

An essay on the art of healing. In which Pus laudabile or matter, as also incarning and cicatrising, and the causes of various diseases, are endeavoured to be accounted for both from nature and reason / [John Freke].

Contributors

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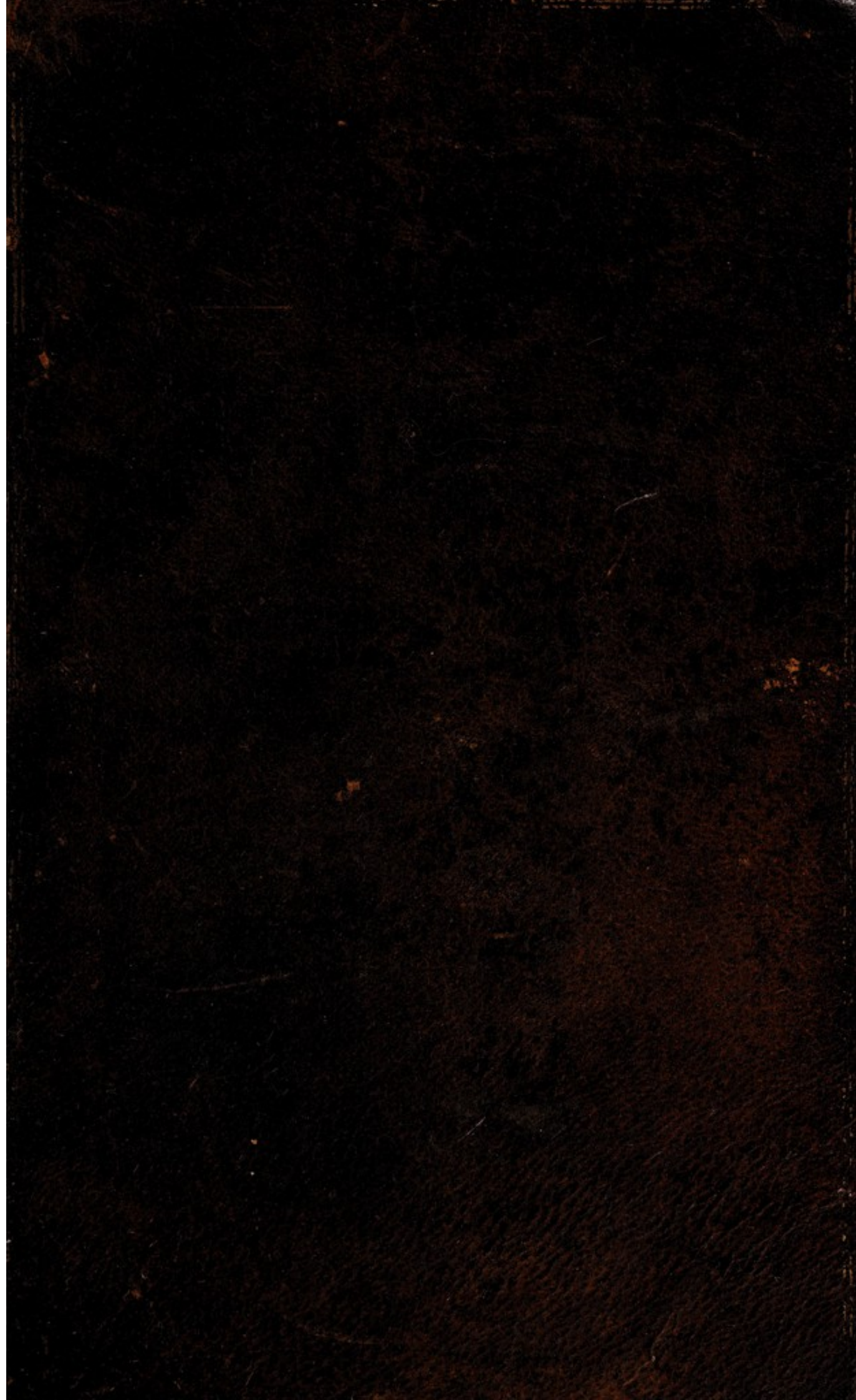
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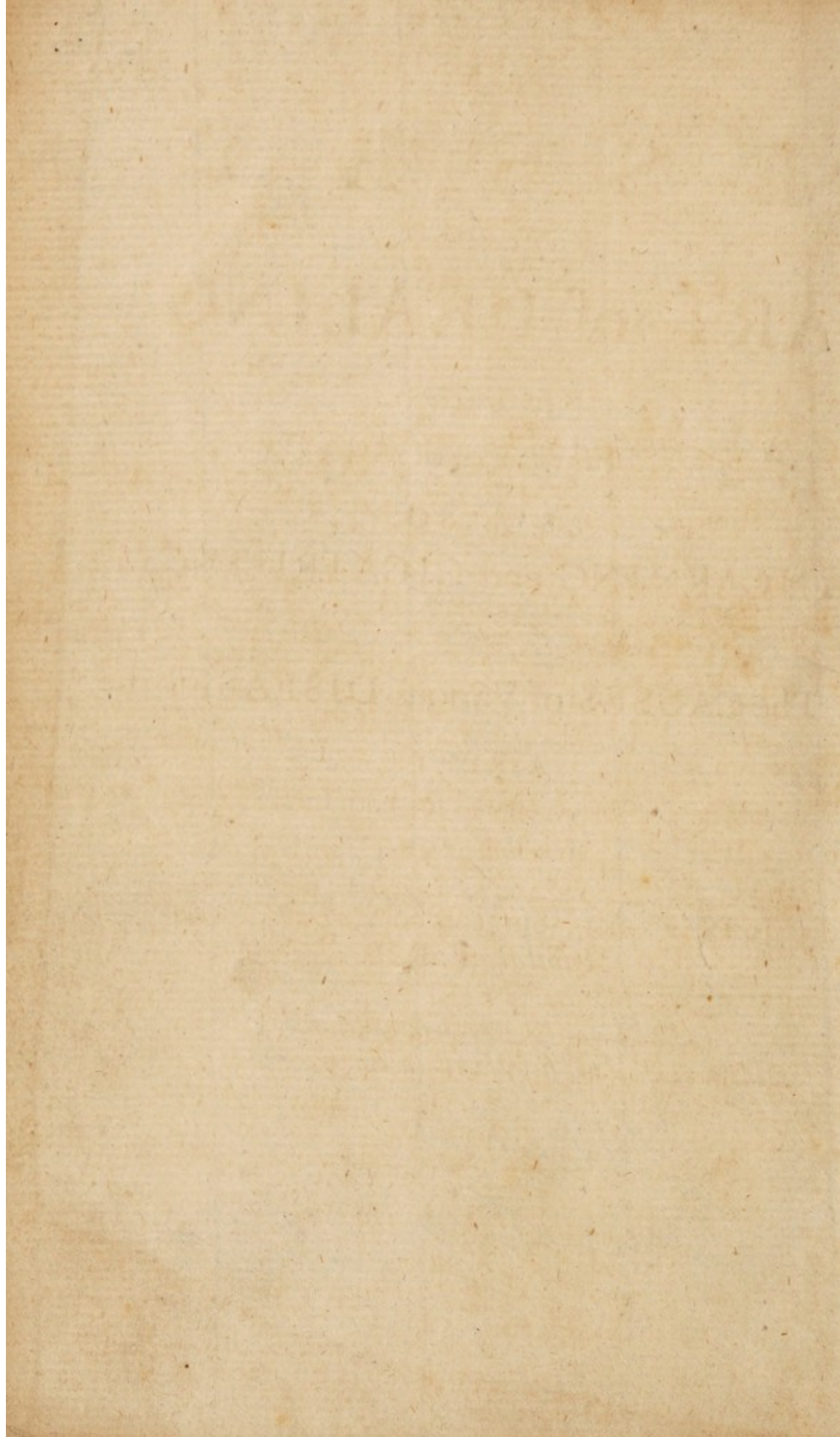
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supplement of
Mercury and
brown sugar
than

