

A treatise of the asthma. Divided into four parts / [by John Floyer].

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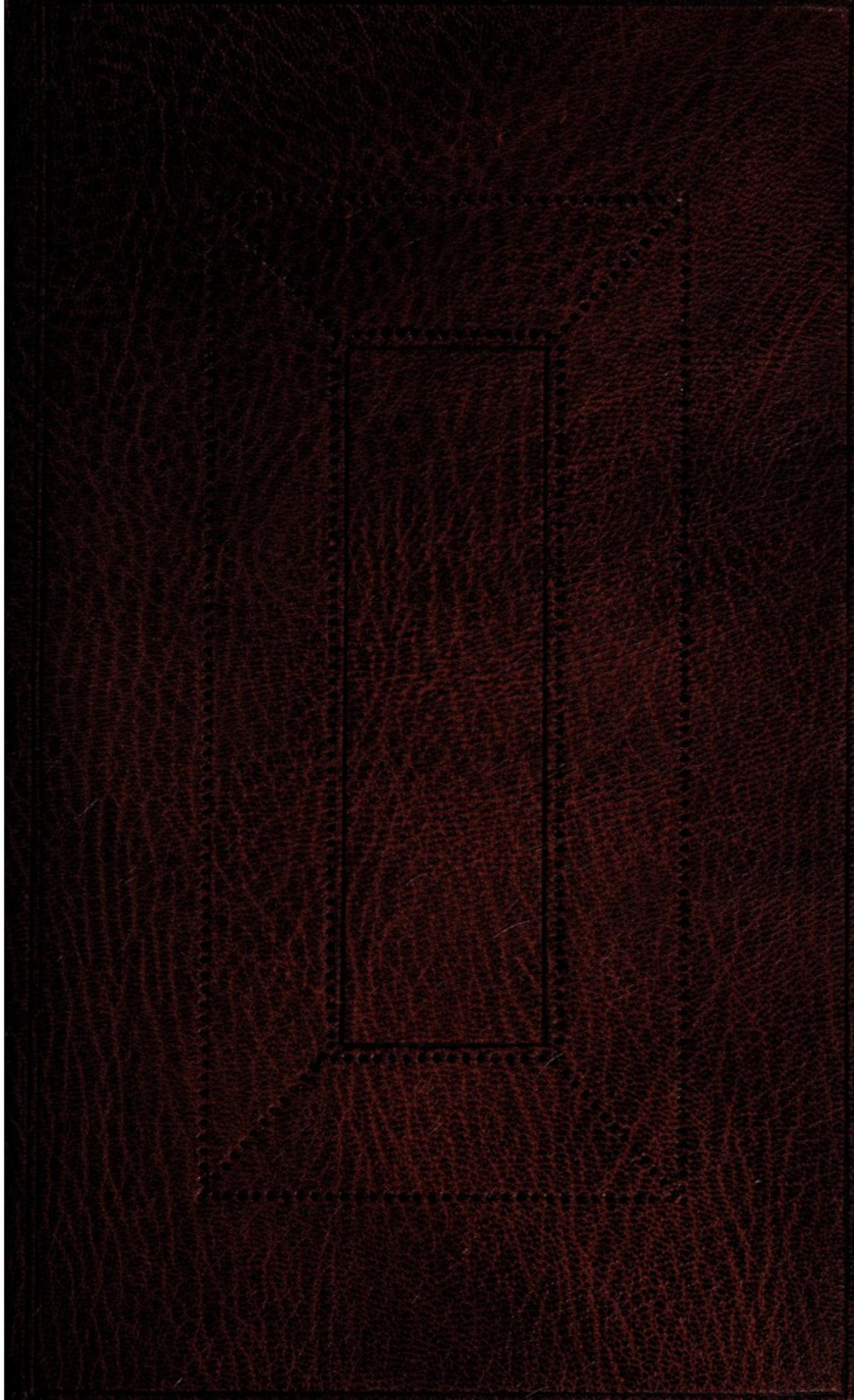
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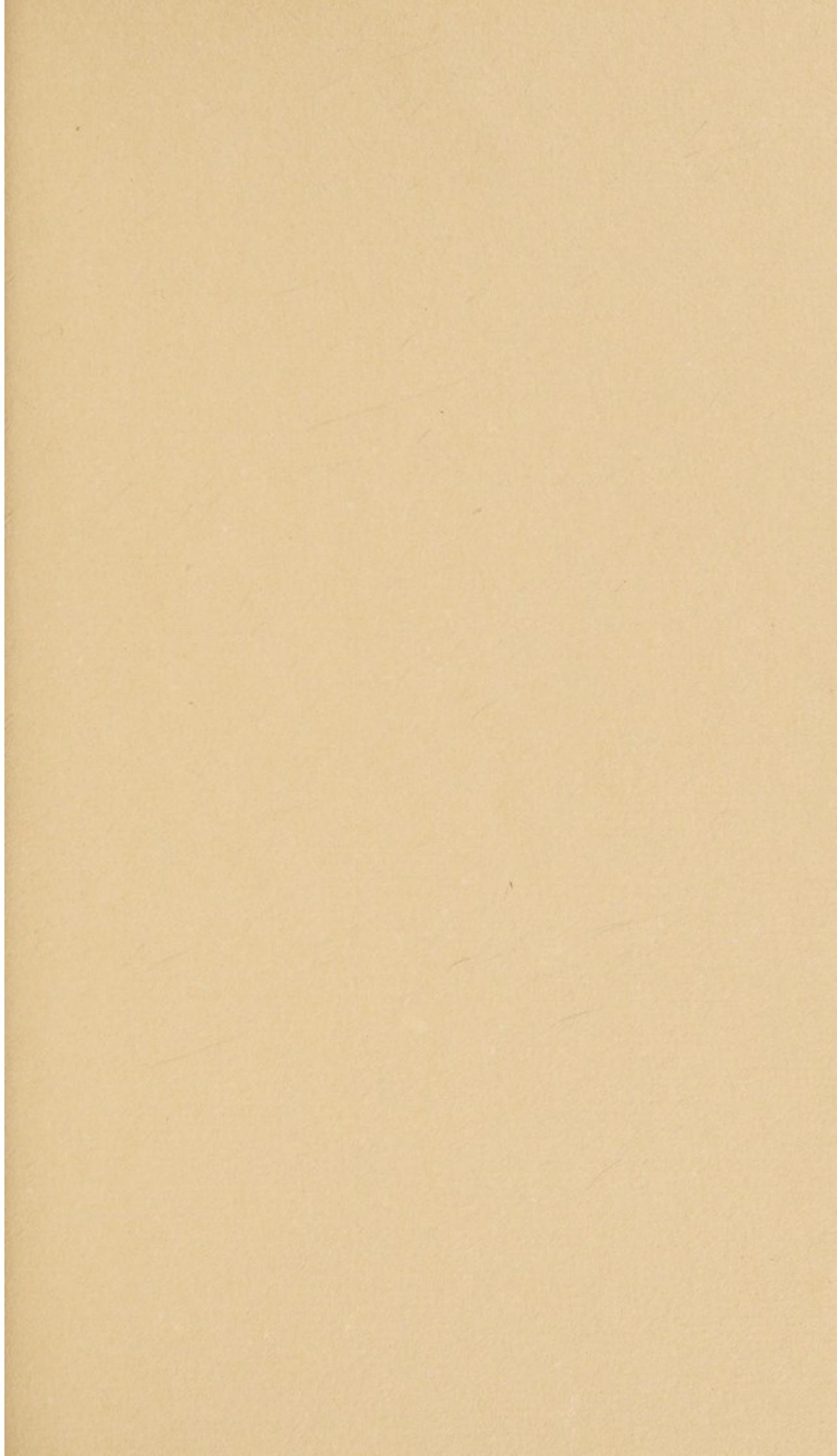
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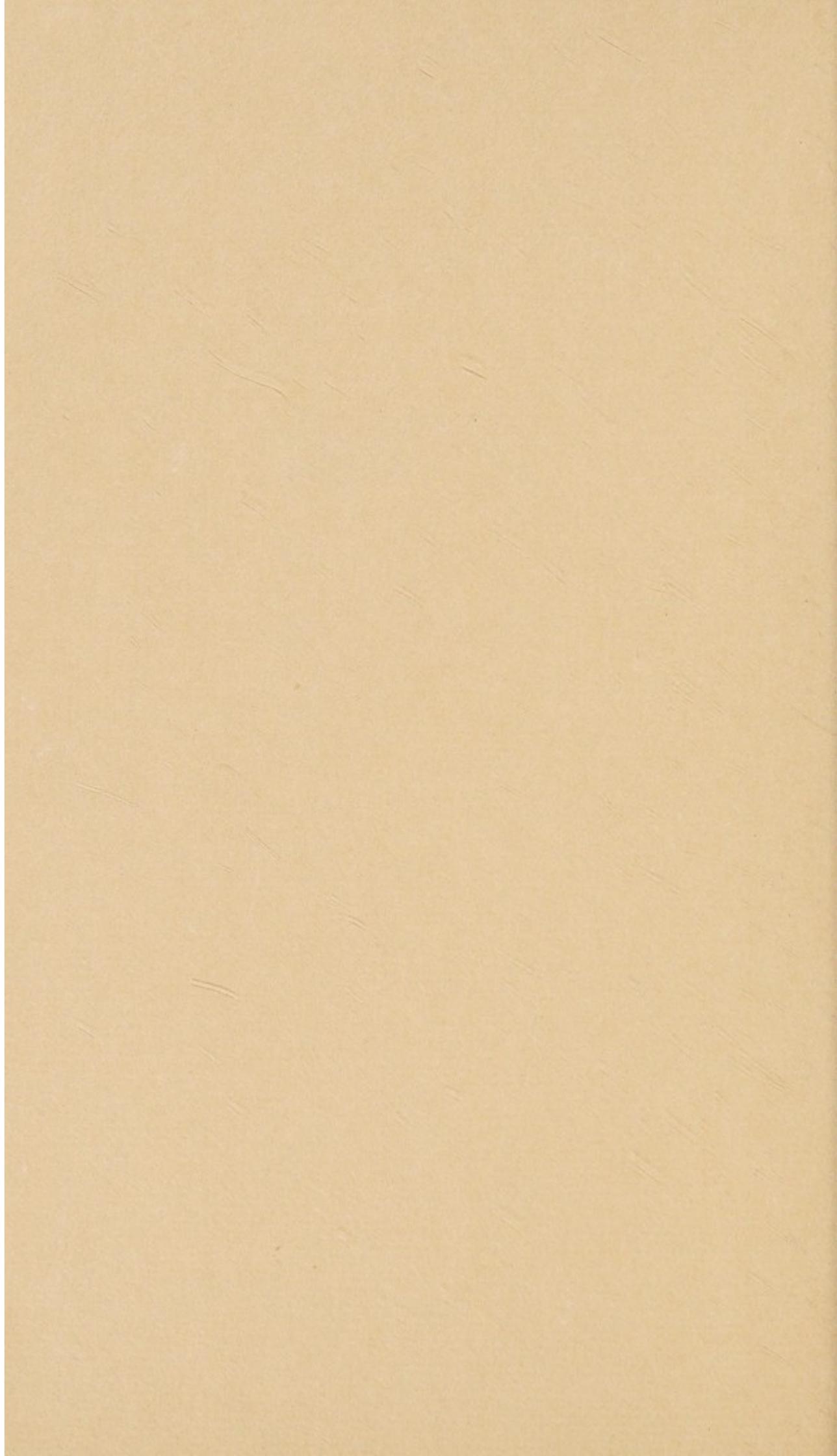


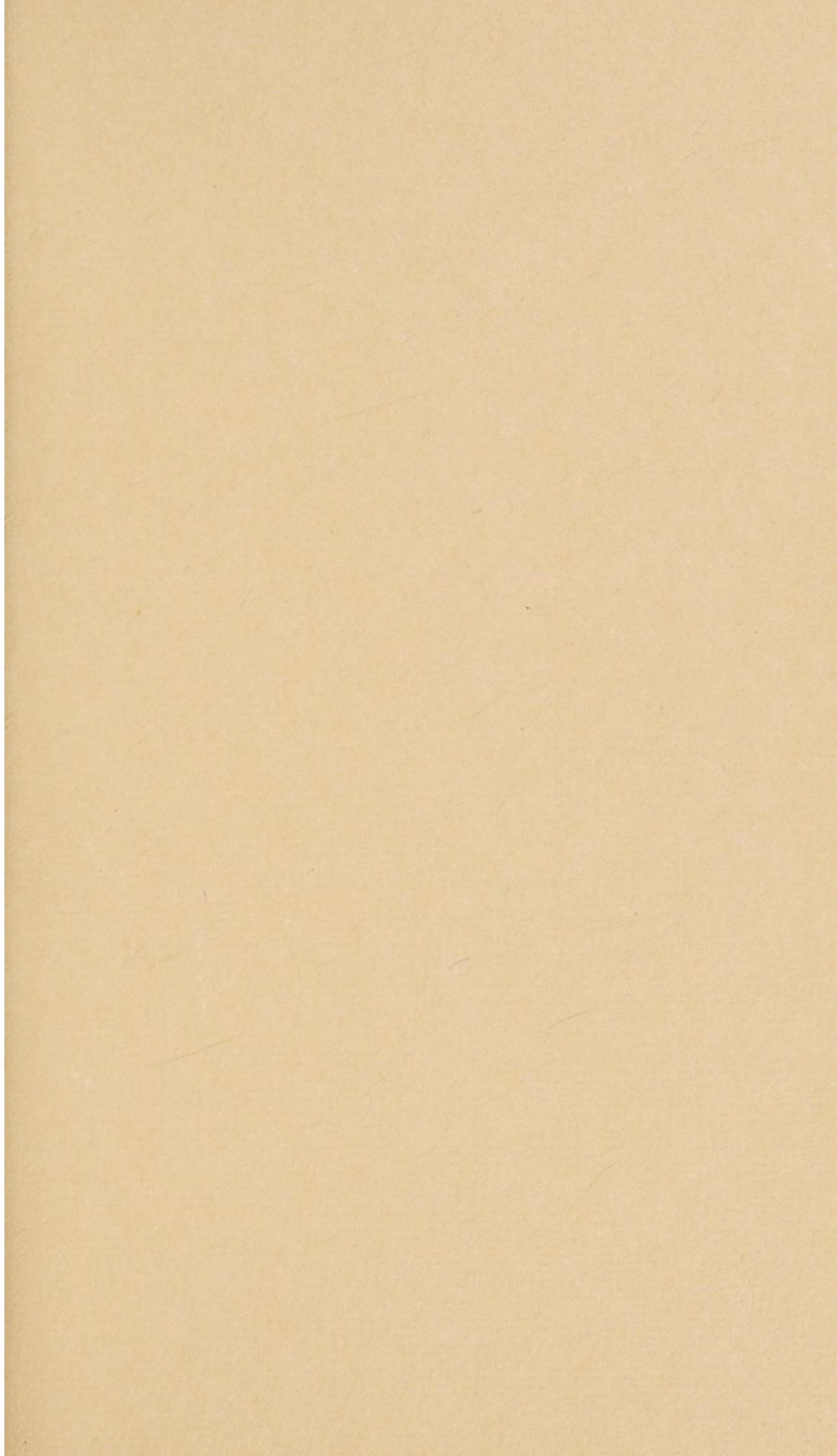
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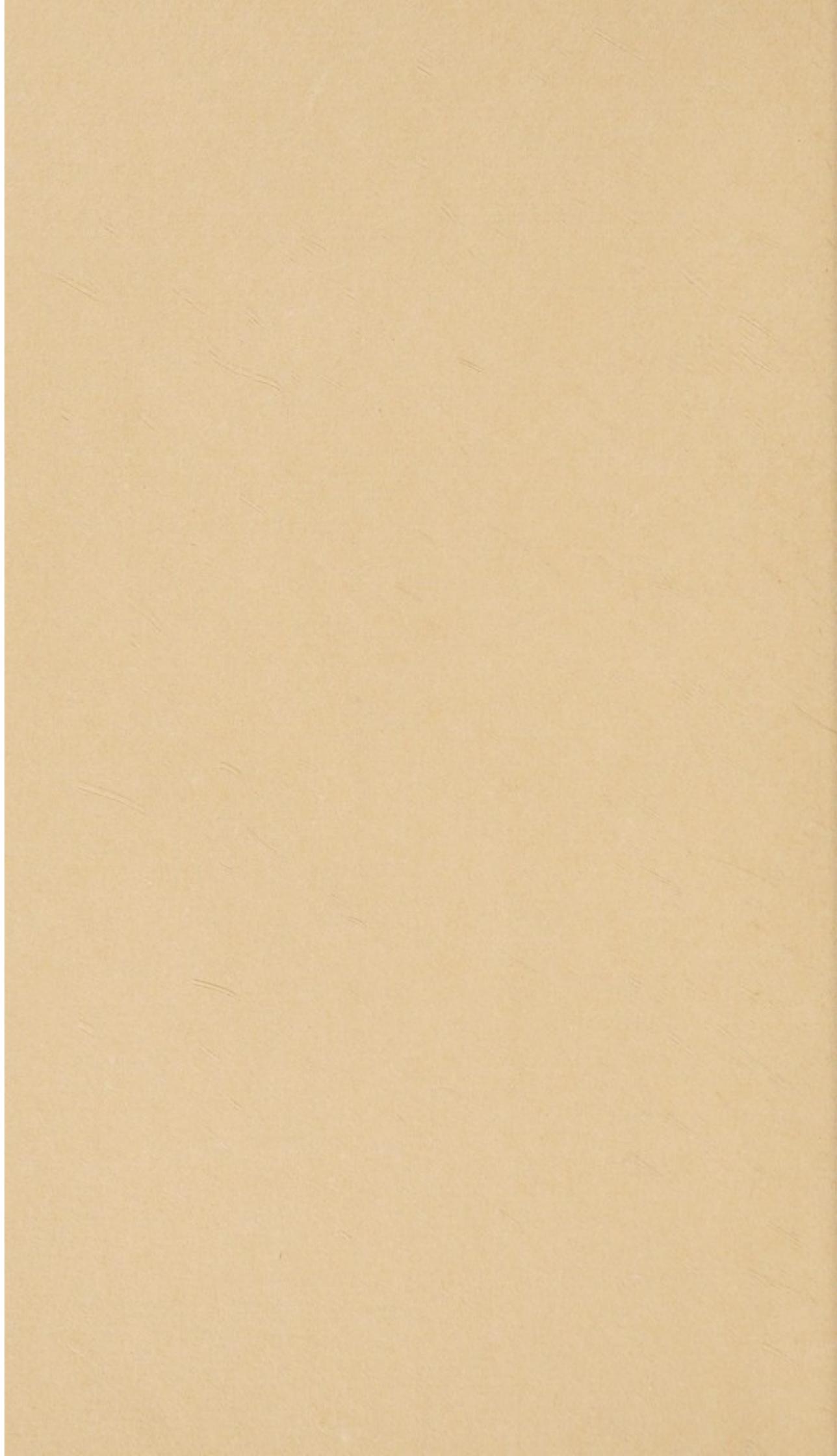






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Dr

A
T R E A T I S E
O F T H E
A S T H M A.

Divided into Four Parts.

In the First is given
A History of the Fits, and the Symptoms preceding them.

In the Second,
The Cacochymia which disposes to the Fit, and the Rarefaction of the Spirits which produces it, are described.

In the Third,
The Accidental Causes of the Fit, and the Symptomatic Asthma's are observed.

In the Fourth,
The Cure of the Astma Fit, and the Method of Preventing it is proposed. To which is annexed a Digression about the several Species of Acids distinguish'd by their Tastes. And 'tis observed how far they were thought Convenient or Injurious in general Practice, by the Old Writers; and most particularly, in relation to the Cure of the Asthma.

The SECOND EDITION, Corrected.

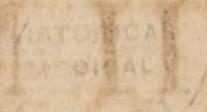
Τῶν μὲν τραχειῶν ἢ βλάβη συνοχωρία τῆς ὄψι. Galen.

L O N D O N,
Printed for R. WILKIN, at the *King's Head*,
and W. INNYS, at the *Prince's Arms*, in
St. Paul's Church-Yard. 1717.

TREATISE

OF

ASTHMA



Divided into Four Parts



T O T H E

Learned and Judicious Physician,

Dr. *PHINEAS FOWKE,*

A T

Wyrly in Staffordshire.

S I R,

I Have many Reasons for my Dedication of the following Treatise to your self: The particular Favours you have shew'd me, have deserv'd a greater Acknowledgment, than this small Present I make you, as a Testimony of my Gratitude: But in this Undertaking I shall appeal to you, who are well read both in the Antient and Modern Authors, as the most Candid and Learned Judge, concerning their Old Notions and Practice in the Asthma, which I shall here prefer, for their Usefulness, to all the Moderns that have Writ on that Subject.

Sir, I think my self so much oblig'd to those Learned old Authors you lent me, from that Large and Curious Collection in your own Study; that I cannot but here own the Bene-

fit I receiv'd by Reading of them, and following their Method of Practice on my self and others; I hope this will be a sufficient Excuse for my endeavouring to justifie their Notions, and Explaining of them, and for the Recommendation I shall give of their Medicines.

Sir, I here present you with your own old Authors, dressed up in the present new Philosophy, for that changes its Fashion in every Age; for it would not now appear Modish to express themselves in the *Aristotelian* Way; but as to their sensible Observations, and useful Methods of Practice, they will last for ever, as being true Descriptions of Natural Things, and confirm'd by frequent Observation and Experiments.

My Design is not in this Dedication to Compliment your Philosophic Way of Living, your Universal Learning, nor Greatness of Mind, in retiring from all the Pleasures, and Impertinent Business of Life, that you might more freely converse with your Learned Authors. Tho' these are sufficient Subjects for a large Encomium, I must confess my self unfit for well performing of it: Neither would your great Humility admit of a just Praise of your Virtues.

I know, your Curious Genius requires some Variety of Thoughts to divert it, or some Philosophic Enquiry to entertain it; for which End I will here propose my following Observations,

servations, by which you will discern the Design of this Treatise, and the good Performance of the Old, and the Faults of the New Writers, in treating of the Asthma.

First, I shall observe, that that is the most useful Notion of the Asthma, from whence we can take our Indications for Practice, and which is deduc'd from an exact and full sensible History of the Disease, its Subject, Causes, and Symptoms.

I have assign'd the immediate Cause of the Asthma, to the Straitness, Compression, or Constriction of the Bronchia; and in the continued Asthma, the Causes must be constant, as Dropsie, Tuberculum, &c. but in the Periodic Asthma, the Returns must depend on the Defluxion of Humours on the *Primæ Viæ*, where the Inflations begin; or on the Lungs and Nerves, if either were formerly weakned by other Diseases: These Hypochondriac, or Pneumonic, or Nervous Inflations, depend all on the same Defluxion of Serum; and they all frequently happen in old Asthmatics at the same Time.

This Defluxion of Serum evidently appears in loose Stools, Fluxes of Urine, great Spitting, and the Drowsiness of the Head in the Beginning of the Asthma Fit: This Defluxion depends on the Effervescence of Humours, because there is a feverish Heat at that time, which rarefies the Serum, and drives it thro'

the Glands. I think it not probable that the Nerves could contain so much Serum ; but rather that the slimy and flatulent Cacochymia irritates the Heart to stronger Pulsation, and Excretion of those Humours, as the bilious Contents do irritate the Guts : For when we find Excrementitious Humours evacuated, we may rationally suppose that their Vellication produced their Excretion, rather than any preternatural Faults of Spirits.

The Cacochymia which irritates, we observe by the Windiness and Sliminess of Humours evacuated.

This Inflation in the Stomach, the Effervescence in the Blood, and Inflation in the Pneumonic Membranes, comprehend the large Nature of this Disease ; and contrary to these our Practical Notions must aim, by suppressing the Effervescence, which Cures the Defluxion at the same time ; and then the flatulent and slimy Cacochymia must be Evacuated and Corrected.

If the Asthma be but partially described, and a false Hypothesis built on that Description, the Practice answering that is very Impertinent, or Injurious.

Tho' the old Notion of the Asthma's being a Defluxion of serous Humours, was certainly true, because evident to our Senses, by the Evacuation of Serosities ; yet the Explication of that Defluxion, by comparing the Head to

a Cupping Glafs, which draws up Humidities by its Heat, and causes them after to descend on the Lungs, was notoriously false, and contrary to the Structure of the solid Parts, and the Circulation of the Fluids.

This Fanciful Notion occasioned much impertinent Practice, by Fumes, Errhines, Apoplegmatisms, Plaisters to the Head, and Issues, which have all fallen with the Hypothesis they rose from. These Old Writers neglected the Effervescence, and the Nervous Inflations I have mentioned.

The Age succeeding observ'd a great Viscidity in the Humours of the Lungs, and to that alone, they impute this Stertorous Wheezing: These endeavour'd to Cure this Viscidity and the Tubercula, by prodigious pectoral Antidotes, made for the Asthma; but still they neglected the Effervescence, and nervous Inflations, and therefore had no Success.

The Later Writers, as *Van Helmont*, and *Dr. Willis*, have most particularly described the nervous Symptoms of the Asthma, and built their Hypothesis on the Supposition, that 'tis a Convulsion; and that what Cures that, will relieve the Asthma: This false Hypothesis led them into an injurious Practice, by giving hot Tinctures, acrid Gums, and volatil Salts, and sulphur Medicines.

Some Writers, as *Sylvius*, and *Etmuller*, have observed the Hypochondriac Symptoms in the Stomach; and conclude, the Asthma is a

Hypochondriacal Flatus, and wants Digestives

By these Observations I design to prove, that all our Practical Notions and Indications ought to be taken from all the sensible Observations in a Disease ; and then we shall avoid the several Errors into which many Learned Hypotheses lead us ; and then our Practice will alway be the same, though the general Philosophy, by which we explain our Notions, alters with the Age.

The old sensible Cacochymia's must still be allowed, and the Method of Curing them by contrary Tastes, because very rational: Therefore though the Circulation of the Blood be lately discover'd, and the Circulation of the Serum through the Lymphatic Vessels ; yet these Discoveries have made but little Alterations in the Practice of Physic ; but by that we can better explain the Motion of Humours, and the Translation of Diseases from one Part to another : Therefore this Discovery has only helped us to solve some Difficulties we knew not before, and to give Reasons for them : Yet still this is the chief Scope of our Practice, to Evacuate the Quantity, and correct the ill Quality of the Cacochymia's anciently described ; and we must use the same Medicines as the Old Writers advise.

The Nervous Juice is still as much unknown as formerly, and therefore its Affections are inexplicable ; and though it still be a Dispute, whether the Motion of the Heart in a Fever
be

be by an Irritation of the fermenting Blood, or the disordered Spirits, yet it will be the same thing as to Practice: For by which soever of them the Rarefaction happens in the Asthma, I must level my Method against the Effervescence, if I will cure the Fit, or prevent it.

If I compare our Bodies to a Watch, and the Spirits to the Spring of it; because on that all its Motions depend; as also on the Spirits in an Animal Body, as in the Watch: The Reason of its going false, may be the fault of the Wheels, or many other Contrivances: And as it would be absurd, when the Watch is out of Order, to lay all the Faults on the Spring, because on that depends all its false, as well as regular Motion; so it is in our Bodies, tho' the Spirits produce all the regular and irregular Motions: Yet, as in the Watch, the Irregularity must depend on other Organs ill constituted; so in the Body, the Lungs being oppressed, the regular Respiration becomes a *Dyspnæa*; if the Bronchia be constricted, an Asthma; if any extraordinary Thing or Fume affect the Skin of the Eyes, Tears immediately flow, and the Saliva runs upon any Acrimony which irritated the Palate. The same Motions which are expected in the Nerves by external Objects, are produced by sharp Acrimony in the Humours; which, if bilious in the Stomach, excite Vomiting and Purging in the Cholera. If the Humours fer-

ment

ment in the Veins, they irritate the Heart to a violent Circulation, which raises the Fever, which lasts only till the Fermentation ceases; but in those Fevers which depend on the disordered Spirits, they are but of small Continuance. And we must observe, that the Animal Spirits rise from the Blood, and have both their Origin, and good or ill Temper thence; and tho' they move the Fluids, yet that external Motion only helps and promotes the intestine Motion of the Humours (as Beer and Wines are promoted in their Depuration, by being carried on Shipboard.) If the Spirits should circulate Water through the Veins (and the Hydropical Serum is not much different) neither Blood nor a true natural Heat would arise in the Water by Ten thousand Circulations; by which we find we must look back to the old Cacochymia's to explain the Nature of Humours, and the Diseases; and in the Asthma we must retain the Flatulencies anciently observed, and the Defluxion of Serum both on the Guts, the Lungs and Brains.

The Dulness and Drowsiness of the Head, is a sign of a Defluxion through the Nerves in Hysteric Cases, as well as the Flux of Urine in them: But for satisfying the *Helmontians*, I will confess, the Hysteric Asthma has no Defluxion through the Glands of the Lungs, till it is an old Disease; but the Serum in this only makes its Defluxion through the Glands

in the Stomach, and Guts, and Brain ; there is the same Effervescences, the same Flatulencies, and consequently the same Cacochymia's in these, as in the Spitting Asthma.

If I should describe only the Nature of Spirits in Wine, all Persons would believe I talked like a Philosopher, but not much to edifie any one, who only from the Taste of the Wine can best describe its Nature, whether sweet, rough, or sharp, or bitterish ; and when it is vitiated, 'tis flat, or waterish, sour, roapy, windy, bitter, fœtid, full of Lees and Ferments : These are all sensible Vices in Wines, and the same in Animal Humours we call our Caco-chymia's. And as the Vintners can Cure all their Wines by particular Tastes, without being vers'd in the Mechanic, Chymical, or Microscopical Observations about Wines ; so may Physicians both understand, and cure Diseases by a Rational Use of sensible Observations, and the old *Galenical* Practices built on them, may yet stand unmoved.

It is a very short way of Explaining Diseases, to tell us, that the Spirits, or *Archeus*, are either weak, or strong ; in a Fury, or stupid : This Philosophy is much admir'd, tho' not understood either by Plebeians or Philosophers, who ought to admit nothing either in Diseases or Medicines, but sensible Observations, and those Notions which are immediately deduc'd from them. These we can be certain of ; and on these the *Galenists* built their Practice,

Etice, and these two sensible Observations will always stand good ;

1. That the Asthma is a Defluxion.
2. That all Medicines in the Asthma ought to be inciding without Heat.

The Invention of the Microscope has much discover'd the sensible Mechanism of the solid Parts: But what Indication can I take from the *Globuli* of the Fluid? Tho' they may help me better to explain, yet I fear, I shall not be enabled by their Discovery, easily to cure any Disease.

All the old Notions of the Asthma grounded on sensible Observations, on which a successful Practice depends, ought still to be retain'd; and if it be necessary, they may be better explain'd. So in the Asthma, we observe, there is a Defluxion of Serosities, and for this Vomits and Purgers were successfully used by the Antients: Therefore the new Writers unjustly explode that sensible Notion, because ill explain'd. In this case we must mend the Explication of a Defluxion, and not search for the Fountain of Rheum in the Head, but in the Blood, and allow the Nerves to be the Instruments of the Defluxion.

If it were possible for us to discern all the Mechanical Structures of the solid Parts, and all the Motions and Figures of the Fluid, we might then that way explain all our Diseases: But since that will alway be impossible to our dull Senses, 'tis not fair to trouble the Learned
with

with fancied Figures and Motions, because possible. But by observing the sensible Effects of Mechanic Motions, the Cacochymia's, we do as much as is necessary : For from thence we take our Indications of those Remedies which will restore vitiated Humours to their natural State.

The Chymists unjustly reject the *Galenic* Cacochymia's, and explain as well as cure all Diseases by their Mineral Principles ; which seems very absurd, since Minerals are of a very different Nature, and they are produc'd by different Digestions and Preparations. Animal Humours are made by particular Fermentations, Circulations, Secretions, in our Organiz'd Bodies, from a pure Milk ; but Minerals arise from Sulphur Fumes, and Stony Particles coagulated in the Earth. And all Chymical Products from them are the Effects of a violent Fire : So that by the Mixtures of Chymical Medicines we can guess but little at the diseased State of Animal Humours.

I generally observe, that all pure Chymical Authors know little of Anatomy, and the Nature of Animal Humours ; for Distillation alters the natural or diseased Constitutions, and therefore we cannot discover either by the Fire : The Chymists wholly depend on the extoll'd Virtue of their Medicine ; if prepar'd from Antimony, or Quicksilver, it is a certain *Panacea*, given in all Diseases, without any Method ; and the Chymists impute
great

great Knowledge to their Medicine, in finding out the Disease, and making various Operations, or corroborating Nature, as Nature requires; all which are more absurd than any thing in the *Galenic* Hypothesis, and shew the Ignorance of the Chymist in the Nature of Medicines, and Method of Practice.

The Empyrical Doctors reject all our Cacochymia's; they want general Philosophy, Anatomy, and Chymistry, and so cannot make any rational Notion of the Disease, from the Consideration of all its Symptoms: They know therefore nothing of any rational Methods of Practice; but go on in the dull Road of Vomiting, Purging, the Cortex, Steel, Salivating, Medicinal Waters: Whereas the true rational *Galenist* considers that Notion of the Disease which agrees with all the Symptoms, and prescribes such Tastes as will cure each Cacochymia; he considers the Constitution of the Patient, the Complication of Diseases, and can give a good Reason for altering the common Method, when necessary. He with his Vegetables more cures safely than with Minerals; he makes no Preparations; but what Nature has prepar'd, he gives in Powder or Decoction, &c. He is Nature's Servant, and alters his Methods to serve her, and uses the only Means we have to observe her, our Senses and Experience.

I shall make this my last Observation, that the old Writers found out the most useful Medicines in the Asthma. There

There is a natural Instinct, by which all Animals find out their proper Food, and by the same Method they observe what Medicines are most suitable to their Diseases.

The Stomach prepares all the Humours for the Veins, and in chusing of the Food, it naturally desires that which is like to our Humours, to nourish them; the Tongue is well pleas'd with those Tastes which agree with the Stomach, because of the common Membrane which covers both.

In a healthful State, the Tongue and Stomach delight in sweet Tastes, because the Blood and Saliva have that; but in a diseas'd State of Humours, those Tastes are most pleasant, which alter it; as when we are too hot, cool Tastes; when dry, the Humid; and *è contra*, Nature teaches us to cure our selves by contrary Tastes. And Reason and Experience tell us, that thin Humours require incrassing viscid Tastes; and the glutinous Humours, inciding Acrids; and the Roughness of the solid Parts, Oily Lenients; and the Flux of all Humours, Styptics. In Fevers we naturally desire Acids; and in ill Digestions, Bitters are grateful.

'Tis of no small moment in curing Diseases, that our Tastes can inform us what Medicines are agreeable to the Stomach and Humours; and our Smells inform us what Medicines are suitable to our Animal Spirits. And since the Objects of these two Senses differ only in the Tenuity of their Substances; for Bitters,
Acerbs,

Acerbs, Acrids, affect our Tastes in the Form of a Liquor: But a *Halitus* from the same Medicines affects our Smells; and because of this small Difference, from the Virtues of the Tastes mention'd, we may easily guess at the Efficacy of those particular Smells.

The old Writers observ'd, that the Caco-chymia in the Asthma requir'd Digestives, because of the Wind and Slime in the Stomach; and for this they used all the Wormwood Bitters, as Polium, Southernwood, Mugwort, and Wormwood it self; and all the bitter Gums, as Ammoniacum, Galbanum, &c. and Gentian, Aristolochia, Briony.

The same Authors observ'd, that the Medicines in the Asthma must cool, as well as incide; they therefore us'd Vinegar, and mix'd divers Bitters and Acrids with it, to make it more inciding, as Squills, Orris, Nettles; and they observ'd by their Tastes, that the Salso-acids, such as Nitre and Sal Armoniac, had both an inciding and cooling Quality. They observ'd the Flatulencies in the Asthma, and for that used the Carminatives steep'd in Vinegar, and boiled many Aromatics, as Thyme, Hyssop, Calamint in Oxymels.

They used Anticonvulsives, as Castor with Oxymels, and Rue mixed with Nitre, in Diapspoliticum, and Briony ʒiſ. in a Cyathus of Vinegar. Neither did they omit the Use of Opiates, but gave a Caution about them.

Sir, I must have beg'd your Pardon for this long Letter, if I had not now presented my self as a

Patient, who have the Privilege of telling the Injury receiv'd by the Modern Practisers, and of commending the best Doctors for the Asthma, *Hippocrates* and *Galen*, because I have receiv'd most Benefit by their Medicines; and I believe, none is more able to defend those Fathers of our Faculty, and their rational Method of Practice, against Chymists, the Empyrical, and the Mechanical Doctors, than your self. I desire therefore, under your Patronage, to defend the old Truths and Fundamentals of our Faculty, A rational Practice, directed by sensible Notions, and confirmed by the Experience of former Ages.

I am of Opinion, that most of the Diseases incurable by the Modern Practice, as the Gout, Dropsie, Epilepsie, Leprosie, were oftner cured by the old Methods, which have been disus'd, and neglected upon the account of pure *Chymical Medicines*, and new *Hypotheses*, recommended by great Authors: These ought to be considered, and revised by others, as I have done the *Asthma*.

I know, your great Candor will commend an Ingenious probable *Hypothesis*; but that your Zeal for the Good of Mankind, cannot but regret the rejecting old, approv'd, and useful Notions, and experienc'd Medicines, because they will not agree with a new Doctrin. I hope you will pardon my Faults, and accept this Performance with your usual Candor, and believe me, that I present it to you, as a Demonstration of my being a sincere Admirer of your Judgment and Learning, and as an Acknowledgment of your kind Respect to (Honoured Sir)

Litchfield,
May 25. 1698.

Your most Obliged Humble Servant,

JOHN FLOYER.

[a]

TO

TO THE
R E A D E R.

THE Design of the following Treatise will be better understood, by giving a General Scheme of the several Causes and Species of the Asthma; but since that is a Depravation of Respiration, I think it necessary to treat first of Respiration, its natural Causes and Use, and the simple Species of it, when depraved. I shall first observe, that Respiration depends on the Pulse of the Right Ventricle of the Heart, which naturally stimulates an Animal to the Reciprocal Motions of Inspiration and Expiration: For the Pulse incessantly injects plenty of Blood thro' the Arteries of the Lungs, and that soon fills the Blood-Vessels, and oppresses the Lungs; which Pressure being felt by the Nervous Parts, and that Sense communicated to the Muscles serving Inspiration, they, by their Contraction, immediately enlarge the Cavity of the Breast, and then the Air by its Elasticity presses thro' the Trachæa, and expands the Bladders of the Lungs. This Expansion of the Bladder does necessarily extend and stretch the Blood-Vessels, which are spread upon the Convex Surfaces of the Bladders, and that stretching

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consequently lessens their Cavities, which is also compressed by the intruding Weight of the Air; therefore both by the Expansion of the Lungs, and the Compression of the Air, the Blood is drove out of the Pneumonic Vessels, and the free Admittance of more Blood is hindered, during a Continuance of a full Inspiration. This obliges the Animal after some Interval, by a feeling of a new Oppression from the Blood, and injected by the Pulse, and stopt in its Circulation during Inspiration, to use the Muscles designed for Expiration, which by their Contraction pull down the Ribs and Sternum, and by forcing in the Belly, force the Diaphragme to go upwards into the Breast; and the Air which came into the Lungs in a State of Compression, is blown out intermixt with Watry Vapours; and being much rarefied by the Heat of the Blood there, it is not unlike the Artificial Wind produced in an *Æolopile* half filled with Water, and heated by the Fire. This Rarefaction of the Air, makes its Efflation more easie, in Coughing, Sneezing, Speaking.

