

**A rational and mechanical essay on the small-pox. Wherein the cause, nature, and diathesis of that disease, it's symptoms, their causes, and manner of production, are explained and accounted for according to the laws of motion, and circulation of the animal fluids ... With the diagnostic and prognostic symptoms, through all the stations of the disease; and a new method of treating it ... To which is prefixed, a short history of the first rise and progress of that disease; and an essay on a new method of curing it ... / By William Hillary.**

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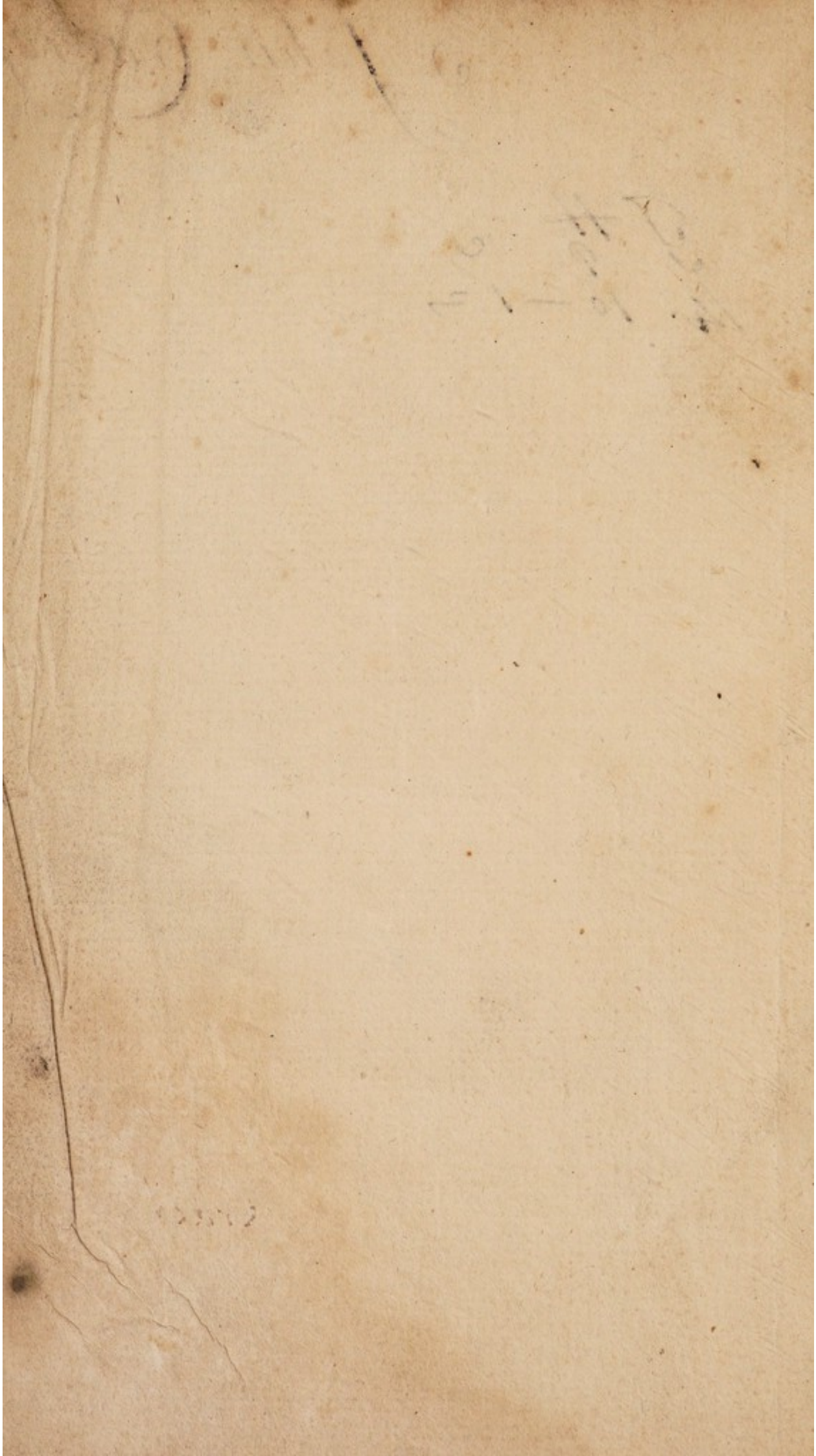


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A  
RATIONAL and MECHANICAL  
E S S A Y  
O N T H E  
S M A L L - P O X.

W H E R E I N

The Cause, Nature, and *Diathefis* of that Disease, it's Symptoms, their Causes, and manner of Production, are explained and accounted for, according to the Laws of Motion, and Circulation of the Animal Fluids:

W I T H

The Diagnostic and Prognostic Symptoms, through all the Stations of the Disease; and a new Method of treating it, so as to prevent the dangerous Symptoms, and fatal Consequences, which usually attend it.

To which is prefixed,

A Short History of the first Rise and Progress of that Disease; and an Essay on a new Method of curing it, as we do other Inflammatory Diseases; and so prevent the Eruption and Suppuration of all, or most of the Pustules, and their fatal Consequences.

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By WILLIAM HILLARY, M. D.

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*Rationalem quidem puto Medicinam esse debere: instrui vero ab evidentibus causis.* Celsus in Præfat. p. 20.

*Raro fallit Medela, si non fefellit Causarum indagatio.*

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John - L O N D O N: Cracroft.

Printed for G. STRAHAN, at the Golden-Ball, over-against the Royal-Exchange, in Cornhill. MDCCXXXV.



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THE  
P R E F A C E  
T O T H E  
R E A D E R.



*THE greatest part of the following Treatise, was the Product of my leisure Hours, when the Small-Pox was epidemical in Rippon, and the circumjacent parts of the Country, several Years since ; and as this Disease is observed to return and visit the same parts of the Country, once in five*



*or six Years (or oftener if populous), so it's making a Return in the Years 1729, and 1730, put me upon reviewing, what I had before committed in a loose rambling manner, at various times, to writing, and reducing them into somewhat a methodical Order for my own Use and Satisfaction; which I then laid by, without any Thoughts of exposing them to the Public: But accidentally mentioning them to some of my particular Friends, they solicited and perswaded me to publish them; therefore, after digesting them into a little better Order, and making some Additions and Corrections (and it is probable I might make more, if I had Leisure and Inclination to review them again) I now, after they have laid by me almost four Years, offer them (such as they are) to the Public; to do which I am not a little induced, from the Consideration of this Distemper, having been of late Years so fatal to our Nation,*  
*and*



*and particularly to several Families of the higher, and even first, Rank in it, whose Educations and manner of living, do dispose their Constitutions to be more severely afflicted with this Disease, than those who are brought up with a more plain, simple Diet, and a hardier manner of Life ; for I cannot but very much blame the Luxury of the present Age, for the fatal Advances which this, and some other Diseases, have of late Years made.*

*These Considerations put me upon making more strict Observations and Examinations of all the Phænomena and Symptoms attending the Disease, and their manner of appearing ; and then on endeavouring to account for their true Causes and manner of Production, by a just mechanical way of reasoning, for my own Satisfaction in my Practice, that I might be better enabled to proceed in a*



*more certain and just Method of Cure, by proportioning and adapting suitable Remedies to the various Causes of those Phænomena and Symptoms, so that they might be thereby removed, agreeably to the Laws of the Motion of our circulating Fluids, since they must be so removed, or not removed at all.*

*This is undoubtedly the Duty of every Physician in his Practice, not only in this, but in every other Disease which our Bodies are subject to; since it is well known to Physicians, from almost daily Experience, that not only new Species of Diseases, but new Symptoms attending the same ancient known Diseases, do frequently arise, either from the different Constitutions of Years, changes of Air, the variety of Men's Constitutions, their Inventions of Luxury, and Errors in the six Non-naturals, or from some other accidental Causes, and offer themselves to*

*us*



*us in our Practice ; in which Cases, if a Physician cannot thus reason, he must find himself very deficient. And since a human Body is (as much as it is the Object of Medicine) a Machine composed of organized Solids, containing their proper Fluids, which move and act upon each other, according to the unalterable Laws of Motion : And since Health consists in an uniform, regular, and uninterrupted Motion and Action of these upon each other, and the Preservation of a due Æquilibrium between them : So consequently Diseases are nothing but Defects and Irregularities of those Actions, Motions, and Properties, produced in this wonderful Human Machine, by, and agreeably to, the same Laws ; since all the Actions, Changes, and Effects, of all Material Bodies, are, and must be, produced by, and agreeable to, them.*



*Wherefore it is from this Knowledge of the Structure and Use of the Solids, the different Properties and Places of the Fluids, their Laws, and Principles of Motion, and a just Method of reasoning thereupon, from the visible Symptoms, and outward sensible Effects of Diseases, to their internal, original Sources and Causes, by rational and just Deductions from these, to those ; that Diseases, and their Natures, Dispositions, and their proper Indications of Cure can be known : It is this only, which can enable a Physician to make such true Judgment on Diseases, as will secure his Success, and justify his Practice : For he that is ignorant of the internal Structure, Use, and State, of the Solids and Fluids, in which the Disease consists, can never form any sure Judgment, or rational and proper Methods of Cure of that Disease : And if any happen to make a Cure upon other Principles, it is only by random, guess, or chance, they do cure ; wherefore*



wherefore that noble Roman, CELSUS, says, “ Eum vero recte curaturum  
 “ quem prima origo causæ non fefellerit.”

Hence it appears how necessary it is for a Physician, who would be successful in his Practice, or make any tolerable Figure in his Profession, to be well acquainted with the Structure of a human Body, the Use of all it's Parts, the Principles of Mechanical Powers, the Laws of Motion and Hydraulics, with a sufficient Skill in Geometry and Mathematics, to apply them; as well, as a Knowledge in Chymistry, Pharmacy, and the Virtues and Doses of Medicines. For it is by a proper Use and Application of these, both in our Practice and Reading, that we can account for the Causes and Effects of Diseases, and the manner of the Remedies acting, so as to produce their salutiferous Effects: It is by these, and  
 accurate



*accurate Observations in Practice, that we must improve our Knowledge in the State of Physic and Diseases : It is this Knowledge, and these Abilities, that must be the distinguishing Characteristic of a true Physician, from an Empiric : It is by this Method of reasoning from Data, founded upon Observations and real Facts, that the Healing Art must be improved, and brought to a State of Perfection : for if we once quit our Reason for Mystery, and abandon a just Method of Mechanical and Geometrical Reasoning, for the unintelligible Terms of Occult Faculties and Qualities, with all such like Metaphysical and Chymical Jargon and Nonsense, heretofore too much used in the Schools ; we must wander through endless Mazes, and dark Labyrinths, playing at Hazard with Mens Lives, and suffer ourselves to ramble where ever conceited Imagination, or whimsical Hypotheses, will lead us.*

*I am*



*I am very sensible how difficult a thing it is to write a good Theory of any Disease, and how cautiously many of our eminent and learned Moderns have avoided it ; likewise in forming any Hypothesis, how cautious and certain we ought to be, that the Data we reason upon, are founded on real Facts, and not imaginary Notions. It has been the Fate of this Distemper, as well as of many others, that it's Theory, has either not been meddled with at all by some ; or treated in so short and concise a manner by others, as to be intelligible to few ; or else it's Cause, and the manner of the Production of it's Symptoms and Effects, have been pretended to be accounted for from fictitious Hypotheses, and false Principles ; wherefore I have endeavoured to discover, and account for the true Cause of this Disease, from it's visible Effects, and sensible Appearances ; and then from it's Cause thus investi-*



*investigated, to demonstrate the Laws and manner of Production of it's Symptoms and Effects, and so to discover the true Diathesis and Nature of the Disease, in a plain way of reasoning ; and from thence, and Observations grounded on Facts, to deduce a rational and just Method of Cure, by the same Laws and Principles : How well I have succeeded in this difficult Task, I must leave to others to judge ; however I have this to comfort myself with, that as difficult as it is to write a good Theory of this Disease, yet it is almost as difficult to write worse than some have done before me.*

*As it is the Physician's Business to assist Nature, according to her own Laws, to disburden herself of what oppresses and offends her, so his Assistance is most required in the most difficult and dangerous*  
Circum-



*Circumstances, wherefore I have been naturally led to speak chiefly of the worst Symptoms, and most dangerous Circumstances attending this Distemper; for he that can safely conduct his Patients thro' these, will easily conduct them through the others; in several of which it plainly appears, that some Evacuations are absolutely necessary to save the Life of the Patient, and that those by Bleeding and Purging, if judiciously timed and prescribed, are the most proper and successful. Wherefore, to convince such as may be prepossessed with a Prejudice against these Evacuations in this Disease, I have, to the following Reasonings, added the Authorities of the most Learned and Experienced, both Antients and Moderns, to confirm their Safety and Usefulness, as also to prevent the Imputation of being too great a Lover*



*ver of Novelties ; not that I think any thing better or worse, or the more or less to be valued for it's Antiquity, or being new, but as the thing is in itself useful, just, reasonable, and true ; save that the longer and oftener that any thing (which will not admit of a perfect Demonstration) has been proved by repeated Experiments to be true, the more certainly it may be depended on as such.*

*The Essay (which I have prefixed to this Treatise) on curing this Distemper by a general Antiphlogistic Method, as we do other inflammatory Diseases, without suffering the Eruption and Suppuration, as in the common and natural way ; I am indebted for the first Grounds of it, to the sagacious and learned Dr Boerhaave : he being the first Author*  
*and*



*and Proposer of that Method, the Honour of it is his just Right : This Method I have endeavoured to improve, or at least explain, and shew that it is a Practice founded on sure Grounds, and has been attended with the happiest Success, when it has (though undesignedly) been put in Practice ; and therefore may be reasonably expected to succeed, when done with due Preparation, Care, and Assistance : And as it is a Practice that tends to the general Good and Preservation of Mankind, ought to be encouraged, and pursued by Men of known Abilities, and established Characters ; and not rashly undertaken by forward ignorant Men, who want the necessary Qualifications of a Physician : for if any one, though ever so well qualified, should undertake it solely, without the concurrent Advice and Opinion*  
of



*of his Brethren, he must run a great Hazard of being ruined in his Character, though ever so well established; or at best meet with violent Opposition, either through Envy, Malice, or an ill-natured Emulation, because the Invention or Introduction of it is his, and not theirs; such ungenerous Tempers there are in the World, and will shew themselves at one time or other, though they are no ways becoming a Lover of Truth, a Man of Letters, or a Gentleman; therefore I heartily wish this Method of Practice might be well considered and encouraged, by the Gentlemen of the Faculty in general.*

*As for the use of the Antiphlogistic and Antiputrescent Medicines hereafter advised, the Reasons given for their Use, seem to me plain and sufficient; as  
also*



*also for bathing and fomenting the remote Parts of the Body, as hereafter advised; though it is what some may probably oppose; as fearing that it may expose the Sick to the Danger of catching cold, but that is no more than ill grounded Fear, or Prejudice; for I have not so much as once observed any such (or other bad) Consequences from it, in the many times I have used it for several Years; but on the contrary, I have constantly found singular Advantages in it's answering the Intentions, which it is directed for.*

*As for the Practice of inoculating this Distemper, which has been of late Years introduced into this Country, from the Example of the present Greeks in Turkey, a full Account of which I had the Opportunity and Favour of re-*  
*ceiving*



*ceiving from a worthy and ingenious Physician, a Native of Constantino-  
ple, whose Veracity I could not dispute;  
who said, this Practice has been used  
with great Success amongst them, and  
in some Parts of that great Empire,  
for Time immemorial; yet it's Success  
in this our colder Climate, remains  
somewhat doubtful, and must be so, 'till  
the two following Propositions are clear-  
ly proved, and confirmed by just Ob-  
servations, or their Contraries; viz.*  
1. That having the *Small-Pox* by Ino-  
culation, is less hazardous than having  
them by Infection in the natural Way  
is. *And* 2. That the having them  
that way is as sufficient a Security a-  
gainst their having them a second  
time, as the other is. *The clearly  
proving, or disproving these, must ei-  
ther establish the Practice of Inocula-  
tion*



*tion on a firm and lasting Foundation, or justly explode it for ever after : This can only be done by unprejudiced Observations, grounded on real Facts ; but such is the Frailty of human Nature, that in most Cases, (even in the greatest Concerns of Life) Men first form to themselves Opinions, and then think and argue with too strong Prejudices for those Opinions ; this has been too much the Case in the Affair of Inoculation, as is too evident from the Writings of several of the Gentlemen both for, and against it ; for some have wrote with so much warmth, that they have shewn a strong Prejudice, or too obstinate an Humour, against it ; whilst others have so zealously espoused it, that their Writings smell too much of Levity, Credulity, or an overweaning Bigottry for Novelty : Certainly the best is,*



*Method (I may add for the Sake of others) I have successfully practised for some Years, without the least bad Consequence attending it ; which if it prove so to others ; or if any thing that I have herein proposed, be more safe and successful than the common Methods heretofore used ; or may excite others endowed with a more fruitful and happy Genius to make further Discoveries, and useful Improvements in the healing Art, my Intentions of publishing this will be fully answered.*

*The short History of the first Rise and Progress of this Disease, which I have prefixed to this Treatise, is not with any Pretence to instruct the Learned, but to inform and please the Curiosity of some Gentlemen, who do not know it already.*

*As*



*As for the Language, it is neither Polite nor Elegant, but just such as naturally dropped from my Pen, whilst my Thoughts were employed upon the Subject ; for I have not in the least affected any thing of the Orator, but solely considered that the Intention of Writing (as well as Speaking) is to be understood ; and if what I have wrote be intelligible, and true, it will neither need the Eloquence of the Orator, nor his artful turns of Wit and masterly Language to support it : And, on the contrary, if any thing be false, (as it is possible some may, nam humanum est errare) I do not desire it should either be supported, or imposed upon any one for Truth, by the false Glosses of artful Eloquence ; therefore I declare that I will not defend any Mistake, but am*  
*very*



xxiv The PREFACE, &c.

*very willing to be convinced of my Errors;  
neither shall I think myself obliged to  
answer every frivolous Critical Objecti-  
on, nor trifling ill-natured Caviller.*

*May 1732.*

W. H.







A

## HISTORICAL INTRODUCTION.

**I**T probably may not be unacceptable to some of my Readers, if, by way of Introduction, I say something concerning the first Rise and Progress of this Disease ; for tho' the Composition and Structure of human Bodies has always been such, as has render'd them subject to various Changes, Diseases, and Death at last ; yet all the now known Distempers are not of equal Antiquity with the first Ages, or Generation of Mankind ; but the different Climates, and Changes of Seasons and Constitutions of Years, the various Employments, and Ways of living, have in distant Ages produced various, new, and different Diseases : Infomuch that

A several



2      *A Rational and Mechanical Essay*

several of them which were known to the Ancients, are now never seen, nor heard of; and several Diseases are now frequent, which were not known to the Ancients. The *Rickets* were not known above two hundred Years ago: The *Venereal Disease* has not been known (at least in *Europe*) longer than since about the Year 1463: And the *Small-Pox* and *Measles*, tho' they are now the most universal Diseases in all Nations, have not been known, at least in any of the cultivated and civilized parts of World, above eleven hundred Years, as will more fully appear hereafter. And notwithstanding that a great many Physicians have wrote on the *Small-Pox*, yet neither any of them, nor any Historian, have given us any Historical Account of it's first Rise, and the manner of it's Appearance, and spreading into the several Nations, and Parts of the World, till the late Learned Dr *Freind* in his *Epistola de Purgantibus in Secunda Variol. Febr.* gave us some short Hints; and since that, in his Continuation of Dr *Le Clerc's History of Physic*, he has given us an Account of some of the *Arabian* Physicians, and their Writings, with a short Description of this Distemper, and their Method of treating it.

But how much soever some have been, or now are, inclin'd to think that the *Small-Pox*,



*Pox*, or *Measles*, (which appears to be a Disease of the same Antiquity with the former) were Diseases known to the Ancient *Greek* Physicians before that time; I think no one that has any tolerable Acquaintance with their Writings, can suppose that they, who have so exactly described so many Diseases, both *Acute* and *Chronical*, with all their minute Symptoms, nay even some which rather deserve the Names of little Inconveniences or Uneasinesses, than Diseases, should so silently pass over two such conspicuous and fatal Distempers as the *Small-Pox* and *Measles* are, without describing them and their peculiar Symptoms, however without mentioning them more fully than by the bare Names ἐξανθήματα, φλυκίνας, ἐπινύκτιδες, ἐκθυμήματα, ἀνθεξ, &c. I say let but those Gentlemen, (who thro' an infatuated fondness for Antiquity, often make the Learned Ancients say, what they never so much as once thought, or knew any thing of,) who think that the ancient *Greeks* meant either the *Small-Pox* or *Measles* by any of them, consider with what Exactness, that Father and Prince of Physicians, *Hippocrates*, observed and followed *Nature* in all her various ways, and in how lively a manner he has delineated Diseases, how accurately distinguished their different Symptoms and Causes, and they must con-



clude that if these had been Diseases known by him, he would not have omitted describing them, and their peculiar Symptoms more plainly than they can possibly fancy any of these Words, or the Places where they are used, do: And the same may as justly be said of *Galen*, *Oribasius*, *Ætius*, *Amidenus*, *Alexander*, *Trallianus*, and *Paulus Æginetus*, &c. all which have used the abovesaid Words to denote some cuticular Eruptions; or Tumors, but never designed either the *Small-Pox* or *Measles* by any of them: And as most of these *Greek* Physicians were great Travellers, and either studied, or taught Physic at *Alexandria* in *Ægypt*, which is the Place from whence we have the first Account of these Diseases, we may conclude, they were unknown both in *Greece*, and in that City, and it's circumjacent Countries, in all their Times; for we find that *Galen* studied at *Alexandria* about *A. D.* 156, or 160, and afterwards travelled into *Palestine* and *Syria* (a), in search after Learning and the Knowledge of Diseases; and he takes notice of another Disease, which is frequent among, if not peculiar to, the *Arabians* and *Persians*, viz.. the *Dracunculus*, or *Vena Medinen-*

(a) Le Clerc Hist. de la Medicin. p. 552. Ed. Amsterleod. 1723.



*sis* (b), and tells us, that he had only heard of, but never had seen it; therefore we may conclude, that if the *Small-Pox* or *Measles* had been known in any of those Countries into which he travelled, so inquisitive and curious a Man as he was, must have either seen or heard of them, and consequently would have mentioned them as well as the *Vena Medinensis*. *Oribasius* was a Professor of Physic at *Alexandria* (c), about 200 Years after him: And *Ætius* studied there after this again, and some time after published his *Tetrabiblos* probably about *A. D.* 500 (d); yet neither of them, nor *Cælius Aurelianus*, who was of *Sicca* in *Numidia* in *Africa* about *A. D.* 180, as some suppose (e); nor *Celsus* the elegant *Roman Hippocrates*; nor has any *Greek* or *Roman*, or any other Physician mentioned these two Diseases, who lived before the time of *Mohamed*; neither has *Paulus* of *Ægina* mentioned them, unless some will suppose that he means the *Small-Pox*, when he says, "*Jam vero carbunculi ex causis populatim grassantibus excitantur* (f);" tho' he stu-

(b) Gal. de Locis affect. 6. 3. (c) Freind's Hist. of Phys. Vol. 1. p. 4. 28. (d) Idem p. 76. (e) Vid. J. Andr. Quensted. de Patriis Illust. p. 680. Glandorpius Onomastic. Roman. p. 180. (f) Lib. 4. Cap. 25. de Carbunculo.



died at *Alexandria* (g) about *A. D.* 620, or the beginning of the *Hegira* of the *Turks*. And as none of the ancient or later *Greeks*, nor any of the *Roman*, *African*, or *European*, Physicians, or Historians, have made the least mention of these two Diseases, we may justly conclude, that they were entirely unknown in *Europe*, the North and West parts of *Asia*, as *Asia Minor*, *Georgia*, *Armenia*, *Parthia*, *Bactria*, *Persia*, *Syria*, *Palestine*; the North parts of *Arabia*, nor in *Ægypt*, and it's neighbouring Countries in *Africa*, till about, or very soon after, the time of *Mohamed*: For if they had been known, the frequent Communications of those Kingdoms with each other, either on the Account of War, Commerce, Religion, or the Travels of the Learned and Curious, must, at one time or other, have brought them, or at least some Account of them, to *Alexandria* in *Ægypt*, especially as that City was not only the Center of all these Nations, but the Nursery of all the Sciences (and particularly *Physic*), to which the Learned Men of all Nations resorted for Knowledge and Learning, even from the very first birth of the Sciences, down to the Time of that City's Destruction, and the burning of it's famous and immense Li-

(g) *Id.* Lib. 4. Cap. 29. p. 38. Ed. Collinæum.



brary, by *Amron Ebno'l Aas* (b) General of the *Saracen* Army, in the Reign of *Omar Ebno'l-chatab*, the second Successor to *Mohamed*, in the 20th Year of the *Hegira* and 640 of *CHRIST*; an irreparable Loss to the Learned World! And if these Diseases had been known at *Alexandria* before this time, the Appearance of so uncommon and loathsome a Disease as the *Small-Pox* is, could not possibly escape the Notice of all their Physicians and Historians too; neither could their spreading further into all these other Nations sooner (as it is a contagious Disease) be prevented; from whence we must have had some Account of it; but upon the strictest Inquiry, we find not the least mention of either it, or the *Measles*, before the Destruction of the abovesaid City by the *Saracens*; when History informs us, that these Diseases first appeared among the *Arabians* or *Saracens*; and their *Physicians* and *Historians* are the first *Authors* who give us any Account of them: From all which, I think, we may safely conclude, that the *Small-Pox* and *Measles* are Diseases that were first hatched and bred in, and are properly indigenous to *Arabia*, and most probably to it's most southern Parts; but how long they were known in the King-

(b) Abul-Pharag. Hist. Dynast. p. 114.



doms of *Hejaz*, *Yaman*, *Fartack*, and *Mas-cate*, the southern Parts of *Arabia Fælix*, before this Time, is very uncertain and impossible to determine, since we have no Authors (at least that I can either hear of, or meet with) who were acquainted with, and have given us any particular Account of these Kingdoms and their People, and much less of their Diseases, before this time; and 'tis possible that they might have these Distempers a considerable time among themselves, before they were spread and known to any other Nations whatever, as they were such a barbarous ignorant People, situated in a remote Peninsula, separated from the rest of the World by impassable sandy Deserts, and are taken very little notice of by any Authors till after that time. But however that be, *Abul-Pharagius* (i) tells us, that one *Abron*, a Priest and Physician, lived at *Alexandria* in *Ægypt*, and wrote thirty Books in Physic, in the *Syriac* Tongue: These are the first Books that mention the *Small-Pox*, and in them he has described the Symptoms and Time of their Eruption, and their different Kinds whether more or less dangerous, with some short Hints concerning the Method of curing them: These Books were translated

(i) Idem p. 99. Ed. Oxon.

into



into *Arabic* by *Maserjawaikus* (*k*) a *Syrian Jew*, and a Physician in *Basora*, in the Reign of the Caliph *Merwan*, *A.D.* 683. But as Time has destroy'd both the original Works of this *Abron*, and this Translation, we have nothing of his now remaining, but what *Rhazis* has collected from them, and left us in his *Continens*; this makes the Matter remain still more in the dark, for 'tis probable that if we had the original Works of this *Abron*, we might find a more full Account of the first Rise of this Disease among the *Arabians*, or however of their bringing it into *Egypt*, and it's manner of appearing there, than we now possibly can have, wherefore we must be content with what we can collect from these small Remains of this *Abron*, whom *Abul-Pharagius* places as contemporary with one *Hareth Ebn Calda* (*l*), who probably was *Mohamed's* Physician, (because he advised those that were sick to apply to him for Relief;) and about the 17th Year of the Emperor *Heraclius* (*m*), which answers to the fifth of the Hegira of the *Turks*, and 626 of *Christ*, and the Year before *Mahomed* was invested with the Power and Dignity of *Caliph*: but whether the *Small-*

(*k*) *Idem*, p. 127. (*l*) *Hist. Dynast.* p. 99.