This Book Presented
to Thomas Lumsden
by William Lumsden
uncle

Thomas Lumsden
Barnstable 22

1830
March 4 1858



A N
E S S A Y
O N T H E
A R T of H E A L I N G.

In which
P U S L A U D A B I L E O F M A T T E R,
A S A L S O
I N C A R N I N G a n d C I C A T R I S I N G,
A N D
T h e C A U S E S o f V a r i o u s D I S E A S E S,
A R E
E n d e a v o u r e d t o b e a c c o u n t e d f o r b o t h f r o m N A T U R E
a n d R E A S O N.

By J O H N F R E K E, Surgeon to *St. Bartholomew's
Hospital*, F. R. S.

— *Si tibi vera videtur,
Dede manus: aut, si falsa est, accingere contra.*

LUCRET. lib. 2.

L O N D O N:

Printed for W. INNYS, in *Pater-noster Row*.

M.DCC.XLVIII.



TO THE HONOURABLE
The PRESIDENT,
The TREASURER,
The ALMONERS and GOVERNORS
OF THE
Famous and Antient (a) Hospital of *St. Bartholomew*,
London.

GENTLEMEN,

AS it is the Intention in every *Address of this Nature*, either to shew the Relation the Dedicator stands in to the Person or Body to whom he dedicates; or to claim the Patronage of such to his Writings; or to shew his Respects in Acknowledgement of Favours received; On all these Considerations, to whom
can

(a) This Hospital was founded before any other, *i. e.* near 700 Years ago.

can I more properly inscribe this Treatise, than to You, who have joined me with you in the Care of our Fellow-Creatures? Allow me then, to take this Opportunity of assuring you, Honourable and Worthy Sirs, that I am, and ever shall remain,

Your faithful and obliged

Humble Servant,

J. F.

CONTENTS.

<i>THE</i> Introduction,	Page 1.
<i>Of the Blood,</i>	18.
<i>Of the Serum of the Blood,</i>	24.
<i>Why Pus laudabile is Album, Leve, et Æquale ; and also what Granu- lation and the Generation of young Flesh proceeds from ; with the Causes of Cicatrizing or Healing,</i>	36.
<i>Of the Cuticula,</i>	56.
<i>Of the Cause and Cure of Corns,</i>	67.
<i>Of the Cause and Cure of Warts,</i>	68.
<i>Of the Cutis,</i>	70.
<i>The Cause and Cure of Warts con- tinued,</i>	72.
<i>Of the Tinea or Scald-Head,</i>	73.
<i>Of</i>	

C O N T E N T S.

<i>Of the Morbus Pediculofus or Loufy Disease,</i>	76.
<i>Of the Pruritus or Itch,</i>	80.
<i>Of the Leprosy called Elephantiasis,</i>	82.
<i>Of the Tetter or Ring-Worm,</i>	95.
<i>Of the Herpes Exedens,</i>	96.
<i>Of a foul scorbutic Ulcer,</i>	102.
<i>Of the Membrana Adipofa,</i>	114.
<i>Of Wounds,</i>	118.
<i>Of Wounds made by a keen Instrument,</i>	120.
<i>Of Lacerated Wounds,</i>	127.
<i>Of Gunshot Wounds,</i>	133.
<i>Of Tumors proceeding from the Blood,</i>	141.
<i>Of the Aneurifm,</i>	<i>ibid.</i>
<i>Of the Ecchymofis,</i>	142.
<i>Of Diseases proceeding from Phlegm,</i>	145.

C O N T E N T S.

<i>Of the Phlegmon,</i>	152.
<i>Of the Disorders on Scrophulous Glands,</i>	161.
<i>Of the Erysipelas,</i>	166.
<i>Of the Common Herpes, and of Excoriation,</i>	171.
<i>Of Tumors proceeding from Melancholy,</i>	175.
<i>Of the Ophthalmia,</i>	179.
<i>Of the Anchilops and Ægilops,</i>	186.
<i>Of the Fistula Lacrymalis,</i>	190.
<i>Of a Gonorrhœa,</i>	194.
<i>Of a Fistula in Ano,</i>	203.
<i>Of the Venereal Disease,</i>	209.
<i>Of the Anasarca,</i>	212.
<i>Of the Sphacelus or Gangrene,</i>	213.
<i>Of the Diseases of the Joints, Muscles, and Tendons,</i>	216.
<i>Of</i>	

C O N T E N T S.