If either Inspiration or Expiration be hindered, a Suffocation succeeds, which is a full Stop in the Circulation of the Blood.

After Expiration, the Vessels are shrunk as the Bladders be, and the Reticular Fibres, of the Bladders, by closing them, express the Blood out of the Vessels; so that both a full Inspiration, and Expiration, force the Blood out of the Lungs; and during the Interval betwixt them,

there is no Circulation thro' the Lungs, but a stop is for that short time given: And if we inject any Liquor thro' the Lungs of a dead Animal it passes with difficulty; therefore the Circulation thro' the Lungs is more easily performed, whilst the Lungs are in continual motion of Expansion, and Closing.

I shall next observe, That neither Inspiration nor Expiration, are simply necessary of themselves; but the reciprocal Motion only, whereby the Bladders of the Lungs are distended, and afterwards contracted, is absolutely necessary for the Prolongation of an Animal Life.

If the Air were mixed with the Blood in Inspiration, that would easily appear by the Air's blowing up the Blood-Vessels, as well as the Bladders, when we blow up the Lungs by a Pair of Bellows, but we find no Air to pass into the Blood-Vessels: The Air therefore can only cool the Blood by its Contact thro' the Membranes, as we feel it cools thro' the Skin; and for that end when we are very hot, we desire to inspire cool Air; and it appears that Inspiration does not impress any new Matter on the Blood, because the Blood is drove out of the Lungs by Inspiration.

Neither is Expiration absolutely necessary, because many Fumes expire with the Air; for those Vapors may be collected in Bartolet's Pneumatolabium; and though the Quantity be considerable, yet if all that is expired in a quarter of an Hour, were retained in the Blood-Vessels,

the

the Animal could not thereby be killed, so soon as we see it dies, if the Wind-pipe be but accidentally stopt. Moreover the Animal dies in Mr. Boyle's Vacuum, where there is room enough for the Expiration of Fumes.

The Third Observation I shall give, is, That the true Use of Respiration is for the preparing the Blood, and fresh Chyle injected into the Lungs, by the Heart, for a larger Circulation, by dividing it into smaller Parts, and Globuli, and by procuring them a more perfect Mixture.

The Circulation of Blood through the Lungs began after the Birth of the Fœtus, when the Respiration also began; and the first was the occasion of the other. The joint Original of these Motions shew they were designed for the same End.

If we consider the Blood that is injected from the Right Ventricle of the Heart, we may observe, that it has the Mixture of Chyle and Lympha with it; and that this reciprocal Motion of Respiration may help the Mixture of these, appears, because the shaking of the Lungs, as well as the Compression of the Pulse, divides the Globuli of the Blood, which appears always black, before it has passed the Lungs; but it acquires a Floridity afterwards, as Blood long stirred by a Stick, does by the Separation of the Globuli.

This Change of its black Colour into a florid, is all the sensible Alteration the Blood acquires by passing thro' the Lungs, which is best accounted for by the Separation of the Globuli: For in the Feverish, the Hysterical and Maniac, the Blood

is made, because of its violent Motion, very florid; but in the Melancholic, where the Globuli are coagulated together, and where the Motion is languid, the Blood appears black as in the Veins, where the Motion is slow; but 'tis florid in the Arteries.

This Mixture of Chyle and Blood in the Heart being imperfect, it would not be fit to be injected into the more solid Parts, and the Viscera, and to pass the Muscular Fibres, lest it should stick there. Therefore it was necessary, that this new Mass of Humours should have its first preparatory Circulation through a Part composed of Bladders and Air-Vessels, which would easily yield to its Circulation. The Chylous Water being ill mixed, often sticks in the Lungs, and produces its Tubercula, and consequently Consumptions, by evacuating too much Chylous Matter. By the Blood's sudden Return to the Heart, 'tis evident, this short Circulation was only a Preparative for a larger, viz. by well mixing the new Chyle with the Blood, and by dividing both into Globuli more small, and fit for Circulation, by the Compression of the Pulse, and the Smallness of the Vessels it passes; and most particularly, by the Compression of the Air, which forces the Blood forward in Inspiration, and the Reticular Muscles in Expiration; so that the most probable Use of Respiration is, the preparing the new Blood and Chyle by a minute Division, for the next Circulation through the Arteries.

I will next consider the several Species of the Depra-

Depravations of our Respiration, and those Causes which they usually depend on.

I. *They depend on the preternatural State of the Blood, and immediately on the preternatural Pulsation of the Right Ventricle of the Heart.*

II. *On the Obstruction of the Blood-Vessels or Air-Vessels; or else their Compression, or Constriction.*

III. *On the Muscles designed in Respiration, to open and close the Breast; or else on the preternatural State of the Spirits, moving those Muscles.*

I. *If the Blood be copious, fermenting, or much rarefied, the Pulse beats high and full; and then the Lungs being much oppressed by Blood, that stimulates the Muscles by consent, to distend the Breast fully for a large Inspiration of Air to fill the Lungs, and compress the Blood-Vessels, and promote the Circulation through them; and this is to be called a full, great, or long Respiration, and is a sign of hot Blood.*

When the Quantity of Blood is small, or when its Heat is moderate, the Pulse strikes low, the Lungs are not so much stimulated to a large Expansion; and therefore this Respiration is small: And as the Pulsation of the Heart declines in Vigour, so does the Respiration decrease in Greatness.

If the Pulse beat quick, by the Stimulation of hot fermenting Blood, then the Lungs are soon fill'd with Blood, and a dense or thick Breathing is

occasion'd thereby, in which the Interval is short, and the Inspiration and Expiration follow one another quick.

On the contrary, if the Pulse be slow, and the Blood be crude, the Lungs are not filled therewith of a long time, and then the Respiration is rare, and the Interval betwixt Inspiration and Expiration is long.

If the Lungs be much oppressed, and stimulated by the Blood, the Respiration is performed in a short time and that we call a quick Breath; but if the Lungs be not much oppressed, the Respiration is slow, that is, a long time in doing.

Short breathing in English is used for divers of these Species, for a small Respiration, for the dense, for the quick: For all who have these, may be called Βραχυπνοοι.

Since the several Species of simple Respirations mentioned, do depend on the Pulse, I may infer that Respiration in its natural Constitution does so too; and as there is a great Analogy betwixt the Pulse and Respiration in their Motion of Systole and Diastole, and the Intervals betwixt them, so they both agree in their Use: For as the Pulse, so does the Respiration help the Circulation through the Lungs, and the Separation of the Globuli, and the moulding of them to fit them for a large Circulation through the whole Habit of the Body.

The Diseases of the Blood alter Respiration, by altering the Pulse; as Fevers, Inflammations, which make Respiration dense or great, because the Pulse beats high and quick, and soon fills the Lungs.

II. *Respiration is altered by Obstructions of the Blood-Vessels in the Lungs, or else by those of the Air-Vessels.*

An Inflammation, Tumour, Abscess, and all constant Obstructions of the Blood-Vessels, give a stop to the motion of Blood thro' the Lungs, and make the Respiration dense and quick; the same is the Respiration in the Dyspnæa from Tumours of the Belly, and in the Gibbous.

When the Muscles labour much for Inspiration and Expiration thro' some Obstruction, or Compression of the Bronchia, &c. we properly call this a Difficulty of Breath: but if this Difficulty be by the Constriction of the Bronchia, 'tis properly the Periodic Asthma: And if the Constriction be great, it is with Wheesing; but if less, the Wheesing is not so evident; the Pulse being stopt in the Asthma Fit, the Respiration is rare.

The Vesiculæ being straitned, or pursed up, the Inspiration is small; the labouring and straining of the Inspiratory Muscles, makes the Respiration high.

The Stop, or Constriction, or Compression, makes the Respiration slow.

The Muscles of the Breast seem to feel the Weight of the Atmosphere, and labour under its Pressure, because the Air cannot be received into the Lungs, to help the enlarging of the Breast.

This high and slow Respiration differs from the Delirious, because in the Asthma it is with Labour and Wheesing, tho' these Diseases agree in the low Fever, and Coldness of the Extremity.

III. *These Alterations of Respiration depend on the Muscles and Spirits.*

Every Organ, when diseased, hinders the Action in that Way or Manner it helped it when well; and therefore if the Muscles produced the Asthma, they must be Convulsively affected, and then we should observe them to move with twitching, as in Hysteric Fits; and such Stops in Breathing are always a Sign of Convulsions.

If the Breathing be with Trembling, 'tis a Sign of Weakness, as in the Palsie.

If the Breath be suddenly stopt, it is by the Convulsion of the Pneumonic Muscles, as in an Hysteric Apnea, when either the Muscles of the Belly pull down the Sternum, or else the Diaphragme convulsed, keeps the Breast dilated for some time.

The old Writers thought the Animal Spirits diverted by odd Fancies in the Delirium, and that that hindered the Action of the Pneumonic Muscles; and therefore a great, and large, and rare Respiration happens, which was judged by them peculiar to the Delirious; and so in reality it is: For the Greatness and Freeness of the Inspiration distinguishes it from the Asthma; but the reason of the Rareness, is a stop on the Pulsation of the Heart, by the Contraction on it in Deliriums; but if a high Fever be complicated with Deliriums, the Pulse and Respiration must be quick, small and dense, as Galen has well observ'd in Deliriums.

An Intermitting Pulse depends on the stop of the Circulation thro' the Lungs; because the Left Ventricle

Ventricle of the Heart, by that stop, wants sufficient Blood to continue its constant Pulsation, (like a Mill which stands still for want of Water) and this is plain in the Asthma, where the Pulse intermits, because of the Constriction, which stops the Circulation through the Lungs.

'Tis observed, that the Asthmatic cannot cough, sneeze, nor speak easily; because a sufficient Quantity of Air cannot be drawn into the Lungs to produce those Actions, and the Expiration is difficult in them, as well as Inspiration.

The Asthmatic cannot move strongly, because 'tis necessary to hold the Breath in all strong Motions.

I was surprized to observe our Great Galen's Mistake about the dense Respiration in the Asthma; but I perceive, he describes only the continu'd Asthma: And his Mistake was also occasioned by the Observations he made upon Hippocrates's Cases of Asthma's complicated with Fevers: For in both the Continued, and Asthma joyned with Fevers, he observed πυκνὸν πνεῦμα, so Hippocrates describes the Daughter of Agisis, πυκνοπνεύματ', whilst her Tuberculum ripened; but after it broke, she was Asthmatic.

Hippocrates plainly describes the Asthma continuing after the Fever was over, and the Asthma complicated with Epidemical Fevers, and then the Asthmatic have a dense, or a thick Respiration.

If the Asthma be without a putrid Fever, Hippocrates calls it Μετῳσθρον πνεῦμα; but Galen

len mistakes that, and calls it *Συμπεδὸν ἢ πικρὸν*; because the Breath goes no farther than to the Top, and not to the Bottom of the Lungs: But it is plain, that the high Breathing is so called from the lifting up the Shoulders; and the *Respiratio Sublimis* is a rare, slow, and laborious high Respiration, by which Hippocrates distinguishes the Asthma, from *πικρὸν πνεῦμα*: He mentions the Inflation of the Hypochondria, and therefore calls the Asthmatic *Πνευματώδες*.

Pain in the Respiratory Organs makes the Respiration small, because the Breast cannot be distended as in Pleurisy: 'Tis also dense and quick, because of the Feverish Pulse.

A SCHEME of the several Species of the Asthma's.

THE Asthma is a laborious Respiration, with lifting up the Shoulders, and Wheezing, from the Compression, Obstruction, or Coarctation of some Branches of the *Bronchia*, and some Lobes of the Bladders of the Lungs.

The Asthma is either Continued or Periodical.

The Continued Asthma depends on the Compression of the Veins, and *Bronchia*, and Bladders of the Lungs, or Nerves;

1. By a Dropsie in the Breast.
2. By an *Empyema*, Inflammatory Tumour, or Abscess, or large *Tuberculum*.
3. By a *Polypus* in the Pneumonic Vessels, or Coagulation of Blood in the Vessels, or the Varicoseness of the Vessels, or *Plethora*, by stop of the Hemorrhoides, and Menses, Issues, or Ulcers, or Itch
4. By Stones bred in the *Trachæa*.
5. The Lungs may be compressed by Fat, or a Tumour of the *Thymus*.
6. By

6. By Gibbosity, in which the Lungs are compressed by the Luxations of the *Spina*, and the Sharpness of the *Sternum*: In these *Hippocrates* observes *Tubercula* in their Lungs, and that they are *Κεγχρωστές*.

7. By the Adhesion of the Lungs to the Diaphragme, and *Pleura*, and *Pericardium*.

8. By straining the Lungs by Running, the Membranes or Fibres, which fill the Interstices betwixt the Lobes of the Bladders, and are designed to help the Opening of the Bladders, may be injured; and then the Bladders remain contracted, by their reticular Muscles.

9. By the Tumours of the Belly in the Ascites, Tympanites, *Hydrops Uteri*; by the Tumours of the Liver, Spleen, Pancreas, Kidneys.

10. By the Inflation of the Colon, Stomach, the Depression of the Diaphragme is hindred.

11. In Apoplectic Fits, Giddiness, Lethargy, some extravasate *Serum* oppresses the Nerves.

12. By a Windy Tumour of the Lungs, as it happens in broken-winded Horses.

The Periodic Asthma depends on the Constriction of the *Bronchia*, and Bladders of the Lungs, by Windy Spirits, and succeeds these Diseases:

1. They succeed Fevers, Quartans, Small-Pox, Inflammation of the Lungs, Intermittent-Fevers.

2. A Catarrh.

3. Hysteric Fits.

4. Hypochondriac Fits.

5. An *Ephemera*, depending on the six Non-naturals, especially the Air and Changes of Weather.

6. A flatulent slimy *Cacochymia*, which is bred in the Stomach, and creates Inflations there, and gives an Effervescence in the Blood, and an Inflation

tion in the Membranes of the Lungs; and this is the true Periodic Flatulent Asthma.

Note, That the Continued Asthma's have frequently Paroxysms, by any great Motion, or the Accident of Diet, or else in the Night; but they are not regularly Periodic once in ten Days, as the other be.

My Design in this Treatise is chiefly to describe the Periodic Asthma, to which I have been long subject, and that has given me many Opportunities of considering the History of that Disease more nicely than it was possible for Physicians, who have always an imperfect Account of Chronical Cases from their Patients; and to that I must impute their ill Success in many Chronical Diseases. I hope, this Treatise will excite those Physicians, who are subject to Chronical Diseases, to observe nicely the History of their Disease, and to describe all its sensible Phænomena; to consider all the Antients successfully used in those Chronical Distempers, and to give the Publick a more exact Account from their own Experience and Observation of the History of their Chronical Distempers, which can only by this Means be fully described; and never from the Relation of our Patients: And then any Ingenious Physician may from all the sensible Observations given, easily take his Practical Notions. And tho' there be many Hypotheses to explain the sensible Phænomena, yet the Method of Practice being grounded on the Contrariety of the Remedies to some sensible Fault, in the solid or fluid Parts, the Candid and Rational Practisers cannot disagree in their Cure of Diseases, which in all Ages will be the same; tho' a Desire of Novelty alters the Philosophy, and sometimes the Medicines, to the great Prejudice of Physic, whose useful Observations are thereby discredited, and experienced Medicines disused.

I shall not treat much of the Continued Asthma's, because they are depending on other Diseases, both in their
Causes

*Causes and Cures, which are well describ'd by many Authors; as for Instance, the Dropsie of the Breast: And for that the common Method of Cure is us'd, Purg-
ing by Pills of Cambogia, and the Pil. Lunares, and Elaterium, Diuretics, Salts, and with these may be complicated the Anti-Asthmatics, upon the Occasions of Fits; as the Oxymel, and Acetum Scylliticum, and Laudanum: But my chief Aim in these Symptomatic Asthma's, is the Curing the Original Disease, without which no Anti-Asthmatic can do any Good.*

I have in the following Treatise recommended a Dispensatory-Medicine, Acetum Scylliticum, which is a bitter Acid; (and that I sometimes make more grateful by Aromatics, or turning it into a Syrup with Sugar for nice Palates,) this gave me an Occasion of considering the whole Class of Acids, and to propose a farther Tryal of other mixt Acids in the Asthma. The Acid Syrups and Oxymels I give in the Morning in a Glass of Water in the Summer, and the Aceta chiefly, if nauseous, at Night, for many Months.

THE

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THE
P R E F A C E
TO THE
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A S T H M A.

SINCE the Cure of the *Asthma* is observed by all Physicians, who have attempted the Eradicating that Chronical Distemper, to be very difficult, and frequently unsuccessful; I may thence infer, That either the true Nature of that Disease is not thoroughly understood by them, or they have not yet found out the Medicines by which the Cure may be effected.

It is my Design in this Treatise, to enquire more particularly into the Nature of this Disease; and, according to that Notion I can give of it, to propose those Methods and Medicines which appear to me most likely to effect its Cure, or, at least, to palliate it.

I have suffered under the Tyranny of the *Asthma*, at least, Thirty Years; and therefore think my self to be fully informed in the History of that Disease: And since I have practised Physick, I have made many Trials for the Relieving and Preventing of the Fits; and out of Compassion to those Miserable Patients, I design to relate what I have found useful both to my self and others.

The Method I shall take in this Discourse, is, First, to describe the Symptoms preceding the Fit, and those which attend it, and the different Intervals of the Periodic Fit: And that this History of the *Asthma* may be more exact, I will give the History of my own *Asthma*; which I shall, for Distinction sake, name, the *True Flatulent Asthma*, and hereafter give my Reason for calling it so. I have for many Years kept a Diary of that Disease, out of which I can give a more true Account, than if I had now recollected what has long since passed.

I will afterwards give the History of the *Asthma*, which is commonly called *Hysterical*, from the Observations of an ingenious Lady, who has suffered under that Disease Twenty Years, and gave me that Account in Writing an Answer to many Queries I sent her about it.

The *Asthma* is a long Disease, and it requires a long Observation to give a true Account

count of its Symptoms, Changes, and various Causes, which common Patients cannot nicely observe; and therefore I thought it very necessary in the First Chapter of this Treatise, to give a full History of the Asthmatic Fits.

In the next Chapter I will describe the Viscous and Flatulent Cacochymia of the Chyle, Chylous *Lympha*, *Serum*, and that Rarefaction of the Animal Spirits which give the chief Disposition to the Fits of the true *Asthma*.

In the Third Chapter I will describe the Accidental Fits of the *Asthma's* depending on the Air; and its Changes; and shew, that they are real Fits of an Ephemera Fever, such as a slimy flatulent Blood, and windy Spirits are capable of. And I will enumerate all the other evident Causes; as Diet, Exercise, Passions, &c. And I will there observe the several Diseases on which the *Asthma* depends, as a Symptom, and give some Remarks for distinguishing the true *Asthma* from other Species of the Dyspnea.

In the Fourth Chapter I will propose the several Indications necessary for the Cure of the Fits, and those which are to be pursued for the preventing their Returns: I will observe what I have found injurious to that Disease, and describe those Medicines I have found most beneficial.

I have frequently compared my Observations of my *Asthma*, with those of my Patients, and found them much alike : But some Variety of Symptoms have appeared in all I have discoursed. I have put my Notion of the Disease to some very intelligent Asthmatics ; and they agree with me, that there is a slight Fever, and windy Rarefaction of Humours in the Fit, which I call an *Efferescence* ; and this will be confirmed by the Medicines I use, which are of that Taste, which Experience has observed to succeed well in the Cure of the Flatulency of our Humours, and their Rarefactions, by an *Efferescence*.

C H A P. I.

Containing a Description of the Symptoms preceding the Fits of the Flatulent Asthma, and of the Fits themselves, with the several Intervals betwixt them.

IN the Afternoon which precedes the Fit of the *Flatulent Asthma* (which is commonly called the *Humid, or Spitting Asthma*) about two or three Hours after Meat, most Asthmatics are sensible of a great Straitness, or Fulness about the Pit of the Stomach, which is then much oppressed with Wind, and an insipid Ructus rises from it; and this Fulness of the Stomach is the first Sign of the ensuing Fit; it appears before any Cough or Straitness happens in the Lungs. This Fulness in the Stomach seems to me to depend partly on the Windy Rarefaction of the Digesting Meat contained in its Cavity; and also on the Inflation of the Nervous Fibres of the Skins of the Stomach.

An Effervescence in the Blood succeeds this Inflation of the Stomach: For these

Asthmatics are obscurely hot in the Night, and cannot bear the Heat of the Bed-Cloaths on their Breasts; all hot Things disorder them more, as sitting by the Fire, Wine, Tobacco; all cool Liquors, as Water, relieve the Fulness at the Stomach; the Issues are generally inflam'd before the Fits, and very sore, and bleed: There appears a great Dulness and Fulness of the Head, with a slight Head-ach, and great Sleepiness on the Evening before the Fit, and frequently great Retchings and Yawning many times, and towards Night a great Quantity of pale Water is made, and the same pale Water all that Night, and also all the first Day, of the Fit; but tho' the Water be pale before, and in the Beginnings of the Fits, yet it is as high colour'd after it, and appear^e plainly to have a Feverish Colour and Sediment.

After this obscure Effervescence in the Blood, succeeds a Rarefaction of the Spirits in the Nerves, and Membranes of the Lungs themselves; for they feel rigid, stiff, or inflated. There is a great Restlessness on the Spirits, all the Day before the Fit; the Head seems fill'd with Fumes, or serous Humours, with some Pain; the Limbs appear heavy and unfit for Motion, the Breast has the same Weight and Heaviness, as appears in the Limbs, the Asthmatic seem to suck in their Breath, and wheeze a little towards Night: This Straitness of Breath, seems to
be

be for want of an easie Inspiration ; the Diaphragme cannot Contract it self to move downwards, and that occasions a laborious Breathing to draw in Air ; the *Trachea*, or its *Bronchia*, have their Membranous and Nervous Fibres Contracted, by which the Wheezing is made in Expiration. The Asthmatic seem to have a Convulsive Cough before the Fit, and sometimes a little slimy Phlegm is spit up ; but both of them are very inconsiderable. The Lungs in the Humid *Asthma*, do not always appear to be much oppress'd with Phlegm before the Fit ; and at the End of the Fit, the Straitness goes off before any considerable Quantity of Phlegm is spit up ; which would not happen, if the Straitness depended on a great Quantity of Phlegm.

At first waking, about one or two of the Clock in the Night, the Fit of the *Asthma* more evidently begins, the Breath is very slow ; but after a little time, more strait ; the Diaphragme seems stiff, and tied, or drawn up by the *Mediastinum*. It is not without much difficulty mov'd downwards ; but for enlarging the Breast in Inspiration, the Intercostal Muscles, which serve for the raising of the Ribs, and lifting up the Breast, strive and labour more vehemently ; and the Scapular and Lumbar Muscles, which serve for strong Inspiration, join all their Force, and strain themselves to lift up the Breast and Shoulders, for the enlarging the Cavity of the

Breast, that the Lungs may have a Place sufficient for their Expansion, and the Air may more plentifully inspire.

The Asthmatic is immediately necessitated to rise out of his Bed, and sit in an erect Posture, that the Weight of the *Viscera* may pull down the Diaphragme.

The Muscles which serve for Expiration, cannot easily perform the Contraction of the *Thorax*, being hinder'd in that by the Stiffness or Inflation of the Membranes in the *Thorax*; for though the Asthmatic expire more easily than they can draw in their Breath, yet the Expiration is very slow, and leisurely, and Wheezing; and the Asthmatic can neither Cough, Sneeze, Spit, or Speak freely; and in the Asthmatic Fit, the Muscular Fibres of the *Bronchia* and *Vesiculæ* of the Lungs are Contracted, and that produces the Wheezing Noise, which is most observable in Expiration: But it is evident to me, that all the Lobes of the Lungs are not constring'd alike. For in the Fit I could never breathe tolerably, if I lay or lean'd on the left Side; which made me very sensible that all my Straitness lay on the right Side of my Lungs, and that inclin'd or naturally occasion'd me to lie on that Side during the Fit; but after the Fit was over, I always lie easiest on the Left Side: I perceive the Right Side to be most affected in my Case, and from thence all the Spit does plainly rise when the Fit goes off.

After

After the Fit is begun, the Stomach suffers a great Inflation of its Muscular Membranes, and also a great Rarefaction of its Contents; and this Flatuosity opposes the Descent of the Diaphragme, and straitens the Breath much more. If the Fits be Extreme, the Asthmatic often Vomits green or yellow Choler: Cold Liquors best agree with the Stomach; and hot Liquors, whether Vinous or naturally hot, make the Flatuosity, very Vehement and Suffocating.

I must observe, that the Fit of the *Asthma* happens often after Purging, Vomiting, or Fasting, when none or few Contents are in the Stomach, and then this Flatuosity must be a Nervous Affection of the Membranes: But I cannot but confess, that if any Surfeit or Fulness be in the Stomach, when the *Asthma*-Fit first seizes, the Danger of it is very great, and the Fit very Violent and longer, with much more Flatuosities.

The Asthmatic is extremely hot, burning and inclin'd to sweat, as in the Fit of a Fever, and his Pulse is quick, tho' unequal; and all the Feverish Symptoms continue during his keeping in Bed, which is not safe in a strong Fit, nor tolerable to the Asthmatic, who is necessitated to rise into the cool Air; and after he is risen out of Bed, a loose Stool frequently happens from the great working in the Belly, occasion'd by the Fit: And I have often heard the Asthmatic complain, that the Fits
of

of Inflation fall lower in their Bellies than ordinary, and then the Fits go off with less Shortness of Breath, and a breaking Wind downwards, with some Stools.

The Motion of the Muscles of the Heart is alter'd or stopp'd by the Fit; for the Pulse is weak and intermitting, and the Hands and Feet cold, for want of a free Circulation, and the Face often blackish by the Stagnation of the Blood in it; and for the same Reason the Asthmatic are very much subject to Swooning, and Palpitation of the Heart; because the Blood-Vessels are constring'd, as well as the *Bronchia*, by the Inflation of the Nerves and Membranes; for the *Par Vagum* sends Branches both to the Heart and Lungs, and Orifice of the Stomach, where the first Nervous Effects, or Inflations begin, and that by the same Nerves is communicated to the Heart and Lungs and Membranes of the Breast.

The intercostal Nerves are also affected; for that communicates with the *Par Vagum* Fibres, by which also the Nerves of the Guts are inflated in the Fit, and that sends Branches to the *Gula*, which can scarce swallow in the Fit, but it makes a Noise like breaking of Wind. From these Nerves come the Inflations in the Belly and Stomach, and frequent Eructations.

The Lips seem to be drawn into a Posture for sucking, the Eyes seem to start and shed Tears involuntarily, which frequently colour
the

the Skin near the Eyes yellow, or blackish ; the Face is pale or livid, the Muscles of the whole Body seem to subside, or lose their Plumpness, for want of the Circulation of Blood thro' them, and all Motion of the Limbs is languid.

After some Continuance of the Fits, the Head often Aches much, and is very dull, and troubled with dreaming Fancies ; and that this depends on the stopping the Circulation, may be prov'd ; because Combing the Head backward very much relieves it, by promoting the Circulation that Way ; the Asthmatic during the Fit, have a great Dulness to sleep, but sleep little till the Fit has spent the windy Spirits ; and in the first Day of the Fit they have often broken Sleep, sitting in a Chair, leaning on one Side, or forward, but cannot lean backwards : A strait Room, and a Fire in it, are extraordinary offensive, as well as any Dust, or ill Smell during the Fit ; and all things heated by the Fire, or of a vicious Nature ; and all things which oppress or straiten the Breast, encrease the Suffocation.

If the Fit last but two or three Hours after rising out of Bed, the Straitness abates, and some raw Gelly like Phlegm, like the White of an Egg, or the Solution of Gum Tragacanth, is spit up, both in the Humid and old Hysteric *Asthma*, and that is streaked with Black, like a Feather, or Spider's Web.

When a short Fit happens, it is accompany'd only with Wind, and Spitting, with a
feverish

feverish Pulse, and a quick Disposition to sweat, and the Water is higher colour'd in the Morning, no Oppression at the Stomach precedes, nor no pale Water, and but a little Sleepiness over Night: This I call a spitting Fit; such as my *Asthma* was before it settled into Periods. And these Fits, depended on Disorders in Diet, and Accidents of Weather; and appeared to me a Fit of an Ephemera-Fever.

If the Fits continue long, *viz.* two, three, or four Days, the first two Days none or little Phlegm is spit up; but on the third or fourth Day it is cough'd up somewhat digested, and less viscid, of a white, greenish, or yellow Colour; and in old Asthmatics, sweet in Taste like Blood, or Liquorish, or else a little putrid, saltish, or acid; and the Spit of the Asthmatic is often streaked with Blood.

The Fits usually go off in three, four, or five Days clearly; so that little Phlegm is spit afterwards, till the next Fit.

The Occasion of settled Periodic Fits in myself, were an Intermitting Fever; of these I kept a Calander for seven Years, that I might better observe their Intervals, and their respect to the Moon and Weather; and such Physick I us'd for them. The Observations I made thence, are as follow.

I observ'd, that in the Winter were sixteen Fits, but in the Summer-Months I had twenty Fits; and in the Summer the Fits were
more

more sharp and longer, and that I spit more digested Phlegm then: In *August* I always had the severest Fits. The longer the Fits, the greater the Intervals: The long Fits lasted 3, 4, or 5 Days; the shorter the Fits, the shorter were the Intervals.

The short Intervals were 2, 3, 4, 5, 6, or 7 Days; the longest Intervals 8, 9, 10, 11, 12, 13, 14, or 15 Days. The Winter-Months I reckon from *September* till *March*, and from thence to *September*, the Summer-Months.

In Rainy Weather, or towards Snow, and in the Foggy, I am frequently sensible of a great Straitness at the Stomach; so that such Weather gives an Inclination to a Fit before either the Rain or Snow fall; but in all that kind of Weather I sometimes missed a Fit.

The Fits usually returning once in a Fort-night, they frequently happen near the Change of the Moon; but I could not perceive they kept any certain Times either before or after; but sometimes they happened near an equal Distance from both the Changes: But I believe, as the several Phases of the Moon alter the Weather, by that means it produces some Alterations on the Spirits of the Asthmatic.

Helmont observes the Influence the Moon has on an Asthmatic: *Exacerbatur Lunæ stationibus, & arvis tempestatibus, quas ideò præsentit & præfagit.* And I always upon unexpected Fits, found some great Change of Weather to succeed. *Hor.*

Horstius mentions a Young Asthmatic, *Qui crescente Luna afficitur anhelatione crebra.*

A Change from a Frost to a Thaw, frequently gave me a Fit, with a Rheumatic Pain in the Temples.

A Change of the Wind into the East often produced a Fit.

In the Intervals of the Fits I unsuccessfully tried these Medicines. I drank many Pectoral Drinks, as *Gill* and *Hyssop*, and sometimes *Rue* in Diet-Drinks; the last was good for the Wind, but troubled my Spirits: I used *Syrup of Garlick*, *Syrup of Sulphur*, *Tincture of Gum Ammoniacum* in *Elder-flower Water*, *Tincture of Lavender*, *Spirit of Hartshorn*: *Broom-Beer* agreed with me better than *Gill*, or its Juice. I tried *Myrrh* thus; ℞ *Myrrh* ʒij. *Mellis* ʒij. *Croci* ℞. *Nucis moschat.* ʒ℞. *Misce.* This is an excellent Pectoral, but hot: I tried *Saffron Lozenges* thus; ℞ *Crucipulv.* ʒi. *Sacch.* ℞i. I tried *Flores Sulphuris*, and *Flores Benzoin.* in *Lozenges.*

I smok'd *Amber* with my Tobacco. I used all kind of Balsams, *Gilead Bals.* *Peruvianum*; ʒi. *Solut.* in ℞i. *Syr. Bals. Sulph.* *Anisat.* *Succinat.* *Terebinthinat.* *Tinct. Sulph.* with *Syrup of Ground Ivy.* I tried *Lime Water*; Infusions of *Millepedes*, Decoction of *Sarsæ*, Drinks with *Horehound* ℞℞. to six Gallons.

I drank the *Spaw-Waters* to my Injury, the Stipticity of the Steel proved injurious. I
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tried Extracted *Ecphracticum* at Night, and at other times *Vitriolum Martis* dissolved in Milk-Water ; and a very severe Fit discouraged my farther Use of Steel.

I often Vomited, Bled, Purged in the Intervals ; but found no Relief by any of these Methods.

None of the preceding Methods would succeed, but encreased the Severity of my Fits. At last I vomited once in a Month ; I took six Ounces of the *Cortex* infused in Wine ; and after that, three Ounces of *Ammoniacum* dissolved in *Oxymels*. This Method relieved me for three or four Months in the Winter ; but at last proved unsuccessful, and the Fits returned as bad as ever. I drank Asses Milk, which encreased my Phlegm, and stopp'd up my Lungs. Next Summer I drank the Waters at *Bath*, where indeed I had no Fit ; but they returned severely when I came home.

I found I had read most of the Modern Writers, and hitherto had tried their Methods, and hot Pectorals, and Cephalics in vain : I believed, by my ill Success in their way, that they never understood this Disease ; and therefore turned over some of the Old Writers, *Galen*, *Ægineta*, *Ætius*, &c. where I found more rational Notions ; and was directed by them to the Use of that Medicine which does very much relieve and prevent my Fits ; of which I will hereafter give an Account.

I

I cannot remember the first Occasion of my Asthma; but have been told, that it was a Cold when I first went to School. As my Asthma was not hereditary from my Ancestors; so, I thank God, neither of my two Sons are inclined to it, who are now past the Age in which it seized me. I at first was only troubled with it at the great Changes of the Year, and preserv'd my self tolerably in Health for some Years, by taking Purgings Pills frequently: I never had any considerable Fit in *Oxford* for Twelve Years that I liv'd there, which I imputed to the Clearness of that Air, and the spare Diet there; but as oft as I came into *Staffordshire*, into my Native Air, I was usually visited with a severe Fit or two: The Air of a Town makes the Fits more severe when they happen; but I do not think the Asthmatic so much expos'd to the Accidents of the Weather in a City, as in the Country: The Asthma being a Fever Fit, all hot Regimens and hot Air, such as that of a City, may dispose some lean hot Bodies to Coughs, and consequently Fits; but I could never observe my Fits to come oftener in *London* than in the Country, only I find them more severe in a close Air, as they would be in a close hot Room, when they happen.

I have met with some Asthmatics, who have been so for Fifty Years, as they inform'd me, and yet in tolerable Health, without

without any considerable Decay of their Lungs, or Disability to perform their usual Employments ; which I oft reflect on to encourage my Patients, and my self, who yet can study, walk, ride, and follow my Employment, eat, and drink, and sleep, as well as ever I could ; neither am I yet sensible of any Decay in my Lungs ; tho' I believe, all old Asthmatics have several Tubercula there, and the Glands of the Trachea are much Relaxed by the frequent Defluxion of a Mucus through them : But the frequent Expectorations carry off the Fulness of Humours ; and I have observed very few to die of the Asthma Fit : But the Frequency of that often occasions Consumptions in lean Habits ; and Dropsies, Lethargies, or Inflammations of the Lungs in fatter Constitutions, which prove fatal.

Enquiries sent to an Ingenious Lady, troubled with an Hysteric Asthma, and her Answers to them.

Quere 1. **W**HAT was the first Occasion of your Hysteric Asthma ?

Answer. The Affliction I had by the Loss of my Father, threw me into a violent Fever, which happened in the Spring, I being then 14 Years old ; and about that time Twelve-month into Fits of the Mother, and
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those of several sorts, as Raving, Laughing, and Silent: And in one of these Fits Tobacco being blown on my Face, recover'd me; but in other Fits, this being repeated, I found my Breath become streight. This Difficulty of Breathing was much more uneasy to me than any of the Fits of the Mother. And after this, I was troubled sometimes with the one, and sometimes with the other: But after I was married, which was at about 22, I never had any Fits of the Mother, other than Shortness of Breath: Though the Trouble I have mentioned, produced these Fits, yet I cannot but acknowledge, I might have some Disposition to the Asthma from my Father, who was also troubled with a Shortness of Breath.

Quere 2. What Alteration has happened in the manner of your Fits?

The first Fits I had, generally lasted me 36 Hours; but I never had more than three or four Fits in one Year: But coming from *London* into the Country, I had them frequently; and in the Beginning of *July* they seized me violently every Morning at Two a'clock, and held me in great Extremity five or six Hours, and went off generally at Noon; and after that, till the next Fit, I was tolerably well; but for seven Weeks time I never went into Bed till after my Fit was off. I slept in a Chair leaning on a Table, which I use to this Day, and find it the easiest when

when my Breath is indisposed : for many times my Wheezing will leave me in sleeping thus : But if I lean back but a little in a Chair to sleep, or in my Bed raised with Pillows, I shall Wheeze the more.

Quere 3. What Signs preceded your Fits, as Head-ach, pale Water ; and in what manner did the Fits hold you, how many Days, and what Spit after it ?

My Straitness, or Hardness of Breathing is betwixt the Breast and Pit of my Stomach ; but indeed my Arms, Shoulders, and all my Upper Parts, are generally uneasy. I never spit in any Fit, or afterwards, unless my Fit comes upon catching Cold ; then at the going off I spit white Phlegm, with black Streaks like Feathers ; but I am not now so subject to Colds as formerly.

My Head is always well in the Fit, except in the long one I mentioned, when it was benumbed in the hind Part, and my Eyes dim when the Fit went off. If I be sleepy on a sudden, a Fit generally follows. I observed no Quantity of Water before the Fits ; but always a great Quantity of pale Water in the Fit ; but it is high-coloured as the Fit goes off.

Quere 4. What Medicines have relieved you most, and what did you find injurious to you ?

At the first, Spirit of Castor in fair Water relieved me, and Hysterical Mixture by

Dr. *Hewet* of *Lichfield*, in the Year 76. Theri Treacle - Water ; afterwards Prince *Rupert's* Drops ; sometimes Spirit of Hartshorn did well ; but in my long Fit I mentioned above, it made me worse, and I fell into a sort of Convulsion with it, and never took it since. Dr. *Hollins* gave me all the Varieties of Hysterical Medicines, Juleps, fœtid Pills, and Plaisters, but none of them gave me the least Relief ; but I continued out of my Bed for seven Weeks ; at last I took a Dram of the Jesuits Powder in a Cordial Water, and that first Dose relieved me so sensibly, that it seemed to press down the Stoppage of my Breath ; and by repeating that Morning and Evening, I perfectly recover'd, and since I find the same Medicine more beneficial to me than any other for preventing my Fits. Any thing of Strong Waters, or that is hot, or any Stink, much offend me in my Fits.

Quere 5. What Feverishness attends your Fits ?