(*m*) *Idem*, *Ibid.*



*Pox* were known at *Alexandria* at this time or no, is doubtful; for the same Author places *Paulus* of *Ægina* (n) about the 31st Year of the Emperor *Heraclius*, which was the 20th of the *Hegira*, and 640 of *Christ*; and *Paulus* studied at *Alexandria* probably about 20 Years before, and he tells us, (o) that he has not omitted one Disease then known, yet says not one Word either of the *Small-Pox* or *Measles*, (unless he mean them, in the Chapter *de Carbunculo*, which I think he does not,) which Dr *Freind* observes (p) is a strong Proof that they were not only unknown to the old *Greeks*, but that they were unknown in his time; to which I may add, and probably to the *Alexandrians* too, when he studied there: Therefore whether *Abron* wrote his *Syntagma* or *Pandeſts* before *Paulus* studied at *Alexandria*, and had his Account of the *Small-Pox* from the *Arabians*, or he had travell'd into some part of *Arabia* and seen the Disease there, before it spread into *Ægypt*; or they were brought into *Ægypt* unknown to *Paulus*, he being then but a Student there; or, which is most probable, *Abron* lived and did not finish his Works till after the *Saracens* came and took that City,

(n) Idem p. 114. (o) In Præfatione. (p) In Epistola de Purgant. p. 97.



and brought these two Diseases with them, is a thing as difficult to determine, as it is indifferent; since 'tis certain that these Diseases were known in *Ægypt* about this time, viz. *A. Heg.* 20. *Dom.* 640, and 'tis most probable were brought thither by the *Arabians* out of their own Country, where they were indigenious: Since we find that they not only first appeared in *Ægypt* upon these People coming thither, but wherever they came afterwards and conquer'd, they there planted the *Small-Pox* and *Measles*, as well as their Religion; for we find that soon after this time, they were become so frequent in their Dominions, that they reached People even of the first Rank, whose Stations might make them both more careful and capable of avoiding their Infection; for History informs us, that the Caliph *Yezid* (*q*), who died in the 64th Year of the *Heg.* *A. D.* 683, aged 38 (or as Mr *Ockley* says 39) (*r*), was pitted with the *Small-Pox*; his Father *Moawyah* was Secretary to *Mohamed*; and *Yezid* was born in the 26th Year of the *Heg.* and probably had the *Small-Pox* when he was young, about 20 Years, or sooner after *Mohamed's* Death: And the Caliph *Abul-Abbas Al-*

(*q*) *Abul-Pharag. Hist. Dyn.* p. 126. (*r*) *Saracen. Histor.* Vol. 2. p. 247.



*saffab* (*s*), died of the *Small-Pox*, *An. Heg.* 136, *Dom.* 753; and these are the first which History mentions, that was pitted with, and died of, this Disease; tho' 'tis very probable that many had the same Fate before, since it appeared with much the same Symptoms then in their warm Climate, as it does now in ours, and had been frequent among the *Saracens* above a hundred Years at that time; and 'tis very probable a much longer time among the People of *Arabia Fælix*, if their ignorance of Learning, had not deprived us of a more early Account of this Matter: For these *Saracens* were at their first Appearance, (as a People of any Note in the World) a poor, starved, half-naked, brutish People; ignorant of all manner of Learning, and every Language but their own, with a little smattering of Astronomy, and Poetry (*t*), yet as they extended their Conquests and Empire, they began to search after Learning, and cultivate the Sciences, especially Physic, Chemistry, and Astronomy, all which, by the great Encouragement their Caliphs, *Al-Mansor*, *Rashid*, and *Al-Mamun* (*u*), gave them, especially the last, who did a great deal more than all his Pre-

(*s*) *Abul-Phar.* p. 139. (*t*) *Idem Ockley's Saracen Hist.* (*u*) *Abul-Pharag.* p. 141, &c.

decessors,



deceffors, not only in building Colleges, but in procuring the Books of the learned *Greeks*, and able Profeflors, both *Jews*, *Chriftians*, *Mohamedans*, and of other Ethnical Nations, to tranflate them into *Arabic*, and teach the Sciences, as well as to praftife Phyfic, whereby they fhortly after, became a learned flourishing People; infomuch, that they feemed to have had almoft all the Learning of that and the next four or five following Centuries, entirely among themfelves; and as they acquired and cultivated it; *Greece*, and the other *European* Nations feem to have gradually funk into a State of Ignorance and Stupidity; as if the Sciences and all Learning had fled from them with their Empire, to the *Arabians* in the Eaft: So that there are none of the *European* Phyficians, either of that or the following Ages, that have obferved, or at leaft have left us, any Account of the time, or manner, of thefe Dif-eafes firft appearing, or fpreading into any of the *European* Countries, no not even *Actuarius*, tho' he liv'd in the XIIIth Century, (and was probably the laft of the *Greek* Writers, except *Myrepsus*); nor is there any other *European* Phyfician that mentions the *Small-Pox* till a long time after it was frequent in moft parts of *Europe*, and thofe who liv'd after, took what they faid, from the *Arabians*: Therefore all the  
Account



Account we can have of the *Small-Pox* from their first Appearance in *Ægypt* about *A. D.* 640, to the XIVth or XVth Century, we must take from the *Arabians*, as they are the first, and only Authors now remaining, who have described this Disease; and even many of their Authors are now lost, as well as the above-named *Abron*: *Abul-Pharagius* (x) gives us the Names and Characters of above twenty Physicians, all Men of great Learning and Repute, and Physicians to their Caliphs, who liv'd after the above-mentioned *Maserjawaibus*, *A. D.* 683, and before *Rhazis*, *A. D.* 900; but Time has destroyed all their Works (except *Serapion's*) till he comes to this *Mohamed Ebn Zacharia Al. Rhazis*, who is now commonly called *Rhazis* only, from *Rhei*, a City in the Province of *Corasana*, in the North-East part of *Persia* (now called) *Yrac-Agemi*, where he was born, (it being a common thing for the *Arabians* to be so named) (y): he was a Man of great Learning, indefatigable Industry, and great Experience (z), as he lived to a great Age; He died after being some Years blind, *A. Heg.* 320, (a) *Dom.* 930, and is the oldest *Arabian* Author in *Physic* now extant. He wrote several Books

(x) In Hist. Dynast.

(y) Ockley's Sara. Hist.

(z) *Abul-Pharag*, Hist. Dyn. p. 191. (a) Idem Ibid.



in Philosophy, 12 in Alchemy, or Chemistry, and a great many in Physic. *Abi Osbaia* (b), reckons up 226 Treatises which this *Rhaxis* wrote; several of which are preserved to this Day, and among them is a Treatise on the *Small-Pox*, wherein he has fully and judiciously described them, their different Kinds, with their good and bad Symptoms, and their Method of Cure: But as the Symptoms vary so little from what are now with us at this time; it will be unnecessary to trouble my Readers with a Description of them, or the Disease, here: And as for his Method of Cure, it was more reasonable and just, than the Methods used by any of the *Europeans*, even till our Dr *Sydenham's* Time. Both he, *Haly Abbas*, and *Avicenna*, treat of the *Small-Pox* and *Measles*, as one Disease, or as two kinds of the same Disease, tho' they are in reality very different Diseases. For Preparatives, they advise Bleeding, Swimming, drinking Ice-water, (a Thing commonly used in their warm Climate) and a cold acid Diet; the Body, if bound, to be kept open by Laxatives, to make the Pustules fewer. They bleed all in the beginning of the Disease, even Children; if that has been omitted,

(b) A M.S. not yet published. Dr Freind's History of Physic.



or sometimes when it has not, if the Eruption proceed not regularly, they give large Quantities of cold Water, two or three Pints in half an Hour, and repeat it again if Occasion require, to promote Sweating. If the Pustles did not rise, and come forward, they gave a Decoction of Figs, Raisins, Lentils, and sometimes added incrassating Gums; and if the Fever and Heat were small, Saffron and other warming Medicines: But if the Fever was high, they order'd the Room to be kept cool, and diluted plentifully with cooling acid Liquids; and if the Patient was faint, they admitted a fresh cool Air: They forbid purging after the Eruption and before the Crisis, but after this, if the Fever was high they purged gently; and if it was very high and an inflam'd Swelling fixed in the Throat, *Avicenna* prescribed Bleeding. In the *Measles*, if the Oppression and Sickness was great, or a Syncope, he advis'd immersing in cold Water, and rubbing the Patient after, to forward the Eruption; a Practice which however successful in their Climate, I fear wou'd be dangerous and imprudent in ours. They us'd Gargles, and took great Care to preserve the Eyes, and the Face from pitting, by Collyriums, and Cosmetics, of both which they have left us great Variety; for on the latter only *Avicenna* bestows a whole Chapter,



Chapter, and *Rhazis* two. *Rhazis* mentions the second Fever, and says, “ *Quod si Febris augeatur post excretionem, Pestilentia est atrox, si vero purgetur est clemens morbus* (c).” So that they were not so entire Strangers to the second Fever, as some learned Men have thought them. The next after *Rhazis*, whose Works time has not destroy’d, is *Hali* or *Ali-Ebno’l Abbas*, a *Persian Magus*; he studied under one *Abu-Maher*, a *Persian Doctor*; and wrote his *Al-Maleci*, or Royal Work, in the Reign of *Adado’ddaula*, to whom he dedicated it, about *A. Heg.* 370. *Dom.* 978 (d). In which he treats of the *Small-Pox*; but in truth, he has done little more than abridge what *Rhazis* had said before him. About twenty Years after him, flourished the famous *Avicenna*; he was born at *Afbana* (e), in the Province of *Corassana*, (i. e. in *Transoxiana*), *A. Heg.* 370. *Dom.* 978, and studied at *Bocara* not far from it in the same Province, being a City famous for the Cultivation of the Sciences, both then, and for several Ages after. He died at *Hamadan* (f) in *Persia*, *A. Heg.* 428. *Dom.* 1036,

(c) De Pestilent. c. 15. p. 342. (d) Vide Opera in Theoria, p. 2, &c. (e) Mr de la Croix. Hist. of Genghizcan, p. 218. (f) Idem ibid. & Abul-Pharag. Hist. p. 232.



aged 58 Years. He was a great Mathematician, Philosopher, and Physician. A certain Oriental Author (g) says, That he published above a hundred Volumes; and in those Works of his which we now have he treats of the *Small-Pox*; and is the first that has observ'd the *Bloody Urine* and *Bloody Stools*, two fatal Symptoms which either had not appeared, or at least are not mentioned by any before him: He also first mentioned the *Quincey*, or Swelling of the Throat, another mortal Symptom in this Disease: And he advis'd Bleeding more boldly than any of his Predecessors, and that in any time of the Disease when a *Plethora*, or (as his Translator calls it) *Vehementia repletionis*, requires it, *quantitate quæ exsiccet, seu alleviet* (h). Which indeed is the only time that it is indicated, in this Disease; and I believe oftner attends, even from the nature of the Disease, than is generally thought to do: These might have been mentioned by a late Eminent and Learned Author, as well as his famous Syrup of Dates (i), as he is pleas'd to call it.

After this time we meet with none of the *Arabian* Physicians, but what say something of the *Small-Pox*; tho' in general

(g) Bin Calican in Vafyatalayan, in Genghizcan. p. 218. (h) Canon. Med. L. 4. Fen. 1. 4. p. 74. Ed. apud Junt. (i) Epist. de Purg. p. 109.



nothing but what they have, or might have, taken from some of these three great Men: For their Method of treating this Disease, was so reasonable, and so suitably adapted to the Nature and Disposition of the Disease, that it would have been a great Happiness to their Patients, if the *European* Physicians, their Successors, had more strictly followed them therein, (with some small Allowances for the change of Climate) and not fallen into that hot inflaming Method, which some of the later introduced, to the great Prejudice of Mankind.

But how, or when, this Disease was first brought into, and spread in, *Europe*, none of the *Arabian* or *European* Authors inform us: yet we may gather from History, that as the *Saracens* extended their Conquests and Empire Eastward into *Persia*, Northward into the *Grecian* Empire, and Westward along the Coast of *Africa*, (all which they did in little more than thirty Years time) they carried and planted the *Small-Pox* and *Measles* wherever they came; so we find that they extended their Arms into *Spain*, and conquer'd a great part of that Kingdom, about *A. Heg.* 96. *Dom.* 714. It is most probable, that they brought the *Small-Pox* and *Measles* with them, and planted them there, as they had done in all other Parts into which they



came before. And thus were these two *Mohamedan Plagues* first brought into *Europe*, by that People, either by this way into *Spain*, or else by *Constantinople* into *Lycia* and *Cilicia*, and so into *Italy*: For we find that the *Small-Pox* were become so frequent in *Spain* in *Avenzoar's* time; which was either the latter end of the XIth, or the beginning of the XIIth Century, that it was looked on as a Wonder, if any escaped them: From whence, we may conclude that they had been in *Spain* for some considerable time before, and probably had spread into *Italy*, *France*, and *Germany*, if not into all the other *European Nations*, at, or before, that time: But as all Learning was at that time almost quite banished out of *Europe*, and all the Sciences brought to their very lowest Ebb; so they were at the same time, at their greatest Height and Flow, which they ever attained to among the *Arabians* in East, where they had been carefully nourished and cultivated for some Centuries: And it is probably owing to this great neglect of Learning, that we have no better Account of this Disease's coming and spreading into the several *European Nations*, as well as the Account of many other Things, which the Ignorance of those Times have lost. But soon after this, the famous School at *Salernum* began to make some Figure,  
viz.



*viz.* early in the XIIth Century; tho' it had been the most noted Place in *Europe* for Learning, many Years; yet it can't be said to have begun to revive before that time: For now the *Europeans* at *Salernum* began to enquire after the Learning of the *Arabians*, and brought over a great many of their original Works, as well as the Translations of the ancient *Greek* Authors, which the *Arabians* had translated into their own Tongue; The reading which, soon began to improve their Desire after Learning, and caused several, both of the *Arabian* Authors, and their Translations of the *Greeks* (especially in *Physic*), to be translated again into *Latin* from the *Arabic*, particularly in the XIIIth Century: Yet none of those *European* Physicians, tho' they had several learned Men in that School, say any thing either of the Time when, or how, the *Small-Pox* was first brought over, or in what part of *Europe* they first appeared, or from whence they had them; neither have they said any thing of the Disease itself, or its Cure, but what they took from the *Arabians*. Neither can I find any History that does inform us how, or at what Time, the *Small-Pox* was first brought into *England*: However it is certain that it was a Disease very common here in the XIIIth Century, and probably had been so a long time before; since



we find, two of our antientest (if not first) *English* Physicians of any Note, *Gilbert Anglicus* and *John of Gaddesden*, both speak of the Disease as commonly known, even by the old Women, from whom they have condescended to take something relating to their Cure, tho' meer Trifles: The first is supposed to have lived about 1270 or 1280, and the latter about 1310 or 1320. *John* tells us (*k*), that he had the Care of the King's Son in the *Small-Pox*, who, (Dr *Freind* says, was either one of K. *Edward* the Ist, or *Edward* the IId's Sons) he says, he cured by wrapping him in *Scarlet*, and ordering every thing about his Bed to be red, which he says, *est bona Cura*; but Dr *John* does not tell us whether he and the Nurse attended the Prince in red Coats, or not; however this Use of a Piece of red Clout about the Sick, is much liked by the good old Women to this Day; and for any thing I know to the contrary they first had it from *John*, since it appears from what Dr *Freind* says of him, that he was a great Favourite of the Fair Sex, in his Day. Both *John* and *Gilbert* were looked upon as extraordinary Physicians, and Men of great Learning in their Times; so that one may have a good Guess at the State of Physic and Learning in *England* at that

(*k*) *Rosa Anglicana*, L. 41,



time from *John's Works*: for if he has any thing worth observing, he either took it from the *Arabians*, or from those who had taken it from them before: And indeed all the *European* Physicians from the IXth or Xth Century, did nothing but Translate, Comment upon, and Transcribe from, the Works of the *Arabians*, till about the Year 1453, when the *Turks* took *Constantinople*, and many of the *Greeks* fled into *Italy*, and brought the Manuscripts of the old *Greek* Physicians with them: For before this time the Writings of the *Greek* Physicians were not brought into the Western parts of *Europe* in their own Language; what they had of them before, being only such as the *Arabians* had translated out of the *Greek* into their own Language, and the *Europeans*, those again into *Latin*. But their receiving those *Greek* Authors now in their own native Tongue, set them upon comparing them with the *Arabian* Translations which they had before; and then upon explaining, amending, and translating, from the original *Greek*; for Learning made but a slow Progress, and poor Figure, in *Europe* before this time: But when these Authors were brought over, and the ingenious Art of Printing was found out, *A. D.* 1428, or 1430, Books were acquired at a much easier Expence and Trouble, than in

B 4

transcribing



transcribing them, and Men became better acquainted with the ancient *Greek* and *Arabian* Authors. This Acquaintance with the Ancients, soon began to improve Mens Taste for Learning, and to increase their natural Desire after Knowledge; insomuch that the latter end of the XVth and XVIth Centuries produced many very Eminent and Learned Men in most *European* Nations; and many great Discoveries and Improvements were made in all the Branches of *Physic*, and particularly in *Anatomy* and *Chemistry*, till, at last, our Countryman, the Immortal Dr *William Harvey* discovered the *Circulation of the Blood*, Anno Dom. 1628, which noble Discovery, gave such a Light, as soon put an end to many troublesome and groundless Disputes; and laid a sure Foundation for the many great Discoveries, and useful Improvements, which several eminent Men have since made, and upon which alone *Physic* has, and can be raised from a precarious Practice, to a real Science.

As for the Chemical Art, tho' it was long before first introduced to the Medical by the *Arabians*, yet it made no great Progress till after the Year 1540, about (or soon after) which time, several very useful and valuable Medicines were invented, without which, the Healing Art would be very deficient;



deficient; however enthusiastical some of it's Improvers might be. Not long after this, a Division arose, (and as such enthusiastical, hot-headed, Men, are the fittest for Party Men, for the more ignorant, the more zealous Men generally are, and the fitter Tools for designing Men) and Parties were formed by the *Chemists* and *Galenists*, as they were pleased to stile themselves or each other; The first were for infallibly curing all Diseases, with their new invented Medicines, without any other Assurances whatever; wherefore many of it's Espousers opposed Bleeding almost in every Disease, and particularly in any State or Circumstances whatever in the *Small-Pox*, tho' several learned *Italian*, *Spanish*, *German*, *French*, and other Physicians plainly proved, both from the Works of the *Arabians*, and their own Experience, the Advantage and Necessity of Bleeding in some dangerous Circumstances attending the Disease.

After this again, a warm Dispute arose about the Use of a *hot or cool Regimen* in the *Small-Pox*: Those for the hot Regimen, observing the Malignity which sometimes attends this Disease, supposed it, and it's bad Effects, to proceed from something of a poisonous Nature, not protruded from the Center, to the Surface of the Body; and dreaming that all hot Alexipharmic Medicines



dicines were Antidotes to all Poisons, concluded, that such hot Alexipharmics were requir'd to propel that supposed poisonous Matter to the Surface of the Body ; and therefore the more malignant and violent the Distemper was, the more generous Cordials, and heating Antidotes were required ; and thus totally neglecting the violent inflammatory nature of the Disease, which generally produces those it's fatal Effects, they inadvertently or ignorantly conspir'd with a most violent inflammatory Disease, to kill the Patient by giving hot inflaming Medicines. This hot Regimen was zealously espoused, and used by most Physicians, especially in our Country, till Dr *Sydenham* (a Honour to our Nation) with indefatigable Industry, and great Judgment, inquired into the nature of the Disease, and detected their Error, and introduced (or revived) the Use of the cooling Regimen, as being more suitable to the Cure of the Disease, which Method the others as warmly opposed. I grant that he carried this cooling Method in some Cases, at first, almost into an Extreme ; but he no sooner found that it was so, than he, with the true Candour of a sincere Lover of Truth, retracted and reformed it to a State more moderate, and suitable to our Climate: He also made many great Improvements



provements in the Practice, besides, especially in this Disease; for he is the first who carefully observed and described the several different Stations of the Disease; and even the different Days of those Stations, with all their various Symptoms; also the Times of the Ptyalism and Looseness coming on, and stopping; and the second Fever with it's time of coming, and it's Symptoms; all which, together with the proper Times of giving Anodynes, &c. which he first regulated, are things of great Consequence, and if duly observed, and well understood, are of great Service both to Patients and Physicians.

This Practice of Dr *Sydenham's* has been chiefly followed since his Time, by most *European* Physicians, and particularly in *Britain*, where this Disease seems to be more violent and fatal, than it is in several of our neighbouring Nations, probably from our different manner of living, and different Qualities of the Air of our Island: And this perhaps may be one Reason why our Countrymen gave more Attention to the Practice of Inoculation, than our Neighbours did. This Method of procuring or giving the *Small-Pox*, has been practis'd by the *Circassians* living between the *Caspian* and *Euxine* Seas, Time immemorial, and was from thence convey'd into *Turkey*,  
where



where it has been practis'd with Success (as they tell us) about fifty Years, tho' the better sort of People there, did not fall into it till about *Anno* 1701. And about twenty Years ago, Dr *Timoni*, and Dr *Pilarini*, the *Venetian* Consul at *Constantinople*, sent an Account of it, and it's Success there, to the *Royal Society* in *London*, recommending it's Use to them here ; but it's Practice was not ventur'd upon, until Mr *Maitland* a Surgeon came over from *Turkey*, and prevail'd upon some to try it, *Anno* 1721. After which it made a considerable Noise, and some Progress for some time ; but as it has not always been attended with that Success, which it's Abettors promis'd, it's Credit at present seems to be upon the decline. Likewise we are told, that a Practice something analogous to Inoculation, has been long used in *Wales*, chiefly by the old Women, which they call *buying the Small-Pox*.

But after all, the diligent and honest Dr *Sydenham*'s Method, as he left it at last, being the most reasonable and successful, has been chiefly followed : And of late, has been further improved by the three great Ornaments of the Faculty, the *Ingenious* Dr *Pitcairn*, the *Learned* and *Eloquent* Dr *Freind*, and the *Indefatigable* and *Learned* Dr *Boerhaave* ; the first, by bleeding in the first Stations of the Disease ; when the Fever



ver is violent: The second by introducing the Practice of *Purging*, (and Bleeding) in the most dangerous Circumstances attending the second Fever: And the last, by giving us the best *Theory* of the Disease, and introducing the Use of *Antiphlogistic Medicines*, both in this, and all other inflammatory Diseases; and lastly, in proposing a general Antiphlogistic Method to cure this, as we do other Inflammatory Diseases; which Method I have in the following Essay endeavour'd to improve, or at least, to recommend it to the further Consideration of the Gentlemen of the Faculty; so that it may by their Approbation, or the Assistance of some endowed with a more happy Genius, and an abler Pen, be improv'd, and brought into Practice; which, (if it succeed) may prove a Happiness to the present, and all future Ages.







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Curing this, as we do other Inflammatory Diseases, by taking off the Inflammation, and so preventing the Eruption, and Suppuration of all, or most of the Pustules, and their fatal Consequences.

§. I. AVING given my Readers a short History of the first Rise and Progress of this Disease, I shall now consider it's Cause, Nature, and Manner of producing it's Symptoms and Effects; with my Reasons for proposing this Method of Cure, as agreeable to the  
2 Laws



Laws of Nature, by which all Distempers and their Effects on our Bodies, are, and must be, produced, as possibly I can: Since 'tis certain that no Changes in natural or material Bodies can produced, but by, and agreeable to, those Laws which the *Great Author of Nature* has ordained them to move and act in: Wherefore I think that all Physicians ought to endeavour to account for the Causes, and manner of Production of all Diseases, and their Symptoms, and Effects, by those Laws; especially where our Knowledge of them is such, that the *Data* upon which we reason, are certain and just; and where they are not so certainly discovered and known, we should by diligent Observations, and Experiments grounded on real Facts, endeavour to make them certain: Not that I am for slighting, or despising the Histories of Diseases, or that way of writing, especially when they are judiciously collected, and faithfully related, I think them exceeding useful and instructive, and of an inestimable Value; and profess my self a great Admirer of those elegant Histories of Diseases left us, by that Father of Physic *Hippocrates*, as also those of every other learned and judicious Physician since him, to this Day.

§. 2. I think 'tis universally agreed upon by all Physicians, and likewise confirmed  
by



by their most accurate Observations in all Ages, since the *Small-Pox* appeared in the World; that they are an *Epidemical* and *Contagious Disease*; *i.e.* They are *Epidemical* as they proceed from a common malignant Cause infecting the greatest Part of the People, in a certain Region, or Part of Country, at the same time. And *Contagious*, as they proceed from infectious Miasmata, which are exhaled from the Bodies of the Sick labouring under this Disease, and so are mixed with, and floating in the common *Air* of the Atmosphere, whereby it becomes so infectious as to produce the *Small-Pox*, in those that breathe in that *Air*, and have not had the Disease before.

§. 3. It is unversally granted, that the common *Air* of the Atmosphere, which constantly surrounds our Bodies, and which we every Moment breathe into our Lungs, is not one *Homogeneous* Fluid, but is mixed with an infinite number of small Particles, or Vapours, and Exhalations, from almost all Bodies whatsoever, both Animal, Vegetable, and Mineral, both Solid and Fluid; also with the volatile parts of healthful, diseased, and dead Bodies: Tho' these invisible minute Particles, which are thus floating in and carried to and fro with it, are no ways the Objects of our Senses; yet it is as certain that there are such actually



ally existing in it, as it would be, if they were more perceptible to them; and that they do as certainly produce Disorders and Diseases in our Bodies, when they are carried into, and mixed with, our circulating Fluids: And it is from a different mixture of these various sorts of invisible *Effluvia*, that the *Air* is so different, in different Regions and Situations of Places: And from hence, and the various Constitutions of Years, and Degrees of Heat and Cold, the different Kinds of epidemical Diseases then reigning; the *Air* becomes infectious, and is more or less malignant, or epidemical, according to the different Degrees and Natures, of these many and various Causes. Hence, a Person who is in a perfect State of Health, coming into *Air* thus infected, and every moment breathing it into his Mouth and Lungs, those infectious Particles, which are floating in it, must pass with the *Air* into his Mouth and Lungs, where some of them will stick to the *Saliva* and mucous Fluids secreted there, and so will be swallowed down with them into the Stomach and from thence be carried, by the Intestines and Lacteals, into, and mixed with the whole Mass of *Blood* †; where

† Hence the Vanity, or Ignorance, of those that boast and depend so much on Alexipharmac Medicines,



where they will produce their different and peculiar Effects, according to their various Natures. Hence, and after this manner, are the *Small-Pox*, and all other contagious, endemial, and epidemical Diseases, produced and propagated from one Body to another (except such as are conveyed by immediate Contact). However, that the *Small-Pox* is thus conveyed, is confirmed even by the Observations of the Vulgar; that if a Person who has never had the Distemper before, come into a Room where another lies sick of that Disease, (or even into a Place where the Air is filled with the infectious *Effluvia* exhaled from a diseased, or dead Body, in the *Small-Pox*), tho' he neither touch him, nor his Clothes, nor even come so near him as to receive his Breath, yet he will be infected with the Disease; and if the same Person did but intirely avoid coming into such infected Air, or Place, he would be in no danger of taking the Disease at that Time. Tho' sometimes we may observe, that this, as well some other contagious Distempers, are more readily taken, and at a much greater distance from the Sick, at one time, than

to prevent all malignant epidemical Diseases, appears. And that the avoiding such infected *Air*, and a regular Use of the fix Non-naturals, are the only effectual Preventatives to be depended on.

they



they are at other times; but this must either proceed from the different and peculiar Disposition of the Constitution of the Person infected; or from the different degrees of Virulency, or Infectiousness (if I may so call it), of the contagious *Effluvia*, at one time more than another; or from both jointly.

§. 4. But in as much as the constituent Particles of the infectious Matter which produces this Disease, (which I shall hereafter call *Miasmata Variolosa*) are so infinitely small, and the shortness and weakness of our Senses and Comprehensions so great, that these are no ways the objects of those, until we discover their Presence, by their sensible effects on our Solids and Fluids when carried into the Body, and intermixed with them; neither is it possible for us, by any *Art*, or any Assistances whatsoever from thence taken, to know their Natures, Structures, or geometrical Figures, so that we can find any true *Data* to reason upon, in order to discover those certain Laws, by which they undoubtedly do act upon our Bodies to produce their direful Effects; we must by reasoning in an analytical or retrograde Way, endeavour to find their Natures, and manner of acting, from their sensible and visible Effects; since we cannot have



any tolerable knowledge of them, by any other means.