<i>Of the Anchylofis, or White-Swell-</i> <i>ing,</i>	224.
<i>Of the Gout,</i>	227.
<i>Of a Pricked Tendon,</i>	237.
<i>Of a Ganglion,</i>	238.
<i>Of the Bones,</i>	241.
<i>Of the Rickets,</i>	246.
<i>Of the Scrophulous Disease in the</i> <i>Bones,</i>	249.
<i>Of the Venereal Disease in the</i> <i>Bones,</i>	253.
<i>Of the Stone in the Kidnies and</i> <i>Bladder,</i>	265.
<i>Of the Empyema,</i>	269.

ERRATA.

*In the Preface, Page iii. Line 3. for have as read as have; p. 20, l. 14, for Sugulations read Sugillations; p. 27, l. 7, for remain read remaining; p. 30, l. 9, for thereby become read thereby they become; p. 30, l. 14, for Papeius read Papin's; p. 32, l. 11, for become read became; p. 33, l. 8, dele be; p. 37, l. ult. dele and as it; p. 47, l. 10, for to do read to flow in; p. 49, l. 2, for theirs read their Juices; p. 54, l. 4, for of read off; p. 76, l. 11, for injudiciously read judiciously; p. 79, l. 21, for Indian Coal read Indian Berry; p. 125, l. 1, for Day read Days; p. 128, l. 6, for ausing read causing; p. 130, l. 1, for macerated read lacerated; p. 128, l. 17, for relating them read relating to them; p. 164, l. 14, for Melliseris read Meliceris; p. 168, l. 8, for Pylorus read Duodenum; *ibid.* l. 12, for Chyme read Chyle; p. 192, l. 9, for Crepitum read Crepidum; p. 257, l. 13, for when read then; *ibid.* 18, for Euforbii read Euphorbii; p. 269, l. ult. dele into.*

T H E
P R E F A C E.

I SHALL make no Apology for publishing this Piece ; because I believe that the best Reason which can be given for any one's publishing a Book, arises from one of the following Motives :

The first is, from the Author's Thirst after Fame ; which, in other Words, is to say, from a great Self-Conceit and Vanity.

The second may arise from Necessity, or a Desire of Gain.

The third Reason to be given for publishing a Book, and the only one that I think can be allow'd of, should proceed from a Desire, if possible, to increase the Knowledge of our Fellow-Creatures ; which at best is so limited, as not to be able to give a perfect Reason for any thing in Nature ; and, for Instance, not so much as to demonstrate why the small Stem of a Rose admits to it that Quantity of the fine Odour it affords : And yet, as it must be own'd that we are indued with a greater Degree of Reason than any others of God's Creation are, and that we, by our Application, can improve this Reason, on what Subject can we more nobly employ our Faculties, than on the Knowledge and Improvement of ourselves, who are liable to
so

The PREFACE. iii

so many Accidents and Diseases, that were it not for the superior Knowledge of such of our Profession have as made it our peculiar Study and Care to help those who stand in need of our Assistance, Mankind would soon be taught from the Want of us, better than by any thing that can be said in our Favour, to know of how much Benefit a good Surgeon may be to Mankind?

This being not denied me, I will endeavour to convince such of my Brethren, who have this great Trust of taking care of the Health of their Fellow-Creatures reposed in them, not to be content with the external Art of their Profession, without being able to account for Diseases, and the natural Causes of their Cure.

There are many, I confess, who say, Give me not Speculation, but Practice and Experience, to form a good Surgeon; Speculation being liable to lead the young Surgeon into Uncertainty, whilst Practice confirms his Judgment. I agree with them, that Practice is necessary, and the first thing a young Surgeon should apply himself to learn; and it is confessed, that many who have had very little Knowledge of the Art of Surgery, by their rather studying where their Interest lay, have conceal'd their other Want of Knowledge, and yet have made a good Figure to outward Appearance.

But although this be true, what Man, of any tolerable Genius, would not desire to be able to give a Reason

The PREFACE. v

Reason for what he does, rather than go on, as many good Women do, practising only from Receipts and Experience, and who in time, it must be owned, thereby come to some Degree of Knowledge in the Art of Surgery? But would any one, who is regularly bred, contend for the mere Ability of practising mechanically? Should not every one be able and willing to answer the Question of an ingenious Inquirer in our Profession, as readily as any one in another can in his?

For my own part, I should think my Time but meanly spent, in writing only a mere practical Treatise of Surgery, after so good a one as Mr. Wiseman's has so long and so deservedly been approved of and applauded by the best Judges of our Country,
both

both for its Accuracy of Style, and just Description of Diseases and Methods of Cure; as well for Directions towards a decent Behaviour in Consultations, as in a prudent Conduct in private Practice.

How any Author, who has written since him in our Language, has succeeded, I leave to the Consideration of the Public. If Mr. Wiseman has been too copious in the Remedies offer'd to the young Surgeon's Choice, have not some, who have written on Surgery since, been too brief? For surely, if an Aphorism may be allow'd of, Aliquid pro forma is not a bad one. Although I confess it ought not to be the Practice of an experienced Surgeon to do any thing to amuse the Patient only; nevertheless, till some
Principles

The PREFACE. vii

Principles are established in the Mind of the Practitioner, so as that from Reason he can describe the Disease and its Cure, he may be said to practise by rote, or from Memory only.

In order to make this effectual, I shall endeavour to demonstrate what I have never yet seen attempted to be shewn by any Author.

