flat Spots, broad Efflorescences, or elevated Puſtles. Under the former I rank many Sorts, but particularly the Meaſles, and all its Kinds: Under the latter the Small-Pox, and all its Kinds.

THERE are many of both Sorts not diſtinctly deſcrib'd, nor particularly named in Books; the Reaſon of which is, becauſe moſt of them are ſuch inconſiderable and ſafe Diſtempers, that Phyſicians are ſcarce ever called into them, but the nurſing Women have the whole Care of them: Some of them are as follow;

SPOTS *in* AGUES, *and from* WOUNDS.

PECKLIN, *L.* 2. *Obſ.* 18. *p.* 250. tells us, that ſometimes at the going off of a Tertian Fit, before the Sweat comes on, Spots will appear, which by the Sweat will be carried off again.

I HAVE ſeen, ſaith he, Exanthemata without any manner of Danger; the firſt Time in two, that were wounded in their Breaſts, a Redneſs flushed all over the Body, like a fine Crimſon, which went in again in four Hours.

A SERVANT Maid having a Quotidian Fever, was painted all over with a delicate Redneſs for three Days running, which came and went away with each Fit.

AND

AND likewiſe a Noble Lady having a Tertian, came out all her Body over with a Redneſs, which, as the Fever remitted, vaniſh'd.

HE ſaith this is void of all Danger, and is rather a ludicrous Spectacle than an ill Symptom.

SUCH as theſe happen when the Blood is violent hot, (during the Fit) and boils, and rarefies, and requires more Room, and dilates the capillary Arteries, and thereupon the groſſer Globuli being rubbed aſunder, and divided, their minute ones are driven into the Skin, and make it red, as rubbing the Fleſh will do even without the Fever.

BUT having there no ill-ſorted Corpuſcles among them to hinder Coalition, as ſoon as ever the Commotion and Impetus is down, they unite again into common Globules, as miſty Bubbles do into Drops of Water, and paſs back into the Veſſels, and circulate as before.

RED GUM.

CHILDREN, for the moſt Part within 14 Days after Birth, are wont to have large and red Spots all over their Skin; and if this Redneſs does not come out freely, or if it diſappeareth ſooner than it ought, for the moſt Part a white Thruſh in the Mouth enſueth: in ſome it continueth coming out many Weeks.

THESE Spots are cauſed by their Blood being render'd foul, from Impurities it contracted in the Womb, which Nature endeavoureth to ſend off by an Efflorescence.

SCARLET

SCARLET FEVER.

BECAUSE it chiefly ſeizeth Children, and comes with a Cough, it ſomething imitates the Meaſles; but foraſmuch as it is not contagious, and ſeems to have nothing virulent in it, I rather chuſe to allow it a Place among benign Fevers.

THE Party at firſt ſhakes and ſhivers, but is not very ſick; the Skin is filled all over with red flat Spots, (yet ſomething roughiſh to feel to) which are much thicker ſet together, broader and redder than the Meaſles.

THEY make the Body all over of a Scarlet Colour; continue two or three Days and then vaniſh: So the Cuticle breaking and peeling off, there remains for a Time a little Scurfineſs, which looks whitiſh, as tho' Meal had been ſprinkled all over the Body.

AT this Time of ſhedding the Cuticula, there is ſometimes great Itching. Dr. *Sydenham* ſaith it is the Name of a Diſeaſe, and ſcarce deſerves to be accounted any more.

ETTMULLER, *Tom.* 2. *p.* 416. ſaith, it is a Fever more or leſs acute. After two or three Days a certain Redneſs (without almoſt any raiſing of the Skin) breaks out, ſometimes in Spots, ſometimes in broad Patches, like an Eryſipelas; at firſt about the Neck, Shoulders, Breaſt, and then the Face, and whole Body, and cauſeth it to ſwell a little.

BUT in two or three Days more, the Tumour ſinking by Degrees, broad Spots appear again, which about the ſeventh Day quite vaniſh, and the Skin peels off. This ſeemeth to be ſomething different from that before deſcrib'd by Dr. *Sydenham*.

A RASH.

THIS Name of a Diſeaſe we never have heard of till of late; it ſeems to me to be no other than a ſmall Sort of Scarlet Fever, which puſheth forth heterogeneous Matter into the Skin; but being not Malignant, it is quickly diſſipated and evaporated, and is not contagious nor dangerous.

The PURPLE FEVER.

IT may ſeize any one indifferently; but moſt commonly taketh lying-in Women, and new-born Infants.

THE Fever begins like a Synoch, with firſt Cold, then Heat, great Anguiſh, Inquietude, Redneſs of the Eyes, ſometimes Headach, always Watching, a little Dampneſs about the Forehead, Back of the Hands, Breaſt: The Urine is like that of People in Health.

IN Child-bed Women the Lochia are diminiſh'd.

THIS Diſtemper thus proceeding, about the ſixth Day there is felt Heat, Itching and Pricking about the Breaſts, Shoulders, Back, and by Degrees all the Body over; upon which the Skin becomes Red, and a little Roughiſh.

IN the State of the Diſeaſe, the Fever and all Symptoms are increaſed, and the Roughneſs turns into miliary Effloreſcencies, more or fewer, which, if the Air be admitted into the Bed by heaving up the Cloaths, are moſt apt to ſtrike in; and then follow Anguiſh, Difficulty of Breathing, extreme Proſtration of Spirits, and commonly Delirium, Convulſions, and ſuffocative Catarrhs.

IT goes off ſometimes (tho' not often) by a Diarrhæa, ſometimes by inſenſible Tranſpiration, or by Sweating: In Child-bed Women often by Lochia, the Spots waſting by Degrees, and then the Skin peeling off.

SCORBUTIC PURPLE FEVER.

PECHLINUS, *L.* 2. *Obſ.* 18. *p.* 250. ſaith, there is a Sort of Fever called *Purpurata*, which ſhews itſelf in various Spots, pale, redder, duskiſh, and at length black, which is cauſed from a Fermentation ariſing from Scorbutic Salts, thruſting the Matter out into the Skin, where it is eaſily diſſipated: He tells us he is aſſured it is malignant, and ſometimes dangerous.

The NORTHERN PURPLE FEVER.

THE ſame Author informs us, *L.* 2. *Obſ.* 17. *p.* 245. that in ſome Places of *Cimbria*, lying to the North Sea, there reigns an annual purpurate Fever, which every Stranger, who hath not had it before, moſt certainly catcheth; for it is very contagious, and when once it is gotten into an Houſe, it runneth thro' a whole Family. Red Spots, he ſaith, are better than yellowiſh; but black are for the moſt Part mortal.

ROUGEOLE.

IN this Diſtemper great broad flat Patches, as red as an Eryſipelas, thruſt out ſo as to cover moſt Part of the Body, whole Limbs, the Arms, Legs, Back; and this Redneſs diſappears uſually in few Hours, and returns again by Fits, according as the Fever flyeth into Exa-

cerbations, and the boiling Blood ſends morboſe Exhalations to the Superficies: Theſe are ſaid not to be malignant.

CHESNEAU ſaith he ſaw ſuch a Diſtemper, but gives no perfect Deſcription of it. He thinks it is ſeldom ſeen, except in hot Countries; yet I am confident I met with it many Years ago in our Country.

The ASPREDO.

I MAKE bold to give it this Name, to diſtinguiſh it from other Eruptive Fevers, which Authors have mentioned with much Confuſion, and fixed no ſpecific Names to.

MARTIANUS, (in *Hippocr. Epidem. Sect.* 3.) ſaith, it is a Diſtemper ſo familiar to Children, that (like the Small-Pox) it letteth none eſcape it.

IT is a Sort of Roughneſs, not much unlike the Sudamina, in which the Skin is a little raiſed up, and itcheth; but theſe Eruptions are ſomething larger than the Sudamina, and are ſcaley.

THEY are pretty like to Flea-bites, and Peticulæ; but are diſtinguiſhable from them by their Roughneſs and Itching.

IT beginneth with a ſharp and burning Fever; the third or fourth Day ſmall red Spots break out, which by Degrees become ſomething elevated, ſo as to make the Skin feel roughiſh.

THE Fever continueth to the fifth Day, and then it ſinks off, and the Roughneſs gradually after it.

THE

THE Phyſicians took it to be the common Meaſles, tho' it differed much; for whereas many were carried off by the Meaſles, none died of this Aſpredo, unleſs by almoſt a Miracle, or by ſome Miſmanagement, eſpecially by letting Blood.

ROSALIA.

THOSE which were rife at *Vienna* were red, and as it were fiery Spots, which, with ſcarce any Tumour, broke out the 4th or 5th Day like Eryſipelaſes; and in the Progreſs of the Diſeaſe, fluſhed all together over the whole Skin, and made it as red as Fire.

IN the Declination, this univerſal Redneſs being changed into the ſame Spots it began with, upon the 7th and 9th Day totally vaniſhed, the Epidermis ſcaling off like Bran.

ROSALIA SQUAMMOSA.

BARTHOLIN. *Act. Med. Vol.* 5. *p.* 153. hath the following from *Borrichius.*

THEY belong to the Meaſley Tribe, and moſtly ſeize Children; firſt with a Drowzineſs, then with a continual Fever, and that a vehement one, generally with Watching, Inquietude, Delirium, and Heavineſs of the Eyes.

THE third Day the Skin is ſpangled all over with broad, flat, and very red Spots, which, before next Morning, run all together into one, and make the whole Body (except the Face which is not ſo red) look as if it were rubbed with Kermes Berries.

THIS

THIS Redneſs holdeth on full three Days; the fourth it begins to decline, and the Heat diminiſheth; and from that Time the Cuticle, breaking into ſmall Scales, falls off, and new ones come in their Rooms ſeveral Times.

PERHAPS it is the ſame which *Sennertus* obſerved, ſaying, there is a Sort of Fever (but an unuſual one) which he had ſometimes met with, but was in doubt how to diſtinguiſh it by a proper Name.

FOR altho' it began like an Eryſipelas, and ſeized the whole Body, yet he never ſaw it take grown Perſons, which an Eryſipelas doth indiſcriminately: He inclines to put it into the Claſs of Meaſles; and deſcribes it juſt like that above of *Borrichius*.

RUBORES.

DIEMERBROECK *de Morbillis*, *p.* 303. gives us this Obſervation:

A *Dutch* Nobleman being taken with a Fever, having a ſtrong but very unequal Pulſe, Thirſt, grievous Anxiety, Inquietude, ſlight Delirium, and ſome ſpaſmodic Twitches in his Limbs.

AFTER a Clyſter given, he was let Blood, and in the Evening took a Sudorific, upon which he ſweat mightily: The Illneſs continuing much what the ſame, he took another Sudorific, and ſweat powerfully.

THEN did the ſaid Symptoms begin to abate, and the Patient complained of a troubleſome Pricking and Itching all over his Body.

A little after appear'd here and there great red Spots, ſome as large as Crown Pieces, other half as broad as one's Hand; ſome larger, ſome leſs; which looked firey, and here and there were interſpers'd with ſmall Pimples, about the Bigneſs of Millet Seed.

IN a Day's Time theſe Spots ran all together, ſo as to make the Body every where of a very florid red Colour; and then the Fever and other Symptoms grew milder.

THREE Days after that, the general Redneſs going off, the Spots came in Sight again, juſt as at firſt; and three Days from thence they quite vaniſh'd, and ſo the Party grew well; but with the Loſs of his Cuticula, which peeled off all his Body over.

HE adds, that this is the very ſame Diſtemper which *Foreſtus* calleth *Purpura* and *Rubores*, and is nigh akin to the Meaſles, and to be order'd as they ſhould be: But it is an hotter Diſeaſe, yet is eaſily diſcuſs'd: As for the little Pimples, they are not ſuppurated, but are diſſipated by Warmth.

ERYTHREMATA, *or* RUBORES SENNERTI.

THEY begin with moſt violent burning Heat, intolerable Headach, want of Sleep, unquenchable Thirſt; dry, parch'd, and rough Skin; Cough, Difficulty of Breathing, ſometimes Tumour of the Tonſils.

ABOUT the fourth Day break out over the whole Body, from Head to Foot, both great and little Spots, which are red, and as firey as an Eryſipelas; but are perfectly flat.

IN the Increaſe of the Diſeaſe, ſome bleed at Noſe; through the whole Courſe of the Illneſs, there is Loſs of Appetite,

Appetite, perpetual Coſtiveneſs, Urine intenſely red, thick, and crude; a ſwift, and hard Pulſe.

IN the State and Height of it the Body appears all over red, which obſcureth the Spots that were diſtinct before.

ABOUT the Declination the Redneſs diminiſheth again, unleſs in the Cheeks, for they often remain red; which *Doringius* ſaith, is a ſure Sign of an Inflammation of the Lungs.

AS this Redneſs goeth off, broad red Spots come to Sight again, as at firſt; which vaniſh quite away about the ninth Day, the Skin peeling off in little Scales.

SENNERTUS ſaith, this is a moſt grievous, dangerous, and often deadly Diſtemper; for the Heat is moſt fervent, Thirſt unquenchable; and, for the moſt Part, there is an Inflammation of the Lungs, Throat, Bowels, and many times a Phrenzy.

COMMONLY in the Declination, at length the Matter is tranſlated to the Joints and the extream Parts, cauſing a Redneſs, and Pain like the Gout.

THE Feet ſwell up to the Ancles, the Hypochondria grow tenſe, the Face is tumefy'd, Breath grows ſhort and difficult, the Belly and Scrotum are ſwell'd.

THE Sick lie a long Time ill, and with much ado are at length recover'd, the Skin peeling off; but very often they die of it.

DORINGIUS gave *Sennertus* an Account of a Boy, that, at the latter End of this Diſeaſe, had his Feet, Legs, Scrotum, Belly, and Face ſwelled, with a fluſhing Redneſs in now one, and then in the other Cheek; with a Cough

a Cough which brought up nothing, and a great Difficulty and Shortneſs of Breathing.

SEVEN Days before he dy'd, he felt a great Weight in his Breaſt; and then an Abſceſs breaking in his Lungs, he coughed up a vaſt Quantity of Pus and Blood.

WHEN his Body was open'd, it was found that the Diſeaſe had ſeiz'd, inflam'd, and putrefy'd his Lungs, and *interna Viſcera.*

SENNERTUS tells us this is not a common Diſeaſe; and perhaps we ſeldom, if ever, ſee it in *England*, as here deſcrib'd.

IT ſeems to me not much different from thoſe which I call'd, as above, *Rubores*, and deſcrib'd by *Diemerbroeck*; but he ſaith it happens only to Children, and is more violent and dangerous.

BUT for ought I know, a too hot Regimen might produce many of the vehement Symptoms, as we know it will in a confluent Small-Pox; or perhaps there went about a malignant, fierce, and anomalous Sort of it, when theſe Obſervations were taken by the Author.

IN the Years 1686 and 7, I ſaw many ſuch-like Fevers.

IN one Gentleman's Family, his Son, of about ſix Years old, had a Scarlet Efflorеſcence all over his Body, without any great Sickneſs or Trouble; and it went entirely off in about three Days time, the Cuticule peeling away.

THEN his Daughter, about eleven Years old, fell ſick of a Fever; firſt came out Purple Petechiæ; after that an univerſal Scarlet Efflorеſcence, and that obliterated all the Spots: The Fever was very irregular, and held on

many Days beyond the Genius of a Scarlet Fever; and when it went off, the Petechiæ return'd no more.

LASTLY, his other Daughter, about eight Years old, fell into a violent Fever, with Purple Spots, like the former; but the Scarlet Fluſh never came out at all; and ſhe dying, (notwithſtanding cool Regimen and Remedies) the Petechiæ continu'd and ſtood fair after ſhe was dead.

The SPOTTED FEVER.

THE Spots are flat, and perfectly ſmooth, without the leaſt Roughneſs to be felt.

ARE moſtly red and round, like Flea-bites; ſometimes they come out in broad Patches, and in irregular Figures.

AT firſt coming out, if they be preſs'd with the Finger they will diſappear; but afterwards, when they are fix'd, they will not do ſo.

THE brighter Redneſs they bear, the more benign are they; for ſuch contain ſpirituous living Particles of Blood, which poſſibly may recover itſelf again.

BUT the deep Purple, Leaden, Black, or Blue, are ſo many Putrefactions, and Degrees of Mortification, and cannot go off well.

BUT in a benign Fever, without Venom, ſometimes they are not intenſely red; go not in again; but by Degrees grow paler, yellowiſh, dusky, and then vaniſh.

LOTICHIUS, L. 1. *Obſ.* 2. *p.* 79. ſpeaks of a malignant Fever, which, about the ſeventh Day, put out black Spots of the Bigneſs of Pepper Corns in the Neck; and the Party recover'd in a Fortnight's Time.

THEY

THEY come out without pricking or itching, chiefly on the Arms, Legs, Breaſt, and moſt uſually on the Back and Loins; and thoſe Parts where the largeſt Veſſels run, and which are uſually kept from the Air, and are cover'd with the thinneſt Skin; but they ſcarce are ever ſeen on the Face or Hands.

PETECHIAL Fevers are generally malignant; and therefore weakening the Vigour of the Vital Spirits, they run not into great Heats, nor vehement Symptoms: The Urine is commonly thin, and pale; the Pulſe quick, and weak; the Symptoms abate not at their Appearance, but rather grow worſe.

THE Spots ſeem to me to be produc'd thus: The febrile Venom having vanquiſh'd the Spirits, broken the Globuli into their Minima, join'd them Atom for Atom, and ſo form'd with them little viroſe Compoſits, which are ſo ſiz'd and figur'd as to be unfit for Circulation; and upon that Account being ſeparated from the reſt of the Maſs, and inbib'd by the Serum, are by it carry'd out thro' the miliary Glands, and depoſited in the Skin.

IF they thruſt out in the firſt Beginning of the Fever, they are of a very bad Signification; for they are then ſo venomous a Matter, that Nature cannot endure it, and forceth it forth by Ebullition, before Digeſtion and Separation can be perform'd. They for the moſt Part obſerve no regular Time of Eruption, and commonly make not their Appearance before the ſeventh Day.

THEY moſtly come out diſorderly, unevenly, and ſymptomatically; and if after they have been out, they happen to go in, they ſcarce ever come out any more, by any Means that can be uſed; and then they are infallibly mortal.

ROTHEL.

PECHLIN, *L.* 2. *Obſ.* 19. *p.* 251. deſcribes a ſmall Sort of Meaſles, call'd *Rothel*, which, in his Travels, he obſerv'd over-running the *Palatinate* and *Swabia*, ſparing no Sex nor Age.

MOST of them had Reſtleſſneſs, Laſſitude, intenſe Heat, Loſs of Appetite; ſome were confin'd two or three Days to their Bed; ſome, that were of fouler Bodies, longer; but ſome not at all.

UPON taking a Sudorific generally all went off eaſily; and few dy'd of it.

IT was ſo rife and contagious, that in that one City of *Stutgard* ſeven hundred lay ill of it at once.

THE Spots did not come out univerſally and equally over the whole Body, but in ſeveral Places by Cantons, eſpecially on the Wriſts; but when the Fever was moderated, they were not very red.

The PULICAR MEASLES.

SANCHEZ, *p.* 276. ſpeaks of a Sort of Childrens Diſtemper, in which the whole Body is filled, not with Tumours, but meer flat Specks and little round Spots, of the Bigneſs of Millet Seed, red like Flea-bites: The *Spaniards* call it *Tabardill.*

Of

Of the MEASLES.

THE Meaſles and Small-Pox differ not in Degree only, (as many Authors have ſaid) but in Eſſence alſo; as is manifeſt from hence, that one of them never breeds the other.

MORBILLOSE Matter is more thin, ſubtile, and volatile; perhaps alſo more acrid than varioloſe is.

IT enters at firſt into the Lymph, where it irritates the Vital Spirits, in a peculiar Way proper to itſelf, and thence, ſoon after, runs in among the Globules alſo.

BUT its Nature ſeems to be ſuch, as not to be intangled, inviſcated, and ſo atomically conſolidated with them, (which it is in the Small-Pox) but that it may be eaſily ſet looſe from them, and ſent off, by means of a pretty ſmart Fever; which, by way of Deſpumation, drives it out thro' the Cutis into the Cuticle, together with ſome of the fineſt and looſeſt of the Globules it had hurt, and ſeiz'd upon, and combin'd with.

AND theſe Combinations having neither Subſtance nor Place proper for Suppuration, are difflated and evaporated, and commonly in the Space of four Days ſpent and gone.

FOR the morbilloſe Inflammations are only in the Cuticula, which having no palpable Craſſitude, is therefore uncapable of receiving an Abſceſs.

Foregoing

Foregoing SIGNS.

BESIDES Coldneſs, Shivering, Oſcitation, Pandiculation, Sickneſs at Stomach, Vomiting, Anguiſh, Head and Back-ach, which uſually forerun all maculoſe and puſtulary Fevers; there are quick and weak Pulſe, great Heat and Thirſt, ſhort and painful Reſpiration, Oppreſſion of the Breaſts, and Tenſion of the Hypochondria's, pale and thin Urine, Watchfulneſs, Drowſineſs, Snatchings, Convulſions, Weakneſs, Heavineſs, Redneſs, Swelling, and Pricking of the Eyes, Lids, and Brows, involuntary Tears.

MUCH Sneezing, ſore Throat, Hoarſeneſs, violent, ſerine, and perpetual Cough.

THE Fever is known to be morbilloſe (or elſe varioloſe) by its very quick Progreſs, and by the Suddenneſs and Vehemence of the Symptoms; for commonly they come at the Beginning, and continue daily increaſing, without Stop or Remiſſion, till the Fever come to its Height.

BUT in a kind Meaſles, neither the Fever nor its Symptoms are ſo acute, and the Party hath little to complain of.

To diſtinguiſh the MEASLES *from* SURFEIT SPOTS.

THESE Spots are never of a bright Red, as the Meaſles are; but Purple, Brown, or Blackiſh.

SURFEIT Spots break not out till eight or ten Days after the Illneſs is begun, and occupy moſtly the Region of the Breaſt.

From

From SCORBUTIC SPOTS.

THEY thruſt out without any Symptoms of the Small-Pox or Meaſles preceding, without a Fever, never haſtily, like the Criſis of an acute Diſtemper; but ſlowly, and a long time after one another.

ARE moſtly on the Thighs, Legs, and Arms; not ſo often on the Breaſt or Back; very rarely on the Face.

ARE commonly pretty broad, and of an irregular Figure.

ARE not uſually very red, but yellowiſh, dusky, brown, bluiſh, blackiſh: Are only flat Spots, and not Pimples.

From the FAINT PURPLES.

THIS is a Name we have in the Country, but not in Books; and I ſuppoſe it may mean the ſame which Authors do, where they ſpeak of the Scurvy coming out in Purple Spots all over the Body; for ſo they do, except the Face, which I have never yet obſerv'd them in.

THEY are very round, ſcarce ſo big as Flea-bites; they are not at all of the Small-Pox Colour, but of a deep Purple at firſt coming out, and may be eaſily diſtinguiſh'd thereby.

THEY come moſtly in the Spring Time, or in the Summer hot Weather, without any Degree of a Fever.

THESE are not riſing Pimples, but meer flat Spots, that cannot be felt with the Finger; and grow not at all in Bigneſs after coming out.

THEY

THEY are attended with great Faintneſs, whence the Name.

THEY continue ſometimes a long while, new Spots conſtantly coming out, as the old ones wear off.

THE Manner of them is, that when a Spot is going away, it degenerates by little and little from its fair Purple, into a dusky Colour, and ſo to aſh Colour, and by Degrees is obliterated.

I HAVE known them hold on a very long Time: A certain Woman, after a very hard Time of Lying-in, had the Purples ſtruck out very thick upon her; and when they had continued three Years, ſhe adviſed with me, and was entirely freed from them by the Uſe of Antiſcorbutics. But in her next Lying-in they returned upon her as before, and ſhe was cured again by the ſame Means.

From PETECHIÆ.

THESE Fever Spots ſeldom come out till the Diſtemper hath ſet in for ſeven or eight Days.

THEY are at firſt coming out a good deal broader than either the Meaſles or Small-Pox uſe to be ſo ſoon; for they appear at firſt in their full Bigneſs, and grow not a whit larger afterwards.

THEY are not of a bright Red, but Purple, or darker.

THEY are only a flat Spot, and make not the Skin rugged in the leaſt; whereas the Meaſles themſelves have a Sort of Aſperity, or a ſharp little rough Head in the Middle upon the Face, and ſo may be known from the Petechiæ, which are abſolutely flat and ſmooth.

PETECHIÆ are exactly round, like Flea-bites, and have no ſuch irregular Interſtices as the Meaſles have.

THESE Spots are ſcarce ever ſeen upon the Face or Hands.

From FLEA-BITES.

THESE are Spots perfectly round and flat, without the leaſt Protuberance, or Roughneſs, and are much larger than either the Meaſles or Small-Pox are at firſt coming out.

IF they be freſh, they ſhew Marks of the Bite, which is a little red Centre, viſibly diſtinct from the reſt of the Spot; and that Centre will not diſappear, tho' it be ſo preſſed with the Finger as to force away the Blood from it, and make it look whitiſh about it.

IF they are not newly made, they are not of ſo fair a Damask Red as the Meaſles and Small-Pox are, but look more dead and dusky.

THEY never grow at all, nor keep coming out from Day to Day, but are all chancing.

IT is ſaid they may be obliterated, if Bean Meal, wet into a Paſte with Vinegar, be laid to them.

THEY come without any Indiſpoſition, Signs, or Symptoms, that are uſual before the Small-Pox or Meaſles.

From an ERYSIPELAS.

THIS hath not ſuch Symptoms before coming out, as the Meaſles and Small-Pox uſually have.

IT cometh not out upon the whole Body, but ſome particular Part only, as the Breaſt, Back, Limbs; but moſt commonly the Head, Face, and Neck; ſometimes it creeps from one Part to another.

IT breaketh forth altogether at once, and is a Tumour very ſore and painful, like a Burn.

IT is without Pulſation; when it lieth deep under the Skin, it is a ſmooth ſhining Swelling, of a full red Colour; if it proceed to a further Degree, it appeareth Purple: I have ſeen where the Spirits were ſo extinguiſh'd in it, that it bliſter'd, turn'd black, and mortify'd.

WHEN it is only cuticular, it looks of a yellowiſh Red, and feels Roughiſh, by Means of a Multitude of exceeding ſmall thick-ſet pimply Eruptions upon it.

IF it be preſſed with the Finger, the Redneſs will go off, and leave the Place whitiſh; but that Redneſs will immediately return again.

MANY times it ſwelleth the Eyes up, and cloſeth them ſo as to take away Sight: 'Tis not much unlike the Tumour cauſed by the Stinging of Bees, only it is full of ſmall Puſtles.

SUDA-

SUDAMINA.

THESE are only Aſperities, and itching Pimples, as ſmall as Millet-Seed, which, without any Fever, break out upon the Skin of the Neck, Scapula, Breaſt, Arms, Thighs; and moſt of all near the Pudenda and Anus.

THEY happen eſpecially to ſuch as are Scorbutic, and of an hot Temperament; and to ſuch as have in hot Weather ſweated much.

From HERPES MILIARIS.

THESE Eruptions are not flat ſmall Spots, all the Body over, but Cluſters of pretty large, hot, angry, and very ſore Wheals upon ſome one particular Part only.

From the SCARLET FEVER.

THIS Fever puts out a continued Scarlet Efflorеſcence all over, cauſing the Body to look as tho' it were waſhed with deep red Wine, without Diſtinction of Spots, or void Interſtitia.

From the SMALL-POX.

PAIN in the Back before Eruption, is not ſo violent in the Meaſles as in the Small-Pox.

PAIN in the Breaſt, and Straitneſs of Breath, is greater in the Meaſles than in the Small-Pox.

A Cough comes always before the Meaſles; but very often not ſo before the Small-Pox.

THE Throat is more apt to be Sore, and Hoarſeneſs happens more uſually before the Meaſles than the Small-Pox.

THE Eyes are apt to be affected, looking dull and ſwelled, more before the Meaſles than the Small-Pox.

INVOLUNTARY Tears, Dropping at Noſe, and Sneezing, foreſhew rather the Meaſles than the Small-Pox.

MEASLES generally break out very faſt, and almoſt all together, when they once begin; but the Small-Pox uſually take four Days for Eruption.

MEASLES are a bright Red, and commonly redder than the Small-Pox are at their firſt Appearance.

MEASLES put out larger Spots on the Breaſts, and ſmaller ones in the Face: This Dr. *Sydenham* looketh upon as a certain Diagnoſtic.

THE Meaſles in the Face feel a little roughiſh; but in all the reſt of the Body they are preciſely flat and ſmooth.

THE Meaſles never elevate at all; but the Small-Pox ſoon ſhew their Heads, if not in the Face, yet in the other Parts.

THE Meaſles at coming out branch about ſo as to leave void irregular multangular Interſtitia, which is not ſeen in the Small-Pox.

UPON coming out of the Small-Pox, (if it be not a very bad Sort) the Symptoms abate; but they do not ſo upon a morbilloſe Eruption, except only Vomiting, for that always goes off at that Time.

IT may be believed that there is as much Difference between the benign and malign Sort of Meaſles, as there is between a diſtinct and a confluent Small-Pox.

In a BENIGN MEASLES,

THE Fever and Symptoms (except in the mildeſt Sort of all, which gives little Diſturbance) are pretty vehement and ſharp.

THE Work of Preparation and Concoction is in due Time univerſally and perfectly perform'd.

THE Spots appear the third, or at furtheſt the fourth Day.

THEY break out very quick and faſt, without Stop, till all are come out.

THEY look of a very bright red Colour.

THEY gradually grow pale, and the fourth Day after Eruption diſappear.

THE Fever, and all the Symptoms, go quite off with them.

A MALIGNANT MEASLES.

THE Malignity may be cauſed by,

1. THE Influence of the preſent reigning Epidemic Seaſon.

2. THE particular Nature of the Sick.

3. IMPROPER

3. IMPROPER Management or Medicines.

THE following Particulars, or ſome of them, may be expected.

THE forerunning Signs of the Diſtemper, and alſo the Fever and Symptoms, are comparatively moderate; as it uſually happens in Fevers of an ill Kind, that ſet upon the Spirits, and are like to overpower them.

THE Diſtemper runneth not thro' its Stages in their due Times, according to Nature's Allotment.

ERUPTION beginneth not till very late, as about the ſixth or ſeventh Day.

THE Spots come out ſluggiſhly; firſt upon one Part, and anon upon another; and ſo for divers Days, till all that will, are come out; for it is likely, that in a mortal Sort many come not out at all.

THEY look not of a brisk, lively red Colour at firſt, and afterwards ſtand not to their Colour; but are ſome Days paler or more dusky than other Days.

THE red Efflorescence holds on longer than four Days.

THE morbilloſe Fever continueth beyond its Time of four Days, and produceth divers Inflammations and Colliquations, ſerine Catarrh, Soreneſs of Throat, Thruſh, Cough, Quinſey, Peripneumony, Diarrhæa, *&c.*

TO go about to alter the Deſcription Dr. *Sydenham* hath drawn up of this Diſtemper, would be the ſame thing as attempting to alter one of *Phidias*'s Statues.

I therefore judge it a wiſer and better Courſe to tranſlate him, than thruſt in a worſe Account of my own.

The

The MEASLES, *as Dr.* Sydenham *obſerv'd them in the Year* 1670.

ABOUT the Beginning of *January* 1670, (for they uſe to enter early in the Year) the Meaſles came in, and daily increas'd till the Vernal Equinox; then having attain'd their Height, they decreas'd by the ſame Degrees, and in *June* following went quite off.

THIS being the moſt perfectly regular Sort that ever I ſaw, I will deſcribe exactly as I obſerv'd them.

THEY began and ended at the Times aforeſaid; ſeiz'd chiefly on Children; but ſpar'd none in any Houſe they enter'd into.

THE firſt Day, they open the Tragedy with ſhivering, and an Inequality of Cold and Heat ſucceſſively chaſing each other.

THE ſecond Day, there is a perfect Fever, with great Illneſs, Thirſt, Loſs of Appetite, Whiteneſs (but not Dryneſs) of the Tongue, a little Cough, Heavineſs of the Head and Eyes, with a perpetual Drowſineſs; for the moſt Part an Humour diſtils from the Eyes and Noſe.

AND this Effuſion of Tears into the Eyes, is a moſt certain Sign of the Meaſles coming.

TO which we may add this other, no leſs certain, that tho' this Diſtemper moſt commonly ſheweth itſelf in the Face in ſmall roughiſh Eruptions, yet in the Breaſt it appeareth in red broad Spots, that are quite flat, and riſe not above the Superficies of the Skin.

THE

THE Sick ſneezeth as tho' he had caught cold; his Eye-lids (juſt before Eruption) ſwell; he vomits often; or hath a Diarrhæa with green Stools (which happens moſtly) to ſuch as are upon Dentition: Children are more froward than they uſe to be.

THE Symptoms uſually increaſe till the fourth Day; and then (yet ſometimes they ſtay till the fifth) ſmall red Spots, like Flea-bites, begin to come out upon the Forehead and reſt of the Face; which being grown in Number and Magnitude, flow together, and branch out upon the Face in pretty large, and variouſly figur'd Spots.

THESE Spots conſiſt of very little red Papulæ, thick ſet together, and ſomewhat rais'd above the Plain of the Skin, whoſe Protuberance may be felt, but not ſo eaſily ſeen.

NEXT to the Face, which they poſſeſs themſelves of before any other Part, they invade, by Degrees, the Belly, Thighs, and Legs; but they affect the Trunk and Limbs with Redneſs only, and no ſenſible Roughneſs.

THE Symptoms abate not upon the breaking out of the Meaſles, as they do in the Small-Pox, (yet I never obſerv'd vomiting after Eruption) but the Fever and Cough increaſe; and as to the Difficulty of Breathing, Weakneſs of the Eyes and Defluxions, Drowſineſs, Loſs of Appetite, *&c.* they remain as before.

THE ſixth Day, or thereabouts, the Papulæ dying, and the Cuticula breaking, a roughiſh Scurfineſs comes upon the Forehead and Face; tho', at the ſame time, the Spots on the reſt of the Body continue very broad, and exceeding red.

ABOUT the eighth Day the Spots of the Face vaniſh, and on the reſt of the Body they are ſcarce to be diſcern'd.

THE ninth Day they are all quite gone; the Face and Limbs, and ſometimes the whole Body, appearing as tho' powder'd with Meal, by means of Particles of the tatter'd Cuticula ſticking up roughiſh; which, upon the Diſeaſe's going quite off, ſevers into ſmall Fragments, and afterwards ſcurfeth away like little Scales.

THUS the Meaſles vaniſh about the eighth Day; at which Time the common People (being let into a Miſtake by counting upon the Time the Small-Pox uſeth to continue) are wont to ſay, they are gone in again; although, in Truth, they have finiſh'd the whole Courſe which Nature deſign'd. And they imagine, the Symptoms that ariſe upon their going off, are cauſed by the ſtriking in of the Meaſles ſooner than they ought.

FOR we are to obſerve, that at this Time the Fever, and Difficulty of Breathing are increaſed; and the Cough grown ſo cruelly troubleſome, as to hinder Sleep Day and Night.

SUCH Children, eſpecially, as have been kept too hot, and have taken hot Medicines, to drive, or keep out the Meaſles, are, upon the going off of the Diſtemper, moſt liable to theſe Miſchiefs; whence they are thrown into a Peripneumony, which deſtroys more than even the Small-Pox, or any other Symptom belonging to the Diſeaſe: And yet if the Meaſles be but skilfully treated, they are of themſelves not dangerous.

SOMETIMES a Diarrhæa goes along with the Meaſles, ſometimes followeth, and continueth many Weeks after the Diſeaſe, and all its other Symptoms are gone, not

without imminent Danger, by reaſon of continual waſting of Spirits and Strength.

SOMETIMES after a very hot Regimen, the Spots look firſt livid, and after black: But this happens to grown Perſons only. And the Caſe is then deſperate, unleſs there can be preſent Relief obtained by Bleeding, or a more temperate Regimen.

Another more irregular Sort of MEASLES *he obſerv'd in the Year* 1674 *and* 5. *And ſaith,*

IN *January* 1674, there began a Species of Meaſles different from the 'foreſaid, and raged as epidemically as that, but was not ſo regular, and obſerv'd not ſo conſtant a Type.

FOR they brake out ſometimes ſooner, ſometimes later; whereas the others brake out upon the fourth Day preciſely.

FURTHERMORE, they appear'd firſt on their Shoulders, and other Parts of the Trunk; whereas the aforeſaid were ſeen firſt in the Face, and then afterwards in the other Parts, by degrees.

NEITHER in this Sort, unleſs very rarely, did the Skin, upon the Departure of the Meaſles ſcale off like Bran; which was as certainly ſeen after the others, as uſeth to be after a Scarlet-Fever.

LASTLY, more dy'd of theſe when ill treated, than of the former Sort: For the Fever, and Shortneſs of Breath, which uſually comes when the Meaſles go off, were far more vehement, and more nearly repreſented a Peripneumony.

YET

YET notwithſtanding this Irregularity, as to the related Symptoms, they agreed with the other in all the moſt material Things.

AND they increaſed to the Vernal Equinox, then decreaſed again, and about the Summer Solſtice quite vaniſhed.

He alſo telleth us of a MEASLEY FEVER *at the ſame Time. Saying,*

IN the firſt two Months that this Species of Meaſles ſhew'd itſelf, a certain Meaſley Fever alſo went up and down ſcatteringly, in which ſome Ecthymata brake out upon the Trunk of the Body, and eſpecially on the hinder Part of the Neck and Shoulders, which imitated the Meaſles, yet were diſtinguiſhable from it.

FOR the Spots kept to the ſaid Parts, and ſeiz'd not the whole Body: The Fever alſo, though it was plainly of the ſame kind, was much crueller, and would continue fourteen Days, and ſometimes longer.

IT bore neither Glyſters nor Bleeding; and the ſame Method of Cure fitted it, which agreed with the Meaſles.

Dr. SYDENHAM'S METHOD *of* CURE.

THE Meaſles require much the ſame Method of Cure with the Small-Pox; hot Medicines and Regimen are extreamly pernicious.

LET the Sick be kept in Bed two or three Days in the Time of Eruption, that the Blood may gently breathe

out ſuch inflam'd Morboſe Particles as are ſeparated and fitted to go off by the Spiracles of the Skin.

LET him have no more Cloaths, nor Fire, than he uſed to have in Time of Health.

LET him eat no Fleſh: I allow Water-Gruel and Barley-Broth, *&c.* and ſometimes Roaſted Apples.

LET his Drink be Small-beer, or Milk boil'd with a triple Quantity of Water.

THE Cough, which never fails to accompany this Diſeaſe, is to be mitigated with a Pectoral Decoction, or proper Linctus.

BUT above all the reſt, Diacodium muſt be given every Night from the Beginning, through the whole Courſe of the Sickneſs.

VERY rarely, if ever, will any one that uſeth this Method die, or even be moleſted with any thing, but ſuch Symptoms only as are neceſſary and unavoidable in this Diſeaſe.

THOUGH the Cough be troubleſome, yet it is not dangerous, if it continue not after the Diſtemper is gone off.

AND if it does perſiſt a Week or two longer, it will decreaſe, and go off of its own accord, or may be eaſily cured by Pectorals, and open Air.

BUT if from too hot Cordials and Regimen, after the Meaſles are gone off, a violent Fever, Difficulty of Breathing, and other Signs of a Peripneumony ariſe and bring great Danger; I have (with great Succeſs) order'd even the youngeſt Infants to be let Blood in the Arm; and where the Caſe requir'd it, I have not fear'd to repeat the ſame.

AND

AND truly many Children that have been at Death's Door with this Symptom, have been reſcued by Bleeding: And I never yet could find out any other Way certainly to remedy it.

THIS is ſo fatal commonly after the Meaſles, that it may well be reckon'd the chief Miniſter of Death, deſtroying more than even the Small-Pox itſelf.

AND the Diarrhæa which follows the Meaſles is cured alſo by Bleeding; for whereas it ariſeth from Vapours of inflamed Blood ruſhing into the Guts, whereby they are ſtimulated to Excretion, 'tis Bleeding alone that gives Relief, by making Revulſion of thoſe ſharp Humours, and by reducing the Blood to a due Temper.

WHAT is here ſaid of the Cure of Symptoms that were upon the going off of the Meaſles, may ſometimes alſo be of Uſe when they are at the Height, if they are occaſion'd by too much heating of the Blood.

MUCILAGINOUS incraſſating Pectorals are very uſeful in this Caſe.

Of FEVERS *with* PUSTLES *or* ELEVATED SPOTS.

MILIARY FEVER.

IT begins commonly with Pain in the Limbs, Conſtriction and Oppreſſion of the Breaſt, ſhort Breathing, Sighing, Hurry in the Head: tho' there be no Head-ach, nor ſenſible Fever, yet there is almoſt an Impoſſibility of Sleeping; but when-ever Sleep happens, it is ſhort, and broken, and exceeding troubleſome.

SIGNS of its Approach are; if the Party grow hot, tho' with ſome Sweat, perceiveth in the Back, and Surface

face of the Body, flying Horrours, and Pains like pricking with Pins.

RED Wheals of the Bigneſs of Millet-Seed break out, and when they once appear, all the 'foreſaid Symptoms entirely ceaſe. They come out moſtly on the Breaſt, Neck, between the Fingers, and then all the Body over; and there growing in Bigneſs, in a few Days vaniſh, the Cuticula under the Puſtles remaining roughiſh: After it hath run its Courſe, commonly the Legs and Feet ſwell.

SOMETIMES it hath been obſerv'd to come in among the Small-Pox, and the Caſe then is to be judged dangerous.

IF it be ill manag'd, it will cauſe Sickneſs at Stomach, great Anxiety, inward Heat, intenſe Fever, and perhaps prove mortal.

DR. *Hamilton* ſaith, whether their Eruption is on a certain ſtated Day, he could not find out by all the Obſervation he could make; but he thinks it is about the eleventh Day in a regular Sort, and that they finiſh their Period about the eighteenth, and in ſome the twentieth.

THIS Fever happeneth chiefly to Child-bed Women; and my Thought is, that it differs from the Purple Fever much about as the Small-Pox doth from the Meaſles: But I know it not to be infectious.

THE following Account was ſent me by a Friend in a Letter.

A certain Gentlewoman had a Miliary Fever brake out upon her in Child-bed, ſoon after Delivery; it affected her Breaſt, Neck, and Arms, and gave her much Pain; ſome of the Eruptions were like little Boils, and as painful:

painful: She was recover'd by gentle Diaphoretics, and diluting Liquors.

JUNGHEN Med. Pref. Sect. p. 797. ſpeaks of a certain Fever which commonly occurs, and ſeizeth grown Perſons as well as Children.

IT beginneth with Cold and Heat, like an Ague, and Oppreſſion at the Breaſt.

IT putteth out red Wheals, not much unlike Nettle-ſtings, which burn and itch.

IT is cured by gentle Sweating, and ſeldom holds beyond the fourth Day.

HE thinks it not much different from the Red Miliary Fever.

The WHITE MILIARY FEVER.

THIS comes out in Puſtles of the Bigneſs of Millet-Seeds, but they are filled with only clear Water: They come without Sickneſs, bring no Danger, and are (if I judge right) no other than a ſmall Sort of Cryſtals, and have little or no Contagion.

PERHAPS this may be the ſame which ſeveral Authors have called by the divers Names of *Febris Pemphigodes*, *Ampulloſa*, and *Bulloſa*.

BREXIAS.

SANCHEZ p. 275. ſaith, almoſt all Children, ſooner or later, have that Diſtemper which the *Spaniards* call *Brexias*, and the *French* the *Little Small-Pox*.

IT

IT ſprinkles the Body with ſmall, white, black, livid Tubercles; yet ſome are as big as Beans, and others as Cicers: It affecteth the Eyes, Mouth, Aſpera Arteria, and Oeſophagus.

THEY go not off very ſoon, and often ſuppurate, ulcerate, and leave Pits and Marks in the Face, and often require the Aſſiſtance of a Phyſician.

HE mentions another Sort, in which the Symptoms are leſs, but they come out red, with great Heat of the whole Body, which continue but a ſmall Time, and go eaſily off, only by keeping the Sick warm.

THERE is, ſaith he, a third Sort not perfectly deſcrib'd nor named as yet by any one: He would have it called a Pulicar, or Flea-bitten-Pox, as *Amatus* doth.

DIE STEINBEGTEN, *ſo called by the* Germans,

ARE ſmall Tubercles, without much Sanies in them, breaking out ſcatteringly every where, but never in great Numbers.

THESE are the leaſt of all the Sorts of Small-Pox that have been obſerved by Authors, invading Children without a manifeſt Fever; and therefore they ſeldom lie in Bed for it, and ſoon are well again.

I know not what *Engliſh* diſtinct Name we have for it, and perhaps we have it not commonly in our Country; however if we have it, we never took much Notice of it.

RITTELEN

RITTELEN *or* CHICKEN-POX.

THEY are ſmall red Puſtulary Eruptions, about the Bigneſs of Muſtard-Seed, more or leſs numerous, invading with Fever and Cough, and ſometimes ſore Throat; now and then with Bleeding at Noſe, Vomiting, and other uſual Signs of the Small-Pox or Meaſles: but this Diſtemper is leſs dangerous than either of them; they vaniſh away like the Meaſles, and have been in ſome Years noted to go off with a Diarrhæa.

SOMETIMES they come alone; ſometimes have been ſeen ſprinkled in among the Meaſles; all which ſhews them to be a particular Kind diſtinct from the Meaſles.

I have adventur'd to think this is that which among our Women goeth by the Name of Chicken-Pox, and might be ſo called from the Smallneſs of the Specks, which they might fancy looked as tho' a Child had been picked with the Bills of Chickens.

BUT it is ſaid, that Poultry and Turkeys are ſubject to a Diſeaſe coming out with red Pimples, tho' not many, that ſoon dry up into Scabs, but are not apt to leave Scars or Marks.

THIS Chicken-Pox, and ſeveral others of the little ſpurious Sorts, are Diſtempers that have all of them a diſtinct material Cauſe, and therefore differ not only in Degree, but in Eſſence alſo from one another.

THIS material Cauſe is not much entangled, and detained in the Size of the Blood; but being of a ſharper Nature than that of the Cryſtals, acts, tho' not ſo fiercely on the Globules as to put them into a febrile Ebullition, yet ſo as to break them a little, and cauſe them to

ſhed off ſome of their looſeſt Particles, with which being join'd, they come out in red Pimples, without the Help of a conſiderable Fever, or the Concurrence of remarkable Symptoms.

SWINE *or* HOG-POX.

CHESNEAU mentions a Sort of Puſtles, not much differing from the true Small-Pox, but are larger, even as big as Lupines: Many People at their breaking out miſtake them for the Variolæ, but they continue not ſo long, bring no Danger, and leave no Marks: And theſe he thinks cauſe many to believe they have had the Small-Pox more than once.

HE gives no Name, but I take theſe to be what are call'd the Swine-Pox; and this Name is taken from the Diſeaſe of Hogs, deſcrib'd by *Levinus Lemnius*, and term'd *Grando Porcorum*, which we vulgarly call Meaſley Hogs.

IT infecteth their whole Body, eſpecially their inward Parts, in the very Subſtance of their Fleſh and Fat, with little white Knobs, which hath been fancied to be like Grando, or Hail; it continues a long time.

ARISTOTLE Hiſt. Animal. L. 8. *Ch.* 24. ſaith, their Legs, and Neck, and Shoulders are affected: that it may be diſcerned before they be killed, by Bliſters on their Tongues; and if the Briſtles be pulled from their Backs, the Roots of them will be bloody, and their Legs fail them.

I confeſs theſe Puſtles in Children are not much more like the Grando in Hogs, than the Conſtellation called the Celeſtial Bear is like the Terreſtrial Beaſt: But Cuſtom is a Tyrant for Names as well as Things, and will have it ſo.

The

†

The CRYSTALS.

THESE come with the very ſame Head-ach, Back-ach, Vomiting Fever, and other Symptoms uſual in a true Small-Pox: But ſometimes they ſeize Children without any foregoing Illneſs at all.

THEY break out the third or fourth Day, in certain diſtinct bladdery Puſtles, diſperſedly all over the Body, commonly as big as Peaſe, plump and ſhining like Cryſtal, from whence the Name, which if pricked ſend forth clear Water, and no Pus.

WHEN they are come out there is no Fever, nor Danger: In four Days time they dry off, but leave behind them pretty broad red Marks, which remain ſore and tender in the Fleſh for a-while.

IN theſe the morbific Matter is not very venomous and irritating, nor is it mixed in with the Globuli, but remains wholly in the Lymph, and is looſe there, and not held faſt by the ſizey Part of the Blood.

FOR theſe Reaſons this Matter requires not much Concoction, gives no great Diſturbance to the Vital Spirits, and is ſoon ſeparated and thrown out with the Serum only into the Skin; and ſo the Diſtemper goes off by the Way of watery Wheals, without almoſt any Fever, or Sickneſs, or Suppuration.

The END of the FIRST PART.

EXANTHEMATOLOGIA:

OR, AN

ATTEMPT

To GIVE a

Rational ACCOUNT

OF THE

SMALL POX.

Together with an

APPENDIX *concerning* INNOCULATION.

PART II.

By *THOMAS FULLER*, M. D.

LONDON:

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EXANTHEMATOLOGIA.

PART II.

Of the SMALL-POX.

WHETHER *Hippocrates* or *Galen*, or any of the *Greeks* or *Latins* knew any thing of this Diſtemper, I care not to enquire, it being a Matter of more Curioſity than Conſequence.

INSTEAD of that, I ſhall take Notice of theſe four Particulars.

1. THE Small-Pox is peculiar to Man.

2. EVERY Man is liable to it.

3. NO Man (generally ſpeaking) hath it more than once.

4. IT always breeds in its own Kind.

1. THE

1. THE Small-Pox, and its ſpurious Sorts, are peculiar to Man, excluſive of all other Animals.

MR. *Mather*, indeed, in his Letter from *Boſton* in *New England*, ſaith, that Dr. *Leigh*, in his *Natural Hiſtory of Lancaſhire*, reporteth, That there were ſome Cats known to catch the Small-Pox, and paſs regularly thro' the State of it: And at laſt he telleth us, we have had among us the very ſame Occurrence.

BUT if we had ſeen and examin'd the Matter, perhaps it would have been found a very different thing from our Small-Pox.

FOR in like manner there was, about the Year 1710, or 1711. upon the *South Downs* in *Suſſex*, a certain Fever raging epidemically among the Sheep, which the Shepherds called the Small-Pox; and truly in moſt things it nearly reſembled it: It began with a burning Heat, and unquenchable Thirſt; it broke out in firey Puſtles all the Body over. Theſe Puſtles maturated, and, if Death happen'd not firſt, dry'd up into Scabs about the 12th Day.

IT could not be cured, no nor in the leaſt mitigated, by Phlebotomy, Drinks, or any Medicines or Methods they could invent or hear of.

IT was exceedingly contagious and mortal, for where it came it ſwept away almoſt whole Flocks: But yet it could in no-wiſe be accounted the ſame with our human Small-Pox, becauſe it never infected Mankind.

2. EVERY Man is naturally liable to the Small-Pox, and Meaſles, and the ſeveral inferior Sorts of both, ſo as to have any or all of them once in his Life, provided he come into the Sphere of the morboſe Effluvia, and actually receive them into his Body; otherwiſe it is poſſible he may never have them at all.

FOR

†

FOR this Reaſon we are aſſured, that the vaſt Regions of *America* never knew any thing of them, till the *Europeans* carry'd them thither.

AND moſt Country-men, who never have Occaſion to go into variolous Air, where they might catch them, ſcarce ever breed them.

BUT this Particular is to be taken with ſome Exceptions; for ſome whole Families have been as 'twere uncapable of theſe Diſeaſes: *Diemerbroeck* tells us, his Family (and divers others he could name) generally eſcaped the Small-Pox: His Father and Uncle liv'd to about 90 Years apiece; his Grandfather and two Kinſwomen to 80; himſelf had gone to Thouſands, ſmelling the Stench, and handling the Sores, yet none of all theſe ever had it.

NAY, as contagious as the Plague itſelf is, *Pechlin. Lib.* 2. *Obſ.* 19. reports, that his Father, in three Seaſons, when the Peſtilence raged ſo at *Leyden*, that it had laid waſte almoſt the whole Town, attended the Sick conſtantly, and by the Divine Goodneſs, continu'd ſafe and well, when all the other Phyſicians that did ſo, dy'd.

SOME particular Men are not apt to take Infection. Perhaps they might have had them in the Womb before Birth, and ſo could never take them afterwards. Such Inſtances have been; and ſhall be mentioned in another Place: Perhaps the Ovula Varioloſa may in ſuch People be unprolific; as we ſee ſome Women are barren, and uncapable of breeding.

I knew an eminent Phyſician, who viſited Patients of this Diſeaſe as often as Occaſion call'd him, for, perhaps, 40 Years running, and never caught it. My own Mother was with her Siſter, and two Sons, Night and Day conſtantly through the whole Courſe of their Sickneſs, which

among us all held two Months, and yet eſcaped the Diſtemper. Many like Inſtances might be brought.

HOCKSTETTERUS, *Obſerv. Dec.* 9. p. 99. ſaith, when he was a little Boy he had a great mind to get the Small-Pox; and to that End lay in a Bed with his Siſter when ſhe had them.

AND though at that time he fell into a burning Fever, it ſent forth no Puſtles, nor was in any thing analogous to the Small-Pox.

AND afterwards, though in his Practice, he all his Life-long viſited Patients without Diſtinction, even ſuch as had the Petechial and Bleeding Sort, which is exceſſively contagious, yet he never caught them.

A Lady told me, from her own Knowledge, of a Gentlewoman now living in *London*, who never had the Small-Pox, yet gave her Infant Suck all the Time, and never took the Infection.

IT hath been obſerv'd, that ſome Perſons are ſo made and conſtituted, that even the Peſtilence will not touch them.

DR. *Hodges de Peſte*, p. 137. ſpeaks of an Infant, that ſucked its Mother all the while ſhe had a Peſtilent Carbuncle upon her, and yet eſcaped the Plague.

STALPARTIUS, *Obſ.* 99. p. 397. reporteth, that in the Year 1654, he was call'd to a Widow, whoſe Husband and four Chileren were then dead of the Plague; ſhe her ſelf had Plague Sores in both Breaſts, under her Arm-Pits, on her Back, and Legs; ſhe lay ſick of it in Bed many Weeks; her Child ſucked her for ſix Weeks; then ſhe being extreme weak, and her Milk failing, the Infant was wean'd; and ſtill kept in the infected Houſe, and

and notwithſtanding all this, it never took Infection, and lived many Years after with its Mother.

HE quotes *Camerarius*, who relates of a Child, that ſucked ſucceſſively two ſeveral Nurſes, both which dy'd of the Plague, and never gave it to the Infant.

ALSO *Salmuth* tells us of an Infant, who lying in Bed with its Mother, when dead of the Peſtilence, endeavour'd to ſuck her, and yet eſcaped.

WE are not at all times equally apt to take Infection, our Bodies being from ſome ſecret Cauſe, not alike diſpos'd for the Admittance of contagious Aporrhæas; and ſo thoſe that miſs them at one time, may be ſo alter'd, as to catch them at another.

THUS a certain Phyſician, my Neighbour, never ſcrupled going to the moſt putrid Sort of Small-Pox; and would take their Breath, and ſyringe their Mouths, *&c.* He eſcaped free for many Years, and conceited he had a Protection; but at laſt the Diſtemper caught him, and handled him ſo ſeverely, that he very hardly got off with Life.

I would have this Obſervation ſtand as a Caution to others, that they be not ſo preſumptuous and fool-hardy, as to run into the Mouth of Danger, when they may well keep out of it.

3. IT is believ'd that no Man can have any of theſe Diſtempers, or any other Species of them more than once in his whole Life; and that if he have never ſo few Eruptions, they ſhall moſt aſſuredly defend him from them for ever after.

I know a certain Gentleman, now dwelling in *London*, who is a living Proof of this; for his Mother told me, he had but one ſingle Pock, and that was in the Inſide of his

I

Hand: And yet that ſingle one hath given him ſuch a Protection, that he hath for above thirty Years run all Hazards of Infection, and never could get it.

A young Gentleman in our Neighbourhood had but one Pock in his Forehead, and another upon his Hand; and is thereby ſo ſecured, that no Infection will touch him, as he findeth by Experience, for he hath often been to viſit Friends ſick of the Small-Pox, and always comes off ſafe.