§. 5. Then, if we duly confider, the *Diathefis* and effects of these *Miasmata Variolosa*, when mixed with our circulating Fluids; we find their Nature and final effect is, the Production of a great number of little Tumours or Pustules, filled with a concocted putrid Pus: This concocted Pus, cannot be produced, but by something that must increase the Velocity and Momentum of the circulating Fluids, in, or contiguously near to, those putrid Pustules, and something obstructing and resisting that increased Momentum of the Fluids at the same time, in the small Arteries (*primi vel secundi generis*) ending in those Pustules also: And these Obstructions, and increased Momentum, of the Fluids, cannot be produced, but by something that must either have it's constituent Particles so large, that they cannot pass through those ultimate cuticular Vessels where the Pustules are formed; or else, it's constituent Particles must by strongly *attracting* each other, or rather, some Particles of our Fluids, and so form *Moleculæ* which cannot pass those ultimate small Vessels: And that something, must at the same time make the Contractions of the Heart and Arteries stronger and more frequent: And these stronger and more frequent



quent Contractions of the Heart and Arteries, must be caused by something that can irritate and stimulate the Nervous Fibres: And this Stimulation, must proceed from the Nature, and Structure, or Figure of the constituent Particles of those *Miasmata Variolosa*, whatever that is, whether biangular, triangular, or they consist of saline multangular Particles, or what sort of Matter or Form soever they may be, or have, is I think impossible to know, and not very material, if known, since we must at last ascribe the ultimate and primary Cause of the first *Miasmata Variolosa*, as the great *Hippocrates* did the Cause of the *Plague*; and some other contagious epidemical Diseases to the *θεῖον τι* seu *divinum vel ignotum quid*: And I hope it will be thought sufficient, that (whatsoever might be the first cause of producing the Small-Pox among the *Arabians*, or where they first appeared), we have plainly made it appear, that of whatever kind or sort of Matter, or whatsoever Form or Figure, the constituent Particles of the contagious *Miasmata* which now produce the Small-Pox by Infection, may be; they must be composed of such Particles, and have such Figures, as that when they are carried into our Bodies, and mixed with our Circulating Fluids, they can both form Obstructions in



the ultimate minute subcuticular Arteries, and also irritate and stimulate our nervous Solids, so as to increase their acting Force on our Fluids, by stronger and more frequent Contractions, whereby the Velocity and Momentum of the later will be so increased as to produce a violent Inflammatory Fever, with all it's dangerous, and too often fatal, Consequences, as will more fully hereafter appear.

§. 6. The frequent great Destructions, and the many dismal Consequences which this Disease has often produced, has put the learned and benevolent Part of Mankind in all Ages since it appeared, on finding out Methods of relieving and preventing those fatal effects: And tho' a great many learned Physicians have wrote on this Disease, yet they all have wrote on the Method of Cure by Suppuration of the Pustules, as in the common and natural Way: I grant there have been some, who have attempted to find out a Medicine which would entirely destroy these contagious Miasmata, and so prevent their producing the Small-Pox as usual; and others have pretended to have found out such an *Antidote* as would even prevent any more Pustules appearing after the giving it, tho' several had already appeared before; but hitherto these have only deceived themselves, and have endeavoured  
to



to do the same to others (*a*). Yet some of our most learned and able Physicians, seem to think that such a Medicine may be in *rerum natura*, as will totally destroy the Power and Force of those *Miasmata*, so as to render them innocent, and as it were homogeneous with our Fluids, and thereby prevent their Power of producing this Disease. Such an excellent Medicine as this, is what every good and honest Man cannot but sincerely wish for: This, prompted by his extensive Benevolence to Mankind, has induced the great Dr *Boerhaave* to make some attempts to find out such a Medicine, which tho' he has not yet succeeded in, yet he has proposed it, and pointed out the way to others, by which it is not improbable that such an *Antidote* may be fortunately discover'd at some time. But I must confess, that inasmuch as this *Great Man*, whose known Abilities, and great Skill in Chemistry, and the Nature of Bodies, as well as Diseases, and indeed in universal Learning, has not been able to make such a happy Discovery: This, with the Consideration of our little Knowledge of the nature of *Substance*, or the Structure and Make of the constituent Particles of different *Substances*, gives me too much reason to fear that so hap-

(*a*) *Alfaharavius*. Tract. 13. *Rhazis de Pestilen*. C 5.



py a Discovery will not be effected: Not that I would have any thing that I have said, or can say, in the least to hinder any one from making such an Attempt; but on the contrary, that I may encourage some more fruitful Genius to make such an Attempt, I will here add the Words of the said learned Author, *Correctio specifica niti debet invento remedio opposito illi veneno contagioso.---Quale inveniri posse, comparatio Historiæ antidotorum & indoles hujus mali faciunt sperare, & ad indagandum impellit summa hinc futura humano generi utilitas* (b). Let me also add, that as we find by experience, that the Oyl of Scorpions cures the Sting of the Scorpion; and the most fierce Poison of the Viper, when mixed with human Saliva and Bile, is thereby render'd *iners* and innocent; as is also their Bite cured by their own Fat (c). And since this Poison, which brings certain Death in a few Hours time, may be thus destroy'd, or render'd innocent, by two such simple and harmless things as human Saliva and Bile are, who knows but that at some time or other, an *Antidote* may be found out, by some fortunate Experiment, that may destroy the poisonous Nature of the *Miasmata*

(b) Vide Aphorif. de Cog. & Cur. Morb. a. §. 1388, ad 1393.

(c) See Dr Mead on Poisons.



*Variolosa*, and render them as innocent and homogeneous with our Fluids, as the Poison of the Viper is by the other. And the same Author further adds, that some Preparations of *Antimony* and *Mercury* reduced by *Art* to a very subtile and penetrable Nature, well united without any acid Salt, seem to be the most likely to answer this End: And the Success of some Experiments made by giving them in small Quantities, do very much encourage it's further Improvement: And probably Mr *Beloste's* Pills, if they were in able and judicious Hands, might with some Alterations be brought to answer this great Intention.

§. 7. But, until such a Discovery be made, the same learned Author has proposed a Method (*d*) (which is both very reasonable and practicable) of treating this Distemper, as other Inflammatory Diseases are daily treated, and cured; which Distempers if they were not so treated and cured, would be most commonly, if not always, mortal. But let us first enquire, how far the *Small-Pox* is an *Inflammatory Disease*, and how those *Miasmata* produce that *Inflammation*.

§. 8. The *Miasmata Variolosa*, being carried into, and mixed with, the whole *Mass of Blood*, (as in §. 3.) are carried with it into

(*d*) Aphorism. 1393, &c.



every Part of the Body; where they, from the Motion of the circulating Fluids, and Action of the Solids, and their own stimulating Nature and Structure, (§. 5.) do irritate all the nervous Fibres of the Body (*e*): And from this Stimulation of the nervous Solids, the Contractions of the Heart and Arteries, must be more frequent and strong; and the stronger and more frequent these are, the greater the Velocity and Momentum of the Blood or circulating Fluids must be; and the more these are increased, the more will their Heat and Inflammation be increased also; and again, by how much the greater these are, by so much greater will the inflamed fizy State of the Fluids, and the Number of the Obstructions, and suppurating Pustules be: For by how much the Velocity of the Blood's Motion is increased, by so much a greater Quantity of it must pass through the same Vessels in the same given time, than did before; therefore a greater Quantity must pass through all the Secretory and Excretory Glands in the same given time; whence a greater Quantity of the more subtile aqueous Particles of the Blood will be carried off by those Glands, than were before; for an increased Celerity

(*e*) Hence that universal Uneasiness, strong Reachings to vomit, violent shooting Pains all over the Body, and those Convulsions in Children, &c. are produced.

of



of the Blood's Motion, increases the fluid Secretions more than the viscid, by the 20th Prop. of Dr *Wainwright*. Hence the remaining Fluids must be inspissated and more fizy; which Viscidity or Siziness will be still more increased by the augmented Heat of the Blood; for Experiments teach us, that any Heat exceeding that of a human Body in *Statu sano*, if continued for any considerable Time, inspissates, or renders the Serum of the Blood fizy; and the greater the Heat is, the sooner and more strong will the Viscidity and Siziness be. And from this Siziness of the Fluids, and attractive Power of the *Miasmata*, more Obstructions must be formed in the small Branches of the subcuticular Vessels, and those of the other Parts of the Body: Wherefore the Velocity of the Blood's Motion, must still be more increased in those Branches which are not obstructed, but remain free; and the more these are, the greater will the Velocity of the Blood still be.

From all which, together with the Motion and Action of the circulating Fluids upon their containing Solids, and the re-action of these upon those, and of the constituent Particles of the Blood upon each other, a violent Fever, and a total Inflammation must be inevitably produced: And by how much the greater, and more violent,



lent, any, or all these, are ; by so much greater will the violence of the Symptoms, and danger of the Disease be ; and *e contra*.

§. 9. That this is the true *State* of the *Solids* and *Fluids*, in the first period of this Disease, I think will not be denied ; especially, since the most accurate Observations on the concomitant Symptoms of the Disease, which are more evident to our Senses, do plainly confirm it ; as, the shivering Coldness succeeded by a violent burning Heat, universal Uneasiness, Pain, Inquietude, Convulsions, a quick, strong, hard, Pulse ; and the fizy Texture, and inflamed State of the Blood taken from the Sick in this Disease, which on the first, second, and third Days, is always of a fine florid crimson Colour ; but when it is taken from the Sick, on the fifth or sixth Days, or any time after that, is always viscid and fizy, (more or less so, according to the greater or less violence of the Disease ; ) and when it has stood till it is cold, is cover'd with a glutinous, inflammatory, starch-like Pellicle ; in both which Conditions, we find the Blood in all inflammatory Diseases ; as, *Rheumatisms*, *Pleurisies*, *Quinsies*, *Paraphrenitis*, *Inflammations of the Bowels*, &c. All which (as well as the concurrent Opinions of the best Physicians) do



do evidently make it appear to be an *inflammatory Disease*; and that it does not differ from other acute inflammatory Epidemical Diseases in it's first Stages; tho' in it's last Stage, *viz.* That of Suppuration, it may in some respects differ from them all.

§. 10. Now, inasmuch as both Reasoning, and daily Experience, teaches every Physician, that the above-named inflammatory Distempers, §. 9. are successfully cured by suitable Evacuations, (and particularly bleeding largely) with a right use of proper Antiphlogistic Medicines; which Diseases, when not timely relieved, by such Methods and Medicines, but left solely to the work of Nature, are sometimes, if not always, mortal; yet they would be so fatal, that not one in a hundred would recover; tho' when thus timely assisted, they generally do recover: Therefore, why may not the *Small-Pox* be treated and cured by a general Antiphlogistic Method, due regard being had at the same time to it's peculiar Cause and Diathesis?

§. 11. These Considerations, together with the desire of making some useful Discovery, or Improvements for the good of Mankind, are the chief Motives which induce me to propose, and publish these my Sentiments and Reasons for this Practice,



tice, to the further considerations of the Learned; in order that it may be so improved, that we may come to cure this Disease, as we do other inflammatory Distempers, without bringing on the Suppuration: For suppose that any Physician was to set about curing a *Pleurisie*, by bringing on the Suppuration; and that Disease is accompanied with the same Disposition to an Inflammation and Suppuration as the *Small-Pox* is, since a Suppuration is what *Nature*, or the *vis-vitæ*, points at, and intends in that Disease, as well as in this, if not prevented by *Art*, (or by a Gangreen, which brings immediate Death,) would not all Mankind exclaim against him with just Reason; and think him a Madman, or worse? For not one in a thousand could possibly recover by that manner of Treatment. And what Objections can there be made why the *Small-Pox* may not be cured in the same manner, by taking off the Inflammation at the very first Appearance of any Symptoms of the Disease? especially since we find by Experience; that this Method has often happily succeeded, tho' it has been undesignedly put in Practice. I have heard the great *Professor Boerhaave affirm Bona fide, & vir fide dignissimus est*, that he has often known the *Small-Pox* perfectly and safely cured  
by



by this Method, when the Disease has been at first (*viz.* before the Eruption) taken for, and treated as an inflammatory Fever: For the Symptoms are so much the same, that they are not without great Caution and Exactness to be distinguish'd, and that only by some peculiar Symptoms, which do not always attend. Hence sometimes it has happened, when the *Small-Pox* have not been known to be in the Town, the most judicious Physicians have not been able to know at first, whether the Distemper was the *Small-Pox*, or an inflammatory Fever; but taking the Case for the latter, have, by reason of the great inflammatory Disposition, which they found in their Patient's Blood, bled them freely, and prescribed a plentiful use of Antiphlogistic Medicines, whereby the Cause of the *Small-Pox* has been removed, and the Sick perfectly recovered, without the Distemper's advancing any further, or ever coming to suppurate in Pustules, as when left solely to Nature herself. This may also be confirmed by the Observations of several other able Physicians. Dr *Fuller* gives us an extraordinary Case, wherein the like Cure was performed by Nature herself, pointing us out the Way we ought to follow her; wherefore I shall give you it in the Doctor's own words: He says,



says, (f) “ A Doctor of Physic told  
 “ me ; he fell sick, when a Student at Ox-  
 “ ford, in a time when the *Small-Pox*  
 “ was epidemical there, had the usual  
 “ Symptoms of cruel Pain in the Head  
 “ and Back, together with a Delirium,  
 “ came out full of Pustules, which his  
 “ Physician pronounced 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 Pu-  
 “ stules all vanished ; he slept soundly ;  
 “ and after that Time (which was above  
 “ 30 Years ago) he grew well, and never  
 “ had the *Small-Pox* since.”

*Botallus* also says (g), “ That he cured  
 “ a Gentleman’s Servant in the Lord of  
 “ *Poyrin’s* House, 18 Years of Age, two  
 “ Days after the *Small-Pox* were come out,  
 “ by taking a Pound of Blood from him ;  
 “ whereupon the Distemper left him quite,  
 “ and he went about his business the next  
 “ Day”. He also cured several others by  
 the same Method.

Dr *Baynard* likewise mentions several  
 Cases of the like Nature. And several

(f) *Exanthematalog.* p. 305. (g) *Botal. de Ve-*  
*næfect.* c. 5.



others might be collected from Authors of Credit. And I question not, but many more Instances of the same Kind have happen'd, if they had been duly observed, and related: But these with what others we may meet with in Reading and Practice, are sufficient to encourage the use of this Method. I will only add what the Learned Dr *Boerhaave* says on this Subject (*b*), and then proceed to describe the Method, which is,

§. 12. As soon as the Patient is seized with the first Symptoms of the *Small-Pox*, in the very first Day of the contagious inflammatory State, before any thing

(*b*) “ Methodus universalis videtur hic adhiberi  
 “ posse, & experimentis perfici debere, illa, quæ  
 “ deprehensa est in omni inflammatorio valere, ne  
 “ inflammatio in pus, gangrænamve, abeat: quum  
 “ in aliis omnibus succedat, hic nihil repugnet, mor-  
 “ bus variolosus sæpe sine variolis fit. *Aph. de Cog. &*  
 “ *Cur. Morb. Aph. §. 1393.*

“ Consistet illa (1393) in his: 1. Mittatur cruor, ut  
 “ (854. No. 1. 890. No. 1, &c.) 2. Clysmatibus,  
 “ fotibusque, laxetur tota cutis, os, œsophagus, intestina,  
 “ sæpe. 3. Potetur multum aquæ tenuissime farinosæ,  
 “ acidulæ, nitrosæ; hauriatur nitrum stibii, vel poly-  
 “ chrestus sal, & hydrogala tenue. 4. Sit victus te-  
 “ nuis; aer in pulmones ducendus frigidiusculus; corpus  
 “ bene tectum, & perspirabile. *Ibid. §. 1394.*

“ - - - - - Quamvis enim in hoc Morbo raro co-  
 “ gitetur de hac indicatione (1388) & de hac Me-  
 “ thodo inprimis (1393, 1394), Casus tamen ignaro  
 “ morbi Medico, sæpe dedit successus probantes talem  
 “ Artem. *Ibid. §. 1393.*



of the Eruption appears, bleed the Sick to such a quantity as he or she can *well bear*; and repeat it as often as the Age, Strength, Temperature of the Patient, Greatness of the inflammatory Disposition, and inflamed State of the Blood, and strength of the Pulse, do jointly indicate, and will safely admit of, in the three first Days of this first Stage of the Disease; (which may be most properly called the inflammatory State;) and during the same time, let cooling, emollient, relaxing Fomentations be applied to all the external glandulous Parts of the Body, with Flannel Cloths, or Sponges; As,

℞ *Fol. Altheæ, Malvæ, Mercurialis, Lychnid. Saponar. Verbasci, ana m ii. Flor. Sambuc. m ii. Rad. Altheæ, Lilior. Alb. ana ℥ iii, Sem. Lini, Fœnugræci, ana ℥ i, Salis Nitri, ℥ ss. Misce. Coq. in Aq. fluv. q. s. ad ℔ iv. Coletur.*

*Hujus Decoctiois ℥ iv, vi, x vel xii pro ratione ætatis injiciant pro Clysmate, duodecimâ quaque horâ.*

*Panni lanei eodem Decocto madidi, expressique, iterum, calidi applicentur Corporis inferiori, pedibus, poplitibus, inguinibus, cruribus, femoribus, & axillis, ter quaterve vel sæpius in die. Eodem Decoct. Os, nares, fauces, colluantur, humectentur, foveantur ope Spongiarum.*

At the same time let the Patient drink large quantities of diluting *Antiphlogistic Decoctions,*



*Decoctions*, mixed with gentle cooling *subacid Medicines*: And at convenient distances of Time, let proper Doses of *Stibium Diaphoreticum Nitratum*; or, *Nitrum Stibiatum*, and *Sal Polychrestum*, suitably mixed with small quantities of *Calomelanos*, or other proper *Mercurials*, all prudently adapted to the Age, Strength, and Constitution of the Patient; which therefore must be left to their Physicians Judgment to determine.

The judicious Professor *Boerhaave* says, That he has often seen great and wonderful good Effects from a proper use of these Medicines, when suitably adapted to the Case and Constitution; wherefore I shall here give the Process how to prepare them, since they are not in our common Dispensatories, nor to be commonly met with in our Apothecaries Shops in *England*.

This *Antimonium Diaphoreticum* is the same with ours in the Shops before it is washed

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Antimonium vel Stibium Diaphoreticum  
Nitratum.

℞ Antimonii ℥ii, Nitri ℥vi, redigantur in pulverem tenuissimum, injice in Crucibulum cande factum in igne pauca copia simul; deflagrabit: perge donec perfecte sic omnis materies deflagravit; detine dein materiem quadrante horæ in igne, ut ma-



washed from the Salts ; which Salts some have fancied to have an emetic Quality in them ; but are the only valuable part of the Medicine ; whereas the other part, viz. the *Antimonium Diaphoret.* which is commonly used, is only a meer insipid Calx, deprived of all it's Virtue, being no better than a piece of common Chalk, if so good.

These Medicines, viz. the *Stibium Diaphoret. Nitratum*, and especially the *Nitrum Stibiatum*, are excellent *Diuretic, Diaphoretic, desolvent, and deobstruent, antiphlogistic*

neat crucibulum candescens. Frigescant omnia, erit massa alba dura. Hanc Crucibulo exemptam tere in pollinem. Est *Stibium Diaphoret. Nitratum* pro usu.

### *Nitrum Stibiatum.*

℞ *Stibii Diaphoret. Nitrati* supra q. v. in pollinem tenuem trito ; Aqua fervida affunditur ; baculo misceatur ; sic *Nitrum* fixans, adhærens solvitur, liquor supernatans salinus effunditur ; & nova aqua affunde : misce & effunditur liquor, qui cum priore misceatur (calx alba insipida in fundo manens est *Antimonium Diaphoreticum Officinarum*). Liquores vel aquæ, percolati committantur vitro puro, igne aqua exhalat ad ficcitatem, ad finem perpetuo movendo. Remanet in vitri fundo, materies alba, salina, saporis singularis, *Nitrum Stibiatum dict.*

Sal



*tiphlogistic Medicines* ; and may be given in a proper antiphlogistic Decoction, in the following manner, with suitable Variations to the Age, Strength, &c. of the Patient :

℞ *Stibii Diaphoret. Nitrati* ℥vi. *Calomel. levig.* ℥ss *Salis polychrestii* ℥iſſ *misce diu terendo, fiat pulv. tenuissimus in xxiv dos. æqual. dividend. Exhibe unam tertiâ quaque horâ in Cochlear. semisse Syr. quovis idon. superbibend. post singul. Seri lactis, vel Decoctionis sequentis sine Nitro Stibiat. ppt. ℥iv.*

*Vel, ℞ Flo. Sulph. ℥i Cinnabaris Antimon. ℥iſſ. Stibii Nitrati, Salis Polychrestii ana ℥iſſ misce. Fiat Pulv. subtilissimus in Chart. xii. distribuend. & sumend. ut prius.*

℞ *Rad. Scorzonæ. ℥ii Glycirrhizæ ℥i Flor. Sambuci recent. Hord. excort. ana ℥i Sem. Papaver. Alb. Avenæ integræ ana ℥ss. Fruct.*

### Sal Polychrestum.

℞ *Nitri pulverati Flor. Sulph. ana part. æqual. optime commixta injice paulatim in Crucibulum ignitum. Cessante deflagratione, detineatur in fluore in igne per horam. Dein frigefacto vase; eximatur, & depuratur solvendo in Aqua calida; filtrando & evaporando ad ficcitatem; ut in Pharmac. Londinense.*



*Tamarind. ℥vi misce, Coq. in Aq. font. ℥liii ad ℥lii Colet. Colaturæ adde Nitri Stibiati ℥ss Aq. Theriacal. cum Acid. ℥vi. Succ. Aurant. Syr. Violar. ana ℥i misce. fiat Decoct. de quo bibat haustum tertiâ quaque horâ sæpiusve si lubet.*

§. 13. Their Diet at this Time should be thin, cooling, diluting, and no ways inclining our Fluids to Putrefaction; and suitably adapted to the Age and Constitution of the Sick, and Nature of the Medicines. The Patient should be kept moderately warm, especially their lower Parts, whether they be up, or in bed; so that an equal, moderate, brisk, Perspiration, may be constantly continued; but not so much loaded with Cloaths, as to cause too much Sweating, lest it should either too much deprive the Blood of it's thinnest Parts, and increase the Inflammation, or sink the Strength of the Patient. And at the same time let a free cool Air come into the Room, so that his Lungs may be cooled by breathing in it; yet it should be so ordered that it may not hinder that necessary free Perspiration. If the Season of the Year should be very warm, the Room may be cooled by setting branches of some soft porous Wood, (having a reviving agreeable Smell) in Vessels filled with Water,  
in



in the Chamber of the Sick ; through which the Water will exhale, and moisten and cool the Air. This Practice may also be of great Service in most burning inflammatory Fevers in hot Weather.

§. 14. I think it is very evident, that by the prudent use of this Method, of Bleeding, Diet, external Applications, and internal Medicines, that the Blood will be so cooled, and diluted ; and the rigid elastic State of the Solids so softened and relaxed ; and the stimulating Nature of the *Miasmata*, so smoothed and blunted, or carried off by all the increased Excretions ; that the usual violent Fever, and Inflammation of the Blood, which attends this State of the Disease, must be either totally taken off, or at least so much abated, that the succeeding Eruption and Suppuration of the Pustules, will either be prevented, or at worst, be so few, that their Suppuration, and other Stations of the Disease ; will be got over without much uneasiness, or any danger of the Patient's Life. For it plainly follows, from what I have said before, that the higher the Fever, and more violent the Inflammation is, the greater will the Number of the Pustules be ; and the more these are ; so much more will the violence of the Symptoms, and danger of the Sick be. And therefore on the con-



trary; by how much less the Fever and Inflammation are; by so much will the number of the Pustules be fewer; and the fewer these are; so much easier will the Symptoms, and the less the Danger of the Sick be, during the remaining time of the Disease; (if the Method do not take the Disease quite off, as in the Cases before-mentioned (§ 11.). Hence it is evident, that if the Fever and Inflammation be thus taken off, or so much abated, that the number of the Pustules, or Pox following, are very few; there will be no second Fever at all; since that never comes, but when the Pustules are very numerous; and it is this second Fever, which is the most fatal time of the Disease.

X As to bleeding, *Bellini* has proved (g), that by lessening the quantity of the Blood, we must abate it's *Velocity*, *Momentum*, *Heat*, *Acrimony*, *Inflammation*, and *Siziness*; and therefore all the Consequences of these, as *Obstructions*, *particular Inflammations or Tumours*, *Imposthumations*, and *Suffocation of the Vessels*, whence proceed *Gangrenes*, &c. For that *putrid*, concocted *Pus* or Matter, which is contained in the Pustules or Pox, is not existing in the Blood before the Eruption and Suppurati-

(g) Vide de Sanguin. Missione.



on, nor is it the Cause of this first Fever and Inflammation ; but the Consequence and Effect of them, and is thus produced. The *Miasmata*, by stimulating the Solids, increase the Velocity and Momentum of the Blood, against the Obstructions formed in the small subcuticular Vessels, and miliary Glands, by which Force the stagnating obstructed Particles, and the small ends of their containing obstructed Vessels, are (thus according to the Laws of Circulation,) broken, divided, and with the increased Heat, reduced into that white soft pulposus Matter we call *Pus*; in which *Pus* are still contained some of those *infectious Miasmata*, (\*) yet retaining their *infectious Nature*, as appears from the Experiment of Inoculation ; as well as their more readily infecting others at this, more than any other time of the Disease.

§. 15. The strongest Objection which I can find against treating the *Small-Pox* after this manner, is, that as the Distemper proceeds from such infectious *Miasmata* be-

(\*) *Quer.* Is it not probable, that the *Miasmata*, do adjoin themselves to some particular constituent Particles of our Blood, by strongly attracting them, and are they not disjoined by the Motion and Heat in the Putrefaction, still retaining their Figure ? And from this their attracting Nature, and power of retaining their Figure, are they not probably some peculiar kind of Salt ?

ing



ing mixed with the whole Mass of Blood ; we cannot possibly prevent those *Miasmata*, when so mixed with the Blood, from producing their natural Effects ; unless we either totally destroy them by some Antidote, or can take them all out of the Blood : The first is not yet discover'd ; and the second impracticable, unless we could take away the whole Mass of Blood also, which is absurd ; therefore it cannot be done by Bleeding, since some of the infectious Particles must of necessity be left behind in the remaining Mass of Blood, and consequently must produce their usual Effects : Or, that this Bleeding, must so weaken the Sick, that the remaining infectious Matter cannot be excluded, or cast forth, and therefore the Patient must consequently sink under it.

§. 16. That this should be done by bleeding alone, is what I neither propose, nor expect ; but, that by cautiously bleeding, (which may be safely done with Judgment,) and the prudent use of this general antiphlogistic Method, the Fever and Inflammation may be so much abated, that all danger from the Suppuration, and the second Fever will be entirely prevented. I grant these Objections would be more material, if the number of the Pustules, and violence and danger of the Disease, were  
always



always in proportion to the number, or quantity of the infectious Particles received into the Blood of the Person infected; but sufficient Experience proves, that it is not; and that the greater or less violence, and danger, proceeds from the greater or less Virulency and Malignity of the kind of *Small-Pox*, the Constitution being the same. And the kind of *Small-Pox* being the same, the greater or less danger proceeds from the more or less rigid State of the Solids, and greater or less Disposition of the Fluids of the Person infected, to be inflamed, and brought into a putrid State. Hence, to those who are of a hot plethoric Habit of Body, and whose Solids are strong, rigid, and elastic, and their Fluids readily inflamed, this Distemper is always very dangerous, if not mortal; especially if the Person has generally used a high Diet, such as high-seasoned hot made Dishes, and the like; and has overmuch indulged the too free use of strong Wines, or other spirituous Liquors. Whereas, those who are of a moist, cool, lax habit of Body, and whose Fibres are of a soft and delicate Texture, and have constantly used a cool, simple, temperate low Diet, have generally a more favourable benign kind, with fewer Pustules, and generally recover without much danger. Hence it is that  
Children



Children and Women, and those of an effeminate, lax State of Fibres, or such as are of a leucophlegmatic or hydropical Constitution, undergo this Disease, with so much more ease and safety: And on the contrary, to Men, or all advanced in Years, especially if of the first described Constitutions, they are so fatal.