And as to this Work now intended, I flatter myself it will be made as familiar and plain to the Learner as I think it is to me. Instead of this Method, had I, as most Writers do, laid before me a great Number of Authors, and made large Quotations, differing only in Style and Diction from them, though I had shewn no Genius in the Performance, I should have been sure

3

of

of some Commendation at least from the Ignorant, who are better pleased by Descriptions without Reasoning, than by troubling themselves about it. Or if I had been so vain as to interlard my Story with a large History of Cases, which from my own Experience I could easily have done, as well when I was with Mr. Blundell, as likewise from the great Opportunity I have had since I have been a Surgeon upwards of twenty Years in St. Bartholomew's Hospital; which was founded before any Hospital in Europe, and is one of the largest, and best accommodated for its Use; from hence I could, I say, have made a Figure, and without any Reason have shot over the Heads of many of my Readers: But as I chuse to be guided by Reason only, I disdain such Helps to Reputation; for nothing can

can make me ashamed, but the Thoughts of losing Time about what may be of little Service to others. I could likewise have published some useful Instruments, not taken out of other Mens Books, but of my own Invention; of which I shall ask no Man's Opinion; they being such as I can affirm to be of more Use for their several Purposes than any I have seen of the same kind: But as publishing them does not come into my present Scheme, I shall at least defer the doing it at this time; and shall therefore proceed with my Endeavours to demonstrate, Why Things in Practice are so, rather than that they Are so in general. — And until this be done, the young Student will be liable to forget what he has read concerning either: Whereas, had he imbibed a Scheme of Practice from settled

B Principles,

x The PREFACE.

Principles, he could hardly want a proper Remedy for most Cases in any Family that has Bread, Beer, Milk, Eggs, Oil, Butter, Spices, Onions, Garlick, Honey, Wine, Vinegar, and Salt ; with which he can answer any Intent almost his Patient can stand in need of, as well internally as externally, provided he practises on settled Principles, and he knows the Cause of the Disease he is to cure. I shall therefore first attempt to shew the Cause of Matter, or Pus laudabile, or why Matter is album, leve, et æquale, with the Cause of Granulation and Cicatrizing.

*And as I have said, my Intent was not to write after the Manner of any Author who has gone before me, but treat only of such Cases as I think I
can*

can explain the Causes of, and the Methods of their Cure, from Reason only, avoiding Practice, and the Forms of Medicine as much as I could, so I shall only mention such Diseases, and their Cure, as I think I can shew a mechanical Cause for, from the several Redundances of Nature and Accidents.

Had this ever been attempted by any one, I should ask myself what Reason I had at my Age to write a Book; but from the Novelty, and I think the Usefulness of the Subject, I shall forgive myself for the Essay, if it should not please the Reader, as well as it did some, who, contrary to my first Intention, prevail'd on me to print it. And why should not the most useful Profession (as that of Surgery is acknowledged to be) have as

settled a Scheme, if possibly it can be obtain'd, as any other Profession boasts of?

Were any one to write the History of a County, he would not content himself only with describing the Roads of it, though it were done by the most accurate Map that ever was made, after he found that another Man, in describing another County, had not only shewn the Roads of it, but had likewise demonstrated its various Earths, Minerals, Waters, Buildings, Customs, Inhabitants, &c.

Therefore I think it may be as fit for me to go further in describing the Laws of my Profession, if I can, than others have done, as for the second Describer of his County to outdo the former.

No Man, it is true, that on meeting cross Roads, and having lost his Way, when after he knew it, had Want of a Direction, and so need not set up one for the Use of others: But if he did it, if he were not thanked for it, he would be an ill-minded Man that would condemn him for doing so useful a Thing. Therefore, Reader, if this sort of Reasoning, which I here offer for your Advantage, be not approv'd of, the Fault will then lie on your Understanding, or on that of the Author, who has no other View in writing this Essay, but that of being on the Side of Reason. As for those who are not of the Profession, who, according to the wonted Good-nature of the World, will be giving their
Verdict

Verdict upon an Author they may not understand, as I write not this to gain their Applause, so I assure them I fear not their Censure.

THE

THE
ART of HEALING.

INTRODUCTION.

IN order to my explaining this great *Phænomenon*, and making it easy to be understood, I shall endeavour, in the first place, to consider the different Shapes, Texture, and Uses of the Blood, in nourishing the several Parts of the Body. And altho' I purpose that this Performance shall assist the Understanding of the Surgeon in his general Practice, I shall avoid describing, as much as possible, particular Diseases, and their Cure, in common Practice, and only mention such of them as may illustrate the Truths of this Theory, and
give

give Examples promiscuously, as the Subjects shall require.

What I propose to shew in the following Treatise is, first, Why *Matter*, or *Pus laudabile*, is white, when the Blood from whence it is formed is red; or rather, why, as Authors describe it to be, it is *album, leve, et æquale*, when the Blood, from whence it is formed, is not only red, but, in Comparison with many other Fluids, very heavy.

I shall, in the second place, endeavour to shew how Digestion is perform'd naturally, from the forming of young Flesh: For where-ever there are Granules of Flesh, there must of necessity, according to my Hypothesis, be good digested Matter, in proportion as the Wound or Ulcer shall be more or less cloathed
with

with it. This is found by every knowing Practitioner to be undeniable ; but as my Intent is not to treat of Cases in Surgery merely as a Practitioner, I shall rather endeavour to shew *how* Things are so, than that they are so.

I shall, in the third place, after the Method before spoken of, shew how Suppuration is effected ; and this will be more easily explain'd, by understanding the two former Heads.

CHAP II.

Of the BLOOD.

IN order more clearly to understand these Propositions, it will be very necessary to describe the Blood in its Colour, Consistence, and the Shape of its Particles. I shall not need to consider it as containing so many Salts, and so much Sulphur and Earth; I chuse rather to leave this to the Speculation of the Chymists.

First, as to its Colour; which, whilst circulating in the Arteries, is of a bright Vermilion, and, when in the Veins it is of a much deeper or adust Red. It arises from the Globules of the Blood only; these Globules, are small Particles, which may
be

be seen by a Microscope to be connected Bodies, always preserving their Shape; which, besides many other Experiments, will prove that they are of a very glewy Nature; for if they were not so, and very different from the *Serum*, they would be blended together in their Progress, and run into Confusion; so that the small Vessels must of Necessity be crouded and stopt up with them: But, from their different Consistence from the *Serum* of the Blood, though they are so tenacious, and though they are so infinitely numerous in one Drop of Blood, yet, I say, the *Serum* is so fluid, and, consequently, so different in its Parts, that it is impossible, in a good State of Body, that the Globules should ever unite in their Circulation, but they must pass by such Entrances in their Circulation

as are not adapted to receive them, which are nevertheless contriv'd to receive the thinner Parts. Indeed the Globules of the Blood are sometimes so broken by pestilential Fevers, or depraved Appetites after a Course of Debauchery, as to be almost quite dissolved or melted into the *Serum*, so as to pass with the *Serum* into many Parts of the Body which they ought not to get through; as through the secretory Ducts of the Kidneys in making bloody Water, likewise in Sugulations on the Skin, which are sometimes so bad as to cause the Parts to mortify; as may be seen in the *Petechiæ* in the Plague, the Small-Pox, and other pestilential Diseases.