AND a Boy of our Town having the Small-Pox by way of Inoculation, had very few Pocks, (I think not above ſix or eight) hath been ſeveral Times ſince where he might have caught it, but never could.

SOME, I confeſs, have told me they have had them twice; and we have Authors that ſay the ſame.

STALPARTIUS, Cent. Poſt. Obſ. 42. ſpeaks of an Infant at the *Hague* that had the Small-Pox, but was not very full of them; and three Weeks after had them again, and was ſix times as full as the firſt time, and recovered.

HEIDE, Obſ. 51. relates, that a Girl, ten Years old, having had a very kind Sort, fell ſick of them again, two Months after.

BUT *Borellus, Cent.* 3. *Obſ.* 10. puts, methinks, too unreaſonably hard upon our Faith; where he would have us believe, that a certain Woman had them ſeven times, and dy'd of them at laſt 118 Years old.

NOW, as to myſelf, notwithſtanding the aboveſaid Relations, I am of Opinion, that once taking of them, generally ſpeaking, is ſo ſufficient a Defence againſt future Attacks, that none need be afraid of catching them a ſecond time.

AND

AND I think Nurſes and Tenders, that ſpend their whole Life upon this Diſtemper, and breathe nothing but variolous Air in cloſe Rooms, Nights and Days, for a long time together, are undeniable Proofs that Infection is not to be taken any more than once in our Lives; for whoever heard or read of any of them that fell ſick a ſecond time of the Small-Pox, or Meaſles?

IT is, I allow, a common thing for a chancing Puſtle or two to break out upon them, very much reſembling a Pock: But foraſmuch as theſe Eruptions happen without Headach or Sickneſs, obſerve no Times of appearing, quickly ſink away again without coming to Suppuration, or breaking of the Skin, and are never many in Number; they are to be accounted of only as Subventaneous Ova, and muſt not be called the Small-Pox.

AS to thoſe who conceit they have had the Small-Pox twice, it is probable they might have been impoſed upon by the ſpurious Kinds; ſome of which bearing a near Reſemblance of the genuine Sort, and being accompany'd with analogical Symptoms, and alſo leaving Pits and Marks behind them, may eaſily have been taken for the true Small-Pox.

BUT ſince ſuch a Miſtake can happen very rarely, and only where neither Phyſicians, Nurſes nor Viſitants know any thing of the Diſeaſe; I ſhall faintly grant, that poſſibly it may return a ſecond time, where the Eruption had been little the firſt. And in this Caſe, I would account for it by ſaying, ſome of the Ovula chanced to miſs of the Aura Genitalis at firſt, and were impregnated when it offer'd the ſecond time.

4. VARIOLOUS, and Morbillous Fevers, and all other ſuch as come by Contagion, and whoſe material Cauſes are real Venoms; theſe breed always after their own kind;

kind; as Animals and Vegetables do, according to the firſt Inſtitution in *Geneſis*, Chap. i.

HOWBEIT ſuch an anomalous Conſtitution of Air in Epidemic Seaſons happening as may much alter the Variolous Seminary, and turn the Ovula off from their proper Nature; they may, in ſuch a Caſe, breed a Monſter of a Diſeaſe, though the Variolous Aura that fecundated them, be at the ſame time a genuine Sort.

EVEN as when an Aſs covers a Mare, the Mare having in her ſomething not agreeable to, and wanting ſomething requiſite for, the forming of every Part of an Aſs, brings forth a Mule, a Beaſt not like to either.

ALSO after the Small-Pox are produced and come out, the Conſtitution of the preſent reigning Air will give it a peculiar Form and Symptoms during that Seaſon; and cauſe it to be generally regular or irregular, diſtinct or confluent, benign or malign.

BESIDES, they may be accompany'd with other Diſtempers, that are of a quite different Family; as I have ſeen ſomething perfectly like the Meaſles ſprinkled in among the variolous Puſtles, which belonged not to them, but was a diſtinct Diſeaſe of itſelf, plainly of another Lineage.

THUS Dr. *Ridley*, *Obſ.* 11. *p.* 49. gives an Inſtance of Small-Pox and Meaſles, and broad red multiform Spots all together, upon a Child of four Years old.

MANY Varieties are to be met with in Books, of other Diſeaſes mix'd in with the Small-Pox, but nobody ever yet ſaw a Miliary Fever, or Meaſles, or any of its Under-Species, beget a true Small-Pox, or any of its Sorts; nor on the contrary: and nobody was ever defended from the Infection of any one Sort, by having had another Sort.

THESE

THESE four Particulars are Matters of ſo occult a Nature, and fine Speculation, that, perhaps, it is almoſt an impoſſible thing to give ſuch an Account of their Cauſes and Reaſons, as may tolerably ſatisfy a curious Enquirer. Yet,

Felix qui potuit Rerum cognoſcere Cauſas.

And the Tree of this Sort of Knowledge being not forbidden, I have employ'd ſome Thoughts upon theſe Subjects to pleaſe my ſelf, and now I offer them to the Reader; but in no ways impoſe upon him as Articles of Faith, nor will I be bound to ſtand to them myſelf, and will not take it amiſs, if they are not believ'd.

I have fancy'd we may get ſome Light into theſe Things from the Generation of Animals; where the Ova in the Female is the paſſive Principle, and material Cauſe; and the Genitura of the Male is the active Principle, and efficient Cauſe: And therefore I ſhall lay theſe two down as Cauſes of Variolous and Morbillous Diſtempers; and ſpeak of them diſtinctly and ſeverally.

Of the Paſſive PRINCIPLE, *and Material* CAUSE *of the* SMALL-POX.

I WILL endeavour to expreſs my Conceptions in the following Particulars:

1. NATURE, in the firſt compounding and forming of us, hath laid into the Subſtance and Conſtitution of each ſomething equivalent to Ovula, of various diſtinct Kinds, productive of all the contagious, venomous Fevers, we can poſſibly have as long as we live.

2. BECAUSE theſe Ovula are of diſtinct Kinds; and every one of theſe Kinds is as eſſentially different from all the

the reſt, as Eggs of different Fowls are from one another; therefore every Sort of theſe Ovula can produce only its own proper Fœtus, as it is ſaid, 1 *Corinth.* xv. 38. *To every Seed its own Body*; and therefore the Peſtilence can never breed the Small-Pox, nor the Small-Pox the Meaſles, nor they the Cryſtals or Chicken-Pox, any more than an Hen can a Duck, a Wolf a Sheep, or a Thiſtle Figs; and conſequently, one Sort cannot be a Preſervative againſt any other Sort.

3. ALL Men have in them thoſe ſpecific Sorts of Ovula which bring forth Small-Pox and Meaſles, and therefore we ſay all Men are liable to them, which may admit of ſome Exceptions, as before ſaid.

4. NO Animal but Man hath in it any variolous or morbillous Ovula, and therefore no other living Creature can poſſibly have any of theſe Fevers, or any other of thoſe that are peculiarly human.

5. THE Ovula always lie quiet and unprolific, till impregnated, and therefore theſe Diſtempers ſeldom come without Infection; which is as it were the Male, and the active Cauſe.

6. THE Ovula of each particular Fever, are all, and every individual one of them, uſually impregnated at once, (unleſs, by a rare Chance, ſome few happen to be miſs'd) even as one Spark runs and kindles others till all become a Flame.

7. AS Birds have in them, from their very firſt Formation, their Seminaries, containing the Seeds of all the Eggs they ſhall ever have; ſo alſo Man hath from his firſt, the Beginnings of all the Ovula he is to have at all.

8. AND when theſe have been impregnated, and deliver'd of their morboſe Fœtus, there is an End of them; they can bring forth no more for ever after.

UPON

UPON this Account no Man can poſſibly (unleſs by the Chance aforeſaid) be infected with any of the reſpective Diſtempers any more than once.

IF any ask where theſe *Ovula* can lie ſo long conceal'd in the Body perfectly quiet?

I may as well ask him, where the Taint lieth, which the *Arabians* and their *Neoteric* Followers aſſert came from the Impurities of the maternal Blood, with which the Embryo was ſaid to be nouriſhed in the Womb?

BUT be that as it will, we ſee other Things that we know are true and moſt certain, and yet are as ſtrange and unaccountable as this.

THO' the Poiſon from the Bite of a mad Dog be (if not timely taken, and skilfully cured) ſo powerful, as not to be reſiſted by Nature, or conquer'd by Art, and be more infallibly mortal than the Plague itſelf; yet, as *Salius Diverſus* reporteth, *p.* 326. the Antients record that it hath lain dormant 5, 7, yea 12 Years. *Braſſavolus* ſaith, 17 *Guainarius* 18. *Schmidius* 25. *Des Cros* 30. and after all that Time becomes mortal.

ROSSIUS (*Hildan. Epiſt. p.* 66.) gives a very odd Relation of a certain Woman, whoſe canine Madneſs returned every ſeven Years, for almoſt 31 Years, and ſhe was entirely well all the intermediate Times.

BAGLIVI affirmeth, that the Impreſſion of the Venereal Diſeaſe ſtuck to the Blood for thirty Years together, and more, without any Trouble or Injury to the Patient's Health: But then there was a ſharp Return of Symptoms, as much as if it had been upon the very firſt Onſet.

ALSO he ſaith the Poiſon of a Tarantula renews itſelf infallibly every Year, eſpecially about the ſame Time the Perſon received it.

THE Venom of the Plague is as 'twere a Quinteſſence, and perhaps the moſt volatile of all Poiſons in the World, and yet 'tis believed 'twill lie dormant a long Time; otherwiſe a Quarentine, or Luſtration of 40 Days would never have been impoſed, and ſeverely enjoined upon Ships.

NAY, Dr. *Hodges de Peſt. p.* 156. aſſerts, that the *Seminum Peſtilentiale*, like a Coal cover'd with Embers, may be aſleep, *per aliquot Annorum Luſtra*, and at length burſt out again.

WE admire how it can be, ſaith *Borellus Cent.* 1. *Obſ.* 75. that the Seminaries of Diſeaſes ſhould lie hid in us; but may ceaſe to do ſo, if we conſider, without Prejudice, this excellent Paſſage of *Severinus*.

DISEASES (ſaith he) have, as well as Plants and Animals, their proper Seeds in their Way and Manner. God hath (ever ſince the Fall of *Adam*) created for the Puniſhment of Man the Seeds of evil, as well as of good Things. Our Bodies are the Soil where they are ſown; they grow up and bring forth certain Diſtempers, every one according to its ſeveral Nature; each Sort hath its peculiar and like Symptoms: Every Sort of Plant hath its Fibres and Figure.

BUT as to complicated Diſeaſes, they are to be accounted by us no other than Monſters of Diſeaſes.

The

The active PRINCIPLE, *and efficient* CAUSE.

BY this I mean a certain virulent Subſtance, that may poſſibly be bred in the Body; but for the moſt Part is taken into it *aliunde*, and is an *Afflatus Genitalis* which impregnateth the *Ovula*, and rendereth them prolific, that would otherwiſe remain barren, and never bring forth. To illuſtrate this, I ſay,

1. EVERY particular Sort of virulent Fever, hath its own proper and peculiar venomous Particles: And each of theſe ſeveral Venoms are as eſſentially different from one another, as the Fevers are that they cauſe.

2. THE venomous infecting Particles are of ſuch Sizes, Figures, and Agencies, as render them fit to enter the *Ovula*; and without this Fitneſs there can be no Coition for Impregnation.

3. HENCE it will follow, that the ſaid Particles impregnate only that Species of *Ovula* which they have Affinity to, and a Cognation with; as a Male hath with a Female of its own Kind, and no other.

FROM theſe I would aſſiſt and ſupport the Reaſons before offer'd, why the Small-Pox, Meaſles, Peſtilence, *&c.* can infect no Animal but Man; and why the Murrain of Beaſts cannot infect Man.

I take this virulent Subſtance to conſiſt of rigid, infringible, and unalterable Atoms, ſo ſubtle, pointed, edged, and perhaps indented, crooked, barbed, *&c.* as to be, *toto genere*, and wholly deſtructive to the Spirits, Blood, and Solids of Man.

BUT as to their real particular Geometrical Figures, Meaſures, and Mechanic Manner of exerting their Powers;

theſe always were, and for ever muſt be undiſcoverable to us in this our Life of Cimmerian Darkneſs, and State of Imperfection.

FOR confeſs it or not, but ſo it is, that Mathematicians can make no Demonſtrations, where they have no certain Lines and Angles to work upon: And Philoſophy hath hitherto made but a poor Progreſs in the Diſcovery of the *Terra Incognita* of Nature, and the component Elements of Bodies.

AND I, for my own Part, was ever of the Mind that it was a commendable Modeſty in our Fore-Fathers, to confeſs that the Make and Qualities of Things are occult, and undiſcernable to us; tho' to the utmoſt of our Capacities, we employ Anatomy, Chymiſtry, and the niceſt Glaſſes in Search of them.

THE Exility of Things is infinitely beyond human Apprehenſion and Thought, and is perfectly amazing.

A DIGRESSION, *concerning the* EXILITY *of Things.*

ONE Ounce of Leaf Gold (as I find noted down in my *Adverſaria*) laid upon a Silver Ingot, may be drawn out into Wire 150 Miles in Length; and ſhall cover all ſo entirely, that no Silver ſhall be ſeen thro' it, no not even by the Help of a good Microſcope.

THAT which perfumeth a *Damaſco* Sword Blade, tho' perhaps it cannot enter into the Pores, and interior Receptacles of the hard Steel, but only lieth ſpread upon the poliſh'd Surface, and that in ſo thin a Coat, that it takes nothing off from its Brightneſs, and the niceſt Eye, aided with the beſt Glaſſes, can diſcern nothing of its Subſtance: yet that Matter (whatever it be) ſends off odoriferous Effluvia, without ceaſing, for twenty, thirty,

or

or I know not how many Years: How incomprehenſibly minuted muſt theſe little ſweet Bodies be!

AS to Animal Aporrhæas; where an Hare hath paſſed ſwiftly, it will, in that Moment of Time, and quick Touch, leave upon the Ground certain Corpuſcles, which tranſpired out of its little Feet; and thoſe Corpuſcles ſhall be continually flying off all along for many Miles, ſix or eight Hours together, as is manifeſt in Hunting.

AND to add to the Wonder; theſe ſteaming Bodies, as little as they are, moſt certainly are ſpecifically different from all other Vapours flying in the Air, elſe an Hound could not diſtinguiſh the Scent of an Hare from a Fox or Partridge; or an hunted Hare from one freſh ſtarted, as a ſtanch Dog will do.

AS to the Parts of the Body; the Arteries and Veins, Nerves, *&c.* are ſpun out into ſuch Fineneſſes, that it is utterly impoſſible to trace them to their Origin and Ends, by the moſt exquiſite Microſcopes that ever were, or can be made: And if the ſolid Parts are ſo minute, what can we imagine of the Liquids, and particularly of the Spirits?

AS to whole Animals; their Exility is beyond all Aſtoniſhment: *Leewenhoeck* ſaith he thought no Kingdom in *Europe* contained ſo many Men, as he ſaw Animalcles in the Seed of an Oyſter.

ALSO he judged there were not ſo many Men in the whole Earth, as there were living Creatures in the Seed of one Cod-Fiſh.

AND he affirmeth he hath ſeen in one Drop of Water, Two Millions Seven Hundred and Thirty Thouſand living Animalcles.

AND

AND Dr. *Hook* (ſee *Ray*'s *Wiſdom*, *p.* 387.) reporteth, he hath diſcover'd Animalcles, Millions of Millions of which might be contained in a ſingle Drop of Water.

AND it is highly probable, that every individual one of theſe, which we may term living Points, have in them ſomething analogous to Bones and Fleſh, Heart, Lungs, Brain, Blood, and even Animal Spirits too: and how infinitely little theſe muſt be, ſurpaſſes perhaps the Capacity of an Angel to conceive.

INDEED if our Eyes were as minute as are thoſe of the aboveſaid Animalcles, whoſe Bulk of Body is leſs than one ſingle Animal Spirit of ours: And ſuch there actually are, for ought we know, ſince our Microſcopes ſhew us all along living Atoms leſs and leſs, and never come to a *ne plus ultra:* I ſay if our Eyes were ſo minute, they might probably open to us a new World of Littles, and help us to a clearer View of the Works of the Almighty, which are now incomprehenſible:

AND might ſet to Sight even the conſtituent Elements of at leaſt ſome of the groſſeſt Bodies, as plain as the dim Light we now grope about with, ſhews us the ſingle Parts that go to the making of an Heap of Corn, conſiſting of Wheat, Barley, Oats, Beans, and Peaſe, all thrown together.

THEN poſſibly we might be able as clearly and diſtinctly to diſcern the flying Particles, their Shapes, Sizes, Propenſions, Mixtures, mutual Tangencies, Colliſions, Diſpoſitions of Pores, together with their Activities and Motions, whereby the Magnet attracts Iron, and tends to the Poles; as now we can ſee how a Watch goes, and how a Key opens a Lock.

BUT further, if we were to have another Set of new Senſes put into us, and added to the five we already have,

have, then our Knowledge of Nature's Secrets and Fineneſſes would be moſt marvellouſly improv'd, and in an innumerable Number of Particulars, which we can know nothing of now, enlarged and perfected.

FOR aſſuredly there exiſt in Bodies almoſt infinite Qualities and Powers, of which we could never have the leaſt Suſpicion, becauſe we are not accommodated with Senſes proper for the taking in of their Species, and bringing them to our common Senſory.

AND upon this Account, it being utterly impoſſible for us to have any Kind of Impreſſion and Notice from them, out of which Ideas are fram'd, they muſt of Neceſſity be to us juſt the ſame, as tho' they were not in *Rerum Natura*.

THUS for Inſtance, if it were not for our Senſe of Smelling, we could never have any Kind of Idea of Odours: If we had been made without that of Hearing, we could have had no Notion, nor the leaſt Imagination of there being in the World ſuch a thing as Sound. And ſo of Taſte and Colours.

THESE Things have I the longer been upon, to the End that the Reader ſhould not exact from me, nor expect from any one elſe neither, any Mathematical Demonſtrative Deſcription or Explication of Natural Bodies, either as to their Elements, Textures, Qualities, or Operations, eſpecially of thoſe which I have here called the active Principle, and efficient Cauſe of venomous Fevers.

CAUSES

CAUSES *of the* DIFFERENCES *of* SMALL-POXES.

THE Small-Pox (as before ſaid) keeps preciſely to its own Family, ſo as never to produce the Chicken-Pox, Meaſles, or any other Diſtemper whatſoever, but the true Small-Pox only.

FROM this Obſervation we may fairly lay it down for an undoubted Tenet, that all variolous Matter (which I call the active Principle, and efficient Cauſe, coming *aliunde*) is naturally the very ſelf-ſame in all Subjects, as really as ſeveral Parcels of white Arſenic put into ſeveral Papers are the ſame.

YET notwithſtanding this, the Small-Pox doth not always beget in its own exact Likeneſs; for a Diſtinct will breed a Confluent, and ſometimes a Bleeding Sort; and on the contrary, a Malignant will produce now and then a Benign Sort.

AND theſe different Effects from the ſame Matter, are cauſed by, 1. The Air, 2. Management, 3. The Nature of the Sick.

I. *The* AIR.

THE Time of the Year, Qualities of Hot, Cold, Dry, Moiſt, and their innumerable Varieties of Degrees and Compoſitions, make one Small-Pox differ from another in ſeveral Seaſons.

BUT in Epidemic Time, when venomous Atoms *ſui generis* ſwimming in the Air meet, and mix in with variolous Particles, and together with them combine, and conſtitute

conſtitute Concretions different from both, the Small-Pox produced thereby will be as the Nature of thoſe Concretions is, ſpecifically different from all others, and reſpectively anomalous for that Seaſon.

II. MANAGEMENT.

BLEEDING, Vomiting, Purging, Cordials, either wrongly omitted or uſed, may very much turn the Manner of the Diſeaſe off from what it would have been if left to itſelf.

TOO cold a Regimen, and unneceſſary Evacuations, may diminiſh the Spirits, and depreſs them ſo much, as thereby to injure the Work of Concoction, Expulſion, and Maturation.

ON the other Side, keeping of the Sick too cloſe and hot, and forcing and firing him with high Medicines, may ſo exalt the variolous Matter, as to render it a fierce and cauſtic Gas, productive of a venomous confluent Sort, which would have been otherwiſe a gentle, kindly, diſtinct Small-Pox. See more of this under the Head of *Regimen.*

III. NATURE *of the* SICK.

EVERY individual Man differeth from all others, in ſome Reſpect or other, not only in the Ways and Methods of Senſation, Paſſion, Inventions, Memory, and Manner of Management of Affairs, but even in Features, Air, Voice, Gate, common Action, and even in Writing; and all theſe different Effects muſt neceſſarily have ſo many different Cauſes.

GREAT Differences ariſe in us from Youth and Age, Fatneſs and Leanneſs, Strength and Weakneſs, Hardineſs and Tenderneſs, Courage and Timorouſneſs; from Temperament and Conſtitution, the various Courſes of Life, and daily Accidents.

AS to Solids, we wonderfully differ from one another; for of the Fibres are made the Membranes, Tubulæ, Nerves, Blood Veſſels, Fleſh, Glands, Heart, Lungs, Brain, *&c.*

AND in differing Subjects, theſe Fibres may well be thought to differ, not only in being of a cloſer or thinner Contexture, but alſo in their being finer, coarſer, weaker, ſtronger, moiſter, dryer, more or leſs extenſile and contractile.

AS to the Liquids, the Spirits abound more in ſome than in others, in different Men are more or leſs agile, dull, pure or feculent, firm or diſſipable, apt to Exploſions or other Ataxies.

AS to the Blood; it may have more or leſs Serum, Globules, Fibres, Size; may be more pure or polluted; may circulate clearly or obſtructedly.

BUT becauſe there is a natural Make and Reſemblance of liquid and ſolid Parts in Perſons related to one another, the Small-Pox is obſerved in ſome Houſes of the ſame Blood to be generally mild and benign, and in others almoſt always malign and mortal.

IT is impoſſible to exhauſt this Head of Differences; but from what is here deliver'd, we cannot wonder to ſee ſuch different Small-Poxes taken from the ſame ſick Perſon.

I have

I have ſeen a monſtrous fat Fellow, who had filled all his Life with Idleneſs, Debauchery, and ſtuffing out his Carcaſe, and breeding Greaſe and ill Humours, that had a very benign diſtinct Sort.

ON the contrary, I have ſeveral Times obſerv'd, where healthy proſperous Children and Youths, with ſweet Blood, and pure Humours (as far as could be known) had miſerable, putrid, bleeding Small-Poxes, and we could not ſo much as gueſs at any Reaſon why it ſo happen'd.

IN this our ſublunary imperfect State, we are a poor purblind Sort of Mortals, that can diſcern but a very little of the Particularities, Internals, and curious Niceties of Nature.

A modeſt Man that acknowledgeth human Imbecility, will not therefore ſit e'er the lower in the Eſteem of Men of right Thought: but a peremptory triumphing young Philoſopher, that is brim-full of Omniſcience, muſt drop down into a Form ſhamefully below that of *Socrates*, who at laſt found it out that he knew Nothing.

How VARIOLOUS DISTEMPERS *have been, or may be generated and propagated.*

THO' the Matter of theſe be a particular Poiſon, that is proper and peculiar to each Species, and cometh for the moſt Part *aliunde*, yet, for ought I know, it may ſometimes be generated in our Bodies; and I am at a Loſs to think how it ſhould otherwiſe come at firſt into the World.

WE have heard of many an one, who, when he could not in the leaſt ſuſpect the taking of Infection, had it

bred in him (as it was thought) from a Surfeit, foul Living, a Fever, Fright, *&c.*

I knew a Perſon, and had a great Acquaintance with him, who, through the Ignorance of a Phyſician, took a whole Dram of Gamandra at once; good Part he believ'd he caſt up, but the Remainder wrought outrageouſly, and threw him into a burning Fever, which terminated in the Small-Pox, though at that Time the Diſtemper was not (to his Knowledge) in all that Country, and he had been no where to take Infection.

THIS odd Obſervation I was willing to inſert, becauſe ſince we know not the utmoſt Power and Qualities of Things, it may poſſibly give us a Suſpicion, that this exotic Drug being ſomething of a cauſtic Nature, may be endued with ſome Sort of unknown Property of impregnating the original Depoſita of this Diſeaſe.

AS ſome believe, Calomel hath a contrary Faculty of preventing it; which may be more probable for that it hath been an Obſervation, that the Peſtilence never was known in the Countries where the Quickſilver Mines are found.

THERE have been very numerous Inſtances of People that have got the Small-Pox (but not the Meaſles, or any other Sorts that ever I heard of) by mere Fancy and Fear.

BUT one of the moſt unaccountable was (if my Relator deceiv'd me not) of a young Man, who being ſcared with ſeeing one that lately had it, was taken ill upon the Spot, and hurry'd home preſently, and had them come out upon him the very next Day. This Caſe I think beyond all Rule and Precedent; for there was no Time for Aſſimilation or Concoction of the Matter before Expulſion.

NOW when a Perſon is taken with a thorough pannic Fright, and thinks of nothing but Infection, that extraordinary Perturbation and Terror may form the Spirits into ſuch Species, and create ſuch an Alteration of the Particles of the Body, as will directly and peculiarly act upon the latent Ovula as effectually as an actual Contagion might do.

A certain Lady of an Honourable Family, had a Gold Chain ſent her to wear, which another had worn in the Small-Pox, to keep them (as they conceited it would) out of her Throat; and had laid by for a Month after ſhe was well up again. This (one would think) harmleſs Thing, chanced to bring Terror, and cauſed her Fancy to work her up into a kindly Small-Pox; out of which ſhe recover'd to give me this Account: She alſo gave me the two following Relations:

A Gentlewoman going out of Church, pretty nigh a Grave the Sexton was digging, had a little of the Earth thrown upon her Cloaths. She went home moſt terribly frighten'd, fancing ſome Corps that had dy'd of the Small-Pox had been bury'd there. The third Day after this, the Small-Pox broke out upon her; upon which ſhe fell in Travel, brought forth a Child full of them; and both Mother and Child dy'd. So the Diſtemper bred upon both from nothing at all but a mere miſtaken Conceit; and was form'd, and thrown out in the Space of three Days.

A Gentleman, as he lay ſick of the Small-Pox, order'd his Servant to ſend a Key, which he had not lately touch'd, and lay in a Chamber far diſtant from him, to his Mother. She conceited it brought Infection, fell ill of the Small-Pox, and, being ſeventy Years old, dy'd.

THAT Longing-Women ſhould, by the pure Workings of Imagination, form their Spirits into ſuch Ideas, Figures,

Figures, and Species, as to imprint Marks upon their Fœtus in the Womb, and fix upon them not only flat Spots, and Moles, but even fleſhy protuberant Subſtances, in the perfect Likeneſs of ſuch Things as they longed for, as perhaps a Cherry, or other Fruit; which ſhall have the very Shape and Colour, and ſhall, as it were, ripen in Seaſon, and grow Red, when the true ones on the Tree do ſo: This is as ſtrange a Thing as breeding of the Small-Pox by the Force of Fear and Fancy; but it is ſo common, that we have long ago left wondring at it.

MR. *Wiſeman* ſaith, it is a Thing not rare in Surgery, to find the Small-Pox produc'd by the Pain of an Ulcer; as alſo to have it break out upon the healing up of them. But this, I conceive, can ſcarce happen but in an epidemic Seaſon, when the Air is very full of Infection.

THERE goes about a common Opinion, that thoſe who are near akin, and ſo are naturally analogous, may ſympathetically infect one another, though at never ſo great a Diſtance; and Books give many ſeeming Inſtances, and pretended Reaſons for it, and I myſelf have known what was thought ſo.

BUT, as I apprehend, corporeal Agents act only by Means of Contact. If the Thing to be acted upon be at a Diſtance from the Agent, that Contact muſt be perform'd by Effluvia from one to the other, ſuch Effluvia have a determinate Sphere of Activity; and whatſoever is out of that Sphere, cannot be acted on by them. Upon theſe Conſiderations, I am afraid thoſe Authors have been miſtaken in their Obſervations and Reaſonings.

BUT be it ſo or not, I ſee no great Uſe of the Notion, either for Prevention or Cure; and ſo I put it off to the Vulgar, who are infinitely pleaſed with Myſteries and Miracles, which they have good Hope others underſtand as little

little as themſelves: And ſo as to theſe Matters they are at a Par with them.

IT was a mighty ſtrange Thought of *Rhazis* (*de Mirabilibus, &c.* towards the End) concerning a Girl, who by uſing herſelf to the drinking of Camel's Milk, and taking Diamoſchu after it, fell into the Small-Pox; of which ſhe grew well in thirty Days, which was a long Time too.

AVICENNA alſo joins with him, ſaying, that Milk, eſpecially that of Camels, and Mares, *facient cadere in variolas velociter*; theſe are the *Latin* Tranſlator's Words; that is, diſpoſe quickly for the Small-Pox.

WE have very many Inſtances in Authors, of Children infected in the Womb; *Bartholin. Epiſt. Cent.* 2. *Epiſt.* 85. tells us of a Woman ſick of the Small-Pox, that brought forth a Child full of it, and both Mother and Child dy'd.

HILDANUS, Cent. 4. *Obſ.* ſaith, a certain Woman, in the very Height of the Small-Pox, having gone with Child almoſt her full Time, was deliver'd of a Child, whoſe Face was full of it, and it liv'd to the eighth Day.

DOLÆUS de Feb. c. 6. *p.* 777. ſaw a great Perſon, who, while ſick of the Small-Pox, brought an Infant into the World with them upon it.

FERNELIUS de Abdit. rer. cauſ. c. 12. *p.* 503. ſaith, it hath oftentimes been ſeen, that Women have brought forth Children full of the Small-Pox; ſome of which Women had themſelves nothing appearing outwardly, and others of them felt no Illneſs till many Days after.

CASTRO quæ de quibus, p. 209. ſaw one who dy'd in his Mother's Womb of the Small-Pox.

BARTHOL.

BARTHOL. Hiſt. Anatom. Cent. 4. *Hiſt.* 5. ſaith, that in the Year 1656, a very bad Small-Pox was riſe amongſt all Sorts of People; and that Infants were infected in the Womb with it; together with Malignant Fevers and Petechiæ.

INSTANCES have been of Children, that having had the Small-Pox in the Womb, have there run through the whole Courſe of it, and been born well recover'd of it, with plain Marks of it upon them.

IT's a pretty obſervable Caſe, of a Woman with Child, who having had the Small-Pox, had a Protection for her ſelf; but, by viſiting one in that Diſtemper, gave it her Child in the Womb. Three Relations of this Caſe I have received from good Hands; one of which was of a Baronet's Daughter in *Kent*.

TO the ſame Purpoſe, *Ettmul. Part* 2. *p.* 404. quotes *Moriſon de Morbis Mulier. p.* 60. for it; that a Woman being pregnant, and in good Health, ſat conſtantly by her Son ſick of the Small-Pox, and was brought to Bed of a Child with it upon him.

WHAT is here ſaid of the Small-Pox, hath been likewiſe obſerv'd of the Meaſles.

SCHENCH, p. 842. tells of a Child, born with the Meaſles upon it.

DODONÆUS, p. 101. ſaith, ſeveral (particularly in the Year 1608.) meaſley Women brought forth meaſley Children.

HILDAN. Cent. 4. *Obſ.* 56. reports, that a Woman, in the ninth Month of her Impregnation, fell ſick of the Meaſles, and the fourth Day of her Diſtemper, brought forth

forth a Boy full all over; and both Mother and Son recover'd.

SCHENCH. p. 842. hath a Relation of a Child, who three Days after Birth, had the Meaſles, and ſoon after the Small-Pox.

BUT it doth not conſtantly happen, that a Mother having it upon her, infects her Child within her.

BARTHOLIN. Act. Med. Vol. 5. *C.* 75. *p.* 176. reports of an illuſtrious Counteſs, that being full of the Small-Pox every where from the Crown of her Head to the Sole of her Foot, upon the eleventh Day was deliver'd of a Child fat and well-form'd, that had no Mark of the Diſtemper ſeen upon it: But the Infant being immature, and unfit for Reſpiration and external Air, expired in half an Hour after Birth.

SOME may ſuppoſe it would have had the Small-Pox, if it had not dy'd before the Time of Eruption: But we had in our Neighbourhood a Woman that brought forth a Child while ſhe had the Small-Pox actually upon her; and that Child liv'd, and never had the Diſtemper.

IF any conceive the Child had had it in the Womb, and was grown well of it again; I ſay, perhaps, it might as well not be ſo; for, within ſix Miles of this Place where I live, it was told me, that a Child was born of a variolous Mother, who eſcaped the Diſtemper for that Time; and yet, many Years after, when ſhe was grown up, caught it at *London*, which ſhe would not have done, if ſhe had not miſſed it before. This Perſon is now living.

To Prevent the SMALL-POX.

DIGBEIUS Expreſſionem Sanguinis in Vaſis Umbilicalibus Fœtus jam in Lucemediti, ante ligationem, & abſciſſionem accurate inſtitutam, pro univerſali habet Præſervatione.

BUT I queſtion its Efficacy; not only becauſe he was one that delighted much in ſtrange Things, and was a credulous Man, but becauſe alſo the Thing itſelf ſeems to ſmell ſtrong of the *Arabian* Hypotheſis; and ſome that have try'd it have found it fail.

OTHERS ſay, if the Infant be vomited, and gently purged, ſo as to carry off its Meconium, preſently after it is born, it will never have the Small-Pox: But this looks ſomething like the other, and I am not over confident that it will ſucceed.

THE *Germans* (as before ſaid) wonderfully commend *Mercurius Dulcis*, and aſſert, it will quite preſerve one from the Small-Pox, or, at leaſt, infallibly cauſe it to prove mild and ſafe. We have Accounts of it in *Miſcel. cur. Anni* 1672. *Ettmul. de Variol.* and *Jungken, Med. preſ. ſec. p.* 800, mentions the ſame.

THE Means I can think of for Prevention, are the following:

AVOID all irregular and unuſual Ways of Living, as to the Six Non-Naturals.

LET him beware of Drunkenneſs, Gluttony; all Meats of hard Digeſtion, and ill Nouriſhment; Things that are Hot, Salt, Biting, Garlick, Onions, *&c.*

LET

LET him never go Faſting; let him eat as ſoon as out of Bed; Bread and Butter, and Leaves of Rue will be a good Breakfaſt; let him never go to Bed empty.

LET him drink ſuch Liquors as are agreeable to the Stomach and Bowels, and may keep the Blood and Spirits freſh, and vigorous, but not fill them with Wind, or over-heat, nor any way diſturb them.

LET him uſe ſuch convenient and moderate Exerciſe of Riding, Walking, *&c.* as he was wont to find agreeable in his common Life.

LET Sleep, and Watching, Times of going to Bed, and Riſing, be juſt the ſame he was uſed to in Time of Health.

LET him void Excrements according to his natural and common Cuſtom; if he want Help that way, he may, at going to Bed, take *Pil. Ruffi* ℈j. or *Elect. Lenit.* ʒß. or ʒvj. or the like, juſt enough to procure Laxity.

BUT as to direct Purging, it will, in a Time when Infection is fear'd, rather invite it in, than keep it out.

VOMITING is recommended by ſome as an excellent Preſervation; but if it prove not ſuch, yet poſſibly it may be a good Preparative, provided it be uſed before the Party perceiveth any Symptoms of the Diſeaſe upon him.

PHLEBOTOMY alſo is adviſable to keep off Feveriſhneſs for young Men, and all ſuch others as abound much with rich inflammable Blood, or have heated themſelves by Surfeiting, over-much Exerciſe, *&c.* but in others, it may weaken the Spirits, and render them the leſs able to keep out Infection.

LET him, with all poſſible Watchfulneſs and Care keep off from great Paſſions, and more eſpecially from thoſe that diſſipate and depreſs the Spirits; ſuch as Sorrow, and Fear: If Chearfulneſs and Courage keep Guard, the Enemy will hardly enter.

BUT, as to moſt of theſe Matters, the particular Conſtitution, and common Cuſtom of Living, muſt give Directions and Rules.

SUDDEN Changes (tho' for the better in Appearance) are ſometimes prejudicial, becauſe they put ſettled Nature out of her Courſe, and alter the Body, that was in good Circumſtances before.

LET him (if he be of a ſanguine Temperament, and ſeem to have hot thin Blood) make uſe of ſuch Things as cool, thicken, and dulcify; namely, moderate Acids, Small-beer, or *Ol. Vitriol. Elix. Vitrioli, Elix. Propr. acid. Succ. Limon. Decoct. Luſitan. Tinct. Roſar.*

LET ſuch an one avoid all Things that heat, ſharpen, attenuate, diſſolve, or break the Blood, particularly thoſe of the acrid, biting, burning Claſs, Onions, Garlick, Radiſh, Muſtard, Scurvy-graſs, Galingale, Ginger, Pepper, Grains of Paradiſe, *&c.*

AS for Antidotes, that are properly ſuch, and have Power ſpecifically and directly to oppoſe, correct or conquer variolous Venom, I know of none.

BUT as for generous Cordials, that comfort and fortify the Stomach, elevate and invigorate the Spirits, kindly exagitate and placidly accelerate the Blood, whereby the venomous Particles are either quite kept out; or, if a little enter'd, are preſently driven out again by way of Diaphoreſis; we have great Plenty of them, *viz.*

Rad.

Rad. Serpent. Virgin. Contray. Angel. Hiſp. Zedoar. Petoſit. Bacc. Junip. Crocus, Myrrh. Camph. Coccinella.

Aq. Ceraſ. nig. Rutæ Lact. Alixit. Epidem. Pæon. C. Theriacal. Vin. Canar. Tinct. Croci, Elix. Propr. acid. Spir. Sal. Armon. Ol. Junip. Dec. Sacr. Pulv. è chel. Canc. Comp. Lap. de Goâ, Lap. Contray.

℞ *Rad. Contray. contuſ.* ʒiij. *Sal Abſint. gr.* xxiv. *Coq. in Aq. f.* ℥xij *ad* ℥viij. *ſub finem add. Coccinel. gr.* xij. *col. adde Aq. Rutæ* ℥ij. *Aq. Epidem. Theriacal.* ā ℥j. *Sacch. cand. alb.* ʒiij. *m.*

℞ *Theriac. Androm. Mithrid. Diaſcord.* ā ʒij. *Rad. Zedoar. Angel. Hiſp.* ā ʒß. *Croci* ∋ß. *Ol. Junip. gt.* iiij. *Syr. Caryoph. q. ſ. f. Elect.*

℞ *Myrrh.* ʒj. *Camph.* ∋ß. *Croci* ∋j. *Vitel. Ov. q. ſ. f. Pil.*

LET him wear upon his Thorax and Stomach this Plaiſter.

℞ *Theriac. Androm.* ʒ vj. *Terebinth. Venet.* ʒiß. *Balſ. Peruv.* ʒ ß. *Caryoph. gr.* v. *Croci* ∋ ß. *m.*

FOR a Woman, ℞ *Theriac. Androm.* ℥ß. *Galb. Col.* ʒij. *m.*

A Nodule may be hung from the Neck upon the Breaſt, made of *Theriac. Androm. Camph. & Ol. Junip.*

TURUNDE of the ſame taken upon Cotton may be put up his Noſe.

OR they may be made of Theriaca and Rue beaten up together.

LET

LET the Vapour of Vinegar ſprinkled on an hot Brick, be taken into his Noſe.

LET him waſh his Mouth with Vinegar, in which Rue hath been infuſed, or to which are added *Venice Treacle*, *Mithridate*; or *Tincture of Myrrh*, *Elixir Propriet. Sp. Vini Camphorat.*

LET him carry about with him Tobacco, Cardamoms, Pellitory of *Spain*, Roots of Angelica, Zedoary, Juniper-Berries, to chew: If he be uſed to Tobacco, let him ſmoak it, eſpecially Mornings and Evenings.

LET his wearing Cloaths be fumed every Morning with Frankincenſe, Pitch, Rozin, *&c.* burnt.

CUSTOM is ſo authoritative, that I am almoſt afraid to ſay I do not like Snuff, eſpecially if it excites Sneezing in an infected Air; for it ſhakes the Lungs violently, and cauſes ſuch a ſtrong Inſpiration, as powerfully attracts the morboſe Matter into the inmoſt Penetralia of the Bronchia's, and mixeth them immediately with the Minima of the Blood.

AS to Iſſues, tho' they may be ſuppoſed to evacuate ill Humours, and thereby may ſomething ſerve towards the keeping of the Body in good Order, and by that Means may prevent the taking in of Infection: yet I am got into a particular Conceit of my own, that they being raw, open to the Air, and without the Defence of a Cutis, may let in variolous Matter, like Inoculation.

AND therefore in an epidemic Seaſon, or in any infected Place, if it may be done without Danger of bringing other great Inconveniencies, in my Judgment, they ought to be ſtopped up.

THE

THE ſame may be ſaid of Bliſters, or any Excoriations.

BUT ſometimes it ſo happens, that the Diſtemper will not be put off; and then if the Patient die, the Phyſician that tampered with his Preſervatives will have a hard Task of it to juſtify himſelf, not only to the ill-condition'd Populace, but alſo to the Relations and Friends.

THEREFORE it is good to uſe our beſt Endeavours honeſtly to profeſs nothing of Infallibility, but leave Room for Accidents and unforeſeen Events.

To keep INFECTION *out of an Houſe, and to purify it.*

KEEP it perfectly clean.

LAY in the Windows, upon the Beds, and the Floors, Rue, Baum, Angelica, Burnet, Lavender, *&c.*

SPRINKLE the Floors with Vinegar.

WHITE waſh the Walls.

QUENCH Lime in it.

SMOAK it full of Tobacco, and ſhut it up cloſe in the Rooms.

UPON a red-hot Brick burn Pitch, Frankincenſe, Rozin, but above all Sulphur; and if Women in it be inclinable to Hyſteric Affections, Galbanum, Aſſa Fœtida, *&c.*

MAKE good flaming Fires, and then ſet open the Caſements for a little while, to let the heated Air out.

NOW and then make a ſudden Blaſt with Nitre, or Gun-Powder thrown upon Coals; or ſometimes ſhoot off a Piſtol in the Rooms.

Concerning PURIFICATION *of the* AIR.

A TOWN ought to be cleanſed from all Filth and Naſtineſs; for tho' ſuch Things do not properly breed particular malignant Fevers, yet they give an Offence to the Spirits, diſorder and weaken them, ſo as to render them leſs able to reſiſt and keep out Infection.

I am apt to fear, that in an Epidemic Seaſon, when the Body of the Air is filled with morboſe Atoms, it cannot be cleared from them by Storms, Thunder, Wind, Rain, nor by any Art of Man, any more than it can from the Particles that make and convey Sound: But in Tract of Time they alter, wear out, are ſpent, and fly away of themſelves; and ſo that Conſtitution of Fevers, which had continued, it may be, for ſome Years, goes off, and gives Place to ſome other new one.

IT is recorded indeed of *Hippocrates*, that he drave away a Peſtilence by great Fires: But one Experiment is not enough for a certain Proof of an abſtruſe Matter: For ought we know that Plague might at that Time have been much ſpent; or it might happen to abate from ſome other quite oppoſite Conſtitution of Air then coming in, or from ſome other ſecret Cauſe.

DR. *Hodges de Peſte*, *p.* 25. juſtifieth a Doubt concerning this Matter, ſaying, in the Time of the Plague at *London*, great Fires were made (he and the other Phyſicians being utterly againſt it) in the Streets.

THE

THE Event was lamentable: *Inauditæ Cladis* (ſaith he) *Nox advenit, ſane ultra quatuor Millia ante Diluculum mactata ſunt*; above Four Thouſand Men lay dead before Day-break.

I conceive thoſe Fires, by breaking the Peſtilent Particles, multiplied and volatiliſed them, and by calcining them, made them more cauſtic and deleterious; and thereby render'd the Plague more infectious and more fatal.

SHOOTING off of great Guns hath been propoſed and practis'd. I know not what Succeſs it hath had; but it is well known that great Exploſions have ſuch a ſtrange Power, that in a Sea-Fight, when the Winds were high, the Guns have ſhot it quite away, and cauſed a perfect ſtill Calm.

IT ſeems likely, that making of great Smoaks and Smothers, by burning Pitch and Brimſtone in the Streets, eſpecially when the Winds are ſtill, and diſſipate them not; when the Air is cold and moiſt, and the Barometer is in a ſinking way, they may mix in with the Air, and remain in it, and not be diſperſed for a Time; and ſo may be of ſome Uſe for this Purpoſe.

General PROGNOSTICS.

1. IN an Epidemic Seaſon they are more or leſs dangerous, according to the Nature and Genius of the preſent reigning Conſtitution.

2. COMMONLY they that are Epidemic and very contagious, are of an ill Sort; for if they were not of a virulent Nature, they could not be ſo prevalent and ſpreading.

3. IN ſome Families it is obſerv'd, that the Small-Pox have always been very mortal, or at leaſt exceſſively bad and dangerous: In others the quite contrary.

4. TO thoſe whoſe Parents had, or they themſelves have the *Lues Venerea*, they are very bad.

5. TO ſuch as are tainted with any Degree of the King's Evil, they are dangerous.

6. SUCH as have Obſtructions in the Hypohcondria, or any of the Viſcera, are very unfit for this Diſtemper.

7. UNHEALTHY Cacochymic Perſons cannot have them without Danger.

8. SUCH whoſe Fleſh, upon a Cut or Sore, is apt to rankle much, are like to have it worſe than thoſe whoſe Fleſh uſeth to heal eaſily.

9. TO ſuch as are of an hot Nature, and apt to Inflammatory Fevers, eſpecially to a Catarrh, ſore Throat, and Quinſey, they are very dangerous.

10. TO ſuch as have lately inflamed their Blood by Debauchery or Surfeiting, they are often mortal.

11. TO ſuch as are of a cold Nature, or are in ſome Degree of an Anaſarca, they may be beneficial: I think I have known where the Small-Pox hath mended ſuch a Conſtitution, and made the Party more healthy than ever before.

12. THOSE that are over-fat and groſs, are thought very unfit to go thro' this Diſeaſe: yet I knew one of the very fatteſt Men living, who had a diſtinct Sort, and paſſed thro' every Stage of it eaſily. In this Caſe I conceive, that tho' he was corpulent, yet it was not ill Humours and Impurities, but merely Fat that ſtuffed him out;

out ; and I am of Opinion, that thoſe Perſons whom Nature hath formed with a great Plenty of Glandulæ, and Cellulæ Adipoſæ, will be inclineable to be Groſs, and may notwithſtanding live Sound and Healthy.

13. THOSE that have weak Lungs are very unfit for the Small-Pox ; yet I was with a Clergyman, who was of a tender imbecile Nature, and had been for many Years grievouſly and frequently troubled with Aſthmatic Fits, and had ſo flaming and fluxing a Sort, that he underwent a great deal, and eſcaped very hardly ; yet had not one Touch of his Aſthma during all his Sickneſs : But when he recover'd out of the Small-Pox, his Aſthma returned again with more Violence than ever.

14. PERSONS that are truly conſumptive, eſpecially if they are ſo far gone in it as to have an Hectic Fever, or cough up Blood, ſcarce ever recover.

15. IN coarſe-grained Bodies ſo it is, that when the Fever inflameth and paineth the external Parts, the Skin purſeth up and ſtraightens the Pores, and ſuffers not the morboſe Steams to tranſpire, and by that Means heighteneth the ſecond Fever, and cauſeth an hazardous Small-Pox.

16. THOSE whoſe Skin being contexed of very fine ſoft Fibres, and therefore having but little Strength of Tone, and Power of Reſiſtance, like Cheverel Leather, can ſtretch and turn their Pores into any Figure, according to the Matter that is brought to them : Such Perſons are qualify'd to let the noxious Matter tranſpire freely; and therefore (provided their Spirits hold up ſufficiently for the Work) are moſtly dealt with very favourably.

YET ſuch ſeem more apt to take Infection than thoſe that are more robuſt, becauſe their Pores are moſt open, and their Spirits more weak.

AND by reaſon their looſe Glands and weak Fibres may ſuffer great Diſtenſions and Alterations, ſometimes we ſee the Features of ſuch Perſons quite changed into other Faces: And generally the Small-Pox leaveth fine Skins coarſer than it found them.

17. WOMEN have generally ſofter Skins, opener Pores, and weaker Spirits than Men, and therefore are more apt to catch the Small-Pox; but (if it be not near their monthly Times) uſe to have them eaſier, and with leſs ſecond Fever.

18. TO Women with Child, eſpecially in the laſt Months, and moſt of all to ſuch as have been apt to miſcarry, they are very dangerous.

19. IF a Woman ſuffer Abortion during the Time of her having the Small-Pox, ſhe very ſeldom eſcapeth: Yet I was with one who on the eleventh Day miſcarried, and then fell into a very bad Fever, like that called Malignant; ſhe recover'd, tho' very hardly.

AND another I attended, who was brought to Bed the very ſame Day the Puſtles broke out; the Lochia proceeded duly every Day: She had a kind diſtinct Sort, and eaſily recover'd.

20. IF the Small-Pox happen when either by reaſon of a Fit of Sickneſs, or a Surfeit, the Spirits are low, and the Blood over-heated, corrupted, or impoveriſh'd, they are like to be dangerous.

21. IT is uſual for Children that have paſſed the Red Gum and Breeding of Teeth, to be dealt with favourably.

22. YOUNG People, before Puberty, for the moſt Part have a more kindly Sort than Adults.

23. YOUNG

23. YOUNG lusty strong Men, that are full of hot Blood, and brisk Spirits, are liable to a bad confluent Sort.

24. OLD Men have them not so well as those of a middle Age, after the Boisterousness and Vigour of Youth is something over.

25. THOSE that are in great Fears and Sadness, for the most Part go through them very badly.

26. IN my Opinion, Infection taken in at the Pores of the Skin, gives a much better Sort than that taken by Inspiration immediately into the Lungs. Inoculation seems to prove this.

27. INFECTION taken from the Bleeding Small-Pox, I have observ'd, hath always produced an extreme malignant, or rather venomous Sort, which killed wherever it came.

SIGNS *of the* APPROACH *of the* SMALL-POX.

SOME have them break out without any foregoing Signs, or Warning at all, as they walk about, having no Head nor Back-ach, nor any other Uneasiness.

THIS happens mostly to Children that have sweet, soft, temperate Blood, and quiet Spirits: And to such others as are of a very sound Constitution, and have not been over-heated: For in these but a little Matter will be assimilated.

AUTHORS reckon up a great many Signs whereby to judge of an Illness, that it will turn to the Small-Pox; but those Signs never happen all together to any Person, neither are they to be rely'd upon as infallible: And so they

they can ſcarce be (where there was no known Infection) a certain Foreſight of the Small-Pox before Eruption.

YET, in a Seaſon when the Diſtemper is epidemic, any Fever, or violent Emotion of the Spirits or Blood may give Suſpicion of it; and ſo much the more, if the Party have been where he might take Infection, though it were a Month before; and eſpecially, if he was fearful, and apprehenſive of it.

MOST commonly the Party is taken with Shivering and Cold, more or leſs, like that of an Ague, which is quickly follow'd by exceſſive Heat, and Thirſt; which continuing without Remiſſion, groweth higher and higher, till the Spots appear.

AT the ſame Time, there are more or fewer of the following Symptoms:

1. AN unuſual violent Head-ach, with throbbing Pulſation in the Fore-head and Temples.

2. A tearing, grinding, pulſing, ſhooting Pain in the Back.

3. FLYING Rheumatick Pains of the Limbs, and all the Body over: Alſo a Senſe of Pricking and Itching every where in the Skin.

4. AN univerſal Unwieldineſs, with Yawning and Stretching.

5. ITCHING of the Noſe, and Sneezing.

6. TREMBLING all over, eſpecially about the Heart and Hands.

7. PAINFUL Oppreſſion of the Breaſt, if preſſed with the Hand.

8. SICK-

8. SICKNESS at Stomach, with a general Anxiety, Nauſea, Vomiting, ſometimes a Diarrhæa, eſpecially in Children.

9. SINKING of Spirits, and Sadneſs, from no known Cauſe.

10. RESTLESS Want of Sleep, Vertigo, Delirium, unquiet Dreams, Frights, Startings.

11. TWITCHING of the Tendons, Convulſive and Hyſteric Fits.

12. SLEEPINESS, and ſuch a Stupor, that the Sick cannot bear the Light, nor hold up his Head.

13. REDNESS, Heavineſs, Swelling, Dimneſs of the Eyes, involuntary Tears.

14. DRY Cough, which was not before, Hoarſeneſs, Sore Throat, Shortneſs of Breath.

15. BLEEDING at Noſe.

16. THE Menſes breaking down out of their Seaſon.

17. GREAT Propenſion to Sweat.

18. THE Pulſe ſwift, ſtrong or weak, according to the Condition of the Spirits, and State of the Fever.

19. URINE, like that of People in Health, at the ſame time when the Fever runneth high.

20. BUT ſometimes when there is great Ebullition, and Confuſion in the Blood, the Urine is high coloured, and full of Contents.

21. IF the Symptoms (eſpecially if they come at the Beginning) continue to increaſe every Day, they pathognomically ſignify the Small-Pox; for Dr. *Morton* aſſerteth, that

that it happens ſo in no kind of Fever, but the Variolous, Morbillous, and Scarlet.

22. IF the Symptoms hold on beyond the ordinary Length of a Paroxyſm of an Intermitting Fever, eſpecially if they go on all along increaſing till they are very violent, they give great Suſpicion of the Small-Pox, and the more ſo, if the Urine alter not much upon it; but if they continue paſt the fourth Day, and nothing break out, they are from ſome other Cauſe.

THE Fever, though it be at firſt irregular, is really and truly of the continual Sort; and therefore if it intermit, ſo as to come to a fair and plain Apyrexy, it is not variolous.

Of a NURSE.

THOUGH it is impoſſible to meet with a Nurſe every way ſo qualify'd for the Buſineſs, as to have no Faults or Failings, yet the more ſhe cometh up to the following Particulars, the more ſhe is to be liked. It is therefore deſirable that ſhe be,

1. OF a middle Age, fit and able to go through with the neceſſary Fatigue of her Undertaking.

2. HEALTHY, eſpecially free from Vapours, and Cough.

3. A good Watcher, that can hold ſitting up the whole Courſe of the Sickneſs.

4. QUICK of Hearing, and always ready at the firſt Call.

5. QUIET and ſtill, ſo as to talk low, and but little, and tread ſoftly.

6. OF

6. OF good Sight, to obſerve the Pocks, their Colour, Manner, and Growth, and all Alterations that may happen.

7. HANDY to do every Thing the beſt way, without Blundering and Noiſe.

8. NIMBLE and Quick a going, coming, and doing every Thing.

9. CLEANLY, to make all ſhe dreſſeth acceptable.

10. WELL-Tempered, to humour, and pleaſe the Sick as much as ſhe can.

11. CHEARFUL and Pleaſant; to make the beſt of every Thing, without being at any time Croſs, Melancholy, or Timorous.

12. CONSTANTLY careful, and diligent by Night and by Day.

13. SOBER and Temperate; not given to Gluttony, Drinking, or Smoaking.

14. OBSERVANT to follow the Phyſician's Orders duly; and not be ſo conceited of her own Skill, as to give her own Medicines privately.

15. TO have no Children, or others to come much after her.

DIET.

DIET muſt be only ſuch as may be allow'd in Fevers; ſuch as is thin, and eaſily digeſtible; that diſturbeth not the Stomach, nor breedeth Wind; that affordeth ſuch a kindly Chyle as may mix in with the Blood, without exciting too great a Fermentation in it.

WHEN it is feared that Infection is taken, there muſt be an Abſtinence from all Fleſh, Fiſh, Eggs, from all Things that give ſtrong Nouriſhment, that are fatty, ſpicey, ſalt.

IN the Time of Sickneſs, Food may be Water-gruel, Barley-gruel, Panada, plain light Bisket.

TAKE Pearl-Barley one Ounce, Crumbs of White-Bread two Ounces; boil theſe in a ſufficient Quantity of Spring-water, till it come to a little Thickneſs; then ſtrain it off, and ſweeten it with the fineſt Sugar.

FIGS are good; Dr. *S.* thinks not amiſs of Roaſted Apples and Milk, provided it be taken warm, and moderately now and then, for a Change; but this muſt be avoided, if there be any Tendency to a Looſeneſs.