In my long Fit I had no Fever ; and in that Fit Purging disturbed me extremely ; in other Fits my Hands are sometimes very hot, and at the going off, my Water is very high colour'd, and breaks much. I have had a Fever four Years ago without any Shortness of Breath ; but as soon as that left me, the Asthma return'd.

Quere 6. What Accidents of Weather or Diet occasion your Fits ?

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I have found *London Air*, and that of *Holland* agree best with me; and by going into a sharp Air, I have immediately fallen into Shortness of Breath, particularly in my going from *London* to *Epsom*; but upon my Return next Day to *London*, I was very well. I have had severe Fits in *London*, none in *Holland*, but a little Heaviness which the Jesuits Powder put off immediately. Eating a Supper, or any thing in an Afternoon, occasions my Fits; but in the beginning of my Fits, Supper agreed well with me.

P O S T S C R I P T.

My Fits have often returned, and the Jesuits-Bark never fail'd Relieving me for ten Years; afterwards the Bark sometimes fail'd me, and then I bled oft.

About 15 Years ago Spring and Fall I took Steel for eight Weeks, and Purged once a Week in that course with *Hierapicra*; for all Potions were more apt to bring a Fit. After some Years I took Steel without Purging, which made me worse, so that I then left it off; but when I took it with Purging I was better.

Four Years ago after my Fever, I began to take strong Purgers of Sena and Buckthorn two Days together, once in a Fortnight, and to Vomit with *Carduus* once in a Month; which with the oft repeating the Bark, kept

off my Fit Nine Months together; but still in *July* and *August* I have some Return of my Fits, but of no great continuance, and very seldom violent. About six or eight Years ago I spit in my Fits; but since my Purging I spit no more than I did at first, twenty Years ago.

I have omitted to mention this, that my Fits never seize me but in the Night, and then awake me with a Heaviness, and so grow worse and worse immediately. I am always most easie when I am Lac'd, and my Fit goes frequently off on a sudden, so as to be perfectly well in half an Hours time. I have lately had two easie Fits, which I impute to Purging and Vomiting before they came.

If I may give some *Rationale* on this Lady's Asthma, I believe the intermitting Fever laid the Foundation of it; and the Reliques of that by the Trouble mentioned, was turned into the Nerves, and gave her Hysterick Fits; and those being disturbed by the Smoak of Tobacco, which is yet extreamly offensive to her if she smell it: Or else, the Disposition from her Father, laid the Foundation of an Hysterick Asthma, which at present receives no Relief by Steel, or Hysterick Medicines; but by Vomits, strong Purges, and frequent Repetitions of the Cortex.

C H A P. II.

Of the Preternatural State of the Chyle and Blood, and Serum in the Asthma; and of the Rarefaction of the Animal Spirits, by an Effervescence in the Humours, which produces the Periodical Fits.

THAT the Preternatural State of the Chyle in the Asthma is a Flatulent Crudity, appears, because all flatulent things, as new Beer, Turneps, Cabbage, and all Roots which have a Mucilage and Acrimony mixt, very much disagree with the Asthmatic, by irritating the Spirits, and creating a Windiness in the Stomach, and they also affect the Nerves.

Frequent Eructations precede the Fits of the Asthma, and a Fulness is commonly complained of in the Stomach before the Fits.

That the ill State of Chyle supplies the new Matter before the Fit of the Asthma, appears, because the Oppression at the Stomach, and some small Straitness of Breath happens within two or three hours after Dinner; and the Exacerbation of the Fit happens in the Night, about two a Clock, when the Chyle is most plentiful in the Blood; and no other Humour is so capable of Fermentation and Flatuosity as the Chyle is: for if the Chyle

be not perfectly digested by a thorough Fermentation, it resembles new Ale unripe, which is very Windy; and this causes the same Inflation that the other does in the *Primæ Viæ*.

The Agitation of the Spirits, and their Expansion of the fermenting Mass, produces the Fermentation and Dissolution of the Meat in the Stomach; which being either deficient, or else stopt in their Motion by a viscid Slime, the Spirits remain Inviscated in the roapy Liquor, and there raise Bubbles, which we call Wind.

It is commonly observed, that Fulness of Diet, and all Debauches, render the Fits most severe, and a temperate Diet makes the Fits more easie. I have heard some Objections against the Digestion of Meats by a Fermentation in the Stomach, to which I will give the Solutions following.

'Tis objected, that Fruit and new Wine are easily fermented; but not easily digested, which they ought to be if Digestion was made by a Fermentation.

To this I may answer, That that kind of Diet easily raises Windiness in the Stomach; and therefore some Fermentation happens after eating thereof, which occasions the Ructus, and Swelling of the Stomach: and 'tis an Excess of Fermentation to which that kind of Diet is subject, which produces the Fevers, Vomitings, and Fluxes to those that use it,
than

than a Defect of the Digestion or Fermentation. And as we observe, Wines may be under-fermented and crude, or else over-fermented or acid; so we must acknowledge two contrary Faults in Digestion; the one when the Meat is crude, slimy, windy, acerb; or else when the Meat is over-digested, and becomes acid, bitter, salt, putrid.

'Tis further objected, that Bones, Flesh, Fat, and putrid things, are easily digested, and yet difficultly fermented.

To this I may answer, That Fat is of all things the most difficultly digested, and as difficultly fermented: I have observ'd Suet to lie in the Stomach of a Dog fed with it, twelve Hours undigested, and very little alter'd, as I have found when I have open'd him. Fat Meats often go whole thro' the Body unalter'd; and Butter is heavy, or hard of Digestion to many Stomachs: As to Bones, they lie long in the Stomach before their Dissolution; 'tis their Gelly they are resolv'd into by Digestion that is fermented in the Stomach; but the hard Parts go off undissolv'd in the Fœces.

The new Digester, dissolves them into Broth, by Heat, rarifying the Air, included in their Pores, and in their Juices; and the gentle Heat of the Stomach in a lower Degree, and a longer Time, rarifies the Air in the Animal Juices contain'd in the Bones; which may occasion the Solution of the solid Parts
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of the Bones, and a full Digestion of the Liquors issuing from them.

Putrid things are easily digested, because half fermented; and therefore they are apt to ferment too much in our Stomachs, and occasion Surfeits.

Flesh Meats are easily made putrid, and that is the highest Degree of Fermentation. The external Heat of the Hen, Colliquates the Humours contain'd in the Egg when 'tis hatching; and if the Formation of the Fœtus miscarries, nothing is more putrid; which is an evident Proof of a Fermentation in Animal Humours: And if the Digestion of Flesh in the Stomach be observ'd, the Fœtor and Acid Smell from a Carnivorous Stomach may more plainly prove the Dissolution of it, by a putrefactive Fermentation.

The common Objection is, That the Contents of the Stomach, when distill'd, yield no inflammable Spirit, and therefore are not fermented.

To this I may answer, That no Aliments stay long enough in the Stomach to be perfectly fermented; and till Vegetables are perfectly fermented to a sharp Acidity, they do not yield their inflammable Spirits; but the Fermentation in the Stomach is continu'd but some few Hours, for the Dissolution of the Meat, which is then carried out into the Guts; where the Choler and salt *Lympha* being mixt with the Chylous Mass, a Stop may there-

thereby be given to all farther Putrefaction of it. But that an inflammable Spirit may be distill'd from Animal Humours fully prepar'd, appears by a remarkable Instance, given in the *Collectanea Chymica*, in the Anatomy of the Bile; where the Author describes a volatile Spirit from Choler, distilled in B.M. which is inflammable like Spirit of Wine.

Not only the Chyle and Alimentary Mass in the Stomach and Intestines, have their preternatural State; but the *Lympha Lactea* (which is a Chylous Humour, separated from the Chyle by the Mucous Glands in the Stomach and Lungs) is too crude, slimy and flatulent, and thereby less fit to promote the Fermentation of the Meat in the Stomach. This is evident and visible; if a Vomit be given to an Asthmatic, a great Quantity of this frothy, crude, or slimy Mucilage is evacuated; and this way a great Ease is given to the Paroxysms, some Matter of the Disease being evacuated, which increas'd the Inflation of the Stomach; and this viscid *Saburra* in the Stomach, is most observable in old Asthmatics, both in those that have the Spitting, and Hysterical Asthma.

In the Spitting Asthma, this slimy *Lympha* is very evident, and gives the Matter of the viscid Phlegm, usually spit up at the End of the Fit: It at first appears clear, like a Solution of *Gum Tragacanth*; but after some Days, like the viscid and digested Phlegm in a Cold.

All

All kind of viscid gummosse Meats or Drinks, stop and oppress the Stomach and Lungs of the Asthmatic, and occasion their Fits, which is by supplying a great Quantity of viscid Chyle and *Lympha*, which will not easily circulate thro' the Lungs of the Asthmatic, which are frequently obstructed by crude Tubercula. The Serum is made of the Chyle, and therefore must have the same kind of Flatulency and Sliminess as the Chyle has. In the hot scorbutical Temperaments, 'tis deficient and viscid, which occasions either Tubercula or Inflammations in the Lungs; or else 'tis too waterish in the Hydropical, or very apt to Effervescences in the Hysterical and Hypochondriacal. The pale Water in the Fit, is the thinner Part of the Serum, occasion'd by some Constriction of the Lymphatics. For as in the Fits of the Stone, the Urine is pale, because of the Constriction of the Lymphatics, thro' which the remaining Serum ought to be carried off, upon the Secretion of Part of it thro' the Kidneys; but the Pain causes that Constriction: And in the Asthma, the Inflations, by stopping the Circulation of the Serum thro' the Lymphatics, occasion this great Diabetes in the Asthma; as will hereafter be more fully explain'd.

This Defect of Digestion and Mucilaginous Slime in the Stomach, are very obvious, and observ'd by Writers, and were suppos'd the immediate Cause of the Asthma; but
their

their ill Success with Pectorals and Digestives, occasions my doubt of that Assertion; especially since I can deduce the Asthma from a more probable Cause, and shew that the mentioned Alterations of the Humours, are produced by the long Continuance of it, and do not produce the Fits of the Asthma; but only make them worse, or dispose us to them.

All Chronical Causes, as the Gout, Consumptions, &c. produce the same viscid Saborra, with Windiness in the Stomach, and yet are not usually attended with Asthmatic Fits; and the Inflammation of the Lungs, the Tubercula in Consumptions, the great Clog of Phlegm in Catarrhs, stuff and oppress the Lungs, and occasion a Dyspnæa, but do not commonly give Asthma Fits; and therefore we must seek for some other Cause of them.

The Blood of Asthmatics is very subject to Effervescences; and whatsoever produces that, occasions the Fits; as great Heats or Cold, violent Motions of the Body or Mind, any Excess in eating and Drinking, or Venereal Pleasures; the Heat of the Bed, the Changes of the Weather to Rain, Snow, or from Frost to a Thaw; the Alteration of Clothes, the Changes of the Air at Spring and Fall: All these are Causes of the Fever we call an *Ephemera*; and they also produce the Fits of the Asthma: from whence I may infer, that the
Nature

Nature of the Asthma consists in a slow Effervescence, or Ebullition of our Blood, on which the several Symptoms of that Disease depend.

The common Ephemera happens in a healthful State of Blood, when 'tis not tinged by any morbid Cacochymia ; and that Ebullition is attended with the common Symptoms of Fevers ; as Heat, Pains, quick and high Pulse, Thirst, and sometimes high colour'd Water : But in the Asthma, the Effervescence happens in a mucilaginous State of Humours ; and therefore the Heat is sometimes obscure, the Urine pale, the Pulse quick, but oppressed ; some Pains in the Head, or Heaviness attends it ; and if the Patient keep his Bed in the beginning of the Fit, they are very hot and inclinable to Sweat ; and at the latter end of the Fit, the Urine has evidently a feverish Sediment.

The great Constriction of the Pulmonic Arteries, and the other Blood Vessels, as well as the Heart it self, in the Fit, stops the Pulse of the Asthmatics, and that depresses the feverish Ebullition, and prevents the Heat, high Pulse, and high colour'd Urine at first.

The quick and strong motion of the Heart promotes the Ebullition in Fevers ; and if by Opiates we can stop the violent Pulsation, the Effervescence considerably subsides.

That the Nerves may stop the Circulation very much in the Asthma, is evident by the frequent

frequent Circumvolutions they have about the Blood-Vessels near the Lungs. And since the Nerves make an evident Constriction on the Bronchia during the Fit, we may observe by the intermitting Pulse, that they make the same sort of Ligature upon the Arteries, and thereby check the high Effervescence of the Asthmatic Fever.

The Ferment of this Asthmatic Fever is the flatulent *Succus Nutriticus*, which by reason of some Crudity, is not fully digested into Blood, but is thence easily precipitated by the Changes of the Air, Diet, or other external Accidents; or else of it self, like as in other intermitting Fevers, once in 10 Days it separates from the Blood; and by making its Consistence turbid, it produces in it an obscure Effervescence, by which the several great Symptoms of the Asthma are produced.

1st, A great Quantity of pale Urine is thrown off by that Effervescence.

2^{dly}, A flatulent Lympha is evacuated into the Stomach and Guts, which raises the Alimentary Mass there into violent Flatulencies, like Wine over stummed.

3^{dly}, The Glands of the Trachea and Vesiculæ of the Lungs receive part of the mucilaginous, flatulent, nutritious Juice separated from the Blood by the Effervescence: For the occasion of this Symptom in the Spitting Asthma, is the Weakness left in those Glands, which

which they contracted from that Inflammation of the Lungs which produces the Spitting Asthma.

4^{thly}, The more spirituous part of this slimy and flatulent nutritious Juice passes through the Nerves, being forced by the Effervescence, and there, because of the slimy Vehicle of the flatulent Spirits, difficulty circulates through the Nerves; but fills them, and causes an Inflation in the Membranes of the Breast, and Lungs, and Stomach.

The Nerves of the Breast were formerly weakened by some Dispnoea, occasioned by Inflammation of the Lungs, or some Hysterical Convulsion, and thereby lost their Tone, and became too open for the admitting of flatulent, unripe or undigested Spirits from the Blood; and this Pre-disposition determines the Flux of windy Spirits chiefly into the Pulmonic Nerves.

When I have been in a Fit of the Asthma, I have seriously consider'd all the Symptoms describ'd, and always believ'd from my Sense and feeling of the Disease, that the Fit depended on an inward burning Heat which occasioned them; so that I am fully convinc'd, that the Asthma Fit is a Fit of a Fever.

Carolus Piso affirm'd this long since; and *Sennertus* could not believe the Asthma to be without a Fever: He says, *Est blanda febris & halitiosa, qualis etiam alios morbos à fervore*

Et motu serosi humoris ortos, ut Arthritidem, Catarrhos, Et hujusmodi fluxiones, alias comitatur.

The Modern Physicians have observ'd many Intermitting Fevers to lurk under the Disguise of Chronical Diseases, as Coughs, Cholicks, Head-achs, Fits of the Mother and Swooning-Fits; and the feverish Heat, quick Pulse, and high colour'd Water disappears, till the Blood be rais'd to a higher Digestion, or Fermentation: The same is often the Case of the Asthma; the Effervescence is in the Blood, decay'd by some former Disease, which occasions the Water to be pale, and the Heat little.

That the Asthma may be a Symptom of an intermitting Fever, is evident by the Description of some Cases of that nature in some Modern Writers: And I remember an Apothecary, who, after drinking largely, was seized with an Intermitting Fever, with an Inflammation of the Lungs, and every Night a Fit of the Asthma accompanied the Fit of the Fever, which after three Weeks was cured by frequent Bleeding, Vomiting, and at last Purging; but the Asthma long after continued, returning every Night with large Spitting. He us'd too little of the Cortex, and therefore suffer'd these Returns of the Asthma upon any Disorder, for half a Year: when the Fever evidently returning on the Change

of the Year, seized his Head with a Delirium and Convulsions, and so killed him.

In this case it appears to me, that the Asthma depended on the Fever whilst that was evident, and afterward whensoever the Relicks of that Fever were agitated by an Accident into an Effervescence, they produced only the Asthma Fit, without the usual Symptoms of the Fever.

I will give another Instance of a Patient about 50 Years old, who after an ordinary Intermitting Fever, without any Symptoms of the Asthma, Relapsed after 14 Days into the same Fever, which returned every 12 Hours, and held him shivering and shaking, with a terrible Fit of the Asthma, for about half an Hour; and that passed off without any considerable Sweat, or Heat, or Spitting: This Person was subject to a Paralytick Shaking, and in the Fever had strong Convulsive Motions: The Cortex would not stop any of the Fits; but *Riverius's* Salt Mixture did put off the Fits for some time; but neither that nor Alexipharmics would cure him.

By this Instance I observ'd, that an Intermitting Fever having its Matter transferred to the Nerves, produces the complicate Fevers described by the Antient Writers; in which many Irregular Returns happen, and those great Shakings which denominate the Fever, *Horrida*, &c. in which they observ'd Nervous Symptoms with pale Water.

I was consulted for a Gentleman, who at the latter end of a Tertian, was taken with Swooning-Fits at certain Hours every Night: He grew very cold, short breath'd, and then swooned, unless he used great Quantities of Spirits and Cordials: This was certainly the Relicks of his former Ague, and he was cured by Salt of Wormwood, and *Elixir Proprietatis*, given at convenient times. And the same Swooning-Fits, I knew, cured in another by the Cortex. In neither Cases the Fever was discernible, either by Thirst, Heat, or Urine. I have mentioned these Cases, to shew that all Fevers are not regular in their Symptoms, and that the Asthma is one of those Irregulars, both as to any extreme Heat, Thirst, &c. and also in its Periods; because it returns every tenth Day in the Periodical Fit, or else Spring and Fall, as intermitting Fevers; and it has this Peculiarity of Anomalous Fevers, that its greatest Symptoms appear in the Nerves, *viz.* the Inflations, which I shall next describe.

That old Distinction of Natural, Vital, and Animal Spirits, must be still admitted, and approved by all Modern Physicians, and I will give my Explanation of it, being oblig'd to admit that there are Animal Spirits which produce the Inflations of the Membranes in the Asthma-Fit.

If we consider the Generation of Vegetable Spirits, we may more easily apprehend

the Rise and Constitution of the Animal.

That all Vegetable Spirits are prepared from their Oil and Acid, appears by their Preparation : For if the Vegetables be fermented, a Spirit may be distilled from them ; but if the Vegetables be distilled after a short Digestion, an Oil is distilled from the same. Fermentation dissolves the Tartar of Liquors, and makes it spirituous, by which it affects the Nose strongly.

By Fermentation the Air is mixed or united with the most volatil Particles of the Oil and Acid, and that gives the Elasticity and Briskness of Motion to the Spirits of Fermented Liquors: Their Inflammability is from their Oil, and their sharp Pungency from the volatil Tartar. This volatil Oil and Tartar, if they swim in the Air, they are like the resinous Particles of Smells affecting our Noses by their Spirituousness ; but if contained in a Bubble of Water, they may be called the Spirit of that Liquor. Those volatil hot Parts, like Fire, rarifie the Air included in the Bubbles, and make it more Spirituous and Elastic ; the Oil and Acid being of different Natures in different Vegetables, they variously denominate and distinguish these several Spirits, and give different Rarefactions to the included Air in the Bubble constituting those Liquors.

The first Production of the Spirits in Animal Humours is in the Stomach ; when the
Meat

Meat being dissolved by Fermentation, or Agitation of its aerial Particles, the volatiliz'd oily Parts (which give the Fœtor) and the volatil Acid, which smells sharp or sour, mixt with the Aerial Elastic Particles, and included in a Bubble of Water, compose the Spirits of Animal Humours; the Frothiness of the Contents of the Stomach shews the Oily Viscidity of the Chyle, and that was necessary to constitute the Bubbles for containing the Spirits of Animal Humours.

These *Bohnius* describes in the Chyle, by the Help of the Microscope, *Chylus est fluidum ex globulis diaphanis, per liquorem crystallinum agitatis.---* And *pingues chyli particulae in bullulas sive vesiculas ab aeris Atomis reducuntur.* If too much Slime abound in the Chyle, the most rarified Parts of the Air, and volatil Parts of Meat, are fully enclos'd and retain'd, and create a very windy Liquor; such as is that of new Wine or Beer undepurated from its Slime, and Windiness, or spirituous Air. It is in Animal Humours as in all other fermented Liquors, the better it is fermented, the more quick and brisk are the Spirits; but if it be not sufficiently fermented, the Spirits are windy and flat; if over fermented, the Spirits are easily evaporated, or else turned eager, or acid, or fœtid. So all Aromatics, as Orange or Citron Pills, if fermented too long, they yield a fœtid Oil and stink; if less fermented, they yield an Aromatic Oil.

In the Chyle the Spirits are like that of new Beer, crude, raw, and not inflammable; but in the Blood they are more depurated by Secretion of slimy Humours, such as the Lacteal Lympha; and by long and frequent Circulations, the oily, acid, aerial Spirits become more volatil, and are contained in the Bullulæ which make the red Particles of Blood: And these *Bohnius* thus describes; *Rubicundam portionem autopsiæ mobiliorem esse, hinc magis activam ratio suadet. — Spherulæ illæ agiles gelatinosa ramenta simul in motus perennes abripiunt, & mutua attritione deliquant, rubicundæ vesiculæ per Microscopium apparent per Chrysellinam Lympham ferri, quæ statim cum secunda quietem componunt, motore vitali destitutè, in grumum nigricantem facessunt.* These large red Bullulæ in the Blood contain the rarified Air and volatil Particles; and because they do not readily mix with Water, they may have some Fatness or Oil in them. The Use of these is to dissolve and make the mucilaginous Mass of Blood more fluid, which helps its Circulation and Secretion, Digestion and Assimilation of the new Chyle; and in this consists the Use of the Vital Spirits. If these Globuli contain a very windy Spirit, that makes it subject to Effervescences, and Fevers, and Defluxions: For that forces the Serum that is Cacochemical, too much thro' the Cephalic or other Glands, which ought naturally to be perspir'd, or go off by Respiration.

If

If these windy *Globuli* fill the Respiratory Nerves, and Muscular Membranes, they produce that Stiffness or Rigidity observed in the Breast in the Asthma Fit.

The Spirits we call Animal, are probably a Congeries of the *Globuli* observed in the Blood, and are separated from it by the Glands of the Brain; and since the Animal Spirits pre-existed in the Blood, they must partake of the same preternatural Quality and State, as is observed in the Chyle and Blood, and be very windy, and easily rarified; and because of their mucilaginous Vehicle, unfit for a free Circulation through the *Nervosum Genus*; but apt upon great Rarefactions, to stand inflated.

There is a continual Flux of the Animal Spirits into the Pneumonic Nerves, for the necessary Use of Respiration; and also into the Cardiac Nerves, to perpetuate the Circulation of the Blood; as also into the *Par Intercostale*, to promote the constant Peristaltic Motion of the Guts; and these Nerves are chiefly affected in the Asthma, and none of those which serve for voluntary Motion; and by reason of the continual Flux of Spirits thro' the mention'd Nerves, they must be more open, and apt to receive the windy Spirits from the Blood, by which the Asthmatic Inflation is made in the Breast and *Primæ Viæ*.

The Nerves of the Lungs were also weakened by some precedent Inflammation in the

Spitting Asthma, or else by Hysterical Dispnaea's in the Hysterical Asthma; and that determines the Motion of the windy Spirits very much that way.

I have describ'd the mucilaginous windy Temper of the Chyle, and Effervescence of the Blood, and Windiness in the Animal Spirits, in a mucilaginous Slime, to whose Rarefaction the Stiffness and Rigidity and Contraction in the Membranes is to be imputed.

If I had only describ'd the *Globuli*, and imputed all Effects to mechanic Motion, I could not have taken any Indication thence useful in Practice; therefore 'tis necessary to describe the Cacochymia's, against which I must direct my Method and Medicines: And I must desire the Mechanic Writers to explain in what Part of the *Globuli* the Oil, the Acid and the Earth stands, and how Fermentation alters them, and how Medicines work any Alteration in them. The Chymical Principles are more useful in Practice than the Mechanic; but above all, the old Galenic Cacochymia's: For tho' Nature be too fine for me to discern its Figures and Motions in Fermentations, yet 'tis easie for me to observe the Effects of that great Instrument of Nature's, whereby she changes Liquors from one Cacochymia to another, and makes the preternatural State sensibly slimy, windy, acid, ferous or salt; viscid, acrid, bitter or putrid: This I can see, taste and understand: These were the

the true, sensible, ancient *Galenic* Notions, useful in Practice. In his Method of curing Inflations, he describes the Ἀτμῶδες Πνεῦμα in Animal Bodies, which is raised by the natural Heat, and ought to perspire from our Humours, after a perfect Digestion; and when the innate Heat (by which is to be understood the Fermentation of Humours) is weak, or the Humours half digested, thick, glutinous, that impure Spirit cannot perspire, especially if the Pores be stopt. He observes farther, that sometimes the Heat being increased, the thick and glutinous Humours are resolved into thick Vapours.

Galen describes the Πνεῦμα φυσῶδες, as the Matter of flatulent Tumours, which he calls Πανὸν ἢ ἀτμῶδες, not αἰθερῶδες, nor πεντὸν; and this he explains by a different Constitution of the Air in the South and North Winds; a tempestuous Air full of Vapours, is like the windy Spirits; but a clear sedate Air like the natural, Ætherial, well-digested Spirit. This Notion is easie, obvious and true: for in fermenting Liquors there rises a spirituous Vapour from them, which bursts the Vessels if restrained, and this is the windy Spirit; but that which agitates the Globuli of perfectly fermented and depurated Liquors, that is more pure, and less Elastic than those before-mentioned.

I will next describe those nervous Parts that are filled, inflated, and become tense or
stiff

stiff by this immature or ill prepared Spirit.

Galen observes, That the Πνεῦμα πικρὸν καὶ ἀτμώδες is contained sometimes under the Skin covering the Bones, sometimes under the Peritonæum, sometimes in the Belly, sometimes under the Skins covering the Muscles, and sometimes in the Membranous Tendons, and the Muscles are filled with that Spirit; by which we may observe, that he observed it was usual for that Spirit to affect the Membranes; but this it does not only externally, by Inflating them, but enters into the hollow Tubes of the nervous Fibrillæ, which constitute the Nerves and Membranes.

The Membranes that are inflated, and thereby contracted in the Asthma, are,

First, Those of the Lungs and Cavity of the Breast. Almost the whole Substance of the Lungs is Membranous, consisting of the Trachea, Bronchea, and Vesiculæ; the exterior Membrane of the Trachea is described to have motritious Fibres, which go along the Length of it, to abbreviate the Trachea, and circular Fibers to contract its Cavity. It has also an inward Membrane extremely sensible of Fume, Dust, or the least Injury; and the Vesiculæ of the Lungs constitute a great spongy Substance of it, and they are describ'd to have muscular Fibres, for to contract them in Expiration.

Pulmonibus musculum reticularem cellulas eorum singulas ambientem, & comprimentem supersterni.

sterni — *Et tracheæ tunicam succingentem è rectis & circularibus staminibus Musculosis coagmentari*, is observed by Anatomists; and these Muscular Stamina, like the *Fibræ Nervosæ*, which move the Stomach and Guts, are inflated in the Asthma, as the others be in the *Primæ Viæ*.

The whole Cavity of the Breast, the Intercostal Muscles, the Diaphragme and Sternum, are cover'd with the same Membranes, which are affected more or less with an Inflation in the Fit of the Asthma; and on this do the Symptoms, appearing in the Breast, depend.

By this Inflation the Bronchia are contracted or straitned, and that produces the Wheezing Noise in Expiration; and that this Symptom does not depend on Phlegm, is plain; because the Hysteric, who have no Phlegm, Wheeze very much.

The Lungs feel stiff, strait, and admit but little Air; because the *Vesiculæ* are contracted, as well as the Bronchia; and some express their Feeling, as if the Lungs rose and were drawn upwards, to choak them. This Contraction of the *Vesiculæ* is very probable; because the Bronchia are contracted, and the *Vesiculæ* have the same Muscular Fibres to help Expiration, by which they may be drawn so up, as not to admit the Air.

From this Contraction of the *Vesiculæ* and Bronchia of the Lungs, it follows, if the Air cannot be admitted there, the Breast cannot
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be dilated duly, to make a true Inspiration. The Motion of our Lungs is like a Pair of Bellows, if they be open'd by the Force of our Hands, and the Cavity will freely admit the Air, we can move them easily; but if the Nostrils and Entrance of the Air be stop't; or suppose a Bladder tied within the Bellows to the Nostrils, so to receive the Air, and suffer none to get into the Cavity of the Bellows, but what it contains; it will follow, that in a perfect Stoppage of all the Entrances of Air; the Bellows could not be opened; and if no more entered than may be contain'd in the Bladder (supposed above) the Bellows would be opened but a little way, and would inspire difficultly. So it appears in the Business of the Asthma, the Inspiration is difficult and laborious, because but little Air can be admitted into the contracted Bronchia, and the Vesiculæ drawn up: This puts the Scapular and Intercostal Muscles and Diaphragme upon a violent Endeavour to press in the Air, and open the Lungs, which Nisus Authors have mistaken, and supposed the Pneumonic Muscles, especially the Diaphragme, to be convulsively affected; but it may be easily apprehended, that the Diaphragme cannot press the Viscera downwards to enlarge the Breast, if the Air cannot be admitted into the Lungs to follow its Depression, and fill the Cavity of the Breast; for in that case the Weight of the Atmosphere pressing
on

on the Belly, would more than counterpoise its Force. And this is the true Reason why the Diaphragme cannot move in the Asthma-Fit. Not only the Membranes immediately composing the Lungs are Inflated, and thereby the Cavity is contracted in the Asthma; but also sometimes the Membranes of one, or both of the Pleura's, and that draws the Asthmatic to lie and lean on that side during the Fit, and flying Pains are many times observ'd after the Fit. The Mediastinum is affected in others, who complain of Straitness, Weight, or Pains towards the Sternum; and the Pericardium is also affected in those who are subject to Fainting Fits, or Palpitations, or Intermitting Pulses.

The Membranes of the Muscles and Diaphragme being tense or stiff, may hinder the Motion of the Pneumonic Muscles; because the Membranes being supposed to arise from the Tendons, and being Continuations of them, they may divert the Spirits from the Body of the Muscles, and by their Straitness hinder both the Flux of Spirits and Blood into the Muscles, by compressing the Arteries and Nerves.

The Slowness of Inspiration and Expiration in the Fit depends on the Stiffness or Straitness in the Lungs, and Parts inflated, which resists the Action of the pectoral Muscles; 'tis a long time before the Air can be drawn in, and almost as long before it can be forced out;

out ; because of the Constriction of the Bronchia.

The Rareness, or Stop or Interval betwixt Inspiration and Expiration, depends on the Stop given the Pulse by the Asthma-Fit, (and that Stop is made either by the Constriction on the Pericardium, or the Membranes of the Arteries ;) for the stronger and quicker the Pulse is, the more frequent are the Inspirations and Expirations.

The great Labour for Inspiration, is, because the Diaphragme cannot move downward, by reason of the stop given in the Lungs to the Air's Inspiration : For the Diaphragme should depress the Belly, and thereby enlarge the Cavity of the Breast for Inspiration : This Defect obliges the Asthmatic to labour more with the Muscles of the Shoulders to lift up the Breast ; and for the same reason the Asthmatic must sit up, that the Weight of the Belly may a little weigh down the Diaphragme, and the Asthmatic finds ease in leaning forward, or being held up under the Arms to enlarge the Cavity of the Breast for Air ; and this sort of Breathing is call'd *Sublimis* and *Magna*, because the Breast is more enlarg'd upward in this Dyspnæa than any other, and yet but little Air is drawn into the Lungs.

Secondly, The Membranes of the Head are much affected in the Asthma with an Inflation, which makes the Sense of Numbness in
some ;

some ; in others Fulness, or Straitness, as if the Membranes were on all sides drawn downwards ; and this Straitness produces a stop in the Blood Vessels ; from whence comes Pain, Dulness, Stupidity, and running irregular Phancies ; but this usually remits before the Fit goes off, after the Sleep of the first Night of the Asthma ; and is much abated by Comb- ing the Head backwards, and keeping it cool, and getting out of Bed in the Beginning of the Fit. This stop on the Vessels does in old Asthmatics produce the Dropsie in the Head, of which they always die Lethargic.

Thirdly, The Membranes of the Stomach and Guts are much affected by Inflations in the Fits : Hence come frequent Eructations, when the Stomach is empty ; yet it feels full, distended, and the Guts are disturb'd with continual Wind, which sometimes gripes them or gives Inflations and Contractions ; and sometimes the small Fits of the Asthma, which depend on Weather, are only in the *Primæ Viæ*, where the nervous Fibres and Membranes suffer Inflations : The Changes of Weather very much affect the *Primæ Viæ*, by a Flux of serous and flatulent Humours that way, by which the Contents are violently Rarified, and the Membranes irritated into Inflations, and also the windy Spirits raise some Disturbance in the Membranes, and a Distention which hinders the Motion of the Diaphragme.

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The Incubus is very like the Asthma. It takes Persons therewith affected, in their Sleep; they have a difficulty of Breath, and they have some difficulty in moving the Hands and Limbs, which is more than is in the Asthma; the Incubus lasts but a shorter time, depending on the crude Spirit, filling the Nerves from a full Stomach, which evaporate on waking; or else the Stagnation of Chyle in the Heart and Lungs; for I have observed their Pulse to Intermit.

In the Palsie, where the Nerves are obstructed above, there is no Inflation of the Parts beneath, but they are rather weak and flaccid; but the Asthma Fit lasts but few Hours, or some Days; and if in the Asthma the Nerves were obstructed in the Plexus, how can that be so soon remov'd? or the Lungs appear stiff and inflated below? they would rather be relax'd below the Obstruction.

The Irritation of the Nerves by the Serum extravasated in the Head, is only in Cachectic Persons; and those who are Hydropical, and cannot ordinarily produce the Fits, but is the Effect of a long Disease. The Asthma oft ends in Tympanitical Inflations of the Belly, and that Distemper by Analogy may explain the preternatural State of the Spirits; for windy Inflations affect the Guts alike in both, and that makes the Parts stiff and rigid; all hot Things increase the Inflations, and cool ones allay them in both; so that the same is
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the preternatural State of the Spirits in both, they being crude and unripe, because contain'd in a mucilaginous Lympha; so that being Rarify'd on any occasion into large Bubbles or Froth, they produce that Inflation in the membranous Fibres, the which makes them stiff, and the Inflation contracts the Cavities they constitute in the Lungs, &c.

The windy Tumours of the external Parts, which presently subside again, are not unlike the Asthmatic Inflations. In the Belly, those windy Tumours depend on the Tumour of the Viscera, compressing the nervous Parts, and are therefore more lasting; but in the Asthma the Spirits are only Rarify'd, and cause their own Obstruction and Stagnation for a small time, till the windy Spirits are Evaporated, or again compress'd and restor'd to their natural Consistence.

I never could observe any Tumour, Pain or Stiffness, Fulness or Convulsion in any of the Expiratory or Inspiratory Muscles. If the Diaphragme was convulsed, that would help the Inspiration, by enlarging the Breast, as in its natural Motions: If the Muscles of the Belly, which help Expiration, were convulsed, that might easily be observed by their pressing in the Belly; and the same would be observed in the Triangular Muscle of the Sternum. I must confess, I have observed a twitching sometimes, when the Breast is almost perfectly subsided; but that is not con-

stant: so that I cannot think any Convulsion is commonly found in the Asthma Fit; but is sometimes a Symptom, upon Extremities of Labouring and Suffocation.

No other Hypothesis seems to me fairly to explain this lasting Stiffness of the Lungs, but an Inflation in its Membranes; which hindring the Entrance of Air, gives a Catalepsis, and Rigidity, or Immobility to the Diaphragme, the Part most unjustly accused of this Tyrannic Oppression.

I shall from the Discourse above about the antecedent Cause of the Asthma, and the Parts affected by it, give the following Definition of this Disease.

The Asthma is a high, slow, rare, and laborious Respiration, which depends immediately on the Inflation of the Membranes of the Lungs (which constringe the Bronchia, Badders of the Lungs and Blood-Vessels) by windy Spirits, rarified or propelled through the Glands of the Brain, either by external Accidents, or a periodic Febrile Effervescence of the Blood.

The Priapism is reckoned by Old Writers amongst the windy Inflations; and it is truly so: For as the windy Spirits in the Sleep inflate the Membranes of the Penis; and by stopping the Circulation of Humours, make a Stiffness or Inflation: so it may be in the Nervous Fibres of the Lungs; there are no true Muscles in either Part to make this Inflation,

flation, but only Nervous Fibres ; and in the Muscular Membranes, the Stiffness of these Parts is not a Convulsion, for that is transient ; but a true Inflation, which may endure many Days : And therefore *Helmont* was mistaken when he call'd the Asthma *Pulmonis Caducum* ; which seems rather to be of the nature of a Catalepsis, in which all the Parts stand rigid, stiff and immoveable.

C H A P. III.

Of the evident Causes of the Asthmatic Fit ; as, the Air, Diet, Exercise, Passion, &c. and of those Diseases on which the Asthma depends as a Symptom.

I Have described the Nature of the true Flatulent Asthma in the preceding Chapters, and in this design to describe the Accidental Fits of the Asthma, depending on the six Non-naturals, and also several Kinds of the Symptomatic Asthma's.

First, *The Air.*

No Changes or Alterations happen in the Air without causing some Alterations in Animal Humours and their Spirits, especially those of the Asthmatic, the Air being admitted into the Lungs, and every where compressing

all the external Parts of the Animal, according to its several Degrees of Weight or Pressure; it must affect the Spirits, which are also of an Elastic Quality, and expand themselves the more the external Pressure of the Air is abated. This Mr. *Boyle* has sufficiently prov'd. For Animals are wonderfully inflated or blown up in his Vacuum; the Eyes start out, and they Vomit; but upon the re-admission of Air, they subside into their former Bigness; and in very high mountainous Places, 'tis observ'd, by reason of a less Pressure of the Atmosphere, that Vomiting, Choleras, Hemorrhages, and *Dyspnæa's* happen. The Respiration is most particularly affected by the Alteration of the Pressure; because in Inspiration, the Air, by virtue of its Elasticity, expands the Vesiculæ of the Lungs, and therefore that Expansion must alter according to the different Pressure and Elasticity of the Air. For want of this due Expansion in the Vacuum, the Circulation of the Blood is stopt in the Lungs, and the Animal dies Convulsive: And that the Pressure of the Air being weaken'd, occasions short breathing, is not only evident by those who have been on very high Mountains; But *Helmont* describes an Asthmatic, of whom he tells us; *Montanis locis pejus se habet, ideoque Bruxellis vix pernoctare audet*: And it will more fully appear, by comparing the Observations made of Weather by the

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Barometer, with the Changes in the Spirits of Asthmatic Persons, and their Fits, which succeed on the Changes of Weather.

I will first prove, that the Spirits of Animals be very Elastic, and those of Asthmatics much more so, because very windy.