Though the Globules of the Blood,
as I before remark'd, are under a
Necessity,

Necessity, whilst circulating with their Fluid about them, to be kept uniform and asunder, yet whenever the Blood is extravasated, the contrary Effects are found; for, after bleeding into a Porringer, the Globules, being very tenacious, adhere so close to each other as they cool, and consequently take up less Space, that, by their Contraction, they squeeze out the *Serum* from amongst them, and so become two different Parts to your naked Sight. In like manner whenever the Blood is extravasated in great Quantities, lying deep amongst the Muscles, so that it cannot easily perspire, you will find the Globules connected so close together into a *Thrombus* or *Coagulum*, as to appear perfectly carnous.

From

From hence, and many other Proofs, I shall endeavour to shew in its Place, that the carnous Parts of the Body are made out of these red Globules. Again, when you see any large Quantity of Blood in a Cloth, you will find it not unlike loose Flesh, provided it has lain any time for the ferous Parts to have been dried from it.

As I have been only shewing the globulous Parts of the Blood hitherto, and having proposed likewise to speak of the Consistency of the other Part of the Blood with its different Uses, I shall now treat of the Blood as it appears in one uniform Mass, just after letting it out of the Veins, whilst it is warm, and before the grumous Parts are separated from the *Serum*: Then I consider it as

6

having

having in it the Properties of Bones, Cartilages, Horn, and Hair, the Skin, Tendons, Membranes, and the muscular Flesh; for from the Blood these are all separated; the Fat and the Bile are likewise secreted from it, as also the Sweat and Urine, with other glandulous Secretions. It is therefore the Aptness of the Strainer which creates the different Secretions of the bony and other before-mention'd Properties.

CHAP. III.

Of the SERUM of the BLOOD.

BEFORE I proceed further, I think it proper to describe the Use and Properties of the *Serum* of the Blood, having, I hope, already shewn the Nature and Texture of the Globules of it.

The *Serum* is a thinner Part of the Blood, of a yellowish Colour, and, to Appearance, of one uniform Consistence, and, generally speaking, to common Appearance, not more fluid than good small Beer; and though the Description of it here given, as to its first Appearance, may be allow'd to be just, yet as it is known to contain in it the Properties of bony
and

and membranous Parts, so has it also an aqueous Part ever flowing through it, which is received into it from all the Liquids you drink; or else how can any one account for the quick Passage of a large Draught of Water through the Skin, being drank when one is hot, or of the instantaneous Passage of the Urine at certain times, after drinking diuretic Liquors? Moreover, if this *Lympha* were not a different Liquor from the *Serum* of the Blood, the Sweat would adhere to the Shirt of him who wears it, as much as the same Quantity of the *Serum* of the Blood would cause it to adhere: From hence it appears to me, that the Use of the Fluids which we drink is to supply that River which washes off the Salts of the Blood through the Sink-Ports

D of

of the Kidneys and the Glands of the Skin, and also to be a Vehicle to carry on the Globules to their destined Uses; the bony Particles to theirs, the membranous, and those which constitute the Nails, the Hair, &c. to theirs. And if it was not supply'd from the Liquors we drink immediately, the Juices of the Body would so abound with the Salts which would be extracted out of Vegetables, as well as from the salt Flesh and Fish, and other Eatables, that it would be impossible to remain one Moment in perfect Health; it being manifest, that many Diseases do certainly proceed from a Redundancy of these Salts in the Blood.

On the whole, as I have shewn in the first place, that the Globules

of the Blood are distinct Parts, moving in a thinner *Medium*, which is call'd the *Serum*; and that though they are tenacious, they never can come together whilst floating in that thinner *Medium*, because there must of Necessity be ever Parts of it remain betwixt each Globule of the Blood.

In like manner, as the *Serum* has another Order of Bodies moving in it, which I before described the Uses of, and though the Forms of the Globules are more easily described by being perceived through a Microscope in living Subjects, and by their Colour and Cohesion, yet it is as certain that they move on in their different Orders and Arrangements, till each passes through its different Mesh adapted to receive

D 2

them;

them ; and so the bony Strainers separate bony Particles to nourish the Bones, the cartilaginous the tendinous, the membranous the muscular, and every other Part, by this means, receive from the Blood their several Allotments, by the Assistance of the Flegm or watry Part, which continually, like a fine navigable River, brings new Supplies from all Parts, and afterwards ebbs off all the Soil of a capital City.

I doubt not but what is here advanced, that every Tribe of the several Sorts of Secretions from the Blood do keep their proper Bounds ; but when they pass through diseased Parts ; and tho' this be undeniable by all who have been acquainted with the Truth of this Matter, yet I shall not wonder to find many, who will look
on

on these Speculations as the Suggestions of Fancy only ; and therefore shall endeavour to shew the Truth of it from undeniable Facts, which, till lately, could never have been so easily demonstrated. In order to which it will be necessary to describe the Formation of the Bones ; and if thereby I can shew, that the cretaceous Matter, which gives a Density to the Bones, be *sui generis*, whilst it is circulating in the Blood, then every other Secretion may be allow'd from a Parity of Reason to be so too, altho' not so clearly to be demonstrated.

The Bones of a *Fœtus*, in their first Formation, are so tender as not to be so hard as a Cartilage ; and it is plainly seen from whence their Density arises afterwards, and that is
from

from a cretaceous Matter, which is receiv'd and retain'd in the bony Membranes, till they become so solid as to be able to support the vast Weight we see Men carry. Those who are most prone to break their Bones have too much of this *Creta* in them, and thereby become so fragile, as that I have known a Lady, who broke one of the *Rotulæ*, break the other by Flexion only, on going up-stairs.