MARE's Milk drank warm as it cometh from the Mare, during the Time of Augmentation, and Maturation, hath been exceedingly recommended to me, as a Thing that nouriſheth without giving any Diſturbance to the Blood, tempereth the variolous Acrimony, correcteth its Venenoſity, defendeth the Inteſtines, ſecureth the Lungs, preventeth or cureth Sharpneſs of Urine and Micturition, keepeth forward Expulſion, filleth up the Puſtles with benign Serum and Steams, maintaineth the Swellings, promoteth Maturation, extinguiſheth Thirſt, and, in a Word, is Meat, Drink, and Medicine all in one.

BUT towards the laſt, when the Saliva growing thick, and the Ptyaliſm beginneth to ſtop, it ſeems not proper; at that Time, Figs, Bread and Butter, Toaſt and Butter, Toaſt and Beer, if the Sick be able to chew and ſwallow ſuch Things, may be good to clear his Throat from foul Slime and Stoppage.

WHEN the Diſeaſe is going off, Dr. *S.* alloweth a little better and more hearty Diet; ſuch as Sops in Beer ſweeten'd, Caudle, and the like.

DRINK.

GENERALLY ſpeaking, I am unwilling to allow Wine, except only to ſuch as have made it almoſt their daily Drink; and then but ſparingly neither, unleſs there be ſome evident Reaſon for it; for I have known it drank every Day, through the whole Courſe of the Small-Pox, where the Spirits flagg'd, and the Fever ſunk below itſelf, with good Succeſs.

I ſeldom grant even Sack-Whey, becauſe of its Vinoſity, unleſs made with Barley-Water and Milk, of each a Pint; and Sack half a Pint; or the Whey may be made with White-wine inſtead of Canary; which being not ſo ſweet, is leſs fulſome, and ſatisfieth Thirſt better.

DRINKS may be,

CLEAR Poſſet made of nothing but Milk and Beer; or Three-leav'd Sorrel may be boil'd in it.

OR Poſſet made with Milk, a Quart; Small-Beer, a Pint; and White-Wine, half a Pint.

OR, take fine Barley-Water, half a Pint; Milk, a Pint and half; juſt make them boil up, and preſently take them off, and keep the Liquor in a Bottle.

OR, inſtead of Barley-Water, a Decoction of Shavings of Hart's-Horn may be uſed; for, it being only a gelatinous Subſtance, I can in no wiſe believe it can impart to the Water it is boil'd in any heating or forcing Quality.

PECTORAL Decoctions are of great Uſe, eſpecially all the Time of Augmentation, and Ripening.

℞ *Hord. Perlat. Rad. Alth. Viciar. Contuſ.* ā. ʒſ. *Glycyrrh. Sem. Lini.* ā. ʒij. *coq. in Aq. font.* lbiij. *ad* ij. *ſub finem addendo Conſerv. Roſ. Rub.* ʒiij. *f. Col.*

℞ *Hord. Perlat.* ʒß. *Paſſul. Sol. Exacinat. Fic. conciſ.* ā. ʒjß. *Glycyrrh.* ʒij. *Coq. in Aq. f.* lbiij. *ad* ij. *Col.*

WHERE Sweetneſs is offenſive, and Acids are deſired to quench Thirſt, and to repreſs too much Heat:

℞ *Glycyrrh. Conſerv. Roſ. Rub.* ā. ʒj. *coq. in Aq. f.* lbijß. *ad* lbij. *Col. adde Suc. Limon. ab* ʒj. *ad* ʒij. *m.*

BUT above all other Liquors whatſoever, ſmall, or middling Beer, which is freſh, and clear, and neither too new, nor too ſtale, nor bitter, is moſt grateful and proper for our *Engliſh* Bodies; and ſometimes proves the beſt Julep in the World to quench Thirſt, dilute and cool the boiling Blood, and promote Salivation.

BUT if there be Nauſeouſneſs, Sickneſs at Stomach, Vomiting, Windineſs, Griping, Diarrhæa, *&c.* raw Beer, as alſo all Sorts of brisk, lively fermented Liquors, are to be avoided, by reaſon of their ſmart elaſtic Gaſs, which pricketh and offendeth weak Stomachs and Bowels.

NOTWITHSTANDING, if Beer, and ſuch brisk Liquors be boiled, they evaporate all their Elaſticity and Quickneſs, and become, tho' leſs poignant and pleaſant to thirſty Palates, yet innocent and inoffenſive.

IF the Sick refuſeth boil'd Beer, a Piece of Bread toaſted till black, and then fir'd, and put into it all in a Flame, and cover'd, and ſet by for a while, will medicate it as well almoſt as boiling.

OR,

OR, new Tobacco-Pipes made red hot, and quenched in it, may ſerve for the ſame Purpoſe.

REGIMEN.

THE Regimen ought to be ſo adjuſted, that the neceſſary Ebullition be duly carried on, and be neither too remiſs nor too high, but in ſuch a middle moderate Degree, as the ſeveral Stages of the Diſtemper require: And the right ordering of this is a Matter of the greateſt Moment.

The MISCHIEFS *of a too Cool* REGIMEN.

1. THE Ebullition may be ſo check'd, as not to be ſufficient to carry on the Work of Concoction: This may happen from the very Beginning of the firſt Fever.

2. THE Pores of the Skin may be ſo ſhut up, as to render Eruption very difficult and irregular, when the Matter is prepared and ready for it. This Danger is greateſt near the Time of Eruption, but may continue all the four Days of that Stage.

3. THE morbific Matter which was prepar'd, and began to be thruſt outwards, may be driven inwards, and be reſorpt into the Blood again: Whence the Fever and ill Symptoms which ſhould now remit, continue, and grow violent. This may happen after Eruption is begun.

4. WHERE there is a great Quantity of variolous Matter aſſimilated, if it be hinder'd from coming out, it may ſeize upon the Viſcera, the Stomach, Guts, Meſentery, Liver,

Liver, Lungs, *&c.* This may happen alſo in the Stage of Eruption, and be continu'd afterwards thro' all the other Stages, where it may hinder Colour, Augmentation, Maturation, and Salivation.

BUT theſe Miſchiefs do not ſo frequently occur, as thoſe that are cauſed by an over-hot Regimen; which Nurſes are apt to fall into, to bring out (as they imagine) the Pocks.

SUCH Perſons are moſt obnoxious to the ill Effects of a too cold Regimen, as are of a cold Conſtitution; are of tender lax Bodies; are apt at other Times to catch Cold; are uſed to wear much Cloaths, or Bed-Cloaths; ancient People, and thoſe that are faint-hearted.

ALSO ſuch as have lately had a ſevere weakning Fit of Sickneſs; have been much bleeded or purged; and thoſe that are low ſpirited and timorous; and ſuch as are breeding the diſtinct Sort.

THE Times of moſt Danger are, the Nights, and Winter cold Seaſon.

The MISCHIEFS *of a too Hot* REGIMEN.

IF by ſpirituous aromatic Cordials and Sudorifics, too much Cloaths, conſtant confining to Bed too ſoon, great Fire in the Chamber, *&c.* The Patient be over-heated, or laid in a Sweat, to bring out the Pocks; many grievous Evils, and hazardous Symptoms may be excited thereby, which would not otherwiſe have happen'd.

FOR they may cauſe,

1. THAT a great Quantity of variolous Matter be aſſimilated.

2. THAT

2. THAT ſuch an Hurry of the Spirits, and Confuſion of the Blood may be cauſed, as will hinder the morboſe Particles from being extricated from the Maſs; and by that Means Expulſion (which this firſt Work ſhould make Way for) muſt be either imperfectly perform'd, or totally ſtopped.

THUS hath it been often obſerv'd, that the Puſtles could not be driven out by the higheſt Cordials, and powerfulleſt Sudorifics, till Bleeding; and a cooler Management had brought the Spirits to Quiet, and the Blood to Temper again:

FOR Concoction, Extrication, and Subaction, when they go on as they ſhould do, are mild and moderate, Nature requiring for theſe Operations a not much greater Degree of Heat, than that of Incubation upon Eggs.

3. THAT the Party, who commonly before the Act of Eruption is in utmoſt Anguiſh, may be overborne with Heat, and ſuffocated, or may be render'd ſo ſick and faint, that he hath not Spirits and Vigour enough left to force out the morbific Matter.

THIS, I am aſſured, hath been a frequent Caſe. I remember particularly, an only and very hopeful Son, of a good Family, thus fired out of the World, by the unhappy Tenderneſs, and blind Care of his Widow Mother.

4. THAT the Sick falling into profuſe Sweats, ſo much of the Lymph may run out at firſt by the Pores, that there will not be a ſufficient Penus left to ſupply Matter for the Growth and Maturation of the Puſtles, and the Tumeſcence of the Interſtices, Face and Hands.

5. THAT ſuch Particles and Humours may be forc'd out with the Sweats, as are neither adapted for Expulſion, nor

nor agreeable to the Nature of a variolous Pus; whence come intolerable Itching, Purple Spots, diſcoloured watery Pocks, Bliſters, and the like ominous Symptoms.

6. THAT ſo a large Quantity of the lymphatic Serum may be thrown out by Sweat, that the ferine Particles which were, till then, diluted by that Serum, and kept aſunder, may be conglomerated and cluſtered together, and ſuffered to rage furiouſly in the Maſs, without Controul, and ſo the Symptoms and Accidents may grow moſt cruel, fierce, and mortal.

7. THAT the Sick may be ſo haraſſed, tired, and broken, and loſe ſo many Spirits, that Nature muſt neceſſarily fail, and give out before the Diſtemper has run through all its Stages.

8. THAT the Fever and Fury may be ſo increaſed, as not only to corrupt the Blood, and deſtroy its Craſis, but alſo the very Tone of the Fibres, and Solid Parts of the Body, and particularly of the Cutis, and ſo hinder Expulſion; which cannot be perform'd well without a Sort of tonical Conſtriction of the Cutis, keeping the Pores from falling together, and cloſing up by too great Laxity and Weakneſs.

9. THAT the Fever being raiſed up higher than it ought, may force an Eruption to begin, before an univerſal Preparation be compleated, whence it muſt needs come to paſs, that ſome of the venomous Particles being driven out, when others are not rightly fitted for it, and therefore remain yet behind, the Fever and ill Symptoms cauſed by thoſe that ſo remain in the Blood, continue many Days after the Appearance of the firſt Puſtles.

10. THAT (which uſually happens) ſuch Corpuſcles may be extricated, as are no ways fit for Eruption; and theſe mixing with, entangling and confounding ſuch

others

others as are fit and juſt upon the Point of breaking out, turn them into Moleculæ of other Sizes and Shapes, which are diſproportionate to the Miliary Glands and Pores, and by that Means fruſtrate Expulſion.

11. THAT the variolous Matter may be bred in great Quantity, and be puſhed out in ſuch Plenty, and ſo thick, as to run together in Cluſters and Bliſters, and bring forth a terrible Flux.

12. THAT the hot infected and inflam'd Blood being rapidly hurry'd on, may break in upon the Brain, and put the Animal Spirits into great Diſorders, and produce Watching, Coma, Frenzy, Convulſions, *&c.*

OR falling cruelly into other Parts, may cauſe Peripneumony, Hæmoptyſis, Diarrhæa, Dyſentery, Strangury, bloody Urine, *&c.* all which are mortal, or ſeldom otherwiſe.

13. THAT the violent Exagitation and Ebullition may make the morbific Matter exceſſively acrid and corroſive; and alſo may ſo boil it into the internal Subſtance of the Blood, as to render the ſecond Fever highly venomous and unmanageable.

14. THAT it may break the Globules in general into their minuteſt Atoms, tear aſunder the ſanguineous Fibrillæ, deſtroy the whole Contexture of the Blood, and produce Scarlet Effuſions, Purple, Black, or Blue Spots, bloody Urine, *&c.*

ALL theſe, and perhaps many more Miſchiefs may eaſily be the Effects of a too hot Regimen: And the greateſt Part of thoſe that dye in the Small-Pox are ruin'd this Way. And there is no Phyſician indifferently verſed in this Diſeaſe, but knows of many murder'd by this ſame well-meant, but ill-imploy'd Care.

THIS over hot Regimen is pernicious moſtly to ſtrong vigorous young Men, to ſuch as have a Plenty of rich Blood, and ſparkling lively Spirits; eſpecially to ſuch as uſing to live freely, have inflam'd themſelves with drinking, ſurfeiting, and gormandizing, and ſuch as have weak Lungs, or infirm Viſcera.

IT is of bad Conſequence, if the Conſtitution of the Air cauſe the Small-Pox to be epidemic, and of an anomalous Sort.

IT is worſe in the Flux, than Diſtinct Kind; in the Spring and Summer, than in Winter and cold Weather.

IT is not ſo miſchievous, if the Party be old; be of a cold Conſtitution; hath been accuſtom'd to much Cloaths, both Up and in Bed; if he hath been let Blood and Purg'd before Eruption; if the Fever run not high.

SUCH new Things daily ariſe in Practice, that a Phyſician commonly finds it abſolutely neceſſary to break general Rules, and ſuit his Advice to the particular Caſe.

THOUGH cool Medicines and Regimen are, for the moſt Part, to be uſed in a Fluxing Small-Pox, yet ſometimes the contrary may be neceſſary.

I was with a Gentleman, who lay ſick of a Confluent Sort; the ſixth Day (or thereabouts) I found his Face, both Puſtles and Interſtices, look'd not pale, but quite white; his very Viſage was frightfully altered, and it look'd juſt like a dead Face; his Pulſe alſo fail'd much.

I conſider'd he uſed to drink a pretty deal of Wine, though never to any great Exceſs; therefore I gave him preſently a good Glaſs of ſtrong Port-Wine; upon which his Colour, Countenance, Vigour and Pulſe all grew better;

better; and I order'd a Glaſs or two of the ſame every Day after, till he grew well.

SOMETIMES we meet with a Thing ſo exceedingly ſtrange, ſo like a Miracle, that we are almoſt tempted to believe the common Laws of Nature were ſuſpended purpoſely to bring it about.

THE following Account was ſent me by my much-eſteemed Friend Mr. *Greſt*, Apothecary at *Bath*: I know not what to judge of it, becauſe I ſaw not the Caſe; but tho' the Practice ſucceeded well, yet I ſuppoſe ſcarce any one that uſeth prudent Conſideration, and Caution, will dare to imitate ſo mad a Practice.

ABOUT the Year 1716, Biſhop *Hooper*'s Grandſon, fifteen Years old, fell ſick of the Small-Pox at *Bath*; Dr. *Betteſon* (who liv'd there) found him, at the Time of Eruption, in all Appearance, expiring.

UPON this he ply'd him with ſtale Strong-Beer, Mountain-Wine, and Brandy: He drank plentifully of theſe Liquors twelve Days or more: He took a Bumper every half Hour, when he was awake.

I conceive it is meant a Bumper of Beer, and Wine only, and not of Brandy: And it is likely he took it not ſo often after the firſt Day, otherwiſe he muſt have lain ſo long in a continued State of Drunkenneſs.

HE recover'd; as alſo did two of the Lord *Paulet*'s Sons, and two of his Servants. But by this Method ſome dyed.

PARTICULARS *of* REGIMEN.

THEY are the little Matters of Common Life that we all live by; therefore if I deſcend to ſuch Particulars, as ſome may ſcornfully call Trifles, I am ſure, if they be of real Uſe to Nurſes and Tenders, I have no Reaſon to be aſham'd of ſetting them down; for, as one ſaith, *Ille in Morborum Scientia plurimum profecit, qui ne minima quidem contempſit:* He hath made a good Progreſs in the Science of Phyſick, that hath learned not to deſpiſe even the minuteſt Matters.

THE Chamber ought to be ſo ſituated, that if the Sickneſs happen in Summer, it let not in too much Heat and Light; nor in Winter, the Eaſt or North Wind and Cold.

IT ſhould not be Noiſy; wherefore the Locks, Bolts, Hinges and Door ought to be oiled and made go without Squeaking.

IT ſhould not be little and ſtifling, but large enough (eſpecially in hot Weather) for free Breathing.

THE Chimney muſt carry up Smoak well. Turf is a bad Firing, and Charcoal very pernicious.

HEIDE gives a Relation (*Obſ.* 51.) of a Girl, who tho' the Fever and Small-Pox were moderate, and as well as need be, yet fell frequently into fainting Fits, which they ſaw no Reaſon for; but at length diſcover'd, that the burning of Sea-Coals in the Room cauſed it.

IT is good to hang up before the Windows Green Cloth, to ſhut out Light and Wind; which is to be ſo done that it may be turn'd back to let in freſh Air whenever it is found needful.

MANY

MANY times it is hurtful to keep the Curtains close drawn, because they pen up the Air, and cause the Sick to breathe nothing but his own variolous Breath: If the Sick use in time of Health to lie with Curtains drawn about him, yet the Feet-Curtains may be left open.

THE Bed should be (especially in Summer-time) large enough for the Sick to turn about in.

IT should not be so soft, as to let the Sick sink down into it, and over-heat him; nor yet so hard, as to wring him, and hinder Rest.

IT were good to lay a Blanket (or much rather a Quilt) upon the Bed under the lower Sheet, which would keep it smooth, and hinder the Feathers from getting into Lumps, and the Sick from sinking in deep.

IF he be at any time oppressed with a Weight of Cloaths, or too hot in Bed, some of the Cloaths should be warily rolled off to the other Side of the Bed; and when he perceiveth any Want of them, drawn over him again.

BUT no fresh Garments are to be cast on the Bed, but those only which were laid off, or at least such as come off from a Bed that is constantly lain in.

I hold it a good Course, when Eruption begins, to put on Linen Gloves, Waistcoat and Drawers, all of Linen, and lie with them on all the while he keepeth his Bed.

FOR so if at any Time he kick off the Bed-cloaths, the Air cannot come immediately to his Body: And this Constancy of Habit will help to preserve a steady Degree of Warmth; which seems a considerable Matter in this Case.

BUT let him wear no Flannel or Cotton, or Woollen next his Skin, except Flannel-Stockens, to be after spoken of),

of) left when the Puſtles come to break, and ulcerate, and run, it may fret and gall him.

HIS Shirt, tho' it be fouled with ulcerous Matter never ſo much, is not to be changed in the Confluent Sort, before the fourteenth Day, or till the Scabs be pretty well dry'd up, leſt by the Freſhneſs of the Linen, the Venom which hath not quite done ſteaming out yet, be ſtricken in again.

AND tho' the Shirt be moiſt with Sweat, it is ſafeſt to let it dry again on his Body.

AS for the Naſtineſs and Stench cauſed by purulent Matter, it was never yet obſerv'd to do the Sick any Harm.

AT laſt, when his Shirt is chang'd, it will be convenient that one be put on that ſome other Perſon hath worn two or three Days, till the ſoapy Smell and Freſhneſs be gone off.

LET not his Head be kept too hot with a thick Cap, for that uſually cauſeth the Pocks to be thrown out plentifully in the Head, Face, Eyes and Throat, and many times injureth even the Brain itſelf, hindring Sleep, and producing Delirium.

HIS Head may not be hard bound with his Cap, but muſt be left looſe and eaſy; for it hath been noted, that the Puſtles which come out under ſtrait Bandage, are always very broad and flat, and being hinder'd in their Growth, many times become ſo ulcerous as to leave ill-favour'd Marks upon the Fore-head.

AND, beſides this, there muſt be Room left for the Head to ſwell at the latter End of the Sickneſs: Therefore it is good to put on ſuch a Cap as is a great deal too big at firſt, and pin it to a fit Size; and ſo when the Head cometh to ſwell,

ſwell, it may be eaſily let out proportionably, and there be no need of a freſh one.

I would have no kind of Stay put to his Throat, till the Time of Eruption be over, or till Salivation ariſe: For, I am well aſſured, that keeping it hot bringeth abundance of variolous Matter and Puſtles into his inward Parts, which are grievouſly troubleſome at the End of Salivation, and frequently very dangerous.

IF he have any Rings on, let them be pulled off in time, leſt after his Fingers come to ſwell, they may be too ſtrait, and cannot be gotten off without a File.

BUT if the Rings were forgot, and muſt be filed off, it would be a convenient Artifice to ſlit a Gooſe-Quill, and having ſpread it flat open, to ſlip it in between the Ring and Fleſh; ſo may the File be uſed without hurting the Finger.

IF his Brain ſeem much affected, and his Sleep be ſhort and unquiet, I have thought, it will not be ſo well for him to lie much on his Back in Bed, becauſe that Poſture may make ſome Preſſure on the deſcendant *Vena Cava*, and ſo be ſome Hinderance to the Current of the Blood down out of the Brain.

ALSO if his Back heat, and ake much; or there be any Sharpneſs, or Stoppage of Urine; or the Menſes break down, lying on the Back will be apt to increaſe them.

LET him be kept as eaſy in all Reſpects as poſſible, and free from all Diſquiets and Perturbations of Mind, from Care, Fear, Sadneſs, Anger, *&c.*

WHEREFORE at firſt, let him uſe proper Means to make his Conſcience his Friend: And then let him make his Will, and ſet his Affairs in ſuch Order as he can to his own Satisfaction, that he may have nothing of Worldly Matters

Matters to trouble him, while he is conflicting with the Violence of his Diſtemper.

LET him hear of no ill Accidents, or of the Death of any one; let nobody come at him, that will expreſs Fear, or ſhew great Concern ſo as to make him miſ-doubt himſelf; let there be no Whiſpering about him that may give him Suſpicions, nor any Sighing or Weeping in his Chamber, nor any Thing that may in any wiſe foment his Jealouſies and Fears, and depreſs his Spirits.

IN a Word, let him be kept conſtantly chearful and hopeful; let him be in all Things as little diſturb'd, and as much humour'd as poſſibly may be with Safety and Prudence.

YET I have ſeen ſome, whom it was expedient to keep a little fearful, for thereby they were brought under Rule, and made willing and careful to obſerve the Phyſician's Orders.

BUT, in general, let him not be thwarted and croſs'd in Things that are not manifeſtly hurtful; for if the Spirits be driven into Fury, they will never perform Nature's Work as they ſhould.

ABOUT the Year 1671, when I was a Student at *Cambridge*, a Maſter of Art of *Peterhouſe*, or *Pembroke-hall* (my Memory telleth me not now which it was) being delirious in the Small-Pox, moſt earneſtly longed to have Univerſity Muſick in his Chamber, and cry'd out for it Night and Day; and being deny'd it, grew outragiouſly mad.

WHEN they ſaw he was in no wiſe to be pacify'd without it, they yielded to him; and immediately as ſoon as ever the Muſick ſtruck up, contrary to the Caſe of Tarantulated Perſons, where it ſets all their Spirits that were at Quiet before, a Tripudiating; here it ſo compos'd his

his raging Spirits into a Tranquillity, that he ſoon dropt into a ſweet and long Sleep; waked again perfectly ſenſible, and from that Time gradually recover'd.

THE Body muſt be defended from the Injuries of the Cold, and yet not kept extreamly hot. Dr. *S.* ſaith, ſuch a Degree of Warmth as is natural and agreeable to the Temper of the fleſhy Parts, is the moſt commodious for promoting of Expulſion; and if it be more or leſs than that, it is on both Sides dangerous, and is to be reduced to that Standard.

IF it be the hot Summer Seaſon, and the Diſeaſe promiſeth to be mild, he ſees not why we ſhould keep the Sick continually in Bed and cloſe covered, but rather adviſeth them to riſe ſometimes, every Day at firſt, provided only that Care be taken to ſecure them from too much either Cold or Heat.

THUS the Diſtemper uſeth to paſs over with leſs Trouble, and in leſs Time than when they are confin'd altogether to their Beds.

FOR, a conſtant cloſe Confinement doth not only add to the Tediouſneſs of the Sickneſs, but alſo augmenteth the Fury of the Fever; produceth a vaſt Quantity of variolous Matter; hindereth it from being extricated; either ſuppreſſeth Eruption, or throweth out the Puſtles inordinately; produceth a Flux and Second Fever; cauſeth ſometimes Purple Spots and Suffuſions, bloody Urine, *&c.* And laſtly, fruſtrateth the good Effects of Paregorics.

HE believes, that though it be not abſolutely neceſſary in the Diſtinct and Mild Sort, that the Patient be kept out of his Bed at all; yet then alſo it may be better to keep him up in his Chamber in the Day-time, and let him go to Bed at Night only, till Eruption begin.

IN the Confluent Sort, he permitteth not a conſtant Confinement to Bed, till the Pocks are all come out, except in Caſes where the Sick cannot poſſibly ſit up.

BEYOND all this, he telleth us, it is not enough only to keep the Sick out of Bed the firſt Days of the Sickneſs, but alſo ſometimes it is neceſſary to expoſe him even to the open Air, namely, in an extream ſultry Seaſon, if the Patient be a luſty, ſtout young Man; be of an hot Conſtitution; hath accuſtom'd himſelf to hot ſpirituous Liquors, eſpecially if the Diſtemper came upon a drunken Debauch, and he hath not been let Blood: For in theſe Caſes, he thinks the precipitous Eruption cannot be ſufficiently reſtrain'd by barely abſtaining from Bed, and forbearing the Abuſe of hot Cordials.

BUT when he is forc'd to let them lie wholly in Bed, he gives ſtrict Orders, that they be not cover'd hotter than they uſed to be in Time of Health; and that there be no Fire in their Chamber, unleſs in cold Weather.

NEITHER doth he exact of them to lie always in the ſame Place of the Bed, leſt immoderate Sweats ſhould break out; which he doth experimentally know, and therefore doth ſtrenuouſly aver, cannot be promoted without utmoſt Danger.

BUT common Prejudice, and inveterate Cuſtom will hardly allow of ſuch Practices; and the ignorant malevolent Vulgar, that barks, as Curs do, at unuſual Things, have clamour'd him for it.

NOW, to take off from this great and meritorious Man the Odium of Novelty, I ſhall tranſcribe the following Paſſage out of *Ranchinas*, p. 271.

Notandum autem in quibuſdam caſibus, ſecundum Arabes Refrigerandum eſſe Aerem.

Primus

Primus eſt, cum nimiùm tecti, & coöperti Ægri ſuffocantur, & in Lipothymiam incidunt (*ex* Avicen. Fen. 1. Can. 4. Tract. 4. Cap. 10.) *tunc Aeri frigido, vento etiàm, paulatìm tamen, Ægri exponendi.*

Alter eſt, ſi dum erumpunt Variolæ, non ſubleventur Ægri; ſed perſeveret, vel augeatur Inflammatio interna; & Lingua nigreſcat: Tunc cavendum eſt à Calefactione Aeris: Frigidus, & ſuffitu quodum Cordiali alteratus eſt imperandus.

WHEN the Sick is almoſt ſuffocated, and overcome with too much Cloaths and Heat, *Avicenna* adviſeth to expoſe him to the cold Air, and even to the Wind: I ſuppoſe he means at an open Caſement.

AND, in Eruption, if the Sick be not eaſed thereby, and the internal Burning perſevere, or increaſe, he orders cold Air, and Air medicated with ſome Sort of Perfume; by which, perhaps, he might mean, that ſweet freſh Herbs ſhould be ſtrew'd about in the Chamber.

Of a PLETHORA.

IT is of two Sorts, the Vera, and Notha; the True, and Baſtard.

The TRUE.

I Take this to be that which our former Phyſicians underſtood by *Plethora ad Vires.*

IT is ſuch a Redundancy, and Throng of Blood, that it cannot well be contained, circulated, renewed, and depurated.

IT makes ſuch Strangulations, and Stoppages in the Capillaries, that neither the Vital nor Animal Functions can be commodiouſly perform'd.

IT over-filleth, and burtheneth the Heart, Lungs, Blood-Veſſels, and Viſcera, ſo as to cauſe depreſſed and ſlow Pulſe; difficult and ſhort Breathing; ſwelling of the Veins; Redneſs of the Face, and Fleſh; various Obſtructions, (eſpecially if the Blood be fizy) Fluſhings; Inflammations; Fevers; Hæmorrhagies; Sleepineſs; Sluggiſhneſs; Laſſitude, *&c.*

THIS is divided into Sanguineous, and Cacochymic.

IN the firſt, the Blood is laudable, and offends in nothing but Quantity; and then Bleeding only is indicated, without Purging.

IN the ſecond, it offends in Quality as well as Quantity; and in that Caſe, Bleeding and Purging are both requiſite, for Bleeding alone will not carry off Cacochymic Humours, nor will Purging diminiſh the Fulneſs of Blood.

Of the BASTARD PLETHORA.

I Take this to be what is meant in Books by *Plethora ad Vaſa*, and is properly nothing but Effervescence and Rarefaction.

THO' the Blood be not redundant, yet if it be filled with heterogeneous Matter, and be put into exorbitant Motion, it will fall into ſuch Luctations, Ebullitions, and Rarefactions, that it can ſcarcely be contain'd in the Veſſels and fiſtulary Parts of the Body.

FOR when there are confuſedly mixed and complicated in the Maſs, many Corpuſcles of differing Sorts, as long,

long, ſhort, obtuſe, ſharp, round, ſquare, multangular, *&c.* foraſmuch as by reaſon of the Diſcrepance of their Figures, they cannot join Side by Side in cloſe Order, but only touch in Points, of Neceſſity they muſt keep Diſtances, and include many Spaces, and ſo have their ſuperficial Quantity increaſed.

BUT if moreover, thoſe Corpuſcles be put into inordinate Motion, they will yet further expand, and ſwell, and ſtretch, and diſtend the Veſſels.

THAT geat internal Agitations alone, without irregular Mixtures, may be ſufficient to cauſe Rarefaction, and Increaſe of Quantity, appeareth plainly by this.

HANG a Kettle of fair Water over the Fire; while it is cold, and quiet, it fills the Veſſel no more than half full, but when the Atoms of Fire (like the Vital Spirits in the Blood) get in among it, and exagitate its Particles, and make it boil, it will rarefy and ſwell, and riſe up even to the Brims of the Veſſel.

BUT the more the Blood is replete with heterogeneous Contents, the more it will boil and rarefy.

THUS, if the Water in the Kettle be foul and muddy, the fiercer it will boil, and the more it will rarefy and will run out; whereas the fair Water would not riſe above the Top of the Veſſel.

TO bring all this to our Subject of a Plethora Notha:

THO' the Maſs of Blood be not more in Quantity than the Capacity of the Veſſels may conveniently receive, when there is no Fever, yet when it is replete with heterogeneous Matter (either bred in, or brought into the Maſs) that hinders the kindly Mication of the Spirits, ſtrikes them out of their Way, and irritates them, they vehemently expand themſelves, and flying into outragious Orgaſms,

Orgaſms, exagitate the Globules, kindle them up into a Flame, and excite ſuch a Combuſtion and Commotion, as by altering the Poſitions of the Sides, Angles, and Points of the Particles, make the whole Maſs liquify, effervesce, boil, rarefy, and ſwell up ſo as that it can ſcarce be kept within the ſanguiferous Veſſels.

THE Plethora Vera is to be known from the Notha by this; that whereas the former is conſtant, and (unleſs Cauſes happen) remains the ſame, without Increaſe or Diminution;

THE latter is only temporary; never cometh without a Fever, and when that Fever ceaſeth, it certainly ſinks away again.

IT very often requireth no Bleeding at all, as above is ſaid, eſpecially in the following Caſes:

1. IF the febrile Matter be not ſo much entangled in the Blood but that it may be certainly thrown out by orderly Paroxyſms, (as it is in intermitting Caſes) ſuch a Plethora will ſink into a due Dimenſum of its own accord, when the Fit goeth off, and the whole Maſs will then be conveniently contain'd in its Veſſels, and therefore there will be no Need of taking away Blood, to leſſen its Quantity.

2. IF the Fever be cauſed, or accompany'd with ſuch Matter, as hath ſomething of a malignant Nature, yet if it be in a Way of Concoction, and is likely to ſuffer Expulſion, (which is the Caſe of Eruptive Fevers) and no Inflammation, or perillous Symptoms appear, let the Veins look never ſo full, they want no Depletion by Venæſection; and if Blood ſhould be drawn, there might be danger of the Malignity's getting an Advantage of the Spirits, and ruining of the Blood.

3. BUT

3. BUT if the Matter be of ſo virulent a Sort, as to break the Globules all to pieces, diſſolve the Contexture of the Maſs, deſtroy the vital Functions, and animal Oeconomy, (as it is in ſome anomalous petechial Fevers, and the Bleeding Small-Pox) Phlebotomy cannot poſſibly do any good, but will weaken Nature, and haſten Death, and diſgrace the Phyſician.

LETTING *of* BLOOD.

IT muſt not be adviſed but with the utmoſt Caution and Diſcretion, partly becauſe, if Succeſs follow not, it may afford Matter of Scandal, eſpecially if the Party's Friends, or Nurſes were much averſe to it; but chiefly becauſe it may be really pernicious.

Ill EFFECTS, *and* CONSEQUENCES *of* LETTING BLOOD.

1. IT may give ſuch a Check to the neceſſary growing Fever, as to hinder Nature in her Work of Extrication, and confound and mix again the morbific Matter, and blend it in with the Subſtance of the Maſs, after it was in a fair Way of Separation.

AND therefore, if the Febrile Ebullition riſe not ſo high as to produce dangerous Symptoms in the two firſt Days of the Stage of Concoction, whilſt the Work of Extrication is in Hand, Phlebotomy may commonly be omitted; for, in the two laſt Days of Concoction, when Subaction is a managing, if the Fever do grow to be pretty ſmart, it need not, for its own ſake (where other Indications happen not) be lowered by Bleeding, by reaſon, it is a neceſſary Inſtrument of Nature that ſhe makes uſe of to promote Expulſion.

2. WHERE

2. WHERE there is a great Degree of Virosity and Putrefaction, Bleeding may depress the Spirits, and take off the Spring of the Cutis, and weaken the Blood, so as to render them unable, in the Progress of the Sickness, afterwards to encounter the Enemy, struggle with the Venom, and throw it off; therefore, whensoever the epidemic current Constitution appears to be of an anomalous, virulent, and venomous Kind, a Physician had need to carry himself very circumspectly in prescribing it.

3. IT may so lessen the Mass, and empty the Vessels, that they losing their Plumpness, and Springiness, become unable to send vigorously forth at first the morbose Matter, and, in after-Stages, Serum, and Effluvia, to rear and keep up the Pustles, maintain the Swellings, and bring on Maturation: Therefore, where there is not a pretty plain Plethora Vera, the Physician ought to deliberate well before he ordereth Venæsection.

YET we must not, by avoiding one Extream, run into its Contrary; from audacious Temerity, to unreasonable Timidity, and so debar ourselves of so noble a Remedy, when a Man's Life may be lost by it: For it hath sometimes admirable good Effects, and, in some Cases, is indispensably necessary.

The BENEFITS *of* LETTING BLOOD *are these*:

1. IT may bring good Assistance to struggling Nature in her Work of Concoction and Expulsion, by taking away the Burthen of a Plethora, and making Room in the Vessels, which were before so crouded up and full, as not to permit regular Ebullition and Extrication in them.

IT

IT is a Matter of melancholy Conſideration, to think how very many gallant, ſtrong, vigorous, young Men die of the Small-Pox, upon the Account of Fulneſs of rich Blood, and Vigour of Spirits, together with hot Regimen and Cordials; which, when the Blood was on fire before, make it, as it were, perfectly flame out, and deſtroy all before it.

IF ſuch were very plentifully let Blood, to make Room in the Veſſels, and to abate the Ebullition, many of them might be ſav'd.

2. ANOTHER Benefit of Bleeding is, that it may prevent ſome of the ill Conſequences of a too hot Regimen, if it be foreſeen, that the Authority and Prohibition of the Phyſician cannot hinder it.

3. IT may qualify the Orgaſm of the Spirits and Blood, ſo as to moderate the Fever, and either prevent a confluent Pox, or render it mild; and may be of ſignal Uſe where the Fever fluſheth up to an extream Height at the Beginning of the Stage of Concoction, if there then be intolerable Pains, very ſick, Vomiting, Shortneſs of Breath, Reſtleſſneſs, want of Sleep, Delirium.

BUT if ſuch-like Symptoms happen not before the two laſt Days of Concoction, juſt upon the Puſh of Eruption, it ſeems not adviſeable to check Nature, when ſhe is making an Effort to drive out her Enemy by way of Criſis.

BUT if they happen before that Time, and continue not beyond the two firſt Days of Concoction, Phlebotomy may come in very ſeaſonably.

4. IT may procure that Paregorics, when needful, may have their deſir'd Effects of quieting the Spirits.

AT the Time when Nature is intent upon, and labouring in the Work of Concoction, if Bleeding be then judg'd needful, perhaps it may be moſt adviſeable to do it in the Foot; or if in the Arm, (as I apprehend the Matter) it will not be beſt to open a large Orifice, and take away apace a great Quantity of Blood at once, and perhaps cauſe a fainting Fit; for the Buſineſs here, is not (as in particular Inflammations) to make a powerful Revulſion or Derivation from a particular Part, but to diminiſh the Quantity of the Blood in general; and therefore I ſhould like it better to bleed at Leiſure, a little at a time, ſeveral times, till I have took away enough.

TO this Purpoſe, I would let out not above two or three Ounces the firſt Time, and an Hour or two after as much; and ſo onwards, till I had got the Quantity I propos'd.

THUS I ſhould draw off the Plethora, preſerve the Spirits, and keep up that Vigour of Nature, which perhaps may be wanted the laſt Days of the Diſeaſe.

PERSONS *not fit for* BLEEDING.

THOSE that are very young, or very old; thoſe that are of a weakly, or worn-out and decay'd Conſtitution; that are Cachectic, Conſumptive, Hydropic, Hyſteric; that have low Spirits, and poor Blood; ſuch as are apt to ſweat, or uſe to faint in Bleeding; or ſuch as look for the Menſes in a little Time.

PERSONS *fit for* BLEEDING.

LUSTY, ſtrong, vigorous young Men, that are well habited; ſuch as are at other Times apt to Inflammatory Diſtempers, Spitting of Blood, Fevers, Aſthma; ſuch as have liv'd high, bred much Blood, and have lately inflamed it; ſuch as have been uſed to let Blood frequently, and drawn upon themſelves a Neceſſity of uſing it often; ſuch as have any natural and uſual Evacuation of Blood ſtopp'd.

As to the TIME.

IT may be ventur'd on with the more Boldneſs in the Spring and Autumn; eſpecially if the preſent Epidemical Conſtitution of the Seaſon ſeem to require it; and it hath ſucceeded well with others.

IF both Bleeding and Vomiting be judg'd neceſſary, it is the ſafeſt Way to uſe Bleeding firſt; for hard ſtraining, when the Veſſels are full, may cauſe Extravaſations, or perhaps Ruptures of the Veſſels.

WITHOUT all Controverſy, the ſooner Phlebotomy is adminiſtred, the better; therefore, if it be fear'd any one is about to have the Small-Pox, and it be judg'd he ought to bleed, 'twill be beſt to do it before he yet complains, or elſe upon the very firſt Perceivance of Diſorder.

SOME have ventured upon it in the very Act of Eruption, or a Day or two, or even any time after.

BUT as to myſelf, I am almoſt aſham'd to confeſs my want of Courage in this Matter; for I am fearful of Bleeding when Suba&tion is begun, leſt it ſhould not only

make confus'd Work of it in the Blood, that is now upon the very Act of Separation; but alſo damp the Fever, which (where there is much Matter) is neceſſary for Expulſion.

Of the CHOICE *of* VEINS.

IN peſtiferous Fevers, letting Blood in the Foot is recommended by *Galen*, and antient Fathers in Phyſic, as a moſt ſafe and moſt uſeful Practice.

ZACUT. Luſit. Prax. admir. Obſ. 45. ſaith thus: *Infinitos propemodùm Peſtiferis, & Maleficentiſſimis Febribus decumbentes curavi, Plures ſectâ Saphenâ, aut Scarificatis Cruribus evasêre, quàm qui in initio morbi Baſilica ſciſſâ; nam ex illâ parte celebrata vacuatio Plenitudinem levat, citra multum Virium Diſpendium.*

HE hath attended almoſt an infinite Number of Perſons in peſtilent Fevers, and obſerv'd more Recoveries from opening the Saphena, than Baſilica; becauſe it evacuates without weakening.

HE ſaith there is an elegant Hiſtory concerning this Matter in *Oribaſius, L.* 7. *Collect. cap.* 20.

Of EMETICS.

THEY are forbidden where Perſons vomit hardly, with very great Strainings and Sickneſs; as alſo in Hypochondriac, Hyſteric, Conſumptive, and Hæmophic Caſes.

I like them not well when they pump up Choler from the Guts, and evacuate yellow, green, bitter Matter, that ſhould have gone downwards; for ſuch Vomiting cauſeth

cauſeth great Sickneſs and Anguiſh; and ſometimes, when it is once ſet a going, is not eaſily ſtopped; and (as I apprehend) doth no great Good neither.

FOR perhaps the Bile ſerves more for the Separation of the liquid Part of the Chyle, from the thicker Maſs or Batter that cometh out of the Stomach into the Duodenum, and for the Expulſion of Excrements through the Tract of the Inteſtines, than for any Uſe of ſeaſoning, altering, depurating of any other Thing whatſoever in the Maſs of Blood; and ſo the evacuating of it can ſignify but little in the Small-Pox, whoſe Seat and Operations are not in the Inteſtines, but in the Blood.

BUT they are of very good Uſe, where any Relicts of undigeſted Food, retain'd in the Plicæ of the Stomach till ſour, or otherwiſe deprav'd, make it uneaſy, and occaſion windy puffing up, Ructus, ill Taſte in the Mouth, Drowſineſs, Sickneſs, Nauſeouſneſs, Vomiting, *&c.* here an eaſy waſhing Vomit of Carduus Tea, may be well enough for this Purpoſe of cleanſing the Stomach, and throwing out of it ſuch Filth as lieth looſely in it.

BUT I muſt ſay, I like not of Oxymel and Oil mix'd into a Draught; becauſe it may be likely to take a Turn downward, and give ſuch a Laxity and Lubricity to the Inteſtines, as may produce a Looſeneſs.

BUT in Caſe clammy tough Phlegm, ſticking to the Villæ, will not be carry'd off with mere waſhing, then Oxymel of Squills, or Radix Ipecacoannæ, either alone or together, with two Grains of Turbith Minerale, may be made uſe of: But I muſt ſay, I am not very fond of Vitriolum Emeticum, it having a Sort of a cauſtic Quality, and a certain Viroſity, which ſometimes leaves an ill Impreſſion on the Stomach.

THUS

THUS far Emetics may be allowable; but if the Patient's Stomach was perfectly right and well before the Sickneſs attack'd him, and upon that he grew ſick, and fell a vomiting, without any thing taken that could cauſe it; and withal, if he brought up not much Foulneſs after the firſt Reach, and perceiv'd himſelf not at all reliev'd by it; then we may probably conclude, the Sickneſs and Vomiting were caus'd, not by any Matter congeſted in the Stomach, and there remaining, but by variolated Vapours and Serum brought into it by the Cœliac Arteries.

AND whenſoever it is ſo, I am poſitive, that the Matter being now in flux of its own Accord, Emetics will pump a great deal more of it into the Stomach, than would have come of itſelf, and ſo muſt needs increaſe the Sickneſs and Vomiting.

BUT this is not all; for it is to be much fear'd, that the Straining caus'd by Emetics, will ſo attract the Matter inward, as to fill the Throat, Oeſophagus, Ventricle, Inteſtines, and other Viſcera, with variolous Puſtles.

DR. *Hodges de Peſt. p.* 103. ſaith, *Chariſſimæ Patriæ Salus*; the Safety and Health of his deareſt Country and Poſterity, exact of him to lay open the ignorant and curſed Practice of Empirics of all Sorts, who, by giving Vomits to thoſe that were taken with Vomiting in the Plague, increas'd the Symptomatic Vomiting, and thereby downright murder'd many.

A parallel Caſe, I take to be that Vomiting which Women with Child are frequently troubled with, which is caus'd by deprav'd offenſive Humours or Vapours ſent into the Stomach out of the Blood, when the Stomach it ſelf is not primarily in Fault.

CERTAIN

CERTAIN Experience tells us ſuch Vomitings are uſually increas'd by Emetics, which draw more Matter inwards into the Stomach; but are very much help'd by Phlebotomy, which retracts it into the Blood Veſſels, or makes Room for its being retain'd in them.

THIS is a very conſiderable Thing in Practice; and for theſe Reaſons I declare I cannot come into it to preſcribe a Vomit in the Small-Pox, when there is Vomiting already, eſpecially near the Time of Eruption.

BUT when they are (upon the aboveſaid Reaſons) needful, the nearer the Time of Eruption is, ſo much the more gentle and mild the Emetics ought to be.

CONCERNING the giving of a Vomit in the latter End of the Sickneſs, when, after Salivation is gone off, the Patient is in Danger of being choak'd; ſee hereafter in due Place.

Of CATHARTICS.

WE muſt be very cautious in giving Purges to,

1. SUCH as are Hyſteric, and apt to have their Spirits diſſipated, dejected, and ſo diſorder'd, as to produce Fits, or other great Diſcompoſures.

2. SUCH as naturally have weak ſlippery Inteſtines, and uſed commonly, in their beſt Time of Health, to fall into Looſeneſſes and Gripings.

3. SUCH as cannot bear to have their Guts empty; and if they are much purged continue weak and faint, and recover not their Strength, Vigour, and Appetite, till ſome conſiderable Time of filling up again.

THE

THE Times for purging, are, 1. Before Eruption. 2. In the ſecond Fever. 3. After the ſecond Fever is gone off.

I. *Before* ERUPTION.

IF the Party, before taken with the Small-Pox, be well both in Stomach and Inteſtines, and in a good State of Health, commonly there is no need of purging at all.

BUT if he hath made himſelf groſs and full of Humours by eating, drinking, and Sloth; and alſo if his Inteſtines are full of hard Excrements, that have remain'd there for ſome time (for the Guts in time of Health never are, nor ever ſhould be quite empty):

IN theſe Caſes, exonerating the Inteſtines at firſt may be of very great Uſe to take away Impediments, and to give Nature fair Play.

AND alſo, ſince many times the Manner of the Small-Pox is ſuch, as totally to ſhut up the Belly during the whole Decumbiture; whereby the Excrements daily increaſing, may at length overſtuff the Guts, and cauſe great Anxieties; Purging at firſt may prevent this Inconvenience and Trouble.

BUT then I would have the Purges given timely enough; and, if it may be, before, or at leaſt at the very firſt Beginning of the Stage of Concoction, ſo that Nature may not be moleſted in her Work of Extrication and Subaction; and alſo, that there may be time for the Inteſtines to be repleniſh'd with a convenient Quantity of new freſh-made Excrements again; and that thoſe too be made of Vegetable Diet.

FOR

FOR I ſuſpect that thoſe from Fleſh, if retain'd too long in the Guts will corrupt into ſomething of a cadaverous Subſtance; which being abominable to living Nature, and becoming, in ſome Degree, as it were, venomous, may not only ferment there, and trouble the Bowels, but alſo ſend ſuch filthy odious Steams into the Blood and Habit, as will produce the worſt of Symptoms.

THAT Excrements from animal Food are carrioniſh, and more offenſive than from Vegetables, is plainly made out by Dogs, that ſtink abominably more when they have eat Fleſh, than when they have fed on ground Oats, or ſuch like Food.

PURGING muſt be (as before ſaid) timely; for if the Inteſtines be depleted ſo late as not to have Time to be moderately repleted again with freſh Contents before Eruption begin, they will be craving, (as the Stomach is when empty and hungry) and thereupon, ſuch an inward Weakneſs, Failing, and Faintneſs will ariſe, as to take away all the Vigour of the Spirits, and render them unable to drive out the Pocks at firſt into the Superficies, and the Serum and Steams afterwards into the Puſtles and Interſtices.

NOW, that the Inteſtines ought not to be empty, and famiſhed, plainly appeareth from wiſe and good Nature's Contrivance; for to preſerve inward Strength, and promote Diaphoreſis, in this Diſtemper, ſhe uſually ſhutteth up the Belly, and keeps the Guts full commonly twelve Days together, till there be no further Need of an extraordinary Diaphoreſis, and the Diſtemper hath run through all its Stages, or at leaſt till about the tenth Day.

WHERE it can ſo be, I would have all the Purging quite over and paſt, timely enough for the Body to come to an abſolute Quiet again, before Nature ſets upon the

Work of Concoction, to the End that ſhe may be fit, and in full Strength to go through with it.

ALSO I would have the Purging Medicine to be of the mild Kinds, which act only by way of Irritation in the firſt Paſſages, and go no further.

AS for the ſtronger and hotter Sorts, ſuch as Coloquintida, Gamandra, Scammony, Aloes, *&c.* which operate upon the Blood itſelf, and ſend into it acrid, fiery, ſeptic Particles, they ſeem not convenient, becauſe, whereas Nature is buſy in picking out and ſeparating the variolous Matter; if ſhe have theſe troubleſome Cathartic Particles alſo at the ſame Time upon her Hands, ſhe will not be ſo able to diſpatch both as ſhe would be one only, and ſo Concoction may be imperfectly perform'd.

AND beſides, if the Purge work ſtrongly, it may evacuate ſo much of the Lymphatic Serum, that there will be Want of it in the Progreſs of the Diſtemper to afford a Quantity of Matter neceſſary for the raiſing and keeping up of the Puſtles and Tumours.

Of EPISPASTICS.

IN the Small-Pox, beyond any other Sort of Fevers whatſoever, the Serum of the Blood is ſo acrid and provocative to the vital Spirits, that it never lets them reſt in Quiet, but continually drives them into Ataxies and Exploſions all the Diſtemper long, inſomuch, that it is found abſolutely neceſſary to charm and lay them from time to time with Paregorics, as well as to mollify the Serum with Incraſſants, and correct it with Acids.

THUS the variolous Fevers begin with Pains in the Meninges, Medulla Spinalis, and nervous Parts; cauſe Watching,

Watching, turbulent Sleep, Twitching of the Tendons, Head and Back-ach, Delirium.

AND the Miſchief ends not here neither; for this Sharpneſs of Serum, and Fury of Spirits puts the Globuli into a Flame, breaks them into their Minima, diſſolves the Contexture of the Maſs, and (when it cannot be help'd by Nature, or Art) deſtroys all the Functions, both vital and animal.

AND every one knows, that even the outward Application of Cantharides doth ſo ſharpen the Serum, as to cauſe Scalding of Urine, Strangury, Eroſion of the Bladder, bloody Urine, and ſometimes, ſaith Dr. *Willis*, a Dyſentery.

AND beſides all this, the Evacuation by them made is wholly of the precious Lymph; which, in all likelihood, will be dearly wanted at the latter End of the Diſtemper, and ſhould be preſerv'd.

FROM theſe Conſiderations, I am of Opinion, that Epiſpaſtics, during the Stages of Concoction and Eruption, are poſitively hurtful: And I wonder what thoſe Phyſicians can aim at, and what they expect from them that preſcribe them in this Time of Hurry, which inſtead of continuing and increaſing, they ſhould quiet, by pacifying the Spirits, and mollifying the Serum, and ſo take off the Troubles and Hindrances from Nature's Hand, that ſhe may eaſily and freely work and go on with her Operations.

AND whenever Epiſpaſtics come in uſe, Emulſions, Incraſſants or Acids ought to be given to take off their Malignity and Cauſticity.

BUT though I diſlike Epiſpaſtics, and utterly forbid them in the firſt Fever, yet in the ſecond all is alter'd; and if that runneth high, and threatneth Danger to the animal Functions, I judge them to be of ſuch abſolute Neceſſity, that they muſt in no wiſe be omitted.

FOR now the Caſe is ſuch, that the Ichor in the Blood being turned into Pus, the Acrimony of the variolous Matter blunted and chang'd into a cadaverous Sort of Subſtance, which is like to poiſon the Blood, and overcome the Spirits; then Epiſpaſtics are of very great Uſe to rouſe and give them new Vigour and Force, whereby to bear up againſt the Malignity, to ſtrike off the putrefy'd Copulæ, and drive it out.

THEREFORE, when the Second Fever is like to be bad and dangerous at the End of Augmentation, (or the eighth Day after Eruption began) I would apply a large Bliſter (which creates no more Pain than a little one) *inter Scapulas.*

FOR, when apply'd to that Place, (beſides the general Uſe of rouſing the languid Spirits) it makes an Evacuation immediately from the Medulla Spinalis, and ſo from the Brain, and particularly from the Cerebellum; which to me ſeems a much more conſiderable animal Part than the Brain itſelf.

THE ninth Day, two may be apply'd to the Arms; the tenth, two more to the Ancles: And thus, by theſe ſucceſſive Applications, we may increaſe and continue a full Force of their Operation till the Fire of the Fever goeth out, and the Diſtemper endeth, which is commonly on the twelfth Day.

IF, notwithſtanding all theſe Bliſters, the Spirits in theſe Days ſeem to ſink and give out, we ought not to be content with theſe plain Epiſpaſtics, but, by way of bringing Auxiliary Forces to the Cantharides, join with them ſuch hot potential Cauſtics as have a Faculty, not only of bliſtering, but inflaming alſo, and exciting Pain in the Part.

THE Niceneſs (and perhaps the Ignorance of the *Materia Medica*) of the preſent Age hath left all theſe out of their

their Epiſpaſtic Plaiſters: But in a former Edition of the *London* Diſpenſatory, their Plaiſter contains in it *Sem. Sinap. Euphorb. Pip. long. Sem. Staph. agr. Rad. Pyreth.*

Catapl. Apoplect. Bateanum is to this Purpoſe.

BUT more of theſe hereafter, when I come to ſpeak of the Second Fever.

Of PAREGORICS.

THERE was an Age when Phyſicians were ſo terribly afraid of Opium, and all its Preparations, and Compoſitions, that they almoſt flung them out of the Shops, till *Platerus* brought them full in again.

SOME of our former Phyſicians abſolutely forbad them in the Small-Pox; and that, perhaps, partly, becauſe

THEY look'd upon this Diſtemper to be caus'd by a certain Malignity; and all Malignity being hoſtile to the Spirits, they thought it male Practice to give any Medicines of this Kind, which might bind up, depreſs, or make them unable to combate, and expel the ſaid Malignity.

PARTLY becauſe they look'd upon Expulſion to be a Criſis, and Opium to be a cold Thing, almoſt to the Degree of Poiſon, and believ'd it would quite ſtop it:

AND partly becauſe they were got into a Conceit, that Malignity in the Time of Sleep retires to the Heart.

UPON theſe, and the like Conſiderations and Miſtakes, many were fearful of indulging Sleep; and particularly *Riverius* himſelf, *Lib.* xvii. *Cap.* 2. ſaith, Sleep ought to be moderate thro' the whole Courſe of the Diſeaſe; but in the Augment, when the Puſtles are broke forth, much Sleep is noxious, and it is better to continue much awake.

BUT Dr. *Sydenham*, who built his Practice not upon others Fancies and Opinions, but upon his own Obſervations and Reaſons, introduc'd them into the Cure of the Small-Pox.

AND this was ſo great a Benefit, that if he had never done any thing in Phyſick, but this alone, he would well have deſerv'd a Statue of everlaſting Memory.

I am not for under-doſing of it, nor for dividing a Doſe, and giving it at ſeveral Times, except in a Caſe hereafter to be mention'd, for that will but deceive the Phyſician, and not produce the deſir'd Effect: A ſmaller Doſe may be begun with, and increaſed afterwards, according as it fits the Patient; and when the proper Doſe is once found out, that is to be a Standard, till the Caſe requires a larger.

CAUTION is to be uſed in the giving of it to Children; and to ſuch as at other Times could never bear it; but I have ſeldom met with any that could not take it in the Small-Pox: I attribute this to the great Irritation and Orgaſm of the Spirits, which is greater in this than in any other Diſtemper.

I have been told by a good practiſing Phyſician, that if Bezoar be given with it, it will not be diſagreeable to any.

AS I underſtand the Matter, Paregorics have their primary Operation not upon the Globules of the Blood; and therefore, when the Blood ferments, or boils violently, and greatly rarefieth, they are not properly preſcrib'd for the Purpoſe of bringing it down to Temper again, for that is to be done by cool Regimen, Attemperants, and Acids.

BUT their Buſineſs is directly with their Spirits, and therefore, whenſoever the Spirits are ſo provok'd and enraged, as to produce very ill Symptoms, and to hinder Nature in her ſalutary Operations, let it be at what Time it will, in any of the Stages, they muſt needs be pacify'd by Paregorics.