If the Experiments above mentioned are not sufficient to convince the Reader, let it be consider'd, that the Spirits of Vegetables are very Elastic, and force their Vessels in very high Fermentations, and in bottled Liquors; that the Changes of the Weather make Vegetable Liquors clear or turbid, and set them to ferment again; upon the Changes of the Year, Wines ferment: And the same Changes may be observed in Animal Humours, upon Changes of the Weather, and the Times of the Year; which shews the Similitude of their aerial Spirits, which keep the same Expansion and Pressure as the Air it self has, which is the great Instrument of the Agitation by which Fermentation is managed, and also the chief Cause of Fluidity in Liquors, as well as the Clearness of their Consistence. That the Animal Spirits are Elastic, appears by the Inflation of the Belly, and all the Habit of the Body in those who die Convulsive, their whole Body being excessively swell'd; and in poyson'd Bodies the same happens when the Poyson comes by those Medicines which act much on the Spirits.

All Liquors, as Milk and Blood, are raised into Bubbles in *Vacuo Boyliano*, upon the Pumping of the Air, which is occasion'd by the Rarefaction of the included Air and Spirits; and that Air is included in Animal Humours, is evident by the Application of Cupping-Glasses; by which the Pressure of the External Air being removed, the Internal Spirits and Air become rarefied by its Heat, and swell the solid Parts in which they are contained.

I will next consider how the Spirits of the Asthmatics are affected in the different States of Air; and shew, that those Effects are produc'd in Animal Bodies, by the same Cause as the Alterations are in a Weather-Glass.

In a dry State of Air, the Spirits of the Asthmatic are most lively, and they breathe free; there being then no Vapours in it, or Fumes to weaken the Pressure of the Air: For in Serene Weather the Mercury stands higher than in other States; because a larger Cylinder of Air unmixed, presses up the Mercury in the Barometer; and by this heavy Pressure of the clear Air, the Spirits of the Asthmatic are kept from that Expansion, which ordinarily produces the Fit. 'Tis observ'd, that the Intervals of the Fits are largest in dry settled Weather.

When

When any Mist arises, the Asthmatic breathes difficultly; and finds an Oppression on his Spirits, especially a Straitness and Fullness at the Stomach, upon Changes of Weather, though the Fit does not always succeed that Complaint. The Moisture of the Air is most prejudicial to the Asthmatic, whilst the watry Vapours retain the nature of Exhalations; because then they act most on the Spirits, and cause the Inflation at the Stomach.

The Rain when it falls, does not much affect the Asthmatic; but the watry Vapours which precede it one, two, or three Days; because the Vapours weaken the Pressures of the Air, as appears by the Barometer, which sinks sometimes before Rains and great Storms, and the Asthma Fits happen two or three Days usually before such Changes: But I have observed the Animal Spirits to be more nice, and predict the Alteration before the Weather Glass. It is observed by Seamen, that if there be any bad Weather in a Month, it usually happens two or three Days before, or after the Full or Changes of the Moon; which is the reason why the Asthmatic Fits happen at those times. The Pressure of the Air being weakned by the Vapours, the windy Asthmatic Spirits expand themselves, and inflate the Pneumonic Nerves and Membranes, and occasion the Asthmatic Fits before great Rains.

All damp Houses and Fenny Countries, and those Winds that bring Fenny Vapours and Mists, by altering the Pressure of the Air, very much affect the Spirits of the Asthmatics; and such the East Wind often brings, which at its first coming usually give the Asthma Fits: Upon very great Winds and Storms, though no Rain follows, the Mercury sinks lowest of all; for these drive away a great Quantity of the usual Cylinder of Air, by which the Pressure of the Air is alter'd; and before great Storms I have frequently observed great Asthma Fits. It was one of *Van Helmont's* Observations, *Alias observavi, quæ spirante Boreâ statim vel in Hypocaustis Asthmate plecterentur insontes.* The South Wind is also offensive by the moist Air it brings; but the West and North are least prejudicial here in *England*.

From other Causes I have observed the Fits of the Asthma to happen, in all the various Points of the Winds; so that the Changes of the Air and Winds only dispose or incline the Asthmatic to their Fits, and oft occasion them: But such accidental Fits are short, and I generally observe them to trouble the Stomach most, where a Windiness inflates it, and hinders the Depression of the Diaphragme, but no great Alteration happens in the Lungs; for the Fit goes off with Wind, and a little Spit, and loose Stools.

In Summer the Asthmatic Fits are most frequent and grievous; the Asthmatic are most impatient with Heat, especially that of the Fire, before which they do not willingly sit; but most of them, taught by long Experience, chuse to sit on the Side of it. The Heat of the Fire rarefies the Air, or overheats it; so that it expands the Animal Spirits in the Lungs, and disposes them to their Asthmatic Inflations. So we observe in Dogs, a great Dyspnæa, occasion'd by lying too hot near the Fire.

Van Helmont observes, *Æstate saltem sæpiùs & sæviùs infestat accessus, quàm hyeme*, which is generally true, though I have discoursed some who complain most of the Winter. These Winter Asthmatics have a Catarrh joined with their Asthma. I had once a Patient who was a Fat Woman, who complained of her Winter Asthma: She spit very much, and complain'd of Frothy Urine, and Stools like Barm, who by a Diarrhæa was run very Consumptive; and during the Continuance of that, she had none of the Asthma.

That Vegetable Spirits are expanded by Heat, appears by the Thermometer; and the Animal are alike expanded by the Heat of the Sun, Fire, Clothes; and the Bed, or a Croud, or close Room, because of the hot Air in them, are very offensive. All Heat weakens

weakens the Pressure of the Air, as it appears in Cupping-Glasses; and that being weak, it cannot easily expand the Bladders of the Lungs; therefore Asthmatics seek a moderate, cool, and free Air, which makes a more vigorous Pressure on their Lungs, and cools their expanded Spirits, which thereby does refresh them; they love the Windows open, and to be carried into the open Air in a Chaffin, to avoid all hot Places, and Weather, which Suffocate them.

The Fit of the Asthma is generally increased by the Heat of the Bed, and it usually seizes them there, and they are obliged to rise out of it, and they can bear a great degree of Cold, in sitting up all Night with the Windows open on them, because of the great Expansion of Animal Spirits by the Fit.

I have often had great Fits when the Weather has continu'd very clear, and only very hot Weather has succeeded, to which I then imputed the Fits.

In very cold Weather the Fits of the Asthma are less violent, because that compresses the Expansion of the Spirits; but before any great Snows, the Asthmatic usually have a Fit, and that a severe one; or, at least, when the Fit does not succeed, they feel a Fulness at Stomach.

The Quicksilver falls in the Glasses for want of pressure in that State of Air; and occasions

occasions or gives way to the Expansion of the Spirits ; and before such Storms of Snow, the Spirits feel very uneasie and restless, and some Rheumatic Pains affect the Temples, or Top of the Head, with a Lightness in the Head, and other Pains are observ'd in the Limbs : Hence it appears, that frozen Vapours have the same Effect on the Barometer, and the Spirits, as the floating moist Vapours have ; and the reason of both is a less pressure in the Air at such times.

In calm frosty Weather the Mercury stands high, the cold Air being condens'd, weighs most ; and in such Weather the Asthmatic is most free from Fits ; for by Compression of the Spirits the Asthma is hindred.

The Mercury stands highest in the cold Easterly and Northerly Winds ; because the cold condens'd Air is drove hither by those Winds ; and since that Air is heaviest, we must impute the Fits occasion'd by them, to a sudden Check of Perspiration, which produces the Effervescence, on which the Asthmatic Inflation depends ; and not only to the want of pressure in the Air.

In extreme cold Weather the Circulation is more stopp'd in the External Parts by the Compression of Air ; and therefore then the ferous Humours are carried inwardly towards the Belly, Lungs or Brain, where they pass those Glands, after the manner of a Defluxion.

Any

Any kind of Smoak offends the Spirits of the Asthmatic; and for that reason many of them cannot bear the Air of *London*, whose Smoak, like Fire it self, irritates their Spirits into an Expansion. I always observ'd the Smoak of Wood more Suffocating than that of Coal, and more apt to occasion a Cough.

The fetid Smell of a Candle put out, or the Smell of melted Grease, will often occasion a Fit: And I remember an Asthmatic Lady had a severe Fit by the Smell of an Ointment she boiled. *Horstius* has a Remarkable Story of a Woman who grew Asthmatic, by holding her Head over the Smell of a Lixivium, for the making of Soap, of which she died after 7 Years; and in her Wind-Pipe open'd, black Glands were observ'd, of the Bigness of Peas or Beans, to which the Fit was imputed.

A Lady inform'd me that she smoak'd Tobacco for an Hysterical Pain in her Stomach, by which she fell into the Asthma, for which *Astrop*-Waters gave her some Relief.

During the Fit of the Asthma, the smoak of Tobacco is so offensive, that it very much straitens the Breath, if it be smoak'd the first Day of the Fit, and much endangers a Suffocation. There are many Asthmatics that cannot bear the Smell of it; therefore its Fœtor is injurious at any time, its Heat thickens the Phlegm and rarefies their aerial Spirits, making

ing them restless ; all the good it can do, is, to discuss the Windiness after the Fit abates, and to help the Coughing up the Phlegm ; but it generally over-heats the Air in the Humours of Animals, and raises the Fermentation too much.

There is a Remarkable Instance in *Bonetus*, of an Asthmatic who fell into a violent Fit, by going into a Wine-Cellar, where the Must was fermenting ; and this shews how much the Spirits may be disturb'd by Fumes, which are capable of Rarefying them, or else causing a Fermentation in the Humours, which will certainly cause their Expansion to produce an Asthma Fit.

The Fumes of Metals dry the Lungs, and especially those of Quicksilver, which may corrode the Trachea, or at least irritate the Spirits there, and determine their Motion much towards the Lungs, where the Fumes are received. *Fumus Mercurii (qui ut larvatus semper est tamen Mercurius) statim laringem præcludit, & constringit : Helmont* gives us this Observation ; from whence we may observe the Stipticity of Mercury ; and that Stipticity was observ'd by *Avicenna* in Mercury, which Taste is always injurious to the Asthma : Those Fumes which Irritate, may Vitiate the Trachea, and produce, the Humid Asthma, as *Helmont* describes the Asthma from such Fumes.

The Dust of other Metals fills the Lungs and irritates them ; and the Fumes dry the Lungs, like Flesh dried with Smoak ; and this Asthma is to be cured by moistening them with Oil, and Milk-Diet, Mucilaginous Pectorals, and open Air.

Mineral Poysons are best corrected by Mineral Medicines ; Mercurius Dulcis with Lennitive Purges, Antimonium Diaphoreticum with Theriaca to Sweat, Sulphur Flowers unite with Mercury.

There are some Instances of Shortness of Breath occasion'd by Thunder, and helped by Sulphur Medicines, and Vomiting ; to which those who are Thunder struck, and recover, are inclin'd, as I have been told.

Not only foetid offensive Smells occasion the Asthma Fits ; but those also that are strong-scented and sweet ; and most Asthmatics are affected by Perfum'd Waters and Medicines, as the Chymical Oils offend by their strong Odors. There is a Relation of a Monk, in *Helmont*, who when He eat Fish fry'd with Oil, *Ruit extemplo anhelitu privatus, sicut vix praefocato distinguatur* ; and this Observation *Helmont* farther confirms, *Vidi frequentes, quae suave olentium odore praeter cephalalgias, & Synopes, confestim in extremam respirandi difficultatem inciderent.*

Since I have given these Instances of the great Influence of Smells upon Animal Spirits, I will beg Pardon to digress a little to consider
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the nature of Smells ; that by comparing what I shall say of them with my former Discourse of Animal Spirits, I may give a general Account of these great Effects produced by Smells.

I will describe the Matter of Smells ; then their Differences and Manner how they variously affect the Animal Spirits.

Theophrastus has observ'd, that every thing that is unmix'd, is without Smell, as well as Taste ; therefore all Simple Bodies are without Smell, as Water, Air, and Fire are without Smell ; but that the Earth alone has a Smell, because most mixt.

Tastes and Odors are therefore chiefly to be observ'd in Juices of Plants, or Animals, or Metals ; and it is a particular Texture in those Juices, which arises from the Mixture of the Principles of things, (*viz.* the Oil, Acid, Earth, and Water) which strikes the Organ of Taste, with a particular Taste ; and the same specific Texture and Mixture was necessary to produce a particular Smell, which every Plant and Animal has peculiar to it self : For what gives the Taste in the Form of a Liquor, if it be Rarified and ascends into the Air in Vapour, it strikes the Organ of Smelling with a particular Odor.

Since there is no Odor without Taste, nor Taste without some Odor, and the Odor in Wines and Fruits are changed with their Tastes ; the Matter of both Tastes and Smells
appears

appears to be the same which gives such a Vicinity and sociable Accord to both those Senses, that Plants are said to Taste as they smell, and *è contra*; and we use the Names of Smells, as Fœtid and Aromatic, to express our Tastes; and, I think, we ought also to use the Names of Taste, to express the great Variety of our Smells, as I shall do hereafter.

Odors are not sufficiently distinguish'd into their Species, which want Names; and they must be borrow'd from the Tastes of Plants.

Odors are commonly distinguish'd into pleasant or grateful *εὐοσμία*, and ungrateful or ill Smells *κακήσμία*; but since all Animals have a great variety in their Food, and that was design'd to be grateful to them both in Taste and Smell, the different Temperament of each Animal's Humours and Spirits, must make one Food grateful to some, which will prove very ungrateful to others: So it may be observ'd of Birds of Prey, as Kites, Crows, delight in putrid Flesh, which is to Mankind very ungrateful and unnatural; therefore the Gratefulness and Disagreeableness of a Taste or Smell consists in its suitable Nature to the Spirits of each particular Animal.

Every Animal has his peculiar Odor, according to the particular Temperament of the Humours, which is pleasant and sincere in the Vigour of its Age, and in perfect Health:

It is sweet in Youth; but strong, virose, at the seasons of Coition; or when the Humours are changed by Age or Diseases, they smell ill, strong, rank, as in Rabbits, Goats, Deer.

The Matter and vaporous Nature of Smells in Plants and Animals, does most immediately represent the Nature of the Spirits of Animals, and their various States.

1st, Odors are very volatil, lighter than the Air in which they swim; and such are the Nature of Animal Spirits, volatil, invisible, as Odors, and the Effects of a thorough Digestion: For Plants have not their true Odor till they be full ripe, and in Flower; Wine smells more odoriferous than their unripe Must; and Plants in their native Soil are better ripened, and therefore more odoriferous than in the Garden Soil, where there is too much crude Juice: and in a Morning, after a perfect Digestion of Animal Humours, we are sensible that our Spirits are most pure, active and lively.

2^{dly}, The Matter of Smells in Plants, is chiefly an Oil, or Turpentine, or Rosin; in Animals a greasie or fat Substance; Wine and Oil do most easily imbibe and dissolve Odors, because of the Similitude of oily Substance; and in Oil of Ben and Almonds we usually preserve Aromatics. In Animals the most odorous Juices are Oily; as Musk and Castor: Nothing smells stron-

ger than the Axungia's; and all these readily mix with Oil, by reason of their oily Nature.

Amongst Minerals, the Bitumens, which are of a strong Smell, have an evident Oiliness, as Ambergrease, and Petroleum, and Sulphur is ready mixt with Balsams.

3^{dly}, All Aromatics give a Briskness to the Spirits, and please them if smelt to, and supply a larger Quantity if deficient; and are therefore accounted Cordials: Fœtid Smells are accounted Hysterick Medicines, and enlarge the Expansion of Spirits: and since Smells act so immediately on the Spirits, there must be a great Similitude betwixt their oily Substances.

But these Effects of Smells on the Spirits, must be more particularly consider'd; and for that end I will divide Smells into their several Species, and give the Names of Tastes to several of them; whose Effects being well known, it will be more easie to assign the True Effects of their Smells on Animal Spirits.

I will give *Avicenna's* Opinion of Tastes, and their Vertues, *Non est possibile ut sapor dulcis, & amarus, & acutus, & salsus sint nisi in substantia calida; neque ponticus, Stipticus, & acetosus, nisi in substantia frigida; & similiter odores acuti non sint nisi in substantia calida; odores quandoque significant sapor, sicut odor dulcis, & acetosus, & acris & ama-*

rus : Sapores sunt octo, dulcedo, amaritudo, & acuitas, & falfedo, acetofitas, ponticitas, Styp-ticitas, unctuositas.

I will reckon all the following Smells amongst the hot Smells, which affect the Head, and expand the Spirits, and give them a quicker Motion.

1st, Acrid Smells, which are pungent; and Authors call this *ῥευματια*; but these may be very much distinguish'd, according to the Degree of Acrimony: For a cress Acrid is milder, such as Mustard, than a corrosive Acrid, such as Garlick, or Squills; and Acrids may be distinguish'd by the Aromatic, or Bitterness, or Fætor joined with them.

These kind of Smells are most specific to those Indispositions of Spirits which happen to arise from that state of Humours which requires a hot acrid Taste to correct them; in Hypochondriac Cases we excite the Animal Spirits by Volatil Salts; and we give the same inwardly: In Hysteric Cases, we discuss the Flatulent Vapours by foetid and acrid Gums, both outwardly and inwardly; so that it may be a Rule, where any Taste is necessary and useful inwardly, we ought to apply the same, if Odorous, outwardly, to rectifie any Disorders of Spirits, that may happen in that Case: and why may we not infer, that since any Medicine externally applied to the Smell, very much gratifies it, the same may be given inwardly to alter the

Cacochymia, from whence the disorder'd Spirits are produced? This seems a piece of natural Reasoning, whereby Brutes discover their Medicines when they are sick, and they eat what pleases their Smell; and if any Medicine or Meat pleases both Taste and Smell, we readily use it. If the piercing and volatil Nature of acrid Smells be consider'd, we shall never apply them to Hysterics, where the Spirits are over-volatil and fiery; which seem only proper for the stupid, dull, contracted State of Animal Spirits.

2dly, All Aromatic Smells, as well as Tastes, are hot; and they have either a great Acrimony, or a Bitterness joined with them: Fresh Orris is bitter, and exulcerates the skin; Myrrh, Costus, Cinnamon, Cassia, Juncus Odoratus, Cyperus, are described by *Theophrastus* to be hot, acrid and styptic; for which Taste they are used as Medicines.

The milder Aromatics have a sweetness, as Fennil, Anniseed; but all strong Aromatics a bitter Taste: These Smells are on the account of their Acrimony and Bitterness, very hot. These aromatic Smells we apply to fainting Persons; and the same are very useful inwardly in a languid state of Blood and Spirits. These volatil oily Salts or Balsams are easily infused in Vinous Spirits; and if they be put into Wine, as the Antients used, (*viz.* they commended Wines impregnate with Myrrh, Cedar, Rosin, &c.) they affect
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the Head much, and raise the Circulation of Blood, and Expansion of Spirits, and by similitude of oily Parts, assimilate themselves with the animal Spirits.

These Aromatic Smells will not agree with the choleric, hot, fiery Spirits; because the Aromatic inwardly in that state of Humours are too hot, burning, and inflaming the Humours and Spirits. 'Tis this excessive Heat of odoriferous Medicines which gives a Vertiginous Motion to the Spirits of hot Constitutions, and too much expands the Windy Spirits, and thereby produces a *Dyſpnæa*.

3^{dly}, Fœtid Smells, which the old Writers call *Βαρύα ὀσμή*, *Gravis Odor*, this is offensive to the Spirits, as Aromatics are grateful; if they be Narcotic, they stupifie the Spirits, and allay Pains, Watchings, stop Bleedings at Nose, and too great a Volatility of Spirits, and their great Expansion in Convulsions: and these Fœtids, though very acrid in Taste, and very bitter, yet because of a peculiar Texture, cause a Coolness of Spirits, and therefore may be reckoned amongst the cooling Smells; but all other Fœtids, as *Affafœtida*, *Castor*, *Volatil Salts*, *Amber*, *Sulphur*, and the Fume of the Fat of a *Sea-Calf*, *Horns* and *Hoofs* are of very hot Parts, very volatil; they expand the Spirits more than Aromatics; but because they prevent their tumultuous Expansions, by

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changing

changing their Motions or Texture, they are useful to some Hysterick Women, but extremely offensive to others, who cannot bear the least of those fœtid Smells. And *Pliny* relates, that the Antients did, by burning Bitumen, try whether their Slaves were Epileptic or not; *Accenso lapide gagate explorabant Epilepsiam in servis venalibus*; by which one might conclude, that Bitumen and other Fœtids, are injurious to Convulsive Cases, especially when they come near to be Epileptic; in which Cases I should doubt of Castor, Assafœtida, Powders of the Skull, Vipers, Toads, Worms, the Stones of Horses, or Secundine; all these being strong Fœtids, rarefie tumultuous fiery Spirits into violent Fits, and drive more morbid Matter into the Nerves of such Persons, which are too open to receive extraneous Matter.

All poysonous Plants, whether Narcotic or Corrosive, are very Fœtid; such as Napellus; their Fœtor offends the Spirits, and their Burning or Nauseous Taste, the Palat, that thereby Animals might be naturally taught to avoid them.

All putrid things are very Unwholsom in our Diet; and *Theophrastus* well observes, *Ἀπαν ἀπρόμενον κακῶδες*, the Fœtor gives us an Aversion to it; therefore I should always avoid giving Mummy, or other putrid Parts of Animals, as Skulls, Rennet, to these who have a violent Aversion, especially if we smell their putrid or virose Odor. Fœ-

Fœtid Smells outwardly, and Fœtid Medicines inwardly, are useful always in the same Case, *viz.* Lethargic and great Dulness of Spirits : The Antients gave the Castor from ℥i. to ʒss. and ʒi. for a Dose ; for five Days they used the same Quantity in Clysters ; they mixt it in Sternutories, or used its Fumes ; and they anointed it outwardly ; and in very hot Bodies they contrived to temper its Heat, by giving it in Oxymels, or Vinegar, and not in Brandy Spirits, as we improperly do. 'Tis plain to me, that Fœtids do more Good after their Acrimony is abated by Vinegar, than in a finer Solution : We therefore act very oddly, when we study more for a Menstruum, which shall curiously dissolve a Gum, but neglect an experienced Vehicle, which makes it better to agree with our Constitutions. Vinegar does not dissolve Gums well, but coagulates them ; but nothing corrects their corrosive Acrimony like it : Water is their most natural Menstruum, which turns them into their original Milk, and Brandy Spirits only dissolve the resinous Part, and not the whole Gum.

The cool Smells are those which abate the Heat, Motion, and Expansion of our Animal Spirits.

1st, Crude Smells, such is that of fresh Plants, which are set in Rooms to correct the Heat of the Air ; as Vines, Nymphaea Leaves, Willows and all Plants of a Crude Juice,

Meadow - sweet, and Fenny Plants. The Smell of a green Turf is used to be held to the Noses of them that are struck with a Damp, to recollect and cool their Spirits, which are too much rarefied by the Sulphur Fumes.

2^{dly}, Acid Smells, such as is that of Vinegar. The Seamen use Vinegar much, to correct the putrid Air of their Ships, by washing the Wood and Beams of their Cabins with it. This is therefore very agreeable to the Sick in many Cases.

The Smell of Vinegar removes the Nauseousness, and prevents Vomiting, and cools.

Omnes odores ex quibus sentitur mordicatio sunt calidi, & bene redolentia, quapropter dolorem capitis pariunt, & ille ex quibus sentitur acetositas, omnes sunt frigidi. Avicenna.

The Smell of the Fumes of Vinegar is proper for many Hysterical Women, who cut Rue and Nutmeg, then sprinkle it with Vinegar, so they tie it in a Nodulus to smell to : This will most effectually compress the expanded Spirits ; for Acids make the Blood black, which the curious Microscope impute to the Globuli crouded together, as they do the Floridness, to the Division and Separation of the Globuli.

Vinegar will cool the Elastic Particles, and abate their Expansion ; for that corrects all volatil Salts, thickens Oils, coagulates Milky Juices, cools Inflammations, stops Evacuations and Fermentations ; and has all Properties

erties contrary to the Action of Fire, and all hot Animal Principles ; for they rarefie and expand the Spirits and Humours, and make them more agile, elastic, fermenting.

Vinegar agrees with Fevers, and all Inflammations, and Effervescences of Humours ; therefore the Smell of Vinegar is very suitable to all Nervous Effects depending on such Diseases ; such is the Hysteric Fits and Inflations of Spirits I have described, and in all furious Dispositions of Spirits, where their Motions are tumultuous ; in Deliriums, Phrenetics.

3dly, The Narcotic Smells, such as Primrose, Poppies, give a Heaviness to the Spirits, and dispose them to a less Expansion ; therefore we may add these to a Nodulus with Vinegar to compose the Spirits.

Sweet Smells, such as the Writers call *γλυκεῖα*, seem to be Cordials refreshing the Spirits ; but neither so strong as to discompose them, but so warm as to continue the Motion or Expansion.

A strong (*ἰσχυρὰ*) Smell is when there is very much of a smell in any thing which makes a violent Impression on the spirits. The Heat of Fire, or of the Sun, or grinding, causes the Vapour in which the smell is, to rise plentifully into the Air, and act briskly on the spirits : strong Inspiration through the Nose, and snuffing up any Liquors, gives a more evident Impression on the sense.

A mild Smell, *Mollis*, or *μαλακὸν*, is a weaker Impression by a more Languid Halitus, *Quicquid tenue & molle in odoratu, infirmum est.*

The Sensibleness of the Trachea is very evident; because all Asthmatics are offended by the least Dust made by sweeping of a Room, or making of a Bed. I knew one who was a Malster, who told me, he could not bear the Dust of Corn whilst it was removed. And *Helmont* gives a Remarkable Instance of a Monk employed in pulling down Buildings, who grew Asthmatic: and he says of him, *Quoties deinceps locus aliquis vertitur, vel alias ventus pulverem excitat, mox concidit fere præfocatus, penè præcluso anhelitu jacet moribundus.* In this Case the Dust irritates the Skin of the Trachea, and thereby occasions a Tumultuous Motion of Spirits, which of themselves are always disposed in Asthmatics to expand too much, and cause the Constriction in the Muscular Fibres of the Bladders of the Lungs, and those of the Bronchia.

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Secondly, *Of Diet, or Meats and Drinks agreeable or injurious to the Asthma.*

I shall next treat of such Meat and Drink which Experience shews us, is agreeable to Asthmatics, and what is most disagreeable to them, by occasioning their Fits.

All strong Liquors are very injurious to the Asthmatic; and this is confirm'd by their constant Experience of shortness of Breathing upon any Debauch by them.

Strong Wines inflame the Spirits, and all strong Malt Liquors increase the Fits of the Asthma, and shorten the Intervals, by expanding and rarefying the Spirits, by raising a violent Fermentation in the Stomach; as also by breeding great Quantity of viscid Phlegm, whereby the Lungs are oppressed and stopp'd: But Brandy, above all Liquors, is most pernicious to the Asthma, it rarefies the windy Spirits most of all, and certainly gives a violent Fit. And since Spirits are so evidently Suffocating to Asthmatics (for Punch will immediately give me a *Dyspnæa*) we may thence infer, That the Animal Spirits in the Asthma are too much rarefy'd or expanded; and that whatsoever is contrary to Brandy Spirits, as Watry and Acid Liquors, they will best agree with Asthmatics: And since this is by my Experience found to be true, I may infer the same thing, à *Noceatibus* as well

as *Juvantibus*, that the Spirits and Humours are too much rarefy'd in the Fits of an Asthma : This seems to me the true natural Way of discovering the unknown state of Humours in occult Diseases ; for that Diet is most agreeable in every Disease, which is contrary to the state of Humours which produce it ; a cooling Diet to rarefy'd hot Humours, and a hot aromatic acrid Diet to a crude, mucilaginous, serous State. If then I consider the Nature of any Diet, that sick Persons find by experience most agreeable, I may by that be instructed, that the Nature of the Disease is contrary to it ; and if I know what are the Tastes and Temper. of a Diet which agrees with the Disease, I may chuse the same Temper and Tastes somewhat stronger, but of the same kind in my Medicines ; and those will prove most specific to the Disease, and that particular Constitution which has experienced the Diet. As for Example ; I have observ'd Sack, Sherry, Frontiniac, and all other rich Wines to be the occasion of Asthma Fits, by raising a Fermentation in the Stomach, and an Ebullition in the Blood, which ends in an Inflation of the Pneumonic Membranes and Fibres ; but on the contrary, I observe, that Mead, or Mulsum unfermented, Wine and Water are the most agreeable Liquors, because they are not apt to ferment and raise Wind in the Stomach ; and therefore do not agitate or rarefie the Humours and Spirits ; neither do they

they thicken the *Lympha Lactea*, and occasion much Phlegm. By this certain Experience, and my *Rationale* on it, I learn to avoid all hot Diet, and consequently all hot Medicines in the Asthma; and I am taught to use all the cooling Methods, which create no Wind, nor Phlegm, nor rarefie the Spirits; and it is of no small moment in the Asthma, and many other Cases, not to offend in our Liquors, as to the sort of it, or its quantity; for our Healths, in Chronical Cases much depend on our Liquors, which by raising accidental Ebullitions, occasion our Fits.

All fermenting Wines, or new Drinks, have an intestine Agitation of aerial Spirits, which they communicate to the Spirits of Animals; such an effect in a high degree, all bottled Liquors have, which, by reason of its Windiness is very disagreeable to the Asthma. By this Observation 'tis plain, that all windy Liquors and Medicines are to be avoided by Asthmatics; therefore, if possible, they must abstain from Fermented Liquors, which are more or less Windy, and they ought to live on Decoctions of Woods or some other Watry Decoctions of Herbs.

I know an Asthmatic, who upon any tendency towards a Fit, drinks plentifully of Milk and Water, which presently allays the Inflation of his Stomach.

Water, with a burnt Toast, is a good Liquor for young Stomachs; but the aged whose
Spirits

Spirits are less hot, cannot bear such poor Liquors ; and frequent Fits oft make the Spirits languid, and then they require a moderate spirituous Liquor ; such is a small Ale of Six-strike in the Hoghead, which is the strongest Asthmatics ought to drink, with green Broom or Gill dried, putting ℥ss. of either to be hung in a Bag in six Gallons of this small Ale, for ordinary drink at Dinner.

All Drinking betwixt Meals is injurious, especially all Morning or Evening Draughts of Wine or Malt Liquors ; for that raises unnatural Windiness in the Stomach. My general Custom is to drink Toast and Water every Morning half a Pint, to drink about a Quart of Broom small Beer at Dinner, and at Night to take a Toast and Mead, or Hydromel for my Supper, or else Bread eat with a Glass or two of Wine and Water : And then in the Winter ℥ss. of Mum agrees well ; all hot Liquors, as Coffees, Theas ; of Cephalick Herbs, as Sage, &c. or Stomachic, as Buckbean, which is a Centaury, I have tried, but find none so good as Toast and Water.

No Distemper requires more orderly Diet than the Asthma ; but especially a Moderation in Drinking, that the Serum of the Blood may not abound too much, and a constant Use of those Liquors that are moderate, neither too hot nor cool ; but suited

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ed to the Constitutions and Age. I know a fat Asthmatic who was much reliev'd by drinking very little of any Liquor.

From these Observations of the Nature of hot Diet and its Disagreement, I may argue, that all hot Tastes, as Aromatics, Acrids, Gums, Fetids, or Balsams, or Oils, or Resins, or Salts, by raising a Windiness and Rarefaction of Humours and Spirits, are likewise injurious to the Asthmatic.

As to the Food of Asthmatics, I observe that all that which produces a viscid Chyle, thickens the Humours, creates Phlegm and Wind, and stops the Breathing; such is that of Pudding, Crust, and most Meal-meats, of Rice, Wheat, Peas, Beans; and Milk-meats, as Cream, Cheese, &c. and amongst Flesh-meats, those which abound with a Mucilage, as Fish, Eggs, young Creatures, young Pigs, and the Extremity of Animals, and Jelly-Broths, Oysters; all which breed a thick Chyle, which stops in the Lungs in the Spitting Asthma, and that oppresses them.

From this Experience I may infer that no mucilaginous Gums or Medicines, Syrup or Pectorals of that nature, can be convenient for the Asthmatic, but rather Medicines which attenuate without Heat, and proper to dissolve a thick mucilaginous Chyle, without exciting an Effervescence, such as the following Vinegar.

Galen makes *Pythagoras* the Author of *Vinegar of Squills*, which he began to use about the 50th Year of his Age, and lived to 117. *Galen's* Prescript is the same as in the *Dispensatory*, which he highly commends against all Flatuosities; it makes the Senses quick, the Colour good, and the Respiration easie; it helps Digestion, it loosens the Belly, it provokes Urine, discusses Wind, and abates the Fulness of Flesh. He observed the Pthysical cured by this when desperate; it cures the Epilepsie, and prevents it; it helps the Gout, and Rheumatic Pains, and Hardness of Liver, and Spleen.

The Wine of Squills is commended by *Galen* for the same Diseases: *Galen* uses ℥xij. of Wine to one of Squills, but the *Dispensatory* but viii. and he mentions Honey two or three parts to be added to make it more acceptable; his Dose was ℥i. (which is too much) before Meat, and half an Ounce after it. This Digestive the Antients constantly used as part of their Diet, and Emperors used it to prolong their Lives.

The less the Asthmatic are nourished, the longer are the Intervals of the Fits, and the clearer is their Breath: For if we eat moderately, we subtract the Quantity of our Chyle, and we better digest what we take; but any Excess raises a Tumultuous Fermentation in the Stomach and Blood, which produces a Rarefaction in the Spirits. So true is *Hippocrates's*

pocrates's Observation, If a Man eats and drinks — little, he shall have no Disease.

Though we eat moderately, yet in 10 Days, or 14 at most, the Asthma Fit returns from a Fulness of flatulent Chyle, or nutritious Juices, which, like the morbifick Matter of an Ague, will not thoroughly assimilate with the Blood, but Ferments with it; and part of that is forced into the Nerves upon every Fit: But from such a flatulent Cacochymia windy Spirits are always prepared.

The Asthmatics are best Fasting, and under a very frugal and simple Diet, which I shall here mention, because I have had so much occasion to touch on many other particulars of Diet.

They may use Water-Gruel cool, not hot, for Breakfast, or Toast and Water, as I have mentioned; and the same may be their Supper, if agreeable, or else small Beer, or Ale, with Bread: The Asthmatic must eat for Dinner of one or two Dishes at most, Beef, Mutton, roast Veal, Rabbits, Birds, Pork.

All Water-Fowl is heavy, slimy, having too much of the moorish crude Taste in it.

All Pickles, Sauces, Oysters, Salt Meats are very injurious to the Asthmatic, and all smoak'd Meats: For these raise a Fermentation too high in their Stomachs, and produce a great Disturbance in the Blood and Spirits.

Sallads and Fruits are too cold, and crude, and windy, for most Asthmatics; Cabbage, Turneps, Colliflowers, all which are of the cress Taste, and are found very windy on the Stomach of Asthmatics.

The Asthmatic must eat no Flesh Suppers; for if he do, it frequently proves fatal, or else very suffocating if a Fit happen after it.

By all the Reflections on our Diet for the Asthmatic, we learn, that the Medicine must be like the Diet, contrary to the Disease; that is, of a cooling, attenuating, carminative Temper; not spirituous, windy, viscid: and such is *Galen's* Medicine. The Acid cools and discusses Wind, and the better attenuates the viscid Humours.

Thirdly, *Of Exercise.*

All Violent Exercise makes the Asthmatic to breathe short; because their Lungs are frequently oppressed with Tubercula; and if the Exercise be continued, it occasions a Fit, by putting the Spirits to a great Expansion.

The most agreeable Exercise is Riding; the greatest are Sawing, Bowling, Ringing of a dumb Bell, Swinging, Dancing: Walking is more vehement than Riding, but not so great as the other: Those Exercises that move the Arms, exercise the Lungs most. In

In a Fit no Motion is convenient till the Fit is going off; and I find Riding to help Expectoration; the rubbing of the Breast heats it, and occasions the Fit; and the rubbing the extream Parts moves the Blood too much, tho' that is commended by Authors, and a Decoction of Guaicum to preserve Perspiration of windy Spirits.

They who use no Exercise in the Intervals of Fits, soon fall into Cachexies, Lethargies, Dropsies, through too much *Serum*, Loss of Appetite, and Consumption, for want of Perspiration and Expectoration: But in the Fit all Exercise endangers suffocation.

Fourthly, *Of the Passions.*

I will next describe the Effect of *Passions* in producing the Fit. A Fatal Orthopnea is described by *Forestus* from a Fright.

The *Passion of Anger* makes the Spirits restless, and apt to produce the Fit; and the Asthmatics observe in themselves great Restlessness of Spirits the Day preceding the Fit; *Hippocrates's Aphorism* advises all Asthmatics to abstain from Anger and Shouting.

Fear, Sollicitude, and much Study, discomposes the Spirits, and produces a Restlessness in them, which may occasion a Fit; the Asthmatics are commonly Hypochondriacal, which the frequent Fits produce, though that is supposed to depend on the other.

Study inflames the Spirits, and too much rarefies them ; and all violent Motions of the Spirits, quicken the Pulse, and thereby produce the Asthma and Ephemera.

All the related Occasions are observed by *Helmont*, who says, *Denique & aliàs quæ ex potu sacchari, vini hispanici, ex ira, tristi nuntio, vel etiam objurgatè luctuoso mox Asthmate corripereantur* : and of these he gives Examples. And I have observed, that Reading or Writing is very injurious in the Fits, and highly disorder the Asthmatic.

Fifthly, *Of Excretions, Natural, Physical, and Preternatural in the Asthmatic.*

The Asthmatic always makes a great Quantity of pale Water in the Fit, the first Day ; but at the going off, the Water is of a high Colour, with a thick Feverish Sediment.

I cannot perceive much Dryness or Faintness to attend the pale Water : and since that happens only in the Beginning of the Fit, I cannot believe a true Diabetes occasions it ; but rather an Effervescence of Humours, (which is at last evident by the high coloured Water) may at the Beginning of the Fit throw off a good Quantity of crude Serum, which may be the Matter of the pale Water : But I am inclin'd to believe, that the true Cause of the pale Water is the Asthma-
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tic Straitness, which stops the Circulation of the Serum through the Lymphatics : For if the Motion of the Lympha up the Thoracic Ductus be forced by the Compression of the Belly in Inspiration, in the Asthma, that being defective, and the Motion of the Diaphragme being hinder'd, it must follow, that the Lympha must stagnate in the Lymphatics ; and if that Serum which should return from the Kidneys through the Lymphatics, be stopp'd in its Circulation, for want of the Pressure of the Diaphragme ; then all the Serum which comes in the Arteries into the Kidneys, must pass into the Ureters, because it cannot circulate through the Lymphatics ; and this happens till the Serum is very much abated. I remember an ingenious Experiment of Mr. *Nuycke*, who teaches us to make Ligatures on the Veins and Lymphatics, whereby the Liquor injected through the Arteries, is forced into the Ureters ; and this seems to confirm my Conjecture about pale Water.

In the Fits of the Mother the pale Water flows in great Quantity ; because the Motion of the Serum is stopp'd in the Lymphatics, by the Convulsive Constrictions, or the stop put to the Motion of the Diaphragme.

A Fat Woman, who liv'd long an Asthmatic, told me, she found Benefit by drinking her own Water ; and that she observed,

that before the Fit came, it grew very falt. I have tasted my own pale Water, but never observ'd it either sweet or sour considerably, but rather very falt.