For let two Persons of those opposite Constitutions, who never had the *Small-Pox* before, come into the same Room, where a third lies sick in that Disease, and both stay the same time in it; you will find, that they will differ in having the number of Pustules, violence of the Symptoms, and in all other respects, as much they do in their Constitutions. Hence it will appear, that the greater or less violence of this Disease, does not depend on the quantity or number of the constituent Particles of the *infectious Miasmata* received into the Body; since these two Persons having stay'd the same time in the sick Room, must have breathed into their Lungs near the same quantity of *Air*, and received near the same quantity of infectious Particles into their Blood alike; therefore the difference must proceed from their different Dispositions and Constitutions.



§. 17. I do not propose this as a Method to be practised on all Constitutions at the first, till further Experience has improved and confirmed it, so that the Weak may be managed with Safety and Success; for these cannot admit of such large Bleeding; neither will it be useful or necessary for such, whose inflammatory Dispositions do not *indicate* it; yet this *general antiphlogistic Method* may be so altered and adapted to such weak Constitutions, as it may answer the Intentions without (or at least with very little) bleeding, or any danger of sinking the Patient's Strength, when assisted by a suitable Regimen.

§. 18. But such is the fatal Effect of *Prejudice*, which so insinuates itself, more or less, into all the Thoughts, and Actions of the greatest Part, if not all Mankind; (though all think themselves free from it) and is so great a hindrance to our Pursuits of Happiness; that should any one Attempt to introduce this new Method of treating the *Small-Pox*, solely on his own bottom, notwithstanding that it is a Practice founded upon the surest grounds of reasoning, as well as some successful experience; (and none that are adequate to them on the contrary;) and might be ever so beneficial to Mankind; yet he must expect



pect to meet with great opposition, and so run the risque of being ruined in Reputation and Practice: For who can expect better, that does but reflect on the cruel and opprobrious Treatment the incomparable and penetrating *Harvey*; the honest and worthy *Sydenham*; and the sagacious and ingenious *Locke* met with? The first, for discovering a sure Basis to found our *Science* upon, which before scarce deserved that Name: The second for introducing a more reasonable and successful Method of treating this, and some other Diseases, than was at that time practised, whereby the Lives of many have been saved: And the last for letting Mankind plainly see, that they have a natural Right to the Liberty and Freedom of Thinking for themselves in the Discoveries of Truth, and useful Knowledge. For it is well known, that these great Men, met with such great Opposition, that, had not their Abilities, and Causes, been what they truly were, they never could have surmounted such great Difficulties, from so many great Opposers.

§. 19. As I would not have any judicious Physician deterred from attempting the Use of this Method of Cure; so neither, on the contrary, would I have what I have said, to incourage any unlearned, and unskillful rash Person, to put it in Practice;



tice ; lest thereby, it may be discouraged, and blamed ; tho' the want of Success, may be solely owing to their Ignorance of the Animal-OEconomy, the Nature of this Disease, and the Constitutions they have to deal with ; all which are absolutely necessary to be well understood ; lest they should injudiciously bleed too much, or carry the Use of the Antiphlogistics too far, (tho' it be ever so safe, when managed with Judgment,) and so be guilty of the Deaths, instead of saving the Lives of their Patients. But, as I cannot expect, that this Method, how reasonable so ever it be, will be fallen into at once, and peradventure not at all in my time ; I shall now endeavour to describe this Disease, with all it's Symptoms, and their Causes, and their most effectual Methods of Cure in each Station or Time of the Disease, agreeably to the Laws of Motion and Circulation of our Fluids ; with such Alterations, or additional new Improvements as I have found by Experience to be successful in preventing those dangerous Symptoms, when the Physician is called in time ; or of removing and curing them when it is possible, and not too late, as it too often happens.





## C H A P. I.

*Of the SMALL-POX; their different Kinds,  
divided into the Distinct, Contiguous,  
Confluent, and Bleeding SMALL-POX.*

§. I.  HE *Small-Pox* is a Distemper so *epidemical*, that there are very few, but who undergo it at one time or other in their life-time once; and some very few Instances we have of those that have had it twice (notwithstanding that *Averrhoës*, and several since him have asserted the contrary); but I believe they are of different Kinds, when any one chances to have them a second time. They are likewise so *contagious*, that there is no Distemper more difficult to guard against, than they are, and always have been, ever since



since they appeared in the World : Wherefore the first Writers on this Disease, seeing them so universal to all Mankind, were induced to believe, that Infants, even before their Births, contracted it's contagious Matter *à Sanguine menstruoso Matris* (a), which afterwards produced the Disease, by causing a Fermentation in the Blood at a proper time ; which being once thus carried off ; they were never after subject to the same : And this Opinion was constantly received, and believed, till the Discovery of the Circulation of the Blood taught us a better Knowledge of the Animal OEconomy, and a more just Method of reasoning thereupon, which soon exploded this ill-grounded *Arabian Hypothesis*.

§. 2. As for the *Cause* of this Disease, I think it evidently appears, from it's Nature, Disposition, and Effects, that it must proceed from certain *contagious Miasmata*, which being carried into, and mixed with our circulating Fluids, produces a Fever, with a total inflammation of the Blood, which ends in a Suppuration of a great number of putrid Pustules, or Pox, as I have fully explained before (b).

(a) Rhazis de Pestilent. c. 1. Continens. Lib. 4.  
3d. Haly Abbas Theor. p. 97. Avicen. Canon. l. 4.  
Fen. 1. c. 6.

(b) See Essay before, Sect. 3, 4, 5, 6, 7, &c.



§. 3. Hence it is, that the Events of this Disease are so various, and doubtful, according to the different Degrees of Virulency of those *Miasmata*, and the greater or less Disposition of the Fluids of the Person infected, to be inflamed and putrified. Hence we see that some get through this Distemper without any considerable disorder or danger: Whereas others are afflicted with most violent Disorders, and dangerous Symptoms; and too often, this direful Catastrophe is put an end to by Death; or at best, where, by the judicious Assistance of an able Physician, and the Strength of a good Constitution, they get through these great Difficulties, it is with the loss of those beautiful Charms, which often are as dear to the Fair-Sex as Life itself.

§. 4. As to the several Kinds, or different Sorts of *Small-Pox*, Physicians have varied according to their different fancies; some dividing them into two Sorts only; some into four; others into seven; some making more, others fewer Divisions, as they have observed them to appear in different Stages, at various times. The oldest Author that has reached our times, *Rhazes*, makes two Sorts, the *Sublimia* (c);

(c) Ad Al-Manfor. Lib. x. c. 18.

which



which he in another place calls *Peralba Magna* (d), and the *lata continua, alia in aliis*, &c. by which, he means the Distinct and Confluent: He likewise mentions the *Variolæ virides, violacæ, nigræ*, and the *admodum parva alba, velut verrucæ, humore vacua*; & *exiliores duriores ad maturitatem non pervenientes* (e). All which, he says, are of the malignant and mortal Kind; but he says nothing of those attended with Petechiæ and Hæmorrhages; and whether they appeared thus soon, or no, is uncertain; however, they seem to be more frequent now, than they were formerly. *Haly Abbas* mentions all those; and had observed that those attended with *Petechiæ*, and *Blisters like Bladders*, caused by Burning, in his Time (f). *Avicenna*, after them, mentions all the same different Sorts; and, how much soever esteemed a Copier after them, he first mentions the *Bloody Urine, and Bloody Stools*, and those that have a second Crop; also another Sort which he calls *duplices Magnæ, in ventre unius quarum est Variola alia* (g); as also the *Quincey or Swelling in the Throat*.

But though these *Arabians* have well observed, and described the different Sorts

(d) De Pestilent. cap. 15. (e) Idem in locis citat. (f) Theoria, Lib. 8. p. 97. (g) Canon. Lib. 4. Fen. 2. p. 73.



of *Small-Pox*; yet they have not attributed to each Sort, their peculiar Symptoms, and different Methods of Treatment, or Cure; but have contented themselves with leaving that in a general manner. Dr *Helvetius* says, he has observed no less than *seven Sorts*, distinguished by the number and nature of their Pustules, or by the Symptoms peculiar to each Sort (*b*).

Drs *Sydenham* and *Boerhaave* make but two Sorts, *viz.* the Distinct, and Confluent, with the regular and anomalous of each Sort: To which may be added the contiguous, and those attended with purple Spots and Hæmorrhages, which are sufficient; for to make more Divisions, is but more critically trifling, than really useful; since all the true Kinds of *Small-Pox* are essentially of the same Nature, and proceed from the same Cause; and their different Appearances, and Symptoms, from the Varieties of the then epidemical Constitution and Season of the Year, the different virulency of the *Miasmata*; and various Dispositions of the Persons infected; for from the variety of these, all the various Symptoms and Consequences of this Disease, may be clearly accounted for. Whereas, if Physicians were to make as

( *b* ) *Essay du Petit Verol.*



many sorts or kinds of *Small-Pox*, as they find different Symptoms, and Appearances of them in their Patients ; it is probable they must make as many Kinds of them, as the Disease makes returns into different Towns, if not as many, as they have Patients, which would be ridiculously trifling. Wherefore I shall here treat of it, as one Disease, divided into the *Distinct*, *Contiguous*, and *Confluent*, and the *Bleeding Small-Pox*, attended with purple Spots and Hæmorrhages ; all which are sometimes intermixed with the *Crystalline*, *Siliquose*, and *Verrucose*, when of a malignant Sort.







## C H A P. II.

*Of the Symptoms of the Small-Pox, and  
first of those of the distinct Kind.*

§. I. OME Time after a Person is infected with the *Contagious Miasmata*, he finds himself oppressed with a Weariness, and an indolent Faintness, without being able to discover any apparent Cause, to which this Alteration may be attributed: But the next Morning, or soon after, he is seized with a shivering Coldness, accompanied with yawning and stretching, which are succeeded by an acute Fever, attended with Sickness, Nauseating, and Vomiting; a burning Heat, violent Pain in the Head, Back, and Loins, (especially the last,) and sometimes with a Pain below the Region of the Heart, which Dr Sydenham calls the *Scrobiculus Cordis*, (especially if it is pressed

2 with



with one's Hand ;) also with frightful Sleeps, and a difficulty of Breathing, with a pain and great heaviness of the Eye-lids, and a Dulness, which is sometimes so great as to cause a perfect *Carus* or *Coma*; the Eyes water, or let fall involuntary Tears: Children are frequently seized with a Convulsion Fit or two. In some epidemical Seasons, Adults are much inclined to Sweat, which retards the Eruption, and is not easily abated, or prevented.

This I call the first State of the Disease; which generally continues four or five Days in the distinct Sort, though sometimes the Pustules appear sooner, and by how much sooner they appear, of so much the worse Kind they most commonly are (*a*).

These are the Symptoms which generally precede the Eruption of Pustules in the distinct Kind: And we find that they differ little or nothing at all, from what they were in the warm Climate of *Arabia* and *Persia*, seven or eight hundred Years ago, as appears from the Prognostic Symptoms of this Disease, left us by *Rhazis*, *Haly Abbas*, and *Avicenna* (*b*).

(*a*) Boerhaave Aphorif. 1398. Sydenhami Opera passim. Avicenna, Canon. Lib. 4. p. 74.

(*b*) Rhazis ad Al-Manfor. Lib. 10. c. 18. Divis, Lib. 1. c. 154. de Pestil. c. 4. Haly Abbas. Theor. c. 14.



§. 2. The Symptoms of this State, which we call the State of Contagion, being finished, we come to the State of Eruption, and Suppuration; in which, first Pimples, as small as Flea-bites, or little Pin-heads appear here and there, in the Head and Face, then in the Neck, Hands, Arms, and Breast, and so gradually throughout the whole Body; which every Hour increase, both in Number and Magnitude; upon which the before-mentioned Symptoms of the first State, either very much abate, or totally vanish, in proportion to the number of the Pustules, and degree of greatness of the Disease. But soon after this, the Pustules begin to look red, and inflamed, with a tense Heat, and pricking Pain; sometimes the Jaws, Eye-brows, Knees, or Soles of the Feet, are inflamed with a violent Pain, which increases with the Pustules: The Perspiration, and Circulation of the Blood through those Places where the Pustules are formed, being now intirely obstructed, very much increases the Fever and Inflammation, and causes a Swelling all over the Body: The Eyelids also, (especially if the Pustules are many about them,) are so distended and swelled, that the Patient is deprived of Sight; All these Symptoms continue and increase, till the ninth or tenth



tenth Day from the first Seizure, or the sixth or seventh from the Eruption; at which time the Pustules are grown rough, white, and somewhat suppurated, being so many little suppurated Tumors, which sometimes ouze out a certain yellowish Matter.

§. 3. Blood being taken from the Sick, in the *First State*, is of a *fine florid crimson Colour* (c). And in this *Second State*, is much *inflamed and fixed* (d), in proportion to the Violence of the Disease; as in Pleuretic, and other inflammatory Fevers.

§. 4. I shall, with Dr *Boerhaave* (e), call this *State* of the Disease; viz. from the third, or fourth Day, to the eighth or ninth, the inflammatory State.

§. 5. From this inflamed State of the Blood, and it's increased Velocity through those Vessels which are not obstructed; is caused that high florid red Colour in those Spaces between the Pustules, attended with a Heat and Pain, and that Swelling, first in the Face, then in the Hands and all the Body over. Hence the benefit of using cooling, and relaxing Fomentation, or Bathing, may be considered (as before-mentioned, and hereafter will be observed).

(c) Boerhaave Aphorif. Aph. 1384. (d) Idem, ibid. & Aph. 1396. (e) In locis citat.



§. 6. The Pustules now, on the Face first, and then of the whole Body being white, begin about the ninth or tenth Day from the first attack, to turn yellow, and then brown, or sometimes black, and at last dry into Scabs ; the Swelling of the Face begins to diminish, and the Scabs being dry, to fall off, about the fourteenth or fifteenth Day ; but those on the Hands, Feet, and Legs, frequently remain two or three Days longer, especially when the Disease is more violent ; for the more benign the Disease is, the sooner all it's Stadia (except the first) are compleated ; and the more violent it is ; the longer all it's Stations are, except the first.







## C H A P. III.

*The Symptoms of the Confluent-Pox.*

§. 1.  H E Confluent *Small-Pox*, are attended with all the above-mentioned Symptoms, that the Distinct are, but in a more violent Degree; the loathing Sickness, and Vomiting, the Fever, Restlessness, Pain in the Head, Back, and Loins, (especially the last, if they are of a very bad Sort) are all very violent in the first State; neither do they cease upon the Eruption; (though they sometimes abate a little) as in the distinct Kind.

§. 2. In the second State, the Pustules at first appear like the Eruption of the Measles, or an Erysipelas, and most commonly on the third Day; but sometimes sooner: Nay, I have known them appear on the second Morning, or sooner, when of a very bad Sort; but scarce ever after the third,



third, except some grievous Symptoms afflict the Patient more than common; as a violent Pain in the Loins like a *Lumbago Rheumatica*, or a Fit of the *Stone*; or in the Side, like a *Pleurisie*; or in the *Stomach* with most violent Sickness and Vomiting; which sometimes will retard the Eruption till the fifth or sixth Day; and indicates, that they will not only be of the Confluent Kind, but of the worst sort of that Kind also, and attended with the greatest Danger. And though the Fever, and other Symptoms, are a little abated upon the Eruption of the Pustules, yet they continue many Days after, and most of them, even till the *Second Fever* comes on, which they very seldom, or never do in the distinct, and rarely in the Contiguous Sort. The Pustules do not rise and fill in this Sort, as in the others, especially on the Face; but are depressed flat, and intangled or joined one with another, and so covers the whole Face, which they cause to swell, both sooner, and to a much greater Degree than the other Sorts do: On the seventh or eighth Day, they begin to turn a little white like a skinny Membrane, or rough Parchment, glewed to the Face; which in the four or five Days following, grows gradually rougher, and changes to a deep yellow, or dusky brown



brown Colour, and sometimes black; and the more severe the Distemper is, the blacker the Pustules turn, and continue the longer before they fall off in Scabs. A Salivation almost constantly attends Adults, in this kind of Pox, which sometimes begins at the first Eruption, though commonly not till a Day or two after: The Matter at first is thin, and spit up in large Quantities; but about the tenth or eleventh Days, (or sometimes sooner) grows viscid and clammy, and is got up with great difficulty; sometimes it ceases for a Day or two, and returns again for a few Days more: And as this Salivation, and Swelling of the Face, begins to decline on the eleventh or twelfth Day, the Hands should swell, if they are not so before, and if they are, they should continue so for several Days more. As a Salivation attends grown People in this Kind of *Small-Pox*, so a Looseness most commonly attends Children, tho' it does not invade them so soon, as the Salivation does the other; but at what time soever it comes, it generally continues through the whole course of the Disease, if not imprudently stopped by Art.

§. 3. About the sixth, or seventh Day, the second Fever begins to come on, continually increases till the eleventh, twelfth, or thirteenth Day; or, more properly, the  
inflammation



inflammatory and suppurating Fever, continually increases to the end of the Disease, and is augmented by the additional Causes of the second Fever; of which more hereafter in it's proper Place. The Pustules being dried into Scabs, about the fifteenth or sixteenth Day, begin to fall off; but if the Disease be very severe, they remain on some places of the Face, till after the twentieth, nay, sometimes to the thirtieth Day; and sometimes when they are fallen off, or rather picked off a little too soon, scurfy Scales succeed, which imprint Pitts and Scars on the Face, to the great destruction of many charming Features.

§. 4. Blood being taken from the Sick, in this Kind of *Small-Pox*, is generally much more inflamed and fizy, than in the distinct Kind; especially in the two last Stadia of the Disease.







## C H A P. IV.

*Of the Contiguous* SMALL-POX.

§. I.



THESE are a Sort which partake more or less of the Nature of the Distinct, or Confluent Pox, as they have more of the peculiar concomitant Symptoms of the one Sort than of the other; and the Pustules are so numerous, and closely joined together, that several of them unite and flux one into another, and so form one very large broad Pock; yet are not so depressed and flat, as the Confluent Pox are, but rise and fill something like the distinct Kind. Sometimes they are attended with a Salivation, and at other times not: And sometimes with more of the Symptoms peculiar to the Confluent, than to the Distinct, and *e contra*: For it is no more than the greater or less number of the Pustules, and Degree of Inflammation.



Inflammation, which makes them partake more of the one Sort, than the other; for as these are, so must the Symptoms vary also.

§. 2. During this State of Suppuration in the Contiguous and Confluent *Small-Pox*, a *Fever* frequently arises, about the sixth, seventh, or eighth Day after the Eruption of the Pustules, which is called the *second Fever*; of whose Nature, and Cause, more in it's proper Place.







## C H A P. V.

*Of the irregular and fatal Symptoms which attend this Disease.*

§. 1. **H**AVING described the usual Symptoms of each Kind of *Small-Pox*; we come to those irregular Ones which always either threaten, or certainly presage, the Death of the Patient, if not timely relieved. Of which, those that appear in the first State of the Disease, are some of the following; more or fewer; and more or less violent, according to the different Natures of the *Small-Pox* then epidemical, and the variety of Dispositions, of the Constitutions of the Sick, and Seasons of the Year.

§. 2. First, If the Sickness and Vomiting are very severe, if the Pain of the Head, or Loins, be very violent, especially if the last be attended with intol-  
F rable



rable sharp shooting Pains, as if stabbed with a Spear, or Lancet; if the Fever, and Inflammation of the Face and Eyes, accompanied with a Delirium, be all violent; if the Pustules appear on the first, or second Day, like an Erysipelas, and to the Eye stand so close clustering together, that there seems not room for them to rise and fill; if they look very small, red, and angry; if red, purple, or blue Petechiæ appear in the Skin; the more of them, and the greater the Danger is. If an Hemorrhage by Urine, Stool, Vomiting, or through the Pores of the Skin, happens: These are all fatal Symptoms, and the last of them certainly preface Death.

§. 3. In the second, or inflammatory and suppurating State: If the Symptoms of the first State, which should either much abate, or totally vanish, do not, but on the contrary, continue and increase; especially the Fever and Delirium: If the Pustules appear in the Extremities, before they do in the Face, &c. If the Head, Face, and Breast, are very full of Pustules, and few on the rest of the Body: If the Head and Face swell to a greater degree than usual, and be accompanied with a Delirium, or a violent Pulsation of the Carotids; the Brain is, or will



will be seized with an Inflammation, or *Phrenitis*. If the Pustules fill with a clear sharp Serum, or Ichor, instead of Matter; or if they be hard, like Warts; or empty, like dry Bladders: If a second Crop come out on the fourth or fifth Day after the Eruption of the first; I have but met with one Case of this Kind, where the second Crop, or Eruption, was any thing considerably great; *viz.* T. T. Esq; the only Son of an ancient and worthy Family aged twenty one; I was not called in to him till the fifth Day after the Eruption of the Pustules, which had rather declined and sunk on the two last Days; but upon giving him a gentle *Cardiac Medicine* mixed with an *Anodyne*, and repeating it twice; the first Crop of Pustules rose, and filled very well; and a Second came out in great Numbers all over his Body, yet never filled so well with Matter as the first (being of the Confluent Kind); and though the second Fever after, was very high, yet by the use of antiphlogistic and antiputrescent Medicines with Diacodium, a proper Clyster, and a gentle antiphlogistic Purge or two, he recover'd very well.

If the Spaces between Pustules, and about their Basis, are pale and flaccid, instead of a florid red Colour. If the Pu-



stules fall flat, and turn a livid blue, or black Colour in the middle; or a livid greenish, or Lead Colour about their Margins; or, fill with an Ichor, and matter like clotted Blood instead of Pus: If the Spaces betwixt the Pustules, are filled with red, purple, livid, blue, or black Petechiæ; or if Blisters arise there, like those caused by burning, and fill with a sharp corrosive Serum, or Ichor, especially if the Places under them be turned black, and gangreen'd: If the Sick makes a black foetid, or bloody Urine; or if they purge a black foetid Ichor, or large quantities of Blood, these are all fatal Symptoms, and some of them certain fore-runners of Death. If the Sick, either in the Confluent, Contiguous, or Distinct Kinds, be Delirious, and a Phrenitis follows, and he makes a little clear Urine at a time, and often, about the seventh, eighth, or eleventh Day, and is oppressed with an anxiety, and difficulty of breathing; he dies quickly, if not timely relieved by such suitable Evacuations, as his Strength will admit of, and his Circumstances require. If the Salivation in the Contiguous or Confluent Sorts suddenly stops; and the Swelling of the Face and Hands suddenly falls; and a Phrenitis, Angina, Pleurisy, or Peripneumonia, come on, and the Patient begins



begins to breathe strong, quick, and with great straitness and difficulty, he expires shortly, unless some suitable Evacuations immediately relieve him.

§. 4. There is one other Case which is something remarkable; that is, a Delirium which sometimes comes on about the fourth or fifth Day after the Eruption, (and sometimes later;) for a Delirium in the beginning of the Disease, is very common, and no ways dangerous, if it is accompanied with no other bad Symptoms, and ceases upon the Eruption; but a Delirium coming at this time, if preceded by a violent Pain in the Head, and accompanied with a Restlessness and continual Watchings, and catching at Moats, or Flies, which the sick Person supposes to float continually in the Air before his Eyes; his Eyes shine and sparkle, and continually roll to and fro in their Orbits, in a frightful manner; their Vessels are inflamed and distended with Blood; and if you look narrowly in at the Pupil (or Sight of the Eye, as it is vulgarly called,) to it's bottom, you may perceive it to be of a sparkling fiery red Colour, and remains so as long as you can get to see them, which is sometimes hindered by the Swelling of the Eyelids; the Delirium continually increases till it becomes a perfect Phrenitis: This is a dread-



ful Symptom, whenever it comes, and is a Circumstance which has not been observed and described before; especially that fiery red Colour in the bottom of the Eyes, which proceeds from the Distension and Inflammation of the Blood-Vessels of the Retina, which it receives from those of the Brain, and it's Meninges; and as these are distended and inflamed, so consequently must those be also. And when these sensible Parts are thus inflamed, and the red Globules of the Blood forced into their tender Vessels, which do not naturally admit them, they must there stagnate, and distend, if not burst them; whence Death must inevitably follow, if a Revulsion be not effectually made at the first.

§. 5. In all acute Diseases, and especially this, we must carefully observe the Patient's *Pulse*, *Urine*, and manner of *breathing*: The best *Pulse* in *Statu sano* is, a strong, full, equal, and slow *Pulse*; therefore, the nearer it approaches to these, the better, and *Vice versa*.

The Patient's *Urine* in this Disease, as well as in all Exanthematous Fevers, generally deposits a Sediment from the beginning to the end of the Disease. A high-coloured inflamed *Urine*, without a Sediment, or with a Supension after the Sediment, is a bad Omen: And a clear pale  
*Urine*,



Urine, when the Fever is very high, or the Patient delirious, is worse (except in some Hysterical, and Hypochondriacal People).

The manner of the Patient's breathing, should be very diligently observed, as a Symptom of the greatest Consequence; as it is one of the chief Springs of Life, and so necessary a Cause of the Continuation of the Circulation of the Blood: For Nature observes a constant Sort of Consent, or proportion of Times, between the Contractions of the Heart, and Inspiration of the Lungs; *i. e.* The vibrations of the Pulse, and number of Times of breathing, are, (as near as I could observe, in *Statu sano*) as four and a half to one, or as seventy two to sixteen; *viz.* If a Person has seventy two Pulses in a Minute, he breathes sixteen Times, in the same given Time; or if one in a Fever has one hundred twenty one Pulses, he should breathe about twenty seven Times in the same time; but I have sometimes found, the Times of breathing increase faster than this Proportion, especially when the Fever has been very violent, and the Person weak; and whether the number of Times breathing, do constantly increase faster than the number of Pulses according to this Proportion, when the Sick grow weak, and the



Fever violent, and the more so, when the Person is near dying, is what I have not sufficient Observations to confirm (but I believe it may prove so). Hence we may understand why the *Dyspnœa*, or *Anhelitus*, is so fatal a Symptom in this Disease; especially in it's latter Stadia: As it shews the great Heat, and inspissated State of the Fluids, and the Imbecillity of the Solids to propel them forward in their Vessels; hence the great Resistance which the Fluids meet with in circulating through the Vessels of the Lungs, and all the other Parts of the Body: I grant, we often meet with a great, full, and quick breathing about the Time of the *Crisis*; but as it is great and full, as well as quick, it denotes Strength in the Patient, and is no bad Symptom at this time.







## C H A P. VI.

*The Method of treating the Sick, and  
curing this Disease in it's first State.*

§. I. AVING described, both the Regular and Anomalous Symptoms of this Disease, we now come to account for their Causes, and manner of Production, and their Effects; and from thence to form a reasonable, and just Method, by which they may be either prevented, or, when present, cured.

For when the *Small-Pox* are of a benign Kind, and the Pustules few, and are attended with no bad Symptoms, and proceed regularly on without much Disorder; the Assistance of a Physician is no further required, than to direct a suitable Regimen, to the Age and Constitution of the Sick, and Season of the Year; except the following Method of deriving the *vari-  
olous*,



*riolous Matter* from the *Internal* and *Vital*, to the *Remote Parts* of the Body; which I think is either more or less necessary for all in this Disease; since both Experience and History (*a*) inform us, that the Paucity of the Pustules, does not always place the Sick intirely out of all Danger, but the Remoteness of them, and the *variolous Matter*, from the *Vitals*.

§. 2. And inasmuch as the Advice of a Physician is seldom asked, or required, but when some bad Symptoms, or Danger threatens (especially in the Country); I shall only trouble my Readers with an Account of such as do absolutely require his Care and Assistance: In order to account for which, I must beg leave to repeat part of what I have said before.