AND therefore, in the firſt or ſecond Day of the Stage of Concoction, while Extrication is in Hand, if the Rage of the Spirits riſe up to that Heighth as to cauſe intolerable Pain in the Head or Back, great Anguiſh, Inquietude, Delirium, *&c.* if theſe cannot be allay'd with good Bleeding, I think it would be adviſeable at that Time to give one ſufficient quieting Draught, and no more as yet, but to wait heedfully on its Effect, and then go on as ſhall be found expedient.

BUT the third and fourth Day, when the Work of Subaction is a managing, Paregorics ſeem to me not ſo abſolutely neceſſary, becauſe I judge a little Flurry of the Spirits uſeful (eſpecially where a great deal of Matter hath been aſſimilated) for the forming of the Particles that were extricated, and fitting them for Eruption.

IF in the Time of Eruption, tho' the Fever run high enough, (that is, if the Pulſe beat up to 50 in half a Minute, and Reſpiration go to about 16) and yet the Pocks break not out well, and troubleſome Symptoms remain, a Paregoric will be found of excellent Uſe.

IF in the Stage of Augmentation (which ſhould be in a Confluent Small-Pox, the quieteſt Time of all, as being between the firſt and ſecond Fever) there be Inquietude and Want of Sleep, and the Puſtles grow ſlowly, and the Interſtices want Colour, and the Face ſwell not at all, Paregorics mix'd with Cordials will be very beneficial, and that not only to rectify the preſent Circumſtances, but

but alſo to prepare Matters for the next Stage, that it may be paſſed with leſs both Trouble and Hazard.

IN the laſt Stage (of a bad Confluent Small-Pox) Paregorics can in no wiſe be ſafely forborn.

FOR, at this Time, Nature is ſtruggling for Life; the Pulſes run ſo ſwift, and are ſo low, that they can ſcarce be told diſtinctly; Breathing is ſhort and laborious, and the acrid Malignity moleſteth the Spirits to that Degree, (now when they are much waſted and weaken'd) that unleſs they can be ſomething brought to Reſt, and recruited, it is impoſſible they ſhould hold out long.

DURING the Stage of Augmentation, even till the ſeventh Night, it will be well to give the Pacific exactly at an Hour, that Nature may be uſed to Regularity, namely, at nine at Night.

BUT becauſe from that Time we look for the ſecond Fever, and its Manner is to come with a Paroxyſm every Evening, it will be convenient then to increaſe the Doſe of the Paregoric, and (in order to anticipate the Paroxyſm) to riſe an Hour every Day.

THUS, the eighth Day at eight a Clock, the ninth at ſeven, the tenth at ſix, the eleventh at five, and the twelfth at four in the Afternoon.

BUT it lieth upon the Phyſician to obſerve exactly himſelf, with his own Eyes, (and not wholly by what the Nurſes tell him) how long the Force of the Medicine holds, and conſtantly, as often as it goeth off, to repeat it.

SO it may, and muſt be given when its Efficacy expires, in leſs than a Night and a Day's Space; and as often as the Patient grows much diſtreſſed again, it muſt be repeated *toties quoties* as at 18 Hours Diſtance, 12 or 8: Nay, I have known, where the Sick being not able to bear a common

common Doſe, have had a Neceſſity of taking it every four Hours.

I lay the utmoſt Streſs upon this; foraſmuch as I have ſeen, where, upon one ſingle Omiſſion of it, the Spirits have quite fallen down, and never could be rais'd any more.

AND I am poſitively certain, that the Neglect of it hath prov'd fatal to many a one, whom this *Manus Dei*, if it had been laid hold of, would have drawn out of the Jaws of Death.

PAREGORICS are, *Pil. de Stiraæ*, *Pil. Matth. Laud. Londin. Laud. Liqu.*

BUT the moſt uſed of all is, *Syr. de Mecon.* from ʒß. ʒx or ʒjß in proper Mixtures.

TO Children may be given Tea made with Cowſlip Flowers.

FROM the Beginning of Eruption to the 5th Day, if the Fever run too high, ℞ *Aq. Lact.* ʒij. *Syr. de Mecon.* ʒj. *Ol. Vitriol. gt.* vj. *vel* viij.

FROM the Enterance of the Augment to the 9th Day it may be given thus: ℞ *Sperm. Cit. Vitel. Ov.* āā. ℈j. *Syr. de Mecon.* ʒj. *Aq. Lact. Alexit.* ʒij. *m.*

FROM the 9th Day (when the ſecond Fever beginneth, to the End of the Diſtemper) I hold it good to give it thus:

℞ *Sal. Prunel.* ℈ß. *vel gr.* xv. *Aq. Lact.* ʒij. *Diacod.* ʒx. *m.*

WHERE the Sweetneſs of the Syrup is nauſeous, we may give it and Liquid Laudanum, of each half a Doſe together.

BUT without any Sugar at all I have given this:

℞ *Capit. Papav. alb. conciſ. (ſine ſemine)* ʒj. *coq. in Aq.* ʒix. *ad* ʒiij. *f. expreſſ. fortis pro una doſi.*

MORE ſhall be ſaid of Paregorics in the ſecond Fever.

ATTEMPERANTS *and* CORRECTIVES.

THE Serum of the Blood being, by the Admixture of variolous Corpuſcles, made ſo acrid and pungent, as perpetually to exaſperate and exagitate the Vital Spirits, and put them into ſuch Diſorders, that they cannot rightly manage the Works of Concoction and Expulſion at firſt, and Maturation afterwards, it ought to be corrected and mollify'd. This may be done,

1. By increaſing its Quantity, and diluting it: To this Purpoſe the Sick ſhould drink freely, only without overcharging or palling his Stomach: But this ſeems not ſo needful in the firſt Stages, till the Augment; and after that is begun, he cannot well drink too much.

DRINKS in Specie are ſpoken of before.

2. BY Acids, which are the true and proper Correctors of Acrids. When therefore in any of the Stages, before that of Augment be fully ended, if the Heat and Hurry of the Fever run high, if there be Watching or Delirium, if Hæmorrhages, red Fluſhings, or petechial Spots appear, Acids and Paregorics are the beſt Things I know of.

THE moſt potent Acid is *Ol. Vitriol.* not dulcify'd with Spirit of Wine; for that dulcifying is, in my Opinion, quite

quite ſpoiling it of its Virtue, and rendering it a weak Buſineſs, good for nothing.

IT may be dropt into all the Liquor he drinks.

Infuſ. Roſat. or, ℞ *Aq. Lact.* ʒij. *Syr. de Mecon.* ʒj. *Ol. Vitriol. gt.* viij. *m.* This makes it very ſharp. But in Caſe of an Hæmorrhage, I have given it in greater Quantities, as ſhall be ſeen hereafter.

3. By ſoft Incraſſants and Emollients; which thicken the Blood, ſheath up its ſharp Edges and Points, and preſerve its Craſis from putrefying Diſſolution.

SUCH as theſe are Figs, Raiſins, Roots of Althæa, Liquorice, Herb of Mallows, Almonds, Pearl Barley, Shavings of Hartſhorn, Honey, Syrups.

TO this Purpoſe Gum Lacc Tragacanth, and Lentes, were uſed by *Rhazis*, *Avicenna* and the *Arabians*; but they have been long left off by our more modern Phyſicians. Their Reaſon, I ſuppoſe, was becauſe they underſtood not this excellent Uſe of them, and fear'd Incraſſants would hinder Eruption.

BUT as for Gum Lacc, I here note, that it is improper for Decoctions, becauſe it gives them an ungrateful Bitter.

IT may be uſed in Powder thus: ℞ *Gum Lac.* ʒß. *Coccinel.* ə ß. *f. Pulv. vel cum Succo Chermes f. Bolus.*

℞ *Raſ.* CC. *Ebor.* āā. ʒß. *Conſervæ Roſ. rub.* ʒiiij. *coq. in Aq. Hord.* lbiij. *ad* ij. *in Col. diſſolve Gum. Tragac.* ʒiij. *m.*

℞ *Hord. perl.* ʒß. *Rad. Alth. Glycyrrh.* āā. ʒj. *Fic. Paſſul. Sol.* āā. ʒij. *coq. in Aq. font.* lbiij. *ad* ij. *f. Col.*

℞ *Fic.* ʒiiij. *Glycyrrh.* ʒß. *Coccinel.* ʒß. *coq. in Aq.* lbiij. *ad* ij. *in col. diſſolv. Gum. Arab.* ʒj.

℞ *Gum. Arab.* ʒj. *diſſolv. in Aq. Hord.* lbij. *atquè cum Amygd. d. excort.* ʒjß. *& Sacch. alb.* ʒj. *f. Emulſio. ſ. a.*

STOMACHICS.

WHEN the Diſtemper proceeds rightly and regularly, without any ill Symptoms that require a particular Regard, it will not conſiſt with either the Dignity or Sincerity of the Phyſician, to be over-officious in putting Nature out of her Way.

BUT when the Stomach is weak, and faint, and ſick, and there is no great Heat and Thirſt withal, ſuch Medicines are then indicated, as have Power of warming, cheering, and comforting the Stomach, and putting the Spirits, that are there ſtationary, into an Ovation.

THESE conſiſt of vinous Spirits, Aromatics, and Subaſtringents.

℞ *Aq. Lact. Alexit.* ʒvj. *Menth.* ʒij. *Cinnam. fort. Abſint. Comp. Epidem. Theriacal.* (ſine Acid) *aa.* ʒß. *Margarit. lævig.* ʒj. *Sacch. Cand. alb.* ʒiij. *m. f. Julap. Perlat.*

IF by reaſon of the Soreneſs of the Throat the *powder'd Pearl* be troubleſome to ſwallow, then, inſtead of it and the *Saccharum*, *Syr. Caryoph.* ʒj. may be uſed.

IF when the Stomach calls for Comfort, the Blood at the ſame time is hot, and runs too high, and the Pulſe beats up feveriſhly, it will be adviſeable to give of the Julep but one Spoonful at a time, and very often, to the End that it may affect nothing but the Stomach itſelf, and be diſſlated and wholly ſpent there in that Part; for a greater

a greater Quantity would be apt to enter into the Blood, and heat it more.

CORDIALS,

ARE ſuch as increaſe the Ebullition, and quicken the Circulation of the Blood, and invigorate the whole Syſtem of the Spirits.

THESE are to be given once in eight, ſix, or four Hours, according as the Phyſician's Obſervation ſhall direct.

BUT the Pulſe beſt of any thing indicates the Uſe; for I look upon 40 Pulſes in half a Minute to be a common Standard in time of Health; and according as I find more or fewer in that Space of Time, I make my Judgment of it, that the Ebullition and Current of the Blood ought to be ſpurr'd on, or held back.

THESE muſt not be given (as the Cuſtom of ſome is) to all in general throughout every Stage of the Diſeaſe, without Diſtinction and Judgment; but only to ſuch as really need them, and at thoſe times when the Caſe requireth them, and never elſe.

WHEN the Pulſe beateth below 40 in half a Minute, and the Patient groweth ſick and faint, and the Puſtles and Interſtices become pale, it is then evident that the Ebullition and Circulation are remiſs and ſluggiſh, and the Spirits are oppreſs'd; in this Caſe Cordials are opportune and neceſſary.

BUT let it be heedfully obſerv'd, that as ſoon as ever the Pulſe is reſtor'd and invigorated, Cordials muſt be inſtantly left off again, till there be another Call for them.

THOSE

THOSE that have been Wine-Drinkers, may take warm Cordials more freely, than ſuch as have lived on ſmall Liquor.

BUT it very rarely happens, that there is any Need of hot, ſpirituous, aromatic, bitter, teſtaceous, or other Sort of Cordials, during the whole Courſe of the Sickneſs.

AND I am as certain, as I can be of the moſt aſſured Thing in the World, that if they be given when the ſecond Fever runneth high, they will fluſh it up into a Flame; and be, if not mortal, yet extremely pernicious.

AS to Alexipharmacs, they ought to be of ſuch a Nature, as being directly oppoſite to the variolous Venom, are apt and able ſpecifically to encounter and conquer it.

BUT it is utterly impoſſible for us to look into the internal mathematical Forms and Figures, and Operations of Things; and therefore we muſt never hope to find out ſuch ſpecific athletic Antagoniſts, but muſt be content with ſuch common Cordials as theſe:

Rad. Contray. Serp. Virgin. Flor. Croc. Calend. Margaritæ Ambragriſ. Coccinel. Succ. Chermes.

Aq. Ceraſ. nig. Lactis. Alexit. Menth. Rutæ Aq. Abſint. Comp. Cinnam. Epidem. Peon. C. Theriacal.

Pulv. è chel. Comp. Lap. Contray. L. de Goâ. Spec. Diamb.

Diaſcord. Mithrid. Theriac. Androm. Syr. Caryoph.

I look upon vinous Spirits to conſiſt of ſuch Particles, as being of a cauſtic Nature, are apt to ſcorch the Globules,

bules, criſp up the Fibrillæ, and hurt the Craſis of the Blood; and therefore, in my Judgment, they ought not to be over plentifully uſed in Juleps.

I conceive that variolous Matter is acrid and ſubtle, and ſomething akin to chymical volatile Salts; and therefore (except in Caſe of Drowſineſs and Stupor) I never order *Sp.* CC, *Sal. Armon.* or the like volatile urinous Spirits, (till the laſt Stage) for fear they, joining with the morbific Particles, ſhould increaſe the Orgaſm.

SOME would have a Bezoartic temperate Cordial given always with a Paregoric, that it may, in time of Sleep, be carry'd and diſpers'd the better into the Receſſes of the Brain and whole Body, and may the more quiet and comfort the Spirits, Blood, and Fibres, and render them able to bear up under the Weight of the Narcotic.

Of PERFUMES.

BESIDES theſe Cordials that exagitate the Blood, and invigorate the vital Spirits, I wiſh we could find out alſo ſuch as may have ſuch Faculties as immediately affect the Animal Spirits; namely, 1. To increaſe them. 2. To ſhake ill Copula's off from them. 3. To clear the Ways in the Brain and Nerves for them.

FOR theſe Purpoſes, I propoſe to our Phyſicians to recal the Odorata into the Shop again, from whence they have of late been baniſh'd; for tho' *Hippocrates* would have the Phyſicians go perfum'd, that they might be the more acceptable to their Patients, the governing Faſhion now a-days, is to think that all Sweets hurt the Head, and no body muſt endure them.

BUT I know not how our Nature ſhould come to be ſo ſtrangely alter'd from thoſe that liv'd three or fourſcore Years

Years before us; for tho' they ſeem'd to be in all Points of the ſame Nature with us, yet every one that was able to procure them had his Odorata.

THEY had their ſweet Waters, Pulvillo's, ſweet Bags, Pomanders; their Cloaths and Gloves were perfum'd; their Canes had Civet Heads; all the Powder for the Hair was ſweet-ſcented; every one carry'd in their Pockets Apoplectic Balſam; many of the fine Cakes, Puddings, and Sweat Meats had Ambergriſe in them.

BUT as for the Apothecaries Shops, they were wonderfully ſtored with Odorata, as being Ingredients in the following Medicines, according to the *Pharmac. Lond.*

Antid. mag. Matth.
Aq. Cœleſt.
Sp. Lavend. Comp.
Spec. Arom. Caryoph.
——— *Roſat.*
Cordiales Femel.
Cordiales temperatæ
Diarrhod. Abbat.
Lætific. Gal.
Pul. Cord. major
Pleres Archonticon
Confect. Alcherm.
de Hyacinth.
Dia cinnamomum
Liberans
Elect. de Gem. calid.
——— *frigid.*
Diambræ
Diaſcord.
Diaſatyrion magis grat.
Diamoſchu dulce
Tryphera major
Laudanum Lond.
Nepenth. Opiatum
Troch. Gall. Moſch. Bec. alb.

NAY, they put them even into their Plaiſters, as *Empl. Stomach. Mag. & Emp. Metroproptoticon.*

AND whereas no body in our Days can bear Roſe-Water, and crieth Foh where they meet with it, our Shops were formerly order'd to have upon Occaſion *Aq. Mariæ Julep. Alexand. Jul. Roſat. Syr. Cardiac.* all which were made with Roſe Water.

I acknowledge

I acknowledge they are offenſive to ſome Hyſteric Perſons; yet I have known where the Fœtids have diſagreed, and Musk Pills have much comforted and ſtrengthen'd Hyſteric Women.

WHEN they cauſe Dulneſs and Head-ach, I conceive it's not becauſe they are adverſe to the Animal Spirits, and hurt them, but becauſe they ſomething open the Cortex Cerebri, whereby more Vapours, or groſſer Vital Spirits enter and fill it up too much; and yet at ſuch a time it may perhaps be, that there is a greater Quantity of Animal Spirits diſtill'd, than when the Head ſeems clearer.

IF they did really burthen or hurt the Spirits, thoſe Phyſicians muſt be very groſly miſtaken that preſcribe (as Dr. *Sydenham* doth) Ambergriſe for Prevention of an Apoplexy.

THE Odorata are principally three, Civet, Musk, and Ambergriſe; the particular Virtues of which, according to the Opinion of Naturaliſts, may be ſeen in *Schroder*; but the pleaſanteſt, cleaneſt, and fineſt of theſe is (eſpecially as to me, and my liking) Ambergriſe.

Of AMBERGRISE.

IT is not generally known what this is, but a certain Merchant aſſur'd me, it comes from a particular Whale, and that not as a ſtercoraceous Excrement, but as a Scent doth from ſome Quadrupeds, which Dr. *Grew* ſaith, have a Bag on each Side of the Anus, out of which they void a Subſtance according to their Nature; a Civet-Cat, a Sweet; and a Pole-Cat a Fœtid Matter, *&c.*

THIS being voided by the Whale, floateth in the Sea, and is thence thrown up upon the Shore, and there collected.

TRAPHAM (of the State of Health in *Jamaica*) treats of this Matter more amply than any other Author that I have yet ſeen; and becauſe it is (as I think) a Book now in few Hands, I ſhall tranſcribe out of him as followeth, *p.* 142.

AMBERGRISE is a general Reſtorative, and tho' an high, yet a moſt innocent Cordial, where-ever Nature needs Succour.

IT is uſually found where there are venomous Fiſh, as about the *Bermudas*, *Bahama* Iſlands, and the Coaſt of *Florida*.

THE Inhabitants of ſuch Places, when poiſon'd with Fiſh, betake themſelves to Ambergriſe, as a moſt powerful Antidote, and are cur'd and reſcu'd therewith from moſt horrid Symptoms, threatening Life.

FROM the good Succeſs it had againſt Poiſons, the People there ventur'd on it in almoſt all their Weakneſſes; in great Evacuations by Vomiting and Stools, and all other too liberal Diſcharges of Nature, and Loſs of Strength.

IN Diſpiritedneſs from Fevers, or any other Effect, they happily take Ambergriſe.

THEY ſtand not on Quantity from any other Cauſe, but the Preciouſneſs and Price of the Commodity. I have ſeen a Man eat ʒij. of it at a time, without any Prejudice to himſelf, or any Alteration, ſaving that he was chearfully diſpos'd, as Perſons are by drinking good Wine, or by the Uſe of Opium.

BUT

BUT Ambergriſe excels both, for it neither ſtupifies nor intoxicates; but its odoriferous Parts unite with the Spirits themſelves, and ſtrengthen them, and thereby enable them to caſt forth an Enemy, or receive its Aſſault without ſinking under the ſame.

THE Advantage of ſuch Auxiliaries, far exceeds the inflammatory tranſient ones of burning vinous Spirits.

OUR Ambergriſe is not like thoſe volatile Chymical Spirits, which, like foreign Pigeons, tho' they may for a while augment the home-bred Stock, yet quickly deceive the Hopes of the Owner, and fly away, carrying with them thoſe that were his own.

THE Stomach, when it has receiv'd Ambergriſe into it, rejoiceth therewith, and ſendeth its delightful Perfumes into the whole Body; whereby the Spirits, eſpecially the Animal, are not waſted nor heated, but increas'd, refreſhingly cheriſh'd, ſtrengthen'd for their proper Functions, and for the Ejectment of foreign morbific Taints.

I dare affirm our Ambergriſe to be our moſt univerſal and generous Cordial, from which no Detriment (if rightly given) ever happens, but great Benefits enſue from the taking of it.

Of the NATURE *and* SORTS *of the* SMALL-POX.

THE Small-Pox and Meaſles, and all their Kinds and Kindreds, are commonly call'd inflammatory Fevers, but (I think) improperly; foraſmuch as,

1. SOME of them are without any Inflammation at all.
2. They never produce a particular Inflammation on any Part, as a Pleuriſy, Peripneumony, Quinſey, Eryſipelas,

&c. do. 3. They proceed from a Cauſe that is *toto genere* of a different Nature, namely, a venomous Matter. 4. They are not to be cur'd as Inflammations are, by large and repeated Bleeding.

THEREFORE I am inclinable to allow them a Claſs by themſelves, and give them the Title of Exanthematous or Eruptive Fevers.

THO' all the true Variolæ have the ſame material Cauſe, and therefore differ not eſſentially, yet by reaſon of many different Degrees of Acrimony, and of many great Symptoms attending one Sort, and not the others; alſo becauſe of many different, and often directly contrary Methods, Medicines, and Management requir'd, I divide them into Four Sorts.

1. Diſtinct. 2. Contiguous. 3. Confluent. 4. Bleeding.

I. *The Diſtinct* SMALL-POX.

IN this Sort the variolous Matter is chiefly in the Lymph, not intimately among the Globules.

IT putteth not out univerſal Efflorescencies, nor flat Spots, but fair reddiſh Pimples; and the Blood being thereby entirely diſcharg'd, and abſolutely freed from the morboſe Matter, the Fever ſinks away, the Pimples ſtand up all diſtinct, grow in Bigneſs, (ſome as large as Peas) gradually run through all the Degrees from Crudity to Maturation, and then fall off in dry Scabs, in about nine Days after Eruption began.

II. *The* CONTIGUOUS SMALL-POX.

IF the Matter of the Diſtemper be very hot, corroſive, volatile, and venomous, as it happens to be in Epidemic Seaſons, and in ſome Perſons that are apt to be Feveriſh, or have been treated with a hot Regimen, it will not only get into the Lymph, but will alſo mix in among the Globules, and put them into a ſtrong febrile Commotion before Eruption.

AND not only thus, but alſo it will aſſimilate great Quantites of varioloſe Corpuſcles in the Blood; which, upon Eruption, will produce Puſtles ſo cloſe ſet together that they almoſt touch, yet do not flow into one another.

THIS being a middle Sort, between a Diſtinct and a Confluent, runneth ſometimes into the one, and ſometimes into the other, and ſo taketh its Nature accordingly.

IF the Spirits be not over-much irritated, and the Matter be not ſo faſt lock'd up in the Size, but that it may be pretty well extricated, and the greateſt Part of it thrown out into the Habit of the Body in the four Days which Eruption ought to be perform'd in; and after that, can effectually be kept out, and not abſorbed again into the Blood;

THEN the Fever will ſink gradually and proportionably to the Concoction and Eruption, and be difflated and finiſhed, as a Diſtinct Sort is, in eight or nine Days.

BUT in Caſe it ſo happen, that at firſt, Expulſion cannot be intirely perform'd, and afterwards all that Part of the variolous Matter, which ſtayeth yet in the Blood, cannot be concocted, and in the Days of Augmentation and Maturation

turation caſt off by Salivation and Tumefaction, though the firſt Appearance of it was Contiguous only, it will paſs into the Nature of a Confluent Small-Pox, and require as long a Time as it, to finiſh all its Stages.

III. *The* CONFLUENT SMALL-POX.

IF the Epidemic Seaſon incline to a Flux; if the Party be of an hot Conſtitution; have much enrich'd, or overheated his Blood; and, together with this, in the Beginning of his Sickneſs hath been ſweated, or manag'd in the Way of an hot Regimen, and Bleeding hath been omitted:

IN theſe and the like Caſes, upon the Entrance of the variolous Matter into the Blood, the vital Spirits will fly into a Rage, the Globules will flame, a Fever and ſharp Symptoms will ariſe, and will begin ſo to do, even in the firſt Days of Concoction.

IN this perturbed State, a greater Quantity of variolous Corpuſcles will be generated, than Nature can well, in the Term of Concoction, manage and diſpoſe of.

UPON this, tho' there come out an infinite Number of Puſtles cluſtering, and flowing into one another, yet at the ſame Time, a vaſt Portion of other Matter not being able to make its Way; partly for want of Room, it ſticking in the Paſſages in Crowds and Throngs; and partly for want of due Subaction and fitting its Magnitudes and Figures to the Pores of the Skin; I ſay, a vaſt Portion more tarrying yet in the Blood, ceaſeth not to enrage the vital Spirits, and diſorder all Oeconomy: And for this Reaſon the Symptoms ceaſe not upon Eruption, as they uſe to do in the Diſtinct Sort.

I reckon

I reckon three Degrees of the CONFLUENT SMALL-POX:

1. THAT which we may call putrid; the Blood being ſomething corrupted, diſſolved, and in a purulent State. Though here the Fever may run pretty high, and cauſe Thirſt, and hinder Sleep, yet I think it never is attended with Sickneſs, or any other very grievous Symptom, neither hath it any ſenſible Paroxyſms in the Evening, nor threateneth it much Danger.

2. THAT which we may call a Malignant Flux, where much varioloſe Matter is generated, and ſo inviſcated, that it cannot be ſeparated from the Blood in due Time; but being there retain'd, heated and made viroſe and ferine, cauſeth the Fever to paſs beyond the Degree of putrid into malign.

IT diſſolves the Contexture of the Blood, drys up the Globules, ſcorcheth its Fibrils, and turns it into ſuch a Maſs as is wholly unfit for the Production of Spirits, and common Uſes of Life.

ALSO it overpowereth the Spirits, fatigues and wears them out, drives them out of the Body, or kills them in it; and ſo the whole animal Oeconomy failing, the Sick dieth, or is a long Time recovering.

3. The third is the Bleeding Small-Pox; of which I deſign to treat in a Chapter by itſelf.

The

The STAGES *of the* SMALL-POX.

I Reckon Five, 1. Aſſimilation. 2. Concoction. 3. Eruption. 4. Augmentation. 5. Maturation.

As for Declination, I think that cannot properly be accounted a Stage of the Small-Pox; becauſe when Maturation is finiſh'd, the Diſtemper is gone and paſs'd. Inſtead of that Period, I intend to ſpeak of what is fit to be known, and done, at the End of the Sickneſs, under an Head by itſelf.

Dr. *Willis de Feb.* p. 79. ſaith, Critical Motions in continual Fevers, for the moſt part obſerve the fourth Day.

I. STAGE ASSIMILATION.

THE variolous Particles when produc'd out of the Ovula, are ſo active, and multiplicative, that even the hundredth Part of one Grain of them is ſufficient to aſſimilate all it meets with in the Maſs of Blood, that is capable of ſuch a Change.

And this ſhould not be judg'd impoſſible, no nor improbable neither, foraſmuch as we ſee the like in other ſubtile Poiſons; as in the biting of a Viper, mad Dog, or Tarantula.

If the Party infected be healthy at other Times, clean, cool, and hath not been heated by over-bad Management and Medicines, and Nature be permitted to proceed in her own leiſurely, quiet Way, probably there will be but a ſmall Quantity of variolous Matter aſſimilated; and that which is, will prove but a weak and mild Sort of Venom.

UPON this Account it is, that a true, regular, diſtinct Small-Pox hath, of its own Nature, little or no Danger in it.

BUT if the morboſe Particles meet with a plethoric Body, overcharg'd with fermentative, inflammatory Humours:

OR if, by reaſon of great Heat, Ebullition and Conquaſſation, occaſion'd by rich Blood, juvenile Vigour, ill Treatment, or otherwiſe, they come to be elaborated and exalted up to the higheſt Degree, and be ſubtilized and divided into their minuteſt Atoms, and together with it be alſo made igneous, and ferine; they will every where diſperſe themſelves thro' the whole Maſs, mix in with it *per minima*, and fire it intimately, as one Spark will another, till all be in a Flame.

THIS ſubtile and fine Diviſibility and Interſperſion through a liquid Vehicle, may be illuſtrated and made plain by Mr. *Boyle*'s Experiment, namely, that one ſingle Grain of Copper diſſolv'd in Spirit of Sal Armoniac, will give a blueiſh Colour to 513612 Grains of Water. And, ſince nothing can give Colour but where it is, it muſt needs be, that the Grain of Copper was actually divided into ſo many Particles, and they were interſpers'd thro' all the Water; for where there was Colour, there muſt be Copper, ſince a Quality cannot ſubſiſt without a Subſtance.

THESE variolous Atoms, and the vital Spirits, are ſuch mortal and irreconcileable Enemies, that where-ever they meet with right Forces on both Sides ſufficient for an Engagement, the little furious Champions fly at one another, and never give over the Combat till either the variolous ones are beaten, and driven out of the Body, or till the Spirits being vanquiſh'd, die upon the Spot; but ſometimes it is many Days before the deciſive Stroak is ſtruck.

I allow for this Stage of Aſſimilation, ſometimes four Days, ſometimes ſix, before that of Concoction beginneth: But whether it ends preciſely when Concoction begins, I have not, to my own Satisfaction, diſcover'd as yet, and I very much believe it doth not, in a Confluent Small-Pox, as long as the firſt Fever continueth.

THIS Account of four and ſix Days, I take from the Manner of the inoculated Sort, which I look upon as the Standard of the Regular, Diſtinct Small-Pox.

FOR, from the putting of the pocky Pus into the Inciſion, there are taken up (in all that I have obſerv'd) in ſome eight, in ſome ten Days before Eruption cometh; four or ſix of which being ſet off for Aſſimilation, the remaining four will be the juſt Time that Nature appoints for Concoction.

THIS Stage is to be very accurately obſerv'd, and Matters in it carefully and skilfully manag'd, for it lays the Foundation of the enſuing Sickneſs, and the moſt conſiderable Symptoms and Manner of Proceedings thro' all the following Stages, and Danger or Safety mainly depends upon this.

AND particularly, Safety depends not only on the Mildneſs of the variolous Venom, but very much alſo upon the ſmall Quantity of it, and Fewneſs of the Puſtles, as the contrary Danger will be from their Abundance.

BUT becauſe the very preciſe Time of receiving Infection cannot (except in the Caſe of Inoculation, and ſome others) be certainly and exactly known, we can ſeldom tell how to begin our Account for Aſſimilation.

DURING this Stage, it's common for the Party to be juſt as well as he uſed to be, and to walk or ride about as before, without any manner of Complaint.

YET

YET ſome will feel themſelves a little indiſpos'd, tho' not downright ſick; ſhall have inconſtant Feveriſhneſſes; ſhall ſhiver, and then fluſh, not all over together, but in ſeveral Parts; ſhall have flying Pains in their Limbs; ſhall be out of Order one Day, and well again the next; and ſo on at uncertain Times, be ill and well for four or ſix Days before a ſettled Fever and Concoction begin.

THE great Buſineſs now will be, to hinder and moderate Aſſimilation as much as can be done with Safety.

THEREFORE, as ſoon as any one ſuſpecteth himſelf infected, it will be adviſeable that he wholly abſtain from Fleſh-Meats, and ſtrong Liquors, carefully keep himſelf from catching Cold, and from all Diſorders both of Body and Mind.

AND now at this Time, Nature having not yet begun to work upon the variolous Matter, and the vital Spirits and Blood being not yet exagitated and diſcompos'd, Bleeding, Vomiting and Purging, if they are judg'd needful at all, may have Place.

The Second STAGE. CONCOCTION.

NATURE, not only in the Formation of Vegetables and Animals, but in all her Operations and Productions, when not put by her own Ways, proceedeth quietly, leiſurely and gradually without Hurry or Stop.

THUS in the Small-Pox; when ſhe is upon the Buſineſs of Concoction, ſhe at firſt works cooly, moderately, and eaſily, and requires but little more then a Blood-warm, and, as it were, an incubating Heat, whereby to mollify and relax the Fibres of the Blood, open its Body, and cheriſh the Spirits.

AND ſo the more temperate the Body, and the more quiet the Spirits are kept, the more eaſily and perfectly will Concoction be perform'd.

CONCOCTION includeth two Things; namely, Extrication, and Subaction.

Of EXTRICATION.

THE firſt Thing that Nature in the Small-Pox endeavoureth to do, is to extricate and diſentangle the morboſe Particles from the Blood, that they may be caſt out.

THAT this may be proſperouſly and duly perform'd, it is abſolutely requiſite, that the Spirits be ſomething appeas'd, and the diſorder'd Particles of the Blood be reinſtated in their uſual Mixture.

IF the ſaid Particles only hang looſe in the Pores of the Lymph, then the common Circulation, Conquaſſation, and Percolation of the Blood, will be ſufficient to perform this, without any perceivable Diſorder: And ſo we ſee, it is a common Thing for the Puſtles to appear, the Party not having been ſenſible of any Sickneſs, or Indiſpoſition at all.

WHERE they are gotten not only into the Lymph, but alſo into the viſcid and fibrous Parts; and yet not ſo much among the Globules as to cauſe any great febrile Commotion;

THEN if the Spirits be but vigorous, and not hinder'd in their Work, nor haſten'd by hot Regimen or Remedies; and withal, the oily Part of the Size be ſufficient for the ſuppleing, lubricating, and explicating the complicated Fibres: In this Caſe, a kindly Ebullition ariſing, Extrication

cation will be compleatly perform'd in the Space of thoſe four Days which Nature allotted for Concoction.

WHERE the Blood is ſo conſtituted, as to abound with groſs ſtrong Fibres and Size, and is of ſo firm a Texture, as not to be eaſily diſſolvable, Nature will be compell'd to beſtir herſelf ſtrongly by way of Ebullition and Conquaſſation; and here will happen a pretty ſmart Fever to do the Work.

WHERE the Blood is too rich, and abounds improportionably with Globules, they will, upon the Intruſion of variolous diſagreeable Particles among them, riſe into ſuch Emotions and Combuſtions, as will very much hinder Nature in her firſt Work of Extrication, except Phlebotomy and Refrigerants bring in their ſeaſonable Aſſiſtance.

IF the morboſe and diſproportionable Matter be not extreamly acrid and virulent, but yet remains confuſedly jumbled in the Maſs of Blood, and lock'd up among its Principles, it will moleſt, oppoſe and juſtle the fiery vital Spirits, and thereby provoke them to fly into exorbitant Exploſions; by which, the Blood being agitated violently, great Struggles, Heat and Fever will be rais'd; which acting upon the very internal Maſs, will rarefy and open its Body, and knock off from it the troubleſome Copula of the extraneous Corpuſcles. In this Caſe, Extrication goeth on roughly and unkindly, and is commonly imperfectly perform'd at laſt.

BUT if the Matter be work'd up into an acrid corroſive Virulency, and be ſubtilized and divided into its minuteſt Atoms, and be boil'd into the inward Subſtance of the Blood, then the Fever which riſeth upon it will work the Fibres into an Entanglement, like a Plica Polonica.

IN

IN this Caſe, Extrication will go on with great Trouble, will exceed the Term allow'd for it, and often will not be accompliſh'd at all, let the Phyſician do what he can, and ſo the Patient dieth: Something like this, as I ſuppoſe, happeneth where Petechiæ appear.

TO conclude this Subject, Extrication ought to be perform'd quietly and leiſurely, and without Hurry: If it be not ſo, then either a ſufficient Number of varioloſe Particles will not be pick'd out and gather'd together, or elſe ſuch will be forc'd to Eruption, as Nature would not have put upon it.

TO this Purpoſe, Dr. *S.* ſaith, To me, indeed, it ſeems reaſonable, that the longer Nature is in working, and perfecting Separation, provided the Ebullition be not quite torpid, ſo much more certainly and univerſally the Separation is perform'd.

Of SUBACTION.

IT will not be ſufficient, that the variolous Particles be looſen'd and knock'd off, as 'twere from the Lymph, Globules, and other Principles of the Blood; but alſo, it will be altogether as neceſſary, that by the Force and Help of an adequate Fever, together with the Operation of the Heart and Lungs, and the many Percolations, it be levigated as 'twere, ground and grain'd into ſuch Shapes and Bulks, as will fit the Glands, and Paſſages, and Pores they are to be puſh'd through.

WHEN ſuch are ſeparated as are not fit, the Motion of others, that are in a Way to it, will be hinder'd by their mixing together, and render'd leſs adapted for Expulſion.

BUT when, by the ſaid Means, the Body of the Blood being open'd, the variolous Corpuſcles looſen'd, their virulent

virulent Copula ſhaken off, their Sizes and Figures fitted to the Pores, then the vital Spirits not meeting with much further Oppoſition, remit of their Orgaſm, and ſo falling into their natural and proper Mication, and uſual Way of Operation, come to perform their Functions quietly again as they were wont, and ought to do; and upon that, the Fever and Symptoms ſink, and go off proportionably, and the liquid Maſs circulating calmly, drives them out gently with the Serum and Vapours they ſwim in.

BUT Things do but ſeldom proceed thus happily and mildly; for it is a very common Thing, even in a kindly diſtinct Sort, for a febrile Conflict to ariſe, and grow ſharp, the two laſt Days of Subaction, Nature then vigorouſly exerting her Forces in preparing for Expulſion.

AND in a Confluent Sort, the Fever and troubleſome Symptoms are wont to go all along quite through this Stage; and it may be prognoſticated, that the ſooner they begin, the worſe will be the Pox, and the more it will flux.

WHEN the Fever runs very high, and the Blood is foul, and ſuch Humours and Matters are forc'd to Eruption, as are either not fitted to paſs the Pores, or not agreeable to the Nature of variolous Pus, the Diſtemper will prove anomalous, with general Fluxing, Purple Spots, Watery Pocks and Bliſters, *&c.*

AND it is likely, that many of thoſe Corpuſcles which cannot get Paſſage into the Skin, will turn back, and make the Fever more virulent, and alſo fall upon, and infect the Viſcera and inward Parts.

CONCOCTION is not wont to proceed ſo evenly and uniformly as to extricate and ſubact every individual variolous Atom together by equal Degrees at the ſame Time; but ſome it looſeneth and fitteth firſt, and then others,

others, and ſo on, till all that will ſubmit to it be ſucceſſively concocted.

WHEN Nature is not hinder'd on the one Hand, nor hurry'd on the other, but is permitted to go on with her Works her own orderly Way, and leiſurely Pace, ſhe uſeth to perform and finiſh this Separation and Subaction totally and fully in the Space of four Days after the firſt feveriſh Diſorder was perceiv'd.

IN ſome Children, and others, who are ſound and healthy, and free from fermentative Humours, and fiery elaſtic Spirits, and in whom but a ſmall Quantity of variolous Matter is aſſimilated, this Second Stage uſeth to be paſs'd over without any remarkable Fever or Sickneſs.

What to be Done, and Avoided.

IN this Stage the morboſe Matter muſt not be violently forced by hot Regimen, or Cordials; for thoſe will be apt to cauſe a great Aſſimilation, turn it into rank Venom, and confound Concoction.

NEITHER yet on the other Side ſhould Ebullition be, by undue Evacuations, or cold Regimen, render'd ſo torpid as to retard Expulſion.

AND therefore it is unadviſeable to preſcribe Phlebotomy, Vomits, Purges, Clyſters, Sudorifics, *&c.* where they are not plainly indicated.

FOR by theſe Evacuations, (in ſome Patients) not only Ebullition is too much repreſs'd, and Concoction thereby hinder'd, but alſo that Matter is ſubſtracted which ſhould have been left to ſupply the Puſtles afterwards with Serum and Steams.

WHENCE

WHENCE it ſometimes happens, that the Small-Pox, which at firſt came out well, and made a laudable Progreſs, (and perhaps ſo much the better becauſe of the ſaid Evacuation) a little after become ſtarved for want of Matter to follow that which went before, and therefore flatten and ſtrike in, and never come to Perfection.

DURING this Stage, if there be Fear of a confluent Pox, and Phlebotomy be no ways contra-indicated, it may be of ſingular Uſe to moderate Aſſimilation, reſtrain Ebullition, and make Room for Eruption.

I know not whether it may not be better to open a Vein in the Foot than in the Arm; becauſe we ſee the Pocks are generally apt to break out ſooner, and more copiouſly, in the upper Region of the Body, which receives all its Blood from the *Arteria aſcendens*; than in the lower, which hath its Blood from the *deſcendens*.

AND add to this, it is manifeſt that all the bad Symptoms and Miſchiefs that this Diſtemper brings, are not in the lower Parts, but in the upper only, where the Heart, Lungs, Brain, and Functions, both Vital and Animal, are ſeated; and it is Matter of the higheſt Concern to ſecure theſe.

BUT if the Blood abounds not over-much, be not too rich in Globules, be not too thick, groſs, fibrous, and ſizy, and the Fever keep within moderate Bounds, I ſee no great Need of Phlebotomy at all; and ſhould not judge it adviſeable, for fear of weakening the Spirits, and needleſs diſturbing of Nature, when ſhe hath full Buſineſs upon her Hands, and is working rightly upon it.

WHEN the Stomach is foul, its Villæ being dawb'd over with Slime, or its Plicæ fill'd with either glaſſy Phlegm, corrupted Relicts of ill-digeſted Meats, or with

noxious Recrements ſpew'd out of the Arteries, a waſhing Vomit at this time will eaſe Nature, and take off, and prevent a vaſt deal of Trouble, and ſick Fits.

BUT a ſtrong one, and eſpecially where the variolous Matter tends to paſs out of the Blood into the Stomach, may do much Miſchief, by pumping that Matter more plentifully into it, and thereby increaſing the Sickneſs, Anxiety and Vomiting.

PURGING alſo may be ſeaſonable at this time, before the morboſe Steams have begun to bear outwards; provided it be done with ſuch mild Medicines, as only cleanſe the firſt Paſſages, and do neither torture the Inteſtines, nor attract Humours into them, nor much trouble the Blood.

AND that upon two Accounts:

1. TO carry out ſuch Excrements as remain in the Guts, and having lain there for ſome time, are grown ſtale, corrupt, and offenſive to Nature; for it is to be thought, that the Guts are not emptied quite every time one goes to Stool; but a good Quantity is always left as a Support to them; for I am of Opinion, that the Guts can as ill bear a perfect Emptineſs, as the Stomach can.

2. WHEREAS in the confluent Sort, it is a uſual Thing not to have a Stool from the Beginning of the Decumbiture to its Declination; whereby the Inteſtines are daily fill'd up, and at length becoming ſtretching full of old Excrements, mix'd with variolous Matter, give great Trouble to Nature, and add Venom and Violence to the ſecond Fever.

IF a convenient Purge be given in this ſecond Stage, ſo as to make Room, and not too much empty the Guts, it may prevent the Neceſſity of giving one afterwards about

about the tenth Day, or after that when Nature is ſtruggling in the ſecond Fever, and almoſt giving out.

SINCE nothing ſo much heats the Patient all over, or cauſes ſo great a variolous Aſſimilation, as perpetual lying in Bed, Dr. *Sydenham* forbids it in the Day-time, till all the Puſtles are fully come out.

BUT ſuch as are very tender and weak, and feel great Anguiſh, eſpecially in cold Weather, muſt be ſuffer'd to lie in Bed; only they may turn Sides in it as often as they will, and muſt not be cover'd ſo as to be oppreſs'd with a great Weight of Bed Cloaths, nor have too much Fire in their Chamber.

BUT more of this afterwards.

To know the SMALL-POX *at coming out.*

UPON the third or fourth Day at furtheſt after the Fever hath ſet on in good earneſt, and been continual, there appear upon the Forehead, Neck, Boſom, Back, and Flat of the Arms, round Pimples about the Bigneſs of Pins Heads, which ſtanding up a little higher than the Level of the Skin, may be felt with the Finger, and are of a fair bluſhing Colour: But this is not to be underſtood of a bad confluent Sort, for that ſendeth forth only little red flat Spots, like the Meaſles.

TULPIUS teacheth us, that in an Epidemic Seaſon, it is uſual for the Small-Pox to pitch upon, and, as 'twere, chuſe ſome one particular Part of the Body to make its firſt Entrance upon, as the Face, Breaſt, Back, *&c.* and moſt People, during the Reign of that Sort, have them begin to come in ſuch a determinate Part, before they are viſible any where elſe; therefore the Phyſician that looketh for them, ſhould examine ſuch Parts firſt.

SOME ſay they moſt commonly break out firſt of all on the Back, and perhaps it may be ſo, where there have been violent Pains in that Part.

IT is better to look for them by clear Day-light, than by that of Candle; better with one Candle than two.

PERHAPS a Reading Glaſs, that magnifies well, may be of good Uſe to ſpy them out with, before they come to be fairly diſcernable to the naked Eye.

To diſtinguiſh the SMALL-POX *from other* AFFECTIONS.

See before,

Flea-bites,
Ague Spots,
Surfeit Spots,
Scorbutic Spots,
Red Gum,
Eryſipelas,
Herpes,
Faint Purples,
Raſh,
Miliary Fever,
Scarlet Fever,
Purple Fever,
Petechiæ, and
Spotted Fever,
Many Sorts of *Small Meaſles*,
Little Small-Pox,
The *True Meaſles*.

SOMETIMES the Small-Pox fluſh out like an Inflammation; but are diſtinguiſhable, foraſmuch as

AN Inflammation is a Tumor in the Fleſh itſelf, under the Skin, in ſome one Part only, and not all over the Body.

IT is circumſcrib'd, hard, tenſe, ſhining, very red, ſore, and painful, with a Pulſation.

To

To know when they will prove Diſtinct.

1. IF the Party be not over-full of Blood, be clean from ill Humours, of an healthy Conſtitution, of a cool Temperament, and be not apt to Fevers.

2. If a little before Infection, or during the two firſt Stages, the Party hath been purged, or (if it was needful) been let Blood, or bled freely at Noſe, or the Menſes have happen'd lately.

3. IF there be a great Propenſity to ſweating.

4. IF it be a Child, and after its Time of Toothing is paſt, it be taken with an Epileptic Fit, or a Looſeneſs.

5. IF the Fever and Symptoms run not high till the two laſt Days of Concoction.

6. IF the Puſtles come out on the fourth Day, large, ſwelling, and fair, not exceſſively red, be but few at firſt, and make their Appearance leiſurely.

7. IF the Fever and Symptoms abate upon Eruption.

The CONFLUENT SORT,

HATH, before Eruption, the ſame Symptoms in common with the Diſtinct; only they begin ſooner, and are more ſevere, ſuch as Anguiſh, Sickneſs, Vomiting, Pains in the Head, Back, and Limbs, Vertigo, *&c.*

It is like to prove the CONFLUENT SORT.

1. IF the preſent current Conſtitution run moſt upon that Sort.

2. IF the Party be a ſtrong vigorous Man, in the Flower of his Age; be full of Blood, and of an hot Conſtitution, and have uſed to inflame himſelf with hard Drinking; eſpecially if the Diſtemper happen in the Spring, or in very hot Weather.

3. IF the Illneſs began from a great fatiguing Journey; from a Surfeit occaſion'd by immoderate Exerciſe, or Drinking.

4. IF Bleeding, Vomiting, and Purging were neceſſary, and have been omitted.

5. IF after Infection taken, he hath been, during the Stage of Aſſimilation and Concoction, kept hot, taken forcing Medicines, or laid in a Sweat.

6. BY how much the ſooner they break out before the fourth Day, generally ſo much the more they flux.

7. IF great Sickneſs, Anxiety, Vomiting, Head-ach, terrible ſhooting Pain in the Back, *&c.* come at the very Beginning of the Stage of Concoction, and be very exquiſite and bad before the two laſt Days of it.

8. IF the Fever and Symptoms abate not remarkably upon Eruption.

9. IF comatoſe Affections ſeize him in the Stage of Concoction, or Eruption.

10. IF a Diarrhœa happen in the Stages of Concoction and Eruption in grown Perſons; yet I have more than once obſerv'd

obſerv'd it to precede a contiguous Pox; but in Children it is otherwiſe, for in ſuch it commonly comes before a Diſtinct.

11. IF the Pocks ruſh out apace in very ſmall Specks, cluſtering together, or appear red, like an Eryſipelas; or flat, like the Meaſles.

12. IF a Salivation ariſe upon Eruption, or a little after.

The Third STAGE. ERUPTION.

I Would have it here obſerv'd, that tho' the Small-Pox doth really and properly begin at Aſſimilation, and is of eight Days ſtanding at leaſt when it puts out the Puſtles; yet becauſe the common way is to call that the firſt Day wherein they are firſt ſeen, and that manner of Account is the leaſt liable to Miſtake, I think good to comply with Cuſtom, and keep all along to that Sort of Reckoning.

THE variolous Matter being concocted, Nature drives it out of the Maſs of Blood into the Superficies of the Body, critically, by way of Deſpumation.

THIS ought to be done as faſt as the Matter can be rightly extricated and ſubacted, and the Motion of Circulation can expel it in an orderly regular Manner, and no faſter, till all that at this time ſhould be thruſt out, is evacuated.

THEREFORE as it cometh out, the Fever and Symptoms, which were urgent before, ought to abate proportionably; and we may certainly conclude, that as long as there is any Remainder of them (except where improper Remedies, or wrong Treatment have been the Cauſe) the Blood is not ſufficiently and thoroughly diſcharg'd, and freed

freed from that Matter, which ſhould have been ſent out in Puſtles.

THIS Stage of Eruption begineth when that of Concoction endeth; that is, in the diſtinct Sort on the fourth Day, but in the confluent uſually on the third.

AND it endeth, in both Sorts, on the eighth Day.

BUT tho' the Confluent generally breaketh out on the third Day, yet Dr. *S.* hath ſeen (tho' rarely) where, by reaſon of ſome exquiſite Pain, or grievous Symptom, the Spirits being moleſted, and put by their Work, were not able to drive out the Variolæ till the fifth Day; but where-ever that happen'd, it moſt certainly foreſhew'd a moſt terrible Flux.

ZACUTUS LUSIT. indeed ſpeaks of an Eruption on the twentieth Day; but I conceive he might be deceiv'd by this, that his Patient had fallen ſick of ſome Fever that was not of the varioloſe Family; and ſixteen Days after that, the Small-Pox chanced to take him; and ſo, tho' the Puſtles appear'd not till the twentieth Day after the commencing of the firſt Fever, yet, when once the true varioloſe Fever was kindled, it threw them out on the fourth.

NOW tho' every Puſtle that will come out at all, doth ſo in four Days time, and the troubleſome Symptoms thereupon ceaſe; yet it is not to be thought that the Blood doth ſo wholly and compleatly diſcharge itſelf of all its Venom, and every Particle thereof, into the Skin, during this Term; but that it retains alſo much which was not fit for puſtulary Evacuations, which it ſendeth forth afterwards in Serum and Vapours, for the Support and Ripening of the Puſtles, and for the Colouring and Swelling of the Interſtices, thro' the whole Courſe of the Diſeaſe.

IF the morboſe Matter be ſo mingled, entangled, and inviſcated in the Serum and Size, that it cannot poſſibly be looſen'd and fitted for the Pores of the Skin, and conſequently cannot be evacuated that way; in that Caſe, it muſt run off together with the Serum, by way of Salivation; which prudent Nature hath inſtituted for this Purpoſe, and allots it Time commonly till the 10th, 11th, or 12th Day, and ſometimes much longer.

BUT in Children, (becauſe they ſalivate not) this Serum commonly gains its Exit, by way of Diarrhœa.

AND becauſe, upon ceaſing of Salivation, ſome of the viroſe Matter, which was not fitted to paſs the ſalival Glands, remains yet behind, Nature attempts to drive it out by Swellings; firſt, of the Head and Face, and afterwards of the Hands: And if thoſe Swellings either riſe not up enough, or hold not up long enough, but quickly ſink again, no more Aſſiſtance is to be hop'd, for the Sick will aſſuredly die.

Of the Diſtinct SMALL-POX *in the* STAGE *of* ERUPTION.

IN this Sort, upon a competent Extrication and Subaction of the variolous Matter, the Rage of the vital Spirits remitting, the Ebullition of the Blood aſſwaging, the Fever ſubſiding, and all tending to Compoſure and Quiet, Eruption is not precipitated and forced to begin, till all the Matter be, if not actually and in every Part prepar'd, yet in the Way to it; and then it is perform'd ſo plenarily and placidly, that the Party thinks himſelf at eaſe, pretty well, and hearty.

AT firſt, ſmall, reddiſh, bluſh-colour'd Pimples (but not flat Spots) break out in the Face, Neck, Breaſts, Back, and Arms, afterwards all the Body over.

IF they come leiſurely, and appear fair, and withal, the Sick grow better upon it, we are in no wiſe to be over-officious, to interrupt Nature, but permit her to go on quietly with her Work, her own Way and Pace.

DR. *S.* would not have ſuch a Patient put to Bed for good and all, till Eruption be fully compleated. But more of this by itſelf anon.

WE muſt be ſollicitouſly careful at this Time, that on the one Hand, Ebullition be not too much diminiſh'd and made torpid by Bleeding, Vomiting, Purging, *&c.* where they are not neceſſary.

AND on the other, that it be not raiſed up too high by hot Remedies, or Regimen eſpecially, if the Patient be in the Flower of his Age, or have inflam'd his Blood; or it be in the Spring, or when the Weather is ſultry hot.

SUCH a Degree of Heat as is agreeable to the Temper of the fleſhy Parts, and uſed to be natural and cuſtomary in Time of Health, is moſt proper to promote Concoction and Expulſion.

BUT it will not be enough to preſerve a due Temper of the Blood, but (as I apprehend) it will alſo be highly requiſite, to keep the Ballance even, ſo that the Current of the Blood into the upper Parts, thro' the Arteria aſcendens, may be proportionable (neither ſlower, nor faſter) than that into the lower, by the Arteria deſcendens.

FOR it is a common Thing for the Small-Pox to come out a Day or two later in the lower than in the upper Parts of the Body: And if they could be haſten'd in the lower, it is likely they would by that Means be both fewer, and more benign in the upper.

FOR

FOR this Purpoſe, opening the Saphena may be propoſed: See what the *Arabians* ſay of Bathing; and alſo what the Moderns have adviſ'd, concerning bathing the Feet in warm Milk: *Baglivi* orders Spunges ſoak'd in warm emollient Decoctions to be apply'd to the Soles of the Feet. I have known where Sand was heated in a Frying-Pan, and put into a Bag, and laid hot into the Bed, for the Feet to touch and bear upon; but this muſt not be done ſo as to put the Body into an Heat or Sweat.

RUBEFYING Cataplaſms bound round the Ancles (where they will operate much ſooner, and more powerfully than on the Soles) may be thought of.

℞ *Rad. Raph. ſilv.* ℥ij. *Sem. Sinap. Fimi Columb.* ā*a.* ℥j. *Flor. Cereviſ. q. ſ. f. Catapl.*

THESE will excite Pain, and therefore cannot be endur'd on long at a Time, but may be renew'd as often as ſhall be judg'd expedient. They will attract ſooner, and more ſtrongly than Epiſpaſtics, and will not ſharpen the Serum ſo much as Cantharides do.

WHAT if Cotton Stockens were worn conſtantly Night and Day during this Stage, and then left off again as ſoon as the Puſtles are all come out.

DR. *S.* ſaith, as ſoon as the Signs of the Small-Pox ſhew themſelves, I keep the Sick from the open Air, and forbid them the Uſe of Wine and Fleſh, and allow them Small-beer warm'd with a Toaſt, for ordinary Drink, and permit them to drink as much as they will.

I order them for Diet, Oatmeal and Barley-Gruel, and Roaſted Apples, and other Things which are neither too hot, nor too cold, nor of an hard Digeſtion, nor laxative.

I forthwith prohibit an hot Regimen, and all Manner of Cordials, by which ſome raſhly endeavour to force out the Small-Pox before the fourth Day; which is the natural and proper Day for Eruption.

FOR I certainly know, that the ſlower they come out, the more univerſal will be the Separation of the Matter, and the better will the Puſtles ripen, and the leſs Danger will there be of their ſtriking in.

WHEREAS, if they be driven out before their due Time, the Matter being as yet crude and undigeſted, is precipitated, and deceiveth our Hopes, and, like over-haſty Fruit, will never anſwer.

AND beſides, there is great Danger, by this over Diligence, (eſpecially in florid, and hot Conſtitutions, whoſe active Principles do more than enough ſupply the Uſe of Cordials) leſt Nature being much incited and forc'd ſhould over-run the whole Body with the Small-Pox; and that by this over Haſte they ſhould flux, which otherwiſe would have been a moderate Diſtinct Pox.

MOREOVER, the Pocks muſt not be immediately forc'd out as ſoon as any Suſpicion of the Diſeaſe ariſeth, tho' the Patient be very ſick before the coming out.