Alum will not curdle it, as it does other Nutritious Juices; which inclines me to believe, that the pale Water is none of the Nutritious Juices; but that this Serum ought to be carried off by the Fits, as appears by this, because when it is stopp'd, a Dropsie usually succeeds.

That the pale Urine is from the Serum, is manifest; because it tastes as falt as any ordinary Urine. I evaporated it in a Spoon, and it left only a brown saltish Sediment: It smells as strong of Saltness as any ordinary Urine.

The Quantity of pale Urine made in one Night, was about two Quarts, though I drank not half a Pint at Supper-time.

The Sediment left upon Evaporation was not viscid, but sandy and gritty, and tasted very falt, and therefore had none of the Succus Nutritius in it.

This pale Urine would not coagulate Milk, though mixt with it; and therefore no great Acid was in it.

From the past Reflections I conclude the pale Water to be the thin part of the Serum of the Blood, with a great Quantity of Salt in it.

Helmont observed before the Fit, that the Saliva in an Asthma was salt; but this I was never sensible of in my self, but that it is usually viscid or mucilaginous the Day before the Fit.

As to Spitting and Coughing, that is common at the latter End of the spitting Asthma, upon the going off of the Fit: The first and second Day they spit little, but more the third, when the straitness goes off; and then the mucilaginous Phlegm digesting and putrifying, it loses its Viscidity, and so comes up easier. The Phlegm indigested is like the White of an Egg; and the first Spits of the Asthma are streaked, or feathered, and like a Spider's Web, of a blackish Colour, from Blood, or some acid splenetic Juice, which probably being of a Salt Nature, it shoots into Figures. This Phlegm comes from the Glandulous Coat of the Trachea, which by the Constriction of the Bronchia is expressed from that Skin. This Spit *Helmont* calls *Guttas cæruleas liquato tragacantho similes*: It has the same Pellucid Clearness as that Gum dissolved. And he further observes, *Ingravescente senio, graviores foreatus, si quid forte sub finem excrescetur, tantillum id, non prioris & causæ occasionalis rationem subire debet, sed potius producti vicem habet, ex magnâ coarctatione, & injuria pulmoni illata.* He believed it to be the Succus Nutritius of the Membranes; which later Anatomists

know to be a Glandulous Lympha.

Mr. *Nuycke* observes a Blackness in the excretory Vessels of the salivatory Glands, so that this black Humour is commonly mixed with the slimy Lympha.

No Pectoral can do any thing towards the curing or preventing of the Fit, whether oily or deterfive ; but at the latter end of the Fit, the oily and sweet Pectorals help the Expectoration of the viscid Phlegm, which gathers in the Bronchia during their Constriction, and it is no Occasion of the Fit, but the Product of it ; for if it were so, the Fit would not come so suddenly as it does ; and before the Fit I never was sensible of an Oppression or Stuffing of Phlegm, though I spit much after a Fit.

Vomiting very much relieves the Asthmatic, by evacuating a great Quantity of this Phlegm, or mucilaginous Slime from the Stomach and Lungs, which appears to me all of the same nature ; but after some small time the Fits will return again.

I have often vomited a Choleric Matter in the beginning of the Fit, which I imputed to the Vehemence of the Fit, and some Compression on the Guts, or the Gall-Bladder, and to be purely accidental.

I have discoursed an Asthmatic, who was extremely troubled with violent Motions of Vomiting in the beginning of each Fit, and nothing compos'd it like drinking Water :

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This Gentleman told me that he receiv'd much Benefit by drinking *Bath-Water*, which cured him of his Asthma for some Years; but the Asthma returning, he came to *Bath* the second time, where I met him; he was of a full Habit of Body, he drank the Waters, but durst not adventure to bathe; he lives near *Northampton*.

The giving of a Vomit will put some Persons into Fits, tho' it generally relieves the Straitness and Oppression at Stomach in all Asthmatics; but that will soon return, and the Phlegm be again evacuated into the Stomach. The breeding of this great Quantity of mucilaginous Slime both in the Stomach and Lungs, depends much on the frequent Stop given to Circulation of Humours by the Asthma Fit: For 'tis the Motion of Humours, and quick Circulation that dissolves the mucilaginous Liquors of Animals; but if they once remit that Motion, they naturally thicken like Gelly-Broth as it cools.

The want of the Motion of the Diaphragme in the Asthma Fit, may occasion the stagnation of the Contents in the Guts, as well as the Chyle in the Lacteals; and also the Blood in the Mesentery: For these are all helped by its Depression in Respiration: From this stagnation of Humours the Guts may be irritated into Inflations, which will hinder their natural Peristaltic Motion; and all the Humours stagnating will be much rarefied,
become

- become windy, and swell their Vessels ; so that the Asthma has these degrees: First, there is a straitness in the Bronchia and Vesculæ, that hinders the descent of the Diaphragme ; and the Defect of that gives the pale Water and Inflations in the Belly.

Bleeding, though never so oft repeated, will not cure the Asthmatic ; but a little for the present relieve the Straitness and Suffocation. It is agreeable to young Persons, but very prejudicial to old habituated Asthma's, who at present are not much reliev'd thereby ; but after some time they become Cachectic.

No Diuretic Balsam, or Terpentine can, prevent a Fit, nor cure it, but they rather make it worse, by rarefying and heating the Humours and Spirits.

Some Persons during some critical evacuations, as Dysuria, Loosness, or Ulcers, have no Fits of the Asthma ; and I have heard some commend Issues on that account ; and I have been inform'd that King *William*, during the running of the Sore upon his Shoulder, made by the Bruise of the Cannon Bullet at the Battle of the *Boyne* in *Ireland*, was free from any Trouble of his Asthma.

I have observ'd the Asthma to be better in some after the Legs begin to swell, because then the Blood is not so much inclined to Ferment, nor the Spirits to be rarefied ; I have
known

known others much better by copious Urine which reliev'd them.

A Gentlewoman about 60 Years old being always Asthmatic, fell into a Diarrhæa, by which she was freed from Stone, Cholic, and Asthma; but that being permitted too long, run her into a Consumptive state and extremely wasted her fat Body, and disposed her to Surfeit upon every occasion: I cured her by Rhubarb-Purges, Steel, and Bitters. This Diarrhæa is dangerous to thin Asthmatics; if it be stopt it makes them worse: In this case we must neglect the original Disease, and cure it as an ordinary Scorbutic Diarrhæa, by Styp-tics, Laudanum, and Digestives.

As to Sweat in a severe Fit, 'tis very great sometimes, and in Bed very hot, and without any Benefit to the Asthmatic, I have oft taken Spirit of Hartshorn to produce Sweat, and to put by the Fit; but it had not that effect, but made the following Fit more violent. The sitting up all Night does make the Asthmatic subject to Rheumatic Pains, and Cachexies.

As to Stools, the Asthmatic are seldom bound; and in the beginning of a Fit, as soon as they rise out of Bed, they have a loose Stool, and most of them are easily Purged.

I could not find that by Purging I could commonly prevent a Fit; but I observed that Purging did frequently occasion the Fit; and if a Purge be given in the Fit, it causes an extraordinary Tumult in the Spirits, and
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endangers a Suffocation : For which reason I doubt of the Sincerity of those Authors, who prescribe it in a Fit. It gives the same Disorder as Purging in a Fever, but is more dangerous.

I knew an Asthmatic who made a great Quantity of pale Water, and had running Pains in his Limbs ; the pale Water made him lean and fainty, though it tasted somewhat brackish, and not sweet, as he informed me: He had frequent Fits, once in 14 Days ; he was oft eased by Vomiting with Oximel Scilliticum and Oil. That which was peculiar in this Case, was, that he was always very much bound ; for which he used Clysters, Lenitive Elect. Extract. Ecph. cum Aloe ; and for his Diabetes, Aqu. calcis Composita. This Asthma was very grievous as oft as the Body was bound extraordinarily ; and to that he always imputed his Fit. This Asthma, upon the stopping of the Diabetes, ended in a Dropsie with a Hectic Fever, with Hypochondriac Winds and Gripes, of which he died.

What Salivation can do in the Asthma, I know not ; but since no Evacuation which I have mentioned, as Purging, Bleeding, Vomiting, Sweating, Diuretics, or Pectorals, can either cure or prevent the Fits, as I have experienced, though they have sometimes reliev'd and palliated it, I must confess, I cannot expect any Benefit by Salivation (unless
it

it can cure some of the scrophulous Tubercula of the Lungs) for Salivation is only the great Evacuation of the Serum of the Blood; it depresses the Fermentation of the Blood more than raises it, and the Blood becomes more viscid after Salivation, which is injurious to the Asthmatic straitness. But that I might be better satisfy'd about the success of Salivation, I desired my ingenious Friend Dr. *Gibbons*, that he would communicate the success of some Experiment he had made in the Asthma, of which he gave me the following Account, in his Letter to me on the 20th of *September*, 94. I have once or twice given Mercurial Medicines in an Asthma with success; but the Patients were Leprous likewise, which induc'd me to give them.— I have found *Gas Sulphuris* frequently given, very efficacious, when other things have signified nothing.— And in Hysterical Asthma's, *Laudanum* seldom fails.

Sixthly, *Of Sleep and Waking, how they affect the Asthmatic.*

I have observed the Fit always to happen after Sleep in the Night, when the Nerves are filled with windy Spirits, and the Heat of the Bed has rarefied the Spirits and Humours; but the next day Sleep composes the Disorder of the Spirits.

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The Night before the Fit the Drowfiness and flight Head-ach are figns of the Matter entring into the Nerves; and it is like the Sleepinefs in the Beginning of the Fit of an Ague, from an Oppreffion upon the Spirits by ferous Humours, which then occafion alfo a Retching and Yawning.

I have found that by late fitting up I have put by the Fit for a Night or two; and I have found it commonly neceffary to rife out of Bed, efpecially in the Summer time, and to fleep in a Chair the firft Night of the Fit: Two Nights before the Fit Afthmatics want Sleep frequently.

Narcotics are accounted dangerous to Afthmatics by fome Authors; becaufe they apprehend that they make a greater ftoppage in the Breath and Pulse, and thicken the vifcid Humours of the Afthma, if given in any great Dofe; but if in a moderate Quantity, they are the fitteft Medicines to comprefs the Inflations: And *Riverius's* Experience confirms it; and all our Moderns, as well as the Antient Writers, ufed it in the Afthma.

I wifh we had in common Ufe a Preparation of Opium with an Acid; that I am certain, would prove more agreeable to the the Afthma; becaufe the Acid beft corrects the Opium, and that makes all acrid and bitter Medicines more fuitable to that Dif-eafe.

The Antient Writers often object against the knowing of the Nature of all Medicines by the Tastes ; that Narcotics are hot by being bitter, acrid and foetid, and yet they cool the Humours and thicken them.

To which I may answer, that Narcotics by those Tastes produce hot Effects, as well as cool in our Humours : Narcotics are Diuretics, and evidently Diaphoretics, by their Bitterness and Acrimony, and they cause an Itching in the Skin sometimes: Many of them are also Vomitories, and Purgers, as Tobacco, which is a *Solanum*, and *Solanum lignosum* is Purging; all which Qualities depend on the Acrimony of them. But besides this Taste, there is an evident Mucilage in Narcotics, as appears in Poppy-Leaves, which always cools: But the chief Effects of Opium lie in the foetid Smell; which being destructive to the Spirits by a particular Texture of its Principles, they being stupify'd, evaporated, or made less elastic; the Motion of the Heart and Circulation of Humours are stopp'd, on which the Coolness and Viscidity accidentally depend: That all these Effects are produced by the Hot Tastes of the Narcotic, is plain; because strong Spirits long used, and all hot Regimens, as hot Baths, hot Drinks, do accidentally chill our Bodies, and evaporate our Spirits: Camphire cools by its discussing Quality; being a volatil acrid oilous Salt, it opens the Pores, and evaporates
hot

hot Humours. The Nature of other Poisons, as Vegetables, lies in their Fætor and Acrimony, as well as in Opium, which we can never mechanically explain; because we never can know the Textures of the Vegetable Juices, nor the Nature of Animal Spirits; but we must be contented that we can distinguish by our Tastes and Smells those Plants that are Narcotic and Poisonous from other Plants, by their offensive Fætors and Corrosiveness.

I shall next describe those Diseases which produce the Asthma as a Symptom.

1st, The Suppression of the natural Evacu-
ations of Blood by the Hæmorrhoids or Men-
ses, which being stopp'd, do occasion a great
Oppression of the Lungs, by the Viscidity
or Fulness of Blood stagnating in the Blood-
Vessels, which oft makes them varicose, and
not only hinders the Circulation there; but
occasions a Compression on the Bronchia and
Vesiculæ; for the Veins and Arteries accom-
pany the several Branches of the Trachea,
which keep the middle, and the Veins lie
over them, and the Arteries underneath:
And by this it appears, that the stagnation
of the Chyle or Blood in those Vessels, may
compress the Bronchia, and by that produce
a constant Wheezing in them; and this is to
be cured by restoring the deficient Evacua-
tions of Blood. This stoppage of the Hæ-
morrhoids I have observed increase the Fits
in many Asthmatics, who were troubled with
them

them, and during their Flux the Asthma was very much relieved.

This stop of the Hæmorrhoids is an occasion of a scorbutic Spitting of Blood in many Asthmatics ; this Hawing up Blood return'd every Afternoon in a particular Asthmatic towards four of the Clock, and I could not stop it by any Evacuations or Styptics ; but the Cortex immediately cured it.

2dly, By a great Quantity of Blood Plethoric Persons have an Oppression in the Lungs, which gives them a Dyspnæa, till it be emptied by profuse Bleeding, and Purging, with a spare Diet.

3dly, A Polypus in the Heart and Lungs, upon any Motion gives a Shortness of Breath ; because the Blood cannot freely circulate through them, without oppressing the Bronchia ; this gives also a Palpitation and intermitting Pulse, and upon violent Motion they dye suddenly ; and this is incurable.

4thly, The Coagulation of the Chyle in the Lungs produces the Asthma ; and of these Asthma's there are many Instances given in Authors. This arises from drinking cold Water, or washing in it whilst the Body is very hot, which by a sudden Compression of rarefied Humours coagulates them, and from hence came the *Catarrhus Suffocativus*, which suddenly kills many Children, who drink cold Water being hot : This is without Intermision, and accompany'd with a Fever.

Upon this I believe, the Pulmonic Asthma in broken-winded Horses, frequently depends; it is a continu'd Asthma upon any Motion; they have a dry Cough at first; but after some time they vent some Slime by their Nostrils, and are easier whilst their Bodies are kept open by a moist Food; they have a dry Cough, which is a sign of some great Obstruction in the Lungs; they breathe thick and short, which differs from the Asthma; because that is a high Breathing, and the Inspirations are very high, and both Inspiration and Expiration very rare and slow; the Muscles in the Abdomen, which cause Expiration, labour as well as the Diaphragme, which helps Inspiration, as we may observe by the Motion of the Flank out and inward: The Diaphragme, because the Air is not freely admitted into the Lungs, moves but little downwards, as in ordinary Respiration, and the Expiration returns very quick, and causes a trembling Motion in the Flank of the Horse thus affected.

The Crock in a Hawk is usually imputed to some Strain in the Membranes, which contains the Air in the Belly by hard Flying, and is never recover'd.

5thly, The viscid Serum in a Peripneumonia obstructs the Blood Vessels, and the Glands of the Lungs with viscid Phlegm; and the Dyspnæa produced by it, is at first without Stertor; but that by long Continuance
 strains

strains the nervous Fibers and Membranes, and disposes them to Asthmatic Inflations. And from this Cause the common Pneumonic Humid or Spitting Asthma takes its Original, which is attended with much Spit as the Fit goes off. It is observ'd that the inward Skin of the Trachæa is Glandulous, *Unctuosohumore perfunditur contra aeris asperitatem*; and by the Constriction of the Bronchia a great Quantity of this is expressed during the Fit; for the Circulation of the Blood and Chyle being retarded by the Fit, some of the Chylaceous Mass is oblig'd to pass the Glands of the Membranes in the Trachæa. If a Liquor be injected into the Arterial Vein of the Lungs, some of it will pass into the Trachæa, and this way the slimy Spit passes in the Asthma Fit; which by its Colour and Consistence appears of a Chylous Nature.

These Pneumonic Spitting Asthma's have been observ'd upon Dissection to have Tubercula or Schirrosity in the Lungs; and they frequently turn to an Abscess, and that into an Empyema; but that small Tubercula alone will not produce the Asthma, is plain, because all Consumptive People who have them, are not Asthmatic.

The Lungs usually in these Asthma's adhere to the Sides, which makes only short Breath'd upon any Motion; for which Inconvenience Authors commend the Motion of the Arms and Breast, and Emollient Baths, and Milk;

but all these Asthmatics usually die Consumptive.

This Pulmonic Asthma depended originally on a Fever, and so does the several Fits of it, which force some Chylaceous Lympha through the Glandules of the Lungs, and that produces the spitting Asthma.

These Fits come suddenly, and without any sense of Matter collected in the weakened Glands before the Asthma Fit; but it flows through them in the Fit; so that an Inflammation of the Lungs does not produce the Asthma in all Persons, but only the Spitting Symptoms in those who have a Cacochymia, which disposes them to this Disease; or else it occasions large Tubercula.

6thly, The Stones in the Lungs produce an Asthma, which is continu'd, and not Periodic: Of this *Helmont* gives a remarkable Instance, *Invenitur sinistri lateris lobus in dissecto corpore durus, & è pumice lapidescens, pluresque ejusmodi lapillos sparsim per pulmonis regionem vidi.* This was the Case of a Presbyter who lived a sober Life; but of a sudden grew Hoarse, and afterwards Asthmatic; he lived a Year with this Disease.

7thly, In the Pica and other Cachexies the viscid Chyle stagnates in the Lungs, and occasions a Dy'spnæa; and the Cachectical Serum in the Hydropical fills the Lymphatics of the Lungs with Serum, and extends them into Hydatides, which oppresses the Lungs and
gives

gives a Dyspnæa ; and these frequently break and fill the Cavity of the Breast with Water, and then the Legs swell, and they can never lie down without danger of Suffocation: There is a slow mild Fever, a dry Cough, great Thirst and Ebullition or Fluctuation of Water, fainting Fits, a painful Anxiety about the Cartilago Ensisiformis, a Blackness in the Face: In this Case some Antihydripical Wine is necessary to Purge off the Serum.

This is *Horstius's* Prescription :

Take Roots of *Enula*, *Campana*, *Orris*, a.a. ℥ss. *Liquorish* ℥ii. *Sena* ℥x. *Agaric Trochse* ℥ss. *Tops of Elder* ℥iii. *Leaves of Carduus*, *Horehound*, of each M. i. *Flowers of Elder*, *Cham.* a.a. P. i. *Seeds of Fennil*, *Rue*, &c. ℥i. *Raisins* ℥i. *Ginger*, *Mace*, *Cinnamon*, ad ℥ss. *Saffron* ℥ss. make an Infusion in ℔ii. of *White Wine*, take a Draught for four days.

Vomiting relieves them, and strong Purg-
ing, with Diuretic Salts and bitter Vine-
gars.

8thly, A long Catarrh ends in an Asthma; for that enlarges the Passages of the Glands into the Trachæa, and disposes them to receive any Flux of mucilaginous Slime, upon any Effervescence of Humours; and this usually happens in the great Changes of the Year, and gives an Anniversary Asthma, which a Catarrh precedes and accompanies, and that ends in much Spitting. It may be observ'd, if the Asthmatic catch Cold, and

have a Rheum in the Teeth, Throat, or Head, within a Night or two the Fit will follow. In this case 'tis plain, the Effervescence which usually attends all Catarrhs, pushes some slimy Lympha on the Lungs which produces the Fit.

As the Peripneumonia produces a Fit of the Asthma in those disposed to it, and cannot produce it in others not so prepared; so it is in Catarrhs, the Phlegm abounding in a Catarrh cannot produce the Asthma in those who are not disposed to it; but it lays the ground for the Spitting in the Asthma, and excites a Disposition to that Disease, which was latent before; and whensoever the Chylaceous Matter gathers or flows into the Glands, it irritates the Bronchia, and gives the Constriction of the Blood and Air-Vessels to produce another Fit.

A young Boy had the Asthma almost from his Birth, upon catching Cold, which occasion'd a great running at his Nose, and constant Wheezing; no Medicines reliev'd him, but he died suddenly, being one Year and a half old.

If a long Catarrh produces any Tubercula in the Lungs that are large, and they constantly oppress the Bronchia, by that means a constant Asthma may be produced which is truly Pulmonic, like that in Broken-winded Horses, which frequently comes after a long Cold, and they are Asthmatic upon any Motion.

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The sign of the Breeding of a Tuberculum, is when any one in good Health begins to breathe short; and as that encreases, a Stertor is observ'd in Breathing. There is an Example in *Hippocrates* of the Daughter of *Agasius*, who being a Girl, breath'd short from a crude Tuberculum, which did not easily digest; but when she was with Child, it broke, and she became Asthmatic. By this we find that a Tuberculum may produce the Asthma, whose Fit will return as oft as the Chylaceous Matter fills that Tumor; for then it must constringe the Bronchia, and that Asthma is truly Symptomatical, depending on that Tumor, and not the windy Cacochymia.

The Itch repelled, or Ulcers stop'd up, may occasion an Asthma, by filling the Blood with too much malignant Serosity; and that either flows through the Glandules of the Lungs or Brain, and excites an Effervescence in the Humours.

If a Flux of Serum falls on the Stomach, and Intestines, that occasions Gripes and Inflation there, and many loose Stools, and then the Asthma Fit appears very little in the Nerves, the Fits are very short, and little Spitting happens: These sort of Fits frequently happen from a Catarrh, as appears by a Looseness; but if any Defluxion of Serum oppresses the Bronchia, it causes much Spit, and the straitness on the Bronchia, and the same Inflation there in its muscular Membranes, which happen in

those in the Belly, when the Defluxion of Serum runs through those Glands ; but if the Defluxion of Serum passes the Glands of the Brain, the Straitness is most with Dulness in the Head, and the Fit is longer.

9thly, The Asthma depends on Fevers ; the Small Pox oft leaves viscid Matter on the Lungs, which upon any Effervescence of Blood stops that, and the Chyle, and that Stoppage occasions an Inflation in the Lungs. I am certain the Small Pox encreased the Asthma in my self, and others I have discoursed with. *Horstius* gives an Example of an Asthmatic who dy'd of an Imposthume in the Lungs in that Disease.

A Young Gentleman about Twenty, was taken with an Asthma after a Pleurisie, which Spring and Fall gave him great Trouble ; but after he had had the Small Pox, his Asthma was very severe, and drew his Breath with more Difficulty. He complain'd to me of straitness in the Sternum about the middle of it ; he could lie on either side, but does not Wheeze. The straitness takes him in a Morning, and spits more now than at first : He found some Benefit by this Method by gentle Vomiting, and Purging with gentle Pills, and Castor-Pills at Night. I anointed him with Anticonvulsives and Emollients ; he used an Antiscorbutic Diet-Drink, and an Anti-asthmatic Syrup ; by these he continu'd well

well some time, but the Fits return sometimes. I gave him the Cortex, but it occasioned more straitness at the Stomach.

Intermitting Fevers are often the occasion of the Asthma Fit, as appears by the Instances above mentioned, and then it cannot be cured without a plentiful Dose of the Cortex ; but Bleeding, Vomiting, Clysters and Blisters must precede, and in great Faintness, Antispasmodics.

About Eight Years since I had an Intermitting Fever, with Swooning Fits every Afternoon ; to this I impute the settled Periods of my Asthma : In this I used great Quantities of the Cortex, and ℥ii. of Spirit of Hartshorn every Day, which then very much reliev'd me ; but no Pectorals, nor Balsams, or Purgings, Vomiting, Bleeding, nor a long use of the Cortex would put any stop to the Periods of the Fits, till I used an Oxymel hereafter described, and bitter Thea of Buckbean, with an exact Diet.

A Gentlewoman of a lean Habit of Body had been an Asthmatic from her Youth, after she had had the Small Pox, to which she imputed it ; but these Fits came seldom but upon taking Cold, or the Turns of the Year ; but after the Quartan Ague, which was cured by the Cortex, it came frequently towards Morning, and she had also a Pain on the left Side. I gave her a Vomit of Oxymel Scilliticum, she Purged with *Pil. de Hiera cum Agarico,*
de

de Succino, ad ʒi. once in a Week, afterwards she used a Decoction of the Cortex with an Hysteric Julep, and Hysteric Pills, with an Asthmatic Syrup, because she was very subject to Hysteric Fits, and did not spit after her Fits: she drank an Antiscorbutic Diet-drink, and the Decoction of Bitters without Sena, for a long time, by which she continu'd well for Twelve Months; but then the Ague return'd again with the Asthma Fits, which were cured by the same method. And by this Instance and the former I mention'd, I learn, that the Hysteric Asthma depended on an intermitting Fever, as well as the spitting Asthma, and that both of them have the same Periods; of which I must observe two sorts: For the one, in Pulmonic or Hysteric Asthma's, happens once in Ten Days, or Fourteen Days at farthest; and the other, only upon Changes of the Year, when Intermitting Fevers return usually: Therefore such Asthmatics ought to use the Cortex Spring and Fall, after Vomiting, Bleeding and Purging.

I knew a Divine, who after the Quartan Ague, was every Spring seized with the Asthma, to whom I recommended the Method mentioned.

Every Fever will not occasion an Asthma-Fit, neither had I any in the Small Pox: Therefore where the Asthma is a Symptom, there seems to be a crude flatulent Cacoehymia

mia in the Blood before the Fever came, and a Flatulency of Spirits, which being rarefy'd by the Fever, produces the Asthmatic Symptoms, with Windiness in the Stomach, much Spitting, intermitting Pulse, Palpitation, Coldness, Fainting; which Symptoms oft appear, attending an Asthmatic Fever. If Tubercula in the Lungs stopp'd the Feverish Blood, and occasion'd the Asthma, then that would happen in all Fevers to Asthmatics, which I am certain does not, but some Intermitting Fevers occasion it; and upon curing that, it goes into its old Periods again.

Mr. B. of *Warwickshire*, was first seized by the Asthma in *Spain*, as he thought, by eating of Fruits there: He was then Twenty five Years old, and was forced to leave that Country; because when the Rains fell, it violently held him.

His Grandfather had the Asthma, and dy'd of it about the Fortieth Year of his Age; but his Father and Mother were very healthful, and never had any Asthma; but some of his Brothers and Sisters are subject to the same Disease; so that it was a Disease in the Family, but yet missed one Generation.

This Gentleman for the space of Ten Years was Asthmatic in a high Degree, for which he oft bled, which made him Consumptive; his Stomach was apt to surfeit by Eggs,
Sallads,

Sallads, potted Meats, which gave severe Fits: He used Steel, and Gums, and Volatil Salts, which did him great Injury. In *London* Air his Fits were much as in the Country: about the Thirty fifth Year of his Age he had a Fever, and then his Fits left him for Three Years; but he spit and coughed much more, and that way evacuated the Matter of the Asthma; at last an intermitting Fever returned on him; but the usual Method proved unsuccessful, and the Cortex oppress'd his Stomach, Asses Milk purged him, no Pectorals relieved him; he drank Sarfa Drinks, Emulsions, Pearl-Juleps, with Bals. Sulp. Anis in Syrup of Balsam, and other Balsams; he dy'd hectic in the Winter: I open'd his Thorax, and found the Lungs to stick to the Pleura on both sides: There were many Tubercula in his Lungs, and some purulent Matter, and I found a small Schirrus on the Skin. This Consumption was introduc'd by the Intermitting Fever, and probably all the Tubercula were the Effects of it. Asthmatics have no short Cough betwixt the Fits, which makes me doubt whether they commonly have any Tubercula, especially when I observe they can use great Motion without Wheezing.

10thly, If a Vomica break in the Lungs, it by a sudden Inundation of Matter occasions a Fatal Asthma.

An Empyema oppresses the Lungs as the Dropsie does, and hinders their Expansion; and the Empyema has a great Fever in the Beginning, which grows milder as soon as any Matter is concocted, and then it has all the Signs of a Consumption to accompany it.

It usually succeeds the Breach of a Vein, or *Vomica Sanguinea*, the Inflammation of the Lungs or Pleura, the Quinsy, Lethargy, Wound or Ulcer, Phthisic, or the Ripening of a Tuberculum.

11^{thly}, Every External Compression of the Lungs, may cause a Pulmonic Asthma; as too much Fat about the Heart, the growing of the Lungs to the Diaphragme, Pericardium.

The Gibbous are Asthmatic, because of the Contortion of the Spinal Marrow, the Compression of the Nerves, or the ill Shape of the Cavity of the Breast, which straitens the Lungs.

The Asthma often causes a Gibbosity in young Persons, and that is observ'd to be fatal *ante Pubertatem*.

I have describ'd the several Kinds of Compression of the Lungs, or Bronchia, by which Inspiration is hinder'd; as too much Blood, a Polypus, Coagulation of Chyle, Hydropical Serum, Tubercula, Empyema, and all External Accidents that compress the Lungs; but there remains one other, which is in the Cavity of the Belly, *viz.*

12^{thly},

12thly, The Tumours of the Viscera, which produce a spurious Asthma, as that of the Liver, Spleen, Kidneys, Pancreas, and all Hydro-pical Tumours : I remember a Patient who had a great Tumour on the left Side of his Belly, which gave a great Dyspnæa; I found in him upon Dissection, a Bladder fill'd with clear salt Water, containing about a Gallon of it : This Bladder grew on the Spleen, and stuck to the Muscles of the Belly ; so that if it had been tapp'd, it would have sunk, and the Water might have been evacuated : This Tumour by its Greatness stopt the Motion of the Diaphragme, and caused that Dyspnæa that kill'd him.

I once observ'd a Diabetes to end in a Tumour amongst the Muscles of the Belly, which gave the Patient a continual Cough, Rheum, and Shortness of Breath when he lay down ; but he had no Cough all Day, and this ended in a Consumption.

Those who have a Dyspnæa from the Tumours of the Belly, can sleep and breathe easiest lying on their Belly.

The Inflation in the Guts and Stomach, which happens by a Flux of Serum on them on great Changes of Weather, often gives a short Fit with Windiness, which hinders the Descent of the Diaphragme, and that gives the Difficulty of Inspiration.

I shall next describe those Symptomatic Asthma's, which succeed Cephalic Diseases.

1st, I have observ'd an Asthma in very old Persons after a slight Touch of an Apoplectic Fit, or Giddiness, which at first makes them fall to the Ground: This Asthma lasts some Weeks, and sometimes Months, with Loss of Appetite, and it ends in Oedematous Tumours of the Legs, and there seems to me always in this Case a Dropsie in the Breast. Vomits of Oxymel very much relieve these Patients: Bitters and Diuretics agree; but Purging did never agree with them: I have given some of them strong Purgers without much Advantage. This Asthma in half a Years time proving fatal to these Patients, I have observed this to happen to fresh colour'd old Men, that have sipp'd too much, tho' not very intemperately, of strong Liquors; and every Night they have severe Fits; but in the Day also a continued Dyspnæa.

The Gout also oft ends in a fatal Dyspnæa. A Gouty Lady who first had an Apoplectic Fit, by Medicines had her Head very much clear'd of that; but a severe Asthma in a small time succeeded, neither Bleeding, Blisters, or any volatil Medicines gave the least Relief.

Dr. *Willis* describes a Convulsive Asthma after Head-ach, Giddiness, and Lethargy.

I have observed an Asthmatic Fit to seize Persons who were in an Intermitting Fever, with an Inflammation of the Lungs, and Delirium, and this proves always fatal, notwithstanding

standing Bleeding, Blisters, &c. The Blood in these Cases is very Rheumatic, and there is a great Pain in the hinder part of the Head.

2dly, Hysterical Fits frequently occasion the Asthma, because the Convulsions oft stop the Motion of the Diaphragme; and binding and straitning the Bronchia and Blood Vessels, by the Nerves, which encompass them, that disposes all the disordered or ill digested Spirits to move that way, to inflate and constringe the Lungs and Heart.

Hippocrates imputes the Hysterical Disease very much to Wind, because of the frequent Eructations, and Windiness of the Belly, or Pains of Back or Loins: This windy Spirit in Hysterical Fits is more furious, and inflates Muscles; but in the Asthma the high Flatulencies being evaporated, they only inflate the Nervous Fibres of the Membranes of the Lungs: And we may observe the Hysterical Fits to end in the Asthma; and for that reason it must be a less degree of Expansion than the Spirits have in the Hysterical Fits. Hysterical Women hold their Breaths long through the Convulsion of the Muscles of the Belly during their Fit; and therefore may by Stopping the Motion of the Breath, strain the Nerves and Membranes, and dispose them to receive windy Spirits, when admitted into the Nerves.

The frequent Convulsions, by retarding the Motion of Humours, may at last make them mucilaginous and slimy, by which they are better prepared to retain the Spirits in the Form of Wind; and the frequent Disorders of the Spirits spend much of the volatil Parts; so that the Spirits after long Fits, have neither a true Volatility, or a thin Lympha to float in, and upon these Accounts the Spirits become Asthmatic, and the solid Parts are disposed to the same, by the Convulsions and Strainings mentioned.

Helmont calls this hysterical Asthma, *Caducum Pulmonis*; and he affirms of it, *Quicquid Epilepticum Adultum sanat, sanat etiam Asthmaticum.*

It will not be improper here to compare the Fits of the Spitting and Hysterical Asthma.

In the Spitting Asthma there is no less Inflation of the Lungs, and the same Rigidity in the Spitting Asthma, as in the Hysterical, which is commonly called a Convulsion; but is more like a continued Inflation, or Catalepsis.

The Lungs in the Spitting Asthma are vitiated by Tumours frequently, which stop the Circulation of the Blood, Spirits, and Chyle; and the filling the Lungs, may produce the Inflation, or Rigidity; and then this Constriction may be called a Symptom of the Diseases

eases of the Lungs ; but in the Hysterical Asthma, the Disease first began in the Nerves, where a Constriction is made on the Blood-Vessels, and Bronchia ; and those Humours stagnating, help the Inflation and Rigidity of the Lungs by their Fulness.

The Hysterical Asthma in time degenerates into the Spitting ; after Humours have been oft stopp'd on the Lungs by frequent Fits, and the Glandules are filled and become Schirrous Tubercula, they obstruct the Circulation of Chyle, causing it to pass in small Quantities into the Bronchia, where it causes the Spit.

Those who are most subject to the Spitting Asthma, who are of a lean Habit of Body and are subject to Rheums, and glandulous Swellings in their Youth, which are inclining to the Scrophulous Obstructions ; these are most subject to the Tubercula of the Lungs, and much Spitting ; they have too much Appetite, and are troubled with Hypochondriacal Flatuosities.

I observ'd some fat Hysterical Women who have had the Hysterical Asthma, in which they Spit little after Twenty Years Continuance ; but have the same sort of Spit as the lean Asthmatic, clear and mucilaginous, streaked with black.

Whatsoever Causes produce the Fit of the Hysterical Asthma, produce the same in the Spit-

Spitting Asthma, as Changes, of Weather, Heat and Cold, violent Motions, Passions, Wine, Surfeits; in neither kind of Asthma can they bear the Heat of the Bed. Since the same Causes produce the Fits in both sorts of Asthmatics, there is certainly the same Effervescence in both, which occasions the Fits, and that is plainly proved: For at the end of the hysteric Asthma Fit, the Water appears feverish, with a thick Sediment; and I observe that there is the same Interval betwixt the Hysteric Asthma Fits, as there is in the Spitting Asthma; and there is the same Quantity of pale Water in both kinds of Asthma.

Since therefore these two kinds agree in the same sort of Constriction of the Bronchia, in the same Effervescence of Humours, occasioned by external Causes; all these two kinds differ in, is, the first occasion that produced them; and the Spitting attends the one, and not the other; the reason of which I impute to Inflammation of the Lungs, or a Catarrh; and the other rises after Hysterical Fits, or a Fever.

In both sorts there is the same flatulent and mucilaginous Cacochymia, which by the Effervescence is forced upon the Lungs in the one, and on the Nerves in the other.

3^{dly}, Hypochondriac Fits occasion another sort of Asthma, without Wheezing; the Breath

is short, the Sternum oppressed, Flatulences are in the Stomach, Giddiness in the Head, with Fear of Swooning : In these the Lungs are not much affected, but the Sternum, or Membranes of the Breast as the Mediastinum ; and this must be cured as the original Cause requires, by Vomiting, Purging, Chalybeats, and Cephalics.

4thly, When the Scurvy affects the Nerves with too much sharp Serum, it produces the *Asthma Convulsivum*, with great straitness of the Breast. This is Dr. *Willis's* Opinion ; and for that he uses Volatil Spirits, Tincture of Antimony, Sulphur, Castor, Lavender, Flowers of Sal Armoniac, Benzoin, Elixir Proprietatis : He prescribes Sudorifics, sharp Clysters, Diuretics, for the evacuating of the Serum.

Dr. *Willis* relates a History of a Convulsive Asthma, from the Serum in the hinder part of the Head, and violent Fits of the Asthma seizes them in lying down ; and this succeeds other Diseases, or Cachexies, and is a deplorable State.

Zecchius observes an Asthma without Stertor ; when the Constriction or Angustia falls on the Blood-Vessels, more than on the Bronchia, he imputes the Cause of Asthma wholly to a Catarrh from the Head, and prescribes the usual Methods for it to the Head ; which is as absurd as the Explication of a Catarrh descend-

descending thence : Yet we must allow that in the Asthma there is a real Flux of Serum, either through the Lungs or Nerves; and all Defluxions, like the Asthma, are apt to return.

Zecchius observes many other useful things relating to the Asthma, which I will mention.

1st, He observes, that Asthmatics are hurt by hot Medicines, and that in cold Climates; if dry, they have best Health, and that the South Wind is injurious: For the Heat of their Liver, that is, their Blood (of which the old Writers made the Liver the Fountain) he advises, the depurated Juice of Cichory, and Goats whey; he observes also a Crudity in the Stomach.

2^{dly}, He observes that the Asthma is *Respiratio tarda, magna, rara*; and to his Honour be it, that no other Authors, who generally call the Asthma *Respiratio Densa*, have given a true Description of it, but he; and he observes the Cough the Asthmatics sometimes have in Expiration, which puts them to great Pain, because their Lungs are not full enough of Air to cause a Cough; he observes also, that the Urine is thick and turbid in the Fit.

3^{dly}, In the Fit he prescribes Medicines mixt with Acids, thus,

Take Simple Oxymel ℥iſs. Oxymel of Squills
℥iſs. Sal Armoniac ℥i. Saffron iij. gr. powder'd,

or *Ammoniacum* ℥i. *Musk* iij. gr. *Saffron* ii. gr. with *Oxymel* of *Squills*; make *Pills*, take them in a *Potch'd Egg*. He commends this *Cleanfer* for the *Lungs*, Take *Turpentine* washed ℥i. *Sulph.* ℥i. *Ammoniacum* dissolved ℥ii. make *Pills*, and let the *Patient* dilute his *Wine* with the *Decoction* of *Mistletoes*.