§. 3. As this Disease is caused by a mixture of *Contagious Miasmata* with our circulating Fluids, which by it's acrid stimulating Nature increases their Velocity, and brings them into a violent inflamed State (*b*): which the feverish Heats, hard, quick, Pulse; great Pains, Deliriums, Convulsions, and the inflamed fizy State of the Blood taken from the Sick in the several States of this Disease do all fully confirm: This inflamed

(*a*) Dr Freind de Quibusd. Variol. Gen. Epistola, &c.

(*b*) Vide Essay, §. 3, 5, 8. &c.



State continues till the *contagious Particles* are by the Force and Motion of the circulating Fluids, carried to the minute capillary Vessels, on the Surface and remote parts of the Body; where, by reason of the conical Figure of the Arteries, and the attracting Power (or Magnitude) of the *contagious Particles*, they stagnate, and obstruct them, and form so many inflamed suppurating pustulary Tumors, or Abscesses, filled with a putrid (*c*) Pus, which is at last dried into a Scab by the heat of the Body, and so cast off from it: And thus *Nature*, at last, casts them quite out of the Body, agreeably to her own Laws, as she does all heterogeneous Bodies; and then the circulating Fluids return to their usual regular Motion as before.

§. 4. From whence, and what I have more fully explained before (*Essay*. §. 3, 5, 8, &c.) it evidently follows, that the greater and less violence of the Disease, and danger of Death, proceeds from the different Degrees of Virulency of the *Infectious Miasmata*, and the greater or less Disposition of the Solids and Fluids of the Person infected, to be brought into an inflamed and putrified State: for the greater these are, the greater the number of the

(*c*) *Idem*. §. 16.



Pustules, and the more violent all the other Symptoms will be ; and *e contra*. For the Constitutions of two Persons being the same, the Violence of the Disease will be as the virulency of the *infectious Miasmata*, and manner of treating the Sick ; and the Virulency and Treatment being the same, the Violence of the Disease will be as the Dispositions of their Constitutions.

§. 5. From whence we must draw, the true *Indications*, and just *Intentions* of Cure in this Disease ; which plainly appear to be,

*First*, To diminish the *Quantity*, and correct the *acrid stimulating and putrescent Quality*, of those *Miasmata* received into the Blood of the Person infected. And,

*Secondly*, To divert the *variolous Matter* from the *internal and vital*, to the *Surface*, and *remote parts* of the Body. Also,

*Thirdly*, To keep the *vis vitæ*, or Motion of the *circulating Fluids*, in such an *equal State* ; as is necessary for the *total and regular Expulsion* of the remaining *infectious Miasmata*. And,

*Fourthly*, To prevent the *circulating Fluids* from being too much *vitiating and changed* from their *natural Motion, Texture and Offices*, into an *inflamed and putrified State*.

§. 6 Those are undoubtedly the true *Intentions* of Cure ; But before I proceed any further



further to shew how these may be answered, after the Person has received the Infection: I shall first speak of the *Method of preparing* the Body before it be infected, so as to render the succeeding Disease more mild and tolerable to the Sick: And as this Method generally renders the *Small-Pox* (when the Person takes the Disease, after he is thus prepared) distinct, few, and of a benign Kind, and the Fever attending it, moderate and regular; so consequently it must prevent the usual dangerous Symptoms, and very much contribute to, if not effectually answer those Intentions of Cure, especially when assisted by the following Method of treating the Patient after he is seized with the Disease: And I may add, that it is a Method, not only reasonable and plausible, but which repeated Experience has proved to be successful; neither have I ever seen the Confluent *Small-Pox* follow the Use of it, even tho' the Persons were infected from such as had that sort of *Pox*, and in some Families to whom this Disease has been too usually fatal. And in Truth, this Method (or something like it) of preparing the Body to receive the Disease, is the chief (if not sole) Advantage, which the practice of Inoculation, has above that of having it by Infection in the usual and common natural way: And those who do not  
approve



approve of the Practice of Inoculation, may (as far as I have hitherto found by Experience) by this Method, reap all the Advantages of that, without being concerned in giving the Disease, by applying the Infection as the Inoculators do: And if the Person thus prepared, should not chance to catch the Disease, after the first or second Preparation, such gentle purging, and cool temperate manner of living, tho' continued for some time, when the *Small-Pox* are epidemical near them, until they do take them, can't be any way hurtful, but rather serviceable to the Constitution; and as for the trouble of repeating it, when the Disease is so near them, 'tis such a Trifle as deserves not to be mentioned in competition with taking the Distemper when unprepared to receive such a cruel Enemy.

§. 7. The Method which I would here recommend to all such as have Children, or any other Persons in their Families, who have not had this Disease before, is, as soon as they know this Distemper to be so near to them in the Town, or in their neighbouring or own Family, so as to be in danger of being infected by it, immediately, and before they receive any Infection, to take two, three, or four Doses of proper *Antiphlogistic purging Physic*, at suitable Distances after each other: And during the  
Intervals,



Intervals, as well as after, till they take the Disease, let them abstain from all heating and high-seasoned Meats, and hot spirituous Liquors: And let their Diet be thin, cooling, and diluting; such as Gruel, Pannada, Pudding, Milk, Whey, and the like; with small Broth, a little light Meat, and cooling Sallads, &c. to Men and Women, or advanc'd in Years; these may also eat ripe Fruits, if in Season, as Apples, Pears, Peaches, Nectarines, good Plumbs, Cherries, and such like, especially in the hottest Season: Let their Minds be kept chearful and easy, and the Use of all the six Non-naturals as regular as possible; and especially let them avoid all violent Exercise, and all Anxiety of Mind, as Fear, Grief, intense Thought, and the like, as much as possible. If the Person's Stomach should be very foul, a Vomit before the purging Physic may be necessary, otherwise I think it as well to omit it, till after they are infected. Bleeding also, if the Person be of a plethoric full Habit of Body, may be necessary, before the vomiting and purging; if he be not, it may be as prudent to defer it till we see whether the nature of the case and violence of the Fever, after the Infection, require it, or no.

§. 8. By this cooling Regimen, and purging, the Crude Humours of the Body will be carried off, and the Blood and other



Juices of the Body, will be kept cool, and less subject to be heated and inflamed; and consequently the succeeding Disease, and all it's Symptoms, more mild and favourable. The diligent Dr *Sydenham* had observ'd, that purging the Patient before they were infected, rendered the *Small-Pox* more favourable, without these other Assistances here proposed; he says, "*Sæpenumero observaverim reiteratam Catharsin, sanguine nondum inquinato, subsequentes variolas laudabiles & distinctas ut plurimum reddidisse (d).*" i. e. I have often observed that purging repeated, before the Blood be infected most commonly renders the succeeding Small - Pox distinct and favourable". Therefore when the Purgatives are of the *antiphlogistic kind*, and assisted by this cooling Regimen, and other Directions as above, they must be much more effectual, which also Experience confirms.

§. 9. The Body being thus prepared (whether the Physician has had an Opportunity of thus preparing his Patient, or no); as soon as you perceive the Persons to be infected with the Disease, which I propose not to convey to them by any Art or Practice, but leave them (being thus prepared) to the Chance of catching it as others do,

(d) *Sydenh. Opera.* in *Epist. ad D. Cole.* p. 327.



by living in infected Air, it will be necessary to pursue the abovementioned Intentions of Cure. (§. 5.). The first of which is, *To diminish the Quantity, and correct the acrid stimulating putrescent Quality of the Miasmata received into the Body of the Person infected.* It's Quantity must be diminished by suitable Evacuations; therefore, upon the first appearance of any Symptoms of the Disease; especially the Sickness and Vomiting; 'tis necessary that a suitable Vomit be given (unless some peculiar Circumstances of the Sick forbid it) whereby 'tis probable, that some of the infectious Particles, which are carried with the *Saliva* into the Stomach, (See *Essay* §. 3.) and lodged there (and now cause that Pain there, with Sickness and Vomiting, by irritating it's sensible nervous Coats), may be cast quite out of it; and 'tis possible that some of the infectious Particles, which may be already passed into the Blood, may be carried with that great mucous Matter, which is secreted by the Glands of the Stomach, during the operation of the Vomit, into it's Cavity, and thence quite out of the Body. And as a Vomit most commonly works by Stool, after it's Operation upwards, it will discharge the Body of it's burthenfome Load of Excrements, which often are troublesome to the Sick, when the Disease is



further advanc'd (especially to Adults, who are subject to be coſtive during the whole Courſe of the Diſeaſe); and probably ſome of the Miasmata lodg'd there, and ſuch as may paſs by the Inteſtinal Glands (*e*) from the circulating Fluids, during the Operation, may be diſcharged alſo. And as the Action of the Body in vomiting increaſes the Perſpiration, and gentle Sweating, it will help to throw the remaining Miasmata to the Surface and remote Parts, and probably ſome of them quite out of the Body, eſpecially when aſſiſted by the following cooling Diaphoretics: Bleeding likewiſe will both ſomewhat leſſen them, and abate the Fever and Inflammation, when their Height indicates and requires it, and the ſtrength of the Sick will admit of it. And the other, *viz.* the *correcting the acrid, ſtimulating, putreſcent Quality of the remaining Miasmata*; may be done by a plentiful Uſe of ſoft, ſmooth, diluting *Antiphlogiſtic Medicines*, given warm, and in large Quantities, mixed with a ſuitable Proportion of *Antiputreſcent Subacids*, and proper Doſes of the *Nitrum Stibiatum* and *Sal Polychreſtum*, &c. before preſcribed (*Essay* §. 12.) given three or four times a Day, or oftner (as the nature of the Caſe, and Conſtitution of the

(*e*) Vide Peyer. Parerg. Anatom. Parerg. 6.



Sick may require) during the first five or six Days of the Disease; encouraging a moderate brisk Perspiration at the same time, whereby some of the infectious Particles may be discharged, and others corrected.

§. 10. The second Intention; viz. *To divert the Variolous Matter from the Internal and Vital, to the Surface and remote parts of the Body*: This must be effected by *fomenting* and *bathing* the remote Parts of the Body, viz. the *Feet, Legs, Hams, Hands and Arms, &c.* in *warm emollient Decoctions*, two or three times a Day, half an Hour, or longer, at each time; and by applying *Sinapisms* or *rubefying Cataplasms* to the Soles of the *Feet, Hams and Wrists*, after each time of bathing, so prepared of Emollients, and gentle Stimulators, that they may both soften and relax the Vessels, and at the same time gently irritate the Parts, and draw down the Humours: These Fomentations and Cataplasms, should be applied from the very first Appearance of any Symptoms of the Disease, and continued daily, till the Pustules are pretty well filled, and their contained Matter turning into white Matter, or Pus. By this Method of fomenting and bathing the remote Parts, the Fibres and Coats of the Blood-Vessels in those Parts, must be softened and relaxed, and therefore must make less Resistance to



the circulating Fluids, and consequently their Diameters must be enlarged, whence a greater quantity of the Fluids must pass through them in the same given time, than did before; and as consequently a greater quantity of the *Miasmata variolosa* must be brought thither also; and therefore a less to the internal and superior Parts. And this Derivation or Revulsion, from these Parts to those, must still be increased, by the stimulation of the *Cataplasms*, and increasing the Perspiration in those remote Parts where they are applied; and perhaps some of the *Miasmata* may be carried quite out of the Body with that, the Pores being kept thus open. Also by this Method of fomenting and bathing, some of the soft, smooth, aqueous Particles, will be carried by the absorbent *Lymphatic Vessels*, into Blood, and so help to cool and dilute it, and blunt the Stimula of the *Miasmata*. And the rigid state of the Fibres being thus softened and relaxed, the Eruption of the Pustules must be facilitated, as well as their Numbers increased in those Parts. And both Reason and Experience teaches us, that the more soft and lax, the state of the Fibres and Coats of the Vessels are, the more moderate will the Fever and Inflammation be, and the more easy and regular the Eruption of the Pustules also; and *e contra*.



*contra.* And it is from this different state of the Fibres, that this Distemper is more violent and dangerous to strong, robust, plethoric People, and Adults; and more mild with Women and Children, and to those of soft lax Fibres: And for the same Reasons, this Method must render the Disease more mild, and safe.

§. 11. That a Revulsion, or Derivation, of the Variolous Matter, may be thus made, from the internal to the remote parts of the Body, is not only thus demonstrated to be reasonable, but has been confirmed by repeated Experience; several Instances or Histories of which I could give, where I have with Pleasure observed, upon my being first called to the Patient's Assistance, that the Pustulæ were just appearing in great numbers, like little small Pimples, or Fleabites, in the Face and Head, and especially about the Eyes and Temples; that upon the using this Method, a great many of those Pimples or Pustulæ disappeared, together with that Stupor, pain in the Head, and Delirium, which often attend the Sick at this time of the Disease; and thereupon the Pustules have appeared and came out in the remote Parts in great Numbers, more than usual with respect to others in the other parts of the Body, in the common way, several of which grew very large, al-



most like Blisters, which continued and filled with laudable suppurated Variolous Pus; and those Places where these large Pustules were (on the Feet and Legs) continued to discharge a great deal of acrid Matter, for eight or ten Days, nay, sometimes for two or three Weeks, in some morbid Constitutions, after all the other Pustules, on the rest of the Body, were dried up into Scabs, and fallen off. This is likewise further confirmed, by the great discharge of acrid Humours from Wounds, Ulcers, and Issues, and the great number of Pustules which we always observe to crowd about them, when any who have such, are seized with this Disease: And many more Observations of the like nature might be produced, to confirm the Usefulness of this Practice; were not these, and the aforesaid Reasons sufficient.

§. 12. And seeing that, both Reason, repeated Observations, and the best Authors (c), both Ancient and Modern, who have wrote on this Disease, inform us, *That the greater the number of the Pustules are, on the Head, Face, and Breast, and the fewer on the other Parts, at the same time; the greater the danger is: And*

(c) Vide Avicen. Canon. Fen. 2. p. 73. Sydenhami Opera passim. Boerhaave, Aphorif. §. 1398. Freind Epistol. de Purg. p. 80, &c.

e contra,



e contra, *the fewer, and more distinct they are on the Head and Face tho' full all over the rest of the Body; the less the Danger is; cæteris paribus.* For it is evident, that if the Variolous Matter be thrown by Nature, or injudicious Management, on the vital Parts, and especially the Brain, and it's tender Meninges, and be once impacted there, so as to form Obstructions; it is impossible for the best Assistance, or Medicines, however adapted, (if a timely Revulsion be not made) to save the Life of such a Patient: And as this Method of deriving the variolous Matter from those, to the remote Parts, is the most effectual, to prevent, and relieve the Patient in this deplorable Condition, I must confess that it is something surprizing to me, that it has not been thought of, and introduced long since into Practice with us in *England*; since there are no reasonable Objections against it, that are valid; for in the many Times which I have used it, for several Years, and in all Seasons of the Year, I have never once found any inconveniency, either by the Patient's taking Cold (which some fear) or otherwise; tho' I have constantly put their Feet and Legs into the Decoction, or into warm Water, as warm as they could well bear it, for half an Hour, or more, each time, and continued



to repeat it several times, till the Pustules were tolerably well filled, as before directed : Indeed I have some chance time observed, that a single Patient has complained, that his Feet were cold, a little after Bathing, when the Fever has been gentle and low, and the Pustules few ; but that is easily remedied, by keeping them a little warmer, and making the Cataplasms more warm and stimulating.

§. 13. The third and fourth Intentions of Cure; (§. 5.) which are, *To keep the Motion of the Circulating Fluids, (or Fevers) in such an equal State as is necessary for the total, and regular, expulsion of the remaining infectious Miasmata : And to prevent the Fluids from being too much vitiated and changed, from their natural Texture, and Office ; into an inflamed and putrescied State.*

As these depend upon the Fever being kept moderate, equal, and regular ; so it requires the constant and careful Attention of the Physician, with an exact Judgment, and Knowledge of the Pulse and Fever ; to him therefore the Matter must be left to judge, when either he finds the Fever and Pulse too weak or languid, and insufficient for the regular expulsion and filling of the Pustules ; to assist Nature by giving gentle warming Cardiac Medicines, *pro re nata :*

Or



Or on the contrary, when the Pulse is too quick, hard, or strong, and the Fever and Inflammation, too violent and high, they must be curbed, and abated, by the *Methods before proposed*, and *Bleeding*, &c. as hereafter.

But inasmuch as, the most dangerous Symptoms, and worse Consequences, attending all the Stations of this Disease, do generally proceed from the great stimulation of the Miasmata too much increasing the Velocity and Momentum of the circulating Fluids, which meet with a Repulse in the obstructed Vessels where the Pustules are formed; from whence, and their own inflammatory Disposition, the Fever, and Inflammation become very violent; attended with great pain in the Head, Back, Joints, &c. with a Restlessness, Tossings, burning Heats, great difficulty of Breathing, and frequent Deliriums: In which Case we most commonly find the Pulse quick and hard, and very often full and strong (all the true Indications of an inflamed state of the Fluids); whence the Blood becomes glutinous and fizy, the Skin hot, dry, and parched; whereby the Perspiration is still more diminished, and the Expulsion of the Variolous Matter hindered; all which still continue to increase the Fever, Inflammation, and burning Heat, the more; whence the  
Blood



Blood becomes more and more vitiated, in Quantity, Quality, and Motion.

§. 14. Wherefore, whenever the Fever thus rises too high, and is attended with these threatening Symptoms, and Pulse, 'tis very plain, from the nature of their Cause, manner of Production, and their Tendency, that some Evacuations are absolutely necessary, not only now, but in other times of the Disease, when these dangerous Symptoms seize the Sick: And it is no less evident, that Bleeding is both the most proper, safe, and effectual Evacuation in this Case, and time of the Disease also; since it may be clearly demonstrated from the *Doctrine of Bellini* (g), that by diminishing the quantity of Blood, we diminish it's Momentum, it's Velocity, and Inflammation; and consequently the Fever and it's bad Symptoms, and therefore lessen the number of Obstructions and Pustules, and the danger of the Patient also. These being all abated, the Motion of the Blood more regular, and the Pulse more distinct, equal and free, the expulsion of the infectious Miasmata must be more regular and compleat, and the circulating Fluids less vitiated and changed. Therefore it is not only necessary to bleed once in these Circumstances, but when the

(g) Vide de Sang. Missione.



first bleeding does not answer the Intention (*viz.* remove, or abate these Symptoms), it is absolutely necessary to repeat it, and in some Cases and Constitutions several times too (due Regard being had to the Age and Strength of the Patient), otherwise, the most imminent Danger, or Death itself, can't be avoided; which repeated Experience has long since confirmed to the judicious and diligent Observer. For when the Methods and plentiful Use of Antiphlogistic Medicines, before proposed, can't remove these Symptoms, nothing but bleeding, can be safely called in to their Assistance, and answer the Intention at this Time; notwithstanding the great Prejudice which the Vulgar, and some others have entertained against it: To remove which, I shall here endeavour to shew, that Bleeding, when these Symptoms indicate it, is not only founded on this Theory, and these Reasonings, but is supported by the Authority of the most judicious Ancients, and the successful Practice of the most Learned Modern Writers on this Disease. And first, we find *Rhazis* (who is the oldest Author extant, that mentions the *Small-Pox*) constantly prescribing Bleeding upon the first appearance of the Disease; and that in all Ages and Constitutions, even in Children, he bleeds with Cupping; and as his Works  
are



are but in few Hands, I shall give my Readers his own Words. “*Cum igitur videris*”  
 “*signa Pestilentiae*, (for so his Translator  
 “*Georgius Valla* calls the Small-Pox here),  
 “*si sit corpulentus & victus plenitudine af-*  
 “*fluens, Venam seca, & sanguinem detra-*  
 “*he ad deficientem usque animum, ex medio*  
 “*Ancone, vel ex craniaca, vel ex interiore*  
 “*poplite*” (*b*): And in his 10th Book to  
 AL-MANSOR, he says, (*i*) “*Sanguinem ili-*  
 “*co si nihil obstat, vel per venam apertam,*  
 “*vel per Cucurbitulam cum Scarificatione ad-*  
 “*glutinatam, detrahat Medicus. Omnino*  
 “*enim Sanguinis copia comminuenda est.*”  
 In both these Places he speaks of Bleeding  
 before the Eruption of the Small-Pox. So  
 likewise, *Haly-Abbas* prescribes Bleeding at  
 this Time, “*Ad deliquium Animi, si vir-*  
 “*tus, ætas, complexio, & tempus Anni ad-*  
 “*juverint*” (*k*). And AVICENNA (*l*) ad-  
 vices the same, as also do all the other *Ara-*  
*bians* who lived after them; I grant that it  
 must be consider’d, that they lived and prac-  
 tised in the warm Climate of *Persia*, which  
 might dispose the Fever to be higher, and  
 their Blood to be more inflamed, than they  
 are generally in ours, which is much colder.

(*b*) De Pestilent. L. 1. C. 6. pag. 334. (*i*) Chap.  
 18. p. 304. (*k*) Practica. L. 4. C. 1. (*l*) Vide in  
 Locis citat.

But



But as these Quotations are tedious, and Bleeding in this Case, is a Practice so well approved, and experienced by most of the Learned *European* Physicians since them, I shall only mention a few, that the inquisitive Reader may consult them at his Leisure. In *Italy*, *Emilius Campolongus* (*m*), *Julius Cæsar Claudianus* (*n*), *Epiphanius Ferdinandus* (*o*), *Diomedes Amicus* (*p*), *Josephus de Medicis* (*q*), *Petrus Bayrus* (*r*), and *Horatius Augenius* (*s*), who asserts that he writes nothing concerning the cure of this Disease, but what 46 Years Experience had convinc'd him to be good; and he says, “ *Omnes qui de Variolis scripserunt,*  
“ *unanimes consensu, principium curationis il-*  
“ *larum fieri debere a vacuatione sanguinis*  
“ *contendunt, ideoque Venam incidendam es-*  
“ *se* —, &c. de Feb. L. 10. C. 4.

In *Spain*, *Anton. Ponce Sanctacruz* (*t*), *Christ. a Vega* (*u*) *Ludovicus Mercatus* (*w*), *Gomet. Pereira* (*x*), and several others.

(*m*) De Variol. C. 413. (*n*) Empir. Rational. L. 5. C. 1. (*o*) Cas. Medic. 78. (*p*) De Variolis, C. 6, 10, &c. (*q*) Apud Gregor. Horstium, Tom. 2. p. 46. (*r*) De Pestilent. Cap. de Variolis & Morbil. (*s*) De Febril. L. 10. C. 3, 9. (*t*) Imped. Magn. Auxil. L. 3. C. 1P. (*u*) de Arte Medica L. 2. C. 1. (*w*) De Pueror. Morbis. L. 2. C. 22. (*x*) Nova Medicina, p. 904.



# 110 *A Rational and Mechanical Essay*

In *Portugal*, *Roderic a Fonseca* (y) *Dilectus Lusitanus* (z), *Zacutus Lusitanus* (a), *Stephen. Rod. Castrensis* (b), *Caspar Bravo* (c), &c.

In *Germany*, *Forrestus* (d), *Georg. Horstius* (e), & *Dan. Horstius* (f), *Platerus* (g) *Baldafer Timeus* (h), *Fran. Joel* (i), *J. C. Frommanus* (k).

In *Denmark*, *Tho. Bartholin* (l), *Pechlinus* (m).

In *France*, *Botallus* (n), *Johan. Chicotius* (o), *Zebizius* (p), and *Helvetius* (q), and indeed all the *French* Physicians of any Note: And to sum up all, *Dr Sydenham*, *Pitcairn*, *Freind*, and *Boerhaave*, four as Learned and Eminent Men as ever adorned the Faculty in any Age since *Hippocrates*; all which have advised Bleeding, especially in the first State of the Disease; and some of these (r) have advised the repeating it,

(y) *Consil. Medic. L. 1. Con. 48.* (z) *de Venæsect. C. 21. p. 145.* (a) *Prax. Medic. p. 786.*  
 (b) *Qua ex quibus, L. 3. C. 16.* (c) *Resolut. Medic. Disp. 1. p. 4.* (d) *Observat. L. 6. Obs. 46, 47, &c.* (e) *Opera Medic. Tom. 2. L. 6.* (f) *In Epistol. Ep. 10.* (g) *Oper. de Curat. Variol. p. 200.*  
 (h) *Conf. Medic. L. 8. C. 29.* (i) *Præct. L. 9. S. 5.* (k) *Discurs. Med. Sect. 97. p. 103.* (l) *Cista Med. p. 60.* (m) *Observat. Physico-Medic. p. 230.* (n) *De Venæsect. C. 5.* (o) *Epist. de Variolis.* (p) *Disput. de Variol. Quest. ult. 4to.* (q) *Essay on the Small-Pox.* (r) *Pitcairni Epist. de Variol. Freind Comment. de Feb. Epistol. de Purg. Epist. de Quibusd. Variol.*

either



either in this, or the following Stadia, when the violence of the Fever and other Symptoms indicate and require it; of which more hereafter.

§. 15. Before I leave this Subject of Bleeding, it may not be improper, if I say something concerning the manner how, and from what part of the Body, Blood ought to be taken, to be the most serviceable in this Disease. Therefore, as the greatest Care of the Physician should be to derive or make a Revulsion, from the Vital to the remote parts of the Body; consequently Bleeding in the Foot must answer that Intention the best, as it is most revulsive from the Head and superior Parts to the lower, especially after these have been bathed, or fomented, as before directed, unless an Inflammation in the Viscera, or other lower Parts, which receive their Blood-Vessels from the descending Aorta, should indicate bleeding in the Arm, or Jugular Veins; these being each of them revulsive from their opposite Parts: And with a Lancet, through a generous large Orifice, as it makes Revulsion greater and more effectual than by any other way. I have known bleeding in the Jugular Vein surprizingly and suddenly take off a Delirium or Phrenitis; and the Reason is plain, for as the Vessels of the Brain were overloaded with Blood, they were the soonest emptied



emptied by opening that Vein, and the soonest contracted to their former State. And in a strong, violent, long Delirium or Phrenitis, 'tis probable that opening the Jugular, and taking 8, 10, or 12 Ounces of Blood out, and on closing that, immediately opening a Vein in the Foot, (if a large one) and taking 8, 10, or 12, or more Ounces of Blood, *pro re nata*, would be the most proper and effectual way to cure a confirmed Phrenitis, as the first would the soonest empty or discharge the Vessels of the Brain, and the other give a Check to the too rapid Motion of the Blood to the Head, and revulse it towards the lower parts; this Practice I have used in some Cases with Success. And I have often considered, and therefore now propose it to the Consideration of others; that if a Phrenitis, or violent Delirium, such as is mentioned (Ch. 5. §. 4.) should (notwithstanding the Use of all these Means proposed) still continue, or increase; whether opening the *Occipital Veins* by making deep Incisions, and applying Cupping Glasses, might not be a proper Means to remove those Obstructions, or Inflammation of the Brain and it's Meninges; as these Vessels have an immediate Communication, with those of the Brain, so probably the opening these might suddenly empty and derive from those  
(and



(and then a Revulsion may be made afterwards, by bleeding in the Foot, if necessary, or the Strength of the Patient will permit,) and perhaps the Patient may be thus relieved, from this deplorable condition, when all other Means and Methods fail. This I only propose to others, as a Practice not unworthy of their further consideration: See also what the Learned *Morgagni*, Professor at *Padua*, says of it in the Cure of a Phrenitis.

§. 16. In order to make these Methods before proposed, yet more effectual: Let the Patient have his lower Parts kept warm, by covering them with more Clothes, whether he be in Bed or up; and let them be gradually thinner towards his Breast and upper Parts, and his Head kept cool: And let him have as fresh a moderate cooling Air admitted into his Chamber, as possibly his Condition, and the Season of the Year will admit of; that thereby he may both breathe the more freely, and his Blood may be more cooled in passing through his Lungs, and render'd more fit to pass through all the other Vessels of the Body; so that the Inflammation may be abated, the Fever kept more moderate, and the Derivation of the variolous Matter to the lower and remote parts made more effectual. I know

H

that



that Dr *Sydenham* advises (s) the Sick to be kept from their Beds in the Day time, till the sixth Day, in order to abate the Fever and Inflammation; but I never could find that the Sick could bear being kept out of Bed so long, unless the Distemper was very mild, and the Pustules few.