FOR there cannot be ſo much as one Inſtance given of any that miſcarry'd, becauſe the Small-Pox came not out apace at firſt; but too many have periſh'd, in whom the Small-Pox appear'd well enough at the Beginning, but ſtruck in afterwards, before they arriv'd to Maturation.

HE ſaith, I have more than once obſerv'd in young Perſons of a ſanguine Complexion, that a hot Regimen, and Cordials given to drive the Pocks out before their due Time, have ſo little promoted their coming out, that they have given a Stop to it.

FOR

FOR the Blood being heated by theſe Means, and put into a more violent Motion than is fit to perform rightly the Separation of the variolous Matter, only ſome Tokens of the Diſeaſe ſhew themſelves, while the Puſtles lie within the Skin, and do not riſe any further, by what Cordials ſoever they are ſollicited to it, till at length, the Blood being reduced to a moderate and due Temper, (that is, by allowing of Small-beer, and taking off part of the Bed-Cloaths, wherewith he was roaſted) I have made a convenient Way for the Puſtles to paſs out; and ſo I have ſet the Patient out of Danger.

I would not that a Cordial ſhould be given before the fourth Day, though there be a Looſeneſs that may ſeem to indicate it.

FOR though a Looſeneſs doth ſometimes precede the Eruption, which is occaſioned by inflammatory Vapours, or Humours emptied into the Inteſtines from the Maſs of Blood enraged, and violently hurried the firſt Days; yet Nature will be no more wanting in expelling the Vapour of the pocky Matter (which being done, the Looſeneſs ſtops of its own accord) than ſhe is wont to be in ejecting thoſe Vapours, which at the Beginning of the Diſeaſe inverted the Stomach, and cauſed Vomiting.

BUT if the Patient be a ſtrong young Man, who hath beſides heighten'd the Diſeaſe by exceſſive Drinking, it will not be ſufficient for the reſtraining of the Ebullition of the Blood, that he abſtain from Bed, and from Cordials, unleſs moreover, he be let Blood.

IF notwithſtanding Bleeding, the Spirits fly into Diſorders, and the Fever riſeth too high, Refrigerants and Paregorics muſt be diligently inſiſted on, ſuch as *Sal. Prunel. Ol. Vitrioli. Tinct. Roſar. Decoct. Luſitan.* and, in the Time of Year, the following Cydoniate.

℞ *Cydon.*

℞ *Cydon. radulâ raſ.* ʒiiij. *Aq. font.* lbj. *ſtent ſimul infrigido hor.* j. *deinde Liquor fortiter expreſſ. Edulc. cum Sacch. depur.* ʒß. *vel q. ſ.*

THE laſt Day of this Stage, if the Fever run not high, and yet ſome of the firſt Symptoms hang a little on, we may give the following, or ſomething like it, to throw out, before the Time be quite paſt, all the Remainder of the variolous Matter yet in the Blood, which Nature hath prepar'd for Eruption.

℞ *Aq. Cinnam. hord.* ʒij. *Diaſcord.* ʒj. *Syr. de Mecon.* ʒvj. *m. f. Hauſt.*

Of Lying in BED.

THAT there is (commonly ſpeaking) no abſolute Neceſſity of keeping the Sick hot upon Eruption, appeareth from this, that it hath been uſually practiſed to carry Perſons on Horſeback many Miles, even in pretty cold Weather, when the Pocks were actually coming out upon them, and no Harm hath follow'd upon it.

THIS (as I judge) hath ſucceeded beſt, where it was likely that too great a Quantity of Matter would be aſſimilated, and the Diſtemper would prove Confluent; yet all muſt not be treated alike, for ſome are ſo very ſick and faint, that they cannot bear to ſit up.

BUT it is the general Way to lay the Sick in Bed, as ſoon as ever the Pimples are diſcover'd, and to confine them to it all the whole Time of the Diſtemper; and truly, provided due Care be taken, that no more Bed-cloaths be laid on than can be eaſily born, without over-burthening and heating the Sick, lying in Bed may be upon ſeveral Accounts beneficial.

1. IT

1. IT keeps the Sick to a more equal Warmth all his Body over, than can be had when he is up in his wearing Cloaths, ſome Parts being then more expos'd to Air than others.

AND that will not only cheriſh the Spirits, but alſo preſerve the Tone of the Habit of the Body; and without that, Expulſion, which much depends upon the Pliantneſs, due Tenſion, and Spring of the cutaneous Fibres, cannot be well perform'd.

2. IN the Poſture of lying along, the Blood is thrown about more eaſily and equally, than in an Upright; for the ſame Force is employ'd to drive the Blood out of the Heart thro' the Arteria Aſcendens and Deſcends; and then the great Torrents of the Blood-Veſſels being ſituated horizontally give a more commodious and even Current thro' them, than they can where they make Aſcents and Deſcents.

IN Bed, the Body lieth eaſy, and at Reſt, without the Want of the Action of the Muſcles to keep it upright, and manage the Operation of the Limbs; and ſo the animal Spirits having little to do for the Body, (except in the Buſineſs of ſpontaneous Motions) keep themſelves up in Vigour free from Wearineſs and Waſting.

NOW, the animal Spirits in a living, waking, and moving Animal have a great deal more to do, than any one, who hath not cloſely conſider'd this Matter, can think.

FOR the ſetting of this in the more open Light, I'll tranſcribe a Paſſage or two out of Dr. *Grew's Coſmologia.*

NO leſs than forty or fifty Muſcles (beſides all other ſubſervient Parts) go to execute that one Act of Laughter.

WE cannot, in ſome Caſes, execute a ſingle Thought without this Retinue.

FOR, ſuppoſe one ſitting in a Room, has only a mind to look at ſomething out of a Window :

BESIDES the Nerves, by which the Order is ſent to all the officiating Parts, the Bones, as Under-Servants, with the Muſcles of the Belly and Legs, are employ'd to raiſe him up; thoſe of the Legs, Belly and Back, to keep him upright; thoſe of the Breaſt, Arms and Hands, to open the Caſement; thoſe of the Neck, to turn the Head; and thoſe of the Eyes, to pitch them on the Object: In all, ſeventy or eighty wait upon that one ſingle Thought. Thus much of the Buſineſs of the animal Spirits.

IF the Pocks be but few, and it be Summer-time, Dr. *S.* ſaith, he ſees no Reaſon why the Patient ſhould be kept ſtifled up in Bed; and why he may not rather riſe a few Hours every Day, provided the Inconveniencies of too much Cold and Heat be avoided.

FOR when he keeps up ſometimes from his Bed, the Diſeaſe runs its Courſe with leſs Trouble, and in a ſhorter Time, than if he had continually been faſten'd down to it; which alſo not only makes the Sickneſs more tedious, but alſo increaſes the febrile Heat; and when the Puſtles grow up, cauſes a painful Inflammation.

BUT if either the cold Seaſon of the Year, or large Eruption of the Puſtles, put the Patient under a Neceſſity of keeping his Bed conſtantly, Care is to be taken, that he lie not hotter, nor with more Cloaths than he can bear with Eaſe; and that he have a Fire kindled in his Chamber only Mornings and Evenings, unleſs it be ſharp cold Weather.

Of

Of the Confluent SMALL-POX *in the Stage of* ERUPTION.

IN this Sort, the Vital Spirits being vehemently exaſperated, and grown quite furious, do mightily expand themſelves, and exagitate the Blood.

AND the Globules running into extraordinary Heats and Ebullitions, do as 'twere calcine the variolous Matter, and give it a Degree of Cauſticity, and then boil it into the internal Subſtance of the Maſs.

IN this perturbed State of Things, the Works of Extrication and Subaction can go on but ſlowly, and will be but imperfectly perform'd at laſt.

FOR when ſome of the peccant Particles are looſen'd, others at the ſame time being involv'd, and ſet faſt in the Size, cannot be fetch'd out during the Term allotted for it.

AND the Veſſels being all full ſwell'd with boiling rafy'd Blood, and that Blood being forcibly and rapidly hurry'd and impell'd, Nature is thereby puſhed; and being not able to tarry till univerſal Concoction can be accompliſh'd, begins to free herſelf, by throwing out ſuch Matter as ſhe finds then ready before the regular and due Time; namely, on the third Day: And becauſe the Eruption is but partial, the Symptoms go not off upon it, as they do in the diſtinct Sort.

AND further, becauſe a vaſt Quantity of variolous Matter is generated and aſſimilated, and alſo the Affair of Expulſion is exceedingly urgent, innumerable Numbers of Corpuſcles will be driven out thro' the near-touching, and perhaps thro' the very ſame Pores.

AND therefore the emitted Particles riſe not up into ſingle diſtinct puſtulary Heads, but flow into one another, eſpecially in the Face, which they cauſe to ſwell ſooner than the other Parts.

AND laſtly, in a fatal confluent Sort it ſometimes happens, that the Fire of the Fever ſublimeth and exalteth the Venenoſity of the morboſe Matter to a very great Degree, and rendreth it volatile, acrid, and corroſive; and the Particles of it ſeizing upon the vital Spirits, concrete with them into ſuch Moleculæ, as are unfit to paſs the Pores regularly; whereupon, if they tend inwards, they cauſe pocky Puſtles upon the internal Viſcera; or if they come out, produce Petechiæ, Veſications, or Sphacelations.

BUT in a milder Sort of Small-Pox, tho' there may be a great deal of morboſe Matter aſſimilated, yet, if it can but be ſo brought to paſs, that the greateſt Part of it be concocted and expelled before the time deſign'd for Eruption (which is the fourth Day after they begin to appear) be quite paſt, then Nature will be able to help herſelf, and deal ſome other way with what remaineth yet behind; and thereby the Diſtemper will prove of the contiguous Sort, and not of the truly confluent.

AND when it ſo happens, that much of the Matter cannot poſſibly be duly concocted and expelled within the Space of four Days after Eruption began, Nature uſually will carry it off ſometimes (tho' not often) by Diarrhœa; but moſtly by Salivation at firſt, and Tumefaction afterwards.

SINCE the confluent Small-Pox is the Product of a great Inflammation in the Blood, Care muſt be taken that the Patient be not heated.

BUT tho' it requires greater cooling than the diſtinct doth, yet the Patient, by reaſon of painful Exulcerations, cannot keep out of his Bed.

AND it is expedient, for the promoting the Swellings of the Face and Hands, and the Riſing and Increaſe of the Puſtles, that he keep his Hands, as well as his Body, in it; ſo that he have not upon him too many Cloaths, and have the Liberty of turning himſelf Night and Day frequently, that the great Heat may be qualify'd, and Sweats prevented.

Of the ERUPTIONS.

1. WHEN the Pocks come out leiſurely, are bluſh-colour'd, large, a little raiſed, and ſtand ſingle, and are not very many, they are from a benign Matter, well ſeparated, and expell'd.

2. WHEN they come out very ſmall and numerouſly, and the Symptoms abate not proportionably to the Eruption, and the Fever continueth, we are to judge, that the morboſe Matter is very ſharp, is not eaſily concocted, hath broken in among Part of the Globules, and diſorder'd the Compages of the Blood.

3. WHEN they are very many, and yet do but only almoſt touch, and not quite join, and flow in together, we are to underſtand, that in this Caſe, tho' a great Quantity of Matter be aſſimilated, and the Ebullition forced much out, yet it is not of the moſt virulent Sort, and every Corpuſcle hath a Pore to itſelf to fly out at, and ſo each of them make a diſtinct ſingle Puſtle. This is what is call'd a contiguous Small-Pox.

4. WHEN the Eruptions are ſmall, infinitely numerous, confluent, flat, ruſh out apace, and cluſter like an Eryſipelas, it plainly appears, that there hath been a great Quantity of Matter generated, that it is exalted to an high Degree of Venenoſity, and that the rapid Courſe of the boiling Blood hath ſtretch'd and widen'd the Bore of the Paſſages, and forced out the variolous Corpuſcles, not only through the contiguous, but a great deal of it thro' the very ſame Pores, and ſo cauſed thoſe which come out of the ſame Pipe to flow in together.

5. WHEN there fluſheth out a Scarlet Colour all over the Body, together with petechial, purple, black, or blue Spots, we may confidently pronounce, that the whole Compages of the Blood is diſſolv'd, the Globules univerſally throughout the whole Maſs are broken, the vital Spirits deſtroy'd, Hæmorrhages are at Hand, and Death is at the Door.

Of SYMPTOMS *during the* STAGE *of* ERUPTION.

Of SICKNESS, ANXIETY, *and* FAINTING.

IF theſe happen from mere Emptineſs, the Sick muſt be frequently refreſh'd and ſupported, with ſuch Suſtenance as is allowable in Fevers.

BUT theſe are generally caus'd by Nature's calling away thoſe Spirits, which were ſtationary in the Stomach, to aſſiſt in the Work of concocting the variolous Matter in the Blood.

AND if one ſhould call them back again into the Part at this Time by generous warm Medicines, we ſhould thwart Nature, and hinder her Deſign.

WHERE-

WHEREFORE unleſs the Sick be weak-hearted and timorous, and fall into cold Sweats, and downright fainting Fits, it will be beſt to do nothing at all, but expect a while till the Spirits may be permitted to return to their former Stations.

BUT when unſupportable Anguiſh and Fainting happens, and upon thoſe Accounts Cordials are abſolutely neceſſary, let the Sick lie quiet in Bed, and take temperate Cordials: Here perhaps a Glaſs of mull'd Sack may give Relief.

BUT as ſoon as ever it is perceiv'd, that the Spirits come, and the Pulſe beats up again, all Cordials muſt be entirely left off, for fear leſt they fluſh up the Fever too high, and the Work of Concoction and Expulſion be confounded.

BUT if the Sick be a Woman, and ſhe fall into Hyſteric, and not properly Stomachic fainting Fits, ſhe muſt be reliev'd with Spirit of Hartſhorn dropt into black Cherry Water, or by the following Pills.

℞ *Caſtor.* ℈ij. *Sal. Succini.* ℈j. *Sal.* CC. *Camph.* ā*ā.* ℈ß. *Diaſcord. q. ſ. f. Pil mediocres.*

SHE may ſmell to *Aſſa fœt.* or have it caſt upon burning Coals, and take the Smoak of it into her by Inſpiration.

Of NAUSEOUSNESS *and* VOMITING.

SEE before of Emetics.

WHEN theſe are caus'd, not by any Fault of Foulneſs of the Stomach itſelf, but by variolous Matter brought into

into it by the Arteries out of the Blood, they muſt not be further provok'd by Emetics, but reſtrain'd and ſtopp'd.

TO this Purpoſe, let him lie in Bed quiet, and pretty warm; let him forbear Beer, and drink Sack Whey.

℞ *Pulv. è chel. Comp.* ℈j. *Rad. Contray. gr.* ij. *Mithrid.* ʒß. *m. f. Bol.* Let this be given once, or oftner, according as the Phyſician ſhall judge neceſſary, to drive outwards, and promote Perſpiration.

PAREGORICS are of principal Uſe here, together with Anti-emetics.

℞ *Sal. Abſint.* ℈j. *Succ. Limon.* ʒvj. *Aq. Cinnam. ten.* ʒjß. *Syr. de Mecon.* ʒß. *m. f. hauſt.*

℞ *Aq. Ment.* ʒvj. *Cinnam. ten.* ʒiiij. *Abſint. Comp. Syr. Caryoph.* ā*a.* ʒj. *Spir. Lavend.* C ʒj. *m. f. Julap. de quo cap. Cochl.* iij. *ad libitum, urgente Nauſeâ.*

Of Profuſe SWEATING.

DR. *S.* accounteth this to be a Matter of very dangerous Conſequence.

IT is to be reſtrain'd, by letting the Party riſe ſometimes out of Bed, by lightning the Bed-Cloaths, by opening the Curtains and letting in Air, but not ſo as to blow upon the Sick; by granting Leave to turn frequently in Bed: But as to removing from one Side of the Bed to the other often Night and Day, as Dr. *S.* adviſeth, I ſhould be ſomething cautious about it, eſpecially if the Sick be of a tender Conſtitution, and the Weather be not hot. The Bed ought not to be ſo ſoft as to let him ſink deep into it, and therefore it may be well to lay a ſtiff Blanket under the lower Sheet.

DR.

DR. *S.* ſpeaks of enormous colliquative Sweatings in the diſtinct Sort, which ſtopping all of a ſudden, without Power of Revocation, at the End of the Stage of Eruption, are certainly and ſuddenly mortal. But this Caſe I never yet met with.

Of ſeveral great and violent SYMPTOMS.

IF the Party be a ſtrong vigorous young Man, and hath diſorder'd his Spirits and heated his Blood with *Bacchus* or *Venus*, or any violent Exerciſe, and hath inſupportable Anguiſh, intenſe Fever, enormous Vomiting, Vertigo, Rheumatic Pains in his Limbs, vehement Head-ach and Back-ach, or the like great and grievous Symptoms:

IN this Caſe, lying in Bed will increaſe them; and yet by reaſon of his great Sickneſs, he cannot poſſibly endure to be out of it, unleſs he be otherwiſe reliev'd.

THE Ways that Dr. *S.* mentioneth to help him in ſuch a ſad Condition, are, firſt, to bleed him in the Arm, and after ſome time to give an eradicating Vomit of Infuſion of Crocus Metallorum, or the like. And he ſaith, that after the working of the Vomit, the Patient is commonly ſo refreſh'd, that he can abſtain from Bed very well.

BUT as to my Part, I have ſome Suſpicion of this ſtrong Vomiting (as I have before ſaid under the Head of *Emetics*); but notwithſtanding, if certain and undoubted Experience prove it to be good Practice, I ſhall ſay nothing againſt Matter of Fact.

IF theſe outragious Symptoms ariſe not till a Day or two before Eruption, I take them to be merely the Workings of that Fever, which is abſolutely neceſſary for Subaction;

action; and in that Case, I take Bleeding and Vomiting to be unnecessary, if not hurtful.

ALSO Dr. *S.* giveth Spirit of Vitriol in Small Beer, as often as it is call'd for, and keepeth the Sick to it till all the Pustles be come out.

BUT if the Party be a Child, and hath not such cruel Symptoms, he forbeareth the Evacuations, and Spirit of Vitriol.

Of the FIRST FEVER.

THE first Fever beginneth with the Stage of Concoction, and endeth in a distinct regular Sort, when that of Eruption is compleated, namely, the fourth Day; but in the confluent it continueth commonly longer.

BUT the second Fever beginneth with the Stage of Maturation, namely, on the ninth Day, and never happeneth in the distinct Small-Pox.

WHERE there is but little morbose Matter assimilated, Nature hath no need to raise up any great Fever to concoct or expel it.

BUT it is absolutely necessary, that the Fever and Ebullition be rais'd up and continu'd in such a Manner and Degree, as is requisite for the performing of the said Operations: And therefore,

IF it rise not high enough, or if, after it was once begun, it flag, and the Heat and Pulse keep not up to a due Pitch, all Evacuations and Paregorics are to be forborn: The Sick must keep his Bed, and be cover'd warm, and may have a Bedfellow to recal natural Heat, and should be comforted with Cordials.

℞ *Vin. Canar.* ℥ij. *Tinct. Croc.* (*Aq. Theriac. extract.*) *Aq. Epidem.* ā*a.* ʒij. *Mithrid.* ʒß. *Succ. Cherm.* ʒj. *m. f. hauſt.*

BUT as ſoon as ever it is perceiv'd that the Pulſe and Fever return, the Cordials muſt be immediately left off, till there be a plain Occaſion for them again. The due Obſervance of this being a Matter of the laſt Concern, I think it's not amiſs to give it here in Charge, tho' I have ſpoke of it before.

IF the Fever, upon the firſt, or ſecond Day of its Onſet, run high, a Gliſter may be of good Uſe to eaſe the Inteſtines, when they are full and foul, and ſo take off ſome of Nature's Grievances.

BUT I would have it timely enough; for if it ſhould happen to be adminiſtred juſt upon Eruption, or but little before it, it may be likely ſomething to check Eruption; and if then the Sick chance to die at laſt, the Phyſician's Reputation will be prejudic'd thereby.

PHLEBOTOMY alſo is here needful, and ſhould be order'd (if it ſo can be) before Eruption; but ſometimes, where there is a great Fulneſs of hot boiling Blood, and the Fever with its Symptoms are outrageouſly high, Bleeding will be abſolutely neceſſary, even at that time, to help forward Eruption, which could not proceed, by reaſon of the thronging Plethora, and confus'd Ebullition.

IF the Fever be, for the firſt and ſecond Day of the Stage of Concoction, but little and moderate; but then about the third or fourth Day of the ſaid Stage, riſeth up (of itſelf) to a great Height, cauſing burning Heat, Thirſt, Anxiety, Watching, Vertigo, and even Convulſions, which were not before that time; the Phyſician ought not to check them by Bleeding or Purging; for

theſe are Signs of the Vigour of the Spirits, and are effected by Nature's riſing up with Power and Force, to oppoſe and drive out the hoſtile Matter; which (if ſhe be not hinder'd) ſhe doth ſo intirely and effectively, that there generally enſues, after ſuch a Combat, a regular, mild, and diſtinct Small-Pox.

BUT for the moſt Part, it is neither creditable nor ſafe to tamper too boldly in the Management of the firſt Fever; and if it doth not fly into Extremities, it will be moſt adviſeable to permit Nature to do her Work, in her own Way, and in her own Time.

AND where it comes to be neceſſary to put an helping Hand, we muſt do it with Judgment and diſcreet Warineſs; and (if poſſible) with the Conſent and Approbation of the Friends and Nurſes.

The HEAD *ill-affected.*

IF the Head be very hot, and aketh much, and the Sick can get no Sleep, Pigeons put to the Feet, or rubefying Cataplaſms, alſo opening of the Saphena, may be ſerviceable; foraſmuch as in this Caſe, the inferior Circle of the Blood is not proportionably ſwift to the ſuperior; and the ῥοπὴ of the boiling variolous Blood to the Head is the Cauſe of theſe Affections. Concerning this ſee before under the Head of *Eruption*.

BAGLIVI ordereth Cupping, with Scarification, upon the Shoulder Blades; and ſaith there follows preſent Revulſion of the raging Blood, and thereby the Symptoms are nipped off in the Bud.

PAINS

PAINS *of the* BACK *and* LIMBS.

THESE are not only from fervent rarefy'd Blood diſtending the Veſſels and muſcular carnous Fibres, but chiefly from variolous, ſharp, pricking Particles ſent into the nervous Parts, which ſtinging, tearing, and ſtretching the nervous Fibres and Membranes beyond their natural Tone, and driving the Animal Spirits into Exploſions, excite the Senſe of ſhooting Pains.

IF they become ſo intolerably vehement that they muſt needs be alleviated, cool Regimen, keeping out of Bed, Bleeding, and Paregorics may be try'd; but commonly they will by no means go off till their Time.

FOR as ſoon as Extrication is made, the irritating Matter will be ſuck'd into the common ſanguineous Channel, and there expell'd into the Puſtles; and upon this all the Pains intirely ceaſe.

CONVULSIONS.

IN Children they foreſhew that Eruption is juſt at Hand, and that it will prove a very benign Small-Pox.

IN grown Perſons, theſe before and in Eruption, may look with ſomething of a frightful Aſpect, and are really and truly very terrible and dangerous in time of the ſecond Fever; yet here they portend no ill; foraſmuch as they are nothing but the Efforts of Nature riſing up ſtrongly, and prevailing againſt the hoſtile Particles, in order to expel them; and ſo as Eruption goeth on, they proportionably go off.

IF they grow quite inſufferable, perhaps they may be ſomething mitigated by keeping out of Bed, and temperate Juleps: But at this Time, I think, Paregorics, which repreſs the Vigour of the Spirits, are not convenient; and Anti-epileptics will be of no Effect: As for Bleeding and Epiſpaſtics, I utterly diſlike them.

Of DULNESS, STUPOR, SLEEPINESS, *&c.*

IF, when theſe Symptoms come on, there be few or no Pains, except in the Head, it is a Sign that the variolous Venom hath ſeiz'd upon the Animal Spirits, and ſtruck them down, and effectually deprives them of Vigour and Vitality; and is ſo very much ſuperior to Nature, that the Caſe is dreadfully dangerous.

AVOID all Evacuations, except that by Epiſpaſtics, which are in this Caſe abſolutely neceſſary; and Bliſtering of the Head I look upon as better than of any other Part.

APPLY round his Ancles rubefying Cataplaſms, before deſcrib'd.

LET the Patient be kept warm in Bed; give of the moſt generous Cordials and Alexipharmacs, volatile Salts and Spirits.

℞ *Aq. Ceraſ. nig. Rutæ* ā. ℥iiij. *Aq. Pæon.* C. *Bryon.* C. ā. ℥jß. *Aq. Regin. Hungar.* ℥j. *m.*

Cum hujus Miſt. cochl. iiij. *detur cochl.* j. *ſeq. tertiâ quâq; horâ.*

℞ *Syr. Simpl.* ℥iijß. *Sp. Lavend. Comp. & Sp. Sal. Armon.* ā. ℥ij. *m.*

Vel

Vel ℞ *Caſtor.* ℈ij. *Sal. Succini* ℈j. *Sal.* CC. *Camph.* ā. ℈ſ. *Ol. Roriſm. gt.* ij. *Mellis q. ſ. f. Pil.* vj. *è ſingulis, ſcrupulis Cap.* iij. *tertiâ quâq. horâ.*

℞ *Pulv. è chel.* C. ℈ſ. *Lap. Contray. gr.* v. *Sal. Succini Sal.* CC. ā. *gr.* ij. *Camph. gr.* j. *m f. pulv. pro.* j. *Doſi.*

Of a DIARRHOEA *in Children.*

IN thoſe that have the diſtinct Small-Pox, Evacuation enough is made by the Puſtles to clear the Blood of the morboſe Matter, and therefore that by Stool is not wanted, and ought to be ſtopp'd.

BUT in the Confluent, a Diarrhœa is what Nature appointeth for the carrying off part of the morboſe Matter, which being in great Quantity, cannot be all ſent into the Puſtles; and it anſwereth to Salivation in Adults.

THEREFORE Dr. *S.* medleth not with ſuch a Looſeneſs, but co-operating with Nature, proceeds as he began; and adviſeth to lay Children ſometimes in the Cradle, ſometimes to take them up; and if they be weaned, he orders them the ſame Diet he did for Adults.

Of a DIARRHOEA *in grown Perſons.*

IF it happen two or three Days before Eruption, and be moderate and well borne, and ſtop again as the Pocks break out, it will lighten Nature of ſome of its Burthen, and be beneficial, and therefore muſt in no wiſe be checked.

BUT if it continue, and ſeem to hinder Eruption; or if it come afterwards in any of the latter Stages, it muſt of Neceſſity be ſtopped.

BUT

BUT to treat of Diarrhœa's more particularly, I obſerve two Sorts of them, which ought to be heedfully diſtinguiſh'd in Practice.

THE one proceeds not from a variolous Cauſe, but from a Load of Excrements, which having been detain'd in the Inteſtines till ſtale and offenſive, Nature endeavours to throw off.

IF it come towards the beginning of the Fever, before the variolous Matter could be extricated and ſharpen'd, and be attended with much Wind and Gripes, and the Stools be very large, ſtercoraceous, and fœtid, it may be judg'd to be this firſt Sort.

HERE the Nurſes and vulgar Practicers, who are intent upon nothing but Expulſion of the Pocks, whether it be time or not, look upon it as a moſt dangerous frightful Accident; and let it be an Infant, or Adult, a diſtinct, or fluxing Pock, make no Difference, but lay about them like People out of their Wits, with all their Poſſe of Receipts, and will in no wiſe be ſatisfy'd till they have ſtopp'd it, and lock'd up the Wolf in the Fold among the Sheep, which ought to have been driven out.

TO this Purpoſe may be given *Pul. Rhab.* ʒß. *& Ol. Aniſi. gt.* j. by no means forgetting a Paregoric after its Operation.

YET if a Diarrhœa happen to ſuch whoſe Bodies are foul and full of Humours; if it be not very violent, and be well borne, and it come before Extrication have proceeded very far; in theſe Caſes, tho' it continue till a Day after Eruption begun, yet it ſeems ſo far from being hurtful, that it is really beneficial; and Dr. *S.* alloweth not ſo much as a Cordial to ſtop it before its Time.

AND

AND if it be found, by the Manner of Extrication, and Matter of Excrements, that there is more behind, which muſt be brought away, let him, before Eruption is begun, purge with Rhubarb, as before, and quiet all again with the Paregoric.

BUT if the Diarrhœa be violent, be like to leave the Inteſtines almoſt empty of Excrements, be attended with ſharp Gripes, and the Patient beareth them not well, but manifeſtly ſinks under it, and eſpecially if it continue till the ſecond Day of Eruption; in theſe Caſes, the Phyſician muſt uſe his Endeavours to ſtop it forthwith, and inſiſt upon Cordials, Aſtringents, and Paregorics, and muſt forbid Beer, and order the white Decoction for ordinary Drink.

Of the VARIOLOUS DIARRHOEA.

THIS is of a different Original and Nature from the other, being caus'd by inflammatory Humours, and variolous Vapours, which it being now towards the Time of Expulſion, Nature had partly extricated, and deſign'd to have thrown out into the Habit of the Body; but the Blood being too much agitated, and the Spirits irritated, ſhe is put by her Intention, and drives them off where ſhe can into the Inteſtines.

IT is known chiefly by the Time of its coming; for it ſcarce ever happens at the firſt ſetting on of the Fever, before Extrication is pretty well advanc'd, but then, when Expulſion is at Hand.

ALSO, I think it is not uſually accompany'd with Gripes; and upon its Appearance (unleſs where it is very violent) the Sick commonly thinketh himſelf ſomething eaſier,

eaſier, becauſe ſome of the morboſe Matter is thereby carry'd off from the Blood.

IT muſt of Neceſſity be ſtopp'd as ſoon as poſſible, otherwiſe it will put by Eruption, or at leaſt hinder it very much.

MEDICINES for this Uſe are;

1. SUCH as dilute, correct, and imbibe the acrid Serum, and bring a pleaſing Refrigerium to the Viſcera; Milk boil'd with a triple Proportion of Water, *Decoct. alb.* for conſtant Drink, for Beer muſt be wholly avoided.

℞ *Decoct. alb.* (*per ſubſidentiam à pulvere liberati*) lbij. *Amygd. dulc. excort.* ℥j ß. *Sacch. alb.* ℥j. *f. Emulſ. a.*

2. SUCH as appeaſe the Fury of the Spirits, and Rapidity of the Blood. Theſe are Paregorics.

℞ *Aq. Cinnam. ten.* ℥ij. *Syr. de Mecon.* ʒvj. *Pulv. Terr. Japon.* ʒß. *m. f. Hauſt.*

3. SUCH as drive gently the morboſe Matter into the Habit of the Body, and at the ſame time heat not the Blood: Temperate Cordials and Sudorifics have Place here, ſuch as *Pulv. è chel. Comp.* and for this Purpoſe it will be neceſſary that the Sick keep wholly a Bed, but not lie too hot.

4. SUCH as being rough and auſtere, have Power to conſtringe the Fibres, and purſe up the Mouths of the Veſſels that open into the Inteſtines.

℞ *Pulv. è chel.* C. ʒß. *Terr. Japon. gr.* viij. *ſpec. Diamb. gr.* ij. *f. Pul. qui cum Succ. Cherm. q. ſ. Cogatur in Bolum.*

℞ *Aq. Cinnam. ten.* ℥vj. *Aq. Cinnam. fort. Syr. Cydon.* āā. ℥j. *m. f. Julap.*

℞ *Cydon.*

℞ *Cydon. radulâ raſ.* ℥viij. *Aq. font.* lbij. *ſtent ſimul per hor. col. fortiter expreſſ. adde Syr. è Rubo Idæo* ℥iiij. *m. pro potu ordin.*

℞ *Decoct. alb.* (*ſubſidendo clarefacti*) lbj. *Conſerv. Roſ. rub.* ℥ij. *coq. ad* ℥xij. *col. adde Vin. Canar. Aq. Cinnam. fort. aa.* ℥ij. *m.*

℞ *Ter. Japon.* ℥ij. *Bol. Arm. Pulv.* ℥j. *coq. in Aq. font.* lbiij. *ad* ij. *ſub finem add. Conſ. Roſ. rub.* ℥iiij. *Col.* (*à pul. craſſiori ſubſidendo liberat.*) *adde Aq. Cinnam. fort.* ℥ij. *m.*

℞ *Radi Torment.* (*vel Biſtortæ, vel Cortic. Granat.*) ℥j. *Ter. Japon.* ℥ij. *coq. in Aq. font.* lbiij. *ad* lbij. *ſub finem add. Diaſcord.* ℥ß. *col. add. Aq. Epidem.* ℥ij. *Syr. è Roſ. ſicc.* ℥iij. *m.*

Of BLEEDING *at* NOSE.

THIS is to be diſtinguiſh'd from the Bleeding Small-Pox, by the Signs hereafter to be ſpoken of.

IF the Hæmorrhage happen before Eruption, or even in the Beginning of it; if the Party be a young Man or Woman, full of Blood, and of an hot Conſtitution, and the Flux be not immoderate, it uſually is for Good, and ſupplieth the Omiſſion of Phlebotomy.

IT may take down the Orgaſm of the Spirits, aſſwage the Ebullition of the Blood, help the Head and Lungs, and make Room for the thronging Pocks to iſſue out eaſily.

A Doctor of Phyſic told me, he fell ſick when a Student at *Oxford*, in a Time when the Small-Pox was epidemic there, had the uſual Symptoms of cruel Pain in the

Head and Back, together with a Delirium, came out full of Puſtles, which his Phyſician pronounc'd to be the Small-Pox.

THEN he fell a Bleeding at his Noſe ſo profuſely, as to loſe at leaſt two Pounds of Blood by Eſtimation. Upon this his Fever, Delirium, Pains, and all other Illneſs went off together; the Puſtles all vaniſh'd; he ſlept ſoundly; and from that Time (which was above 30 Years ago) he grew well, and never had the Small-Pox ſince.

WHEREFORE, if the Hæmorrhage keep within moderate Bounds, and hath no apparent ill Effect, it is not raſhly to be reſtrain'd; but when it is neceſſary to do it, the Things to be mention'd by and by under the Head of *Menſes* may be uſeful.

WHEN the Blood is extremely over-heated, and boileth and rarefieth, and is ready to burſt the tender Veſſels, and run out, where-ever it can make its Way, the following perhaps may be ventur'd upon.

℞ *Herb. Plantag. contuſ.* ℥j. *Aq. font.* lbj. *ſient. ſimul in frigido per hor.* ß. *Col. expreſſ. adde Ol. Vitrioli q. ſ. ad aptam aciditatem; deinde repon. donec Sedimento præcipitato, liquor evaſerit clarus. Hujus cochl.* vj. *propinentur; & quotiès opus fuerit repetantur.*

BUT in giving this, or the like very cold Medicines, the Phyſician muſt diligently attend, and nicely obſerve what Effect they have; for though he ought to reſtrain and qualify the Fire, yet he muſt take ſpecial Care not to put it quite out.

WHERE the Fever runneth not high, hot Bricks or Sand Bags put to the Feet, may, by quickening of Circulation in the lower Province of the Body, make Revulſion

vulſion from the upper, and thereby put a Stop to the Hæmorrhage.

TENTS cut out of the Fungus, call'd *Crepitus Lupi*, dipp'd in Vinegar, then roll'd in powder'd Bole, may be put up the Noſe, to conſtringe the Mouths of the Veſſels.

A dry'd Toad bruis'd, ſew'd up in a Silk Bag, and hung about the Neck, may be try'd. With this I ſuccour'd a Girl of about eight Years of Age, upon whom the Meaſles had come out fairly at firſt, but upon a profuſe Bleeding at Noſe they turn'd black, and then ſtruck in again: Perhaps the Horror of ſo foul and ugly a Thing in her Boſom might work this Effect, by putting the Spirits to flight, and depreſſing their Impetus; or (as *Helmont* would expreſs it) by terrifying the Archæus.

SOME would have Saphire or Blood Stones hung down from the Neck; but for my own Part, I cannot put much Truſt in Things to which ſuch occult and marvellous Qualities are aſcrib'd by the Vulgar, as I can have no manner of Conception how they operate.

Of the MENSES.

IF they break down at or near the accuſtom'd Time of the Month, flow not too rapidly nor plentifully, hold not on longer than they us'd to do, and, above all, the Sick bear it well, without any Failing; in theſe Caſes no Stop muſt be put to them, but it muſt be left to Nature to go on in her own Way, and this eſpecially when it happens before Eruption.

IF they come in the Stage of Eruption, or any time after, they muſt be diligently watch'd, and nicely ma-

nag'd, according as the preſent Exigence ſhall from time to time require.

IF at theſe Times there be a manifeſt *Plethora ad vires*, the Spirits are furious, the Blood inflam'd, and the Fever, Head-ach, Watching, Delirium, and the like, be continu'd, then the Menſes are to be ſuffer'd a while; the Phyſician carefully obſerving, that they keep within the Bounds of Moderation, and bring no apparent Detriment.

BUT whenſoever or howſoever they come, if it be evident that they occaſion Vapours and Faintneſs, and hinder Expulſion; or if in the Stage of Augmentation, by ſubtracting of the Blood, Serum, and Steams, they hinder the Puſtles from growing, and colouring red; in theſe Caſes they are of moſt pernicious Conſequence, and muſt be forthwith ſtopp'd.

AS to what my own Experience hath been in this Caſe;

I was with one who had them break down during the Stage of Augmentation in a fluxing Sort, upon which the Puſtulæ turn'd livid, and almoſt black: I gave her generous warm Cordials notwithſtanding the Efflux of Blood, and particularly *Lapis de Goâ*, frequently and plentifully; upon which the Spirits reviving, and the Fibres recovering Tone, and the gaping little Veſſels cloſing, the Bleeding ſtanch'd, the Puſtles grew freſh, and ſhe recover'd.

I waited upon a young marry'd Gentlewoman, who, without any Appearance of a Plethora, or Fervor of Blood, had the Menſes from the Beginning of Eruption, through all the Stages, continually, but never rapidly.

I then was not got into the Thought of Blood oozing out of the Extremities of the ſmall Arteries, for want of Spirits and Tone to keep them from gaping too wide.

OTHER-

OTHERWISE I had forborn Paregorics, and given Cordials, but I inſiſted wholly upon Stiptics, and could not in the leaſt reſtrain the Flux; and ſhe dy'd the eleventh Day.

BUT this muſt be looked upon as a particular and unuſual Caſe; for moſtly, the Menſes break down by reaſon of acrid Serum, irritated Spirits, and hot boiling Blood.

AND then hot Regimen muſt carefully be avoided, and Cordials, Aromatics, vinous and volatile Spirits are pernicious; but Refrigerants, Incraſſants, Stiptics, and Paregorics are indicated.

THIS very Year, 1728, I attended a Gentlewoman who was brought a-Bed the very ſame Day that the Small-Pox brake out; it was a Diſtinct Sort: the Lochia perſiſted, and went off in a due Manner; her Temper of Body was moderate, and her Pulſe beat all along in good Order; ſhe took not much, and with little Trouble grew well again.

STYPTICA & INCRASSANTIA.

℞ *Rad. Symph. maj.* ℥j. *coq. in Aq.* lbj ß. *ad* ℥xij. *col. adde Aceti & Syr. Coral.* ā*ā.* ℥ij. *m.*

℞. *Gum. Tragac.* ʒiiij. *diſſolv. in Aq. Plantag.* ℥x. *col. ad Album Ov. Conquaſat. N°* ij. *Succ. Urtic. depur. Syr. Alth.* ā*ā.* ℥ij. *m.*

℞ *Aq. Plantag.* (*vel è ſperm. Ranar. vel. flor. Samb.*) ℥xj. *Alum. rup.* ʒij. *Sacch. Saturni gr.* vj. *Syr. Alth.* ℥j. *m. denter Cochl.* vj. *tertiâ quâque horâ.*

℞ *Alum. rup.* ʒj. *ſang. Drac.* ʒj. *Sacch. Saturni* ʒß. *cum Alb. Ov. f. Pil.*

Give *Ol. Vitrioli* in all her Beer.

Of

Of HEAT *and* SUPPRESSION *of* URINE, *and of* MICTURITION.

THESE are caus'd by the Acrimony of the Serum, fiery Heat of the Blood, and violent Efforts of the Spirits, whereby the Reins, Ureters and Bladder being inflamed, pained and conſtringed, are hurt and diſabled, and put by their Functions.

IN this Caſe, Dr. *S.* ſaith, nothing ſucceeded ſo well as taking the Sick out of Bed, who being ſupported by Aſſiſtants, when he had walked twice or thrice a-croſs the Chamber, preſently made Store of Urine.

DR. *Morton* attempted to relieve his Patient with *Pulv. Æthiop. gr.* xv. or ℈j. to be given in the Bolus following, and to be repeated every ſix Hours.

℞ *Theriac. Androm.* ℥ß. *Pulv. è chel. comp. Lap. Contray. Rad. Serpent. Virg.* ā*a.* ℈ß. *Laud. liqu. gt.* xv. *Syr. Caryoph. q. ſ.*

BUT this without Succeſs. And truly, I ſhould not expect any Good from ſo hot a Medicine, the Caſe being moſt certainly an Inflammation chiefly of the carnous, and not the membranous Fibres of the Kidneys, which being but of a dull Senſe, feel no great Pain.

RIVERIUS his firſt Obſervation, is of a total Suppreſſion of Urine without Pain. *Willis* would account for it from the ſtrait Compages of the Blood, which would not ſuffer the Serum to ſeparate from it.

BUT *Riverius* attributes it to a ſtretching Fulneſs of Blood, and an over-ſtraining of the Parts beyond their Tone; and, in my Opinion, he is in the right of it, ſince

ſince he cured it by letting of Blood, without any other Remedy.

NOW if we could let Blood, in this variolous Caſe, it is likely we ſhould thereby give Relief: But it will ſcarce ever be granted; and if it ſhould not ſucceed, will be notoriouſly ſcandalous; therefore, the moſt powerful Thing yet known for us to inſiſt upon in order to correct the Acrimony of the Serum, and Fervour of the Blood is, a liberal Uſe of *Ol. Vitrioli:* Concerning the giving of which, ſee *E. Hamilton*'s Caſe, to be deſcrib'd in its Place.

ONE had labour'd ſeveral Days of a total Suppreſſion of Urine, without any Stone, or Drop of Water in the Bladder; whereupon Dr. *Baynard* gave a great Quantity of Acids; upon which, the Patient made Urine plentifully, and recovered.

A Member of Parliament, in the ſame Condition, was by the Uſe of Acids reſtor'd to Health: Several other Caſes of the ſame Sort, and with the like Succeſs, are mention'd in the *Philoſophical Tranſactions.*

BUT ſometimes it happens, that towards the latter End of the Diſtemper, when there is no Fever, nor other Illneſs, the Party cannot make Water freely, yet hath no Scalding of Urine, nor much Pain; this proceeds from Puſtles in the Penis itſelf.

THIS Symptom will go off of its own accord, when the Puſtles come away; but if there be need of Aſſiſtance to help it, a ſmall Wax-Candle, oiled with Oil of Almonds, may be gently put up, and thereby the Paſſage will be cleared.

To Preſerve the EYES.

I Propoſe, for Prevention of the Pocks, and Rheums coming near, or into them, to waſh them before Eruption, and all the Time of it with the following Repellent.

℞ *Aq. Plantag.* (*vel. Flor. Samb.*) ℥ij. *Alum. rup.* ϑij. *m.*

OR with this:

℞ *Aq. Roſar. Alb.* ℥ij. *Troch. Alb. Rhaſ.* ʒß. *Vitrioli Alb. Sacch. Saturn.* āā. *gr.* iiij. *m.*

THE Moiſture of the Eyes being bak'd hard in the Hairs of the Eye-Lids, and gumming them up, ſhuts into them Tears, and variolated Humours, which growing ſharp, hurt the tender Adnata and Pupil itſelf, and dull the Sight.

RUBBING of the Edges of the Eye-lids and Hairs with freſh Butter waſhed in Roſe-Water, ſeems likely to do good in this Caſe.

IT may be try'd whether the Clipping off the Cilia Hairs may not be of Uſe. I think they will grow again.

Of the MOUTH *and* THROAT.

ABOUT the Beginning of Eruption, commonly a Pain ſeizeth the Jaws, and cauſeth ſome Soreneſs of the Throat.

I think this cometh only in the Confluent Sort, and I take it to be the Fore-runner of Salivation; for, upon the riſing of that, it uſeth to go off.

NOW

NOW I would not have Salivation come on, till Nature hath done what ſhe can by expelling of Puſtles; leſt it occaſion an unſeaſonable Stop to her Work.

AND Salivation is of that Nature, that when once the Matter of it is colliquated, prepared and ready for Iſſue, it can hardly be prevented from flowing out by any Means; and therefore I think we may ſafely endeavour, during this Stage of Eruption, to keep it back.

IF this could be done, it would prove a Matter of very good Conſequence in the laſt Stage, to help the Throat when Salivation groweth thick, and can hardly be hawked up.

KEEPING of the Throat hot will attract into it much variolated Saliva, and great Numbers of Puſtles, and alſo will inflame them; therefore it is not good to put on a Stay, but to leave the Neck and Throat as bare, and open to the Air, as they uſed to be at other Times.

BUT when all the Puſtles are come into it that will, I then (and not before) adviſe putting a Stay under the Throat from Ear to Ear, to preſerve natural Warmth in, and free Paſſage thro' the Glands, and thereby promote Salivation.

FOR this Purpoſe I have known a Cataplaſm preſcribed of Rue beaten up with *Axung. Porc.* which when it was ſpread upon Linen, had Millepedes bruiſed alive, and laid upon it; and truly I thought it did a great deal of Good.

DURING the whole Time, till Eruption is quite finiſhed, I would have all their Drink be actually cold, that it may repel from the Throat, as alſo from the Oeſophagus and Stomach; further, to keep back Humours, and too early a Salivation, let the Patient frequently hold in his Mouth, without gargling, this, or ſomething like it, cold.

℞ *Herb. Plantag. Fol. Vitis, Cortic. Prunel. ſilv. Balauſt.* ā. ℥ij. *Coq. in Aq. font.* ℥xx. *ad* ℥xiiij. *in col. diſſolv. Mel. Roſ.* ℥ij. *Ol. Vitriol. q. ſ. ad gratiam.*

OR, he may uſe this Electuary, and ſpit it out.

℞ *Conſerv. Roſ. Rub. Fruct. Cynosb.* ā. ℥j. *Alum.* ℈j. *Boli Arm.* ℈ij. *Syr. Cydon. q. ſ. m.*

BUT after Eruption compleated, I forbid all actual cold Drinks, as alſo all Repellents.

SOME have fancy'd, that a Gold Chain worn about the Neck hath Power to keep the Pocks out of the Throat.

Of SALIVATION.

IS it not one of the moſt unaccountable Things in the World, that tho' *Rhazis* plainly knew of Salivation in the Small-Pox, ſaying, It is neceſſary to forbear ſuch Medicines as ſtop Spitting, becauſe it would prejudice Reſpiration; yet none ſince him, till Dr. *Sydenham*, hath, in Books, taken Notice of this ſo remarkable, conſiderable, and frequently occurring Symptom?

THE Salival Matter is ſtrained out of the Arterial Blood by the Parotides, Maxillares, Sublinguales, Tonſillæ, and other numerous oral Glands, in the inward Coat of the Mouth.

CHILDREN have it not, (tho' Dr. *Liſter* denieth that) but commonly a Diarrhœa inſtead of it.

IT is not ſeen in the Diſtinct Small-Pox, but ſcarce ever faileth in the Confluent, and is abſolutely neceſſary, Nature having inſtituted it for the carrying off of ſuch virulent Matter, as could not be prepared to fit the Pores and Paſſages into the Puſtles.

IT

IT beginneth in ſome together with Eruption; in others, towards the latter End of that Stage, or Beginning of the next.

AND if Eruption proceeds proſperouſly, the later and the more leiſurely Salivation cometh on, the better it is to be liked; foraſmuch as it ſhews, that the greateſt Part of the morboſe Matter is well concocted, and ready to go off, as it ought to do by the Puſtles.

IT uſually makes its Entrance with a little Soreneſs of the Throat, and a ſlight Inflammation of the Tonſils, which quickly grow well again.

WHEN the Ptyaliſm cometh to be ſettled, the Latex Seroſus runneth freely, except the Puſtles chance to ſeize thoſe Parts, or the Saliva be ſharper than ordinary; which cauſes the Salival Glands to ſwell, whereby the Paſſages are ſtreighten'd, and the Current through them obſtructed.

THE Matter iſſuing forth is at firſt very thin, and is ſpit up eaſily in great Quantity, ſo that the Sick fouleth a great deal of Linen; but it ſmelleth not as it doth in a Salivation raiſed by Mercury.

DR. *Collins* relates it of a Lady, that in the Small-Pox vented, by the Way of Salivation, two or three Quarts a Day of thick roapy Matter, and yet ſhe dy'd.

IF the Diſtemper make out ſo as to be rather a Contiguous than a Confluent Small-Pox, a ſmall Salivation may be ſufficient to carry off as much as is needful.

BUT, in a full Confluent Sort, a ſmall and ſhort Ptyaliſm ſhews the Matter to be untractable, and Nature weak, which portend an unhappy Event.

IT ſhould not ceaſe, nor much decreaſe, before the latter End of the Diſeaſe, but be continued till all the variolous Matter that is to come into the Puſtles be maturated, and till the Swellings of the Face and Hands appear; namely, about the 11th or 12th Day.

THERE are ſome Perſons, whoſe natural Make is ſuch, that they are hard to be got into a Salivation even by Mercury. Theſe, probably, will not come into a kindly variolous Salivation: What if in this Caſe Diuretics ſhould be inſiſted on? I never uſed *Pulvis Buſonum*, ſo much cried up by Dr. *Morton* for this Purpoſe, for I never heard from any other that it did Wonders.

LET the Rheum run never ſo well, yet if Maturation proceed too ſlowly, or irregularly, Recovery is to be doubted of.

IF Salivation, by Reaſon of taking Cold, or by the undue Uſe of Cordials, or by keeping too hot, ſtop ſuddenly before its Time, and return not again in four and twenty Hours, utmoſt Danger is at Hand.

IF Rigour and Horror happen during Salivation, it is bad; as ſignifying that the Spirits are aſſaulted afreſh, and a Fever Fit is to be look'd for.

IF a Diarrhœa break out in the Time of this Evacuation, it will effectually take it off, and be extreamly perillous; therefore as ſoon as ever it cometh, it muſt be immediately remedied.

IF the Salivation declines towards the latter End of the Diſtemper a little ſooner than it ſhould do, yet if the Head and Face ſwell, or a great Flux of limpid Urine then happen, theſe may make ſome Compenſations, and all may poſſibly end well.

BUT

BUT if Salivation, Flux of Urine, and Swelling, all fail before Maturation be entirely perfected, namely, about the eleventh Day, the Caſe is altogether hopeleſs; Failure of Reſpiration, Faltering of the Pulſe, Twitching of the Tendons, Spaſms, Delirium, Coma, *&c.* are to be expected.

IF it runs a great while after the ſecond Fever, and all the other Symptoms are gone, it ſhews, that tho' the Fire be, as it were, put out, yet all its Fewel is not ſpent, and the Blood is not perfectly and plenarily diſcharged and cleared.

OR, that it is corrupted and depraved; and it is to be feared, the Sickneſs will be followed by Boils, Blotches, Ulcers; perhaps the Party may come to be ill-habited, ſickly, hectic, conſumptive.

WHEREFORE it is highly needful to bleed and purge him throughly, and to ſweeten the Blood with antimonial Powders, temperate Antiſcorbutics, Juices of Herbs, Diet-Drinks, Mineral-Waters, and to drain off Humours by one or more Iſſues.

SOMETIMES after Salivation hath ſeem'd to ceaſe, it hath after two or three Days return'd again afreſh, and held on a long Time after the Party hath been, as to all other Matters, well recovered.

To Promote SALIVATION.

KEEP the Neck and Throat warm.

LET nothing come into the Mouth that is actually cold, or aſtringent.

WASH the Mouth frequently with warm Small-beer alone, or with a little White-wine, or Sal Prunel.

IF

IF the Compages of the Blood be ſo ſtrict and cloſe, as not readily to colliquate, and part with its variolated Serum, and ſend it into the Salival Ducts, a very liberal Uſe of ſuch Drinks as dilute, refrigerate and attenuate, will be very ſerviceable.

℞ *Cort. Rad. Petroſel. Fœnic.* ā. ℥ij. *Glyc.* ℥ſ. *coq. in Aq. font.* lbiij. *ad* ij. *col. adde Syr. è quinque Radic.* ℥ij. *f. Decoct. in quo diſſolv. poſſint Sal Prunel. vel Flor. Sal Armon. vel Ol. Vitriol. pro Medic. judicio.*

SACK-WHEY is in Vogue, and perhaps the more ſo, beauſe the Nurſes univerſally love Sack; but it is not grateful to all People, becauſe of its fulſom Sweetneſs, which quenches not Thirſt; and, in my Opinion, it is too full of Wine to be drank of in ſuch large Quantities as this Caſe requireth.

I like better, clear Poſſet made with only Milk, and Small-beer, or with a very ſmall Proportion of thin White-wine, or Juice of Limon.

BUT the very beſt of all Drinks is Small-beer, provided it be not bitter, ſowre, nor ſtale and hard, nor upon the Fret.

ALL this while, the conſtant Uſe of Paregorics muſt by no means be omitted; for if the Fever run high, the Patient cannot ſubſiſt without them, and all will fly into Confuſion: And tho' they ſeem a little to diminiſh Salivation for a while, yet when the Spirits recover their Vigour again by Reſt, it will return afreſh.

SEE more concerning Salivation, in the Stage of *Maturation.*

I have heard, there hath been an Attempt made to promote Salivation by the Exhibition of Calomel; but it ſucceeded

ceeded not proſperouſly, and therefore was left off again: And truly I like it not for the following Reaſons.

1. THE Mouth and Throat are now ſwell'd up, and ſore; and this Medicine will ſwell them up more, and, perhaps, ſo much as to endanger Strangling, and Suffocating.

2. ARTIFICIAL Salivation ſometimes proves very hard to be kept within the Bounds of Moderation; and if it ſhould ſo happen here, (as it may well be fear'd it will, ſince the Small-Pox had colliquated the Serum beforehand) it muſt occaſion intolerable Trouble, and utmoſt Hazard.

3. WHEN Mercury is given to raiſe a Salivation, it always kindles up a Fever; and now if another freſh Fever be added to the ſecond Fever, which Nature had much ado to ſubſiſt with before, it is likely ſhe muſt quite ſink, and utterly give out.

Of WOMEN *with* CHILD.

THEY will be in moſt imminent Danger of Miſcarriage, eſpecially if the Diſtemper be Confluent, and moſtly in the Time of the Second Fever: In this Caſe, the Phyſician hath need of an exact Judgment, and diligent Care.

IF ſhe hath been uſed to Miſcarriage, perhaps it can ſcarce be prevented, by any Means whatever, in or near that Month, wherein ſhe ſuffered Abortion before.

AND then it will not be Prudence in the Phyſician, to be over-forward, preſumptuous, and officious in his Attempts, or Promiſes. If he carry himſelf warily, do little, and make his Prognoſtics in Time, though he cannot ſave the poor Woman, yet he may poſſibly come off pretty ſafe himſelf.

BUT

BUT when ſomething is requir'd, and muſt be done, if ſhe be tolerably ſtrong, lively, and plethoric, ſhe muſt be let Blood in the Arm, let it be what Time it will before the Stage of Augmentation.

ALSO the increaſing of the Fever, and all kind of violent Symptoms, and Diſturbances, both in the Spirits and in the Blood, muſt be, as much as poſſible, prevented and allay'd.

TO theſe Ends, quiet and cool Regimen, Acids, Styptics, Hyſterics, and Paregorics are to be order'd according as the Exigences and Circumſtances ſhall make requiſite.

℞ *Gum. Lacc. Sang. Drac.* ā*ā.* ʒſ. *Alum. rup. gr.* xvj. *Sacch. Saturni gr.* iiij. *f. Pulv. pro* iiij. *Doſib.*

℞ *Conſerv. Roſ. rub.* ℥iiij. *Aq. Plantag.* lbij. *Ol. Vitriol. q. ſ. ad gratiam. f. Infuſ. calida per hor.* j. *& col.*

IN the Seaſon, when Quinces may be had, the following Cydoniat is a moſt pleaſant Julep, and much to be eſteemed of in this Caſe.