He observes the *Prælua* of the *Fit* to be a *Heaviness* in the *Head*, and a *Distillation*, with a *small Cough*; to prevent which, *Zecchius* well advises a *Clyster*, and a *Blister*, and a *Narcotic* at *Night*; and afterwards *Ammoniacum* dissolved in *Oxymel*, which cleanses and dilates the *Lungs*, and dries them, without any immoderate *Heat*.

C H A P. IV.

*Of the Cure of the Asthma, both in the Fit,
and out of it.*

THE Cure of the Asthma Fits requires these following Intentions and Remedies :

First, To abate the Quantity of the Windy Chyle in the Belly by Clysters, if the Astmatic be bound, which carry off the Flatulencies. In the Fit they have generally Loose Stools ; but in an Extream Fit I once took a Clyster of Posset-Drink, Chamomile-Flowers and Sugar, which immediately eased me, after the Fit had continued many Days before.

Vomiting, if gentle, very much relieves the Fit, by evacuating a great Quantity of Fermenting Humours from the Stomach ; and the straining to Vomit, dissipates the Inflations both in the Lungs and Stomach, and some slimy Lympha is evacuated from both.

I never could approve of a strong Vomit in the Fit ; one Ounce of Oxymel Scyliticum, and as much Oil of Sweet Almonds is sufficient, with Posset-Drink or warm Water. Much straining to Vomit is suffocating, and

it is impossible to drink much in the Fit for the Use of a strong Vomit; therefore my Custom is to sip about half an Ounce of *Acetum Scylliticum* without any Mixture, which in a small time makes me sick; and by the help of a Feather and warm Water, I vomit so much as to evacuate all the Contents of the Stomach, which very much relieves the straitness, though it does not always take off the Fit.

Secondly, To relieve the Straitness or Constriction in the Bronchia or Blood-Vessels, which can no other way be suddenly done, if the Fit be extream, than by bleeding a sufficient Quantity: For that helps the Circulation through the Lungs, it empties the Fulness of Humours; but this very little relieves the old Asthmatic, and ought not to be practis'd upon common Fits, but only in great Extremities.

Thirdly, The Rarefaction of the Windy Spirit, both in the Stomach, Blood and Nerves, must be compressed by cool Liquors, as Toast and Water with Gas Sulphuris, or Pectoral Ptyfanes; but these by their Sweetness are apt to ferment and create Wind, as Mead does: I rather prefer fair Water with an Acid Spirit, or Sal Prunel, Nitre, Sal Armoniac unprepar'd; Small cold Beer, and Wine and Water, distill'd Milk are very agreeable Liquors for acid Spirits or cool Salts: These compress the Inflations, check the Effervescence of
Hu-

Humours, and by their Coolness much refresh the hot Spirits in the Fit. On the contrary, I have found by Experience, this very certain, that all hot Medicines, as Volatil Salts, Acrid, Aromatic, and Fœtid Plants, all Chymical Sulphurs, Oils, and spirituuous Waters, tho' never so Carminative, endanger the suffocating the Asthmatic in the Fit, and very much disagree with them out of it: No Solutions of Gum Ammoniacum, nor Castor Medicines, nor the Cortex ought to be given in the Fit; the Shortness of Breath can bear no Pills, nor Bolus, nor Electuaries. Salts, or Acid Spirits in a Carminative Julep, or Ptyfan, are the best Anti-asthmatic in the Fit; the old Posca of Water and Vinegar, or Verjuice and Water, may do well in those who cannot purchase other Medicines.

Take Sal Prunel, or Nitre and Sal Armoniac, of each ℥ss. Sugar candy ℥i. mix them, give ℥i. in Milk-water, or the following Julep or Decoction.

Take Elder-flower Water, Rue, Black-Cherry, Chamomile-flower Water of each ℥iv. Syrrup of Red Poppies ℥iſs. mix them for a Julep.

Take Eryngo Roots candied ℥iſs. Liquorish ℥ii. Barley ℥ss. Raisins ℥i. Boil them in three Pints to two for a Ptyfan; add Syrup of Violets, or Syrup of Vinegar a.a. ℥iii. These Cool Febrifuges are to be used two or three times in a Day, till the Heat and Straitness

ness is repressed, according as the Stomach can bear them.

4^{thly}, The Motion of the Spirits may be turn'd to the extream Parts, by many Blisters apply'd to the Arms, and Legs, and Shoulders, which may discharge a Serum from the Nerves.

5^{thly}, After all the Evacuations mention'd, if necessary, at Night we ought to compose the Inflation of the muscular Membrane both of the Stomach and Lungs by gentle Opiates, at Bed-time, thus; Take Diacodium and Oil of Sweet Almonds; mix equal Parts of them with Sugar Candy; take a Spoonful or two at Bed-time, till Sleep comes: Or 10 or 12 Drops of Laudanum Liquidum may be given in an Hysterical Julep, which must be mild, and mixt with Gas Sulphuris. Dr. Willis says, *Pro subitâ Dispnaë mere spasmodicæ sedatione, nullum præsentius remedium expertus sum laudani opiatî tinctura nostra, quippè somno ob repentè spiritus inordinationes suas remittunt.* I have oft drank Poppy-water ℥iii. with Syrup of red Poppies ℥vi. and Sal Prunel ʒss. to my very great Advantage.

If Castor, Amber, Assafetida, Volatil Salts, or Sulphurs, be taken inwardly, they rarefie the Spirits, raise the Effervescence, and drive the windy Spirits violently into the Nerves, whereby the Strangulation is increased; by which Experience, I find, that the contrary are only proper for the Asthma, viz. cool, watry

watry Liquors, Acids, Spirit, or cooling Salfo-acids, or some Carminatives temper'd by Vinegar.

The Antient Physicians in a Fit gave ℥iii. Aphronitri in ℥ss. of Mulsū; some of them usually prescribe a Spoonful in a Dose.

Verum in his qui suffocantur Aphronitri ℥iii. cum aquæ Mulsæ cyathis tribus præbe, & aliquando cum Cardamomo & statim auxiliatur. Ægineta.

Three Drams of Sal Armoniac may be mix'd with ℥ss. of Mulsū, or Honey boil'd with Water, and given at many Draughts in a Day.

As soon as the Asthmatic awakes, they ought to rise out of their Beds, though in the Night, which shortens the Fit, makes the straitness less, and by sitting up, they breathe better; the next Day, if the Room be not large, they must remove into an airy Place, where they may sit in an easie Chair all Day without any Motion; for that encreases the straitness.

During the Fit, the Asthmatic ought not to eat any thing the first Day of it; but Small Beer, and Toast and Butter, or Mead, or Wine and Water with a Toast, and this may be taken at Noon; but nothing in the Morning till then, but the coolest Juleps and Salts; and the same again at Night; or else an Egg or two, with Vinegar in good Quantity.

If

If the Fits continue violently for two or three Days, continue the same Diet; for the thinner and smaller the Diet is, the less Chyle is bred to stop on the Lungs, and the sooner the Phlegm will digest and come up.

Upon occasion of Faintness, I take a Glass of Sack and a Toast; but that occasions a greater Inflation and Straitness: A potched Egg or two at Dinner-time, with a great Quantity of Vinegar, is good Diet; but all Flesh-Meats are very injurious in the Fit; and therefore touch none of it for the first or second Day, till the Phlegm begins to expectorate. And that I may deter all Persons from Flesh-Meats in the Fits, I must tell them, that by eating thereof many have been suffocated, and that causes the Fit to last four or five Days longer.

No Pectorals but Oil and Sugar, do any service in the Fit; but that I use the second Day, to help the slipping up of the Phlegm; and I sometimes use a Pectoral Ptyisan of Figgs and Liquorish made very thin in the Summer, and in the Winter-time only common Oil and Sugar, to relax the straitness, and lubricate the Trachæa; and I frequently butter the Toast, and dip it in Small Beer. I take all Medicines cold; for no hot Liquors agree with the Asthmatic: The Fire offends, if very hot; the Bed encreases the straitness; so much are the Spirits of the
 Asthmatic

Asthmatic disturbed by every hot thing, that warm Beer, or hot Water-Gruel is very injurious, and encreases the straitness,

I always order the Asthmatic to go to Bed the second Night, though the Fit continues, having first taken his Opiate, or some of this Linctus to compose his Breathing:

℞ *Ol. Amygd. Dulc. Diacod. ad ʒiʒ. Oxymel. Scyllitici ʒʒ. Sacch. Cand. ʒii. Misce cap. coch. semel, bis, vel ter repetatur.*

The next Day as the Fit goes off, he may take a Spoonful of this Asthmatic Syrup Morning and Night: ℞ *Syr. de Eryfimo, Prassio, Balsamic. A. ʒii. Oxymel. Scillitici ℥ aq. Bryon. Composit. A. ʒi. Bals. de Peru ʒʒ. signetur the Asthmatic Syrup.*

Since the Fit of the Asthma begins three Hours after Meat, a Clyster in the Afternoon is very convenient, before the Fit grows worse; and then Vomit also if necessary, and eat little or no Supper, but take an Opiate.

I have tried Vomiting, Purging, Sweating over Night, and the Cortex to prevent the Fit I apprehended was coming, but all in vain; for the Fit was frequently worse for it: But I find most Benefit by drinking of Toast and Water very plentifully, and adding some Nitre and Sal Armoniac to it; and at Bed-time I take ʒii. of Galen's bitter Acid, which generally puts by the Fit.

I think I may appeal to the Cure of the Asthma Fit, to justifie my Notion of it, that a Fit of the Asthma depends on an Ephemera; because whatsoever composes the inflamed, rarefied, or expanded Spirits in an Ephemera, as cool Liquors, Clysters, Opiates, acid Medicines, Quiet and Abstinence, that only agrees with the Asthmatic in the Fit; and all external Accidents that occasion the Ephemera, produce the Asthma, and those must be removed in both.

The Feverish Ferment in the Asthma, is very Volatil, and perspires insensibly, as it does in the Ephemera, without much Sweat; the most part goes off in Urine, or loose Stools, and the Feverish Sediment in the Water appears but for one Night or two after the Fit.

The Air of the Room must be kept cool in the Fit, because that has most Weight to open the obstructed Lungs.

All Fumes and Smells must be avoided, because they offend the Spirits of the Asthmatic, by rarefying them. A Fire of Wood is more suffocating than that of Coals, by the Fumes which smell and disperse more in a Room. The Smell of Charcoal is most suffocating. The Air of a City, by the plenty of Fires and Smoak, is more hot and rarefy'd than that of the Country; which makes the Fits worse there: The Air of a Square has but little Vent, and the Smoak stands more

in them, like Water in a Pool ; but those Streets which are short, and that part of it where four Streets meet, have a more constant Motion of Air, and therefore are more fit for Asthmatics, and especially that part of the City which stands highest is best. In the Air of a City the Viscid Spit is tinged black with Smoak, which gives a blackish Spit every Morning, and may irritate the Fit.

The Breast of the Asthmatic ought to be kept cool in the Fit, and not anointed with Oils that have any smell, because that offends much.

• All strait Cloaths, and the Weight of Blankets hinder the Extension of the Breath, and raising the Shoulders for Inspiration ; and the Asthmatics in Bed usually lie high, leave their Breast uncovered, and put one Arm out of Bed, leaning the Hand upon the Thigh, that the Shoulder may be raised high in Inspiration ; and the Belly must not be compressed by any thing, that it may give way readily to the Motion of the Diaphragme ; any Plaister on the Breast hinders Respiration.

Frictions of any Parts give great Disturbance, by promoting the Circulation of Humours.

The Medicines of Castor, Saffron, and Musk seem most proper in fainting Fits, and in them I use volatil Salt.

Zecchius recommends Saffron 10 Grains, Musk gr. i. in a Draught of Aromatic Wine in Extream Fits. When

When the Asthma continues for some Months, it is a true Pulmonic Asthma, and depends on some Disease in the Breast, as Dropsie, Tubercule, Abscess, which compress the Bronchia ; and till that evident Cause be removed, 'tis impossible to cure the Asthma Fits : For removing this Compression, Vomiting, Purging, Bleeding, and the strong Cleansing Pectorals are useful ; but if that cannot be effected, 'tis best to palliate these Cases by cool Methods, as cool Liquors, Acids and Opiates, and a very spare Diet, and an open Air, which will not irritate any Cough, by the Smoakiness of it : This Method prevents Inflammation, Inflations of the Membranes, and the Increase of any straitness.

This useful Observation the Antient Physicians have left us, that Acids prevent all Imposthumations and Inflammations : and for this end, in the Pneumonic incurable Asthma, 'tis very useful to use the Vinegar Acids, to palliate it, and to abate the Suffocations which depend on the Paroxysms, which happen in the Night in continued Asthma's as well as those, which are Periodical.

I have observed very little Spit in some of these continued Pulmonic Asthma's, except a small Quantity of a slimy Mucilage, though the Disease had lasted some Years ; and that no Balsams, as that of Sulphur with Turpentine,

tine did them any service. These Asthmaticks breathe thicker and shorter than those in the Periodic Asthma, who breathe slowly and very rarely.

Hippocrates observed in *Agisis*, that she was *πυκνοπνεύματῶ* before her Tuberculum ripened and broke, and Asthmatic afterwards.

I shall next describe that Method, whereby the Return of the Asthma Fit may best be prevented; which is to be performed,

First, By Evacuating the flatulent and windy Caco-chymia.

Secondly, By correcting of it by Digestives.

Thirdly, By preventing any Effervescence in our Humours, or Rarefactions of Spirits.

Fourthly, The Obstructions of the Glands in the Lungs must be removed, if any be, and the Glands of the Brain constring'd or reduc'd to a better Tone.

If all these Intentions can be performed, we may prevent the breeding of any more Caco-chymia, which when it is in any great plenty, produces a Periodic Effervescence.

First, The Viscid Lympha must be evacuated.

1. By a gentle Vomit both from the Stomach and Lungs: such is a Vomit with Carduus or Radish seeds, boiled in Water; to which Oil and Oxymel Scylliticum, of each an Ounce or two, may be added; and this Vomit may be repeated once in a Month in old Asthmatics, when the Fits return once in

ten Days, or thereabouts; and in others where the Fits are Anniversary, once or twice in a Year, or quarterly; for there is always a Phlegmatic Saburra in the Lungs, and especially in the Stomach of the Asthmatic.

To strong Bodies an Infusion of Crocus Metallorum, from $\text{ʒ}\beta$. to ʒi . are convenient; or rather some of the Oxysacchara; but Sal Vitrioli is observed by *Bartholet*, to be injurious to Diseases of the Lungs by its Stypticity: He gives it in Oils.

All Asthmatics ought to Vomit frequently; but it is to be manag'd warily, because of their aptness to Fits of the Mother in Hysterical Asthma's, by strong Vomits; and I have observ'd a Fit of the Asthma to have been occasion'd by them. I have given ʒi . of Acetum Scylliticum to Asthmatics to Vomit them, tho' they had formerly spit Blood, and that without any Injury.

Without Vomiting sometimes no Asthmatic can be thoroughly relieved, and at Night after the Vomit, give an Opiate, to quiet the Disorder of Spirits.

2. Clysters once in a Week are much commended by some Persons, who have tried them with good success, to prevent the Fit.

3. By Purging once, or twice, or three times after the Vomiting, or once in fourteen Days, if it be an Asthma returning in that time.

Pills of *Ammoniacum*, *Hiera cum Agarico*, *de Succino*, *Ruffi*, are the best Purgers either single or mixt ℥ii. at Night. *Pil. Coch. cum Castoreo*, these are proper in cold Constitutions, in whom *Hiera Picra* may do well ; but in the hot I only use Purging Salt ℥i. in White-Wine Posset-Drink, or the Purging Waters boiled very much. This Purge raises no Effervescences in the Humours, which generally occasion an Asthma Fit.

After ordinary Purges, *Decoct. Senæ*, or the bitter Purging Decoction with Buckthorn, agrees with others ; a Diet-Drink of Sena and Monk's Rhubarb agrees with some ; but Sena ferments, because 'tis a Legumen, and that raises Windiness injurious to the Asthma.

The Decoction of a Cock in Broth, with Sena, and Pectorals, is much commended by many Authors.

Purging oft occasions Fits, by raising an Effervescence in the Humours, and therefore an Opiate is necessary after them, and sometimes the Cortex too, to prevent the feverish Returns, which happen after Purging, like those in the Ague.

The Old Authors Purged with *Elaterium*, and Troches *Albandall* : These may be proper in Hydropical Cases where watry Tumours are in the Limbs, as *Pil. de Cambogia*, but in the hot thin Tempers they are certainly mischievous ; for the Serum is deficient in these, but Superabundant in the Hydropical ; and

where that overflows, Purging is absolutely necessary and injurious if deficient.

Ætius Purges with Savin Powder the first day ʒi. the next day ʒii. the third ʒiii. the fourth ʒʒ. and this brings away Blood. 'Tis *Ætius's* saying, *Maximum est remedium purgatio fortior, per Pharmaca fortiora.* I find that ordinary Asthmatics are very fainty, languid, and hot after Purging, and they generally say, Purging does them no good.

But it was *Bellonius's* Advise, *In difficultate spirandi non est formidanda frequens & magna purgatio.* I remember an Asthmatic who took some Quack-Pills, by which he had 20 or 30 Stools; this very much reliev'd him, because he was subject to the Dropsie; so that strong Purgers in gross, fat, hydropical Persons may be proper; but not in the contrary Constitutions. Thus *Etmuller* prescribes; *℞ Pil. de Hiera cum agarico ʒi. Troch. Alkand. gr. ii. Gum Ammoniacum ʒʒ. f. Pil.*

4. Issues diminish the Quantity of the Serum; but I never found any Benefit by them though made between the Shoulders, and on the Arms; nor found any injury by stopping of them up.

I never tried any on the Breast nor Top of the Head; but cannot approve of either; nor those in the Back, because they require a Ligature which straitens the Breast.

5. Sudorifics are commended for Catarrhs, as the Decoction of Guaicum, China, Sarsa; and

and therefore may be useful where the Asthma happens after a Catarrh ; and in the same *Venice Treacle* may be given every Night, which by its bitter and acrid Taste, helps the Digestion and promotes the Circulation of the Serum through the Lymphatics, and opens the stopp'd Perspiration, and by its opiate Faculty it allays the Inflations of the Spirits ; but we ought to take care that it be not too hot for the Constitution ; and in such cases must be mixt with *Acetum Theriacale*, or its Extract.

6. Diuretics, as Millepedes, in the great Quantity of Serum of the Blood are very useful ; but the Asthmatic seems to make too much Water sometimes.

The common Diuretics are Woodlice, Sassafras, Pine tops, Gill, Horehound, Enula Campana, Orris, Radish-roots, Juniper berries.

I have used *Gilead Balsams*, and Balsam of *Peru* dissolved in Syrup of Balsam, and Balsam Sulphur. Anisat. without any advantage : but these ought to be used in a Diuretic Oxy-mel to temper their Heat.

Secondly, the Mucilaginous and Flatulent Cacochymia must be corrected,

1. By diluting and cooling the viscid Humours ; for which end we must drink much of Mead, and Milk water, Sack and Water, Decoctions of Sarsa and China. Those Asthmatics whose Blood wants Serum, may bear

Chalybeat Waters; but in those who have old habituated Asthma's, the Serum is too abundant, and in them the Chalybeat Waters affect the Nerves, and fill the Vessels with too much Serum; and in some they coagulate the Serum, and give Rheumatic Pains. Asses Milk, and common Milk, make the Lympha's too viscid, and they cannot agree with the Asthmatics: Though I know an Asthmatic, who commends Milk and Water, for allaying the Inflations at the Beginning of a Fit. Drinking of Water agrees with the Young Asthmatic, but the old habituated Asthmatic must use it moderately, for fear of a Dropsie, and Pains of the Stomach and Spleen, of which I have heard old Persons complain who drink Water much; but I have observed that a Person who drank no Malt Liquor, but only Toast and Water, and rarely a Glass of Wine, lived free from the Asthma, which certainly returned if he changed his Liquor.

The drinking *Bath* Waters is much commended for the Asthma; But the going into the *Bath* rarefies the Blood and Spirits, breeds more viscid Humours, and is very injurious to all Asthmatics, as all Authors affirm, and I find observ'd in *Crato's Concilia*.

I discoursed an Asthmatic at *Bath*, who was extreamly troubled with a violent Motion to Vomit in the Beginning of each Fit, and nothing compos'd that like drinking Water: This Person assured me, that he receiv'd
much

much Benefit by drinking *Bath-Water*, which cured him for some Years; but the Asthma returning, he came then to *Bath* a second time: He was of a full Habit of Body, and drank the Waters, but durst not adventure to bathe.

I drank the *Bath-Waters*, whose Heat seem'd very disagreeable to me, since no actual hot Liquor can well agree with me; but I liked these Waters best when I drank them no hotter than new Milk: They pass'd well, but I found no benefit by 'em. I went twice for trial into the *Cross Bath*, and that each time made my Breath strait, and Spirits and Stomach very languid; by which I learn'd the Inconvenience of bathing in the Asthma.

I met with other Asthmatics at *Bath*, who found Benefit by drinking, but durst not bathe.

I know the Hypochondriacal have receiv'd some Relief of their Pains on the Breast by Purging and Bathing; but none for the Asthma, as I could observe in a Person who was both Hypochondriacal and Asthmatic; neither drinking nor bathing did him any service.

Thin Bodies can neither bear the heat, nor Purging of the *Bath-Waters*; and all Sulphur Medicines are disagreeable to Asthmatics; the Tubercula in the Lungs, Impostumate by bathing; the Heat and Serosity of the

Water, does more Injury to such Constitutions, than the cleansing Quality of the Nitre or Sulphur can compensate : And I have heard an ingenious Asthmatic complain, that her Asthma never was severe, till she had drunk the *Bath-Waters*.

The opening the Pores, and rarefying the Humours, make the Asthmatics more subject to every nice Change of Air, than they were before ; the drinking the Waters gives a strange Oppression and Stupor to the Spirits, with Sleepiness, and that must consequently affect the Nerves serving Respiration, and make them more open for receiving of flatulent Spirits. I do, in short, think the *Bath-Waters* most agreeable to fat and cool Constitutions, who can well bear their Heat and Sulphur, and their cleansing Qualities. I remember, they sink the Habit of the Body too much in very lean dry Bodies.

2. We must avoid all Occasions which make the Chyle Viscid or Windy ; such is Milk, Cheese, Fish, Gelly - Broths, strong Wines of a thick Consistence, Malt-Drink, baked Pyes, and Cakes, and Puddings, all Flower-Meats unfermented ; for all these breed Viscid Humours.

All crude slimy flatulent Meats are to be avoided ; as Herbs, Sallads, Mushrooms, Peas, Beans.

The most simple Diet is of Flesh-Meat boiled or roasted, once in a Day, with good Bread

Bread well fermented and well baked, and the Bran not too much dressed out ; the Drink may be Toast and Water for all young Asthmatics ; Wine and Water for the declining Age, and good small Beer or Ale not bottled ; and no Malt Liquor ought to be used but at Dinner, by those who cannot leave it off.

Extream cold Air increases the Viscidity, and is to be avoided by living in a Town ; Gentle Riding and Walking attenuate Humours and discufs Flatulencies, which arise from ill Digestion ; Violent Exercise makes our Humours more Viscid, as we observe in Labouring People, and their Horses, whose Blood is made fizy by constant sweating, by which the Blood becomes inspissated like Serum heated by the Fire.

Too many Clothes heat and thicken the Blood, by evacuating the Serum, and this Practice makes them more subject to take cold : For the more the Humours are rarefy'd, the quicker does the Air compress them, or rarefie them upon the Alteration of Weather ; they therefore catch least cold, whose Spirits and Humours have the Air most compressed in them.

Sadness stops the Motion of Humours, and makes them more viscid. 'Tis observed, that all Asthmatics being angry or sad, do fall into Fits oftener than when they are chearful.

The Belly must be preserved Fluid, the Urine must flow in due Quantity, and the Sweat must be moderately promoted by Exercise: For all these ways the Viscid Humours may be evacuated, and the windy Spirits dissolved.

3. We must correct the Mucilaginous Quality of the Chyle and Lympha's by Digestives.

First, *By Bitters.*

I have long used Bitter Wines; but those inflame the Blood and Spirits.

Dr. *Lower's* Bitter Tincture with Steel did me no Service, but great Injury. I have heard some Cachectical Persons commend Wormwood Beer and Wine; but they are generally too hot.

I have used many Ounces of *Elixir Proprietatis* prepared with Volatil Salts, and *Hiera Picra* infused in Sack, without any Benefit, and that prepared with Fixed Salt is as mischievous to the Asthmatic; but *Elixir Proprietatis* prepared with an Acid is less heating, and a truer Digestive, and more convenient for Asthmatics against their Cachexies.

I have used great Quantity of Horehound in vain; as ℥ss. to six Gallons of very small Table-Beer; it produces much Urine, and was pleasant enough, though a very strong
Bitter,

Bitter, of the Taste, Nature, and Quality of the Verbascum ; to which Class I therefore think it referable : But a long Use of this did me no Service. But I very much relieved a Cachectical Asthma, by a long Use of Syrup of Horehound in Hyssop-water, which was taken Morning and Night for three Months.

I tried great Quantity of dried Buckbean in Thea for my Breakfast, I drank half a Pint of this with, or without Sugar, all Winter every Morning ; this agreed with my Stomach, as Centaury-Thea did, which I also have frequently used with Sugar : Both these Theas agreed in Colour, Taste, and Vertue, for which Reason I call Buckbean a Marsh-Centaury.

I tried the Bitter of Broom, putting of green Broom *ibß.* to six Gallons in a Bag ; this agreed with my Stomach, and help'd my Appetite, though it did the Asthma no Good. I have known it to produce much Water in the Cachectical, and help the Hydropical Asthmatics : Neither boil the Broom nor dry it ; for then it has a nasty, smoaky, leguminous Taste : Use equal Quantity with Hops.

Since Oxymels with bitter acrid Cephalics, and Pectorals, are generally commended by Authors, I thence learn'd, that a bitter Acid was useful to Asthmatics ; and I observed, that they usually prescribed their bitter
Gums,

Gums, and acrid Medicines to be dissolv'd in Oxymels, or drank with a Posca.

I was frequently reliev'd by the following Oxymel, and my Fits kept off many Months; I used the Prescriptions of Authors in vain, wherein they order the Solution of Gum Ammoniacum; because they fail'd me in not prescribing a sufficient Quantity of Gum Ammoniacum, as Physicians formerly did err in small Quantity of the Cortex. This Dissolution seems to me convenient; and I use it till I have spent three Ounces of the Gum.

℞ rad. Zedariæ ℥i. Coq. in aqu. Font. ℥ii. ad ℥i℥. Colaturæ adde aceti ℥iv. in quibus dissolvatur Ammoniacci ℥i. Colaturæ adde Mellis ℥iv. Coq. & dispumatur, & coletur. Capiat colatur. Cochl. 3 Mane & Vesperi per menses aliquot.

There is very Volatil Acrimony in Ammoniacum, which affects the Roof of the Mouth, besides the Bitterness, by which it sensibly opens the Passages of the Lungs, and enlarges the Breath; it helps the Digestion, and dissolves Winds; it produces gentle Sweats, and sensibly invigorates the Nerves; but I found it necessary to follow the Antients Method, in correcting its Bitterness and Acrimony by Vinegar; and that makes it more cool: But sometimes I used it thus; *℞ Rad. Emul. candid. ℥i. Coq. in aq. ℥ii. in Colaturâ calida; Dissolvatur Ammoniacci ℥i. & Mellis ℥iv.* This was without

without Vinegar : The Ammoniacum is best dissolved by Water ; but it is no ways agreeable to the Asthmatic, till Vinegar is added to abate the Heat of its great Acrimony and the Bitterness ; and by the Experience I had of this Medicine, I learned, that no Acrid nor Bitter would agree with the Asthmatic, unless they were corrected in their Heat by an Acid : I therefore usually added Vinegar of Squills ζ iii. to the former Prescription.

Dioscorides commends *Aristolochia* decocted in Water. I have used that and Gentian, of each ζ i. infused in ℥ vi. of Vinegar ; 'tis not disagreeable. Briony and Centaury are commended by the Antients for the Asthma.

All Acrids are forbid by *Galen* in the Dyspnæa ; because they rarefie the Humours, and dissipate the thinner Part, by which Humours are made more thick. If Acrids be used, they must be used in small Quantity, and well diluted by Liquids, or rather corrected by Acids.

I like the drinking of Mum in an Evening, half, or a whole Pint ; for that helps Digestion, and keeps the Body open, both which are useful to the Asthmatic : Thin Constitutions may use this all Winter for Supper with Dutch Bisket, and it will feed them.

The *Theriaca Diatesaron* is a good, old and useful Medicine, if taken at a Night, and some Oxymel after it to cool its Heat.

The bitter Decoction may be used for a Month every Morning, to help Digestion, with some Drops of the Elixir Paracelsi in it.

Centaurry, Gentian, or Carduus, may be used in all our small Beers, ʒi. to each Gallon; or else Broom, Horehound, or Pine tops, Germander, Wood-sage, or Gill ʒʒ. in four Gallons for ordinary Drink; or use Thea of Centaurry, Gentian, Buckbean.

Secondly, *By Salsoacid Digestives.*

Some Asthmatics have drank their own Urine every Morning, and found much advantage by it, which gave me a Hint of using Sal Armoniac Preparations.

The Acid Spirit of Sal Armoniac distilled from that and Sugar, and made into a Tincture; add ʒiii. to ʒbi. of a Tincture of Cordial Flowers; 'tis useful, if given in Water, to a spoonful, or two, or three, in the Cholic, and Fits of the Mother; and the Flowers of that Salt, which are rectified from the common Salt, are given in intermitting Fevers; or else the common Salt of Sal Armoniac may be given as a Digestive, or the Volatil Salt fixed with Spirit of Vitriol gr. vii.

Sal Succini is a falsoacid Volatil ; I used some Drams of it without any Benefit.

Aqua Calcis compound seems proper to correct the Phlegm, and cure the Diabetes attending all Asthma's, and to raise the Digestion : I try'd it, but it heated the Blood extreamly, dry'd the Mouth by its stypticity and saltness, and made the following Fits worse ; neither would agree with any other to whom I recommended it.

Threë Drams of common *Sal Armoniac* is prescribed in ʒiii . Cyathis of *Aqua Mulsa* by the Old Writers.

Thus also they used *Sal Armoniac* in their Diet: Take *Sal Arm.* ʒi . Pepper, common Salt, ad ʒiii . Seeds of Rocket, Ammeos, ad ʒii . Hyssop, Thyme, ad Mii . Smallage, and Parsley-seeds, of each ʒii . *Origanum* ʒi . pound and searse them for a Powder : Half a spoonful may be used in Diet ; and 'tis much commended for Windiness and Diseases of Breast and Eyes.

If the Nitre of the Antients was Urinous, we have nothing so like it, as *Sal Armoniac* ; but they prescribe them and describe them as different Medicines in the Asthma ; but they used them both in it, for their cooling and attenuating Qualities.

I have observed the Merchants to try the *Salt Petre* before they buy it, by throwing it into the Fire, to see whether it will crack ; for then they reject it as full of common Salt. I thing the best substitute of the *Aphronitrum*
may

may be *Sal Prunel*; and a volatil Salt; for they will have a Lixivial Taste, and ferment with an Acid, and *Nitrum regeneratum*, and tart nitrated is of a like Taste and Quality. All volatil Salt exposed to the Air, has a cool Taste like Nitre, and may be mixed with Spirit of Nitre.

Thirdly, *By Chalybeat, or Vitriolic, and Sulphurous Digestives.*

Extractum Ecpbracticum cum Aloe, seems the best Digestive for Asthmatics; for tho' the Steel by its stypticity stops the Breath, yet Aloes helps the Steel off the Stomach. Most Asthmatics complain that Steel heats them, stops their Stomachs and Breaths, and thickens the Phlegm, and at last produces a severe Effervescence which gives the Fit.

Baccius assures us, that Steel-waters by their stypticity offend the Asthmatic; in them they occasion Rheums and Catarrhs, and fill them full of Serum: The Steel affects the Head with a Drowsiness and Giddiness, as all Steel Wines do. Those I have recommended to the Steel Waters have much complain'd of them; and the *German Spaw Waters* did increase my Fits: But I will confess, I have discourf'd some Persons who have been much better for those Waters, the Quantity of cool Water doing more service than the Steel could do injury.

I believe

I believe, *Vitriolum Martis* inconvenient, because of its great Stypticity : Though it raises no Effervescence in the Blood ; yet whatever gives a violent Motion to the Humours, produces the Asthma. All Steel Wines are mischievous, as well as all other Medicines infused in Wine. *Lower's* Infusion of Steel and Bitter, swell'd my Stomach, that I could not bear it, because of the strong Waters in it.

The Effervescence of the Chyle we call a hot Flatulency, and that of the Blood an Ephemera Fever ; both these ought to be stopt, and the Occasions avoided ; as Surfeits, much Drinking, stoppage of the Pores, violent Motions, Passions, Study ; all these Causes rarefie the Air included in the Bubbles, which constitute the Fluids in Animals, and thereby produce Flatulencies, Effervescences, Heat, and Expansion of Spirits.

For the suppression of all Effervescences in our Humours, the Method prescribed in the Cure of Ephemera's, and the Asthma, must be used ; but for preventing it, nothing more likely than the use of the Cortex. Take \mathfrak{z} i. of it after your quarterly Vomits and Purges : I boil it in Pectoral Drinks ; for in Substance the Stypticity of it oppresses the Stomach, and makes a greater straitness than usual.

Though the Cortex cannot prevent the Fits in a Pneumonic Asthma depending on a great

Tuberculum, nor in the flatulent Asthma, where there is a great Cacochymia; yet I perceive, it greatly relieves the Sweats and Faintness attending the Fits, and Head-achs, and makes the Intervals of the Fits longer; but it is no ways proper to give it in a Fit; for then it exceedingly huffs up the Stomach.

It seems to me a rational Design, to try more Antifebriles against the Asthma, after general Evacuations and Digestives are tried; of which kind this seems proper in the Summer time, and it is commended by *Rulandus* as very good in the Asthma.

Take 20 or 30 Leaves of Houseleek, pound them, and express the Juice, putting to them first a little Water, and two Drams of Sal Armoniac: This Houseleek and Salt are proper to prevent Effervescences in the Blood; for which reason also we may try Ribwort, Plantain: For Plantain is used against intermitting Fevers: Boil *Mij.* in Posset-drink one Pint.

I drank the Water distilled from the Juice of Houseleek ℥iv. with ℥ii. of Sal Armoniac in a Sand-Furnace; this cools well, but a Syrup would have been much better.

These are the best Febrifuges to be used in the Summer.

1. Watry cool Liquors, distilled Milk, Water drinking, Decoctions of Sarfa.

2. Acids, as the Tartar Acids and Acerbs, acrid Acids of Vinegar, Sulphur Acids, Sal-foacid

foacid Spirits, Vitriolic Acids, Nitrous Acids.

3. Vitriolated Salts, or Salfoacids, Sal Armoniac, Nitre, Sal Prunel, Sal Succini.

In the Winter, Bitters are the best Febrifuges; as *Venice-Treacle*, bitter Decoction, *Oxy-mel Scylliticum*, and the *Acetum*, *Elixir Proprietatis*, with an Acid.

The watry Toast and Water for ordinary Drink, or else ℥i. in a Morning, after Dinner ℥ss. and as much at Night. *Maxima continentium febrium remedia, hæc duo sunt, venesectione & frigida potio.*

The old Practisers gave as much cold Water to drink, as the Patient could bear, ℥iii. or iv. and they affirm, *Ipsius febris qua febris aqua frigida est remedium.* I am very well assur'd, that if an Asthmatic could drink no fermented Liquor, he would rarely have the Asthma Fits. I usually drank ℥i. of Water heated with a Toast in the beginning of my Fits.

The Decoction of the Woods is very useful Morning and Night.

Take Liquorish bruised ℥i. steep it in fair Water all Night (about ℥ii.) without heat, and drink every Morning a large Draught, or else use it for ordinary Drink; others must use a fifth or sixth part of Sack or White Wine, with a large Proportion of Water; others may use Waters boiled with Cinnamon, or Anniseed, and Raisins. I use this Hydromel:

Take Honey ℥i. boil it in one Gallon and a half of Water to one Gallon, scum it well, then add to it Ginger ʒ Races, Cloves ʒo, boil it and strain it ; then when 'tis cold, bottle it, and use it Night and Morning with a Toast and Butter, or else for ordinary Drink.

Take boiling Water ℥ii. Cinnamon ʒii. the Crum of white Bread a good Quantity, Sugar ʒiii. steep them, and put them through *Hippocrates's* Sleeve.

'Tis usual to add an Acid to the Water, and then less Water will do ; thus, Take Water ℥i. Spirit of Vitriol ʒi.

This Water drinking is very agreeable to all Chronical Diseases, in which there is an Effervescence of Humours, as the Gout ; from whence it is observ'd, *Rarissimum exemplum ut quis Hydropota fiat Arthriticus.* By Water drinking all Salt and other vitious Tastes of our Humours are diluted, and made more mild and less corrosive : Water drinking is proper for all Defluxions which depend on the Ephemera, as Head-achs, the Hysterical, Falling-Sickness, Tremblings, dull Sight, the Melancholic, Bilious, Hemorrhages, Putrefactions of the Mouth, Fluxes of Humours by Stool, Urine, the Womb, and is certainly very useful for all the hot Cacochymia's, as well as all very hot burning Fevers. I have oft put by my Fits and cured the Inflation of the Stomach by the Hydropesia, for which
reason

reason I cannot but recommend this to other Persons.

The next and most prevalent cooling Taste, is, of the Acid Febrifuges which coagulate the Consistence of Humours, gathers or compresses the Globuli of the Blood, and makes the Blood of a blacker Colour ; they cool the Spirits, and prevent their too great Rarefactions. I will first consider the Varieties of Acids, common Vegetables, and then those observable in Animals, and Minerals, and propose the best Forms of them that I could collect out of Authors, to be tried in the Asthma.

1. The styptic acerb Tastes ; such is Plantain, Polygonum, spotted Aresmart, Sorrel, the Seda ; amongst these the Sedum Majus has been tried and recommended in the Asthma by *Rulandus*, as I mentioned above. *Dr. Baynard* tells me a Relation of a Woman reliev'd in the Asthma by Sorrel ; a Posset-drink made with the Juices of the Seda, or Sorrel, may be tried ; or a Syrup made of the Juices, and dissolve it, an Ounce of it in four Ounces of the distilled Water of the same Plant, and use it with \mathfrak{ss} . of depurated Nitre, or gr. 15. of Sal Armoniac. See the *Serum de Seda* in *Bates's* Dispensatory.

The Virtue of these Acerbs is to cool Inflammations, Fevers, and astringe all Fluxes of Humours : Their Tartareous Acidity makes them cooling and diuretic, and their Stypticity

city makes them proper for intermitting Fevers, and in these Cases these acerb Acids must be used.

The most Physical Acerbity we observe in the Fruits of Trees, as in Medlers, Services, Quinces, Granates, Rhus Opsoniorum, Berberries, Grapes, Sloes, Bilberries, Cherries, Pears.

The most acerb Tastes are too styptic for the Asthmatic; but the fermented Acids are commended in the Asthma, as old Verjuice and Vinegar.