§. 17. I have detained my Reader longer than I intended, in treating of this first State of the Disease; but inasmuch as the good or bad Success, in the following Stadia, depend very much on the right or wrong Method of treating the Sick in this, and beginning of the next State, I think he will excuse me, especially as this Method of treating the Disease, which I have proposed, somewhat varies from that of the Vulgar, it was necessary for me to explain it more fully. And I hope, that by these Methods, if duly observ'd, and properly administred, the aforesaid Intentions of Cure (§. 5.) most commonly may be answered: And such an equal, regular, brisk Motion of the Blood and moderate Fever (which are in these two States, so absolutely necessary for compleat Eruption, and perfect Suppuration, of the Pustules) may thereby be preserved. And inasmuch as these may be too much retarded, or hindered, either by

(s) Disert. Epistolar. ad D. Cole. p. 323.



the over violent Motion, and Inflammation of the Blood; or, on the contrary, by that being too low, languid, and weak, and that an Error on either side may prove fatal; a strict Regard must be all along had to the Pulse, Fever, and Strength, of the Patient, (as well as the number of the Pustules, and other Symptoms) that they may be kept regular, and moderate; and when ever they are not so, Nature must be assisted accordingly as these indicate, and require: either by the Use of *Antiphlogistics* and *Evacuations*, &c. *as before directed*; or, on the contrary, by *gentle Cardiac and Alexipharmic Medicines*, &c. But the latter are scarce ever required in the first State, and not near so often in the second, as the Antiphlogistics are; besides, as Dr *Sydenham* observes, the good, but over-officious Petticoat Doctors, prevent this, by giving Sack and Saffron, and their other good Things, as they call them, whereby they too often, either kill the Patient, or at best render the Cure very difficult: Yet I am as well assured, on the contrary, that some have been as directly murdered by giving cold Water too liberally, when the lowness of the Fever, and oppression of Nature required warming Medicines: A Custom late become frequent among the Vulgar, in Fevers, chiefly recommended and introduced in-



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to Vogue; by the Advice of an honest  
Divine, but of too hot an Imagination:  
For in this Case, either bleeding, or too  
cool a Regimen may be as fatal, as in  
the contrary Case they are useful.



C H A P.





## C H A P. VII.

*The Method of treating the Sick in the  
Second Stadium, or State of Suppuration.*

§. I. FROM the State of Contagion and Eruption, we come to that of Suppuration, which generally continues from the fifth or sixth Day, to the ninth or tenth ; and may be properly called a Continuation of the first Fever ; for tho' there be a Remission of the Fever, and it's violent Symptoms, upon the full Eruption of the Pustules : Yet the Obstructions remaining in those Vessels where the Pustules are formed, which are now so many inflamed suppurating Tumors, where the circulating Fluids meet with a repulse in every obstructed Vessel ; and the propelling force of the Solids being still increased, by the Stimulation of the *Miasmata*, and irritating Pain of those Obstructions ; whence from the Action, and Re-action of these, and of the constituent



Particles of the Blood, upon each other, together with the Diminution of the Perspiration, a violent Fever, and total Inflammation, are too often produced. Or in other words; the first Fever, which was something abated upon the Eruption, will be increased again by these Causes, in proportion to the number of the Pustules, the Degree of the Stimulation, and propelling Force of the *vis vitæ*. Hence those who are very full of Pustules, and of a robust Plethoric Constitution, and strong Solids, must, as this State of the Disease increases, have their Fluids very much inflamed, and the Fever very high, attended with great Pain, burning Heat, Restlessness, Delirium, inflamed Swellings, with several other bad Symptoms; which must be fatal, when the second Fever comes on, or sooner, if not prevented by the Methods before proposed; or removed now by the Care and Skill of the Physician.

§. 2. This Fever, is not only of this Inflammatory Disposition, from the Nature and Tendency of it's own *peculiar Miasmata*, and the abovesaid *Causes*; but sometimes these are accompanied with other bad Symptoms, proceeding from the then reigning epidemical Constitution of the Air, (this being so various at different times, according to it's various Causes (See Essay, *Sect. 3.*)  
Whence



Whence we often find, that the *Small-Pox* are attended with anomalous Symptoms, not properly belonging to itself, but of a Genius peculiar to some epidemical Fever then reigning, or which was so in the Town, or Country, just before the Invasion of the *Small-Pox*; and on the contrary, we may often observe, that an epidemical Fever succeeding the *Small-Pox*, is attended with some Symptoms peculiar to the latter, and not properly belonging to that Fever; which probably does proceed from the Person's being infected with both Sorts of *Miasmata* at the same time, viz. those which cause this Fever, and those which produce the *Small-Pox*. In this case regard must be had to those heterogeneous Symptoms (if I may so call them) which attend the *Small-Pox*, and to their Nature and Tendency; as also to such Methods as were the most successful in the Cure of that Fever; and when these Symptoms are more violent and dangerous, than those which properly belong to the *Small-Pox*, they must be removed by such Methods as were most successful in that epidemical Fever, when not accompanied with the *Small-Pox*, provided that they be not directly contradictory to the just Intentions and Method of curing the *Small-Pox*; and if they be so, we must then proceed by such Rules, as just rea-



soning from their Nature and Consequences, indicate to us ; and these concomitant Symptoms, may be so various, from their different Causes, it is impossible to prescribe any constant, and certain Method of Cure ; since that must be varied as the others change ; and particularly, if bleeding has been improper, or unsuccessful in that Fever, before, it must be forbid in this Case, unless some violent Inflammatory Symptoms, which nothing but bleeding can relieve, indicate it, and even then it must be very cautiously prescribed : And if the Nature of the Fever be such, that Cardiac or Alexipharmic Medicines are required, they must accordingly be prescribed.

§. 3. But when such an epidemical Constitution of the Air happens, and those *Miasmata* which produce it, are of an Inflammatory or putrescent Disposition, (as the *Miasmata variolosa* are proved to be,) which too often they are, they must very much increase and malign, both this Inflammatory suppurating Fever, and the second Fever also. And, inasmuch, as the worst Consequences attending this Disease, most commonly proceed from the Inflammation and Fever, being too violent and high ; we must be always very watchful against them, as our most dreadful Enemies ; and  
whenever



whenever we find, by the increase of the feverish burning Heats, Restlessness, quickness, hardness, or strength of the Pulse, or any other Symptoms, that the Fever is rising too high, we must immediately attempt to abate it, by a plentiful use of Antiphlogistic Medicines, and the other cooling Methods before proposed, with suitable Doses of Diacodium, to abate the Irritation and Pain, because they increase the Fever.

§. 4. But if the violence of the Fever, (which is now daily more increased by the Obstructions, and Retention of the perspirable Matter in the Blood) be so great, that notwithstanding the Use of all these Methods, and Medicines, at this time, it still so increase, that a total and violent Inflammation of the Blood, with a Delirium, Angina, Phrenitis, Pleurisy, Dyspnoea, Peripneumonia, or an Inflammation in any other Part, which may be followed with an Imposthumation, or a Suffocation of the Vessels, and a Gangrene, &c. can no longer be staved off: Some Evacuations, in this Case, are absolutely necessary, though it be in this critical Time of the Disease; as it is vulgarly called; and Bleeding is undoubtedly in this Case the most, if not only proper Evacuation to be prescribed in this State, and Time of the Disease; both as it is the safest, and most effectual Method



Method to relieve and remove these Inflammations, and their dreadful Consequences. Bleeding may be assisted, and made more effectual in these Circumstances, by the use of *Antiphlogistics*, both internally and externally applied, by way of *Fomentation* to the inflamed and swelled Part, mixed with *Emollients*, and *Dissolvents*, as *Sapo Venet. Sal Ammoniac. Com. Nitri, &c. pro re nata*. And in some Cases by cooling Clysters: But purging at this time, viz. before the Suppuration of the Pustules is near perfected, may retard that, and probably make a Revulsion to the Viscera of dangerous Consequence. I am but too sensible, that Bleeding in any Circumstances, at this time of the Disease, often has, and may be again, opposed with great Warmth and Zeal, not only by the Vulgar and Nurses, &c. who I shall not regard; but by some that may be Men of Figure in the Faculty also, and even by some who may admit of it in the first State. Therefore, to satisfy such, I will examine a little, how far Nature herself plainly shews it to be so; and then inquire how far the Experience, and Practice of others, do warrant and confirm it in this Case, and State of the Disease.



§. 5. First, where Nature herself has relieved the Patient, by a *Hæmorrhage* from the *Nose*, *Uterus*, &c. *Hor. Augenius* says, (a)  
 “ *Saluberrimum esse provocare sanguinem ex*  
 “ *naribus docuit experientia: Nam quibus*  
 “ *sponte effluxit, variolæ pauciores & salu-*  
 “ *briores evenerunt.*” And *Rhazis* says, (b)  
 “ *Hæc sanguinis evacuatio ex naribus, vel*  
 “ *sponte, vel Arte facta, adeo confert, ut solo*  
 “ *fluxu isto Ægrotantes sanatos vidiſſe, &c.*”  
 See also *Epiph. Ferdinand* (c) And *Dr Sydenham* (d), gives us a History of Mr *Elliott's* Servant's Case, who lost a great quantity of *Blood* at his *Nose*, on the eighth Day, and recovered very well after, only with the Use of *Spir. Vitrioli*; and this loss of *Blood*, (with the *Sp. Vitrioli*) seems to have been the chief Cause of his recovering. And as cautious as the Doctor was of bleeding in this State of the Disease, he might have observed how much *Nature* relieved both this Servant, and a noble Lady (e) by it; who he says was seized on the third Day after the Eruption of the *Small-Pox*, *Magna fluxione Mensium*, which continued violently for many Days, and tho' the *Small-Pox* were of the worst black Kind; yet they filled

(a) De Febr. L. 10. C. 3. (b) Continens. 18. 8.  
 (c) Cas. Medic. Cap. 78. (d) Variol. Anomal.  
 Anno 1674-5. (e) Idem Anno 1670-71-72. p. 168.



well, their Maturation proceeded regularly, and the Fever was kept moderate by it, so that she had no other bad Symptoms, and recover'd well: Here we see, she lost great quantities of Blood daily during the State of Suppuration; and the sort of *Pox* considered, her Recovery, as well as her having no (other) bad Symptoms (as he calls this) may be justly attributed to that great loss of Blood. And as for the Case of the Man, who he says had been bled several times before he was seized with the *Small-Pox*, for a Rheumatism, I think his having a bad kind of *Pox*, and his Death, may both be more justly attributed to the inflammatory sily State of his Blood, which that Disease always leaves, than to bleeding.

*Pechlinus* mentions two Cases of the like nature, where one Woman having her *Lochia* plentifully, recovered very well; the other not having them so, died (*f*). And he adds, that he has often observed in the like Case, where great Hæmorrhages have happen'd, they recover'd very well. Dr *Fuller* has a like Case, with the like good Success (*g*).

(*f*) Observ. Physico Med. p. 234.  
thematalog. p. 308.

(*g*) Exanthematalog.



Dr *Freind* mentions a Woman that miscarried on the fifth (*b*), and another on the eleventh Day (*i*); in both Cases, though the loss of Blood was considerably great, yet they recover'd very well; and he says, that the Pustules filled better, and the Swellings (which at this Time is so necessary) increased more after, than before that loss of Blood. And I might produce many more Instances of the like nature, were not these sufficient.

§. 6. Thus far *Nature* shews us how we ought to follow her. Now let us enquire what the Learned and Experienced say in respect to bleeding in this State of the Disease. Tho' *Rhazis* and *Haly-Abbas* are very cautious of bleeding in this second State; yet *AVICENNA*, who liv'd but a little after them, prescribes it boldly (*k*); He says, "*Quando procedunt Variolæ, non oportet tunc ut administraretur Phlebotomia, nisi inveniatur vehementia repletionis, & dominium materiei, tunc enim phlebotometur quantitate quæ exsiccet, seu minoret.*" And *SERAPION* (*l*) says, "*Si hæc Febris fuerit propter causam Variolarum, & virtus, & ætas, consentit tunc non aliquid magis juvativum*

(*b*) *Epist. de Purg. Hist.* 5. p. 58. (*i*) *Idem*, p. 55.  
(*k*) *Canon. Med.* Tom. 2. Lib. 4. p. 74. (*l*) *Serap. inter Script. de Febr.* C. 12.



“*quam phlebotomia venæ*”. Also HEURNIUS says (m); “*Quin si dyspnœa adfuerit cum exanthematibus, interdum ad Phlebotomiam venimus; Ita Nobilissimæ Comitissæ Hy-mondanæ Franciscæ Admirali Filia, Venam pertundi jussi, cum Exanthemata non satis prodierunt, idque felici successu.*” Likewise GOMETIUS PEREIRA says, (n) “*Si vel adsit inflammatio vel plenitudo, etiam proruptis Variolis, sanguinem fidenter esse mittendum, &c.*” See also DIOMEDES AMICUS (o), LUDOVICUS MERCATUS (p), JOSEPHUS de Medicis (q), HOEFERUS (r), with many more, who all advise, and prescribed Bleeding in this State of the Disease, when these Symptoms seized their Patients, and with Success too.

But as EPIPHANIUS FERDINANDUS has laid down the plainest Rules concerning Bleeding in this Disease, I will give you his Words from Dr FREIND (s); “*Nos autem clarius hanc de Venæsectione doctrinam illustrobimus: quoties enim est urgentiæ scopus, omni tempore est mittendus Sanguis dummodo adsint indicantia: Nam primo, cum apparent Variolæ & Morbilli, & Fe-*

(m) Comment. in Hippoc. Aph. L. 2. Aph. 15.

(n) Nova Med. p. 904. (o) De Variolis C. 10.

(p) De Morbis Pueror. L. 2. C. 22. (q) Apud

Greg. Horst. Tom. 2. (r) Hoefer. L. 7. p. 366,

&c. (s) Freind. Epist. de Purg. p. 33.



“ *bris non cessat; neque alia symptomata gra-*  
 “ *via, tum licet mittere sanguinem. Secun-*  
 “ *do, cum apparuerunt per unum diem, de-*  
 “ *inde delitescunt, tum statim mittendus san-*  
 “ *guis. Tertio, quando sunt alia gravia sym-*  
 “ *ptomata præter symptomata Variolarum, ut*  
 “ *Angina, obstinata Phrenitis, Lethargus, Dy-*  
 “ *senteria, gravis optthalmia, vel quivis alius*  
 “ *periculosus & gravis affectus; & sic Rhazis*  
 “ *mittit sanguinem in Variolis & Morbillis*  
 “ *ubi adest Dysenteria.*”

Dr PITCAIRN (*t*) advises Bleeding, and repeats it several times, if the first does not answer, and the Symptoms indicate it. And Dr FREIND (*u*) has proved the Necessity of Bleeding in these Circumstances; and confirmed it with several Histories of it's Success: So also has the ingenious Dr MEAD, in his Letter to him, he says (*w*), “ *Id ve-*  
 “ *ro monuisse debueram, non hoc tantum tem-*  
 “ *pore, sed & nullo non Morbi die ægro pro-*  
 “ *tinus mittendum esse sanguinem, si respiran-*  
 “ *di difficultas urgeat, si supervenerit Phre-*  
 “ *nitis, aut alia quævis nimii fervoris Fe-*  
 “ *brilis se prodant indicia.*” And he adds an extraordinary Instance of it's Success. But Dr CADE yet goes further, and says, “ *Nec*  
 “ *a sanguinis detractiōe, quoties impedita*  
 “ *Respiratio hanc suadet, Pulsus humilis &*

(*t*) In Epistola de Variolis. (*u*) Epist. de Purgant.  
 a p. 28. ad 37. & in Comment de Febr. (*w*) Ep.  
 ad D. Freind in Comment. de Feb. p. 103.



“*angustus me terret (x)*”. But the Physician must carefully distinguish here between a weak low depressed, and a low oppressed Pulse; for upon bleeding, this latter Pulse, will rise and beat with more Strength and Freedom, since it's Oppression was from a plenitude of Humours; but the other from a Weakness of the Solids, or a real want of Strength. I could produce a great many more Vouchers for this practice of Bleeding, in these dangerous Circumstances, but I fear that I have already tired my Reader, and these are more than sufficient to satisfy and convince any reasonable Judge in the Case; since if none had been produced, 'tis so evident from the Cause and Nature of this Fever, and it's Symptoms, that they can be relieved no other way effectually, but by *Evacuations*; and 'tis no less plain that bleeding is the most proper and safe Means that can be used at that time, Regard being always had to the Rules laid down concerning it before.

§. 7. But as it is the Nature, different Degrees, and the Tendency of the Fever, and it's concomitant Symptoms, which must indicate and direct us when we should bleed, and to what Quantity, and when we should not; so also they must direct us when to

(x) Idem, *ibid.* p. 95, 96, Edit. 8vo.



give Cardiac, or gentle warming Medicines; for whenever we find the propelling Force of the Solids and Fluids (or the Fever), insufficient for the regular Expulsion and Suppuration of the Pustules, we must assist Nature, by giving such warming *cardiac*, or *alexipharmic Medicines*, as are suitable to the Patient's Age; and degree of the Fever present, and required: But I must observe, that I think the *volatile caustic alkalious Salts and Spirits*, as *Sal & Spir. C. C. vol. Sp. & Sal. Ammon. &c.* very improper, and even pernicious in this Distemper, especially in it's latter Stadia, (however useful they may be in some other Diseases), since they must contribute to increase the putrescent State of the Fluids, which are but too much tending that way already, from the Nature and Disposition of the Disease itself, especially in the putrid second Fever, as will be more fully explained hereafter.

℞ *Lap. Contrayerv.* ℥ i, *Croci Anglic. pulv.* gr. vi, *Tberiac. Venet.* ℥ ss, *Syr. Croci* q. s. *Misce, f. Bol. cum haustu sequente sumend. & pro re nata repetend.*

℞ *Aq. Lactis Alex.* ℥ i ss, *Tberiacal. cum Acid.* ℥ ss, *Syr. e Mecon.* ℥ iii, *Misce f. Haust.* *Vel, ℞ Lap. Contrayerv.* ℥ i, *Rad. Angel. pulv.* gr. xv, *Croci* gr. vi, *Confec. Alkerm.*



*q. f. M. f. Bol. cum haustu sequent. exhibend.*

*R. Aq. Menthae, Vini Canariens. ana ℥ i, Syr. e Mecon. ℥ i, Spir. Vitrioli gut. viii, M. f. Haustus.*

These for Adults.

Such a like cardiac Medicine, with an Anodyne, will wonderfully relieve the Sick in this Case ; if they dilute well, with proper Liquids, as Rhenish, Whey, or Sack-whey, at the same time : The Cardiacs, by bracing and strengthening the too weak nervous Solids, and increasing their propelling Force, so necessary to perfect the Suppuration ; and the Anodynes, by abating the Irritation of the Miasmata, Pain, and Heat, which often cause the Pulse to be quick, though it be low and weak, at the same time from the Patient's want of Strength. But we should be cautious how often we repeat these warming Medicines, for the Fever is easily, and but too subject to be raised too high, at this time of the Disease : And as this Fever is always, either more or less, of an inflammatory Nature ; and as that is more or less violent ; so we must use stronger or weaker, larger or less quantities, of the *antiphlogistic Medicines*, and vary and proportion these, to the Nature and Violence of those : And

as



as the Suppuration proceeds, and the Second Fever comes on, *antiputrescent Medicines*, i. e. such as resist the Putrefaction of our Fluids, must be added to the former *pro re nata*.

§. 8. Clysters of the antiphlogistic Kind, which cool, and gently lubricate the Intestines, when the Fever is high, and the Patient has had no relief that way for several Days, (as often happens, especially to Adults, in this Disease), are of great Service: But if such Purgatives as stimulate the Bowels too much, be given in them, before the Suppuration be perfected, they may be hurtful, by making too strong a Derivation of the Variolous Matter towards the Viscera; and so force a Diarrhœa which is not critical, but hurtful to Nature; and so retard the Suppuration of the Pustules, or else be of more fatal Consequence.

§. 9. As to the use of blistering Plaisters, which are now become so common, and are often so impertinently applied, not only by the Vulgar, and some of the Apothecaries, but I doubt by some others who should know better; insomuch that upon every appearance of a Fever, or complaint of Pain, a Vesicatory must be clapt on, and the Skin torn off; when no true Indications direct them; nay too often when



they are improper and injurious to the Patient, and sometimes when they increase that very Evil they are designed to remove: For both Reason and Experience have long since convinced me, that they are hurtful in the first, and very rarely useful in the second, and much oftener applied than they are serviceable in the third State of this Disease; nor could I ever observe, that they were of any real Advantage or Service, in the beginning of any other inflammatory Fever; neither is the use of them at that time consistent with Reason; since it is evident from the Stranguries, feverish Heats, and Thirst, which they frequently produce, that the volatile caustic Salts of the Cantharides do pass into the Blood, and by their stimulating Nature, do increase it's Velocity and Momentum; and consequently the hardness and vehemence of the Pulse, the Inflammation, and burning Heat of the Fever, Hæmorrhages, &c. or if these are already present, they must be increased by their Application; and so increase the Disease, they are intended to cure.

And who ever diligently observes in Practice, (as they are but too frequently used), or reads over any Histories of this Disease that are faithfully related, with due Attention to what Effects the blistering Plaisters applied have had, will find that they  
really



really or never have produced any immediate Change for the better, and the Patient never received any real Relief from them, but in some of the following Cases, *viz.* where the Patient was one of a lax weak State of Fibres, and where the Pulse was low, weak, and depressed, and the Fever insufficient for the Expulsion, or Suppuration of Pustules, proceeding from that weak State of the Solids, and a sluggish, viscid, inactive State of the Fluids; or where the remote parts of the Body were cold, and the Pustules stood, or receded thereupon; (to these, and these only in the second State, and to none in the first), unless when applied to the Legs to make the Revulsion stronger than the Methods before proposed can effect; or where the Swellings of the Face, Hands, or Feet, in the third State, rise not at the proper time, or too suddenly subside, and Nature seems to sink under the Load of the Disease, or where the Ptyalism suddenly stops before it's proper time, or a Coma, or comatous Delirium from a Viscidity of the Fluids, or any Case where Nature sinks, and the Fever is insufficient for the expulsion of the variolous Matter, and where the remote parts grow cold: In any Circumstances of this Nature, blistering largely must be of singular Service, by their stimulating Salts passing into, and



attenuating the viscid, fizy State of the Fluids, and increasing the contracting and propelling Force of the Solids, whereby Nature will be enabled to cast off the Load of variolous, and other peccant Matter. And for the same Reasons blistering must be of great Service in the latter end of most Inflammatory Fevers, where the Patient is brought low and weak, and his Fluids are very viscid and fizy, after sufficient Evacuations, or at least such as his Strength will permit, have been made. So on the contrary, they must be very prejudicial where the Fever is high, and the Inflammation great, as most commonly it is in the two first States of this Disease. For as to the Discharge of Serum, which they usually make, 'tis so little, when most of all, that it bears but very small and insignificant Proportion to the rest of the Fluids, and is of no such Service as is commonly imagined, if of any at all; and as it is the thinnest part of the Blood which they discharge, so it must in many Cases be rather hurtful than useful, if their Salts did not attenuate the fizy glutinous part of the Blood, and gently stimulate the Solids.

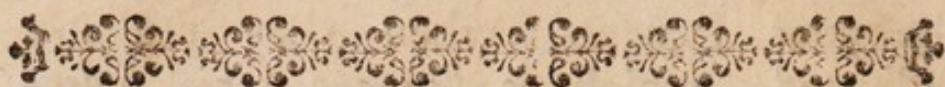
Hence may be concluded, when blistering is proper, and when it is not; and how much Caution and Judgment is necessary



cessary in prescribing them ; also how often they are applied to the great Prejudice of the poor Patients, when they are not indicated, which is *humano corio ludere* indeed.







## C H A P. VIII.

*Of the SECOND FEVER; it's Cause,  
Nature, and Method of Cure.*

§. 1.  WE call it the *second Fever*, in Distinction from the *First*; as it succeeds that, and is of a different Nature, and proceeds from as different Causes: The first, from the Stimulation of the Miasmata, and Suppuration of the Pustules, as I have before demonstrated; but this from an Obstruction and Retention of the perspirable Matter; and an Absorption of the putrid variolous Matter from the Pustules, into the circulating Blood, which it now finds in an inflamed fizy State, caused by the first Fever.

§. 2. For when the *Small-Pox* are of a malignant Kind, and the Pustules so many, that they cover the greatest part of the Surface of the whole Body, the greatest part of the perspiratory Pores must be obstructed,  
and



and consequently the Matter which ought to be continually carried off by insensible Perspiration, must be retained in the Blood; whence the quantity of the circulating Fluids must be daily increased in proportion to that of the Perspiration diminished, unless some of the other Excretions, as those by Urine, Saliva, &c. be so much increased, as to equal that Retention; which I believe rarely, or never happens, when the Pustules are thus very numerous. And if we consider how great the quantity of this Matter must be, which is daily carried off by those imperceptible Pores, which are so innumerable all over the surface of the Body, that *Leeuwenhoek* (a) computes there are 20000 of them in the space which a grain of common Sand will cover, most of which, are in this Case obstructed and cover'd with the Pustules and Scabs: How great a Change must this produce in the Body? But let this Computation of *Leeuwenhoek's* be true or false, as to number, I shall insist on no more, than that there are such perspiratory Pores; and that Dr KEILL (b) found by Statical Experiments, that the quantity of Matter perspired in 24 Hours time, by a common middle siz'd Man in Health, is,

(a) *Experim. & Contemp.* Vol. I. p. 48. (b) *Med. Static. Britann. Aph.* 17, 18, 19, 39.

from



from half a Pound in the Winter Season, to three Pounds in the warmest Summer here in *Britain*. The ingenious Dr ROBINSON (*c*) found it to be from about 29 Ounces in Winter, to 52 Ounces in Summer, in *Ireland*, which is probably the more exact Computation, and nearest the Truth; And Dr KEILL says (*d*), that the Perspiration which is encouraged by a Winter Fire (or a warm Room) is not inferior to what will rise from a Summer's Day; therefore the heat of a Person in this Distemper, and the warmth of the Room they are usually kept in, should produce such a Perspiration, or considerably greater: But we will only suppose that 48 Ounces should be perspired by such a Warmth every 24 Hours time, and the sick Person to take in that time four Pounds and a half of Nourishment, &c. (which in this Case we will suppose all Liquids); and suppose that three fourths of the perspiratory Pores are obstructed, then the Quantity retained in the Blood each Day, will be 36 Ounces, which in six Days time will amount to 216 Ounces, and in 12 Days time to 432 Ounces, and so on, if the other Excretions were not increased: But as

(*c*) Treatise on Animal Oeconomy, Prop. 32.

(*d*) Keill *ibid.* aph. 16,



the diminishing one Excretion increafes the others, fo here Nature endeavours to throw off what is obftructed in Perfpiration, by a copious difcharge of Urine, a Salivation, or by a Loofenefs (in Children) ; yet as thefe Excretions are feldom or never (when the Puffules are thus very numerous, and the Difafe thus violent) increafed in proportion to that of the Perfpiration diminished ; wherefore we will fuppofe, that the Excretions of Urine and Saliva, are increafed above their ufual Quantities, thirty Ounces every twenty four Hours ; (which, I believe, is more than ufually happens, efpecially in the latter end, when the Saliva grows vifcid and clammy) ; then the circulating Fluids will be augmented fix Ounces every Day, and in four Days twenty four Ounces, and in eight Days time forty eight Ounces, and fo on : Wherefore a Plethora, or Plenitude of Cacochymical Humours, muft unavoidably attend this fecond Fever ; and hence the Neceffity of fome Evacuations ; hence the Ufe of obferving both what Quantities the Patient fpits and urines ; and what Quantities of Nourifhment and Liquids he daily takes ; and hence the neceffary Cautions of doing any thing that may abate, or flop thefe ufeful *Excretions* at this time ; when we find they are the *critical Efforts of Nature*,  
as



as this *Salivation* and *Looseness* most commonly are.