℞ *Cydon. radulâ raſ.* ℥viij. *Aq. font.* ℥xxviij. *Stent ſimul in frigido per hor.* j. *col. fortitèr expreſſ. adde Syr. è Rubo Idæo* ℥iiij. *m.*

I would have it here noted, that Epiſpaſtics are to be avoided, becauſe they may cauſe Sharpneſs of Urine, and Strangury, and conſequently Abortion.

I was ſent for to a Gentlewoman with Child; the Puſtles being come out, I was not permitted to bleed her.

SHE had ſuch cruel Pains in her Head and Back, and ſuch intolerable Anxieties and Reſtleſneſs, that ſhe could in

in no wiſe bear to lie in Bed, until the Puſtles being all come out, the ſaid Symptoms went off.

AFTER this ſhe had, at every Turn, ſuch Pains and Bearings down, as tended towards Abortion: But theſe we conſtantly alleviated and put by with the aboveſaid Cydoniat, *Ol. Vitrioli*, and *Paregorics*; of which ſhe took incredible Quantities; the Apothecary told me, ſhe took, as near as he could compute it, half an Ounce of *Ol. Vitrioli*, during the whole Time.

THE eighth Day black Urine came from her, and continued ſo to do the whole Remainder of the Sickneſs.

THE ninth Day, a great Number of Petechiæ broke out upon her, of ſo deep a Purple Colour as to be almoſt Black.

SHE recovered, after about ſixteen Days; but ſome of the Scabs ſtuck ſo on her Forehead, that, it was at laſt Surgeon's Work for a Month to take them off, and heal the little Ulcers; and after that, ſhe had a ſore Breaſt, which was a very long Time before it could be cured.

SIX Weeks after Recovery, her Reckoning being fully compleated, ſhe was brought to Bed of a Child, that was perfect and well, and likely to live: But a Week after Birth it fell ſick, and at ſix Days end it dy'd; the two laſt Days it groaned pitiouſly, and ſuffered unſpeakable Sickneſs and Anguiſh, and dy'd very hard.

AFTER its Death the Small-Pox came out thick upon its Breaſt, and Belly, and were perfectly black.

THIS Sickneſs hath ſo weaken'd and hurt the whole Syſtem of her Spirits, that ſhe telleth me, tho' it was ten Years ago that ſhe had it, yet ſhe is ſtill apt to fall into unaccountable Starts and Frights, and vapourous Affections, which ſhe knew nothing of before.

IN this Caſe, I did plainly ſtave off, and put by Abortion, whenever it threaten'd, by mere Strength of Medicines.

AND whereas there was a Tendency from the very firſt to a Bleeding Small-Pox, I hinder'd a total Diſſolution of the Blood; and when on the eighth Day, tho' the whole Maſs of Globules was not broken, yet many of them were into their Minima, by the virulent acrid variolous Matter, and thereby as it were calcined, and deprived of Spirit and Vitality, and turned into black Corpuſcles, which breaking away with the Urine, gave it that Colour.

AND many of theſe Globules, which were in a leſs Degree mortify'd, and had ſome little matter of Spirit with them, being ſet forth into the Skin, were not abſolutely black, but deeply purple.

THE Caſe of the Infant manifeſtly proves, that Infection (even tho' taken in the Womb, which we might think would therefore ſoon take effect) may lie quiet undiſcover'd ſix Weeks, and then break out at laſt.

The Fourth STAGE *of* AUGMENTATION.

THIS taketh up the 5th, 6th, 7th, and 8th Days.

AT this Time the Blood being in great meaſure freed from the inteſtine Tumult, by reaſon the Separation is finiſhed, and the greateſt Part of the variolous Matter diſcharged into the fleſhy Parts and Cutis, the Patient is at Eaſe, and lieth in good Temper, and hath almoſt nothing to complain of.

BUT where there is a great Quantity of variolous Matter aſſimilated, and the Diſtemper is of the Contiguous Sort, it may continue all the Time of Augment; but in

ſo

ſo mild a Degree as not to produce any troubleſome Symptoms, and is only juſt enough to promote a free Tranſpiration, Tumefaction and Maturation of the Puſtles, and then it goes off for good and all.

IN the Confluent Small-Pox, this firſt Fever commonly continueth after Eruption, runneth through the whole Stage of Augmentation, and goeth not perfectly off till the ſecond Fever beginneth.

BUT tho' the groſſeſt of the morboſe Matter which formeth the Puſtles, be, in the Time of the foregoing Stage, carried out into them, yet it is further more abſolutely neceſſary in this Stage of Augmentation.

THAT both the more ſubtile Halitus, or variolous Gas, never ceaſe perſpiring and flying off through the Puſtles and Spaces about them; and alſo that ſanative Steams and Serum inceſſantly continue paſſing into the puſtulary Phlegmons the whole Proceſs of the Diſeaſe, whereby Matter may be furniſh'd for the Support and Growth of the Puſtles, and Maturation afterwards may be performed.

THESE Steams were wont, in Time of Health, to paſs off by ſenſible Sweat, and inſenſible Perſpiration; but now the Figures and Bigneſs of theſe little Corpuſcles being by the febrile Coction, and variolous Copula's, made different from what they uſed to be, only the moſt ſubtile and minuteſt of them tranſpire, and the reſt do partly run into the Puſtles and Interſtices, and partly remain within the Maſs of Blood, to paſs off by Salivation and Tumefaction.

IF theſe Steams be temperate and benign, and bear out univerſally and regularly, the Puſtles will ſtand up round, grow ſenſibly every Day in all their Dimenſions, even to

the Bigneſs of a Pea in the Hands, but not ſo large in the other Parts:

FOR the Puſtles in a Diſtinct Sort on the Hands and Feet are large, but are leſs and leſs the nearer they approach the Trunk.

THEY generally arrive to their juſt Height the eighth Day, and then begin to dry up into Scabs and fall off.

BUT the Puſtles on the Hands being more pertinacious than thoſe on the other Parts, continuing freſh and white, hold out a Day or two longer, and then go off by Diſruption; but thoſe of the Face and other Parts, by Diſquamation.

IN the Confluent Sort, the Eruptions, during the Stage of Augmentation, riſe not up conſiderably into Pimples and Heads, (as they do in the Diſtinct) but flowing into one another in multangular and irregular Figures, remain flattiſh.

AND, where the Diſeaſe runs high, appear like a red Bladder covering all the Face; and afterwards ſhewing like a white Pellicle ſticking to the Face, they riſe not much higher than the Surface of the Skin.

ABOUT the fifth Day, the Baſes of the Puſtles, which at firſt were pale, begin to look red like a Damask-Roſe, and ſwell with a ſtretching, tearing Pain; which Pain hourly increaſing, occaſions there ſuch a Tumour and Inflammation, that the Diſeaſe proceeding on, the Eye-lids are ſo filled and tumefied, that oftentimes the Sick is deprived of Sight; and when they are thus ſwell'd, they appear clariſh and reſplendent, ſomething like Bladders filled with Water: But this happeneth not, unleſs a great Number of Puſtles are thrown out there.

BY degrees the Swellings take the Head, Forehead, Face, Throat, and after that the Hands; and all this without any remarkable Heighth of a Fever, where the Small-Pox is a diſtinct Sort.

SOMETIMES it happeneth, that when the Patient hath been injured by unneceſſary Bleeding, Purging, or a too cold Regimen, the Puſtles flatten on a ſudden, and flaſh abroad, whence now and then a Diarrhœa ſupervenes, ſo that the Patient, if he be adult, is in imminent Danger; for the variolous Matter being drawn in, Nature is altogether unable to eject it again by the Pores, and keep it out.

BUT Symptoms that proceed from Cold rarely occur, for this being a vehement hot Diſtemper, an Error on this Side is much leſs, and ſeldomer happens than on the other.

DR. *S.* informs us, that the Sick in the Diſtinct Sort is ſo apt to ſweat, that he can hardly be hinder'd from it; and ſometimes, where he hath been over-heated with Cloaths, or Cordials, at length, thoſe Particles being eliminated by Sweat, that ſhould have ſerved for the Elevation of the Puſtles, and Swellings of the Face, the Interſtices grow flaccid, and wither, tho', at the ſame Time, the Puſtles themſelves look red, and continue elevated, even after Death.

AND the Sweat which flowed to the eighth Day, now of a ſudden, and of its own accord, quite ſtops, and cannot be recovered by even the higheſt Cordials.

AND the Sick is taken with a Frenzy, Anxiety, Toſſing about, violent Sickneſs, makes Water frequently, and but little at a Time; and in a very few Hours dieth: But this I take to be a very rare Caſe.

WHEN

WHEN the Fever, together with the morboſe Matter, is come perfectly out of the Blood, and ſettled in the Habit of the Body, the Face will ſwell even to Blindneſs; the Sick will at Times be ſore all over; the Puſtles will grow up to their due Bulk; will become full and plump; and then by degrees white, ſoft, and ripe; quickly after will look ſhrunk and wrinkled, and then dry up into Scabs; and the Diſtemper ends the eighth or ninth Day.

WHEN they ſtand up with raiſed Heads, and look of a fair Roſy Colour round their Baſes, it is a ſure Sign that Nature works well, and ſends out Serum and Steams, with variolous Matter, duly and effectually, and that it hath begun that moderate Inflammation, which is neceſſary to bring them to Maturation.

WHEN the Eruptions continue flattiſh, and grow not out, and want Colour, we are to conclude, that tho' the morboſe Matter perhaps may not be very viroſe, yet there is a Failure in the Spirits; they are not lively and brisk enough to puſh out variolated Serum and Steams into the outer Parts as they ought to do.

SOMETIMES tho' the Serum is not much tainted with very virulent Particles, yet it happens that ſo little of it is ſent into the Puſtles, that they are ſtarved and never grow conſiderably in Dimenſion, or Heighth, nor come to fair Maturation, but continue hardiſh, and contain but little Pus. This Sort the Nurſes call a Horney Pock: It is apt to leave much Foulneſs in the Blood, producing Boils and Blains.

SOMETIMES when the Growth of the Puſtles is begun, the Supply of Serum ſtoppeth, and then they ceaſe growing in Bulk, but yet gain ſomething of a ſolid Conſiſtence and Hardneſs. After this, upon ſome Occaſion or other, the Emanation of the Serum returneth; but that freſh

freſh Serum being not able to ſink into and incorporate with the harden'd Puſtles, makes a new Top to them; even as a Drop of Tallow, melted down upon a Drop of hard Tallow, will ſtand up in a diſtinct Head. This they call an Acorn Pock, conceiting it repreſents an Acorn in its Cup: It maturates not kindly.

SOMETIMES when the Puſtles have attained almoſt their utmoſt Growth, and are riſen up, and ſtand fair for ſome Days, divers of them ſhall have a Dimple in their Apex.

THIS is cauſed by over-hot Treatment, or by Weakneſs of Spirits, and Failure of Steams; for the Baſis of the Puſtle remains firm, and the Body of it ſhrinks not, yet its Apex wanting Supply ſufficient to fill, and ſtretch it up plump and round, ſinks into a Pit.

THESE Pits have commonly a black Speck ſcarce ſo big as a Pin's Head in their Centre; which is becauſe that Particle of the Cuticula which covers the Top of the Puſtle, being exquiſitely thin, and not kept vivid by the Affluence of the vital Spirits, becometh black, and as it were mortified; the more ſubſtantial Puſtle itſelf, and the Fleſh about it, continuing at the ſame Time vital.

WHERE the Eruptions are very anomalous, come to Bliſters, Sores, and Sphacelations, and where they break out in the Viſcera, it ſeems to me, that the variolous Matter is venomouſly acrid, and volatile in a great Degree; that it was not rightly extricated, and ſubacted; that it hath join'd the Globuli ſo as to form with them ſuch irregular, ill-ſized, and ſhaped Compoſits, as were not fitted to the Paſſages and Pores for Excretion, and could never get out in due Form.

WHERE Petechiæ appear among the Pocks, we may apprehend that many of the Globuli (though not all univerſally

verſally through the whole Body) are broken into their minuteſt Atoms, and ſo envenom'd that they cannot unite again into common ſized Globules.

WHERE theſe Petechiæ are of a bright Red, we know that they yet retain ſomething of vital Spirits, and are not paſt all Poſſibility of Recovery; and the more they defect from this Colour into a deep Purple, the worſe they portend.

BUT where they are Lead-Colour'd, Black, or perfectly Blue, they muſt be looked upon as abſolutely deprived of Spirits, and effectually mortified.

WHERE they ſtrike in again, they demonſtrate Want of vital Spirits, natural Heat and Vigour, and they will never come out any more, till the Party be dead.

THINGS *to be avoided and done in the* STAGE *of* AUGMENTATION.

I Do not as yet adviſe Epiſpaſtics (except in particular Caſes) for the Reaſons elſewhere given.

I abſolutely forbid hot Regimen, ſpirituous or aromatic Cordials, vinous and other ſtrong Drinks.

UNLESS to ſuch who by a fooliſh or vitious Cuſtom have made them habitual, and almoſt neceſſary to them.

ALSO to ſuch as are antient, are of a cold weakly Conſtitution, that really ſtand in need of Warmth and Support.

SUCH as have been brought low by unneceſſary Bleeding, Vomiting, Purging, Sweating, *&c.*

WHERE

WHERE there is Sickneſs at Stomach, Fainting, and ſuch a Sinking of Spirits, that they cannot drive out the variolous Matter till rais'd up and fortify'd.

BUT in general, there is ſeldom any need of Cordials at all, and the Abuſe of them is of ill Conſequence. Dr. *S.* never alloweth them till Eruption is finiſh'd.

Si ob Nutricum clamores neceſſe unquam fuerit, ut Cordialia concedantur, prudentis erit Medici, & boni Viri iſtiuſmodi ſolùm præſcribere, quæ Inania ſunt, & prorsùs Innocua; ita earum Importunitati ſatisfacere, atque ab Inſcitiæ, & Negligentiæ Imputatione, ſe defendere poterit.

℞ CCC. ʒij. *f. Pulv. in vi doſes dividend. ſextâ quâque horâ, cum cochl.* v. *Julap. exhibend.*

℞ *Aq. Lact. Alexit. Ceraſ. nig.* ā. ʒiiij. *Aq. Cinnam. hord.* ʒiij. *Syr. Caryoph.* ʒj. *Fol. Auri* N° j. *m. f. Julap. Cord.*

BUT if the Puſtles grow ſlowly, the Interſtices continue pale, the Fleſh feeleth cool, the Pulſe be feeble and ſlow, and the Party have ſick Fits, or a Deſpondency of Spirits, it manifeſtly appears, that Nature wants Aſſiſtance.

IN theſe Caſes, a warmer Regimen, and reviving Cordials, are neceſſary.

℞ *Pulv. è chel. Cancr. comp. Lap. de Goâ* ā. ʒß. *Rad. Contray. gr.* v. *Ol. Cinnam. gt.* j. *Succi Cherm. q. ſ. f. Bol. cum Julap. cochl.* iiij. *aſſumend. & pro Medici judicio repetend.*

℞ *Aq. Lact. Alexit.* ʒvj. *Ment.* ʒj. *Cinnam. fort.* ʒij. *Pæon. Comp. Epidem. Theriacal. (ſine Acido)* ā. ʒj. *Margarit. præp.* ʒj. *Sacch. cand. alb.* ʒiij. *m.*

Cordis regioni applicari poteſt Empl. ex Theriacâ vel Mithridatii ʒiijß. *& Terebint. Venet.* ʒß.

BUT as ſoon as ever it is obſerv'd that Nature riſeth, theſe Cordials muſt inſtantly be left off again.

THE Spirits muſt be continually kept up in Vigour; yet conſtant Care muſt be taken all along that they fly not into Diſorders: To this Purpoſe Paregorics muſt be given in ſuch Doſes, and at ſuch Times, as the preſent Caſe ſhall require; generally ſpeaking they ſhould be given every Evening.

NOW to promote the due Efflux of variolous Vapours, Steams, and Serum, beſides keeping the Body in an adequate, conſtant, eaſy (and, as 'twere, incubating) Warmth, and the Spirits quiet, 'twill be needful, that the Sick drink very plentifully ſuch Liquors as may ſupply Matter for it, and are not remarkable for Heat or Cold; ſuch as ſmall Beer, Poſſet, Barley Water, Emulſions, *&c.*

IF the Serum be grown ſo acrid, and fierce, and ſharp, as continually and vehemently to irritate the Spirits, and liquify the Blood, its Acies and Aculei are to be,

1. BROKEN off, blunted, and corrected by Acids.

℞ *Glycyrrh. Conſ. Roſ. rub.* ā*ā.* ʒj. *coq. in Aq. font.* lbijß. *ad* lbij. *Col. adde Succ. Limon.* ʒij.

℞ *Aq. font. ad med. coct.* lbij. *Syr. è Rubo Idæo* ʒiij. *Ol. Vitrioli q. ſ. ad Aciditatem idoneam. m.*

2. TO be incraſſated, dulled, and ſheathed with ſoft, mucilaginous, incraſſating Medicines.

℞ *Hord. perlat.* ʒß. *Glycyrrh.* ʒij. *Paſſul. Sol.* ʒij. *Raſ.* CC ʒij. *coq. in Aq. ſ.* lbiij. *ad* ij. *ſubfinem add. Conſerv. Roſ. rub.* ʒij. *ſ. Col.*

℞ *Fic.*

℞ *Fic.* ʒiiij. *Raſ.* CC ʒß. *coq. in Aq.* lbiij. *ad* ij. *& Col.*

℞ *Gum. Arab.* ʒiij. *diſſolv. in Aq. hord.* lbij. *adde Album Ov. conquaſſat.* ʒj. *Syr. Alth.* ʒiij. *m.*

℞ *Paſſul. Sol* ʒiiij. *Glycyrrh.* ʒij. *coq. in Aq. f.* lbiij. *ad* ij. *in col. diſſolv. Gum. Tragac.* ʒiij. *m.*

Gum. Tragac. G. Lacc. Lentes, and the like Incraſſants, were us'd by the Antients (tho' I like not G. *Lacc.* in Decoctions, becauſe it boils bitter) to thicken the thin Blood, and ſheath the Spicula varioloſa; but this Uſe being not well underſtood by our Moderns, I conceive was the Reaſon why they left them off.

A Spoonful of Jelly of Hartſhorn may be diſſolv'd, and given now and then in Water-gruel.

IT happens too-too often in this fervent Diſtemper, that the Craſis of the Blood is ſo weaken'd and broke, by either the Virulence of the Matter, or over-hot Regimen, and ſo highly inflam'd, that it is no longer able to ſend out the Serum, and eject the fiery Particles leiſurely and duly; and upon that the Head and Face ſwell not at all, or ſink again before their Time.

SOMETIMES, by reaſon of too great an Ebullition of the Blood, the Sick is ſeiz'd with a Phrenzy; and is ſo unable to bear the Heat, that he endeavoureth with all his Might, to free himſelf from thoſe that confine him to his Bed.

SOMETIMES the ſame Cauſe produceth a contrary Effect, a Coma, ſo that the Patient ſcarce ever wakes, unleſs he be continually rows'd up.

HERE ſome would take the Sick out of Bed, make him walk ſome Turns about his Chamber, ſet him with his naked Breaſt at a Window, put him on a freſh Shirt

and Sheets, Bleed, or give a Glyſter; but if theſe ſhould not ſucceed happily, they would faſten an indelible Mark of Infamy upon the Phyſician.

I am utterly againſt Epiſpaſtics, even in the Coma itſelf, when it is caus'd by Heat and Acrimony, much more in the other Symptoms.

THE Aſſiſtance I can think of, is to give freſh Air into the Chamber, ſtrew the Floor with freſh fragrant Herbs, open the Curtains, lighten the Bed-cloaths, let him turn in Bed as much as he will into cold Places; give liberally Refrigerants and Acids.

IF the variolated Serum, with its virulent Gas, which hath been out of the Blood in the Habit, be afterwards either repell'd, or attracted in again, it as 'twere poiſons afreſh the Blood, kindles a malignant Fever, and produceth the worſt of Symptoms, Phrenzy, Coma, Convulſions.

TO hinder ſuch a Return into the Blood, the Body muſt be kept in an adequate conſtant Warmth, and the Spirits quiet; the Sick muſt drink very liberally to ſupply the Waſtes of Serum; his Liquors muſt be ſuch as are refrigerating, diluting, liquifying, to make it fluxile.

ABOVE all Things Paregorics muſt be given as often as needful.

NOW beſides the increaſing of Serum, correcting its Acrimony, and preventing its Return into the Blood, I propoſe in the latter End of this Stage to prepare it for Maturation.

THE Aliments and Medicines proper for this Uſe are, as to their Subſtance, ſoft, ſmooth, ſlippery, pulpy, mucilaginous, glutinous, oily; and as to their Operations, are neither hot nor cold, nor much diſſolving nor coagulating;

coagulating; but they obtund Acrimony, inviſcate Aſperity, mollify hard Concretions, digeſt crude Humours, and turn them into Pus.

I would begin the Uſe of theſe the ſeventh Day, and continue them till Maturation be pretty well finiſh'd.

Ad hunc uſum F. Sylvius mirè prædicat Antimonium Diaphoreticum, atque exhibet ejus ʒſ. *bis in die.*

℞ *Sperm. Ceti. Vitel. Ov.* ā*a.* ʒß. *optimè ſubactis adde Syr. Balſam.* ʒiij. *Aq. Puleg.* ℥ij. *m. f. hauſt. bis indiès aſſumend.*

℞ *Sperm. Ceti Sacch. alb.* ā*a.* ʒß. *Ol. Nuc. Moſc. gt.* j. *Syr. de Mecon. q. ſ. m. f. Bol. bis in die exhibend. cum hauſtu Decoct. alicujus Pectoralis.*

Of LETTING BLOOD *in the* STAGES *of* ERUPTION *and* AUGMENTATION.

IF during this Stage there be a Plethory of hot Blood, and the firſt Fever ſenſibly ſinketh not, but continueth running high, and be accompany'd with torturous Pains in the Head, Back, or Limbs, with anxious Inquietude, pertinacious Vigils, Vertigo, Delirium, Coma, Difficulty of Breathing, and the Pocks come not forwards, but ſtick in the Skin:

AND alſo where cool Regimen, Attemperants, and Paregorics have not ſufficed to moderate the Hurry of the Spirits, and Fervour of the Blood:

AND withal, if the Party were wont formerly to bear Bleeding without fainting; and it be a proper Time of the Month with Women:

IN

IN theſe Caſes, I am clear in it, that Bleeding is ſo neceſſary, that it ought not to be omitted, and may be order'd any of the four Days of Eruption.

BUT after that Time, when the firſt Fever hath run out its whole Courſe, and the Party finds himſelf pretty eaſy, (as he commonly doth in the Time of Augmentation) I not only think there can be no preſſing want of Bleeding, but alſo conceive it will prove of moſt pernicious Conſequence.

FOR it will be likely to put a full Stop to Augmentation, and occaſion that the morboſe Matter which could not be expell'd in the Term of Eruption, be retain'd in the Blood, till it be deprav'd into ſuch Viroſity, as will produce a moſt terrible ſecond Fever.

HERE ſome Phyſicians have choſe to take away Blood rather by Cupping and Scarifying; their Reaſon, I ſuppoſe, is becauſe this ſlow Evacuation giveth not Nature ſo rude a Stroke, as that by the Lancet would do; and ſo this is more eaſily borne, without Danger of fainting, or even any failing.

BUT perhaps it may be as well to uſe Phlebotomy, and let out ℥ij. of Blood at a Time, for ſeveral Times, at an Hour's Diſtance between each, till ℥x. or as much as is judg'd needful, be evacuated.

Of PURGING *in the* STAGES *of* ERUPTION *and* AUGMENTATION.

PURGING attracts Matter out of the Maſs of Blood into the Inteſtines, and therefore it ſeems to me by no means adviſeable during the Stages of Eruption and Augmentation.

FOR

FOR it directly oppoſeth Nature, and hindereth her from driving into the Superficies variolated Steams, for the Support and Growth of the Puſtles and Tumours; and alſo diverteth the groſſer Serum from coming into the Glands of the Mouth for Salivation.

AND truly, I do not apprehend any great Neceſſity of emptying the Guts before the Time of the ſecond Fever: For,

1. NO ſolid Food, nor great Quantity of any Sort commonly is taken in during the whole Decumbiture, and therefore no great Quantity of Excrements can be made in the Guts.

2. SO much Matter is daily ſent off both of Steams and Serum by Diaphoreſis and Salivation, that there cannot be a great deal left to run in to burthen and ſtop up the Inteſtines.

3. IT is not the Genius of this Diſeaſe always to cauſe hard Excrements, unleſs perhaps towards the latter End of the ſecond Fever, and that happens but ſeldom neither; for I have often obſerv'd, that when the Sick hath not had a Stool in twelve Days Time, the firſt he voided was not of an hard Conſiſtence.

NOT only the aboveſaid Reaſons, but Experience alſo, hath ſet me utterly againſt Purging in theſe Times of the Diſeaſe.

I knew a Gentleman of about 48 Years of Age, who a few Years ago lay ill of the Small-Pox at *London*: About the ſixth Day after Eruption a Glyſter was injected; the next Day another; by which he voided a very ſtrange Quantity of Excrements, ſo much, that he could have ſcarce any left in him.

UPON

UPON this, both Colour and Tumour of the Puſtles and Interſtices preſently went off; and tho' he was a Man of uncommon Robuſtneſs and Vigour, his Strength immediately fail'd, and his Spirits ſunk to that Degree, that he lay languiſhing like one almoſt dead; and at laſt, when the Matter of the Ptyaliſm grew thick, he was not able to clear it out of his Throat, and ſo he expir'd the 11th Day.

A Perſon of about 50 Years of Age, of a ſwarthy Complection, a dark thick Skin, a dull heavy Man, had every Day duly a Stool; which, tho' it was not looſe, but of a figur'd Conſiſtence, yet had ſuch an Effect, that his Pocks, which came out full and fluxing, never roſe well, never look'd red, never became ſore, never contain'd much ripe Pus; at length the Scabs look'd almoſt black in his Face, and continu'd ſticking on it a great while after the variolous Fever had left him.

HIS Head and Face ſwell'd very little; he had no Salivation, nor ſore Throat; his Fleſh never felt hot; and Urine was not high-colour'd, and his Pulſe beat no quicker than is uſual in time of Health.

AT length he ſeem'd to be got paſt his Diſeaſe, and was let Blood twice, and purg'd ſeveral Times.

BUT yet his Spirits never came again; he could not bear to ſit up long out of his Bed; he lay in a weak languiſhing Condition; was ſometimes delirious, and dy'd afterwards.

ON the 23d Day, and three Days before he dy'd, he grew very ſick, could contain nothing in his Stomach, but vomited up every thing.

I take it, that the variolous Matter was, by the daily Stools, intercepted, and hinder'd from paſſing off, as it ought

ought to have done, by Diaphoreſis and Salivation, and the Blood and Humours were poiſon'd by it, and conſequently a third Fever was thereby caus'd: Perhaps a good warm Regimen, and generous exagitating Medicines, during the Stage of Augmentation, might, in this Caſe, have been ſerviceable.

The Fifth STAGE *of* MATURATION.

THIS taketh up the 9th, 10th, 11th, and 12th Days.

IN this the Things to be regarded are, 1*ſt*, The Second Fever. 2*dly*, The Puſtles. 3*dly*, The Mouth and Throat. 4*thly*, Salivation. 5*thly*, The Swellings.

Of the SECOND FEVER.

IN the diſtinct Small-Pox, the morboſe Matter not having been over-heated, nor made virulent, nor much boiled into the Blood, but remaining benign and looſe, exciteth no conſiderable Fever; and ſo being placidly depoſited into the Puſtles and outward Parts, they maturate kindly, and dry up into Scabs; and ſo the Diſtemper cometh to a Concluſion the eighth Day.

WHERE the Diſtemper inclineth rather to the contiguous than confluent Sort, the Fever is moderate, and is eaſily borne, and ſcarce holds out till the twelfth Day.

BUT where it is highly confluent, the ſecond Fever is of a much more troubleſome and dangerous Nature than the firſt.

IT beginneth about the eighth Day, and increaſeth from Day to Day, ſo as at laſt to ſet the whole Body, Solids as well as Liquids, on Fire; and continueth to the twelfth, when the great Cataſtrophe of Life or Death uſually cometh on.

THE Cauſes of this Fever are,

1. THOSE variolated Corpuſcles, which not having been rightly concocted at firſt, and fitted for Eruption, were left in the Blood, and by means of diſorderly Ebullitions, Conquaſſations, and Heatings, being ſubtiliz'd and exalted into great Degrees of Viroſity, combat the Spirits, and fire the Blood.

2. THAT morboſe Matter, which had, in the Time of Eruption and Augmentation, been caſt out into the Puſtles and Habit of the Body, and there detain'd, till it became abominable to the vital Spirits; for when this cometh to be thence ſuck'd again into the living Maſs, (as it commonly happeneth to be at the End of the Stage of Augmentation, or Beginning of Maturation) it muſt of Neceſſity ſtir up moſt horrible febrile Conturbations.

3. STERCORACEOUS, bilious, and pancreatic Excrements, that have been collected and ſhut up in the Inteſtines all the Time of the Decumbiture; and together with theſe, the variolous and other Matters that have been daily flung out of the Blood, and depoſited there; for theſe, not only by ſtuffing up, and painfully ſtretching the Guts, but alſo by ſending along with the Chyle, through the Lacteals, poiſon Humours and Halitus, drive Nature into the utmoſt Sufferings and Diſtractions.

THIS Fever is more or leſs violent according to the Nature of the Sick, the Manner of Treatment, and the Degrees of Viroſity of the morboſe Matter.

THE

THE Meaſure of the Fever is to be eſtimated, not by the outward Heat only, which may be greater in the external Habit than in the Blood, (and ſhould of right ſo be) but by the Pulſe and Reſpiration.

I find I uſually have in half a Minute 40 Pulſes and 10 Reſpirations nearly; and theſe Numbers I point upon as my Standard to make Computation by.

IN a very venomous confluent Pox, the Blood being univerſally poiſon'd and putrify'd, as the virulent Matter paſſeth in Circulation thro' the Heart and Lungs, it impreſſeth horrid Senſations upon the ſpontaneous Spirits; and hereupon Reſpiration becoming laborious, ſhort, and frequent, and Pulſation ſo weak and quick, that it can ſcarcely be number'd.

I have obſerv'd in ſome about 80 Pulſes and 20 Reſpirations in half a Minute; but never near that Number in any that recover'd.

WHEN the Diſtemper is violent, a Sort of Paroxyſm returneth every Evening, wherein the Symptoms riſe remarkably higher.

WHEN this Fever is kindled up to an Height, the Sick burneth all over; all the Fleſh is as hot as a Coal; is ſwell'd up every where with throbbing Soreneſs, and ulcerated Puſtles; the Tongue trembles; Thirſt is unquenchable, but is felt moſt in the Throat, becauſe the Pocks are there, and not in the Stomach; the Pulſe becometh quick, Reſpiration ſhort, the Sick can get no Sleep nor Eaſe, without forcible and frequent Anodynes; lyeth in intolerable Diſtreſs and utmoſt Anguiſh.

BUT notwithſtanding all this, he ſeldom complains of any poſitive Sickneſs, (unleſs it happeneth that the Viſ-

cera are affected) becauſe all tendeth outwards; inſomuch that (where Matters proceed proſperouſly) if a Hand be put into the Bed, ſo as to almoſt touch the bare Breaſt, a warm moiſt Halitus or Atmoſphere may be very plainly felt tranſpiring from the Body.

IF the vital Spirits are ſo weaken'd and ſpent, that they can no more ſuffice to generate Recruits, and ſupport the Animal Spirits in the Brain and nervous Regions, all the Animal Functions muſt needs be weakly and imperfectly perform'd.

IF the Animal Spirits be ſo poſſeſs'd and ſeiz'd upon by variolous Copulæ, as to be thereby vehemently provok'd into diſtemper'd Exploſions, then they will cauſe Vigils, Phrenzy, Spaſms, *&c.*

IF they be overpower'd and ſtruck down with the inimical Forces, they will yield to Stupor and Coma, and then die away.

IF the Animal Spirits be ſo much clogg'd or waſted, as not to be able to furniſh out new Recruits, to ſupply and invigorate the ſtationary Spirits, which, for the Uſes of Senſe and Motion, are appointed to reſide and do Duty in the Muſcles, they will occaſion ſuch convulſive Twitches in the Tendons, as are the Forerunners of Fate.

BUT if it come to that paſs, that the ſpontaneous Spirits be not continually new generated, or be envenom'd, and made unable to perform their Functions, or be profuſely waſted, or be downright kill'd, then the Motion of the Heart and Lungs, thoſe main Wheels of Life, ſtopping, the human Machine muſt ceaſe going, and become Inanimate.

IF on the eleventh or twelfth Day the Fever ſeemeth a little to relent, and the Pulſe grow manifeſtly ſtronger, more

more ſlow and diſtinct, and eſpecially if the Urine have lately alter'd and broke, and let fall a Sediment; where theſe Things have happen'd, I never yet knew but that the Patient recover'd, let him have been before in never ſo dangerous Circumſtances as to any other Matters.

THOSE that do not recover, for the moſt Part grow ſtupid towards the laſt; and when they once come to this, their Condition is deſperate and helpleſs. They die generally on the twelfth Day, and ſome on the eleventh.

TOWARD the latter End of a very bad confluent Small-Pox, the Sick, being all on fire, and in ſore Straits, grows ſtupid, and utterly helpleſs, is almoſt ſtrangled, and ſeems drawing on; and Life hangs on ſo ſlender a Thread, that it is in Danger of being broken by the leaſt Accident, Commiſſion, or Omiſſion.

HERE therefore (if ever) it lyeth upon the Phyſician to conſider and deliberate, to the utmoſt of his Power, all the good and bad Effects that are likely to follow from his Orders and Preſcriptions.

IN this frightful Extremity, I confeſs, I ſhould ſcarce have the Courage to take the Sick out of Bed, make him walk ſometimes about the Chamber, expoſe him to the Air, *&c.*

MUCH leſs ſhould I venture to give a Vomit; leſt thereby the Candle of Life, that burneth ſo weakly and waveringly, ſhould be quite put out, to the everlaſting Infamy of the Adviſer.

THE Patient muſt be every Minute carefully watch'd, and from time to time ſuccour'd.

HERE Attemperants, Refrigerants, and Attenuants are to be us'd, *Sal. Prunel.* and *Ol. Vitrioli* are very ſerviceable; but let it be obſerv'd that they are never to be given together,

gether, becauſe when they are mix'd, they produce ſomething that hath a Cognation with *Aqua fortis.*

DR. *S.* ſaith, that to reſiſt this febrile Impetus, it muſt be ſeriouſly conſider'd, that this adventitious Fever is a Diſeaſe quite different from the Small-Pox, and is no other than a putrid poiſonous Fever.

THE following Method he uſeth, and declareth he knoweth no other that he can recommend.

WHEN the Sick is reduced to theſe Streights, that by Reaſon of the unuſual Violence of the Symptoms, he ſeems juſt about to expire, unleſs he be preſently relieved: In this Caſe, whether it be the eleventh Day, or ſome other after it, ℥x, or xij of Blood are immediately to be taken out of the Arm.

FOR tho' Paregorics, and keeping from Bed a Days, might ſuffice, without letting Blood at the Beginning of the Diſeaſe in the firſt Fever, to quell the Fury and Paroxyſm which invades in the Evening; yet in theſe Days of the ſecond Fever, we cannot truſt in any Thing but large Bleeding, by which alone the Fury, at this Time raging, may be ſafely quieted.

AT Evening an Anodyne is to be taken, as before, in a large Doſe, to which we now fly as to a Sanctuary; and ſo afterwards Morning and Evening, and ſometimes oftener.

FOR we muſt diligently obſerve, that in ſome the Fury is ſo heighten'd above meaſure, that even a large Doſe of the Anodyne cannot tame, nor indeed ſtop its Violence in leſs than twelve Hours; in which Caſe, it is abſolutely neceſſary that the ſaid Doſe be repeated every eight or ſix Hours.

AND whereas it often happens at the latter End of the Diſeaſe, partly from the Nature of it, and partly from the great Force of the Anodyne, that the Patient's Body is ſo bound, that then he is almoſt ſuffocated; and the Fever is ſo heighten'd, that he is in a deſperate Condition:

IN this Difficulty, there is much leſs Danger from taking a laxative Purge, than from the Fever, much heighten'd by the Excrements.

I have preſcrib'd ſucceſsfully ℥ij ß. of *Lenit. Elect.* diſſolv'd in Water; which Draught, tho' it may not operate ſo ſoon as it was wont, yet if it be given in the Morning, it moſt commonly works before Night.

BUT if it does not, yet the Paregoric is to be given in the Evening, and indeed ſooner, notwithſtanding the Purge, if Inquietude, or ſome conſiderable Sickneſs threatens Danger; leſt the Patient, being deſtitute of this Help, die while we wait for the working of the Medicine.

NEITHER will the Patient receive any Damage from ſo gentle a Purge, if it do not work at all; yet if it do not anſwer your Deſire the firſt Day, let it be repeated the Day following, which ſeldom fails.

BUT if it be judg'd that it hath purg'd away ſo much of the Filth the firſt Day, as is ſufficient for the preſent, and the Patient begins to be better afterwards, the other Doſe may be deferr'd to another Time.

AND after this Manner, both Bleeding and Purging may be repeated by Intervals, as the Condition of the Fever, and the Reſtleſneſs of the Patient ſeem to require, till at length he be out of Danger.

Of

Of the THIRD FEVER.

THE ſecond Fever beginneth the eighth or ninth Day at furtheſt, when it is regular.

BUT ſometimes upon the twelfth or thirteenth, when all ſhould come to quiet again, a new Fever breaketh out afreſh, with Reſtleſneſs, Suffocation, and great Violence, eſpecially every Evening.

I have not very often ſeen this third Fever; but upon the beſt Obſervations I have been able to make,

IT proceedeth on to the ſixteenth Day; and if it ſtop not quite before then, it ſenſibly remitteth, and ſeemeth more moderate; but notwithſtanding perſiſteth till the twentieth, twenty-fourth, ſometimes till the twenty-eighth Day; and then it is (as I think) always fatal.

FOR as an Houſe that is burnt, when it is fallen down, tho' it ceaſeth to flame out any more, yet its Ruins, under Heaps of Embers and Aſhes, continue to burn inwardly, till all that can burn be conſum'd.

EVEN ſo (becauſe the Spirits are flown off and ſpent) the Globules flame out no longer, but yet continue burning and ſmothering till they are reduc'd to Cinders and Aſhes, and have nothing left that is combuſtible; and then the Fire of the Fever, together with Life, goeth out.

I think we may properly (without Affectation of Novelty) call it the *Third Fever*, ſince it ſucceeds the ſecond, ſeems perfectly diſtinct from it, and ariſeth not only (as that doth) from putrify'd Matter and Vapours brought from the external Abſceſſes by the Veins into the Blood, and from the inteſtinal Contents long detain'd; but from,

1. VARIOLOUS

1. VARIOLOUS Concretions, which having been innumerable Times circulated and boil'd into the Subſtance of the Blood, are now grown into ſuch hard and unconquerable Moleculæ, that weak Nature could not break and fit them for the Pores, and throw them out when ſhe attempted it in the ſecond Fever.

2. THE deprav'd Blood itſelf; for as to its Globuli, their State now is ſuch, that moſt of them are ſhatter'd into their Minima by violent Agitations, are envenom'd by morboſe Copulæ, and calcin'd, as 'twere, into Cinders and Aſhes by the Fire of a flaming Fever.

As to its Fibrillæ, they are ſcorch'd and ſhrivell'd up, like Scrips of burnt Parchment, and give an Empyreuma to the Maſs.

AND the Serum and mucilaginous Parts are boil'd up into a thick ſtrong Size, (as appeareth from Blood let out at this Time) which by laying Obſtructions in the ſmall Paſſages, cauſeth unequal Circulation, Extravaſation, and Inflammations.

3. *VARIOLÆ internæ*; for when the morboſe Matter hath not been duly expell'd into the outward Parts, it ſometimes turneth inwards, and infecteth the Meſentery, Liver, and other Viſcera, with Puſtles, Apoſtems, and Ulcers; and the putrid and poiſonous Matter iſſuing from them filleth and fouleth the Blood, and exciteth a freſh Fermentation, and kindleth up this third Fever.

DR. *Collins* (*Anat. p.* 67.) giveth an Inſtance of this third Fever, ſaying,

A Perſon of great Honour had the Small-Pox break out full and fair; they came to Suppuration with white Heads full of white digeſted Matter; when they began

to dry into Scabs, large blue Spots came out interſpers'd among them : She dy'd the 17th Day.

A Gentleman had the Small-Pox, appearing very fair and diſtinct; they came to a laudable Suppuration, and the Scabs were falling off, and it might have been thought he was upon Recovery; but it happen'd otherwiſe; for tho' the Small-Pox were cur'd, yet the Fever continu'd high, and was accompany'd with quick tremulous Pulſe and a Delirium; ſo he dy'd.

Of the PUSTLES.

THE Force of the circulating Blood having puſh'd them out into the Superficies of the Body, they gradually increaſe, and at length become little Abſceſſes, and then run through the ſame Degrees of Crudity and Maturation as other Abſceſſes do, and dry up into Scabs: All which, if rightly perform'd, Things go well; for a great Part of the Recovery dependeth upon theſe.

THE Manner how Nature worketh in the Proceſs of Maturation ſome have endeavour'd to explain, and particularly *F. Sylvius* doth it in this wiſe:

A Portion of Blood ſtagnating in ſome Place, and there cauſing a Tumour and Inflammation, its Spirits and moſt volatile Parts fly off.

UPON this the acrid and ſaline Particles, which uſed to be kept in temper by the ſaid Volatiles, grow very acrid, and riſing up ſharply againſt one another, do, by the Help of the oleoſe Corpuſcles, excite an hot Effervеſcence in the Blood, which they corrupt, and turn into Pus.

BUT by ſuch like chymical, chymerical, and precarious Aſſumptions and Solutions, I cannot find that I am let

let a whit farther into Nature's Laboratory than I was before; and therefore I content myſelf with modeſtly acknowledging, that as an Apple, or any Fruit, groweth on from Crudity to Ripeneſs, by the Addition of ſuch Corpuſcles as I know not, and by ſuch Modifications as I apprehend not, Nature proceeding ſecretly and gradually till ſhe hath compleated her Work; even ſo doth ſhe makes Pus by Ways and Means utterly unknown to me.

BUT be that as it will, it is plain, that Pus is made always out of thin Sanies, which being acrid and corroſive, paineth, inflameth, and eateth into the Part; but when it is once converted into thick white Matter, it loſeth its Acrimony, and corrodeth no more; though if it continue long in the Part, it will contract a freſh Acrimony and corroſive Quality again.

NOW though it is poſſible that Serum and Size, without the Mixture of Globules, may make Pus, as we ſee in the Inſtance of Bliſters rais'd by Cantharides, where at firſt only Serum cometh out without the leaſt Tincture of Blood, and in a few Days that Serum turneth into ripe Pus.

IN other Ulcers alſo, that Ichor, which was at the Beginning only a thin Gleet, without any Redneſs, afterwards becometh digeſted Pus.

BUT all Swellings that are inflam'd, red, and painful, are caus'd by a Mixture of Serum and Globules; and by the Redneſs, and Pain of the Puſtles and Interſtices, we conclude it is ſo in the Small-Pox.

THIS variolated Mixture, by reaſon of diſagreeable Conformation, cannot paſs through the Cuticula, but lyeth lodg'd under it, in the Cutis and miliary Glands; and ſince its Conſtitution is ſuch, that it cauſeth little Phleg-

mons which cannot be diſcuſs'd, Nature hath no Way left to deal with them, but by bringing them to Suppuration.

FOR the doing of this it is abſolutely neceſſary, that the depoſited Matter remain there fix'd, and return not again into the Blood.

AND this Return inward can be prevented only by the temperate Vigour of the Spirits, orderly Motion of the Blood, conſtant bearing out of Steams, and by a ſteady digeſtive Warmth.

THE Puſtles in the Face, which to the eighth Day were ſmooth and red, then grow rough, and ſomewhat white, which is the firſt Sign of their Maturation begun.

MOREOVER, they caſt forth a yellowiſh Moiſture, colour'd ſomething like Honey in a benign Sort; but darker and blacker, according to the Degree of Malignity in bad Sorts.

IN a very ill Flux indeed, from about the ninth Day, the red Pellicle, which (as before ſaid) covers all the Face, daily groweth rough to touch, and inclineth to a dark brown Colour, and not (as in the diſtinct) to a yellow.

THE Roughneſs and Brownneſs increaſe till the ſaid Pellicle ſcabs off in pretty broad Flakes; which, when the Diſtemper hath been very ſevere, happens not, in ſome Parts of the Face, till the twelfth Day; and I have known it the twenty-eighth.

AND the more ſevere the Diſtemper was, ſo much the more do they incline to a dark Colour, and they are the longer a going off.

I have

I have ſeen the Face as black as the blackeſt ſhining Soot; and then I believ'd it truly mortify'd.

IN a common milder Sort, as the Puſtles of the Face grow (according to the proceeding of their Maturation) rougher and yellower; ſo, on the contrary, thoſe on the Hands and other Parts ſmoother and whiter.

ABOUT the ninth Day the Puſtles uſually attain their utmoſt Magnitude, and thence gradually maturate and encruſtate, and fall off in Scabs by the ſixteenth.

WHEN thoſe of the Face and reſt of the Body ſcale off, thoſe of the Hands withering as 'twere, and growing lank and wrinkled, break and run away.

IF the Diſtemper hath been very extreamly ſevere, ſometimes the Skin of the Shoulders and Back cometh off, ſo as to leave the Parts raw.

Of the MOUTH *and* THROAT.

NOW in this Stage the Mouth, Palate, and Throat are full of ſore Ulcers, and are ſwell'd up; the Tongue trembleth, and is ſtiff, and flaps about in the Mouth like a Piece of Board; and yet commonly the Senſe of Taſting (which I have often wonder'd at) is not loſt.

THE Saliva being boil'd up, becomes ſo viſcid, that it hindereth Reſpiration and Deglutition; and the Parts being both ſore and weak, it can hardly be hawk'd up.

THE Sick is grievous thirſty; but commonly drinking provokes a ſtrangling Cough, which forceth the Drink thro' his Noſe, unleſs it be ſtopp'd up with Puſtles.

HERE I propoſe Fomentations to be uſed warm to the Throat and Neck, made of Mallows boil'd in Milk; great Care being had to keep off the Air; for if a Cold be taken now it may be mortal.

ONE that was Phyſician to King *Charles* the Second, order'd a Cataplaſm of Figs boil'd to be apply'd to the Throat and Cheeks.

LET nothing that is actually cold, aſtringent, and repellant come into the Mouth.

LET the Teeth, Gums, Tongue, Palate, and Throat be frequently cleans'd, ſcour'd, mopp'd, and ſyring'd, and eſpecially before taking of any thing down.

CONVENIENT Things for this Uſe are ſmall Beer with a little Butter melted in it, White Wine and Water, or Water acidulated with Vinegar: Or,

℞ *Fol. Vitis (vel Sedi maj.) conciſ.* ℥ij. *Aq. font.* lbjß. *ſient ſimul in frigido per hor.* j. *Col. (ſine expreſſ. forti) add. Vin. alb.* ℔ß. *m. pro Collutione oris: Vel,*

℞ *Sal. Nitr.* ʒij. *Sacch. Saturn.* ℈ij. *diſſolv. in Aq. font.* lbj.

IF the Mouth be excoriated, ulcerated, ſore, and tender, ſharp Things, ſuch as *Sal. Prunel.* and all Acids, cannot be borne; but ſoft Emollient, and Anodyne Mouth-Waters, and Ecclegms, will be pleaſant and uſeful.

℞ *Hord. perlat. Glycyrrh.* ā. ℥ß. *Paſſul. Sol. Cort. inter. Ulmi (vel Arbor. Filiæ)* ā. ℥j. *coq. in Aq. font.* lbiij. *ad* ij. *in col. diſſolv. Syr. de Mecon.* ℥iij. *m.*

WHEN the Throat is bad, a Syringe is neceſſary to inject Lotions and Gargariſms ſtrongly and deep into it.

AFTER

AFTER every Syringing, it may be well to order him to ſwallow a little of the following Lohoch, or ſome other to the ſame Purpoſe.

℞ *Conſerv. fruct. Cynosb.* ʒß. *Syr. Bac. Samb.* ʒjß. *Ol. Amygd. d.* ʒj. *m. Vel,*

℞ *Conſerv. Roſ. rub.* ʒjß. *Conſ. fruct. Cynosb.* ʒß. *Syr. Bac. Samb.* ʒiiij. *m. Cap. ſubinde cochl.* ß.

℞ *Ol. Amygd. dulc. Syr. è Rubo Idæo* āā. ʒj. *Confect. Fracaſt.* ʒj. *m. f. Linct.*

LET him ſcour his Mouth by chewing a Piece of Toaſt ſopp'd in Beer, and ſpit it out.

LET him frequently ſwallow ſomething, tho' it be never ſo troubleſome to him, that a Paſſage in his Throat may be kept open: If Figs can be eaten, they will open, cleanſe, and eaſe the Paſſage into the Gullet.

HE may at Times ſwallow a Ball as big as a Hazel-Nut of freſh Butter, roll'd up in Sugar and a little powder'd Nutmeg.

IF the Throat be not extreamly ſore, yet be fill'd up with Slime and putrify'd Pocks,

℞ *Syr. Alth.* ʒiiij. *Sal. Prunel.* ɔiiij. *m. detur cochl.* j. *pervices: Vel,*

℞ *Oxym. Scill.* ʒij. *Aq. Cinnam. fort.* ʒj. *m. detur eodem mod. Vel,*

℞ *Gum. Ammon.* ʒß. *diſſolv. in Aceti* ʒj. *col. adde Syr. Pector.* ʒx. *m.*

WHERE

WHERE the Mouth and Throat are extreamly ſore, healing ſoft Medicines muſt be preſcrib'd.

℞ *Sperm. Ceti* ʒij. *Vitel. Ov.* ʒß. *Ol. Amygd. dulc. Syr. Balſam.* ãã. ʒj. *m. f. Ecclegma.*

EPISPASTICS may be apply'd behind the Ears; Leeches may be ſet on as near the Throat as they can be got to take; letting Blood under the Tongue, if it be poſſible to be done, may be likely to bring good Relief, where the Throat is much inflam'd.

I am perſwaded that Glyſtering or Purging in this Caſe may be of great Uſe.

DR. *S.* tells us, that if the Patient hath been treated as he ought to have been, there will be but little need of Gargles.

BUT when it is come to this paſs, that he is in Danger of being choak'd every Moment, and becomes quite ſtupid, and his Breath is almoſt gone, and he ſeems to be at his laſt Gaſp,

THEN hath he very ſeaſonably and very ſucceſsfully given a Vomit of Infuſion of Crocus Metallorum, but in a large Doſe, *viz.* ʒjß. for becauſe of the extraordinary Stupidity which the Patient labours under, a leſs Doſe will not work at all; and in the mean time, by diſturbing the Humours which it cannot carry off, it will put the Patient in great Danger of his Life.

NOR can we (continueth he) confidently depend upon this Remedy, and indeed ſome other ſurer is wanting that may vanquiſh this Symptom, which alone deſtroyeth almoſt all that die at this Time.

BUT

BUT as to my own Part, I look upon it as an audacious Attempt to give a Vomit in this diſmal Extremity. I have heard of its ſucceeding moſt lamentably; and I never was hardy enough to order one, and that not only upon point of Diſcredit that might follow, but even of Humanity it ſelf, and Tenderneſs of Heart, which telleth me, I muſt rather let a Man die than directly kill him.

INSTEAD of this moſt dangerous and ſcandalizing Vomiting, I propoſe (beſides the 'foreſaid Collutions and Fomentations) the following Artifice.

WHEN the Throat is ſo choaked up with Slime, and hard-baked Phlegm, together with variolous Corruption, and looſen'd Puſtles, that nothing can paſs,

Tie a little Piece of Spunge upon a pliant Whale-bone, of a convenient Length, or a bending Stick, ſo faſt that it will not eaſily come off; and having dipped it in Oil, thruſt it down into the Oeſophagus, and work it up and down hard enough to remove the Knot, or to break the ripe Puſtles, and open a Paſſage.

IN great Extremity, and Struggle for Life, this will (*tanquam Deus in Machinâ*) inſtantly bring Relief.

TO ſomething like this Purpoſe I was told by a Lady, that being call'd up in the Night to her Child's Nurſe, and finding her ſtrangling and dying, ſhe, in a Fright, caught a Candle out of the Maid's Hand, and thruſting it down the Woman's Throat, broke an Impoſtume which then chanc'd to be ready, and ripe, and ſo ſaved her Life.

Of SALIVATION.

HAVING ſpoke of this a little before under its proper Head, I ſhall here only add the following:

WHEREAS in the former Stage of Augmentation, I recommend Incraſſants to blunt the ſharp Edges, and correct the Acrimony of variolous Particles, and diſpoſe them for Maturation; I now, in this Stage, when Pus is actually made, or is in good Forwardneſs thereunto, and the Diſeaſe is arrived to ſuch a State, that Putridity is more to be regarded than Acrimony, wholly forbid them, leſt they hinder the Ptyaliſm, and running off of the Saliva, which at this Time, tending to Thickneſs of itſelf, may very eaſily be quite ſtopt.

IN their Room, I adviſe a liberal Uſe of Diluents to increaſe the ſerous common Vehicle, and to produce a new Supply of Matter for the Swellings of the Face and Hands, which ought to ſucceed Salivation.

AND alſo ſuch Drinks as attenuate, incide, and liquify clammy, ſizy Lymph; together with ſuch as, without much heating, bear outwards: as the following. (I am inclined to believe, that our *Viciæ* are much preferable to the *Lentes* of the Ancients).

℞ *Paſſul. ſol.* ʒiiij. *Viciar. contuſ.* ʒß. *Rad. Contray.* ʒij. *coq. in Aq. font.* lb. iij. *ad* ij. *col. add. Aq. Raph. comp.* ʒij. *in ſingulis doſibus addi poſſint Sp. Sal. Armon. gt. aliquot, ſi res poſtulaverit.*

Of

Of the SWELLINGS.

WHEN the Puſtles are all come out, on the fourth Day, the Emanation of variolated Steams muſt go on (as elſewhere ſaid) even to the very End of the Diſeaſe: And this ſhould begin on the fifth Day, cauſing, by degrees, the Baſes of the Puſtles, and Spaces between them to inflame, look red, ſwell, grow ſore and tender.

BUT ſometimes, by reaſon of a too cold, or a too hot Regimen, they will not come to any Colour at all.

AND ſometimes, becauſe of the unneceſſary Bleeding, Vomiting, Purging, Diarrhœa, or Sweating, even in the Diſtinct Sort, the Face, in the Progreſs of the Diſeaſe, will not ſwell at all, but becometh flaccid, and tho' the Puſtles themſelves ſtand up high, and thick enough, yet the Interſtices appear pale and flat. This is really very dangerous, as betokening, that Nature fails, and cannot go on with her Work of Expulſion without Help, and therefore muſt be aſſiſted with either Refrigerants, or comforting Cordials, according as the different preſent Caſe requireth, never forgetting Paregorics, which are almoſt in all Caſes beneficial.

IN the Diſtinct Small-Pox, this Inflammation, Colour, and Tumour ſhould ſink away the eighth Day.

BUT in the Confluent, tho' it manifeſtly abate on the tenth or eleventh Day, (and by no Means ſhould do ſo before that Time) yet it continueth ſwelling, diſtending, throbbing, and making ſore all the Body, throughout the whole Courſe of the ſeveral Stages, and goeth not off but with the ſecond Fever, on the twelfth Day, unleſs it be a kindly Confluent; and if it remain not a little after Saliyation be ceaſed, it portends much Danger.

AFTER the Face is gone down, the Hands and Fingers ſwell more or leſs according to the Number of the Puſtles, and Quantity of variolated Matter in the Blood; and after them, the Feet ought likewiſe to ſwell.

THESE Swellings are as neceſſary as even the Puſtles themſelves, and are to be kept up and promoted at laſt, by drinking freely Small-beer, or the like diluting, attenuating Liquors; (which may correct Sizyneſs, and increaſe Serum) and alſo, by a due Uſe of Paregorics, and by keeping the Hands in Bed.