The acerb Taste depends on the want of a due Fermentation in the Fruits; for in a farther and perfect Maturation they become sweet and more acid, with a less Astringency: The crude acerb Juice of Grapes has no Acrimony, but Vinegar, having undergone, first, a vinous or perfective Fermentation; and after that, a second putrefactive Fermentation, it becomes something acid, and is properly an Acid acrid: From Fruits fermented by Nature a pure Acid is produced, such is that of ripe Fruits; and I call it,

2. The tartareous Acid; such is the Juice of Limons, Lime Juice: This may be called the sweet Acid: In these there is a Tartar to cool, but no Stypticity to bind; but these Acids purge most, and are used chiefly for Thirst and Fevers; but these ferment too much for the Asthma.

Take

Take Conserve of Wood-Sorrel, Hips, Rob of Berberries ; each $\mathfrak{z}i$. Crem. Tart. $\mathfrak{z}iij$. Syrup of Limons ; mix them.

Drink Limonade, Limon Posset-drink, or Verjuice Posset-drink, Decoction of Pippins, sweetned with the Syrup of Limons, Citron, adding Spirit of dulcify'd Salt, Nitre or Vitriol.

All Meats ought to be acidulated with Oranges, Limons, Sorrel ; and the Drinks too, as Barley-water, $\mathfrak{ss}ij$. Juices of Oranges or Limons, $\mathfrak{z}iij$. Cinnamon-water, and Syrup of Rasberries, of each $\mathfrak{z}iij$. sweet dulcify'd Spirit of Nitre, $\mathfrak{z}ij$.

See *Tabulæ Tartariæ* and *Cicera Tartari* in *Bates*, and *Fulapium Fragorum* and *Ideum*, for proper Forms.

Instead of common Salt, use Tartar powder'd with all your Meats ; or Cream of Tartar, $\mathfrak{z}ij$. with Juice of Oranges, $\mathfrak{z}ij$. may be dissolv'd in $\mathfrak{ss}ij$. of Barley broth to loosen the Belly ; one Spoonful of crude Tartar may be used in Broth, to loosen in a Morning, or else Honey and Cream of Tartar mix'd ; take three Drams.

Pulvis hepaticus rubeus is made of Cream of Tartar irrorated with Spirit of Vitriol : It cools and prevents Drunkenness.

Take Cream of Tartar irrorated with Spirit of Vitriol, Crabs Eyes prepar'd with Vinegar, of each $\mathfrak{z}i$. Oyl of Cinnamon, Cloves, of each $\mathfrak{z}\mathfrak{ss}$. Sugar, \mathfrak{ss} . make a digestive Powder.

3. I will next consider the Acid acrid, or Vinegar Acids, and give the Forms.

The old Posca made of Vinegar ℥i. Water ℔i. given ℥vi. three or four times in a Day : 'Tis good for the Cholera and Hemorrhages, and consequently for all other Effervescences : Rose Water, Vinegar distill'd, and Sugar, of each ℥i.

Pliny commends Vinegar Medicines as very useful, *Vini Vicium transit in Remedia* ; it excites our Appetites, and recommends our Meats to our Palates : It may be mitigated with Water or a Toast ; Wine, Pepper, Salt makes it hotter ; otherwise Vinegar is of it self of a cooling, and no less dissolving Quality ; it ferments with the Earth, and breaks Stones, which Fire cannot ; by which we observe that 'tis proper for Stones ; if it be drank it takes off Nauseousness, Hickops, and Sneezing by smelling to it. Vinegar is useful in Eye Medicines, and in Gargarisms for the Scorbutic Putrefaction of the Mouth.

Vinegar is proper for diary Fevers, from Heat of the Sun, and for Thirst ; and for these the Antients used the *Aceta Theriacalia*.

Vinegar was used by the Antients for Leprose Scurfs, Ulcers, Bites of mad Dogs, or other venomous Stings ; outwardly for Hemorrhages, 'tis apply'd with a Sponge, and two Cyathis may be taken inwardly to dissolve the Blood.

Vinegar

Vinegar is apply'd to the Procidence of the *Anus* or *Vulva*; it helps the old Cough, Orthopnea, and Decays of the Teeth.

Agrippa had his Legs immerfed into hot Vinegar in a cruel Fit of the Gout: By this it appears, and many other Prescriptions, that Acids were used outwardly for the Gout, and *Crato* used Oil of Vitriol five Drops in Broth, to prevent the Gout.

The Old Writers always used the Acid of Vinegar and Nitre to cool the Humours, and to abate the Heat, Acrimony and Bitterness of strong Medicines. I will give *Pliny* Commendation of the *Acetum Scylliticum*, which all the Old Writers commend in the Asthma.

The old Vinegar of Squills is most approved of: It is profitable in the Acidity of Digestion, and to those who Vomit fasting; it cures the Stench of the Mouth, Lungs, and Gums; confirms the Teeth, gives a healthfuller Colour to the Face, helps Deafness by gargarising, sharpens the Sight; 'tis proper for the Epilepsie, melancholic, vertiginous, hysterical, bruised, infirm Nerves and Faults of the Kidneys. Thus the Antients used their medicated Vinegars instead of acid Spirits, and false acid Chymical Salts, and they seem more natural to our Humours than the others. From the medicated Vinegars they order a Posset-Drink thus; Take Two Spoonfuls of Vinegar, mix them with
 ℞i.

℥i. of Milk to make a Posset-Drink, and any specific Juice or Scurvy-grass may be added.

The Spirit of Vinegar is not so acid as the common Vinegar, and less to be valu'd; but the Dose is ℥ii. to ℥β. in any Julep. Tincture of Steel with Spirit of Vinegar, Tincture of Opium with Vinegar, may be used in hot Cacochymia's.

Sylvius preserved himself from the Plague by Vinegar, one spoonful in the Morning. Vinegar is good in Surfeits, Vomiting, Hic-kops; and outwardly applied to the Stomach with Leaven and Mint. Vinegar corrects Opium, if a Draught be taken after it. I think we want an Opiate extracted with Vinegar and Canary for a Menstruum, or Vinegar Spirit alone: This is more proper for the Asthma and Fevers, than the Brandy Spirits. The Fumes of Vinegar excite the Lithargy, and those that faint by Dissipation of Spirits by bathing. Vinegar hinders Imposthumes, and inwardly and outwardly is used for the Erysipelas: It is proper for the Scab, Impetigo, Burning; it is proper for the Gout, with Sulphur in Embrocations; it stops Fluxes of Blood: The Vapour of Vinegar cures the Noise in Ears and Deafness; and the same Fume is good for the Dropsie: Vinegar is commended for an old Cough, and Dyspnæa. *Avicenna* gives these Virtues of Vinegar. I will not only commend

mend Vinegar with the Antients, but also tell its Faults as they observed them.

Vinegar is injurious to the Hypochondriacals, because they too much abound with an acid, acrid Humour; but for some Diseases of the Spleen, as Tumours, Inflammations, *Galen* commends it both outwardly and inwardly: Vinegar usually gripes the Hypochondriacs.

Vinegar does injury to the Womb by stopping the Menstrua, which are produced by an Orgasmus, Effervescence, Ebullition, or Turgescence; which implies not only a quick Circulation of the Blood, but also an intestine or fermentative Motion before the Menstruum happen for two or three Days, which gives Pains in the Back and Loins, with a Lassitude, Pulsation, and Heaviness in the Limbs, Pain in the Head, Inflation in the Hypochondria: And I hope, by these Symptoms I may say, that Women have then an Ephemera, which occasions the Flux of their Blood, which being rarefied, stimulates the circulating Vessels for its Excretion: But Vinegar, if mixed with Bitters or Honey, does not suppress the Menstrua, but is proper to cool and cleanse the Womb.

4. Vinegar produces Sterility, by repressing the Flatulency of Spirits, and coagulating the Sperm, which it will do, as it does coagulate Milk.

5. Vinegar

5. Vinegar is injurious to the Nerves and Nervous Parts when obstructed in a Palsie; but no way in those Diseases which depend on the hot Cacochymia's; as Deliriums, Phreneties, Epilepsies, Convulsions, Asthma's, Fevers.

6. Vinegar corrodes the Parts ulcerated, as the Guts and Kidneys; it extenuates the Body, by evacuating the *Succus Nutritius*; it depresses the natural Fermentation of Humours, and breeds the Dropsie and Cachexy in cold Constitutions.

Vinegar is made more acrid and acid by Distillation from Nitre, Salt, and Sal Armoniac; or if ℥ss. of Sal Armoniac be added to distill'd Vinegar, by this it will dissolve Stones and Metals.

The Antients made Purging Vinegar with Sena or Agaric; and an *Elixir Salutis* may be made of the same Ingredients as that in *Bates's* only; use Vinegar for the Menstruum, or else Vinegar with an equal Quantity of Spirit of Wine. *Galen* prescribes Aloes to be dissolved in Vinegar, or else Scammony, or ℥i. to ℥ii. Hiera Picra may be infused in it, as well as in Canary or Brandy; the Oxy-facchary, made by the Infusion of Crocus Metallorum in Vinegar, are certainly more agreeable and most innocent. I have observed stomachic Vinegars with Quinces or Mint, diuretic Vinegars with Juniper-Berries, cordial Vinegars with Cloves, styptic Vinegars

gars with Roses, pectoral Vinegars with Squills, diuretic, antihydropical Vinegars with Elder-Flowers, cephalic Vinegars with Rosemary-Flowers, uterine Vinegars with Myrrh or Savine, Pennyroyal, Castor, Assafœtida; Vinegar with Nitre, or Sal Armoniac for the Stone; Aromatics and Honey may be added to all the Vinegars, or Sugar, to make them more agreeable. We prescribe ℥iv. of Vinegar with Pepper for Obesity every Morning. I have often doubted, whether ℥iv. of the Cortex might not be infus'd in ℔i. of Vinegar, to the great Advantage of hot Patients, who cannot well bear the Bitter: A styptic Vinegar may be made with Sloes, ℔ss. in ℔ij. of Vinegar, or else by the Infusion of Oak Bark; an alexipharmic Vinegar is best of *Venice-Treacle*, Myrrh, of each ℥i. Saffron, Camphir, of each ℥i. Vinegar, ℔ij. or prescribe thus, *Syrup de Scordio, Aqua Epidemica, Aceti Bezoardic. Dof. Cochl. i. ad iii.*

For pectoral Cases, ℞ *Aceti Scyllitici, Syrrup. de Prassio, Aqua Brion. composit. cum ℥iv. Dof. Cochl. i.*

Infinite are the Prescriptions I have met with in the Antients, made of Vinegar, with all Sorts of Specifics; but I shall reserve them for a Treatise of simple Medicines, digested under their several Tastes; but here design to add more about the Use of Oxymels, which were the pectoral Acids of the Antients; but I must not omit that *Bellis Minor*

is

is an Acid acrid, and may be properly infused in Vinegar; the Chymists use a Tincture of the Flowers with Spirit of Vitriol for the Asthma: *Anagallis Flore Phæniceo* may be infused in any Liquor for Fevers, being an acrid Acid, and so is *Ursa Solis* in *Aqua Theriacalis*: All the Tythimals and Hellebores are corrected by Vinegar, which shews the Virtue of Vinegar to correct vitious Humours which are corrosive.

The most acid Oxymel hath the fourth Part of Vinegar, in respect of the Honey, the most sweet; the eighth Part in viscous Humours the Acid is to be used, and in others the sweeter.

Take of any pectoral Decoction, ℥iv. *Acetum Scylliticum*, ℥ss. Hony ℥ij, boil it and scum it.

I have made Oxymel *Scylliticum* thus; ℞ *Aceti* ℥ *Mellis cum* ℥ss. *Aquæ* ℥ss. *coque cum Scyllæ* ℥i. *℥ Macis* ℥ss. *℥ reseruetur*.

The acid Spirit of Turpentine is the best Diuretic, and the Acid of Guaicum the best Acid Diaphoretic amongst Vegetables.

I think not fit to multiply any farther Receipts from vegetable Acids; but will pass to the Acids of Animals, where Butter-milk Posset-drink is the chief, and Butter-milk distill'd with Sorrel or Limons; and these I may call the Tartar Acids in the Chyle of Animals.

The Salfoacids from Urine or volatil Salts mixed with Acids, as *Sal Armoniac*. Let the Patient drink six Ounces of his own Urine with Specifics. Take Nitre and *Sal Armoniac*, dissolve them in Vinegar, and crystalize them; or *Sal Polychrest*. ℥i. *Sal Armoniac* ℥i. dissolve and crystalize them.

Take the volatil Salt of *Sal Armoniac* or Hartshorn, fix it with either Spirit of Sulphur, Nitre, Vitriol, or Salt, putting as much as will dissolve it; then filter and crystalize it, or evaporate it to be a factitious *Sal Armoniac*.

Take Flowers of *Sal Armoniac*, Grains xv. in Conserve of Hipps for a Month, or the acid Spirit of *Sal Armoniac*, mixing ℥iij. in a Pound of the Tincture of Cordial Flowers, the Dose one spoonful in fair Water Night and Morning.

℞. Flowers of *Sal Armoniac*, ℥i. *Aquæ Angelicæ*, *Cardui*, aa. ℥i℥. *Syrup. Citri*, ℥℥. mix for a Sudorific.

℞. Flowers of *Sal Armoniac*, *Mortiat*. ℥i. take it in a Spoonful of Wormwood Wine in the Dropfie.

℞. *Sal Prunel*. ℥iij. Volatil Salt of Hartshorn, ℥i. Flowers of Benjamin, ℥℥. mix them, Dose ℥j. ad ℥℥.

℞. Juice of Houseleek, ℥iv. *Sal Armoniac*, ℥ij. Distil them, or else use them in a Syrup with Sugar for the Asthma.

Sal Armoniac may be used for Common Salt. Amongst

Amongst Minerals we have Sulphur Acids, which are to be used in Fevers.

Ol. Sulph. ℥ss. ad ℥j. in four Ounces of Purflane Water.

Gas Sulph. one, two, or three spoonfuls in a Glass of Water, or any Julep or pectoral Ptyfan.

Take spring Water, lb. iij. Spirit of Sulphur, Liquorice, Coriander-seeds, of each ℥ss. boyl them in a Glass-vessel; Briony-Water, lb. ss. *Ol. Sulph.* ℥ss. *Dof. Cochl.*

Take any cordial or specific Water, or Brandy ℥iv. *Ol. Sulph. per Campanam cinnam.* aa. ℥ss. Digest them to a Tincture; the Dose is thirty Drops in Beer.

Take any Pectoral Syrup, lb. ss. *Ol. Sulph.* ℥i. the Dose is one spoonful.

All the Drink or Wine may be sulphurated; many heat their Drink with a sulphureous hot Coal, and light their Tobacco with a Match, and the Tobacco may be washed in sulphurated Water: The Water cleanses away much Filth, and the Sulphur Acid corrects the Narcotic Quality of Tobacco.

2. The false acid Spirits, which are properly diuretic and stomachic.

℞. *Aqua Feniculi, Flores Sambuci, ad lb. i. Raphani composit. Lumbric. Syr. de 5 Radicibus, cum ℥iij. Sals. Absynthii, ℥ij. Spir. Salis, ℥i. Dof. Coch. 3. cum quolibet Liquore.*

The sweet Spirit of Salt, twenty Drops in Beer. *Sal.*

Sal Gem. may be used as common Salt, or the Rock Salt found in *Cheshire* may be powder'd and us'd as common Salt.

3. *Vitriolic Acids*, for the cooling the Blood, Oyl of Vitriol, or Spirit, fix Drops in Broth or Water, ℥vi.

Plantain-Water, ℥β. Spirit of Vitriol, ℥β. *Ol. Vitriol.* Drops four in Wine or Broth, twice in a Week: *Crato* gives it for the Gout, and he prescribes thus; Syrup of Betony ℥iij. Oyl of Vitriol, Drops nine. He first gives one, then two or three spoonfuls to them fasting, and says, it helps a pituitous and moist Stomach: For it vehemently dries, deterges, and astringes, and excites the Appetite; but by its Use the Arthritic are made Cachectical, and it injures dry Bodies,

The Tincture of Roses, with Spirit of *Vitriol* is useful in Effervescences, Fevers, Inflammations; in which Cases the Mineral Acids are most useful.

Hartman used Oyl of Vitriol with Man's Grease externally, for an Atrophy of any Part.

Give volatil Spirit of Vitriol, twenty Drops in a Cephalic Julep, for the Epilepsie.

Elixir Vitriol is useful for the Appetite, ℥i. to ℥i.

Mixtura simplex ℥i. to ℥i. in *Aqua Lactis* is a Diaphoretic in Fevers.

Spirit of Vitriol is mix'd by Chymists, with Cream of Tartar, or Crystals of the Juice of Wood Sorrel.

Take Hydromel, aromatized with Ginger, ℥ss. Cream Tartar ℥ij. or Tartar vitriolated, ℥ij.

If *Vitriolum Martis* be convenient, give it with Oily Pectorals thus :

Take Juice of *Liq.* or *Bals. Lucutell.* one Ounce, *Tart. Vitriolat.* and *Vitriolis Martis*, of each ℥i. mix them with Oyl of sweet Almonds, or Syrup of Balsam : The Dose is ℥i. or ℥ss. and drink the Antiscorbutic Milk-Water after it.

This Method may agree with the Hypochondriac Asthma's ; or else *Extractum Ecphracticum*, to an Ounce of which add *Vitriolum Martis*, one Dram ; make it into Pills.

4. Nitrous Acids to cool in Fevers.

℞. *Aq. Cardui*, ℥ij. *Rob. Ribi.* aa. ʒx. *Sacchari* ℥ij. *Nitri prep.* ℥ij. This cools.

Barly-Water ℥iiij. Nitre ʒss. Syrup of Violets ʒiiij. take it with Rhenish Wine.

Nitre may be used instead of Salt, in Broth, or with Meat.

Sal Polychrestum ℥i. take it in Water.

℞. *Vitriolum Martis* ℥i. *Arcanum Duplic.* *Sal Prunell.* aa. ʒij. Dose ℥i. in long Fevers.

Take Nitre ʒij. Vinegar ℥i. the Dose is one spoonful in great Effervescences.

The most powerful Cooler is made by Distillation of Spirit of Nitre and Oyl of Vitriol.

Spirit

Spirit of Nitre is dulcified ; and the Dose \mathfrak{z} i two or three times in a Day, or in a pectoral Decoction ; or else Spirit of Nitre three Drops in a carminative Julep for Cholic and Flatulency.

Take *Sal Prunellæ*, Cream of Tartar, and Powder of Liquorice, and Sugar Candy, of each \mathfrak{z} ij. Dose \mathfrak{z} i.

Avicenna observes, that Nitre has no Styplicity ; but cleanses much, and is given in a Decoction of Rue and Dill : It cures Leanness ; but a great Use of it blackens the Colour.

Bartolet commends a factitious Nitre with Spirit of Nitre, and Oil, of Tartar to make the *Diaspoliticum* ; which because of the Nitre, is laxative, and good for Flatulencies.

Take *Diaspoliticum* \mathfrak{z} i. Honey \mathfrak{z} vi. *Sal Armoniac* \mathfrak{z} β. mix them : The Antients gave *Diaspoliticum* before or after Meats ; it may be given in Broth.

If the Rue, Cummin, Pepper, and Nitre be in equal Parts, it loosens the Belly ; commonly the Nitre is but half a Part.

I would make a *Diaspoliticum* thus : Powder of Cinnamon, Nutmegs, of each \mathfrak{z} ii. Nitre \mathfrak{z} i. Sugar Candy \mathfrak{z} ij. Mix them with Gum Dragon dissolv'd, Lozenges may be made, and \mathfrak{z} ii. of Flower of Brimstone added. Or thus :

Take Nitre \mathfrak{z} i. Sugar \mathfrak{z} ii. *Ol. Cinnam.* or Nutmegs or Cloves \mathfrak{z} β. the Dose two Drams in Water.

Salts vitriolated, *Diagridium*, Grains three or four, Tartar vitriolated ℥℥. take it in Worm-wood Wine, for Dropsies to purge.

Take Tart. vitriol. Salt Prunell. Cream of Tart. aa. ℥℥. Sugar-Candy ℥i. for twelve Doses, take one Morning and Night.

Take Tartar Vitriol. ℥i. Rhenish Wine, ℔i. Decoction of Barley with Raisins ℔i. Syrup of Violets, and small Cinnamon Water, of each half a Pound ; the Dose is ℥iii. twice in a Day ; 'tis a Digestive and Febrifuge.

Hartman orders it thus :

Tartar vitriolated ℥i. dissolve it in a Pint of Wine of Squills ; add to it two Pints of a Decoction of Raisins, Cinnamon ℥℥. boyl them in three Pints of Water to ℔ii. take a Draught thrice in a Day.

℞. Tartar prepared with Nitre ℥i. Orange Pills ℥℥. infuse them in a Pint of Parsly-Water.

Take *Sal Prunell.* ℥i. Spirit of Vitriol Grains ten, in a Decoction of Barley, and the Roots of Sorrel.

℞. *Sal Armoniac* ℥i. Nitre ℥℥. Borax ℥℥. Flowers of Sulphur ℥i. to the colliquated Nitre in a Crucible add the rest.

Arcanum Duplicatum ℥i. in Broth : The Antients used ℥v. of common Salt to make Epythimum, purge and boyled them in *Aqua Malsa* : Twelve Grains of *Sal Succini* may be given in a Julep ; or the acid Spirit of Amber twelve Drops to thirty, when an Acid is necessary for cephalic Cases. I

I could not omit the various Species of acid Medicines ; because no Fit of the Asthma can be cured or prevented without an Acid.

The Galenical Acids ; for Flatulencies and Effervescences, Vinegar and Nitre ; the chymical are the acid Spirits, and mixed Salts : But because a long use of Acids corrodes the Belly, sours Humours, dries the *Succus Nutritius*, suppresses the natural Rarefaction of Humours, and introduces a Cachexy instead of the Effervescence, the Antients wisely mix'd their hot Medicines, as Acrids, Aromatics and Bitters, with their Acid Medicines ; and the bitter helps the Digestion of Humours, whilst the acid corrects the Effervescence ; and both together keep the Body soluble, and drive out the Flatulencies.

Trallian boils *Marrubium* in his Oxymel.

All Authors agree, that the Asthmatic Medicines ought to be inciding without any vehement Heat, because by Heat the Humours become more viscid : Therefore no hot Pectoral ought to be used, but in an Oxymel, nor no Sulphur without Nitre, or acrid Gums without Vinegar, according to antient Practice. From whence I learnt *Galen's* bitter Acid, of which I take ʒij. or ʒss. every Night when I fear a Fit, and drink Toast and Water after it : This generally cures the Inflation at the Stomach, and puts off the Fit: At first it ought

to be taken fourteen Nights together ; but afterwards three Nights before and after the Change of the Moon, and upon Surfeits, and Changes of Weather, and ill Digestion, and when the Inflation affects the Pit of the Stomach.

I will give some Remarks out of *Galen*, to shew his Opinion, and Cure of the Asthma : He calls those Asthmatic, who breathe like one out of Breath by running ; and he observes they inspire too little, though their Breast is much dilated, because of a Straitness in their Lungs, caused by an empyematic Humour, or by an Inflammation, or by viscid Humours, or else a Tumour like an Abscess : He cures the viscous Humours by Evacuations, and the Use of attenuating and deterging Medicines ; and the viscous Humours require much Drink to dilute and expectorate them. He observes, that all Medicines for the Asthma, ought to attenuate without Heat, and for that purpose, Vinegar and Oxymel of Squills are useful ; and since all thick Humours are made more viscid, by too much Heat, he doubts of the use of Millepedes, which attenuate and discuss much.

He observes those Medicines which cool too much ; such as the Opiates, are injurious, by thickning the Humours ; such are Poppy, Mandrake, Hemlock, Henbane, and Fleabane, Linseed, by their Mucilage.

He condemns all Astringents.

He

He commends moistning, both in Diet and Medicine, for diluting thick Humours, and commends a thin Diet. 'Tis observable, that most of the hot Medicines he cites from *Archigenes*, are taken with Vinegar, or Nitre, or Oxymel, or Water; of which I will give an Instance thus:

Take Seeds of Rue ꝑ℞. Aristolochia, Southernwood, Wormwood, Ammoniac, Sulphur, aa. ꝑ℞ss. make Pills with Vinegar, give two with ꝑ℞iv. of Oxymel.

He purged with Coloquintida, or Elaterium, and gave Nitre or Salt in *Aqua Mulsa* after them.

From *Andromachus* he had this Medicine; take Squills, Sulphur, Bitumen; ad Dof. ꝑ℞ss. *cum Oxymilite*.

He mentions *Eugenius*, who mixt Opiates with Pectorals, for the Abscess; the hot Pectoral, as Myrrh, Sulphur, Bitumen, Gums, are recommended.

Ariteus commends Nitre with the Decoction of Hyssop, Oxymel with Iris and Pepper, and other Acrids, as Nettles, Leeks, Cabbage boyled in Vinegar; and puts to his Ptyfans, of Hyssop, Thyme, Origanum, Nitre instead of Salt; and orders the Breast to be cover'd with Oyl, Nitre and Salt, soak'd with Wool; the Chapter of the Cure of the Asthma is lost unhappily.

Trallian approves of the mixing the hot Medicines with the cool, for viscous Humours

in thin Bodies and Fevers, and says, that in such Cases all the Physicians used Mustard-Seed, Nitre, and Sulphur; but he treats not particularly of the Asthma.

Aegineta vomits with *Raphanus*, and commends Nitre thus; *Verum in his qui suffocantur*: ℞. *Aphronitri* ℥iij. *capiat in Aqua Mulsata cyathis tribus, aliquando cum Cardiamomo, facit* & *ad coxend. in Morbum*: Or ℞. *Aphronitr.* ℥ix. *Sulph.* ℥ss. *Piperis* ℥i. *dato cochl. cum Aqua Calida.* Take Mustard Seed ℥i. Nitre ℥ss. *Elaterium* ℥ss. mix them and make eight *Pastilli*; the Dose is two; it vomits without Trouble.

Oribasius commends the Vinegar of Squills, as well as all the former; he commends two Parts of Orris, with one of Nitre, to rub the Breast; and mentions many bitter and acrid Medicines.

Aësius perfectly transcribes all the former Authors; he says, in a crude *Tuberculum*, there is neither great Weight, nor are they much Asthmatic; but if it ripens, a Fever attends it, with putrid Spit afterwards.

He commends Wormwood, Orris, Castor with Vinegar; he uses *Coloquinda* with *Acetum Scylliticum*, and *Elaterium* with Nitre.

Actuarius cures the Asthma as a Catarrh.

Cornelius Celsus has all the hot Pectorals; but that which I like, is, *datur utiliter aut Nitrum, aut Nasturtium.*

Nicolas

Nicolas Myreкса has many Antidotes for the Asthma ; but his *Diaspoliticum*, in which there is Nitre, is the best.

Marcellus commends *Acetum Scylliticum*, and prescribes Sulphur, Nitre of each ʒi. *Abrotan.* p. i. give it with two Spoonfuls, of hot Vinegar.

Avicenna observed the Paroxysms of the Asthma to be like those of the Epilepsie and Convulsion, and prescribes the Medicines for a Catarrh, strong Vomits and Purgers : He uses Medicines mixed with Acids, Cummin-Seeds, or Nettle-Seeds, and Squills with Vinegar, and prescribes thus : Take *Castor*, *Ammoniacum*, *Aristolochia rotunda*, of each ʒi. mix them with the Rob of Grapes, and give the Quantity of a Bean with Oxymel.

He commends Bitters, the Decoction of Centaury, or five Drams of *Aristolochia rotunda* every Day, in Water or Gentian constantly : He prescribes Arsnic or Sulphur, whose Fumes are acid. And Arsnic inwardly in *Aqua Mellis* ; but all this seems hazardous, and 'tis better to use what he advises, attenuating Medicines, without any vehement Heat : He much extols *Crocus*, and a Decoction of Fænugreeck, with Figs and Honey.

He cautions much against Baths and flatulent things ; he prescribes *Aphroniti* ʒss. Seed of Nausturtion ʒij. in a Decoction of Oxymel.

Avicenna

Avicenna de Juvamentis Syrupi acetosi, observes, that it incides, subtiliates, and opens without Heat, & *hujusmodi via, est magni Juvamenti, multæ Utilitatis, & Sufficienciæ in arte Medicinæ*: This extinguishes Fevers, and cools the Liver (that is, the Blood) and incides gross Humours, allays Thirst, in Inflammations; other acid Syrups have a Styp-ticity, as that of Apples, or too much Water, as the Syrup of Citrons; but the Syrup of Vinegar cools Choler, and excites Appetite, incides Phlegm and 'tis proper for the Asthma; and the Squill-Vinegar, he recommends in Epilepsies, if made into a Syrup, and then it does not injure the Nerves; but this Syrup is inconvenient in Excoriations, and the Cholic, and Pain of the Womb, and Palsies, Tremors, in which it injures the Nerves, and the Melancholic Influxes of Urine and the Spittle, and in Rheumatic Pains of the Back and Knees, and in the Cancer, and those who have a Sourness at the Stomach; it hinders Coition and Fertility, and it introduces the Dropsie in those who are not of a hot Constitution, and much Flesh. From these Observations we may learn the Benefit and Injury of all acid Medicines.

Joh. Angelus prescribes the Lungs of a Fox, two Drams, in Aqua Mellis, and says, it is *Medicina sublimis & experta in Asthmate*. He recommends Ammoniacum in an Oxy-mel,

mel, or Nettle-seeds, boiled with Figs in Barley-water : He advises the Juice of Fenil with Milk to sucking Children : He prescribes Medicines too hot, supposing the Asthma to depend on viscid Humours, and a Catarrh.

Horstius gives many Examples of the Asthma, and cures them by *Oxymel Cratonis*, or *Quercitan's Oxymel de Peto* : He Purges the Hydropical with Pills of *Hiera*, with *Agaric* ℥i. *Diagr.* gr. v. *Oil Fenil*, make Pills : He gives Balsam of Sulphur in a Diuretic Oxymel.

Sennertus thinks the Asthma does not depend on a Catarrh from the Head, but the Arteries, and that what is imputed to a Flatus, ought to be attributed to a rarefied fermenting Serum ; and he believes *Piso's* Opinion, That this Disease depends on an Effervescence of the Serum.

This is *Crato's Oxymel* ;

Take Hyssop, Veronica, Scabios. Horehound, Origanum, Peniroyal, Carduus, of each M. i. Orris ℥vi. Ginger ℥i℥. Agaric ℥ss. infuse them three Days in a Glass Vessel warm, in ℔ss. of Vinegar, Speedwell and Carduus Water, of each ℔ss. boyl them ; and to ℔ss. add Honey ℔ss. The Dose is two or three Spoonfuls.

Sennertus advises this, to shew his Opinion of Acids ; *Take Pectoral Water, ℥vi. Syrup of Horehound ℥i℥. Spirit of Vitriol ℔ss. mix them.*

Hartman commends Vomits of *Aqua Benedicta*, and this,

Water

Water from Bryony-roots ℥ss. *Spirit of Vitriol or Sulphur* ℥ss. *Dose one Spoonful*; and also *Sal Armoniac rectified from decrepitated Salt in Wormwood Wine.*

Sylvius imputes the Asthma to a Flatus, and partly to a Catarrh, and recommends a Mixture of a volatil oily Salt, with a dulcified acid Spirit.

Dr. Willis observes the Orgasmus, or Effervescence in the Beginning of the Asthma Fit, and prescribes *Sal Prunel* in cool Juleps to check it; but I could never find any Benefit by his hot Pectorals, and Antispasmodics, Tincture of Castor, of Sulphur, Spirit of *Sal Armoniac*, Syrup of Garlic, &c. All that I found useful in him, was a Vomit, and Opiates; he takes too little Notice of Nitre, Oxymels, and common *Sal Armoniac*, the best Medicines of the Antients; and the present Age, has too much followed his unsuccessful Practice by hot Medicines, no way suited to the Febrile Effervescence in the Asthma, which requires an Acid to abate the Heat of all his Specifics.

Sir Theodore Mayberne treats the Asthma as a Catarrh by too hot Pectorals, Sulphur of Benjamin, Saffron, which are intolerable to the Asthmatic, if not given in cool Liquors, or with Acids.

Etmuller observes, that there are more humid Asthma's, through the fault of the Stomach, than that of the Lungs, and that happens in
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the Hypochondriacal and Scorbutic : He recommends the following Digestives : Sal Armoniac \mathfrak{ss} . *cum* gr. xv. Tartar Vitriolat. Crem Tartar, and Salt of Tartar, Spirit of Salt or Nitre dulcified, Arcanum Duplicatum, Elixir Proprietatis Paracelsi, Spiritus Carminativus secretus ; and Prescribes thus, \mathfrak{R} *Hyssop water* \mathfrak{z} ij. *small Cinnamon water*, *Oxymel Scylliticum*, *Briony Compound water*, of each \mathfrak{z} i. *Gum Ammoniacum dissolved in Vinegar* \mathfrak{z} ij. *Spir. salis dulc.*

For Flatulencies thus, *Boyl the Carminative Seeds, and give them with Spirit of Nitre dulcified, or Spirit of Nitre, or Spirit of Aniseeds, and give it in a Decoction of Camomil-flowers, with Aniseeds and Caroways in Beer.* He gives Spirit of Sulphur in distilled Water in the Fit, and commends the Asthmatic Spirit of Verdigrease, Sulphur, Ammoniacum, 20 or 30 Drops in Briony-water.

He says, the Convulsion of the Diaphragme gives an Asthma without Stertor, or Cough, and he describes the Pneumonic Asthma from Mineral Fumes, Abscess, Vomica, Empyema, coagulated Blood, Serum, Cachexy, Terror, drinking cold Water when hot, crude Tuberculæ, Grando Stones, Gibbosity.

Helmont gives many Asthmatic Histories, and disproves the Opinion that it is from Phlegm ; because it happens suddenly, and goes

goes off without spitting, and that the Spit is the Product of the Fit, from the Injury done to the Lungs ; and therefore he thinks Pectorals useless, and Medicines to the Head upon the Account of Catarrhs ; and confutes the Opinion, that the growing of the Lungs to the Sides is the Occasion of the Asthma

Grembs is an *Helmontian*, and prescribes Cinnabar of Antimony ; he uses Oxymels, and Syrup of Tobacco ; he observes, that a Cachexy or Hydrops at the Beginning, resembles the Asthma, and they are to be cur'd by Purging, and Digestives ; but the *Vis Crescitiva* of the Viscera by Mercury. He observes some Asthma's to depend at last on a Vomica ; condemns Purging in the Drop-sie of the Breast, and only allows a Paracentesis.

Riuerius describes the Asthma as a Catarrh, and gives all the hot Pectorals ; but prudently adds *Ol. Sulphuris* to his Oil of Sugar, and prescribes Spirit of Sulphur 4 or 5 Drops in Broth ; and prescribes his Gum Pills thus ; ℞ *Ammoniacum, Bdellum, dissolved in Vinegar of Squills*, of each ℥ss. *Flowers of Sulphur* ℥iii. *Oxymel of Squills* q. s. *make Pills, Dose* 4. *Lac Sulphuris* is milder than the Flowers, and may be given in an Oily Mixture : He commends the Oxymel with Agaric, and this is his best Medicine ; *Take Cinnamon water* ℥ij. *Oxymel of Squills* ℥i. take one Spoonful often.

I have mention'd all these Authors Practice, to shew they always used the Mixture of some Acid, with their Anti-Asthmatic ; and I could not withstand the common Practice of hot Pectorals, and Anti-Convulsions, if I had not so much Authority, as well as Success, by the contrary Method I have propos'd. I shall next add those Prognostics which the old Writers give, That young Men are difficultly cured ; old Men, and the Hereditary Asthma is only palliated ; Children are usually Suffocated by it : If a Peripneumonia happen with the Asthma, and Phrenitis, I generally observed it Fatal. The Asthma usually ends in a Consumption in lean Bodies, and then Tubercula are bred in the Lungs, by the Humours frequently stopp'd on the Lungs, as I have observed in a Dissection of a Consumptive Asthmatic, for whom I am certain no hot Pectorals can be convenient. It seems to me much more convenient to keep the Tubercula from Imposthumating by Acids, and by a cool Regimen, than to endeavour to cure them by a hot one.

The Polypus in the Heart oft kills Asthmatics suddenly, and the Asthma frequently ends in Abscesses, Tumours, Vomica's, Ulcers, Spitting of Blood.

The Liver is stop't, and the Asthmatic are subject to the Jaundice, both in the spitting and dry Asthma.

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The Dropsie or Tympany, succeeds the Asthma, either from too ferous Constitutions, or the Rupture of the Lymphatics, by the Tumours of the Viscera, which compress them, or the Constriction of the Blood-Vessels.

As to the Head, the Asthma very much affects that, with Pain, Fulness, Vertigo, Lethargy, Apoplexy, or Palsie.

Dr. *Willis* gives a History of a Convulsive Asthma, after a Vertigo, Pain of the Head, with a fear of Swooning, which after a few Days became a Lethargy, and this settled into a Paroxyfm of the Asthma ; and this he cured by Vomiting with Sulphurs of Antimony, Cream of Tartar, of each gr. vi. taken in the Pap of an Apple, and Purging with Resin Jalap, gr. v. Merc. Dulcis gr. xii. Castor gr. iv. Ammoniac. solut. q. s. Pil.

I remember an old Asthmatic, who was troubled with difficulty of swallowing, upon which his Asthma left him ; he seemed to me to have some Tumour, or Palsie in the Oesophagus ; but no Methods would relieve it ; but since that he has continu'd seven or eight Years without the Asthma who formerly had the Fits periodically for fourteen Years, and they were occasion'd, as he tells me, by drinking Stale Beer : the Powder of Juniper-berries most relieves the Difficulty of his Swallowing.

I have observed many Asthmatics, to have the Stone and Gravel, and to die of it with a stoppage of Water.

A Patient who had a convulsive Cough from his Father, was seized with the Asthma, and a sort of Diabetes, with frequent Returns of an Intermitting Fever, with Lethargic Symptoms ; he spit much, and had sharpness of Urine, and frequent Stools ; but the Decoction of the Cortex, Vomiting, and Steel-waters cured him for a Twelve Month, when he relapsed into the same Symptoms : His Legs swelled, the Asthma returned by Fits ; he was obscurely Feverish, and died full of Flesh. All these Symptoms depended on an Intermitting Fever originally.

I have observed divers Asthmatics with Rheumatic Pains, and Looseness at last, and others consume by a Diabetes ; and a great Quantity of Water is made out of the Fits, as well as in them ; and when this Flux of Water stops, the Asthmatic become Hydropic, their Legs swell, and their Breasts are filled with Water.

I shall add some particular Cases of Asthma's, communicated to me by my Ingenious Friend Dr. *Fred. Slare*.

Mr. *Orlibar* of the *Temple*, having been some Years Asthmatic, died suddenly ; in his Body opened, the Lungs were free from any Imposthumation, or other Cause of his Death ; but the Ventricles of the Brain were full of

Water ; and on that depended his Drowfiness, Giddiness, and a constant Asthma upon Motion long before his Death.

Capt. *Brent* had the Asthma with swelled Legs, and could not lie down in his Bed ; he died suddenly, by stooping to take up an Orange ; his Breast and Head were full of Water.