This *Creta* is separable by dissolving the Bones in *Papeius's* Digest, and then adding a large Quantity of Water to the dissolved Bone; by which means this cretaceous or chalky Matter will subside from the Glue, which was the membranous Part of the Bone in its first state. Now had this Matter been always of
one

one certain Colour, no other Idea could have been formed about it, than that some Salts, by meeting with others, had caused a neutral Matter, which is called the Chalk here spoken of; but what I am to shew will not only prove this *Creta* to be *sui generis*, even whilst it is circulating with the rest of the Blood, as really as it is shewn to be so in the Bone itself. What will demonstrate it is this:

Some time since there were produced before the *Royal Society* in *London* some Bones, not of one only but of various Hogs; which Bones were all of a Vermilion red Colour. The Occasion of their being so proceeded from their feeding on some Bran, which a Printer of Linen or Cottons had made use of to clean
his

his Cloth with ; Bran being found to be the best Material to clear them withal ; the Dye-Stuff was Madder. The Printer, not knowing the Consequence, and being willing to put the Wheat-Bran to some Use afterwards, he fed his Poultry and Hogs with it ; which so tinctur'd the cretaceous Matter of the Blood only, that both the Chickens as well as the Hogs Bones become of this Colour ; whilst every other Juice of the Body was no way affected by it : Even the Cartilages and Membranes had not the least Tincture of it.

This I think will shew the wonderful Fabric of the Blood ; that, though it contains in it the various Nutriments it affords to so many different Parts, yet they are severally to be thought of, even whilst they flow together

together in the Form of Blood : And why may not this Thought be carried further, and from hence conclude, that the Blood may in some Parts be deemed sound, and diseased in others ; or else why are some liable to Diseases on certain Parts only, and at the same time be very healthy in others ? But if we once come to indulge our Fancies in exploring the Wonders of Nature, and only contemplate even those we know to be true, as, Why a Family Disease shall lie dormant for a Number of Years, and according to Custom, at a certain Period, break out either into a scrophulous Complaint, or a Consumption, or in many other Diseases I need not enumerate ; and if we proceed further yet, and consider of the Causes of the Features, and of the Voices, and even the same

E Appetites

Appetites proceeding from this circulating Juice which their Parents had, how ought every presumptuous Reasoner to be fill'd with Astonishment? Yet altho' this be difficult to account for, it is known to be all true; and therefore, what Truth soever we can trace out from Reason I hope it will not be thought unworthy our inquiring after. Now if I have shewn that various Properties are supposed to be in a separate State, whilst circulating in the Mass of Blood, then it will not be hard to support the Probability of the great Quantities of Liquors all Creatures take in by drinking, to be ever flowing thro' the Whole, before it be secreted by Urine, or any other Way. This will account why Wine, or any other spirituous Liquor, which is received into the Blood, hurries itself
on

on, till Time gets rid of it : And it may further serve to shew Causes for many other *Phænomena* in Nature, not yet accounted for.

Having now, in as plain a Manner as I could, shewn the Nature and State of the Blood, without describing it by a chymical Process, which if I could perform, no one could ever be enabled to learn from thence what I am fully persuaded I shall be able to demonstrate, and that is, *first*,

CHAP. III.

Why Pus laudabile is Album, Leve, et Æquale; and also what Granulation and the Generation of young Flesh proceeds from; with the Causes of Cicatrizing or Healing.

IT may be said, the Word *leve* should rather be spelt with an (*æ*) than with an (*e*); and if it was so it would rather signify *smooth* than *light*: To which I answer, That no Fluid is boyant in Water but what has more Corpuscles of Air contain'd in it than Water has; and though Matter sinks in Water, yet it is very light when compared with the same Quantity of Blood from whence it is formed; which will answer to my Proof of what I propose to shew from it.

For

For the better informing the Reader, and preparing his Mind to understand this novel Doctrine, I will suppose the *Pus laudabile* proceeds from the whole Mass of the Blood, so as to become a Despumation or Cream; tho' it cannot be said to be formed as Cream ordinarily arises from Milk; for that proceeds from no other Cause but from its being the most oily, and, consequently, the lightest Part of the Milk; and therefore in Time it emerges from the more aqueous Part, and thence becomes uppermost; but the *Pus laudabile*, although it may in Appearance be said to represent the former, the Despumation of it is occasioned from a quite different Motive. As therefore the clearing up of this Operation in Nature, and as it is quite

quite a new Notion started, and here offer'd to the Reader for his Approbation or Refusal, as likewise much is pretended to be offer'd in it towards enabling the Reader better to attain to the Art of Healing, he is desired to read this Hypothesis with great Diffidence, and endeavour to answer it, if he can, in his own Mind, as he reads it, rather than be too easily prevail'd on by any false Shew, though ever so well garnish'd ; and if I do not make what I pretend to demonstrate appear as plain to the meanest Capacity as to the most distinguishing Mind, I think it not worth the Attempt.

In order therefore to make this Matter plain, I now suppose a Limb just taken off, with the Arteries tied up, and the Stump dressed with Lint
and

and reſtringent Powders, in order to choak up the remaining Blood-veſſels; which, though too ſmall to be ſecured as the former, yet would otherwiſe have bled ſo much as to have indanger'd the Life of the Patient. What naturally follows is, that every Pore of the reſcinded Parts muſt of conſequence, and always does, diſcharge ſuch Liquors or Secretions as were wont to nourish the ſeveral Parts they flow'd from. For Inſtance; The Bone diſcharg'd a bony Fluid; the Skin and Membranes theirs; whilſt every wounded Fibre does the ſame. The firſt Alteration to be obſerved in this is, its Gleet begins to be interſperſed with ſome Bubbles of Air; and this never happens till you begin to find a Turgeſcence in the Extremities of the Blood-veſſels, occaſion'd from the
Globules

Globules of the Blood, which are carried on to their Extremities; and there, not meeting with inosculating Vessels to carry them further, they of Necessity adhere one to the other, and thereby become Flesh.