Of PHLEBOTOMY.

IT is a very nice Point to judge of Phlebotomy at this Time; for by reaſon of the great Evacuations made in the Proceſs of the Diſeaſe, it is not at all probable, that there can be any *Plethora ad vires*; and therefore, taking away of Blood will not be needful upon that Account.

AND alſo, the Spirits being now much ſpent, and brought low, muſt, upon Loſs of Blood, be in Danger of failing, and fainting quite away, without Recovery.

MY Opinion therefore is, that nothing can require and juſtify this Practice, but dangerous Inflammations, and mere Neceſſity: But yet, tho' I ſcarce dare adviſe it, I cannot forbear propoſing of it to the Conſideration of Phyſicians.

FOR I declare, I have ſeen it made uſe of, with almoſt miraculous Succeſs, the twelfth Day, in a Caſe that ſeem'd hopeleſs: And Sir *Theod. Mayern* tells us, that where he found (in Maturation) quick, ſhort, and painful Breathing, with Danger of Suffocation, or vehement inflammatory Swelling (almoſt like an Eryſipelas) in the Head, he immediately,

immediately, without Delay, put Leeches behind the Ears, or to the Jugulars; or he opened the Ranular Veins, which would ſometimes pour out a marvellous Quantity, even to four Pounds, of over-heated Blood.

HE ſaith, he took from the Counteſs of *Bedford* ℥xx. and from the Counteſs of *Salisbury* ℥xij. and thereby ſaved their Lives: And beſides theſe, he could (he ſaith) mention many others.

BLOOD may alſo be taken away by Cupping, and Scarifying.

BUT if the Sick be one, who, in former Times, uſed to faint with Bleeding, we muſt be very cautious how we adviſe it, leſt ſuch a Fit, in this Time of Weakneſs, carry him quite off.

Of CORDIALS.

IF there ſhould be a Neceſſity of rouzing up, and comforting the Spirits, ſuch Things muſt be avoided as have any great Heat and Force; as to Wine, hot, ſpirituous, or aromatic Cordials, Alexipharmacs, and Antidotes, ſo call'd, I look upon them, in this Caſe, as no better than Poiſons, for they will fluſh up the Fever to the higheſt Pitch, and cauſe Vigils, Phrenzy, Convulſions, Coma, and the like mortal Symptoms.

WHEREAS I before ſeem'd to ſcruple the Exhibition of volatile Salts, becauſe I ſuſpected they would render the variolous Particles more intenſly acrid and fierce: I now (their Acrimony being cicurated, and mollify'd into ſoft Pus) approve of them rather than vinous Spirits and Aromatics: For theſe Salts revive the Spirits, when almoſt dying, but the others heat and exagitate the Blood which was burning, and enormouſly tumultuating before.

IF in the laſt Days, the cruel Conflict hath havock'd the active Principles and Spirits, ſo as to have left the Sick but juſt alive, I propoſe for the Intent of opening the Pores of the Cortex Cerebri, and the generating a new Stock of Animal Spirits, to give Ambergriſe, and the Odorata. Concerning which, ſee what I have offer'd before, under the Head of Cordials. In good Earneſt, I wiſh this Practice were diſcreetly experimented.

IF Faintneſs, or ſick Fits call for ſuch Things as may by their Warmth comfort the Stomach, and thereby cheer the whole nervous Syſtem, ſuch as Cordial Waters, *&c.* it were adviſeable to allow only ſuch ſmall Doſes, as may exert all their Efficacy in the Stomach, and raiſe an Ovation there; and not in ſuch a Quantity as may paſs into the Blood, to exagitate and inflame it more: I would therefore give but one ſingle Spoonful at a Time, of *Aq. Ment. Cinnam. Abſint.* C. *&c.*

PERHAPS, thin weak Chicken, or Veal-Broth may now be allowable; I know not but that Chocolate may be ſafely taken to pleaſe the Stomach, and nouriſh the impoveriſhed Blood.

Of PAREGORICS.

IN regard the Spirits are continually irritated, and driven into exorbitant Startings and Leapings, and put by their Buſineſs, Paregorics are ſo abſolutely neceſſary in the high Flux, that the Patient cannot poſſibly ſubſiſt without them.

BUT becauſe the Spirits are ſo ſpent, waſted, and weak, that they have much a-do to keep Rank, and do Duty, the Doſe of the Paregoric had need be moderated,

rated, and ſo rightly adjuſted, as will ſerve but juſt to pacify, and not to overpower them.

AND continually all along, as it is obſerv'd, that the Force of one Draught wears off, another muſt conſtantly, without Delay, be given.

I preſs this as a Matter of the higheſt Conſequence, for if the Recruit of Paregorics be omitted, and the Opportunity loſt, in an high Pox, it is to be fear'd it will never be recoverable any more.

SEE more above, under the Head of Paregorics.

Of EPISPASTICS.

THOUGH I utterly diſliked Epiſpaſtics at the Beginning of the Diſeaſe, (as aforeſaid) for Reaſons there given; yet towards the latter End, when the Acrimony of the variolous Matter is now mollified, and ripened away, I declare them, in a high Confluent Small-Pox, moſt abſolutely neceſſary;

1. TO rouze up the drooping Spirits, and give them ſufficient Vigour to bear the Weight of Narcotics, which, in this their weak Condition, they could not well do without them.

2. TO prevent variolated Matter from running into, and ſettling in the Brain; which would produce Inquietude, pertinacious Vigils, Delirium, Spaſms, Coma, *&c.*

3. TO drain hot, corroding Serum (when apply'd between the Shoulders, or behind the Ears) off from the Glands of the Mouth and Throat; and by that Means ſuccour and eaſe thoſe inflamed Parts, upon the going away of Salivation.

4. TO

4. To ſerve as additional Sewers, for the more plentiful Evacuations of the noxious corrupted Serum, when the Salivation is ceaſed, and the Swellings of the Head, Face, and Hands ſuffice not to carry out enough.

FOR, if about the eleventh, or twelfth Day, Salivation ceaſing, and the Swellings of the Face ſinking a very little after, Nature proves not able to overcome what is yet left in the Blood, and to thruſt it out into the Hands, making them puff up and ſwell:

OR, if a great Flow of Urine happen not at that nick of Time:

OR a ſlight Diarrhœa, at leaſt a Stool or two, either come naturally, or be procured by Medicines, come not at, or before that Time, in a very bad Confluent Sort:

IN ſuch Caſes, all the Evacuations we can make by Epiſpaſtics, or other Ways, will be little enough: And if they ſuffice not to bring Help, the Sick will be in Danger of dying the twelfth Day.

OR, if he ſurvive that Day, at which Time the Blood ought to have been fully diſcharg'd of the morboſe Matter, and freed from the Fever, it is to be expected, that the remaining putrid, inanimate, and moſt virulent Particles, and Moleculæ, will be boiled a ſecond Time into the Maſs, ſo intimately, and fixedly, as never to be fetched out any more; but lying in its inward Subſtance, as a powerful Poiſon, and vehement Stimulas, will begin a new putrefactive Ebullition, being that I call the Third Fever; and will alſo aſſimilate more to it, and mix it in with the rotten Pus that had been caſt out ſome Time before, and ſo burn up the Sick, utterly poiſon him, and kill him the ſixteenth or twentieth Day, or, perhaps, in a few Days after.

To

TO ſum up what I would ſay, in an ardent and virulent Small-Pox, I moſt earneſtly adviſe an Epiſpaſtic on the eighth Day, in order to meet the Second Fever; which is expected to make an Invaſion about this Time, or ſoon after.

AND where it is found neceſſary, I appoint a Supply of them the ninth and tenth; that they may be in full Force the eleventh and twelfth, thoſe great deciſive Days.

ALL the Time of the Epiſpaſtics, it will be needful, that the Patient drink liberally, eſpecially Emulſions, with *Sal. Prunellæ* diſſolv'd in them: Or he may take Camphire made up into Pills.

Of PURGING *in the Second* FEVER.

I Have ſometimes obſerv'd, that when a Stool hath happen'd about the ninth, or tenth Day, it hath given ſignal Relief, eaſed the Sick, and conſiderably allay'd the Fever, and its Symptoms.

BUT Nature knows its own Times better than we do; and therefore Salivation being now upon decreaſing, if it ſhould ſo happen, that the Swellings proceed not as they ought, we had need be infinitely cautious in the Matter of Purging, leſt we hinder the laſt and finiſhing Effort of Nature by Tumefaction.

AS to my own Part, I own I dare not venture to Purge, or ſo much as order a Glyſter, before the ninth Day, where a Diarrhœa hath broke out before the ſaid Time; if it could not be ſtopt immediately, I have ſeen it fatal: However, where one ſingle Stool hath chanced the ſeventh, or eighth Day, if it had Conſiſtence enough to retain Figure, it hath done much Good.

BUT before the ninth Day, I have heard where Purging hath prov'd fatal; for immediately upon the Evacuation, the morbific Matter went in, the Puſtles grew ill-colour'd, the Swellings ſunk, the Spirits fell, and could never be raiſed any more, and ſo Nature gave up all.

NOW where it plainly and undoubtedly appears, that the Inteſtines are by this time full charged, ſtuffed up, and overſtretch'd with Excrements, cauſing Gripes, Wind, Inquietude, Watching, Fever:

AND alſo where theſe Excrements, by lying long, being corrupted, and tainted with variolous Matter, grow ſo abominable and offenſive to Nature, that ſhe can no longer endure them; then (that is about the tenth Day) it will be needful to relieve her, by taking away ſome Part at leaſt of the Burthen.

BESIDES this Uſe of disburthening the Belly, there is a Second, and that a very conſiderable one, namely, of forcing out of the Blood, and attracting into the Guts, and thence carrying off the variolous Subſtance itſelf, and putrify'd Matters, and by that Means of directly curing the Fever, by ſubtracting its very material Cauſe.

I took this to be a new Notion, till I found the following Paſſage in *Fontanus*'s Annotations upon *Dodonæus*, *Cap.* xxxi. *p.* 103.

Si debeat—— If it ſhould be expedient to give a Purge, it muſt be only in the Declination of the Small-Pox, that that Part of the foul Blood, which could not be expelled thro' the Skin, may be evacuated by Stool.

DR. *S.* indeed, acts cautiouſly, and forbids Purging till the latter End of the Diſeaſe, that is, till the thirteenth Day, or after; and is not for it then neither, unleſs Phlebotomy

tomy were uſed at the Time when the ſecond Fever made its Invaſion.

BUT, *Dies diem docet.* The Practice of Phyſic is always capable of further Diſcoveries: The late celebrated Dr. *Freind* adviſeth Purging on the ninth or tenth Day, and giveth many Inſtances of ſurpriſing happy Succeſs therefrom, which will deſerve to be throughly conſider'd.

HERE the Phyſician muſt diligently obſerve; and if he find that upon the procuring of a Stool, Salivation manifeſtly decreaſes, or the Swellings ſink too ſoon, he may in no wiſe proceed any further in Purging as yet.

I take a Suppoſitory, which only irritateth the Anus, or a Glyſter, which paſſeth not beyond the Valve of the Colon, to be more ſafe at firſt than a Purge, which raketh all along the whole Tract of the Inteſtines.

FOR all that we ſhould aim at, the firſt Time, is only the Removal of ſome of the loweſt Excrements in the Rectum, to the End that thoſe which are higher may have Room to follow after; and thereby the uneaſy Diſtention of the Guts may be remedied.

I am fearful of direct Purging as yet; but, when a Laxative is requiſite, we muſt take Care to chuſe ſuch an one, as hath no biting, fermentative, griping Quality; that will not painfully provoke the Guts, nor ſtrongly attract Humours out of the Blood, nor increaſe the Febrile Commotion; but only ſuch as will but juſt ſoften the Excrements, quicken the Periſtaltic Motion, and rather gently preſs than roughly caſt out the Contents.

BUT becauſe (as Dr. *S.* obſerveth) the many Narcotics given may ſomething dull the Senſe and Action of the Inteſtinal Fibres, it will be needful to give theſe gentle Laxatives in pretty large Doſes, and repeat them, till they are found to do their Buſineſs.

AND conſtantly after their Operation, a Paregoric ſtrong enough to allay, and perfectly quiet all the Diſturbance raiſed by the Medicine, muſt in no wiſe be omitted.

I have, with deſired Succeſs, given *Mannæ* ℥jß. diſſolved in Water-Gruel, the tenth Day; and when it hath not operated, I have repeated the ſame the eleventh: and if it worked not then neither, I have the ſame Afternoon order'd a Glyſter of Water-Gruel, Butter and Sugar.

At the End of the DISTEMPER.

WHEN the Small-Pox is over, and moſt of the Scabs are now dry, and falling off, Purging (after Bleeding) muſt not be neglected; eſpecially in the fluxing Sort; and the more ſevere the Diſtemper was, the more, and oft'ner muſt the Patient be purged.

ONE Reaſon of Purging is, to cleanſe the Inteſtines of ſuch ſtercoraceous, bilious, and pancreatic Excrements, as have been collected, and ſhut up there all the Time of the Decumbiture; and alſo of ſuch variolous, and other Matter as hath been daily flung out of the Blood and depoſited there: Theſe Intentions may be ſatisfied, perhaps, by two Purges.

BUT the main Thing of all is cleanſing the Blood, which the Small-Pox had very much deprav'd, (as is before ſaid under the Head of the *Third Fever*) and turned into aduſt, noxious Humours, which being unfit for Circulation, are commonly ſeen to break out in Botches, and Boils, after this Diſtemper.

FOR this laſt Intention, there will be requir'd (after a bad fluxing Sort) a Continuance of Purging for ſome conſiderable Time.

AND,

AND, together with this, there ought to be intermix'd ſuch Alteratives, as by diluting, and edulcorating the Maſs, diſſolving morboſe Concretions, and opening the Glands and Excretory Ducts, may depurate the Blood, and re-ſettle it in a ſound State.

SUCH Cathartics as painfully vellicate the inteſtinal Membranes ſharpen the Serum, inflame the Globules, ferment the Maſs of Humours, diſſolve the Craſis of the Blood, and, perhaps, leave unwholſome Particles, and ill Impreſſions behind them, namely, Colocynthis, both the Hellebores, Gamboge, Elaterium, Turbith, Eſula, I utterly diſlike them for this Uſe.

I will venture to ſay, that I ſuſpect Aloes alſo, if it be given long; becauſe, whereas the Blood ought to be cooled and mended as to its Conſiſtence, this ſharpeneth, heateth, and thinneth it, ſometimes to that Degree as to cauſe Hæmorrhagies.

I adviſe giving at firſt a direct Purge or two, to drive the Excrements out of the Guts.

℞ *Extract. Rud. gr.* xv. *Calomel.* ℈ß. *Scammon. Reſin. Jalap. āā. gr.* iiij. *Ol. Junip. gt.* ij. *Elix. Propr. non acid. q. ſ. f. Pil.* vj. *pro unâ doſi matutina.*

THIS done, it may be good to drink the Purging Waters, or the following Diet-Drink.

℞ *Rad. Oxylap.* lbj. *Rub. Tinct.* ʒiiij. *coq. in cereviſ. mediocr. novel. Cong.* v. *ad* iiij. *col. in doliol. repoſit. ſuſpend. ſaccul. ax. Senæ* ʒiiij. R. *Rhabarb. Curcumæ āā.* ʒj. *Bacc. Junip.* ʒij. *Paſſul. ſol. axacin. Limat. Chalyb. āā.* lbj. *ſimul fermententur.*

To

To edulcorate, and depurate the Blood.

℞ *Rad. Sarſap.* ℥ij. *coq. in Aq. font.* lbiiij. *ad* ij. *col. calida affundatur ſuper Herb. Hepat. Contuſ.* ℥ij. *ſtent ſimul per hor.* ß. *deinde col. (per cribrum ſine Expreſ.) edulcoretur cum Syr. Balſam.* ℥iij. *m. Sumantur* ℥iiij. *omni nocte cum Pulv. ſeq.*

℞ *Antimon. crud.* ʒß. *Æthiop. miner.* ʒiij. *Gum. Guaic.* ʒj. *f. omnium, pulv. in* viij. *Doſes Dividend.*

Of the PETECHIAL, SCARLET, *and* BLEEDING SMALL-POX.

AS all Quickſilver is of its own Nature the very ſame, and yet by different Preparations, and Mixtures with other Things, turns into Subſtances perfectly different from each other:

EVEN ſo (my Opinion is, that) tho' all variolous Matter be eſſentially the ſelf-ſame, yet, according as it is diverſly heated and modified by particular Conſtitutions, Management, and Medicines; and according as it is admixed and compounded with Particles ſent into it out of impure Air, it produces the Diſeaſes, integrally differing as to Symptoms, Danger, Duration, that require peculiar and reſpective Care and Cure.

I reckon'd up before four Sorts of Small-Pox, 1ſt, The Diſtinct. 2d, The Contiguous. 3d, The Confluent. And 4th, The Bleeding Sort.

HAVING treated before of the three former: I come now to the fourth, namely, the Bleeding Sort.

IT ſeems to me, that the Confluent Small-Pox was not much known to our Fore-fathers in Phyſic; and though there

there were ſome Hints of it ſprinkled about in ſome Authors, yet none ever handled it diſtinctly, *& ex profeſſo*, till our great *Sydenham* did it.

AND yet *Rhazis* appears to have apprehended ſomething of Salivation, and Bloody Urine; for he ſaith,

"IT is neceſſary to forbear ſuch Medicines as ſtop Spit-
" ting, becauſe thereby Reſpiration would be hurt, and a
" malignant Flux would follow, and Bloody Urine; as it
" happened to the Son of *Enhede*:" But ſince him, I remember not to have ſeen any Thing conſiderable in any Author upon this Subject, till *Hoecſtetter*, who an hundred Years ago publiſh'd ſome Obſervations of Bleeding in the Small-Pox, which (in my Thoughts) he had not a very clear and diſtinct Notion of neither. Theſe I ſhall inſert by and by.

AND from his Time, all our Phyſicians that take any Notice of it at all, do it in ſo ſlight a Manner, that we may eaſily ſee, they had not much been acquainted with it.

RIVERIUS, indeed, *Obſervat.* 71. tells of a Child of five Years old, who having the Small-Pox, voided the third Day a great deal of Blood by Stool: He ſaith, it was the only one that he ever ſaw in that Caſe that recovered.

HE doth not mention any Spots, or Effloreſcences breaking out with it; and therefore I am perſuaded it was not the true Bleeding Sort.

HE ſpeaks of Sincere Blood iſſuing from the Noſe, Gums, by Stools, Urine, and from other Parts of the Body; but I ſuſpect he never ſaw them, becauſe he ſo faintly pronounces, *Lethalis ſæpe eſſe conſueverunt*; They often uſe to be mortal: But of bloody Urine, he ſaith roundly and poſitively, *Signum eſt lethaliſſimum*; It is the moſt

moſt deadly Sign that can be: But he wrote ſcarce any thing more of this Small-Pox.

I obſerve ſcarce any thing of it in Dr. *Morton*; and *Sydenham* himſelf, tho' he declares it a mortal Sign, and treats here and there a little of it, yet he no where gives us a particular full Hiſtory and Deſcription of it, as, no doubt, ſo accurate and obſervant a Perſon would certainly have done, if ever he had ſeen it himſelf, therefore it is likely he had his Knowledge of it only by Hear-ſay; and in thoſe Times it was not common.

BUT whatever can be the Cauſe of it, we have the Bleeding Small-Pox now in our Days frequently; and I myſelf have too often met with it: And now becauſe no one hitherto hath done it, I will endeavour to recount ſuch Apparatus and Symptoms of it, as I have obſerv'd myſelf.

IN order to illuſtrate what I am to ſay upon this Subject, it will be convenient to look back to what I have before wrote in my Section of *Globules* concerning their Minuteneſs and Diviſions; and alſo concerning their breaking and cauſing Hæmorrhagies in my Section of *Eruption*: And for the better apprehending of this, I think it not amiſs to relate ſome Particulars of Bleeding in other Caſes.

Of divers HÆMORRHAGIES.

THE Serpent *Hæmorrhous*, where he biteth, is ſaid ſo to break the Contexture of the Blood, as to make it to run out of the Noſe, Mouth, Ears, Corners of the Eyes, Roots of the Nails, Privities, Fundament, Lungs, Stomach, and the Pores of the Body; and withal, to produce Difficulty of Breathing, Micturition, and Stoppage of Urine.

ARI-

ARISTOTLE de Partib. Anim. ſpeaks of bloody Sweats. *Galen* (*5 Meth.*) mentions the ſame.

RONDELETIUS de Dignoſc. Morb. C. 11. p. 684. ſaw a Student that bled thro' his Pores all the Body over.

FERNEL. de Morb. L. 6. C. 4. p. 137. tells us, he hath ſometimes obſerv'd it iſſue thro' the Skin in many Parts.

FONTANUS in his Notes on *Dodonæus*, p. 135. ſpeaks of Blood flowing out of all the Parts of the Body, the Mouth, Lungs, Stomach, Hæmorrhoids, *&c.* and quotes *Galen* for it.

BENIVENIUS Obſ. 4. p. 207. ſaw a Man who, at ſtated Seaſons, uſed to bleed from an inviſible Aperture about the lower Part of the Liver, to a Pound at a Time; and then it would ſtop, and afterwards return again.

IN the *Philoſophical Tranſactions* we have the following ſtrange Accounts.

NUMB. 109. *p.* 193. A Child of about a Quarter of a Year old was taken with a Bleeding at the Noſe and Ears, and hinder Part of the Head, where there was no Sore; this laſted for three Days, and then the Noſe and Ears ceaſed Bleeding, but ſtill Blood came as it were Sweat from the Head: The ſixth Day ſhe died; but three Days before, the Blood came more violently from her Head, and ſtreamed out to ſome Diſtance; ſhe bled from the Shoulders and Waiſt ſuch Quantities, that the Linen was ſo wet, that it might be wrung out: She, for three Days, bled alſo at the Toes, at the Bend of the Arms, at the Joints of the Fingers of both Hands, and at the Fingers Ends ſo much, that in a quarter of an Hour the Mother hath caught from the Droppings of the Fingers almoſt as much as the Hollow of her Hand could hold. After the Child was dead, there appeared in theſe Places, whence

the Blood came, little Holes, like the Prickings of a Needle; the Blood was not thin like Water, but of that Thickneſs as Blood uſually is.

NUMB. 271. *p.* 989. *Walter Walſh*, a temperate, but ſanguine Man, of 43 Years of Age, was ſeized about *Eaſter*, with a great Pain over all his right Arm, a great Heat and Redneſs in his right Hand, and a Pricking in the Point of his Fore-finger; whereon there appear'd a ſmall Speck, as if a little Thorn had run in there.

AND ſuppoſing it ſuch, he open'd it, whereupon the Blood ſpan out in a violent, but a ſmall Stream; after it had ſpent its Violence, it would ceaſe for a while, and only drop, and then ſpring out with Violence again, continuing thus for 24 Hours, till at laſt he fainted away, and the Blood ſtanched of itſelf, and his Pains left him.

FROM that Time, during his whole Life, (which continu'd 12 Years) he was frequently troubled with the like Fits, ſeldom having a Reſpite of two Months; and they never return'd oftener than in three Weeks: He rarely bled leſs than a Pottle at a Time.

WHENEVER they endeavour'd to ſtanch the Blood, it raiſed moſt exquiſite Tortures in his Arms: No Remedies that ever were uſed prov'd in the leaſt effectual: He had no other Diſtemper; neither Seaſon nor Weather wrought upon him any Change.

THESE frequent Fits brought him at laſt very low, inſomuch, that towards the latter End he bled but little, and that too was like Blood diluted with Water. He dy'd of this Diſtemper.

NUMB. 208. AN Icterical Woman had an Eruption of Blood out of the Glandula Lachrymalis of one of her Eyes, without any external Injury: She bled two Pounds within the

the Space of thirty Hours; about a Week after, the ſame Flux return'd again, and ſhe bled till ſhe dy'd.

I myſelf ſaw a Trooper, who, upon making himſelf drunk almoſt to an Apoplectic Fit, with a great Quantity of Brandy, fell into a very deep-colour'd Jaundice; and, after ſome Time, the Blood burſt out at his Noſe, and continu'd flowing till he dy'd.

A very temperate, ſober and good Clergy-man, under forty Years of Age, this Spring, 1728, had a Pimple on his Face, which he ſcratched off, and fell a bleeding from that Place, till he bled out all his Blood, no Remedy that could be uſed being able to put a Stop to it.

ZACUT. LUSITAN. de Praxi Mirab. Obſ. 41. gives a Relation of one in the Peſtilence, whoſe whole Habit of Body being livid, had bloody Sweats all over for two Days; and, before he dy'd, came out every where with perfect black Tubercles.

AND, *Obſ.* 42. he ſaith, many in the Plague that were cupped and ſcarified, bled ſo that it could not be ſtanch'd by any Means; and they all dy'd.

SCHENCH. Lib. 6. *de Variolis, p.* 842. out of *Dodonæus*, ſpeaks of one at the Time of coming out of the Ecthymata, bled out of his Gums, and when that was repreſſed, he made bloody Urine; and when that was alſo ſtopped, the Gums bled again, and ſo one or the other continued till the Ecthymata were cured.

SCHENCH. p. 842. quotes *Leovinus*, ſaying, We ſaw a little Boy, who having grievous Exanthemata out upon him, voided bloody Urine for ſome Days, and dy'd.

GARCIAS LOPIUS reporteth, that he hath ſeen ſeveral that made bloody Urine, and dy'd: He particularly mentions one of about ſeven Years old, whom he

was call'd to the Seventh Day, and found his Face, Breaſt, and Stomach, all full of Lead-colour'd Puſtles; he made bloody Urine, and dy'd.

IT is an Opinion, that a bilious inflammatory Conſtitution, and a Blood made thin, harſh, and acrid by conſtant Wine-drinking, ſalt and ſpicy Diet, and a ſottiſh Way of living, diſpoſe Men to this Sort of Small-Pox:

AND that an over-hot Regimen, giving of high Cordials, laying the Sick in a Sweat, *&c.* at or before Eruption, bring it into Act.

BUT I cannot wholly come into this; foraſmuch as I am well aſſured, that Women who live temperately, and eaſily, are as ſubject to it as Men; and Children, whoſe Blood is uſually ſoft and ſweet and balmy, are as liable to it as Adults: Of both theſe I have ſeen many Inſtances, tho' more of Children than of Women.

THEREFORE the Cauſes of this Small-Pox are as to me occult; perhaps its Matter may be extraduce, a particular paternal, unexplicable Thing: for I have known ſome Families, where almoſt all of that Blood fell into this Sort when they had the Small-Pox.

SOMETIMES it ſeemeth to come from the Air, for in ſome Epidemic Anomalous Seaſons it hath been much more rife than in others.

BUT it is very often chancing, and happeneth where we cannot ſo much as gueſs at any Cauſe of its coming.

EVERY ſingle Purple Petech in this Diſtemper conſiſteth (in my Apprehenſion) of one or more ſanguineous Globules, and a variolous Atom combined with it, and forming it into a Molecula.

AND

AND where-ever theſe Petechiæ or Effloreſcencies appear, it is moſt certainly this bleeding Sort of Small-Pox, tho' till the Globules become more broken, it is in a lower Degree, and riſes not up to actual Hæmorrhagies.

The MANNER *of Coming, and the* SYMPTOMS *of the Bleeding* SMALL-POX.

1. THEY always begin exceeding fiercely from the very firſt Invaſion, with convulſive ſhooting Pains in the Loins, which are as violent, ſharp, and intolerable, as even the worſt Nephritic Tortures; inſomuch, that at every ſpaſmodic Shoot the Sick cannot help crying out, ſtarting and leaping, jerking and tumbling about in his Bed.

THIS Pain, as here deſcrib'd, is plainly diſtinguiſhable from that in a common Small-Pox, (which is conſtant, without ſpaſmodic Shootings) and is a never-failing Pathognomic Sign of a very bad, if not the Bleeding Small-Pox.

SINCE *Bezaleel* and *Aholiab* (as we have it, *Exod.* xxxiv. 32.) were enabled by the Spirit of God, to deviſe, and work upon Metals, Stones, Wood, and Linen, which was a meer mechanical Matter, perhaps we may (without Prophaneneſs) allow *Hippocrates* to be qualify'd by heavenly Inſpiration, for the finding out the Nature and Cures of Diſeaſes, in order to ſuccour poor miſerable Man; which is ſo ſupremely noble a Buſineſs, that even our Saviour and his Apoſtles practiſed it.

THIS divine old Man, tho' he never ſaw, nor ſo much as heard of the Small-Pox, yet being endued with an univerſal medical Knowledge, hath left us the following Paragraphs wonderfully appoſite to our preſent Purpoſe.

Lamborum

Lumborum Dolor, abſque cauſâ manifeſtâ, crebrò invadens, Morbi malignitatem indicat. Coac. Sect. 322.

A Pain in the Loins, without any manifeſt Cauſe, (either Stone, or Strain) often (by Shoots) invading, ſhews the Diſeaſe is malignant.

Ex Lumborum dolore, liberales ſunt & largæ Sanguinis Fluxiones. Coac. Sect. 2. 307.

GREAT Pains in the Loins foretel liberal and large Fluxes of Blood. And, *Coac. Sect.* 2. 271. he ſpeaks of Pain in the Back, with bloody Urine.

NOT only Pain of the Back, but of the Head alſo, and Limbs, if they be vehemently acute, and are not conſtant, but come with convulſive Shoots, betoken the ſame.

THE ſame *Hippocrates* ſaith, *Prædict.* Lib. 2. Sect. 2. p. 89. *Omnium maximè terret Dolor, ſi in Capite, ad Cervicem, & Dorſum pervenit. Eos verò juvari Spes eſt, ſi Puſtulæ toto Corpore pullulaverint.*

2. THE moſt frightful Thing of all is, that Pain of the Head, which runs all down by the Neck into the Back; yet there is ſome Hope of Help left, if Puſtles (he doth not ſay Spots or Effloreſcences) break out all over the Body.

3. THE Stroak of the Pulſe is weak, and very quick and frequent.

4. BREATHING is wonderfully ſhort, and laborious.

5. THE Eyes are all over Blood-ſhot.

6. THERE

6. THERE flusheth out upon the Face, Breast, Back, Trunk of the Body, and shortly all over every where a Redness, like that in a Scarlet-Fever.

7. THERE are no elevated, distinct Pustles in the Face, or any where else, but only a flat continued Tumescence.

8. THE Sick live till the Scarlet Efflorescence abate; an infinite Number of small Petechiæ will every where come in Sight, which were before hid in that red Colour, and these Petechiæ, if the Party dieth not in three Days after Eruption began, turn leaden and blackish.

9. IN the worst Degree of this Small-Pox, I several times have seen upon the Breast, Back, and Face, pretty broad Spots, exactly round, of a very delicate fair blue Colour: These I take to be like the Tokens in the Plague, real Mortifications, and most infallible Harbingers of Death.

10. WHEN the Hæmorrhagies begin, the torturous Pains and other grievous Symptoms go quite off, and the Sick lie perfectly easy, and complain of nothing at all, only their Breath is still very short, and their Eyes all Red and Blood-shot.

11. ALL that I have seen in this Condition, retained (which is a marvellous Thing) their Senses entire, and their Understanding clear, almost as long as Life lasted, and then they died easy and without Pangs.

12. THE Bleedings commonly begin the next Day after the Appearance of the Scarlet Flushings.

13. IN some, they are only from the Urinary Passages; in some, they come by Stool only, and that easily, and without any Griping, or other Pain; also out of the Mouth, Nose, Eyes, Ears, Pores of the Skin, and even the Pocks themselves.

IT is a Matter of the higheſt Concern skilfully to diſtinguiſh this variolous Flux of Blood from that of the Catamenia.

THIS is to be done, 1. By obſerving the foreſaid Pathognomic Pains, which are peculiar to this Small-Pox, and never are convulſive, nor ſo torturous in the Menſes. 2. By the entire going off of the bad and painful Symptoms, as ſoon as the Hæmorrahagies break out, which they do not in the other Caſe. 3. By the Blood itſelf, which cometh away; for, it conſiſting of nothing but broken Globules and variolous Particles, fallen in together, and becoming a cloſe Thromb, it immediately congeals in the Chamber-Pot, maintaining its ſolid Conſiſtence without any Portion of Urine or Lymph among it, and always is of a remarkable fiery, bright red Colour.

THESE Purples and Hæmorrhagies have (according to what I have obſerv'd myſelf, and heard from others) three Times or Seaſons of coming.

THE firſt is at the Time of Eruption, and then I believe they are generally mortal, few ever eſcaping.

THE ſecond is at that Time when the Stage of Augment is proceeding, namely, the fifth and ſixth Days, and then the Diſtemper ſeldom goeth beyond putting out of Purple Petechiæ or Effloreſcencies without any Hæmorrhage; if theſe be of a bright Red, ſometimes they will diſcuſs, and by degrees vaniſh, and the Sick may recover; but if they be of a dark Purple, and grow more and more dusky, leaden or black, the Sick dieth certainly.

BUT ſometimes ſuch ſtrange Things occur in Practice, as thwart common Obſervations, and break thro' Rules. Mr. *Griſt* of *Bath* communicated the following Relation to me:

DR. *Rogers* (a moſt ingenious and famous Phyſician at *Cork* in *Ireland*) had been with a Child that had a favourable Small-Pox, and then was deſir'd by the Mother to give her three other Children ſomething to prevent a bad Sort; on which he bled them, order'd a ſpare Diet, a Vomit, *&c.*

FOURTEEN Days after the Bleeding the Small-Pox broke out diſtinctly, and were regular, and the Puſtles came to good Digeſtion.

BUT on the eighth Day large purple Spots appear'd on the Thighs and Bodies of two of them.

THE next Day one of them diſcharg'd a vaſt Quantity of Blood by Stool.

UPON the Purples appearing the Doctor gave *Sal. Prunel. Terr. Japon. Camph. &c.* with ſome Alexipharmacs, *viz. Coccinel. Croc. &c.* They all recover'd.

THE third is in the Stage of Maturation on the 10th, 11th, or 12th Day; the ſecond Fever being at this Time very high, and Nature low, Hæmorrhagies that break out now are moſt extremely dangerous, yet perhaps the Evacuation of Blood (if the Spirits can but hold out) may help to aſſwage the great Ebullition.

RECOVERIES of this Sort I have heard of, and ſome I have ſeen myſelf, an Inſtance of which I will borrow out of my own *Pharmacopœia extempor.* where I give an Account of a Coachman who, upon the tenth Day of a fluxing Small-Pox, fell into a Phrenzy, and a Bleeding at Mouth, Noſe, Eyes, and Ears; his Pocks alſo bled, and he made bloody Urine.

UPON taking of *Ol. Vitrioli gt.* 40, in a large Vehicle, and repeating of the ſame half an Hour after, the Blood

ſtopp'd every where; anon he fell aſleep, awak'd well in his Senſes, and in good Temper, and from thence gradually recover'd.

THE Reaſon of a Poſſibility of a Recovery at this Time, I take to be this: About the 12th Day, the Small-Pox having run thro' its natural Time and Courſe, the Spirits ſomething quieting, and the Fever ſinking, and the variolous Copula ſeparating, and paſſing out by Tumefaction and Diaphoreſis, Nature by Degrees helps the minute Globules to run together and join again, like the Particles of Quickſilver, into ſuch large ones, as render the Conſiſtence of the Blood fit for Circulation, and the common Uſes of Life.

WHEREAS the common Small-Pox (even the worſt Confluent) is ſeldom plainly infectious, till all the Puſtles that will, are come out, and the Stage of Augment beginneth, that is, the fifth Day; this bloody ferine Sort arrives to an high Degree of Venenoſity preſently, emits, and ſpreads virulent contagious Effluvia from the very firſt Eruption, and perhaps Invaſion.

WHEN any one dieth of this Sort, his Fleſh corrupts immediately, and grows putrid, rotten, and ſtinking to ſuch a Degree, that the Corpſe cannot be kept above Ground two Days, tho' the Weather be cool.

THE Matter of this dreadful Small-Pox, when it is wrought up to its Height of rank Viroſity by the Time of Eruption, is more killing than that even of the Plague itſelf; for it ſlays moſt certainly, without fail; whereas the Peſtilence hath ſuffer'd ſome to eſcape.

AT its firſt Onſet it falls directly upon the vital, animal, and ſpontaneous Spirits, cauſing weak, quick, and faultering Pulſe, ſhort and painful Breathing, Sickneſs, Anxiety, and ſuch exquiſite Pains, as human Nature cannot long bear and live.

THEN

THEN it flies preſently on upon the Blood, making the Lymph cauſtic, liquifying the Size, cutting aſunder the Fibres, diſſolving the Bands of Union, letting the Globules looſe, and breaking them into the minuteſt Atoms.

AND then it joins them Atom for Atom, inſomuch that every little Globule is a Compound of Blood, variolous Corpuſcle and Poiſon; and yet they are ſuch inconceiveably ſmall Moleculæ, that, like Quickſilver, they can be ſqueez'd, by the Force of the Fever, thro' every Membrane or animal Subſtance, and ſo they find, or make Paſſage every where, and produce theſe direful Hæmorrhagies.

THERE are three Degrees of this Sort of Small-Pox.

THE firſt is, when the whole Maſs of Blood is not univerſally and equally infected and broken, then there come out only purple Petechiæ among the Puſtles.

I have ſometimes ſeen Perſons upon whom theſe came out after Eruption was compleated, and kept freſh and red, and yet the Scarlet Effuſion came not upon them at all; and ſome of theſe that had them not before the Stage of Augmentation, recover'd: But I remember not any that eſcap'd, where the Spots appear'd during the Stage of Eruption.

2. WHEN the Blood is in every Part of it infected; but tho' its Globules are broken all to Pieces, yet they are not come to their utmoſt Degree of Venenoſity and Putrifaction; in this Caſe they cauſe the Scarlet Effuſion all over the Skin. This (as that of Spots happening in the Stage of Eruption) is, as far as I know, always mortal, but perhaps may be poſſibly recoverable, when they appear in the Stage of Augment, and not before.

3. WHEN the Blood is intimately and thoroughly infected, and the broken and the variolated Globules are become ſo virulent, acrid, corroſive, penetrant, violent, and agile, that they cannot be held and contain'd by any Veſſels, Membranes, or Fleſh in the whole Body, and at the ſame time the vehement febrile Commotion rapidly drives them out: In that Caſe, the groſs, as well as the fineſt Blood, ruſheth out not only thro' ſome of the Pores, as it doth in the Petechiæ, but thro' every other Part and Paſſage, in great Drops or Streams.

THIS Sort commonly killeth in three Days Time after the Appearance of the Bleeding, and therefore there can be no Room for any Remedies.

BLEEDING or Purging in this Caſe are not likely to do any good, and where they do not ſo, will be Occaſions of villainous Scandal; yet in the laſt Stage I have ſeen Bleeding ſucceſsful, and know not but Purging may be ſo likewiſe, if there be but Strength of Nature enough to bear it.

THE Things here to be thought of and propos'd are, lightening the Bedcloaths, taking out of Bed a little while, ſetting the Sick at an open Caſement.

GREAT Quantities of Drink, Refrigerants, Incraſſants, Styptics, Acids, and Paregorics, are the chief Things; and are to be prudently order'd, according as the preſent Exigents and Caſes ſhall indicate and require, and (ſomething too which I am aſham'd to mention) the Nurſes will permit.

OBSER-

OBSERVATIONS *from* HOECKSTETTERUS.

IN the Year 1619 a malignant Small-Pox being about, a Boy of ſeven Years of Age fell ſick of it. I was call'd to him the third Day, and finding him very reſtleſs, full of Lead-colour'd Puſtles, and Spots among them that were at firſt dusky, and afterwards black, I pronounc'd Death: That Day he became ſpeechleſs; the fourth in the Morning he piſs'd Blood, and twelve Hours after that he dy'd.

1622, I was ſent for to a Youth of about 15 Years old. The Puſtles were not elevated, and among them were ſeen many purple and blue Petechiæ, and the very firſt Day he made a great Quantity of bloody Urine: His Stools were meer Blood: The third Day he ſpit frothy Blood: The fourth bled at his Noſe and Gums: Upon taking an Alexipharmac he was worſe. Then he fell into a Leipothymia, Straitneſs of Breath, Proſtration of Strength, and the ſame Day had two Convulſions, and ſo dy'd.

1622, A Girl of about twelve Years old fell into a Synoch Fever, with Pain in her Head, Back, and Belly, and with Laſſitude every where: The next Day ſhe had ſome Stools a little bloody, and Spots broke out like the confluent Small-Pox (*variolarum Efflorescentium* are his Words).

I was call'd to her the third Day, when they ſhew'd me Stools mix'd with Urine all bloody, upon which I inſtantly gave her high Cordials.

THE fourth Day I repeated the ſame Cordials, upon which ſhe grew worſe; for there thruſt out all the Body over

over Spots, purple, plumbeous, blue: The fifth ſhe ſpit Blood, and went off quietly.

E. HAMILTON's *Caſe.*

1725. *MAY* 19. I was call'd at Night to *Edward Hamilton*, aged about 35 Years, a ſtrong healthy Man, not given to drinking, or any Sort of Debauchery.

HE had been ſick at Stomach, and vomited.

HIS Pulſe was orderly.

HIS Urine like that of Mens in Health.

HE had no Fever perceiveable.

HE ſlept at Times, but unquietly.

THE Pain in his Head was vehement:

BUT that in his Back came with ſuch outragious Shootings and Tearings, that he cry'd out at every Shoot, and could not bear it.

HIS Face was all over red, and that Redneſs was ſo fix'd there, that when I preſs'd the Part hard with my Thumb, it would not recede at all.

HE complain'd that his Strength was all taken away at once.

THAT Night the Small-Pox made its firſt Appearance.

May 20. MORE Pocks broke out, but they were extremely ſmall, and not very red, nor elevated.

HIS Pulſe, Urine, and Fever not alter'd in the leaſt.

STRENGTH

STRENGTH quite gone.

HEAD-ACH ſomething abated, but his Back as bad as ever, or worſe.

THIRST unquenchable.

HE took *Diacod.* ℥j. in the Evening, but ſlept not one Wink.

IN the Night he bled out of his Noſe at leaſt two Pounds of Blood.

I preſcrib'd as followeth :

May 21. *Diſſolv. G. Tragac.* ℥iij. *in Aq. font.* lbij. *ſignetur ſolutio Gummoſa.*

℞ *Herb. Urticæ* ℥iiij. *conciſ. & contuſ. add. Solut. Gum prædict.* lbj. *ſtent ſimul in frigido per horæ quadr. Liquori col. add. Ol. Vitrioli gt.* xxiiij. *repon. per horam deinde liquor. per ſubſid. depuratus per colum effundatur.*

Hujus cap. ℥iiij. *tertiâ quâq; horâ.*

THIS put a Stop to his Bleeding at Noſe; but all that Day he hawk'd up out of his Throat clotted Blood.

IN the Evening he bled at Noſe again; but upon taking the following it ſtay'd.

℞ *Solut. Gum.* ℥vj ß. *Syr. de Mecon.* ℥j ß. *Ol. Vitrioli gt.* 48. *div. in duas doſes, quarum una ſumatur horâ* 8 *veſp. & altera poſt* 4 *horas.* This is a very unuſual Doſe of *Ol. Vitrioli*, but an hard Knot muſt have an hard Wedge.

NOW

NOW the Pain of his Back went entirely off, and return'd no more; but a mighty troubleſome Difficulty of Breathing came on.

A very great Number more of Pocks broke out this Day, not only in the upper Parts of his Body, but the lower alſo.

UPON taking a ſtrong Paregoric, he ſlept more comfortably than he had done before.

May 22. NOW an infinite Number of Pocks were ſeen all his Body over, but they were exceeding ſmall and pale, and many purple Spots were ſprinkled in among them.

HE ſpit up a great Quantity of Blood.

℞ *Rad. Symph. maj. Urticæ* āā. ℥iij. *coq. in Aq. font.* lbiiij. *ad* iij. *col. adde Hord. perl.* ℥ß. *Paſſul. ſol.* ℥iij. *Raſ.* CC. ℥ß. *Glycyrrh.* ʒij. *coq. ad* lbij. *in col. inſtill. Ol. Vitrioli gt.* xxxij. *m. Cap. hauſtum ſubinde ad libitum.*

AT this Time he thought himſelf much better, and ſeem'd more chearful; but ever now and then at Times the Blood iſſu'd out of his Noſe and Throat.

℞ *Herb. Urtic.* ℥iiij. *conciſ. & contuſ. affund. ſolut. Gum.* lbj. *ſtent per horæ quadr. Col. expreſſ. divid. in* 4 *doſes, in ſingul. inſtillando Ol. Vitrioli gt.* xij. *cap. tertiâ quâq; horâ.*

℞ *Herb. Urtic.* ℥ij. *coq. in Aq. f.* lbj. *ad* ℥xij. *col. add. Mel. Roſ.* ℥iiij. *Ol. Vitrioli gt.* xxiiij. *m. pro Gargar. cum Penicillo, & Syringâ uſurpando.*

℞ *Album. Ov. quaſſat. & col. Syr. Cydon.* āā. ℥j. *Conſerv. fruct. Cynosb.* ℥ß. *Terr. Japon. Lap. Hæmat.* āā. ʒj. *m. f.*

m. f. Lohoch poſt ſingulas Oris Lotiones lingendum.

HE made Water very often, but his Urine was like that of Men in Health.

IN the Afternoon he had three, not very looſe, but ſtercoraceous Stools, in the Space of an Hour and a half, and theſe without any Senſe of Sickneſs or Gripes.

UPON taking of the following, this Looſeneſs ſtay'd; but in the Night it came once, and after that never any more.

℞ *Diaſcord.* ʒij. *Balauſt. pulv.* ϑj. *Aq. Cinnam. fort.* ʒß. *Aq. Lact. Alexit.* ʒij. *Syr. de Mecon.* ʒjß. *f. hauſt. ſtation. ſumend.*

℞ *Pulv.* CCC. ʒj. *Boli* ʒß. *Cort. Granat.* ʒij. *Terr. Japon.* ʒj. *Sacch. alb.* ʒj. *Aq. font.* lbiij. *coq. ad* lbij. *col. cap.* ʒiiij. *quartâ quâq; horâ, vel pro potu ordin. donec refrœnetur Diarrhœa.*

May 23. HE ſlept well.

DIFFICULTY of Breathing went quite off.

URINE the ſame as before.

FEVER and Pulſe moderate: I told 48 Pulſes in half a Minute.

HIS Forehead and Cheeks began to ſwell.

HIS Face, Neck, and Breaſt were intenſely red, and the Redneſs would not recede upon Preſſure with my Thumb.

HIS Face was all over cover'd with one continu'd Pock, without any Diſtinction of Puſtles, like the ſmooth Bark of a Tree.

THE Pocks in all the reſt of his Body were pale.

UPON his Back, Thighs, and Legs they were broad, but flat, almoſt without any Elevation at all, and looking as tho' each were cover'd with a livid Pellicle; and their Circumferences had no Redneſs.

SOME of the Pocks turn'd quite livid.

MANY purple Petechiæ appear'd in his right Arm, and it ſwell'd pretty much.

NOW firſt Salivation began; his Throat grew ſore, and he could neither ſwallow, nor breathe ſo freely as he had done hitherto.

℞ *Hord. perl.* ʒß. *Paſſul. ſol.* ʒij. *Conſerv. Roſ. rub.* ʒj. *Raſ.* CC. ʒß. *Glycyrrh.* ʒij. *Aq. font. ſolut. Gum.* ää. lbjß. *col. adde Ol. Vitrioli gt.* xxxij. *propinetur Liquor ad libitum.*

℞ *Herb. Plantag.* ʒiij. *Sedi maj.* ʒj. *Contuſ. affund. Aq. f.* lbj. *reponantur per hor. quadr. deinde col. add. Vitrioli gt.* 40.

℞ *Hujus infuſ.* ʒiij. *Syr. de Mecon.* ʒj. *m. f. hauſt. horâ undecimâ antemerid. ſumend.*

℞ *Hujus infuſ.* ʒvj. *Syr. è Rubo Idæo* ʒij. *m. & div. in* ij. *Doſes, quarum una cap. hor. 2 pomerid. & alterâ 5 pomerid.*

℞ *Ejuſdem infuſ.* ʒiij. *Syr. de Mecon.* ʒjß. *m. f. hauſt. horâ octavâ veſpert. ſumendus.*

May

May 24. HIS Face was now ſwell'd up that he could not open his Eyes, and it tended to Blackneſs.

HIS Neck and Breaſt were as fiery red as an Eryſipelas.

THE Puſtles were all his Body over flat and pale.

SALIVATION was very much increas'd.

HE made Water very frequently, and a little at a Time, but without a Dyſuria.

URINE and Pulſe as before.

IN the Morning he complain'd not of any Pain, Sickneſs, nor Thirſt.

IN the Afternoon he was inexpreſſibly uneaſy, and ſick, and in great Diſtreſs and Anguiſh.

THE Night paſs'd with inconceiveable Diſquiet and Conturbation.

℞ *Pulv.* CCC. ℥j. *coq. in Aq. f.* lbiij. *ad* ij. *in col. diſſolv. Gum. Tragac.* ℥ij. *col. add. Aq. Cinnam. fort. & Sacch. cand. alb.* ā ℥iij. *m. pro Potu ordinar.*

℞ *Ol. Amygd. dulc. Syr. è Rubo Idæo* ā ℥j. *Diaſcord.* ℥ß. *m. f. Miſt. inſtar. Lohoch.*

℞ *Syr. de Mecon.* ℥ß. *Aq. Lact. Alexit.* ℥ij. *Laud. liqu. gt.* XV. *m. f. Hauſt. hor.* viij. *veſpert. ſumend.*

May 25. NOTWITHSTANDING his Paregoric he had a miſerable bad Night; Fever roſe up high.

FACE turn'd almoſt black.

MOST of the Puſtles in his Body turn'd livid, and flaccid, and ſhrivell'd.

EVERY thing grew worſe to Extremity.

AT Night Death would not be ſtav'd off any longer.

I preſcrib'd but one Cordial in all the Sickneſs, and I think he took none of it.

HE was not let Blood, Vomited, nor Purged before he fell ſick, the Diſtemper catching him at unawares.

I ſaw him not till that Evening when Eruption happen'd.

I had not Permiſſion to bleed him after the Pocks appear'd, and if I had, I ſhould not have been very forward to have done it; for in ſuch a Caſe as this was like to prove, it doth the Patient Good never, but the Phyſician Hurt always.

HIS Spirits were ſtruck down and ruin'd at the very firſt Aſſault, and never could be rais'd or recruited any more; and ſo he complain'd of ſtrange Loſs of Strength all along.

FOR this Reaſon, Nature being not able to make a Struggle, there was no ſenſible Fever, nor remarkable Heat or Thirſt all the Time.

THE Pulſe alſo and Urine were not alter'd.

THAT the Globules and the Contexture of the Blood were broken and diſſolv'd, manifeſtly appeareth from the coming out of the Purple Spots.

THIS was the true Bleeding Small-Pox, with Petechiæ, Hæmorrhagies out of Mouth and Noſe, tho' not by Urine

Urine nor Stool, by reaſon of the vaſt Effuſions of Blood in the upper Parts.

BUT the Bleedings being ſeveral times reſtrain'd and ſtopp'd by thoſe unuſual great Quantities, and frequent Exhibitions of Acids, Incraſſants, and Paregorics, it kill'd not ſo ſoon as this terrible Sort uſeth to do.

FOR the Hæmorrhagies began *May* 20, and he dy'd not till the 25th, which Time includeth ſix Days; wherefore as I never before nor ſince ſaw any one taken with this Sort at the Time of Eruption, that ſurviv'd the third, or at moſt the fourth Day, I thought proper to be the more particular in this Caſe.

Of PRESERVING *and* CURING *the* FACE.

THE Manner of Pitting the Face is thus: When the Scabs fall off, there is no Cavity at all to be ſeen, but a Scurfineſs ſucceeds, which peels away, and renews again ſeveral times, and at laſt leaves Pock-Holes.

I am of Opinion, that now when the Diſtemper hath quite run thro' all its Stages, and is gone off, theſe Scabs do not contain a ſharp Humour that conſumeth the Fleſh under them then.

BUT the Miſchief is done before, and that by the ſecond Fever, which turns the Abſceſſes into eating Ulcers, and thoſe ſhallower or deeper, leſſer or larger, according as the different Degrees of Viroſity and Heat had made the Matter more or leſs corroſive.

WHERE the Ulcers ſtand ſingly, they cauſe Pits only; where they run into one another in broad Area's, they leave Scars and Seams, as Burns do.

THE Reaſon why no Cavity appears when the Scab firſt falleth off, is, becauſe the little Portions of Fleſh under

under them, that have been lately inflam'd, remain as yet ſwell'd up in them:

BUT afterwards, when the Face groweth well, and thoſe Swellings are ſunk, where-ever Fleſh was eaten away, Pits muſt be left.

THE Pits are eaten in thro' not only the Cutis, but even into the Subſtance of the Fleſh alſo.

IF there be a great deal of morboſe Matter aſſimilated, and the ſecond Fever be carry'd up high, the Ichor will proportionably be more cauſtic, and will eat in the deeper.

THIS Cauſticity continueth increaſing till Maturation be perfected, and then, as ſoon as ever the Ichor is turn'd into laudable thick white Pus, it ceaſeth to be any longer cauſtic; hence it followeth, that the Cavities are eaten in only during the ſecond Fever, and that too before Suppuration be entirely made.

IF new Fleſh generate in theſe Cavities, and fill them up full, it will prevent Pits.

THE new Fleſh which is to fill them up, groweth from the Time that the Pus is perfectly made, till the under Sides of the Scabs grow dry, and the Skin riſeth to cover and coat it over.

IF the growing of the Fleſh ceaſe before the Cavities are fill'd, or if the Cavities are eaten in ſo deep, that they cannot be fill'd before the growing Cutis put a Stop to its further Increaſe, Pits and Scars muſt needs be the Conſequence.

MANY Inventions have been ſought out, and many Remedies have been thought of, to prevent variolous Deformities; I ſhall ſet down ſeveral, perhaps the Reader may

may among them pick out ſome good Hints of what to do, or at leaſt of what to avoid.

1. THE very beſt Thing any one can aim at for this Purpoſe is, at the beginning of falling ſick, to uſe all Things poſſible to hinder large Aſſimilation and a fluxing flaming Pox.

2. IF that cannot be done, the next beſt is, to moderate the firſt Fever, but more eſpecially the ſecond Fever, by proper Evacuations in time, and by the Uſe of cool Regimen and Remedies; for 'tis the Heat and Vehemence of that Fever which acuates the Viroſity of the Matter, and cauſeth Pits and Scars.

AND if it were but for this Reaſon only, Inoculation is greatly commendable; foraſmuch as it never occaſions the ſecond Fever, and conſequently never leaves Deformities.

3. TO hinder the Puſtles from breaking out much in the Face, which hath been attempted,

1. BY Revulſion, or cauſing the Blood to run more plentifully and forcibly in the *Arteria deſcendens* thro' the lower Parts, than in the *aſcendens* thro' the upper Parts of the Body.

FOR this Intention hath been order'd Bleeding in the Foot; and *Diemerbroeck* particularly commends it for the Prevention of Pock-holes.

TO this Purpoſe is advis'd keeping of the upper Parts, eſpecially the Head and Face, cool, and the lower warm, till Eruption be paſt; wearing Stockings Night and Day; applying hot Things, ſuch as heated Sand-Bags to the Soles, or rubefying Cataplaſms:

As

As alſo bathing the Feet in warm Milk; but this may endanger giving of a Cold; and *Diemerbroeck* upon Experience found it fail twice, and ſo put no Value upon it.

2. BY Derivation, or directing and drawing the variolous Matter to other Parts in the upper Province of the Body, by the Uſe of Epiſpaſtics, Cupping with Scarification, rubefying Cataplaſms, *&c.*

3. BY Repulſion. Some have dar'd to uſe refrigerating, obſtipating, repelling Topics.

SCHOTTUS (in *Wedel*'s Diſputations) tells of a certain Counteſs, who cover'd her three Daughters Faces all over with Virgin Wax, and ſo entirely ſecur'd them.

SIR *Kenelm Digby* (but he was a Man of Fancy and Credulity) highly commends anointing of the Face with Oil of Almonds, and then covering it all over with Leaf Gold, which he relates was ſo ſtrangely and apparently available in a certain Maid, that half her Face, where the Gold lay, was clear from any Pocks at all, and the other half, where they laid no Gold, was deform'd with Scars.