§. 3. The perspirable Passages being thus obstructed, and the Matter retained, not only increases the Quantity of the circulating Fluids; but is by it's stagnating in the small subcuticular Vessels, and the great Heat of the Body, rendered acrid, and of a putrid corroding Nature; which being mixed with the thinnest acrid part of the *putrid variolous Matter*, which now involves the whole Body, under the Pustules and Scabs, as though it were kept infusing in a putrid Bath; some part of them both must be carried by the *absorbent lymphatic Veins*, (which now are more open under the Pustules), into the circulating Blood, which it now finds in a violent inflamed, fizy State, as before demonstrated; where their acrid stimulating Particles must irritate the sensible nervous Fibres of the Heart and Arteries; whence their Contractions must be more frequent and strong; whence the Velocity and Momentum of the Blood must be increased, and a violent, burning, feverish Heat must be produced; which continuing, must so increase the Inflammation, and fizy State of the Blood, that it must become unfit and incapable to pass through the minute Vessels of the several parts of the Body, and so cause fresh Obstructions,  
and



and Inflammations ; as an *Angina*, *Pleurisy*, *Nephritic Pains*, &c. Also by this increased violent Heat, the stagnating putrid Matter must still be rendered more acrid and corroding ; for if that Matter, or even the obstructed perspirable Matter, continue any time ; (as here it does many Days) and stagnate in such a heat ; it's Salts, and even those of the Blood and Serum too, will be changed from their soft Ammoniacal half fixed State, into a volatile, acrid, putrid Nature ; and the smooth bland Oil in our Fluids, will be changed into an acrid, putrid, foetid Oil ; as Experiments do confirm (*f*). From all which, it is evident that a malignant putrid Fever must be inevitably produced ; wherein the Blood is very much vitiated, both in quantity, quality, and motion : All the ways it can be vitiated (*g*).

§. 4. When these Obstructions are great, the Pustules very many, the purulent Matter very acrid, and absorbed into the blood in great quantities, and the abovesaid malignant putrid Fever produced ; the nervous Fibres and Membranes of the whole body must be much irritated ; whence Nature, who always endeavours to cast off such

(*f*) Vide Aphor. H. Boerhavi, Aph. 82. 100. 406. 1400. Et Element. Chæmiæ, Exper. de Sang. &c.

(*g*) Bellini de Febr. Prop. 2, 3.



grievous Oppressions ; casts this load of Cacochymical Humours on one part of the body or other, wherever the Momentum of these vitiated circulating Fluids exceeds the resisting force of their containing Solids most ; or else where the attracting force of these Humours, and some particular secreted Fluid are the strongest ; or where some Obstructions are formed before. Hence we see, that in different Constitutions, it falls on different Parts of the Body, and so forms fresh Obstructions and Inflammations, in those Parts, which produce various and direful Effects ; as, Delirium's, Coma's, Phrenzies, Quinsies, Pleurifies, Peripneumonies, Dyspnœa's ; Inflammations on the salivary Glands, with a sudden stoppage of the Ptyalism ; on the Kidnies, with often making small quantities of pale Urine ; (and on these two the most frequently, as these two Secretions are the most increased upon the Stoppage of the Perspiration) ; or on the Stomach with violent Vomitings ; also Dysenteries, Imposthumations, Buboes, Tumours on the Joints, Consumptions ; Swellings with a total Suffocation of the Vessels, which produce a Gangrene ; and several other fatal Distempers, which must end in Death if not timely relieved.



§. 5. From all which (§. 1. 2. 3. 4.) it follows; that as the greater or less violence of this Disease in it's two first States, proceeds from the different Degrees of virulency of the infectious *Miasmata*, and the greater or less Disposition of the Solids and Fluids of the Person infected to be inflamed and putrified: So in this last State, or second Fever, the greater or less danger will be as the greater or less inflamed State of the Blood, and violence of the first Fever, at the accession of this; and the greater or less number of Pustules, and perspiratory Pores obstructed; and the greater or less virulency and quantity of the putrid Matter absorbed conjunctly; and the strength of the Patient reciprocally.

From hence also the Reasons plainly appear, why this second Fever is the most fatal time of the Disease; and why some Evacuations are absolutely necessary when the Fever is violent; and why those who have but few Pustules, and of a benign Kind, have no second Fever following: Also the Reasons why the Method proposed in the Essay before this Treatise, is promising and likely to succeed: And why the good or bad Success in curing this Disease, depends so much on a right or wrong Method of treating the Sick in it's first States: And lastly, why the Method of preparing  
the



the Body before, and treating the Patient after the Infection, as proposed in *Chap. 6.* are advantageous and successful.

§. 6. These (§. 1, 2, 3, 4.) being the Causes; and this the true State of the second Fever; we must from thence form the Intentions of Cure; which evidently appear to be: First, to take off these Inflammations; and secondly to correct the putrescent Acrimony, and diminish the quantity of these putrid Cacochemical Humours. *Hic labor, hoc opus.*

§. 7. Now it is evident from what I have said before, (*Chap. 6. §. 14. Essay §. 10, 11.*) and confirmed by Hydraulic Laws, and Experience; that this total inflamed State of the Fluids, and these particular Inflammations, *viz.* the *Quinsy*, *Peripneumonia*, *Dyspnœa*, *Pleurisy*, *Phrenitis*, &c. are the the most effectually removed, or cured, by making a strong Revulsion from such inflamed Part by Bleeding. Wherefore, when the Fever, and total Inflammation; or these particular inflammatory Symptoms or Distempers, attend the Patient in this Disease, (as too often they do) and are violent; the Physician is under a necessity of Bleeding immediately, if the Strength, and Pulse of the Patient will possibly admit of it; since all other Methods and Means, are likely to be unsuccessful



successful without it: And who can oppose or refuse it, when evident Reasons, and the aforefaid Symptoms dictate; and some successful Experience confirm it (*b*)? I am sensible that many have, and some still may continue to oppose Bleeding at this time of the Disease, in any circumstances whatever; but upon what Grounds, and for what Reasons I cannot conceive, especially when these Symptoms and Inflammations indicate and require it: For the strength of the Patient (or of any Man) does not consist in the great quantity of his Blood, neither solely in the strength of his Solids; but in the strength of these, and the preservation of a just *Æquilibrium* between them and their contained Fluids; wherefore the Pulse may be low and oppressed, from this plentitude of fizy Blood, and cacochymical Humours (§. 3, 4.); whence the contracting propelling force of the Solids must be weakened, and the resistance the circulating Fluids meet with increased; which must render the Pulse low and weak; and upon taking 6, 8, 10, 12, 16, or 20 Ounces of Blood, according to the Age, Strength, and Constitution of the Sick, (especially if plethoric) they will be

(*b*) *Vide* Dr *Friend* in *Epistol. de Purgant. Et Comment. de Febribus.* D. *Mayern Praxis de Variol. &c.* Cum multis aliis ante citat.



so far from being weakened, that they will find themselves relieved and strengthened by it, and their Pulse will beat with more freedom, strength, and liberty after, than it did before the bleeding; which Practice also confirms (*i*). But the Physician must in this case carefully distinguish between an oppressed low, and a depressed weak Pulse; and when he finds the first, with the abovesaid Plethora; or the Pulse to be strong, quick and hard, with any of the abovesaid Symptoms and Circumstances, he will find it not only necessary, but the most successful thing he can prescribe.

§. 8. In these Cases likewise, the Application of suitable Fomentations, to the inflamed and swell'd Part; as to the Throat in a Quinsy; the breast and side in a Peripneumonia or Pluresy, &c. are of singular Service, if timely applied, and sufficiently continued; as they dissolve, and discuss the viscid Humours, and help to make the Revulsion, by bleeding, more effectual: The Rules in bleeding, before-mentioned (*Chap. 6. §. 15.*) being observed.

§. 9. But as it is the different Degrees, and Nature of this Fever, and it's various concomitant Symptoms and Consequences, that must indicate to the judicious Physi-

(*i*) See the Places just now quoted.



cian when to bleed ; and in what quantity ; also when not : So the same must instruct him when other Evacuations are more suitable. For this Fever may be violent, and attended with some very bad Symptoms ; yet it may be both more proper and prudent, to attempt to abate it by a plentiful use of *Antiphlogistic and Antiputrescent Medicines*, with suitable *Anodynes* ; for these last must be now called in, (*viz.* about the eighth or ninth Day) if they have not been so sooner ; and when the Fever and Delirium are urgent, they must be repeated every twelve, and in some cases, every eight or ten Hours. And as this Plenitude, or increase of cacochemical Humours, is more frequently produced by an increase of the serous Part of the Fluids, than the red globules of Blood, especially towards the latter end of the Disease ; so they are more properly adapted to be lessened, or carried off ; by the use of cooling *Clysters*, or suitable *Antiphlogistic Purgers* ; or at least the first may be given, and repeated, as occasion requires, till such time as the latter may be safely given ; of which more hereafter.

§. 10. As to *Cardiac* and *Alexipharmac Medicines*, I think they are much oftner given, than required in this Disease : And particularly all the *Testaceous Tribe*, which



are imaginarily given as such; and indeed, I have long suspected the common Run, and frequent Use of them, in *this*, and most *Fevers*; and I think the Grounds they are prescribed upon, will scarce bear the Test of Examination; and that they are of no real Service, except in Childrens Cases, and those of some Womens, and other over delicate Constitutions, where an Acidity is to be corrected; in these Cases they are most useful Medicines. But here, both they, and particularly all the *Tribe of Alkalious, Caustic, Volatile Salts and Spirits*, &c. before-mentioned, are very prejudicial to all Constitutions, (especially the latter) even to Children, in this Disease, and particularly in it's last State; as also are all the inflaming spirituous Juleps, &c. For as these are of a *Caustic Alkalious inflaming putrescent* Nature and Tendency, when taken into, and mixed with our circulating Fluids; and as the Fluids of the Patient in this second Fever, are by the addition of the absorbed putrid variolous Matter, and other Causes, (Ch. 8. §. 3, 4.) brought into a putrescent (or putrefying) State; so consequently the addition of these must increase that putrescent Disposition of the Fluids, and render the Evil worse. That there is such a great Tendency of our Fluids to putrefy in this second Fever, is not

\*

only



only evident from the putrid Pustules, and Causes before mentioned (§. 3, 4.) but may be confirmed by Experiments made with human Blood, or Fat kept in a close Vessel where it can't evaporate, for some time, in a Heat equal to that of a Person in this Fever, which will in a little time become so acrid, that it will corrode and blister, if outwardly applied to the Skin; and these Caustic Salts and Spirits, will also do the same. Whence, I would here observe, that as all the Medicines in general, that are used in the two first States of this Disease, should be of the *Antiphlogistic Kind*; so in this last State, they should be of the *Antiputrescent Kind*, or rather these should be added to those, *pro re nata*. Likewise all the *Clysters and Purges* given in this Disease, ought to be of the *Antiphlogistic Kind*; as their Intention is to abate the Fever and Inflammation, and remove the Causes of this putrid Fever; which seems not to have been sufficiently observed, even by those who have prescribed purging in this Disease. The *Antiphlogistic Medicines* are sufficiently well known to *Physicians*. And that all *Acids* in general, both *Vegetable* and *Mineral*, are *Antiputrescents*, or such as resist the Putrefaction of our Solids and Fluids, both Reason, and a multitude of Experiments do confirm: And hence it is, that Dr Syden-



*ham* found by Experience, so much Benefit from the Use of *Spir. & Ol. Vitrioli*, in the most putrid and malignant kind of *Small Pox*. Wherefore if the Patient should be sick or faint, either from the use of the aforesaid Evacuations, (which seldom happens) or from the natural weakness of his Constitution, a gentle *Cardiac* without any of these inflaming putrescent Medicines, may be given : And I have always found a Glass of Sack and Water, or something of the following nature to answer the Intention best ;

℞ *Rad. Contrayerv. Angelicæ pulv. Tart. Vitriolat. ana gr. xii. Croci Angli. Pulv. gr. vj. Confec. Alkerm. q. s. Misce f. Bol. cum Cochlear. ii vel iii Julapii sequentis sumend.*

℞ *Aq; Lactis Alex. Menthæ, Vini Canariens. ana ℥iij. Theriacalis cum Acid. ℥j. Tinct. Croci ℥iij. Sp. Nitri Dul. ℥ij. Syr. Aurant. q. s. Misce f. Julapium ut supra sumend. Exhibe etiam Cochlear. ij vel iij in Spirituum languoribus.*

These, or something of this Nature, which may be varied, or have an Anodyne added, as the Physician may find the Case require it.

§. 11. In order that the abovesaid Intentions of Cure (§. 6.) may be more effectually answered : When the Pustules are maturely filled, and so numerous that they cover the greatest part of the Surface of the whole Body, and especially if they are filled with  
a thin



a thin acrid, or Ichor-like Matter; ordering a Surgeon to open the Pustules, and take away their contained Matter, may be of very great Service, both as it will remove this putrid Matter, with which the Body is now involved, and so prevent it's returning into the Blood, and as it will give more Liberty for the perspirable Matter to pass off. This is a Practice which has been so much neglected for several Centuries, that many may think it new; yet it seems to have been a constant Practice among the *Arabs*, especially in AVICENNA'S Time, who says, (k) "*Quando egrediuntur Variolæ, cum complemento, & pertransit septimus dies, & apparet in eo maturatio, tunc necesse est ut rumpantur cum Acubus de Auro, & auferatur humiditas cum Cotto*". But a Lancet may do better, for provide that the putrid Matter be but taken away, 'tis no matter how the Pustules are opened, so it be easily done: And it is what we do in all other suppurated Tumours, and seems to be no less necessary in this Case. But bathing the Body after, with Salt Water and Restringtons, as he advises (l), or the use of dry Fumigations, to dry up the Pustules into Scabs, as RHAZIS and HALY ABBAS advise (m), I fear may be hurtful,

(k) Canon. Med. Vol. 2. Fen. 1. p. 75. (l) Ib. p. 75, 76. (m) Rhazis de Pestil. C. 9, 10. Ad Almanfor. L. 10. C. 18. Haly-Abbas Practica.



as they must close the Pores, and stop the Perspiration, and the Salt stimulate and increase the Pain and Fever. But whether the applying emollient relaxing Fomentations, to the whole Body after opening the Pustules, to cool, relax, cleanse, and open the Pores, and encourage the Perspiration, may not be of great Service in these difficult Circumstances, I shall propose as a thing not unworthy of the Consideration of others: And whether it may not be safely used in our Country, especially in the warmer Seasons of the Year, without any danger of the Patient's catching Cold as some apprehend?

§. 12. The *Ptyalism*, which is a constant Companion of the Confluent, and often of the contiguous *Small-Pox*, is the effect of the obstruction of the subcuticular Glands and perspiratory Pores, and sometimes of the colliquative putrescent state of the Fluids (§ 2, 3, 4, 5.); whence Nature being unable to discharge the perspirable Matter it's natural way, endeavours to do it by the salivary Glands, (and Kidnies) wherefore it is thin and got up in large quantities in the beginning of the Disease; but about the ninth or tenth Day (and sometimes sooner) it grows thick and clammy, so that it is got up with great Difficulty, and often threatens a Suffocation; in  
which



which Case, if Gargles, and syringing the Mouth and Throat don't relieve, I have found a gentle Puke of *Oxymel & Acet. Scillitic.* to be of singular Service, and has made the Patient breathe with more Ease and Freedom; and by giving them after, in small quantities mix'd with any proper Liquid to cut the Phlegm, and diluting plentifully at the same time, and fomenting the Glands of the Throat, the Patient has been much relieved, till a proper Clyster, or Cathartic, could be safely given to discharge the load of Humours that way.

§. 13. As to the time how soon one may safely give a Purge in this Disease, is a thing which has been pretty much disputed among the Learned: Some have with great Caution advised not to purge till the 13th day or after; and Dr *Sydenham* adds, "*Nec per istos etiam dies, nisi sanguis à quo secundaria Febris invasit fuerat imminutus (n).*" i. e. Nor then unless the Blood were diminished at the time when the secondary Fever invaded. But upon what Grounds this Precept is founded I can't conceive: Neither is the Rule laid down by Dr *Freind* so certain and perfect, as to be depended upon, when he says, (o) "*Neque temporis præceptum per-*

(n) *Syd. Opera. de Febr. Putrid. Variol. &c. p. 520.* (o) *Epist. de Purg. in Variol. &c. p. 24.*



“ *petuum esse, neque alia de hoc purgationis*  
 “ *instituto statui potest regula, quam quod*  
 “ *UBI SEMEL EXARUERINT PUSTULÆ,*  
 “ *quandocunque medentis acumine dignus in-*  
 “ *ciderit nodus, primâ quâque opportunitate e-*  
 “ *am adhibere maximè conveniat.* i. e. “ Nei-  
 “ ther can any constant regard be had to the  
 “ Time (or Day) nor any other Rule be  
 “ laid down, concerning this Institution of  
 “ Purging, than that *where the Pustules are*  
 “ *once dried up,* and when ever any great  
 “ Difficulty happens, the Physician is under  
 “ the greatest Necessity of prescribing it the  
 “ very first Opportunity.” Since if he means  
 all the Pustules in general; those on the Bo-  
 dy are most commonly not dried up before  
 the 12th 13th or 14th Day; therefore I con-  
 clude he must mean, when they are dried  
 up on the Face only, because he tells us,  
 that he prescribed purging several times with  
 Success, on the 9th and 10th Days, when  
 ’tis certain the Pustules could not be dried  
 up any where else; and suppose that he  
 means their drying up on the Face, ’tis  
 much what the same thing as confining it  
 to the 9th or 10th Day. And to confine  
 the Time, either to these, or any o-  
 ther single, or exact number of Days, so as  
 to make it a general Rule to all Patients and  
 Circumstances, would be as injurious as ’tis  
 imprudent; for nothing but the violence and  
 nature



nature of the Symptoms and the other Circumstances of the Patient, can be a certain Rule and Director to the judicious Physician in this Case, and not any particular number of Days, as the same Learned Author had more judiciously observ'd a little before, where he says, (p) "*In hoc casu non tam dies*  
"*curiosius numerandi sunt, quam cubantis*  
"*conditio expendenda; siquidem Medicina non*  
"*ad temporis mensuram, sed ad morbi mo-*  
"*menta accommodari debet: & quò celeri-*  
"*ùs gravia hæc mala corripiunt, eò matu-*  
"*rius quoque auxilia rapienda sunt. i. e.*  
"*In this Case, the exact number of Days*  
"*are not to be so much considered, as the*  
"*Circumstances of the Sick: So also the*  
"*Medicine must be accommodated, not to*  
"*the Time, but the Violence, and Nature*  
"*of the Disease; and the sooner these vio-*  
"*lent Symptoms come, the sooner the Re-*  
"*medies should be applied*".

Wherefore as I have made it plainly appear, that Bleeding is absolutely necessary when the aforesaid Symptoms are violent, and the Patient is seized with any particular Inflammation, that's violent, and fixing on one part, as a Quinsy, Phrenitis, Nephritis, or Dyspnœa, &c. if the Strength of the Pulse and the Patient, will possibly admit

(p) Idem p. 23.

of



of it: So likewise, when the Fever is violent, the Inflammation total, the burning Heat and Restlessness great, the Breathing difficult, the Pulse small and undulating, or any of the beforementioned Symptoms violent and pressing, and accompanied with the aforesaid plenitude of cacochemical Humours; 'tis no less evident that some Evacuations are absolutely necessary: And as this second Fever and it's bad Symptoms, are caused, and produced by a Stoppage and Retention of the perspirable Matter, and Absorption of the putrid Ichor or Humour (as before explained); so 'tis plain that it is not only accompanied with a plenitude of putrid Humours, but that this Plethora must consist more of the thin putrid serous or aqueous Particles, than the solid red Globules of the Blood; and consequently, that *Purging* is the best adapted, and most suitable manner of discharging this Redundancy of putrid Humours: Wherefore the Physician is under a necessity of prescribing it, when these Symptoms indicate, either after bleeding (as in the particular fixed Inflammations before mentioned) or when the Strength of the Patient, and a small undulating Pulse, or some other Circumstances will not admit of that; for then nothing but *Purging*, either by *Clysters*, or *Cathartics* taken inwardly, can relieve



lieve the Patient, tho' the *Pustules* be not quite dried up; and the chief and sole Rule when, must be the *Violence* and *Urgency* of the *Symptoms*. And if these Clysters and Purges be of the *Antiphlogistic Kind*, they will not only carry off the Load of offensive Excrements and putrid Matter, which may be lodged in the Bowels, and diminish and discharge this redundancy of cacochemical Humours by the intestinal Glands, without any danger of making a Revulsion of the putrid Matter from the Pustules into the Blood, as is commonly imagined (since that may be prevented by opening the Pustules when maturely suppured as before directed, §. 11.) tho' they be not dried up into Scabs, but the heat and inflammation of the Blood must be cooled and abated also. And the Vessels being less compressed, stuffed, and suffocated by these *Evacuations*, the Fluids must circulate with more Freedom and Ease; and consequently the Expulsion of the remaining Matter to the Surface and remote Parts of the Body must be both more regular and effectual. And I have observed, that upon giving such a Clyster, or *Antiphlogistic Purge*, that the burning feverish Heat, Delirium, and other bad Symptoms, have abated, the Sick has been refreshed and cooled, and the Pulse has vibrated with more Distinction, Liberty,  
and



and Strength, and the remaining putrid Matter has been thrown out again to the remote parts of the Body; so that the swelling of the Face, Hands and Feet, especially the two last, (which are Things of so great Consequence at this Time) have increased again, and gone on regularly after; which also History confirms (*p*). I must confess, that I can't conceive from what Grounds, or Method of reasoning, that timorous Hesitation proceeds, with which several Physicians oppose all Evacuations after the Eruption in this Disease; and their Fear of revulsing the putrid Matter from the Circumference, to the internal parts of the Body, which they say Purging must do; and that Purging is acting contrary to the determinations of Nature, which always endeavours to cast the Matter to the surface and remote Parts, as the safest way of discharging it. I grant that the discharging it by the surface and remote Parts, is the safest and best, but when the Load of the Disease (or Humours) is so great, and Nature has thrown so much of them on the surface and remote Parts, that the Vessels there are filled, distended, and swelled, almost to their utmost Degree,

(*p*) Vide Dr Freind Epist. de Purg, &c. & in Comment. de Febr. Dr Mead in Epist. ad D. Freind. Ibidem.



(as 'tis plain they often are) and the excretory and perspiratory Pores are so obstructed that little can be discharged that way, and the Inflammation, Fever, and it's Symptoms are already become violent by Nature's endeavouring to cast it off that way; 'tis evident that giving heating Alexipharmac Medicines to assist Nature (as is pretended) must be so far from effecting it, that they will increase all these; and by thus forcing Nature to do what is impossible, produce a total Suffocation of those obstructed Vessels, whence Death must inevitably follow; wherefore some Evacuations must be made by Art, by some other excretory Passages, in order to relieve oppressed Nature, since it can't always be done by such ways as she intends and endeavours: And we may observe, that when those Vessels of the remote Parts, are so stuffed and obstructed, she constantly endeavours to discharge the redundancy of the Humours, by other excretory Passages that are open; as, by Saliva, Urine, or a Loosness, as these are the most capable of discharging so great a Load. Hence, does not Nature herein shew us the Way we ought to follow and assist her, by increasing these Evacuations? And as the Discharge by purging, may be the most considerable and soonest made, is it not the most proper to give immediate and effectual



al Relief? except in the aforefaid fixed inflammatory Cafes, where a Revulfion is to be immediately made by Bleeding?

And I have often fufpected that the Loofenefs attending Children in this Dif-eafe, is not fo much from a tendency of the Humours, directed by Nature to the Inteftinal Glands, (or from a weaknefs of thofe); as it is the effect of the *Miasmata*, or putrid Matter difcharged with the Saliva, which they fwallow down (and Adults spit out) into the Stomach, and fo it paffes into the Bowels, which it ftimulates, as Purgatives do, and fo caufes the Loofenefs; and confequently is fomething more like to *Art*, than a critical difcharge of Nature. This I fhall not affert, but leave it to further Obfervation; however, which way foever it be, as this Loofenefs is falutiferous, Nature thereby (as well as by Hæmorrhages) fhews us the way we ought to follow her.

§. 14. This putrid Fever, fometimes at the latter end of the Dif-eafe, will make returns like a Remitting; and at other times with an ἀνυπνεξία like an Intermittent Fever: In which Cafe, fome Moderns have advifed the *Bark*; which I do not approve of: for as it contracts the Fibres, and diminifhes all the Excretions, the putrid malignant Matter muft thereby be detained



tained in the Blood, and be of bad Consequence. In this Case I think that a suitable Purge or two, and a liberal use of *Elix. Vitrioli Mynsichti*, with a gentle Cardiac Bitter, may answer the end much better; with a good nutritious Diet.

§. 15. Sometimes it happens, that when the Pustules are well filled, and come to maturity, and all things seem to go well on; that all on a sudden, without any violent Symptoms, or uncommon Disorder preceding, or any Evacuations to cause a Revulsion; the Matter contained in the Pustules has suddenly disappeared, and returned into the Blood, whence the Patient has been oppressed with sickness and faintness, &c. I have twice met with such a Case, where, one on the eighth, the other on the eleventh Day, the Matter in the Pustules vanished on a sudden, so that little or none was left in them, and the white Skin which covered them was shrunk and shrivelled up, in most of them, others remained empty like little Air Bladders; yet by the use of gentle *Cathartics*, and a proper Antiputrescent Cardiac, given to keep up their Spirits and Strength, even during the Operation of the Purgers (especially the first) and after, when necessary, they both happily recovered; and the Places where the Pustules were, appeared

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in two or three Days time; as they usually do in three Weeks or a Month after. Dr *Freind* mentions such a Case, where the Person recovered by his Assistance. *Epist. de Purg. in Variol. Hist. sexta.*

But when the Matter in the Pustules is thus absorbed, or returned upon the Blood, and fixes upon the Brain, or other vital Parts, and causes violent Strugglings, and Convulsions, (the Fever and Inflammation being great, and the Patient weak) and a Syncope, or a total loss of the Senses, with a small undulating trembling Pulse, &c. It is a deplorable State, which I fear is *Ultra Artis limites positus*: So that a Physician can do no more than declare Death to be at Hand. *Nam scire morbum esse incurabilem, tanta requiritur scientia, quam ad morbum Arte curabilem, sanandum.*







## C H A P. IX.

*Of the BLEEDING SMALL-POX, or those  
attended with PURPLE-SPOTS and  
HÆMORRHAGES.*

§. 1.  I have said before, all the sorts of *Small-Pox* are essentially of the same Nature, and proceed from the same Cause : And all their different Kinds, Symptoms, Times of Duration, and Degrees of Danger, proceed from the various Degrees of Virulency of the *Miasmata*, the different Epidemical Constitutions of Years, and the different Disposition of the Constitutions of the Persons infected ; to which may be added the proper or improper Regimen, and Methods the Sick are treated with in the first State of the Disease.

§. 2. As the *Bleeding Small-Pox* are the very worst Sort, they seem to proceed from the most *virulent Miasmata*, infect-



ing some particular Families, or Persons of a peculiar Disposition. Hence this Kind is generally attended with more violent Symptoms than the others are, even from the very first Invasion of the Disease; for besides the usual Symptoms attending the other Kinds (*Chap.* 2, 3, 4, 5.); the Sick are seized from the very first, with violent convulsive, racking, shooting Pains, in the lower part of the Back and Loins, which are so intolerable, that at every spasmodic shoot, the Patient can not refrain from starting and tumbling about in his Bed, and crying out as though he were stabbed with a Spear; he has also a violent shooting Pain in his Head; his Eyes are all over inflamed; he breathes very quick, short, and laboriously; and has a quick, weak, and frequent Pulse; however sometimes the purple Spots and Hæmorrhages will come on, without any other bad Symptoms, but the two last, though not often. The Sick have first a flushing in their Faces, Breasts, and Backs; and shortly after a redness, like that in the Scarlet Fever, appears all over the Body; the Pustules do not rise, but stand in the Skin like a flat continued red Swelling; after this redness, an infinite number of small red or purple Petechiæ, will appear all over the Body and Limbs, which in course turn  
to



to a dusky brownish, blueish, lead, or black Colour, and sometimes spread to be very broad; the Pustules likewise are spotted, or turn black in the middle, which dimple in, and don't rise: Sometimes a colliquative profuse Salivation comes on thus soon; which is afterwards often mixed with Blood. Dr *Fuller* says (a), he observed in the worst Degree of these kind of *Small-Pox*, that he ever saw, several pretty broad Spots exactly round, and of a very delicate fair blue Colour, upon the Breast, Back, and Face; which he takes to be like the Tokens in the Plague, real Mortifications, which are most infallible Harbingers of Death; and he is certainly right, for all these Spots, both in this, and in some pestilential Fevers, and the Plague itself, are of the same Nature, being, real Mortifications; the Blood being so dissolved, and it's Momentum increased, that it's red globules pass into such Vessels, as naturally don't admit them; whence they, and some of their adjoining Vessels are obstructed, and quite suffocated, the Blood stagnates, and the Parts really mortify. Hence, the greater the Spots are, and the more in number, *cæteris paribus*; the more certain the Death of the Patient is; and *e contra*.