And that this may be the true Cause of Granulation need be no Wonder, if you inspect a *Coagulum* of Blood, which has been dried in a Cloth for any considerable Time; for I'll undertake to shew it may become stronger in its Consistence from thence than common muscular Flesh is sometimes found to be.

Now, as it is generally found to be true, that where-ever you have good digested Matter you must have Granulation of young Flesh first produced, it thence must necessarily follow,

follow, that the Bubbles of Air before spoken of must arise from those Discharges which forced their Way through this Granulation here described ; and that the rest of the Extremities, which were not begun to be incarnated, must continue to gleet on from the same Cause which at first they did gleet from, which is, because as yet their Extremities had not received that Turgescence which the former had obtained : But, as they became incarnated, the same Secretions, which before were wont to flow without Interruption, met with a perfect Sponge at the End of each minute Fibre, to break its Way through.

Now, as I before hinted at, what is by every one allowed, who know any thing of the Matter, that all

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Fluids

Fluids are more or less so, as more or less Air is contained in them ; then it must follow, that, if there be ever so little Air in the Blood, it must be so dispersed, that no Particle can be without some of it. If this be allowed me, when the Globules are so detained at the Extremity of each Fibre, they hinder the *Serum* from being discharged so easily as it used to flow through them before these Obstructions were formed. It naturally follows, therefore, that the Air contained in the *Serum*, must, on its passing with Pressure through these Sponges, cause a Despumation as certainly as Soap-Suds, made of the same Consistency, of the *Serum* of the Blood, would be made to despumate, if that were forced through an artificial Tube made with a wet Sponge at its Extremity.

Now,

Now, if the Two Liquors here spoken of, *viz.* the *Serum* of Blood, and a Solution of Soap in Water, have a great Resemblance to each other, what may be deduced from their Properties; for each shews they can despumate alike? and they each have a Tenacity to support such Bladders of Air for a time, as may make this Despumatation remain visible; they have also a Slipperiness, which may make their Parts give Way, when the Air, which is contained in them, obliges them so to do, when they pass through these little Sponges of Flesh before described.

If you whip up either of them, with a Whisk, to a thick Cream, in either Case they will produce the Ap-
F 2 pearance

pearance of *Pus laudabile* more than any thing I can think of.

Moreover, as Dyers prefer the Slipperiness and scouring Quality, of the Bile before the Power of Soap, and as the Blood is produced from the Assistance of the Bile in its first Formation, and it is found, that the *Serum* of the Blood lathers as much as Soap, it seems to me to be a Proof of what I would here establish ; viz. that it can want the Proof of Agitation only to produce this Effect. Now how can this Proof be wanted in the Process here supposed ? Can the *Serum* of the Blood pass thro' these Sponges, without causing the Air contained in each Particle to break it into infinite Parts, as effectually as a Whisk could whip it into a Cream ? For, if any of it can be supposed to despumate

at

at all, then that which caused any, must cause every Particle to be in the same State with the former.

If you consider the Cause of Matter, from any other Process, arising from the old Notion of well-concocted or digested Matter; as these Terms are borrowed from Chemistry, so, till some Process have been shewn in that Art, which will produce as nigh a Resemblance to Matter as what I am describing, let who may be wedded to old Conceits, I shall believe my Notion the most probable that can be given from Nature and Reason; for what is Reason, but the most probable Conjecture offered to prove a Thing by, against nothing to contradict it, but certain Words gingling in our Heads?

If

If any Man will shew me, That any Part of the Blood put into a Sand-Heat, and digested there, ever produced any thing like digested Matter; or if they can shew, that decocting it ever so long produced any thing like concocted Matter; then I will suspend my Belief, and say, that what I offer for Fact may not be so: But, on the contrary, if mine be the best Conjecture, it is the best Reason hitherto offered, to shew what *Pus laudabile* is produced from.

Thus I have endeavoured to shew the mechanical Cause of it; but, as it is difficult to fix new Notions in the Heads of those who profess old ones, I choose to proceed further to try this Matter by Proofs from Practice. If therefore you destroy the

I Incarnation

Incarnation or Granulation of a Sore, till you leave the Extremities of the Fibres quite bare, your Matter ceases, and a Gleet enfues; for then the Sponges or Globules of the Blood, which caused the Despumation, or *Pus laudabile*, being destroyed, their Juices flow through each Fibre again unagitated; and so it comes away in the same State as it was wont to do when it nourished the Part it was intended to nourish. As a farther Proof of this, let any one endeavour to reduce a *Fungus* by the Vitriol Stone, and he may find the Difference betwixt doing it by Vitriol, and the red Precipitate; for, the Vitriol being a Salt, it melts into Interstices of these Sponges or *Granulæ*, and so lets loose the Gleet much freer than the Precipitate, which, on the contrary, always thickens the Matter; because, though

though it serves, as the Vitriol does, to reduce a *Fungus*, yet it melts not down into it as the former, but only crops the Tops of them, and thereby connects them closer, and causes the Matter to pass the more difficultly through them. As a farther Proof, I will now consider from what Cause large ungovernable *Funguses*, interspersed with scirrhus and osseous Substances, do frequently arise; so that, when their Causes are accounted for, their Cure may be the easier made manifest.

In order to clear this Matter, I must suppose, that some *Granulæ* of Flesh always must precede others; because the most flaccid Parts, which are endued with the greater Quantities of Blood-vessels, will thrust forward these Globules, before the
Bones

Bones, from their Density, can admit theirs to come on ; this being supposed, the first will naturally, from their Tenacity, adhere together, before the bony, membraneous, and tendinous Globules can appear. Thence it must necessarily follow, that the Gleet, from these denser Parts, must, by striving to get through the first united Globules, not only lift them up into a *Fungus*, but also cause it to partake of their bony or membraneous Qualities. And tho' in this Case the young Surgeon must destroy in some measure the most forward Granulation, to wait for the latter's coming up, and incorporating with the former, yet Experience will shew him, that, if he totally destroys the first Granulation, and thereby leaves the Fibres quite bare, such a Gleet will ensue,

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sue, that may cause him to wait a much longer time for Incarnation than at first he did; because the Fibres having been for some time by the former Granulation so dilated and thickened by the Impulse of the Blood pressing against their Extremities, the Globules are not so apt to be retained at their Extremities as formerly, when no unnatural Dilatation had happened to them.