He gave me also a farther Account of a Child very Rickety with a swelled Head, who was for some Months Asthmatic, without any Injury appearing in the Lungs, by Dissection ; but the Head was full of Water.

Dr. *Slare* gave me a particular Account of Sir *Patient Ward's* Asthma, with an Hæmoptoe, which lasted about a Year : He often hawk'd up Blood mixt with tough Phlegm ; the Cortex did him no Service ; after he became Hydropical, the Legs and Belly swell'd ; two spoonfuls of *Acetum Scylliticum* vomited him, and made him to make much Water ; then Steel and Diuretics relieved him for some time ; and *Laudanum* help'd his Dyspnæa always. When he was opened, 4 or 5 Quarts of Water was found in his Belly, and two in his Breast ; his Lungs were without Schirrous Matter, or Tubercula ; the Lungs stuck to the Right Side : He believes this Asthma to have been Nervous, and the Dropsie to have happened at last : He observed the Left Kidney full of Water, and Hydatides

datides encompass it without, from whose Rupture the Dropsie might come ; the Cartilages of the Sternum were grown Osseous, the Gall in the Bladder was thick and muddy ; there appeared no Vestigia of the Hæmoptoe mentioned, upon his Lungs.

The Inundation of the Brain, Breast, Abdomen, by an Hydropical Serum, is commonly the Effect of an old Asthma ; and the Anasaruous Tumours of the Body, depend all on the frequent Constriction of the circulating Vessels, by the Asthma Fits by which they are weakned, obstructed, and broken, and the digestion of Humours decays ; as the Circulation is depressed, a thin Serosity also gives matter to all the sorts of Dropsie, into which the Asthmatic fall thro' too much Bleeding, or Hæmorrhages, as it might be in the Case described.

I shall next give a remarkable Case, communicated to me by the Ingenious and Learned Dr. *Tyson*, by which my Hypothesis will be plainly demonstrated, that the Asthma Fit may depend on the Contraction of the Vesiculæ, and Bronchia of the Lungs ; and how far that may depend on the straining the Lungs by swift running, or the Causes the Dr. mentions, I must leave the Reader to judge.

*A CASE of an Asthma communicated by
Dr. Tyson.*

When I was a Student formerly at *Oxon*, hearing of a Spaniel Dog, that had been noted for his Swiftness in Running, but of late, and on a sudden, had fallen into so great a shortness of Breath that he could not run 15 or 20 Yards, but was forced to stand still and pant for a good while after, would breathe very short and quick, and with a great deal of Labour: I had a Curiosity, of seeing him; and upon my own Observation, found what was told me, to be exactly true. The Person that kept the Dog, could give me no account how this happened to him; but being hereby rendered altogether useless, for a small matter I purchased the Dog, having a mind to see what occasioned this shortness of Breath upon so little motion.

Upon Dissection in the Abdomen, there was nothing unusual or uncommon to be observed: But upon opening the Thorax, I found the Lungs to be very much pursed up, or contracted; so that they did seem to fill but half that space which the Lungs of another Dog of that size would occupy: However I did not find the Lungs in any other respect out of Order; there was no Discolouration, no Adhesion to the Pleura; and within no Tubercule or Glands, but the Substance of the Lungs soft and spongy as usually.

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Upon blowing into the Wind-Pipe, the Lungs would be Inflated somewhat, but not half so much as in another Dog. And what hindered this Inflation farther, I could plainly perceive, was the Contraction of the outward or common Membrane of the Lungs, which did seem upon this Contraction to be somewhat Incrassated, and its Colour a little Whiter.

In the Cavity of the Thorax, I observed a small Quantity of Water, and sometimes did suspect whether this Water (if of a Corrosive Nature) might not contribute to the Contraction of the Membrane. But this I did not think of, till 'twas too late to make tryal of the Nature of this Extravasated Serum; it being flung away; nor upon the whole, do I think it might be the Cause of it. But here I rather suspect the Dog might have lighted upon some sort of Poison which might particularly affect that Membrane, and cause the Contraction. I will not trouble you with at present the Reasons I have for such a Conjecture; or if it was not from an outward Poison taken inward, it might otherwise happen from an Internal Cause.

However this Observation plainly shews us the Reason why upon Motion this Dog proved Asthmatical; nor could he continue his Motion, but for so short a time; since by means of the Contraction of the outward Membrane, the Lungs could receive by Inspi-

ration, not half the Quantity of Air at a time, as it could before, or usually was wont to do.

I shall give some Observations which were communicated to me by my worthy Friend Dr. *Pierce* of *Bath*, about four Years since, by which he assures me of the great Benefit of the *Bath-Water*; which he tried on many Asthmatics both in the Nervous and Humorous Asthma, in which the *Bath-Waters* dilute the Viscidity of the Phlegm, and deterges it by helping the Expectoration.

He first mentions the Benefit the Old Dutchess of *Ormond* received, by drinking *Bath-Waters*, when she was sixty Years Old, which recovered her Appetite, help'd her Expectoration so well, that she could lie down in her Bed, and walk about her room before she went away; and on this good Success was encourag'd to visit the Bath, and drink the Waters there some Years after.

The second Case he gives me, is of one Mr. *Comin*, who came both Asthmatical, and Scorbatical, and Hydropical to *Bath*, where he drank the Waters; which pass'd well after Purging, Vomiting, and the use of *Aqua Asthmatica Quercitani*, and *Aqua Raphani Composita*: He recovered his Breath and Appetite, and bathed frequently: By all which, in two Months time he perfectly recover'd to a Miracle.

The third Case is of the Lady *Mary Kirke*, who oft drank the *Bath-Waters* for an Orthop-
næa

næa, with great Advantage: For thereby her Fits did intermit many Months. She bathed by the Lady *Elizabeth Littleton's* Persuasion, who says, she was cured of her Asthma chiefly by Bathing.

The fourth Case is of Sir *Edward Villers*, who upon healing an Ulcer in the Leg, was Asthmatic, for which he drank the Waters, and his Fits came not so oft; and the Pain of the Ulcer was relieved by bathing the Leg.

The fifth Case is of a Lady of Thirty or Forty, Hydropical and Asthmatic; who both drank the Waters and bathed for the Asthma.

The sixth Case is of Mrs. *Whittacre*, who had a great Cough and Palpitation of the Heart, with Shortness of Breath, and she was always hot and feverish: She recovered by drinking *Bath Waters*.

The seventh Case is of Sir *Robert Craven*, who was Asthmatic, and in his Fat Body the Thymus was observed to be enlarged to a great Bulk, which upon any great Commotion by Laughing, or Talking earnestly, gave him severe Asthmatic Fits, with Blacknets in the Face.

This Case shews us how readily the Asthma is produced by an external Compression of the Lungs; and these Fits did immediately go off again, on the Alteration of the Pressure of this Glandulous Tumour. He died not of this Asthma, but of a Fever.

The former Cases teach us to use the *Bath-*

Waters for the Viscid Humours of the Asthmatic ; and two of the Cases shew the Benefit the Hydropical and Asthmatical have by drinking the Waters, and bathing, which is an extream difficult Case to cure : But these Cases being Matter of Fact, ought to be admitted ; and I acknowledge my self obliged to Dr. *Pierce* for this Information he has given me in the particular Cases described.

Botrys is a *Lanium* in Taste and Vertue, and like Ground-Ivy ; I use it in Syrup, Decoction, or Thea ; 'tis useful for Coughs.

The Lungs must be cleansed in the Periodic Asthma after every Fit, and the obstructed Glands opened by Pectorals in the Pulmonic Asthma ;

1. By Bitters of the Dead nettle Class, Gill-Beer, Gill-Thea, sweetned with its own Syrup, or Powder of Motherwort mixed with *Oxymel Scylliticum*, Syrup of Horehound with Milk-water.

2. By the smoaky Bitters, as the Thistle-Bitters Syrup of Carrduus, Scabiose mixed with *Oxymel Scylliticum*, and Oil of Sweet Almonds, or else some Pectoral Drink.

3. By the bitter Gums : I have used these, Myrrh, Olibanum, Castor, Nutmegs, of each ʒi . Syrup of Violets, and *Oxymel Scylliticum* of each ʒi . make a Linctus. Take Penniroyal Water, Rhenish Wine, of each ʒbi . Ammoniac ʒi . dissolve them, add Syrup of Vinegar ʒiv . or Tincture of Gum Ammoniac,

20 Drops in any Oxymel, *Elixir Proprietatis Paracelsi* ℥i. in small Beer every Morning. The Antients mixed Honey, Turpentine, Galbanum, in an Electuary *Hiera cum Colocynthide*.

4. Terebinthinate Bitters ; Tar Pills, or Pills of Wood-Lice, Salt of Amber, *Sal Prunell* with Nutmegs and Turpentine.

Balsam of Sulphur, or Gilead Balsam in an Oxymel, with Pectorals ; Syrup of Enula Campana ℥iv. Oil of Sulphur ℥i. mix for an Eclegma.

Agaric which grows on Turpentine-tree, in an Oxymel.

The Kernels of Pine in an Emulsion, with Almonds.

Hiera cum Agarico.

Savin powdered ℥i. Butter ℥β. Honey ℥ii. mix them ; used for three Days, and repeat it again after three days.

Frankincense and Sugar-Candy, in a roasted Apple : Or,

The Roots of Valerian, Butterbur, boiled with Liquorish, Raisins, Aniseeds, or in an Oxymel.

5. The sweet smoaky Bitters ; as Bellis Major, in Decoction, or Syrup, or Thea.

Coltsfoot-Syrup, or Eryngo-roots, Centaury the greater, and Erigerum.

6. By the sweet acrid Aromatics ; Seeds of Parsley, Anise, Cinnamon, Dill, Parsnep, Roots of Parsnep, Smalledge, Panax, Pimpinella, Saxifrago, Peucedamum, decocted Diacymenum,

acymenum, with Oil of Aniseeds in Tablets, Diaspolicum ℥i. mixed with two or three parts of Honey.

7. Nauseous Bitters of the Lyrbanis Class, Gentian, Centaury, Trifol. Fibrinum, Saponaria, the bitter Decoction without Sena for a Month, Theriaca Diatesseron, *cum opio, vel sine illo.*

8. Fœtid Bitters nauseous and purgative; Aristolochia ℥i. with Honey, Juice of Briony, with Honey, Syrup of Tobacco, distilled Water of Tobacco with Syrup of Violets, Juice of Squills, with Honey, equal parts, boiled; the Dose is ℥β. before or after Meat.

Take Vinegar, Honey, of each ℥iv. Fountain-Water ℥bi. Rue one handful, Cinnamon, Cloves, of each half a Dram, boil them, and make an Oxymel; the Dose is one spoonful with a Draught of Water.

One Pound of Squills is used to be infused in ℥xii. of Vinegar. *Hippocrates* is said to be Author of this Medicine.

Galen prescribes it in a Morning, and the walking after it seven *Stadia*; but I find 'tis better to use it at Night, because it Vomits in the Morning; and I have found it necessary to add Aromatics to it, or strong Waters, or Sugar to make it a Syrup, or mix it with Syrup.

9. Caustic Acrids; Powder of Aron with Oxymel, or else let ℥i. be boiled in ℥ii. of Oxymel.

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The Root of Dragon is of the same Virtue.

This is *Archigenes's* Medicine; The crude Juice of Squills, boil it with equal parts of Honey, the Dose is one or two Spoonfuls before or after Meat.

Add ℥β of Nettle seeds to a Pectoral Drink of ℥ii.

℞ *Aq. Cinnam. Syr. Vol. Aceti. Scyllitici*, aa. ℥i.

Preserved Garlic and its Syrup is commended, Leek Pottage, Onions boiled and buttered, or roasted, and Honey mixed with them and Butter; Sagapenum boiled and dissolved in a Decoction of Enula condited ℥i. Colaturæ ℥ii. add Syrup of Vinegar ℥iii.

I was informed by a Lady, that Garlic applied to the Feet, cured her of the Fit of the Asthma; and I knew one who took an Infusion of Garlic in Cephalic Waters, with her Steel Medicines. Infuse one Head of Garlic in 12 Ounces of Cephalic Waters, Rosemary Lilly, and Black Cherry, a.a. ℥iv. strain it.

10. Crest Acrids; Syrup of *Erysimum*, Mustard-Seed with Honey, Juice of Horseradish Roots, with Sugar-candy, Decoction *Caulis rubri*, an Oxymel with Rue, ℥β. of Rue in six Gallons of small Ale; 'tis not unpleasant, but a great Diuretic.

Sal Ammoniac ℥β. Rocket Seed with Honey ℥iv. or the Powders in *Mulsam*.

11. Moss-Acrids; used as Syrup, or boil it in Drink, and sweeten it; or one Handful boyled in ℥ii. of Posset-Drink with Figs and Liquorice.

12. Leguminous Acrids ; Seeds of Woodbine-Berries, drank with Wine for forty Days, or the Conserve of the Flower ; these are great Diuretics, as most Pectorals are : *In Thoracis Morbis semper renes respiciendum.*

13. Laurel Acrids ; Bay-Berries with Honey, Decoction of *Guaicum*, or Mistletoe with Pectorals, or sweetned with Honey.

14. Aromatic Acrids ; Thyme, *Stæchas*, Hyssop, Decoction of Calamint with Figs, Flowers of Rosemary boyled in Water with Honey, Penniroyal, or Mint boyled in Oxymels, Decoction of China with Cephalics, and a Cock.

15. Burning Aromatics ; *Orris* Tincture in Aniseed-Water, or the Roots decocted in an Oxymel, *Species Diaireon* made into *Rotulæ*, with Oyl of sweet Aniseed and *Sal Prunell.* or else the Roots infused in small Ale, or candied.

16. All Purgers and Vomitories are pectoral ; as Briony, Tobacco, Squills, Agaric, Aloes : Take Syrup of Tobacco, Horehound, *Oxymel Scylliticum*, *Aqua Brion. ad ʒi.* *Misce Dof. Cochl.*

17. Honey, which is a sweet Gum of Plants, Sugar, and Mead, and all Oxymels with *Orris*, *Ennula*, Liquorice, Leaves of *Scabius*, Clotsfoot, Horehound, Figs, Dates, Hyssop in Barley-Water with Honey.

18. Fœtid Parts of Animals ; the Lungs of a Fox, in the Decoction of a Cock, take ʒss. with ʒvi. of Oxymel.

Infusi-

Infusion of Millepedes $\mathfrak{z}i.$ in $\mathfrak{ss}ii.$ of the Decoction of Woods.

Fox Lungs powdered with Honey or Oxymel.

Take *Castor* $\mathfrak{z}ij.$ *Gum Ammoniacum* dissolved in Vinegar of Squills $\mathfrak{z}\mathfrak{ss}.$ make Pills: Aniseed and Sulphur may be added ad $\mathfrak{z}ii.$

I have prescribed thus:

$\mathfrak{R}.$ *Castorei*, *Salis Succini* aa. $\mathfrak{z}ii.$ *Flores Benzo*: *Croci* aa. $\mathfrak{z}i.$ *Ammoniac Acet. Solut.* Grains v. *Succi Licoritiæ*, *fiant Pil.*

19. Salts, *Sp. Cervi Fuliginis*, *Cranii*, adde $\mathfrak{z}\mathfrak{ss}.$ of *Spiritus Lavendulæ* to $\mathfrak{z}i.$ of the volatil Spirit; the Dose is thirty Drops in Pectoral Waters: These are fittest in Faintings.

$\mathfrak{R}.$ Millepedes calcined to a Whiteness; mix them with Honey; the Dose is two spoonfuls before and after Meat.

20. Sulphureous Medicines; as the Balsams and Tinctures of Sulphur, and Antimony, Flowers of Sulphur $\mathfrak{z}i.$ with Butter.

I never found any Benefit by Sulphur Medicines in the Asthma.

21. Sneezing Powders help Expectoration, but Vomitories most.

22. Lubricating Mucilages and Oyls, help up the Phlegm; as Hydromels and Oxymels, and pectoral Decoctions, Oyls, and Sugar: *Sapo Venetus*, *Sperma Ceti* $\mathfrak{z}i.$ mixed with Oyl of Almonds, and Syrup of *Balsi*, and *Lucurellus* Balsam, Butter and Honey mixed, or Honey boyled in Beer.

I have mentioned all these Pectorals, that those may be chosen which are not too hot, but suitable to each Constitution. *Avicenna* gives us this Direction from the Tastes of Medicines; *Acutum est aliud, deinde amarum, deinde salsum, quoniam acutum est fortius ad resolvendum, abstergendum, & incidendum quam amarum, deinde salsum; ponticum est frigidius, deinde stypticum, postea acetosum, quamvis verò acetosum sit nimis frigidum, tamen majoris infrigidationis, propter Penetrationem.* The old Opinion was, that in turning Wine into Vinegar, the Fiery and Aerial Parts are evaporated by the Ferment, or the Heat of the Sun, as *John Anglus* describes it.

I shall next give some Remarks on some Errors in Authors.

1. All very violent Purges and Vomits used by them, commonly disagree with the Asthmatic, and give Fits.

2. Strong Expectorators, and all hot Medicines are injurious in the beginning of Fits, as Balsams, Tinctures, Spirits, and strong Cordials, Wine, Brandy, Spirits, chymical Oyls, and Gums.

3. Eating any solid thing the first Days of the Fits is dangerous.

4. All Fumes of Tobacco, Amber or Arsenic, are suffocating.

5. All Oyntments to the Breast heat it, and offend by their Smells; as Oyl of Amber, and the Axungia's, the rubbing of the Breast
rarefies

rarefies the Spirits too much: Fomentations to the Breast are likewise mischievous, and Plaisters hinder Respiration.

6. All Motion makes the Fit worse; Fire, a close Room, all actually hot Diet is intolerable.

7. No Medicines for the Asthma must be infused in Wine or Brandy; no chymical Oyls are useful.

8. Errhines, Apophlegmatisms, quilted Caps, are Mistakes, and Sternutories dangerous in the Fit; the burning an Issue on the coronal Sutures, Breast, signifie nothing; Cupping-glasses, and Lotions of the Feet are mischievous; no Benefit is to be expected from Issues.

9. Frequent Bleeding brings a Dropfie; bleed only twice in a Year, or upon extraordinary Fits.

10. Much Water-drinking is injurious to the Old, and pure unmix'd Acids, great Astringents stop the Breath; the mucilaginous Gums breed Phlegm; all very hot Aromatics, and odorate things inflame too much.

The Cure of the Hysteric Asthma in the Fit is the same as that of the Spitting Asthma, because there is the same Windiness in the Stomach, the same Effervescence of Humours and Rarefaction of Spirits, as in the other Asthma; no hot Hysteric Medicine is useful in the Fit; as volatil Spirits, or Gums,

or

or Castor ; but only *Laudanum* twelve Drops, or more in a mild Hysteric Draught, the first and second Night if necessary, after a Clyster or Vomit.

For the preventing this Species of Asthma from its Returns, we must,

1. Use the same Vomits and Purgers which are recommended in the other Species of Asthma's : Purging Salt is most agreeable ; and let the Vomits be with *Carduus* Water and Squills once a Month, and the Purge once in fourteen Days, till the Fits remit, and *Laudanum* after them.

2. The same Digestives are convenient, because there is the same flatulent and slimy *Cacochymia* in all Species, but in the Hysteric Asthma, because it arose from those Fits ; Hysterical Medicines may be mixed with Digestives.

3. The Febrifuges must here be used against the Effervescences ; and Fever Fits, to prevent their Returns, as a Decoction of the *Cortex* ; give two Ounces with an Hysteric Julep, and repeat it till four Ounces are taken, or else two Ounces in an Electuary ; and this ought to be repeated upon the Turns of the Year : This Medicine I have found most effectual in the hysteric Asthma, much more than in the spitting Asthma : For which reason I guess, that the Periodic Hysteric Fits depended originally on a latent Fever ; but in time they introduce a slimy flatulent *Cacochymia*, which

requires due Evacuations and Digestives, and then the Repetition of the *Cortex* with mild Antihysterics.

4. After the general Methods proposed, some Antihysterics may be used; such as the Aromatic or Fœtid Cephalics, to rectifie the flatulent Spirits; and they must be suited both to the Constitution of the Patient, and the Nature of the Asthma, which will not admit of any inciding hot Medicines, without some Acid to abate them.

Some Asthmatics have commended Spirit of Lavender; but I always observed it very injurious to me in my Fits, and it encreases the straitness, because of the Perfume: Pennyroyal, Sage, Clary, Rue, may be boyl'd in Oxymels; and I observe, that the Old Writers prescribe ℥℥. of Castor in an Oxymel, or else in their *Posca*.

Zedoary may be decocted in Oxymels, and its Powder given in Pills: I find these Prescriptions in *Zecchius*: *Sal Armoniac* ℥i. Musk two Grains, *Crocus* Grains three in *Oxymel Scylliticum*, make Pills.

The Volatility of the Flowers of Benjamin and their smoaky smell, is injurious to some Persons; and for that reason *Bartolet* prepares them best by a *Balneum* and Distillation.

Take Ammoniac dissolved by Vinegar, Juice of Liquorice aa. ℥ij. Flowers of Benjamin ℥℥. *Crocus* ℥i, Mosch. ℥℥. with Oxymel, make Pills. O In

In Extremities, *Crocus* ꝰß. Mosch Grain one, take it in Oxymel.

Salt of Amber, *Sal Prunell.* Crabs-Eyes, aa. ʒij. or Oyl of Amber in Lozenges with *Salt Prunell.* and Cream of Tartar.

This was used antiently; *Castor* ʒi. *Ammoniacum* dissolved in Vinegar ʒij. make Pills: For two Doses ʒi. of Saffron may be infused in ʒij. of any Liquor; but the Saffron must be roasted in a Limon. I must confess, I never found Benefit by Saffron.

Seven Grains of Cinnabar of Antimony is commended by *Grembs*, to be taken for a Month in a spoonful of Briony-Water.

I have been very much inclined to believe that those Acids which relieve Epileptic Fits, which are from a higher Degree of Flatulency in the Spirits, would relieve the Hysteric Asthma, and I propose them to the Reader's Consideration.

The volatil Spirit of Vitriol ten or twenty Drops, the phlegmatic Spirit ten Drops, or the Oyl dulcified, or the common, four Drops in an Hysteric Julep.

Spirit of Vitriol distill'd with Urine according to *Hartman*, *Clyffus Vitrioli.*

Spirit of Gum *Ammoniacum*, Sulphur, and *Æs Viride* in *Etmuller*; which mix in equal Parts with Spirits of Aniseed.

Spirit of Sculls, mixed with Spirit of Vitriol.

Spiritus Vitrioli Philosophicus, *Julapium Camphoratum* with *Sal Prunell.* Spi-

Spiritus Veneris, Guttæ 6. ad 12.

Take *Sal Prunell.* ℥iij. volatil Salt of Hartshorn or Vipers, or Flowers of *Sal Armoniac* ℥i. Dose ℥i. ad ʒfs.

Mixtura simplex ℥i. ad ʒi. in Milk-Water and Briony compound.

Take Peony-Water ℥ij. Spirit of Blackberries ℥i. volatil Spirit of Hungarian Vitriol.

Rue-Water, Briony-Water, Vinegar of Rue, or Squills, Syrup of Peony, of each one Ounce.

Sweet Alum-Water, Apoplectic Water, of each ℥ij. add Phlegm of Vitriol.

For an Opiate, torrified Opium ℥i. Briony-Water ℥vi. Spirit of Vitriol ℥i. digest *Nitrum Saturnisatum* in *Bates*, or *Spiritus Saturni ex saccharo*: The acid Spirit of *Sal Armoniac*.

Spiritus Nitri dulcis ℥i. ad ʒi. No Steel seems to agree with the Hysteric Asthma; but the *Extractum Ecphracticum cum Aloe*, or Steel Waters in young Asthmatics; because it stops in the Stomach, straitens the Breath, and raises an Effervescence in the Humours: The Roots and Seeds of Peony ought to be tried in Powders or Decoctions, continuing it for some Months.

No Fœtid Fumes of Amber, or Assafœtida can be proper in the Hysteric Asthma; therefore all Fumes must be avoided: But the smell of Vinegar is more agreeable if mix'd with Rue, or without it.

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APPENDIX,

Containing some Observations omitted, and one about Weighing of an Asthmatic after Sanctorius's Manner; with an Account of the Weight before, and in, and after the Fits.

SOME Mornings the Asthmatic (who was betwixt 40 and 50 Years old) upon weighing fasting, was 179, others 178, and 180, and 181. But the Day before the Fits, in the Morning, *May 2d*, 1698, he was 180 Pound (including the Weight of the Chair 33 Pound, and the Cloaths.) *May 3d*, the Morning Weight was 178 Pound, after having passed by Urine a Pound and half, by Stool half a Pound. The Weather was very cold, and Wind N. E. and it snow'd in the Afternoon; the Asthmatic drank Ale, which with the Change of Weather, gave a short Fit, with very little Spit. The Observations I shall make, are,

1. The Defluxion of Serum is very evident by the Quantity of Urine unusual, and
some

some Spit more than usual, and the Stools loose.

2. The Change of the Air to Snow, made the Air lighter; which less compressing the Blood, disposed it to the Asthma Fit with the drinking of Ale, which occasion'd an Effervescence.

3. The great Coldness of the N. E. Wind affected the sense of the Skin; and that by its shivering Contraction, compress'd the Circulation of the rarefied Humours inwardly, and occasion'd the flux of Serum by Urine and Stool.

4. There was no unusual Weight observed in the Asthmatic the Day before the Fit; therefore the Matter of the Asthma is not any great Quantity of Serum, since it cannot be observed by weighing: But the Cause of it must be an Effervescence of Humours, which are flatulent and ferous.

The Asthmatic took a spoonful of this acid Syrup in ℥ss . of Water, and repeated it three times before Dinner-time: Take Vinegar ℥ss . Aron Roots ʒij . infuse them three Days, strain them, and add Sugar ℥ss . make a Syrup.

Orris, Enula Campana, or Horse-Radish, or Fenil Roots may be infused in the same manner, or any Carminative Seed ʒi . in ℥i . of Vinegar to make the like Syrup.

These cool things, Toast and Water, with an acid Syrup, abate the Windiness, and compress the rarefied Serum: For the Humours are rarefied by Heat into Bubbles, which we

call Wind. We find in Vinegar a cool Taste from its Acid, fit for the cooling of bilious or oily Humours; the Acrimony in it makes it biting, and, as the Antients say, fit for Obstructions, from viscid Humours, where there is a Fever too, because it cools and opens both. The Water drank in the Morning run off by Urine before Dinner.

The Diet of the Asthmatic on the Fit-day was at Dinner two Eggs, Toast and Butter, Small Beer and Water after Dinner two Pound and a half in Weight, the Weight of Supper one Pound and a Quarter; Diet in all, three Pound three Quarters. The Weight lost on the Day of the Asthma, three Pound three Quarters; by Urine three Pound; Insensibly three Quarters.

By this 'tis evident, the Insensible is the fourth Part of the whole Weight, lost on the Day of the Fit; and it appears to me, that usually the Insensible Perspiration in *April* last, when it was cold Weather, amounted to but a third or fourth Part of the Weight lost. The Day following, the Asthmatic was the same Weight as on the Morning of the Asthma 178, which is lighter than usually.

May 6. the former Fit being only suppressed, the next Change of Weather on this Day towards Rain, the Wind West, and the Weather warm, raised a new Effervescence and gave a new Fit, rather worse than the former.

May

May 4th the Weight was 178.

5th the Weight was 178 three Quarters, the Weight not considerably increased before the Fit.

6th in the Morning, lost then by a Stool and Water, ℥iiss.

The Weight was in this Morning 178 Pound, after the Evacuation mentioned.

The whole Weight lost the Day before the Fits, was thus ;

Breakfast ℥i. 3 Quarters.

Lost before Dinner by Urine and Stool ℥i. 3 q.

Dinner ℥iiss.

Lost before Supper by Urine ℥i.

By Perspiration ℥ss.

Supper ℥i. 1 qu.

Lost in the Night and next Morning,

By Urine and Stool ℥iiss.

By Perspiration ℥ss.

Add the Weight to the Diet, which was ℥vss.

The Morning Weight *May 5th* 178 ℥. 3 qu. both 184 1 qu.

Lost sensibly by Urine and Stool ℥v. 1 qu.

Insensibly ℥i.

Lost in all ℥vi. 1 qu.

The Weight next Day after the Asthma, by which we perceive the loss of Weight in the Fit, 177 Pound, which is the least Weight, lesser than usually.

Note, The Perspiration was the sixth Part the Day before the Fit. Therefore the sensible Evacuations are five times as much as

the Perspiration the Day before the Fit.

I weigh'd a Boy of Fourteen; the Weight lost in one Day, *May 2.* was 2 Pound 3 qu.

By Urine ℥i℥.

Diet in all ℥ii. 3 qu. By Stool 3 qu.

By Perspiration ℥℥.

which is about the 4th part of the sensible Evacuations, and of the whole Weight lost the fifth.

If we consider the different Weight of our Air, and the Grossness of our Diet, in respect of the *Italian* Air and Diet, we may well suppose a Difference in *England*, where the sensible Evacuations are three or four times as much as the Insensible: But by *Sanctorius*, in *Italy* the sensible Evacuations are exceeded by the Insensible; and they amount to five Pound, if any one eats eight Pound every Day: But much the contrary happens here; the Sensible commonly exceed the Insensible three or four times.

The following Purge was communicated to me by a Spitting Periodic Asthmatic, by which he usually cured his Fits; and he takes it any time of the Night the Fits happen.

Take Sal Prunell. gr. x. Tartar Vitriolate gr. vi. Diagryd. gr. iv. Lenitive Electuary ʒij. make a Bolus.

An ingenious Physician in *London*, whose Name I have forgot, inform'd me, that he gave ʒi. of *Merc. Dulcis* in a Fit; which by giving two or three loose Stools, is soon reliev'd.

If

If any Lenitive Purge may be admitted in a Fit, none so convenient as Purging Salt ℥β. or ℥vi. and Laudanum at Night after.

This following bitter Acid never fails to give a Stool next Day, if two Drams or half an Ounce be taken at Night with Toast and Water a Draught.

Take Squills dried ℥ij. one Orange Pill, steep them in Vinegar ℔i. for a Week, and strain it out. It ought to be sunned fourteen Days.

Strong Purges I have observed both in the Fit and out of it, to be injurious to the thin Hysterical and Hypochondriacal Asthmatics.

*June the 4th, I dissected a broken-winded Mare, who was exceedingly troubled with that Disease, and sold for the Dogs Meat, being much emaciated: I found all the *Viscera* in the Belly very found, the Liver had very little of any Schirrosities dispersed in it, the Spleen had none; there was no Water in the Belly nor Breast; the Diaphragme had no Injury, but was press'd by the Guts much up towards the *Thorax*: And the prone Posture of Horses makes the Guts more subject to press on the Diaphragme, than it happens in Men, whose Belly hangs below the Diaphragme, and this occasions the breathing very short in Horses, as soon as they have been Water'd, or full sed.*

In the *Thorax* the Lungs appear'd very much swelled or puffed up, and appear'd much bigger in the Broken winded than usual; the Outside of the Lungs seem'd like *Tubercula*; but upon pressing

pressing I found those only Bladders very much distended with Air, as I found by cutting them. I blew up some Lobes of the Lungs, and found the Air would not come out again, nor the Lungs subside of themselves; by which it was plain, that the Bladders of the Lungs had been extended or broken by some Strain in Running, and that the Air remaining either in the over-distended Bladders, or else passing thro' some Breach of them, betwixt the Fibrous Substance of the Lungs; that caus'd a continual Inflation of the whole Lungs; which compressing the *Bronchia* and Blood-Vessels, produces a continual *Dyspnæa*, in which the external Air can't pass freely thro' the *Trachæa* and its Branches in Inspiration or Expiration; and this Difficulty occasions the great Labour and Nisus of the Respiratory Muscles. There was no *Polypus* in the Heart, or the Blood-Vessels of the Lungs; no Adhesion of the Lungs to the sides, nor any signs of any quantity of Phlegm in the *Trachæa* and *Bronchia*, nor no Decay, Tumour or Corruption or Obstruction in any part of them, only the Bladders seem'd to make the Superficies of the Skin of the Lungs unequal, and the whole spongy Substance of the Lungs seem'd swell'd with Wind: For no quantity of Humour appear'd any where. This Mare had not been Broken-winded above one Year. By this Observation it appears, that the Broken Wind depends on an Injury done to the Membranes, rather than to the Humours of the Body.

F I N I S.

POSTSCRIPT.

Some Reflexions on the Dissection of the Broken-Winded Mare.

THere are two sorts of windy Tumours in the external Membranes of the Body; the one from the Admission of the external Air amongst the Membranes, as appears in a Wound of the Thorax, in which the Membranes are inflated if the Orifice be small: And another windy Tumour happens to the Membranes of the Knees, Feet, Hands, Eyes, Belly, by a rarefied Serum filling the Canals of the Nervous Fibres; and this is properly a Nervous Inflation: For if this Tumour be opened, no Humour appears to come forth. I desire to apply this Distinction of flatulent Tumours, to the Inflations which produce the flatulent Asthma; and I shall reckon two Species of these Inflations: The first is, the Broken Wind, from the Rupture or Dilatation of the Bladders of the Lungs, by which the Air is too much retain'd in the Bladders, or their Interstices, and thereby produces a permanent flatulent Tumour in the whole Substance of the Lungs. 'Tis not easie to explain
the

the Production of a permanent flatulent Tumour in the Lungs, by a Strain in Running; but by supposing the Bladders of the Trachæa too much distended, and the muscular Fibres which constringe them in Expiration, thereby over-stretched, and made unfit to express the Air afterwards: So that these Bladders retaining more Air than is usual, the Substance of the Lungs must appear always Inflated. I could not find any other Disorder, but this flatulent Tumour of the Lungs, in this Mare I dissected; therefore I shall impute all the Symptoms to this only Cause; though I have, with the Vulgar, conjectur'd, that the Disease depended on Polypous Concretions of Blood, or Tubercula, which are observed in some Horses; they are only the Effects of a long Broken-Windedness, by its long continuance. This windy Tumour, by compressing the Trachæa, hinders the Admission of the Air, and makes a laborious Respiration: The same Tumour hinders the Efflation, of Air, which occasions the Muscles of the Belly to strain much, as appears by their Working in the Flank.

The Return of the Blood to the Heart, and the Descent of the Chyle into the Guts, and its Depuration, Secretion, and Distribution, do naturally depend on the Motion of the Diaphragme and Breast; and that being hinder'd, the Horse is languid, and fainty, for want of a free Circulation, which is also stopt
on

on the Lungs, by the flatulent Tumour of them ; and that much Increases the Tumour and Angustia, Fulness and Straitness in the Breast. The Parts are emaciated for want of a full Circulation of Humours into them ; neither can the Chyle be well prepared or assimilated to the Blood, where the Circulation is weak and stopt : 'Tis only digested into a slimy Nutriment, which is the Matter of the slimy Phlegm, both in the Stomach and Lungs.

A Windiness is always observed in the Belly of the broken-winded Horses for want of a quick Distribution, or a thorough Preparation, or Fermentation of the Aliments, for which the slimy Ferment of the Stomach seems unfit.

These Horses Wheeze much after filling their Stomachs, by Water, or Food ; because that keeps up the Diaphragme, and that by reason of their prone Posture of Body, presses much upon the Lungs, which by their Tumour, take up too much room in the Breast. The other flatulent Tumour of the Lungs depending on a rarefied Serum in the Nerves and Fibres of the Membranes, is sufficiently described in this Treatise, as to its frequent Paroxysms and Causes.

As it happens in external flatulent Tumours, they at first go off, and return ; but at last fix in permanent flatulent Tumours : So it is in the flatulent Asthma ; the frequent ner-
vous

vous Inflations induce at last a constant windy Tumour, or Inflation : And it ought to be consider'd, how far the holding the Breath in Hysteric Fits, or the violent Coughing in long Catarrhs, or the great Distention of the Lungs, by an Inflammation in the Peripneumonia, may strain the Bladders, and their Muscular Fibres, and thereby produce the same Rupture, or Dilatation, or Hernia, as happens in the broken winded. This must be observed by the help of the Microscope ; and if the Air blown into any Lobe, will not be expelled thence, by the natural Tone or Muscle of the Bladders, that the Lobe may again subside of it self, 'tis certain, some Injury is done to the Ventiducts ; the Bladders are either broken, and admit the Air into the Membranous Interstices, or else they are over-distended, like a Hernia in the Peritoneum ; and this will produce an Inflation of the whole Substance of the Lungs, and that a continual Compression of the Air and Blood-Vessels, which will produce a Constant Asthma : But where the Fits are Periodic, 'tis certain there is no permanent Inflated Tumour, but that depends on a Flux of windy Serum into the Nerves, or on the preternatural Rarefaction of the *Succus Nervosus*, by external Accidents.

This flatulent Tumour of the Lungs has been oft observed in Asthmatics. *Car. Piso* observes a Dyspnæa in an Arthritic, à *Pulmonementente*. And *De Graaf de Succ. Pancreatico*,
has

has this Observation ; *Sæpius offendimus Pulmonum Parenchyma, atque vasa flatu distenta.* Rhodius observes, that the Lungs of an Asthmatic were Turgid with Wind : Other Authors have observed the extraordinary Bigness of the Lungs, and that they could not be easily kept in the Thorax opened.

The Cure of the broken Wind cannot easily be projected any other way, but by a Paracentesis in the Thorax : For if the external Air be admitted, it will compress the flatulent Tumour, and through the same Hole a styptic and Carminative Hydromel may be injected, to restore by its Stypticity the Tone of the Membranes, and discuss by its Aromatic Acrimony the windy Spirits, or Air retain'd in the Lungs. This may easily be tried in the broken-winded Horses, by injecting through a Hole made in the declining Part of the Breast.

I perceive, the Experiment of Dr. *Lowers*, by which he produced the Asthma in a Dog, by cutting the Nerves of the Diaphragme, has occasion'd some Moderns to impute the Asthma, as he doth, to some Strain, or loss of Tone in the Nerves of the Diaphragme. But this cutting of the Nerves, if nearly considered, doth only hinder the Motion of the Diaphragme, and that being hinder'd, the Breast cannot be dilated fully by the Intercoastal Muscles ; the want of that Dilatation compresses the Lungs, and hinders their due
Expansion ;

Expansion; and this must occasion a Dyspnæa, as Gibbosity, or a Pleurisie doth, in which the Intercostal Muscles are hindred from dilating the Breast, for which they serve as well as the Diaphragme. It seems to me a Mistake, to believe the Nerves of the Diaphragme can be injured by any Strain; for Strains only affect the Body of a Muscle, and not the Nerves inserted into it: And I could never perceive any Injury done to the Muscle or Tendon of the Diaphragme in the Asthma, but that as well as the Intercostal Muscles, strive with all their force to dilate the Breast, but all in vain; because the Bronchia are compressed or constringed by the Inflation of the Membrane: And if the Air cannot be admitted, the Breast cannot be dilated by its Muscles, as we plainly perceive when any External Body slips into the Wind-pipe, whereby the Air is excluded in some measure; this produces a violent Orthopnæa and Suffocation very suddenly.

F I N I S.