(a) Exanthematalog. p. 375.



§. 3. The Hæmorrhages, which accompany these Petechiæ, have three different times of coming, or appearing. And the sooner they come, *cæteris paribus*, the more violent and more certainly fatal they are ; and *vice versa*.

§. 4. The first is at the time of Eruption of the Pustules, and commonly the next Day after the Appearance of the red flushing above-mentioned ; which are always mortal : for I have never once seen, or heard of any that recovered, when they came at this time, and were of this Sort. The Hæmorrhages are either by the Urinary Passages, or by Stool, (and without much pain or griping) ; or from the Lungs, Mouth, Nose, Eyes, or Ears ; nay, sometimes even from the Pores of the Skin, and the Pustules themselves.

Upon this Eruption of Blood, the violent shooting Pains, (§. 2.) and most of the other grievous Symptoms, quite vanish, and the Sick find themselves pretty easy, (except the Dyspnœa and Inflammation of the Eyes, which still continue) 'till they placidly expire. Blood taken from the Sick at this time, has it's red globules so dissolved, broken, and mixed with the serous Particles, that it is of a fiery, florid, red Colour, like, or even more florid than the finest arterial Blood.

§. 5.



§. 5. The second time of Appearance of these Petechiæ and Hæmorrhages, is about the fifth or sixth Day after the Eruption of the Pustules, when these should be filling and suppurating (which they never do right, like the Pustules in the other Sorts). The greater the Hæmorrhages are, and the more and larger the Petechiæ are, the greater the Danger, and more certain the Death of the Sick; and *e contra*; for where the Bleeding is not violent, nor the Petechiæ many and large, and the Pustules fill with a tolerable Matter, the Sick, by timely and judicious Assistance, sometimes recover; but when the contrary, never do recover.

§. 6. The third time they come, is with the second Fever, on the ninth or tenth Day, and sometimes not till the eleventh or twelfth Day, and are generally mortal; though when the Spots are but few, and the Hæmorrhages not great, the Sick may sometimes be relieved; for they are not so certainly fatal, as they are when they come sooner; and we have some few Instances of here and there a chance one that has recovered, though they are rare.

§. 7. As for the Cure of this most terrible kind of *Small-Pox*; I must confess that I know none that is any way promising, or likely to be successful, unless the



Method of preparing the Body, as before proposed (*Chap. 6.*) will prevent their being of this Sort; which I hope may answer in some Cases, however, if timely and regularly pursued: But as to the method of Cure, when those Rules have not been followed; and when those Symptoms, with the Petechiæ and Hæmorrhages, have actually seized the Patient, I heartily wish that I could promise and perform more than I dare, or can; for the most able and learned Physicians in all Ages, both Ancient (*b*) and Modern (*c*), have in this Case done little more than pronounce these Symptoms, whenever they appeared, so many certain fore-runners of Death; lamenting at the same time the shortness of the healing Art, together with the loss of their Friends.

But however weak the Foundation may be, upon which we can hope to build any successful Practice; I shall here propose what the Nature of the Disease seems to indicate, and reason dictate to me, to be the most likely Method to succeed, and

(*b*) *Vide* Rhazis, Haly-Abbas, & Avicenna, in locis citatis.

(*c*) Sydenhami Opera. Boerhaavii Aphorif. Freind, Epist. de Quibusd. Variol. & de Purg. Epist. Helvet. du petit Verol. Fuller's Exanthematalog. Douglas's Practical Essay, &c.

leave



leave it's further Improvement to those who are endowed with a more happy Genius.

§. 8. As the *Small-Pox* are produced from a mixture of *contagious Miasmata* with our Blood; and those which produce this Kind of *Small-Pox*, seem to be of the most malignant, virulent, putrescent Nature, meeting with a Constitution whose Fluids are peculiarly disposed to an inflammatory, dissolved, putrescent State; (See *Essay*, §. 2, 3, 5, and *Chap.* 6. §. 3, 4, &c. and *Chap.* 9. §. 2, 4.); whereby the Texture and Crasis of the Blood, in this Case is so dissolved, attenuated, and rarified; and it's velocity, heat, and inflammation, so much increased, (by the great irritation of the nervous Solids) that it's Momentum becomes greater than the resisting Force of the slender Coats, and secreting Orifices of it's containing Vessels; whence they are dilated or torn, and the Blood being at the same time thus attenuated and dissolved, it's red globules flow through them with the secreted Fluids: And in other places they pass with the Serum and Lymph, into such minute Lymphatic Arteries, as their narrow Cavities do not naturally admit, or now will permit, to pass through them, wherefore they stagnate, and form purple Petechiæ: And thus  
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the Hæmorrhages and Petechiæ, seem to be produced.

+ §. 9. From whence it follows, that whatever Method, or Medicines, that will remove, or abate the velocity, heat, rarification, and momentum of the Blood; and incrassate and condense this it's dissolved attenuated State, (*viz.* bring it's constituent globules into nearer contact with each other) must be a proper, if not a certain Remedy in this Case.

§. 10. Now 'tis well known from Hydraulic Laws, and demonstrated by the Doctrine of *Bellini* (*d*), and confirmed by Experience too; that by lessening the quantity of the Blood (or Bleeding), it's velocity, momentum, heat, and rarification, must be lessened also; wherefore it is evident, that it is absolutely necessary to bleed in these Circumstances, to such a quantity as the urgency of the Symptoms require, and the Age and Strength of the Patient will bear, be it more or less: And that the first Part of the Intention of Cure may be thereby answered. So likewise it will hereafter be explained how *Acids* are peculiarly adapted to answer the second, *viz.* to condense and incrassate the Fluids, as also to abate their heat, and rarification.

(*d*) *Vide* de Sang. Missione, Essay. §. 16. before.



§. 11. I am very sensible how difficult a thing it is to write a good Theory of any Disease ; and that it is still more difficult to adapt and bring our Practice to answer the computations and intentions of a Theory ; as also how subject we are to embrace and run into fictitious Hypotheses and false Theories : Neither am I insensible how cautiously many eminent and learned Men have avoided all Hypotheses and Theories ; for what Reasons they have done so, I shall not pretend to determine, but leave others to judge. But as the *Healing Art* can't be usefully improved without Theories, as well as Experiments ; so we should be very careful and exact, in making the one ; and cautious and just in our reasoning, in the other. And though we can't, after all, so exactly adjust our Practice, as to answer minutely all the Intentions of a Theory ; we must not therefore throw all Theory quite aside ; since we can't know the true Causes, Natures, or Intentions of Cure, of any Diseases without it. But to return from this Digression.

§. 12. Both Theory, and Experience tell us, that though Bleeding must abate these Symptoms, and sometimes quite remove them ; yet when they are so exceeding violent, as they sometimes are in  
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this Sort of *Small-Pox* ; that neither it, nor Acids, nor any thing else can save the Life of the Patient : Yet Bleeding is no less indicated, and truly proper, if timely administred.

Dr *Freind* tells us (*e*), That he prescribed Bleeding, and repeated it, and gave Acids and Restringents agreeable to the Practice of the ancient *Arabians* ; and adds, that all our Endeavours are to no purpose in this Case : “ *Neque enim quis-*  
“ *quam, quæcunque per medendum experi-*  
“ *menta agerentur, quantum mihi saltem*  
“ *videre contigit, hujusce morbi difficultates*  
“ *eluctatus est* (*f*). i. e. For never any  
“ one, let what Methods of Cure soever  
“ be attempted, at least as far as I could  
“ find, surmounted these difficult Circum-  
“ stances attending this Disease”. Indeed if the Doctor only used such gentle Acids as the *Arabians* used, and were acquainted with, I do not see how they could answer in this desperate Case ; for though they might abate the Heat and Rarification, &c. yet they were too weak to stay the Hæmorrhages. For unless Bleeding and stronger acid Styptics, are administred at the very first Appearance of these Symp-

(*e*) Epistol. de Quibusd. Variol. p. 15.

(*f*) Idem. pag. 17.



toms, or at least before any considerable loss of Blood has happened, and in large quantities too; I fear that neither they, nor any thing else will avail, especially when these Symptoms come in the first State; or are violent in the other States; or have continued so long, that the very texture of the Blood dissolved, and the Orifices and Coats of the Vessels torn, and destroyed, and the Loss of Blood is already great: In this Case I fear that all our Endeavours will be to no purpose, and that it is *extra Artis limites positus*. For then Bleeding is too late, and probably may rather hasten, than prevent the Death of the Patient: Hence Dr Cade judiciously says (g), “ *Licet*  
 “ *autem Sanguinis missio Respirationi diffi-*  
 “ *cili subvenit, miſctum tamen cruentum,*  
 “ *(quoties hoc morbo laborantes invadit),*  
 “ *non modo non cohibet, sed auget, & mor-*  
 “ *tem in procinctu stantem accersit. Hoc*  
 “ *tamen funestum fati impendentis prænun-*  
 “ *tium (Camphora bis in die exhibita, &*  
 “ *Acidis largâ manu propinatis), amovi,*  
 “ *ægroque brevi morituro ad tempus succur-*  
 “ *ri: sed ut vera fateor, ne unum quidem*  
 “ *Variolis affectum, cui Urina cruenta flux-*  
 “ *erit, diem decimumſextum ab eruptione*  
 “ *ſupervixiſſe notavi. i. e. Altho’ Bleeding*  
 “ *certainly relieves the difficulty of breath-*  
 “ *ing, yet the bloody Urine (as often as it*

(g) Apud D. Friend Comment de Febrib. p. 96.

“ seizes



“ seizes the Sick in this Disease) is so far  
 “ from being lessened, that it is increased,  
 “ and the Death of the Patient hastened by  
 “ it. But I have known this fatal Symp-  
 “ tom removed, and the Life of the Sick  
 “ a little prolonged, (by giving Camphire  
 “ twice a Day, with a large quantity of  
 “ Acids): But to confess the Truth, I ne-  
 “ ver knew any one in the *Small-Pox*  
 “ seized with this bloody Urine, that out-  
 “ lived the sixteenth Day from the Erup-  
 “ tion.

And Dr *Fuller* speaks very cautiously of  
 Bleeding in this Case; “ lest it should be  
 “ detrimental to the Character of the Phy-  
 “ sician: Yet he says that he has seen  
 “ bleeding successful in these Circumstances,  
 “ in the last Stage of the Disease (*g*); but  
 “ in the first State, he says (*b*), neither it,  
 “ nor any thing else, can do any good at  
 “ all; for such is the Virulency of this va-  
 “ riolous Matter, when it is wrought up  
 “ to the height of it's Virofity, that it is  
 “ more fatal, than even the Plague itself;  
 “ for it slays most certainly without fail,  
 “ whereas the Pestilence hath suffered some  
 “ to escape: — And that it is contagious  
 “ even from the very first Eruption, if not  
 “ before. And when any one dies of this

(*g*) *Exanthematalog.* p. 380. (*b*) *Idem.* p. 379.

“ worst



“ worst sort of *Small-Pox*, his Flesh corrupts immediately (i).” I fear that what the Doctor says here, is but too true; for what can a Physician do in these most terrible Circumstances, especially when they are thus far advanced? But if we are sooner called in, neither these, nor any thing else, ought to deter us from attempting a Cure, however, at least, from affording Nature our best Assistance, though it be but too seldom attended with the desired Success; yet that Benevolence to Mankind, which possesses every good Man’s Breast, should influence us to try all possible and probable means (and to attempt to discover some more effectual Methods) to save Life in this dismal Case: And inasmuch as we have some few Instances of Success, when these Symptoms have seized the Sick in the second, and some more in the third State of the Disease; it is both reasonable, and our duty to attempt a Cure: Also in the first by Bleeding, as it is so evidently indicated, and is the most likely Method to succeed, especially when assisted by proper incrassating Medicines, and strong *Acids*, given in large Quantities; and the more so, if they are administered at the first, when the forerunning Symptoms do indicate that

(i) Idem. *ibid.* p. 378.



the *Small-Pox* will be of this fatal Sort, and before the Hæmorrhages and Petechiæ are actually come, as it is probable they may be thereby prevented.

Dr *Sydenham* was of an Opinion, that these dreadful Symptoms did proceed from an inflamed Heat, and Ebullition of the Blood (*k*), and consequently that they might be prevented and cured by Bleeding, and the use of Anodynes, Restrictants, and a cooling Regimen (*l*); and to confirm it, gives us an Instance of one in a Putrid Fever, attended with these Hæmorrhages, whom Dr *Goodall* cured by this Method: And some few Instances of Success in the Cure of this Sort of *Small-Pox*, may be collected from Practice and History.

§. 13. Inasmuch as Bleeding in these Circumstances, is thus evidently indicated, (§. 8, 9, 10,) and also seem to be further so, by the Abatement, or Cessation, of those violent Symptoms and Pain, upon the Eruptions of Blood made by Nature herself (§. 4.) and that if the Hæmorrhages are not thus prevented, or stay'd when come, they will inevitably sink the Patient in a very short time; and moreover, as it is advised and encouraged by the most eminent Phy-

(*k*) In Epistola ad D. Cole. (*l*) Idem, á pag. 321. ad 352. Et á p. 520. ad 521. Ed. 1705.



ficians, as the first and most proper Step to be taken, that promises any Success; and as it is evident, from (§. 10.) that thereby the Velocity, Momentum, Heat, and Rarefaction of the Blood, must be abated, it is absolutely necessary (though the Pulse be quick, weak, and frequent, as in (§. 2,) to bleed to such a Quantity, as the Age and Strength of the Patient will permit, and the Violence of the Symptoms require, be it more or less; and that it be repeated, if the first will admit, and the latter indicate, especially if the Pulse rise (as often it does) after the first Bleeding. And inasmuch as both Reason and Experience teach us, that this violent Heat, Rarefaction, Tenuity, and dissolved State of the Blood, may be still more abated, cooled, incrassated, or condensed, by a prudent and plentiful use of the *Mineral Acids*, with incrassating Restringtons: And as all *Acids* in general, both Vegetable and Mineral, are *Antiputrescents*, or such as resist the Putrefaction of animal Fluids (which have so great a Tendency in this Disease, to putresce, as before explained, Chap. 8, §. 3, 11, and Chap. 9, §. 8); so they are peculiarly adapted to the Cure of this sort of *Small-Pox*; not only as they hinder, and put a stop to the further Putrefaction of the Fluids, by destroying the irritating Spiculæ of the con-

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stituent Particles of the putrid variolous Matter, (which is one great Cause of the putrid secondary Fever and it's Consequences) : But as they are the greatest Coolers and Condensers of this violently heated, rarified, attenuated, and dissolved State of the Blood, (§. 4, 8, 12.) by their Styptic or strong attracting Power (*n*), whereby they so strongly attract, and condense the constituent Globules of the Blood; as may be further confirmed, and demonstrated by Experiments \* (by those whose Curiosity may

\* We find by Experiments, that *alkalious volatile Salts*, or *Spirits*, mixed with warm Blood, or injected into the Veins of an Animal, make the Blood of a fine florid crimson Colour, and dissolve and attenuate it in the same Manner, and give it the same Appearance, as it has in this sort of Small-Pox; as also do all Salts (or Spirits) drawn from any putrid Animal Substance (and probably Salts drawn from this putrid variolous Matter, would do the same if try'd, as it is of a putrid alkalious Nature). Whereas *Acids* so mixed or injected, on the contrary do condense, and coagulate, and render it of a dark blackish opaque Colour, by strongly attracting it's red Globules (or causing them to attract each other). Therefore, *Si contraria contrariis curantur*, as *Hippocrates* says. Hence also the use of *Acid*, and *alkalious Salts* and *Spirits*, in several Distempers may be drawn.

(*n*) See Sir Isaac Newton de Natura Acidorum, in Introduct. to Harris's Lexicon; & Boerhaavii Elementa Chemia.

\* Vide Dr Freind de Remediorum Viribus ad finem Emmenalog. p. 169, 177, 180, &c. Philos. Transact. abridg'd by Lowthorp, Vol. iii. p. 232, &c.

lead



lead them to try): Whence they not only abate the Fever and Heat, but must put a stop to the Hæmorrhages, and increase or spreading of the Petechiæ also. And I think, that whoever well considers the putrescent nature of this Disease, and these Experiments, will readily discover how wonderfully all *Acids*, and particularly those of the Mineral or Vitriolic Kind, (as *Ol. & Spir. Vitrioli*, *Ol. Sulph. per Campan. Tartar. Vitriolat. &c.*) are adapted to the Cure of this Disease, and particularly the Hæmorrhages and Petechiæ which accompany it; when judiciously proportioned to the Nature and Violence of the Disease, the Age, Sex, Strength, and other Circumstances of the Patient: And in this Case they may be mixed, and given in the following manner, with Variations *pro re nata*.

℞ *Terræ Japon. Boli Ver. Tart. Vitriolat. ana*  
*℥ss Camphoræ, Sacch. Saturni. ana gr. v.*  
*Diascord. sine melle ℥ss. Syr. e Sympbyt. q.*  
*s. misce fi. Bol. Vel, ℞ Spec. pro Confec.*  
*Hyacinth. ℥i Tart. Vitriolat. gr. xv. Alum.*  
*Rupei gr. x. Confec. Fracast. sine melle ℥ss.*  
*Syr. Myrtin. q. s. Misce fi. Bol. sumend. cum*  
*haustu Decoct. sequentis ; & pro re nata*  
*repetend.*

℞ *Rad. Sympbyt. ℥ii Acetofellæ, Hord. Ex-*  
*cortic. Lentium, ana ℥i. misce. Coq. in Aq.*  

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*font. ℥iv. ad ℥iii. Colet. & in Colat. Coq.  
 Rad. Glycyrrhiz. ℥i Gum. Laccæ. ℥v Arabici,  
 Tragacanth, ana ℥ii ad Gumm. solut. Coletur.  
 Adde Aq. Theriacalis cum Acid. ℥iſs Aceti  
 Distilat. Syr. e Meconio ana ℥ii, Misce &  
 exhibe ut supra : Et in singulo haustu instil.  
 Spir. Vitriol. gt. xv, xx, vel xxx, vel  
 Ol. Vitriol. gt. x vel xx si violentia hæ-  
 morrhagiæ postulaverit.*

*Acidulent. omnia potulentia cum Oleo vel Spiritu  
 Vitrioli.*

¶

§. 14. These Medicines, or something of this Nature, with such Alterations in the quantities of the *Anodynes* and *Acids*, as the Physician may find the Nature of the Case, Age, and Constitution of the Sick, and violence of the Symptoms may require, seem to promise us somewhat better success in removing these dreadful Symptoms; however, when they come in the second and third States of the Disease; the Acids being given in these large quantities, or yet larger when the Hæmorrhage is violent. And as it is impossible to prescribe any form of Medicine that will be proper for, and suitable to all, or probably to more than one single Person or Case; I must leave it to the Judgment of such, as know both when, and how to alter them



them accordingly as the variety of Constitutions, and the various changes of the Disease may indicate, and require : And to such I would only propose ; and not presume to dictate here.

§. 15. Before I take leave of my Reader, it may not be improper to say something to him concerning my so often advising *Bleeding* in this Disease ; since some may peradventure think, that I have been too liberal in prescribing it, not only in these sort of *Small-Pox*, but in the others also, if not in every State of them. But let such consider, that as this is proved to be an inflammatory Disease ; and that I have here chiefly had to deal with the most dangerous Symptoms, and desperate Cases attending it, since whoever is able to conduct his Patients safe through these ; will easily know how to do it, when they have them in a more mild and easy Degree : And hence it is, that I have had so often repeated Occasions, to speak of, and advise Bleeding ; and not that I am for prescribing it to every Patient on the Appearance of any bad Symptoms ; for if so, it might be as often hurtful, as otherwise it may be useful : For it is probable, that not one in six may require Bleeding, that may have some very bad Symptoms, yet may be relieved by other more proper Methods ;



Methods ; and I heartily wish, that their number might be fewer still : But it is the great Prejudice which many have conceived (though I think upon very slender, or false grounds) against Bleeding at any time almost, or in any circumstances in this Disease ; which have induced me to produce so many Arguments, as well as learned Authorities for it : And though I have so often mentioned and advised it, yet I think I have never once done so, in any Case, or State of this Disease, but where the *Nature* and *Violence* of the *Symptoms* do *evidently indicate*, and *absolutely require* it ; and that chiefly in adults ; and where no other Remedy could so well answer the Intention ; or where they would be of little Service without it ; and to omit it then, would be suffering the Patient to perish when it is our Duty, and probably in our Power to help him ; and I cannot conceive how such an Omission can sit easily on the Conscience of a just and honest Physician ; for the poor excuse of a slavish fear of the opprobrious prating of the illiterate and vulgar, is not sufficient, neither ought it to deter, or move an honest and just Mind, from the steadfast Pursuit of so reasonable, and often successful a Practice, in so just and laudable a Cause as the preservation



servation of Life is, especially when under such desperate Circumstances.

But when the *Small-Pox* are of so favourable a kind (as the Method, *Chap. 6.* most commonly renders them) that *Nature* of herself, is able to carry on the work of Concoction, Expulsion, and Suppuration, regularly, without the Assistance of *Art* and Medicines, it is undoubtedly the best to do nothing at all, but order a proper *Regimen*; and a few simple Medicines, as *Diacodium*, &c. if required towards the latter end of the Disease; for *Naturæ Ministri, non vero domini sunt Medici*. But when *Nature* is not able of herself to perform these regularly, without the Assistance of *Art*, it would be an unpardonable fault, to neglect giving her our best Assistance.

§. 16. If these Fruits of my Labours prove to be of so much Service, as to be the means of saving the Life of any one suffering under the tyranny of this cruel Disease; or may excite some more fruitful Genius to make some further Improvements in the *Healing Art*, it will be a sufficient Requital to me, that I have done some small Service to my Country in particular; or to Mankind in general. And at present shall conclude with this noble  
Resolution



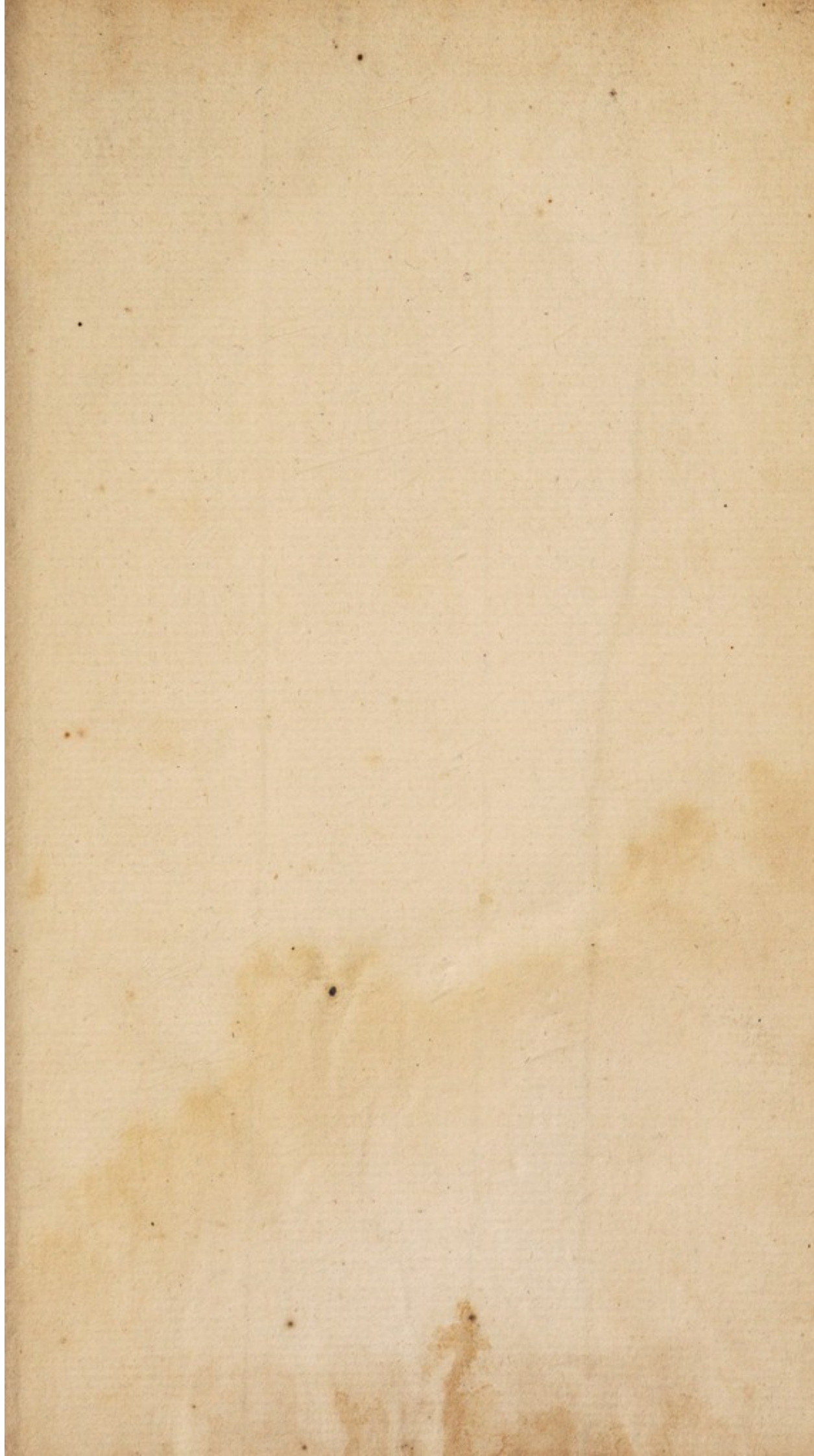
184 *A Rational and Mechanical Essay, &c.*  
 Resolution of the late eminent Dr Freind,  
 “ *His quæ in medentium, non in nutricularum*  
 “ *gratiam scripsi, ii, qui jam in Medicinæ*  
 “ *curriculo versantur, mecum unà, si ita li-*  
 “ *buerint, utantur : sin minus, per me licet,*  
 “ *ea rejiciant ; mihi quippe cum captiosis ho-*  
 “ *minibus disceptando tempus terere nec va-*  
 “ *cat, nec lubet. Etenim quod mihi superest*  
 “ *Ævi non frivolis cavillationibus excutiendis,*  
 “ *sed vitis hominum, quâ maximè possim*  
 “ *viâ, conservandis unicè insumam.*

## F I N I S.

*By Reason of the Author's great Distance from the Press, the following Errata are committed, which the Reader is desired to correct.*

PAGE 7. l. 1, read Amrou. p. 10. l. 15, read unknown to them. p. 20. l. 21. read in the East. p. 31. l. 5, read can be produced. p. 66. l. 27. for Stages, read Places. p. 67, l. 15, for those read these ; ibid. line 16, delin. that. p. 73. l. 26, read Fomentations. p. 83. l. 28. read between the Pustules. p. 84. l. 20, read make. p. 86. lin. penult, read Suspension. p. 91. l. 23. read or less. p. 96. l. 23, read or whether. p. 97. l. 23, read great quantity of. p. 100, l. 19, read into the Blood. p. 104, l. 12. for Fevers, read Fever. p. 106, l. 17, read of the Blood. p. 111, l. 25, read makes the Revulsion. p. 114, 26, add the after for. p. 130, l. 10, read Rhenish-Whey. p. 152, l. 25, for it by the Salivary Glands, read it by increasing the Excretions by the Salivary Glands. p. 161, l. 5. read assisted with a good, &c. p. 168, l. 7. for those, read these. p. 173. l. 8. read Blood is dissolved. p. 176, lin. penult. for as it is advised, read as it's Practice is advised.







NB 22 Page 47