DIEMERB. ſaith, he ſaw three or four, who by waſhing with Breaſt Milk, had their Faces ſo preſerv'd, as to have not ſo much as one Pock there, tho' they had plenty of them all the Body over beſides.

HE knew of four more that kept the Puſtles clear out of their Faces, by waſhing twice or thrice a Day before coming out, and ſome Days after, with *Aqua Cinnamonii* diſtill'd from Cinnamon, and Borage Water, and keeping the Face continually and carefully in a due Warmth; but whether the ſame Succeſs will follow always, he ſaith Experience only can determine.

I have

I have heard of ſome that dar'd run the Hazard of keeping on their Faces Linnen dipp'd in cold Roſe Water, and changing it as often as it grew warm, or dry.

BUT ſuch Practices as theſe are too dangerous to be imitated, by any but ſuch as had rather loſe their Lives, than the Skin of their Faces; becauſe the variolous Matter, when it is prepar'd for Eruption, if it be hinder'd from coming out there, will be apt to be driven inwards, and fall into the Throat or Brain, yea perhaps upon the Optick Nerves, and ſo cauſe an utterly incurable Amauroſis.

IN the *Zodiac. Med. Gall.* there is an Account, of one who was directly kill'd (as 'twas judg'd) by anointing her Face only with Juice of Marſh-mallows.

4. A fourth Means hath been, to ſoften the Skin and open the Pores, and to attenuate the variolous Matter, that it may tranſpire, as that of the Meaſles doth.

PRÆSENS Remedium contra variolas Faciei, nè tam fortitèr vel Confluant, vel Faciem de honeſtent, eſt ut ab initio Puſtularum prorumpentium Facies illinatur Spiritu Vini Myrrhiſato, ad duos dies, repetitis vicibus, & Præterlapſis diebus duobus, Saccharum Saturni in Aqua Roſarum mixtum Linteaminibus intinctis Faciei, ſæpiùs iterando applicatis.

SÆPIUS cum maximo emolumento applicatum eſt & obſervavi, quòd etſi variolæ copioſæ fuerint, tamèn relictas Cicatriculas, poſt vix apparuiſſe.

THUS *Cnoeffelius*; but tho' Spirit of Wine perhaps may be allowable for this Purpoſe, yet I cannot think this Piece of Practice over ſafe, becauſe *Saccharum Saturni* is in an high Degree Refrigerant and Repellant.

I had the following communicated to me by a Phyſician, long ſince dead.

TAKE a Gallon of new Milk, make a Poſſet of it with Canary Wine and Juice of baked Turnips, of each a Quart.

IN this Poſſet infuſe warm, and cloſe for ſix Hours, Elder Flowers dry'd Miiij. Flowers of Hypericum Mij. Saffron two Drams, and then ſtrain out the Liquor.

ALSO make Masks of double white Flannel to fit exactly all over the Face; four at leaſt: Then

POUR a Pint of this Liquor out for one Time: Warm it to that Degree that you can ſcarce endure your Hand in it.

DIP a Mask into it, and having wrung it out as dry as you can, clap it all over the Face, and lay a dry Mask over it, to keep it from ſoon growing cold.

RENEW theſe Masks every two or three Hours, being careful that they never grow cold upon the Part; and continue thus doing till the Diſtemper decreaſe, and the Scabs dry, and fall from the other Parts of the Body.

AT laſt leave off by Degrees, decreaſing the Thickneſs of the Flannels till all may be taken off.

HE aſſur'd me, if the Nurſes be careful, and let not the Party take Cold, this Bathing would ſafely and certainly preſerve the Face, and alſo prevent its itching.

BUT this will require two Nurſes more than ordinary; for if the Sick ſhould become delirious, and tear the Dreſſings off, it may coſt her Life; which yet may be provided againſt by ſewing her Hands down, ſo as ſhe cannot reach her Face.

NOW,

NOW, upon the Upſhot, I am not able to judge whether this Device be ſafe and practical, upon the Account of Times of Sleep, which may not be hinder'd; yet ſince it is a Thing (as far as I know) not heard of before, and ſeemeth to carry ſome Sort of Probability with it, I was willing to ſet down the whole Proceſs; but ſhould be very ſorrowfully concern'd if any Hurt ſhould come by it.

5. TO haſten the Maturation of the Puſtles on the Face, that they may not have time to corrode.

TO this Purpoſe, beſides Internals before mention'd, and the Flannel Masks;

SOME adviſe to waſh with a Decoction of Peas; others anoint the Face twice a Day with Rape Oil, which I ſuppoſe they chuſe, becauſe that Sort of Oil is not apt to dry; others uſe Oil of Almonds, or Nut Oil.

GESSELINE uſed to make an Ointment of the Fat of Bacon, held in an hot Pair of Tongs, and melted down into Roſe-water.

DIEMERB. tells us, it is a Secret of the Court Ladies to roaſt on a Spit the Cawl of a Barrow Hog, and let it drop into Roſe-water; with this they anoint the whole Face, and then cover it over with thin Slices of Fat of the ſame Hog, and renew it twice a Day, till the Scabs come to full Maturity, and drop off.

BUT the ſame Author himſelf commonly adviſeth his Patients to foment, at the beginning, the whole Face with a Spunge fill'd with well-boil'd Mutton Broth, the Fat being taken off, and repeat it ſeveral times a Day, even till Maturation; and from that Time to leave it off, and commit all to Nature.

I think it needleſs Supererogation to write down many more of the like Sort.

THIS Deſign of haſtening on Maturation I ſhould highly approve of, if I were ſatisfy'd it could be done; but I am half perſuaded it cannot be hoped for from outward Applications.

AND as for inward Medicines, and due Management, tho' they poſſibly may ſomething moderate the ſecond Fever, and qualify the great Symptoms, yet they can never ſpur on Nature ſo much, as to make her go one Day faſter than her own Pace is; and therefore we cannot expect that Ripeneſs will be brought on by any Art much ſooner in the Face, than the general Courſe of the Diſtemper performs it in the reſt of the Body.

6. TO let out the Pus as ſoon as 'tis ripe, that ſo it may not lie long enough in the Abſceſſes to putrify and erode the Fleſh under them.

SOME therefore have open'd the Puſtles with a ſharp Golden or Silver Pin, or with the Point of a Launcet, or have ſnipp'd off the white Heads with Sciſſars.

BUT this Practice bringing neither ſolid Reaſon nor good Experience to vouch for it, I like it not; and that becauſe,

(1.) IT is needleſs, ſince at that Time when it is adviſ'd to be done, the Ulcers begin to dry up into Scabs, and quickly fall off of themſelves.

(2.) IT can do no good; for ſuch Apertion is never attempted till the Puſtles are fully ripe: But when the purulent Matter is perfectly concocted, and brought to a State of Maturation, it ceaſeth to be any longer corroſive, and

and ſo having ſpent its Malice, and done its worſt in eating away the Fleſh, the taking it away can be of no Service at all.

(3.) IT may do Hurt; for when the Pus is evacuated, the empty Cavities will grow dry and hard, and ſo will hinder the Fleſh, that is under the Puſtles, from growing up to fill the Hollowneſſes that were eaten away.

WHEREAS if the Abſceſſes be not open'd, and the Pus in them be permitted to ſcab and dry up by Degrees, then the Fleſh under them being kept ſoft, ſupple, and in a growing way, may poſſibly come to fill up all the Cavities by the Time that the Cutis is regenerated, and the Scabs fall off.

COMMON Experience eſtabliſheth the Truth of this; for every one knows, that where the Sick ſcratcheth off the Scabs, he will be moſt pitted and mark'd.

THEREFORE, tho' this Courſe pleadeth Antiquity, and *Arabian* Authority, yet it is by no means to be allow'd of.

MUCH leſs is that of thoſe that would have us not only make Apertion, but alſo waſh the open'd Abſceſſes, cleanſe out the Pus, and dry up the Cavities, as ſoon as it can be done, with Salt Water, Detergent, Aſtringent, Styptic Lotions, or deſiccative Unguents.

FORESTUS furniſheth us with the following Inſtance of Miſchief caus'd by ſuch Means: A certain Perſon, of about thirty Years old, having the Small-Pox, anointed his Face all over with Butter fry'd till 'twas black: (then it dry'd powerfully as being Empyreumatic) The Event was, that his Face was miſerably deform'd with Scars: He loſt one Eye; and if the Author had not taken due Care, he had loſt the other alſo.

7. To

7. TO hinder the Pus from drying up too ſoon, for the Reaſons juſt above given for this Purpoſe, it may be good to foment with a Spunge dipp'd in a warm Decoction of Mallows: Oily Things, that neither heat nor cool, ſeem proper; among theſe I much fancy Neats-foot Oil, which being Animal, I take to be more congenerous to our Bodies than that of Almonds is: *Ol. Vitel. Ovor.* is commended.

8. To promote the growing up of Fleſh into the Cavities, I acknowledge we have nothing in Surgery that is truly and properly Sarcotic, ſince the generating of Fleſh is the ſole Work of Nature; but we call ſuch Things ſo as reſiſt Putrefaction, and cauſe no Pain; neither heat nor cool the Part, but keep up Temperature; and tho' they ſomething reſtrain thin Gleet, yet they dry up the Pus too faſt: For this Purpoſe may be uſed,

Ol. è Pedib. Bov.

Farinæ Maltæ ℥ß. *Cremor Lactis q. ſ. m. f. Ung.*

ABOVE all Things, the Face muſt be ſecur'd, as much as poſſible, from the cold Air.

PERHAPS it might be beneficial to wear a Mask till all the Scabs be fallen off, the Face become ſmooth, and the under new-generated Fleſh is firm and hard again.

WHEN the Scabs go away, it is very prejudicial to rub, or even waſh the Face, till all be quite well and clear again; becauſe if the looſe ſcurfy Cuticula be continually ſcour'd off, the Air coming at the tender Face, will make the new-growing Fleſh callous and hard, and ſo hinder its plumping up full in the Pits.

To conclude this Matter, ſince many of theſe mention'd Means and Methods have been found unſucceſsful, and

and ſome of them hurtful; I content myſelf with cautioning of Practicers; and declaring, that my Opinion is, he doth beſt that employs his Endeavours to render the Diſtemper mild and moderate, and tampers not overmuch with external Applications.

DR. *S.* doth nothing at all towards the Prevention of pocky Marks, only in the laſt Days, when the Face groweth ſtiff by reaſon of cruſty dry Scabs, he ſupples it often with Oil of Almonds, both to mitigate that Stiffneſs, and alſo to cauſe that the hot Effluvia may the more freely exhale.

WHEN the Scabs fall off, ſome anoint with *Sperma Ceti* melted in a Spoon, and laid on with a Feather; or with *Ung. è Sperm. Ceti Batean.*

ULCERS.

IF filthy Ulcers remain after the Small-Pox, *Amatus* waſheth with a reſtringent Decoction, made with *Roſ. rub. Bacc. Myrt. ſummit. Querc.* &c. and then ſtreweth on the following Powder:

℞ *Thur. maſc. Sarcocol. Roſ. rub.* ā*a. q. v. f. Pulv. ſubtil.*

FORESTUS uſeth *Ung. Camphorat. alb.* or the following, which ſome have commended highly:

℞ *Plumb. uſt.* ℥j. *Litharg.* ℥ß. *Ceruſſæ lotæ, & Aceti* ā*a.* ℥ij. *Ol. Roſ.* ℥jß. *Mel. Roſ.* ℥ß. *Vitel. Ovi* jß. *Myrrh.* ℥ij. *Ceræ q. ſ. m. f. Ung.*

REDNESS,

REDNESS.

THE Redneſs of Face, which remaineth many Times after the Scabs are all gone, and the Places where they ſtood quite well, I take to be occaſion'd partly by the boiling Blood, which in the Time of the ſecond Fever as 'twere ſcalded the Skin, and partly by the freſh red Colour of the new-grown Fleſh, in ſome ſort viſible through the as yet thin and tranſparent Cutis and Cuticula: The firſt of theſe is a Bluſh all over the Face, the other is only Spots; and theſe continue,

1. TILL the Cutis attaineth ſuch a Thickneſs and cloſe Compactedneſs, as to take away its Tranſparency: Or,

2. TILL the little new-bred Portions of Fleſh, by Tract of Time, harden, and loſe Part of their Freſhneſs.

TO take off theſe Blemiſhes, ſome have advis'd waſhing the Face frequently with cold Water; but whether Milk Water, Bean Pod, Frog Spawn, or the like diſtill'd Waters, have any peculiar eminent Virtue this Way, I cannot tell, but ſuſpect they have not; if *Saccharum Saturni* be diſſolv'd in them, they will be likely to do their Work the ſooner.

ELIZABETHA Angliæ *Regina contractas variolarum ſuppuratione Maculas, in ſeipsâ delevit Emulſione lacteâ ex ſemine Cannabino (ſeparatis Corticibus) cum Aquâ Roſarum paratâ, & cum Goſſypio admotâ.* Burnet Theſaur. 873.

TO daub the Face with ſmearing Oils and Unguents, will but foul and dull the Skin: If any ſhould unadviſedly

viſedly do ſo, *Liquamen Tartari*, *Lac Virginale*, *Tinct. Benzoini*, &c. dropp'd into Water, may (if timely uſed) ſcour it off again.

BUT *Diemerbroeck* always found it beſt to do juſt nothing at all; Time and cold Weather, eſpecially froſty Mornings, will harden the Fleſh, and thicken the Skin, and cure the Redneſs quite; but at the ſame time 'twill put a Stop to the further Growth of the Fleſh in the Cavities, and thereby occaſion the Pits and Scars to be deeper and plainer.

AN

APPENDIX

CONCERNING

INOCULATION.



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AN

APPENDIX

CONCERNING

INOCULATION.

OF

INOCULATION.

OBJECTIONS.

THE Devil inoculated *Job* with the Small-Pox; and therefore it is a wicked Thing to uſe it.

THIS is one of the moſt marvellous Arguments that ever was ſeen in a Sermon.

IF this were ſo, then *Moſes* inoculated the Beaſts, as well as the Men, throughout all the Land of *Egypt*:

FOR that Word which in *Job* ii. 7. we render *ſore Boils*; and *Exod.* ix. 9. *Boils*, and *Blains*, is שְׁחִין the very ſame in the *Hebrew* Original.

AND if it were a wicked Thing becauſe the Devil adminiſtred it, it was ſanctified again by God when he commanded *Moſes* to do the ſame.

NOW

NOW if a Man to whom the Biſhop hath ſaid, *Receive the Holy Ghoſt*, ſhould grow ſo abandoned, as to wreſt, and ridicule the ſacred Scriptures, and preach and print the ſame, his Friends ought to adviſe him ſeriouſly to conſider, whether this be not *A* (if not *The*) Sin againſt the Holy Ghoſt; who ſpake by the Prophets, and inſpired the holy Pen-men, and is God tremendous.

2. IT would make one ſmile to ſee ſome, who are not in common Life more remarkable than their Neighbours, for Works of Piety, Probity and Humanity, taken with a Shiver of Conſcience, forſooth! and a Fear that Inoculation is unlawful, foraſmuch as they conceive it is a Tempting of Providence, for a Man, that is in Health, to throw himſelf voluntarily into a dangerous Diſeaſe.

BUT to me it appeareth on the contrary, to be a downright Ingratitude to God, to ſlight and oppoſe this great Remedy, which his Bounty and Goodneſs hath lately revealed and beſtowed on us, to carry us with Eaſe and Safety thro' one of the moſt loathſome and perilous of all Diſtempers, and free us from the Fear of it for ever afterwards.

AND as to the Prudence of this Practice, and the common Uſage of Men, let us put parallel Caſes.

IS it not a greater Tempting of Providence, that when a Man may ſtay ſafe upon Land, yet for the uncertain Hope of getting Riches, he ventureth the vaſt and numberleſs Hardſhips and Hazards of the Deep, and often periſheth in the Attempt?

IS it not a tranſcendent Tempting of Providence, for a Man who is tolerably well in the World, and is not compelled to it, to enter himſelf into an Army in Time of War, where he is at the Mercy of every Bullet, and thouſands of Accidents,

Accidents, and where he runneth the Riſque of loſing Limbs, Life and all, and at laſt cannot hope to gain much thereby?

NAY, I will drive the Matter ſo far as to ſay, If it were utterly unlawful to run one's ſelf into any Danger of Life, upon any Pretence whatſoever, where there is not an abſolute Neceſſity for it, then it would be utterly unlawful to keep up and preſerve human Race upon Earth, by a Woman's venturing to be with Child:

FOR there was not an unavoidable Neceſſity of her being ſo, and yet ſhe thereby runneth herſelf into great Hazards of Life for three Quarters of a Year together before Parturition, and commonly ſome Weeks after; and great Numbers loſe their Lives by it.

THE Caſe of Inoculation (according to my Apprehenſion) ſtandeth thus:

IF any great Evil, threatening Life, will probably fall upon us, we know not when, tho' we are not infallibly ſure it ever will at all;

AND we have it in our Power to prevent the Danger of it, whenever we pleaſe, by doing ſomething that hath but little Trouble or Peril in it; in all Prudence we are bound to do it.

NOW to ſet this Matter in a clear Light, let us ſuppoſe an Iſland into which the far greater Part of Mankind will be unavoidably forced, whether they will or not, to go once, and but once in their Lives; and none can poſſibly foreſee who ſhall be forced, or when.

ALL that went formerly, uſed to wade thro' a moſt dangerous River, wherein about one in ſix were generally drowned:

BUT

BUT of late a Ferry-Boat hath been built; which is alway ready at Call, and in which the Paſſage is eaſy, and ſo ſafe that not above one in fifty have been known to fall Over-board, and periſh; and thoſe few that did ſo, had their Misfortune from ſome Accident, Careleſneſs or Miſmanagement, and in no wiſe from any Fault in the Boat.

AND now let any one, whom groundleſs Prejudice hath not robbed of all his Thinking, and Reaſoning Faculties, judge whether it be not abundantly more prudent, and preferable, to chuſe a Time when it is moſt convenient for him, and then voluntarily ferry over, and ſo ſecure himſelf for ever, than to be at unawares ſnatch'd up, and, againſt his Will, forcibly hurled headlong into the hideous River, there to plunge about, and ſtruggle for Life many Days, and be drown'd at laſt; or if he happen to get out, yet it may be but badly, with Marks, Scars, and Deformities, and perhaps total Loſs of Sight.

BUT ſince this is pretended to be a Matter of Conſcience, I will ſuppoſe a Man hath reſolved to be inoculated, and hath procured a remote ſafe Houſe for it: This done, a buſy Body diſſuades, and turns him off from it: A while after he catcheth the Small-Pox, and dies, and the Contagion ſpreading, an Hundred more die of the ſame:

WITH what Conſcience can ſuch a miſchievous medling Wretch look back upon that lamentable Deſtruction of Men, and the long Train of Miſeries and Calamities that follows from it, which he was really and effectually the Cauſe of; for the Cauſe of a Cauſe, is the Cauſe of the Thing cauſed?

3. IT is an uncertain Practice; ſome having been inoculated without Effect.

IN

IN ſuch Caſes, perhaps, the Pus was ſtale, and had loſt its Variolosity. I have known where after ſuch Pus had miſſed, freſher being uſed, hath done the Buſineſs effectually.

BUT tho' the Pus were not in Fault, it is no Wonder if it ſhould here and there not anſwer the Deſign; it is nothing but what is common in that which they call the Natural Small-Pox; for it is a uſual Thing for a Perſon to be within the full Sphere of Contagion, and cannot catch it at one Time, and yet ſhall take it at another, when there ſeemed not ſo much Danger. Beſides all this, ſome are ſo conſtituted, that they are almoſt uncapable of receiving the Diſtemper. I have, in Place, given divers Inſtances of ſuch.

4. IT doth not always produce the true Small-Pox.

MY Notion of this Matter is, that the variolous Semina are as ſpecial, and cognate to that Diſtemper, as Seeds are to their proper Vegetables, and cannot poſſibly, by the Power of Nature, produce any thing but the true Small-Pox, any more than Thiſtles can Figs: Let any one bring a fair Inſtance plainly to diſprove this.

5. THE Pus may be taken from one in a Confluent Pox, and thereupon may breed a very bad Sort.

I anſwer, though it be moſt eligible to take it from a kindly Diſtinct Sort, yet if ſuch cannot be procured, I ſhould not in the leaſt ſcruple to receive it from a Confluent, for I know it hath ſucceeded well: That which was uſed upon thoſe in *Newgate*, was taken from a Servant that had a violent Flux, and dy'd of it; yet all of them had but few Eruptions.

BY many Obſervations we are undoubtedly aſſured, that it is the Management of the Patient, and State of the Blood, that makes a good or a bad Sort.

AND what that State of Blood is, we know not, for there is nothing more common, than for a Boy, under Fourteen, to have the worſt bleeding, mortifying Pox; though we might think his Blood were ſoft, ſweet, and balmy: and every one hath ſeen a good Sort beget a bad one; and on the contrary.

BUT this is not much to be fear'd here; foraſmuch as Inoculation (the Reaſons of which I ſhall enquire about by-and-by) generally produceth a Diſtinct Pock, ſeldom a Contiguous, and ſcarce ever a Confluent.

6. THE Pus may bring other Diſtempers along with it.

WHY may not other Diſeaſes be more likely to be taken with a chancing Contagion from foul Bodies, that are ſick of the Diſtemper we know not how, than with a Pus which cometh from Perſons that are known, or judged to be ſound?

PEOPLE may have evil Suſpicions of what they will, but I believe no Man ever found it ſo by Experience, that Itch, Leproſies, Scrophulæ, Conſumption, were thus convey'd; and it would be a baſe Thing in any one to bring Falſhoods to prop up an eſpouſed Opinion.

AGAIN, all that happens upon Inoculation is not to be laid to its Charge. In the Natural Small-Pox, the Effluvia of other Fevers have been taken into the Body at the ſame Time, and thus the Meaſles and Small-Pox have been ſeen together upon the ſame Perſon; even as Wheat and Rye may be ſowed and grow up in the ſame Field.

NOW if the Seeds of different Diſeaſes be at any Time joined to, and carry'd with the inoculating Pus into the Blood, in my Opinion, they muſt be only ſuch as are ſeminal, active, operative, and truly infectious; and ſuch muſt produce nothing but acute Diſtempers, that will paſs off in a little Time, and leave no ill Chronic Affections behind them. And thus it is very uſual for Eruptive Fevers, that are of different Families, to appear together.

UPON theſe Conſiderations, in the Choice of the Pus to be uſed, tho' it would be unadviſed, to take it from one tainted with Scabs, *Lues Venerea*, or any other unclean Body, yet I do not plainly ſee what Harm could come from it, if it ſhould be taken from many Sorts of Valetudinarians.

SUCH as thoſe that are of weakly Conſtitution, are Cachectic, Icteric, Hydropic, Chlorotic;

ARE troubled with cold, windy Stomachs, Cardialgia, Vomitings, Loſs of Appetite, bad Digeſtion, Gout, or Stone;

ARE Hæmoptoic, Conſumptive, or have a Phthiſic; have weak Nerves, are Hypochondriac, Hyſteric, or Epileptic.

7. IT is not a Security againſt having the Small-Pox afterwards.

SOME have been reported to have had the Diſtemper again, when they took it by common Infection; and therefore if it ever were ſo, it is poſſible it may be ſo by Inoculation alſo; but that gives not any Preference to natural Infection.

BUT I verily believe this is a Thing that never yet was obſerv'd, and ſo is no Objection, till it appear otherwiſe.

8. IT is a very dangerous Thing.

JUDGE any one which is moſt dangerous, that by chancing Infection, which commonly kills One in Six; or that by Inoculation, under which there ſeldom dieth (all Caſualties reckon'd in) not above One in Fifty.

I declare I have ſeen many inoculated, and among the reſt my only Son; and I never ſaw it produce a Confluent Sort, or any ill Symptoms, and I have known but One that dy'd of it; of him I will give an Account in its Place.

FROM all the Obſervations I have made, I am perſuaded, and I think perfectly aſſured, as I can be of any thing of this Nature, that if the Patient be one that is fit for it, and be tolerably well manag'd, he will be ſafe.

9. IT may bring the Diſtemper into a Town where it was not before, and ſo be the Occaſion of the Death of many, and may deſtroy the Trade of the Place.

TO this it is to be ſaid, that when the Small-Pox cometh into a Place, it commonly ſpreadeth Contagion, either becauſe the infected Perſon is not known ſo to be ſoon enough to be avoided; or a convenient Houſe remote from others is not procured; or due Care is not taken to prevent the carrying about of Contagion.

BUT neither of theſe need happen where it is brought the artificial Way; for here it ruſheth not on People at Unawares, but at ſuch a Time as is agreed upon and appointed for it; and ſuch Diſpoſitions are made, and ſuch Lodgings got, as with common Care, will not ſend out the Diſeaſe to others.

IT may be further ſaid, that the more Perſons of a Town are inoculated, the fewer will be left to catch and

diſperſe

diſperſe the Diſtemper at other Times in that Place; and ſo this Practice may be ſaid, in ſome ſort, to make a Place leſs ſuſceptible of Infection for the future than it would otherways have been.

10. THE Quantity or Doſe of the ſubtile Particles contain'd in the groſſer Pus, which give the Small-Pox, cannot be aſcertain'd; and therefore the Operation of Inoculation muſt be uncertain and empirical.

TO this I take Dr. *William*'s Anſwer to be full and ſufficient, *viz.*

AS far as hitherto we have learned from Experience, it does not appear, that any great Regard ought to be had to the Quantity of the infecting Matter; for the Number and Kind of the Small-Pox don't ſeem to depend ſo much on either the Quantity, or even the Quality of the Matter apply'd to the Inciſions, as on the State of the Blood, and other Humours at that Time, and the Management of the Sick.

WHICH may be illuſtrated by the Obſervation of a Spark of Fire's ſetting a Tun Weight of Gun-Powder on fire as effectually as a lighted Faggot would have done: And ſo, by Parity of Reaſon, a Grain (or perhaps the hundredth Part of a Grain, or as much as will ſtick to the Point of a Needle) may prove ſufficient to produce the Diſtinct Sort; and ten times more than that Quantity would produce but the ſame, in a Body either naturally, or by Art freed from its Recrements, and fitted for the Reception of it.

BESIDES we may better judge of the Quantity of infecting Atoms taken from a little Pus at once, than we can of thoſe ſucked in by we know not how many Inſpirations.

11. THE

II. THE Puſtles ſcarce ever plump up to that degree, and contain ſo laudable a Matter, as they do in the Natural Sort.

THE ſame Dr. *W*'s Anſwer to this is: I ſhall believe my own Senſes before any one's bare Aſſertion; and I ſolemnly declare, that all thoſe I have hitherto ſeen inoculated, had the uſual Symptoms; which in the Courſe of a pretty many Years Practice I always obſerved to precede the Diſtinct Kind, which began to ſeize them about the ſeventh Day from the Inoculation:

THAT theſe vaniſhed on the Eruption; the Puſtles daily increaſing in Bigneſs, were filled with laudable Matter, and about the uſual Time diſappear'd, the Scabs falling off by degrees, as they commonly do in the moſt favourable Species of that Diſtemper; and that they all recovered without any ſubſequent ill Accident.

PERSONS *Fit, and Unfit for this* OPERATION.

IT may be uſed upon Infants at any Time before, or after Dentition; upon Adults, even to Seventy Years of Age.

IT ſhould be very cautiouſly done on,

1. CHILDREN, during the Time of Dentition.

2. WOMEN with Child.

3. SUCH in whoſe Families the Small-Pox hath uſed to be fatal.

4. SUCH as are extreamly fearful, fanciful, hyſteric, or hypochondriac.

5. SUCH

5. SUCH as are of hot choleric Conſtitutions; are apt to Fevers, inflammatory Affections, Pluriſy, Eryſipelas, *&c.* and ſuch as have lately ſurfeited and overheated themſelves with *Bacchus*, *Venus*, or great Labour.

6. SUCH as uſe to ſpit Blood, or have over-much Catamenia.

7. SUCH as have a Phthiſic, Conſumption, Hectic Fever, *&c.*

8. SUCH as have the King's Evil, or Gout.

The ADVANTAGES *of* INOCULATION.

1. SUCH only may be choſen for it, as are fit, as to Age, and all other Matters, and are likely to go well thro' it; when as the Chancing Pox taketh all, without Election, or Diſcrimination; thoſe that cannot, as well as thoſe that can bear it.

2. AN exceeding valuable Advantage it muſt needs be that a convenient Time may be pitched upon to have the Diſtemper in; whereas the other Sort may ſurprize People, when they chance to be in great Families, that may be endanger'd by it, when they are far from Home; when they have great, difficult, neceſſary, and urgent Buſineſs upon their Hands; when they are lately recover'd out of a weakening Fit of Sickneſs; when a Woman lieth in; and when other Circumſtances happen that may render it a moſt unfortunate, and undoing Accident.

A Time may be choſen, when a Man can beſt get Leiſure to attend upon it; hath ſet all his Affairs in Order; hath taken Care for the Safety and Commodities of his Family; hath provided proper Lodgings, Nurſe, and all Things

Things needful; and when Women have newly finiſhed their Month.

ALSO it may be undertaken in an healthy Seaſon, when the reigning Small-Pox is of a kind and regular Sort; as alſo in the Spring, or Autumn, when the Air is temperate, tho' it may be done ſafely, be the Weather hot or cold, as we know by Experience.

3. TEMPERANCE and a cool Diet may be obſerv'd, and if it be needful to prepare the Body for it before-hand, Bleeding, Vomiting, or Purging may be made uſe of long enough before the Operation, to have all fully ſettled again into their natural, cuſtomary State of Quiet, ſo as to be in all Points ready for it.

4. IT ſecures one from ever having the Small-Pox any more, as certainly at leaſt as the common Sort doth; and what Comfort and Satisfaction muſt it be, that a Man may truſt his Children, or go himſelf any where without Fear, or may viſit, and aſſiſt Friends when they lie ſick of it, and few dare come at them?

5. IT never (except in Caſes of Unfitneſs of Bodies, or bad Management) cauſeth much Trouble or Sickneſs, but moſtly produces a kind, Diſtinct Small-Pox, ſeldom a Contiguous, ſcarce ever a Confluent; is eaſily borne; ſoon paſſed over, very rarely leaves any Pits at all in the Face; and when it doth, they are ſo ſhallow as not to cauſe any Deformity.

6. THE inoculated Small-Pox being always diſtinct, or at moſt but contiguous, leaveth not behind it ſuch Corruptions, Putrefactions and Foulneſſes as the Confluent uſually doth; for Boils, Blains, and other Maladies often are ſeen to follow the Confluent Sort; and ſome who were healthy before, become ſickly all their Lives after it.

THE

THE Diſtemper given by Inoculation is incomparably ſafer than that taken by chancing Infection: Dr. *Timoni* aſſures us, it had been for many Years practiſed in *Turkey* with almoſt conſtant Succeſs.

MR. *Mather* writes from *New-England*, that it hath been made uſe of upon almoſt Three Hundred in their Neighbourhood, Young and Old, (from One Year to Seventy) Weak and Strong, Male and Female, Whites and Blacks; in Midſummer, in Autumn, in Winter; and it ſucceeded to Admiration.

HE ſaith he cannot learn, that any one dy'd of it, tho' the Experiment was made when the common Small-Pox had lately viſited, and ranſacked the Town of *Boſton*, and in little more than half a Year, of above Five Thouſand Perſons that had undergone it, near Nine Hundred had died.

HE confeſſeth that out of this Three Hundred, Five or Six died upon it, or after it; but from other Diſeaſes or Accidents, chiefly from having taken the Infection in the common Way, by Inſpiration, before it could be given them in this Way of Tranſplantation, which might very eaſily be done in ſuch an Epidemic Seaſon.

AND it appears by his Letter, that more than One of Five, and leſs than One out of Six have dy'd of the Diſtemper took by Infection; and as to thoſe who died after Inoculation, moſt of their Deaths cannot be fairly charged on this Practice.

DR. *Nettleton*, upon diligent and exact Enquiry made of this Diſtemper in the Towns of *Halifax*, *Rochdall*, and *Leeds*, found that there dy'd above a fifth Part of all that had been infected in the natural Way.

BY Dr. *Jurin's* Computation, One in Forty-eight, or Forty-nine (making more Allowances than needed) dy'd upon Inoculation, and by common Infection, One in Six.

UPON all which Mr. *Maitland* had Reaſon to ſay, that this Practice brings the Mortality of the Small-Pox, from One in Ten, to One in an Hundred; and if it obtain'd univerſally, would ſave to the City of *London* at leaſt Fifteen-hundred People yearly.

Why INOCULATION *giveth a more kindly* SMALL-POX *than common* INFECTION.

THIS is a Problem, the Solution of which none hath hitherto attempted. My Thoughts of it are as follow:

1. WHEN the Pus is apply'd to the Inciſion, it is not that groſs, viſcid Part of it that we ſee upon the Lint, but the inviſible and unconceiveably minute Atoms contain'd in it, that taint the Blood, and breed the Diſtemper.

THOSE Atoms were before Maturation exceeding cauſtic, and corroſive, but are attempered, and ſomething cured of their ferine Acrimony by the ſofter Pus, when it comes to Ripeneſs; and therefore thoſe that go in from the inoculating Pus, produce not ſo malignant a Pox as theſe do, which ſteaming out of the poiſoned Blood of a ſick Perſon, are immediately taken in by Inſpiration.

2. A little Pus upon the Lint being apply'd to the Inciſion, probably cannot ſend into the Blood ſo much morboſe Matter as may be drawn into it by the Breath taken from an infected Perſon.

FOR

FOR in an Hour's Time, there are commonly 1200 Inſpirations, and every one of them carrying contagious Effluvia, the Quantity of all theſe muſt very much exceed what can be ſuppoſed to come from the ſmall Quantity of the Pus on the Lint.

BUT theſe two Conſiderations of Quality and Quantity I do not lay ſo much Streſs upon, as upon the Management of it afterwards, when it is admitted into, and commixed with the Maſs. For,

3. VARIOLOUS Matter (if I apprehend it rightly) is of itſelf but a moderate Poiſon; but if it be heated much, after it is taken into the Body, that Heat exalts it up to ſuch an intenſe Degree of Virulence, as is proportionable to that Heat.

NOW Poiſons in, or upon external Parts obſerve different Times to exert their Forces in: The Bite of a Viper acteth immediately; that of a mad Dog, not till a conſiderable while after; and the inoculating Pus begineth to take Effect manifeſtly about the ſixth Day after the Operation.

AND all theſe Days, while the Matter lieth ſtill in the inciſed Part, and is not made hotter than the Fleſh is where it lieth, it remaineth much as it was in its own Nature, is but a moderate Venom, and accordingly breeds a gentle Small-Pox.

4. THE Inciſions are as Iſſues, which (we ſee) admit not of one Red Globule into them, but only of limped Serum.

THAT Serum leiſurely takes into its Subſtance all the variolous Particles that were contained in the Pus, and ſuffers none of them to mingle in among the Globules, but keepeth them (cool and temperate as they were) in

themſelves (as it manifeſtly doth in the Caſe of the Chryſtals) till they have impregnated the variolous Ovula.

AND thus the Globuli be ſcarce at all affected, and but a ſmall Quantity of morboſe Matter aſſimilated; and that which is ſo, being not made acrid, the Diſeaſe is formed, carried on, and finiſhed, without any turbulent Commotions, or remarkable Fever.

AS to the Shiverings, and Fluſhings, that come and go before Eruption, they are occaſion'd, not by any proper Ebullition of the Globules, but the Expanſion of the vital Spirits riſing up againſt the hoſtile Invaders.

THUS it is in the Matter of Inoculation.

BUT in a Small-Pox introduced by Infection, the venomous Atoms enter by the Vehicle of the Breath into all the little Bronchiæ and Veſiculæ diſperſed throughout the Lungs, and there being beaten up, commixed, and ſtrictly combined with the minuteſt Globules, inflame the whole Maſs of the Blood.

FOR the Blood being elaborated in the Lungs by 140 Pulſes, and 20 Reſpirations every Minute, every ſuch larger Globule as uſed to flow in the common Stream of the bigger Veſſels, is thereby broken into inconceiveable Exiguities; for ought we know, one into ten thouſand, or more.

AND each of theſe little Things is probably, in a very bad Sort, coupled with a varioloſe, virulent Atom, and made into a Molecula with it.

AND truly Things being thus, it is to me a great Wonder, that all Small-Poxes cauſed by Infection (eſpecially in hot Conſtitutions, and Seaſons, and where the Sick hath been treated with hot Regimen and Remedies) ſhould not prove Confluent.

WHEN it doth not ſo, I take the Reaſons to be, that the Conſiſtence of the Blood being firm, and ſound, it is not diſpoſed to admit into it, nor aſſimilate any great Quantity of variolous Matter; and being ſweet, ſoft, and chylous, it is therefore moderate and temperate; and upon that Account is not apt to rarefy too much, nor riſe up into violent Ebullitions.

HISTORIES *of* INOCULATION.

T. *F.* a young Surgeon, drew up the following Relation concerning himſelf:

Octob. 1723. on *Thurſday*, at ſix in the Evening, I was inoculated in both Arms; and from that Time I wholly abſtained from Fleſh, and kept myſelf to a temperate and regular Way of living.

6th Day. I grew ill with Shiverings and Fluſhings by Turns, Pain in my Head, Back, and Limbs, and with Drowſineſs.

7. I became Feveriſh, and exceeding dull; my Urine appeared thick.

8. THE Small-Pox came out, and my Fever abated.

9, 10, 11. THE Puſtles continued coming out for four Days, in which Time they were all out, to the Number of between three and four hundred.

12, 13, 14, 15, 16. IN five Days after, they went quite off, without any more Trouble; and hence it plainly appears, that there is no Danger from Inoculation, becauſe no ſecond Fever follows it.

THIS, I think, is to be accounted for from the Diſcharge out of the Inciſions, which was greater than could be expected: And thus I eaſily recover'd.

HISTORY II.

HISTORY II.

April 23. 1728. *W. J.* a Youth of about ſixteen Years old, was inoculated, at eight in the Morning.

6th Day. HE began to feel ſome Diſorders, with Head-ach; In the Evening he was drowſy.

7. CONTINUED out of Order: In the Forenoon had frequent ſick Fits; in the Afternoon he was very ſick, and vomited three times.

THEN he grew hot, and thirſty, with a quick Pulſe, great Pain in his Head and Limbs, and ſuch a Weakneſs in his Knees, that he could ſcarce ſtand; he was ſtill drowſy; he ſlept indifferent well that Night.

8. HE remained hot, thirſty, ſleepy, and very dull; he went to Stool all along in pretty good Order, but was rather coſtive than otherwiſe.

HIS Urine was turbid.

THE Inciſions, which had run but little hitherto, made this Day a plentiful Diſcharge of thin Ichor.

ONE Puſtle appeared on his right Arm, but was ſo young, and ſo ſmall, that it was ſcarce a plain Pock.

HE ſlept but very little that Night, being terrify'd with frightful Dreams.

9. IN the Morning, the 'foreſaid Puſtle was grown ſomewhat larger, and redder.

A few more had come out upon the ſame Arm, three in his Face, and as many in his Breaſt, and all as ſmall as that of Yeſterday.

9th Day.

9th Day. IN the Evening the Puſtles ſhewed themſelves in greater Numbers, and then the Drowſineſs and Fever began to abate.

10. IN the Morning he found himſelf very much better; the Fever almoſt gone; the Puſtles were conſiderably grown, and looked red at their Baſes.

11. THE Fever was entirely gone; by the Evening the Eruption was finiſhed, all the Puſtles being come out, to the Number of about 200.

12. THIS Morning he thought himſelf as perfectly well as ever he was in his Life.

THE Puſtles roſe, and began to fill, and looked well, with Redneſs at their Bottoms.

13. THE Puſtles grew large, and held Colour; the Interſtices looked of a Damask Red; he complain'd of being ſore.

14. THE Puſtles grew ſtill, and were much ſorer; two or three in his Face ſeemed inclinable to turn yellowiſh.

HE ſlept well a Nights, but had not had a Stool in eight Days.

15. THE Puſtles began to dry with a Scab on their Tops in his Face, but thoſe on his Hands remained as before.

16. THE Puſtles were now fairly going off; he continued very well, and had this Day a Stool.

17. THE Pocks went all off from his Face, and were going from his Hands.

18th Day.

18*th Day.* HE took a gentle Purge, which agreed mighty well with him; and three Days after he repeated the ſame again.

THUS he became well, and had a good Stomach.

HISTORY III.

E. *C.* a Maid of 21 Years old.

1*ſt Day.* INOCULATED.

2. IN the Morning the Orifices a little grayiſh.

3. BLACKISH.

4. BLACKISH, and the Lips of the Inciſions inflamed.

5. THE Blackneſs went off; the Lips were more inflamed; towards Evening ſhe ſhivered a little.

6. THE Inflammations were quite gone; the Orifices were pretty well; her Head and Back aked; ſhe was ſick at times.

7. Sickneſs at times, and Pain in her Head and Back continued.

IN the Morning the Inciſions had diſcharged much; but towards Night again, very little.

8. IN the Morning the Inciſions had run well, and ſhe was not ſo ſick as before.

BUT in the Evening ſhe had two Vomits, and two looſe Stools; one Pock then appear'd on her Throat.

9th Day. THE Inciſions diſcharged plentifully; her Sickneſs abated; ſhe had troubleſome Heat at the Soles of her Feet.

10. THE Heat of her Soles went off.

NOW ſhe was much better.

THE Puſtles continued coming out, but looked pale.

SHE ſlept badly.

11. THE Puſtles grew redder, and ſhe ſlept better.

12. THE Puſtles roſe well.

SHE had a Sore Throat, and began to ſpit a little.

SHE ſlept but indifferently.

13. HER Throat grew ſorer, and Salivation increaſed.

NOW ſhe began to complain of Soreneſs all over.

HER Face and Eyes ſwelled, ſo as to make her blind.

THAT Night ſhe ſlept better.

14. MATTERS proceeded as before.

15. HER Soreneſs of Throat was ſomething abated.

THE Puſtles in her Face began to turn yellowiſh;

BUT ſhe was ſtill blind.

16. THE Soreneſs of her Throat grew ſomething better.

THE Puſtles appeared yellower in her Face.

HER Throat was pretty well.

16*th Day.* THE Swelling of her Face was ſo ſunk, that now ſhe could ſee a little.

17. THE Swelling of the Eyes went quite off.

THE Puſtles in her Face were almoſt dry.

18. SHE grew ſenſibly better.

19. SHE found herſelf perfectly well.

ERUPTION began the eighth Day after Inoculation.

SALIVATION came the twelfth Day.

HER Face ſwelled the thirteenth Day.

THE Puſtles turned the fifteenth.

SHE was quite well the nineteenth.

HISTORY IV.

T. *H.* a fat, groſs-bodied Boy, about 11 Years old;

1*ſt Day.* WAS inoculated in the Morning.

2. THE Inciſions looked grayiſh.

3. BLACKISH, and a little inflamed.

4. THE Blackneſs went off, and the Lips of the Inciſions were more inflamed.

SEVERAL Pimples came out above the inoculated Parts; they and the Orifices itch very much.

5. SOON after the Inciſions were dreſſed, he grew ſick, and vomited.

6th Day.

6th Day. HE continued ill moſt Part of the Day, with Pain in his Head and Back, Shivering and Fluſhing at times.

7. HE was pretty well again all Day, and Night.

THE Inciſions ran well.

8. HE was ſick again: The Inciſions perform'd well.

9. ALL were much the ſame.

10. SOME Puſtles came in Sight upon his Throat and Arms, and a few upon his Legs.

11. A few more came out eaſily, and without Sickneſs.

12. A few more came out.

13. ALL the Remainder came out, and Eruption was finiſh'd.

HE had but few in all.

14. HE had no Fever; and felt no Pains nor Sickneſs.

15. BELOW the inoculated Part, on the left Arm, a pretty large, painful, inflam'd Tumour broke out.

16. THE Pain of the Tumour continu'd.

THE Puſtles were almoſt dry.

17. HIS Arm grew better.

18. HIS Arm was almoſt well, and the Puſtles were dry.

19*th Day.* HIS Arm became perfectly well.

HE took a Purge.

ERUPTION began the 10th Day.

HISTORY V.

7. G. a Boy of 13 Years old,

1*ſt Day.* WAS inoculated.

2. IN the Morning the Inciſions look'd a little grayiſh.

3. BLACKISH.

4. THE Lips of the Inciſions appear'd a little reddiſh towards Night.

5. THE Blackneſs went off.

THE Lips were more inflam'd.

THE Orifices diſcharge an ulcerous Matter.

PIMPLES, with itching, come out above the Orifices.

6. HE had Fluſhings, and a few more Pimples broke out.

7. HE had Shiverings.

IN the Evening his Head and Back aked.

8. HE had the ſame Shiverings and Pains all Day and Night.

HE vomited twice, and had one Stool.

IN the Night he was a little light-headed.

9th Day.

9th Day. IN the Morning he was not ſo light-headed, and was a little better.

THE Inciſions had run well.

ABOUT three in the Afternoon the Puſtles began to be diſcern'd.

10. MORE Puſtles broke out; he felt himſelf well.

11. MORE Puſtles kept coming out, and ſenſibly grew; but they itch'd much.

HE was reſtleſs all Night.

12. THE Puſtles roſe, and look'd well, but itch'd very much: The Puſtles were all come out, and were but few in Number.

13. THE Itching was more qualify'd.

14. ITCHING went quite off.

15. ALL Things proceeded well.

16. VERY well, and the Puſtles were in a drying way.

17. THE Puſtles were almoſt all dry.

18. HE was perfectly well.

19. HE was purg'd.

ERUPTION began the 9th Day.

HISTORY VI.

M. *H.* a Maid, aged 23 Years;

1ſt Day. INOCULATED.

2. IN the Morning the Inciſions look'd grayiſh.

3. BLACKISH.

4. BLACK, and the Lips inflam'd.

5. THE Blackneſs went off. The Orifices ran.

PIMPLES came out about the Inciſions.

6. THE Orifices ran well.

7. SHE felt herſelf ſomething indiſpos'd, and ſhiver'd a little.

8. WAS indiſpos'd, and ſhiver'd all Day.

WAS ſick all Night.

9. HER Sickneſs continu'd.

SHE had Pain in her Head and Back, with Shiverings.

IN the Night ſhe was ſick at Stomach, and vomited a little.

10. THE Orifices ran well.

11. HER Sickneſs abated.

A few Puſtles were diſcover'd on her Face and Chin, and upon her Arm.

12th Day.

12*th Day*. HER Sickneſs went quite off.

MORE Puſtles came out. She ſlept well.

13. THE Puſtles kept coming out, and ſenſibly grew.

14. ALL the Remainder of them came out. She had but a midling Crop. They began to ſwell.

AND ſhe felt herſelf very well.

15. HER Throat became ſore, and ſhe began to fall a Spitting.

SHE ſlept but indifferently.

16. ALL proceeded as before.

17. THE Puſtles began to turn yellow in her Face.

18. THEY grew yellower.

19. THEY dry'd in her Face.

20. SHE was perfectly well.

THE Puſtles appear'd the 11th Day.

SALIVATION came the 15th Day.

THE Puſtles turn'd the 17th Day.

HISTORY VII.

A. B. a Maid, aged 25 Years,

1*ſt Day.* WAS inoculated at three in the Afternoon.

2. THE Inciſions look'd grayiſh.

3. THEY look'd blackiſh, and began to run.

4. WERE blackiſh: They ran pretty much, and itch'd.

5. PIMPLES came out about the Inciſions.

6. THE Pimples grew bigger.

7. SHE had Shiverings, Pain in her Head and Back, Nauſeouſneſs, and an Inclination to vomit.

8. HER Pains went and came at Times.

9. SHE had frequent Shiverings and flying Pains, but they ſettled moſtly in her Forehead and Eyes, and in an hollow Tooth.

10. SOME few Puſtles appear'd toward Night.

11. THE Puſtles came out moſtly on her Arms, and a few in her Face. Now ſhe felt herſelf very well.

12. SOME few Puſtles more brake out towards Night.

13. HER Head ached. All the Pocks were come out this Day.

14. THEY roſe, and fill'd well.

15, 16. THEY proceed without any Trouble.

17. SHE became perfectly well recover'd.

HISTORY VIII.

MR. *James Norden*, aged 23, of a good Habit of Body, healthy, active, ſtrong, temperate, regular in Life, never apt to Fevers of any Sort; his Pulſe remarkably low.

HE was utterly averſe to Bleeding, but was well purg'd before the Operation.

1725. *October* 23.

1. HE was inoculated in one Arm and in one Leg.

2, 3, 4. AFTER the Operation he eat and drank, and took the Air, and liv'd as he us'd to do for four Days; and from that Time wholly abſtain'd from Fleſh Meat, and went but little out of Doors.

6. HE went to the Infirmary.

7. ABOUT four in the Afternoon had ſome ſmall Shootings in his Back, and a dull heavy Pain in his Head.

8. HIS Head-ach increas'd much, but the Pain of his Back went off.

9. TOWARDS Night ſome very ſmall Matter, ſcarcely diſcernable, was perceiv'd in ſeveral Places.

10. AT nine at Night he vomited; his Pulſe was ſlower than uſual; his Urine appear'd turbid.

11. AT ſeven in the Morning he vomited, but with no great Sickneſs; bled a little at Noſe, yet without any plain Fever or Thirſt; Head-ach continu'd; the Puſtles kept coming out; he had little Sleep that Night.

†

12*th Day.* A great many came out laſt Night, and this Day, and the Eruption was fully compleated: His Throat grew a little ſore, which was the Forerunner of Salivation: He took a Paregoric, and got ſome Sleep the Night following.

13. HE was extreamly full of Puſtles in his Face, Back, Arms, Thighs, and Legs; but had not many upon his Breaſt and Belly.

NOW the Head-ach went quite off; the Puſtles began to look red; his Head ſwell'd; his Throat grew ſore; Salivation came; and all this without any ſenſible Fever or Sickneſs; but he could not ſleep without a Paregoric.

14. THE Puſtles grew, and inflam'd; the Swelling of his Head and the Spitting proceeded laudably.

NOW he was more thirſty than he had been before; his Pulſe was ſomething quicken'd, but his Heat not increas'd; he could not ſleep without a pretty ſtrong Paregoric.

15. HIS Pulſe ſunk, and became moderate again; now he had no Thirſt, nor Fever.

16. TOWARDS Night his Throat grew better; his Body was all over ſore; he had no Fever, but yet was reſtleſs.

17. THE Swelling of his Head, Forehead, and Eyes aſſwag'd, and fell down under his Chin to his Throat; the Interſtices among the Puſtles were very red; he complain'd of great Soreneſs; the Puſtles turn'd yellowiſh upon his upper Lip, and they itch'd upon his Body.

17*th Day*. HIS Pulſe was a little quicken'd; Salivation grew more moderate; he took very good Reſt with the Help of a Paregoric.

18. HE now felt himſelf a great deal better; he had but little Soreneſs of Throat, and Spitting abated; the Puſtles grew cruſty in order to ſcab; he ſlept well with a Paregoric.

19. THE Soreneſs of his Throat went entirely off, and Spitting almoſt; he roſe out of Bed, ſet up in an Elbow Chair a great Part of the Day, and bore it very well.

20. HE continu'd well.

21. IN the Night he was taken with great Pain in both Arms and both Knees; which was not from Inoculation, but from a Rheumatiſm, out of which he had recover'd not long before the Operation.

22. HIS Pains increas'd greatly.

23. ABOUT Noon they began ſomething to abate.

24. HE was let Blood, and immediately upon the very Act reliev'd.

25. HIS Pains were much leſs.

26. THE Pains entirely left him.

AFTER all, he was purged three Times, and ſo was reſtor'd to perfect Health.

OBSERVATIONS *in this* CASE.

1. ALL the Time that the Inciſions ran well, he had no Pain in his Back, nor Thirſt, nor Dryneſs of Tongue, nor feveriſh Heat, nor any Sickneſs.

2. HE had not, during the whole Decumbiture, any Difficulty of Breathing, or Stoppage in his Noſe.

3. HE made Water freely all along; his Urine was turbid till Eruption was compleated; and after that, was clear, and Amber-colour'd.

4. HE was kept in a conſtant, temperate, natural Warmth; only he roſe two or three Times during his Sickneſs, juſt to have his Bed made.

5. HE drank as much Beer as he would: He refus'd Pectoral Drinks, and took no Cordials at all, tho' he had one always by him.

6. THIS was the higheſt Small-Pox that ever I ſaw from Inoculation, except the following; tho' it was not poſitively Confluent, it muſt be allow'd to be of the Contiguous Kind: It hath left many Pits, but thoſe but ſhallow ones, in his Face.

7. THIS I impute to a Peculiarity of his Family; for it is certain, that ſome of them had the Bleeding Sort; ſeveral dy'd of the Confluent; and ſcarce ever was a kindly Sort known among them; and therefore if he had taken the Diſtemper by common Infection, it is probable he would have dy'd by it.

HISTORY IX.

W. Jeffery of *Sevenoak* in *Kent*, was about 25 Years of Age, naturally of a good Conſtitution, but had broken it, by giving himſelf up to drinking ſtrong Beer, and (as I think) common Spirits, which occaſion'd frequently Pimples in his Face, and render'd him ſubject to a Cough, Shortneſs of Breath, and inflammatory Diſtempers in his Breaſt, Stitches, and Rheumatic Pains.

ADD to all this, I have heard, that never any of his Blood that had the Small-Pox recover'd.

HE came from *London* thirteen Days before his Inoculation; and it's very likely, had both heated his Blood by drinking, and alſo taken Infection.

FOR ſome Days before the Operation he felt aguiſh Shiverings, much Uneaſineſs, and Shootings in his Limbs, which he would not make known, (as he afterwards confeſs'd) for fear Inoculation ſhould be refus'd him.

1ſt Day. Octob. 28. TOWARDS Night (having not been let Blood, Vomited, nor Purg'd) he was inoculated.

2. HE walk'd four Miles to an Alehouſe to drink ſtrong Beer, and back again in the Evening.

THAT Night he felt Shiverings and Anguiſh.

3. HE was not very well, and in the Night had ſome Gripes, and two looſe Stools; but never had any more.

4. BEING ſome little matter better, he walk'd to the ſame Alehouſe, and back again, on the ſame Errand.

5th Day.

5th Day. HE was very much out of order all Day.

6. BEING now not able to go a Foot, he went on Horſeback to the ſame Alehouſe to drink as before.

7. HE grew downright ſick; vomited, but not much; he felt great Pains in his Limbs, and ſuch violent ones in his Back, that he was not able to go, no, nor ſo much as ſtand upright.

8. ERUPTION began, and the Pocks ſhew'd themſelves chiefly near the inoculated Places, and in his Face.

9. THEY broke out in great Numbers, with ſome purple Spots among them.

10. THIS Morning I ſaw him, but never before nor after: The Pocks had fill'd, not only his Face, but his whole Body all over; and among them were interſpers'd (eſpecially on his Hips) innumerable Numbers of (not very ſmall) flat Spots, ſome of a bright fiery, and ſome of a deep purple Colour, ſuch as are ſeen in the Bleeding Small-Pox.

THOSE that were the true variolous Spots, elevated a little toward the laſt, but never chang'd Colour till a Day or two before Death; and then they became dusky blue, inclining to black.

THEY cluſter'd a little in his Face, and grew not much, caus'd no Swelling, never look'd red, nor tended towards Maturation.

11. HE began to ſpit a little; but that continu'd but a Day or two, and then went intirely off again, and came no more.

DURING the whole Sickneſs he ſeem'd not perfectly ſenſible, and had very little Sleep.

12th Day.

†

12*th Day.* A Fever (which had not ſhew'd itſelf before) roſe a little, but came to no great Height.

HIS Urine flow'd away involuntarily and inſenſibly.

13. BLISTERS, with clear Water in them, broke out upon his Wriſts and Hands, as big as Filberds.

14. HE dy'd.

THIS is the only Caſe that ever I have myſelf ſeen of one that dy'd under Inoculation; and I muſt think, that no one who reads this Account, can poſſibly have ſo much Partiality and Perverſeneſs, as to ſay he dy'd by Inoculation.

PERHAPS many of thoſe Stories that have been trump'd up, and ſent about, to ſcandalize and diſcourage this Practice, if they were thoroughly examin'd as to all their Particulars and Circumſtances, would be found to be either unfair Repreſentations, or inſufficient Proofs, of what their Authors have a mind ſhould be believ'd.

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