Thus I hope I have made it plain to the Reader, that *Pus laudabile* is, from a natural Cause, produced from the Blood in general, and, from the same Cause, is become a Despumation.

Having likewise gone so far, as to shew what Incarnation is produced from, so as I formerly hinted, when the two first Propositions were cleared

cleared up, Cicatrization would the more easily be understood.

I come now to shew how Cicatrization is performed by the same rational Cause as Incarnation is produced; for, if the Globules in the latter naturally must, from their Tenacity, adhere to each other, the glewy, bony, and horny Parts of the Blood, where at last they find it more difficult to pass through the Globules, which are now by degrees compacted closer together, the horny Matter connects together, and thence superinduces a Cicatrice; and so the Aphorism of *Hippocrates* is verified:

Quod siccum est proximum sano.

Having, I hope, clearly shewn the Nature of *Pus laudabile*, of Incarnation,

tion, and Healing, I come now to shew, that the same Mode which Nature takes to produce Matter and Flesh from the Stump of a Limb when taken off, will produce it on all other Occasions where Matter may be found; for, if any of the natural Juices of the Body mix with others, they were not intended by Nature to be incorporated with, they become a violent Enemy to the Body, instead of giving it Comfort. For Instance, if either Urine or Bile, by Accident, mix with any other Juices, they produce what I before described; or if any Glands are overcharged by catching Cold, as those of the Nose, the Lungs, the Kidneys, &c. if they, or such of them as Nature intended to have relieved the whole Body by, if they had done their Office, by secreting a large Quantity of *Mucus* from

from those of the Nostrils, or by coughing it up from those of the Lungs, or by a Sediment found in the Urine from those of the Kidneys, if these, severally or together, discharge their proper Secretions outwards, they generally discharge such Evils as the Air had, by the Patient's catching Cold, impregnated these Glands withal: But these Glands being now overcharged, so that their Ducts become obstructed and strangled; by this means their Contents are returned into the Blood, and so produces that Size or Glue, which, after catching Cold, you find on Blood let out in a Vessel: From hence naturally arise Obstructions of the Capillary Vessels of the Body, as also Inflammations, and sometimes Impostumations; for, whenever this glewy Matter fixes on any Part, one of these Things must follow;

follow ; either, by bleeding the Patient, you take off the Force of the Blood, by making room in the Vessels which were too crouded, and thereby permit Nature to absorb ; or by discutient Means, and a warm Bed ; you get rid of it, or else a Tension and Inflammation on the Part increaseth, till the Vessels being no longer able to endure their Stretch, they give way ; and so, their fiery Juices being extravasated, it now becomes the Surgeon's Care to judge cautiously, whether it may be for the Safety of the Patient rather to discuss, or attempt to suppurate, the Part affected. If a Fever attends such an Inflammation, it is always safest to endeavour to bring on a Suppuration, because the Fever shews, that some of the morbid Matter is yet circulating in the Blood ; but if no Fever remains,

remains, then general Evacuations, and a discutient Cataplasm or Fomentation, with an Ointment, may be applied ; and therefore, though I avoid as much as possible to give Forms of Receipts for any thing, chusing rather to give general Reasons, than enter into the minute Circumstances of Practice, yet, as I have seen in an Author, a Pultice made of Whitebread and Milk recommended, and said to be as good a suppurative one as any, I think proper to give my Thoughts on the Nature of a suppurative Cataplasm, and wherein it should differ from one that is discutient.

The first Cause of Suppuration is already shewn, by supposing the Part affected to be distended beyond its Tone, and, when the Vessels are
burst,

burst, the Juices being extravasated, it remains in the Part as yet not formed into Matter, but in a State either fit to be discuffed, or to come to Suppuration, as the Matter shall be found, and the Part more or less heated by it, or the Skin be more or less inclined to perspire any thing through it ; for it is incredible what Quantity of Blood or proper Fluids will perspire through the Skin sometimes : But I apprehend the Cause why Matter is more liable to remain where it is collected, than Blood, or any such Fluid, as I have here supposed to be extravasated before Despumation follows, is, because, as Matter is a Despumation, every Particle must be a Bubble of Air, and so cannot perspire as it would do, were it in the State of a common Fluid. What I have been here explaining, may shew why

at one time Suppuration is more liable to come on than at another, let the Surgeon apply what he will; and in either Case then a Pultice of white Bread and Milk may be commended.

But if you act with Skill and Judgment, a suppurative Cataplasim should be made of such Materials, as not only may a little warm and invite to the Part, but also have a Mucousness in them which may choak up and clog the Pores of the Skin, to retain the Matter there till Despumation follows from the ruptured Fibres in the same manner as is before described in a Stump where the Limb has been taken off. The Materials should be such as these; Figs, Onions, Marshmallows, and white Lily-roots;

H

or

or you may, for want of these, add some Gums to your Pultice.

A discutient Cataplasme should differ from the former in the Materials of which it is to be made, as that they should have the same Warmth as the former, but be less glutinous; they should rather relax the Skin, and by their brisk *Effluvia* attenuate the Juices, that they may more easily perspire, and so leave the Parts to recover their natural Tone.

These Ingredients may be such as Cumin, Fenugreek, and Linseeds, with others of that sort; the Flowers may be Camomile, Elder, Melilot, &c. These being decocted in Water, and the Decoction boiled up to the Consistence of a Cataplasme, with the Fæces bruised, and some
Ointment

Ointment made with Butter, and either grated Bread or ground Oatmeal, *secundum artem*, it may become a discutient Cataplasm. Surely these will bid fairer than a white Bread and Milk Pultice will do, either to cure the Patient, or shew the Skill of the Surgeon.

Having made a Digression to shew the Nature of a suppurative and a discutient Cataplasm, I will proceed to shew what I promised, *viz.* that all Matter, wherever it be found to be *album, leve, & equale*, must proceed from the same Laws: And tho' in an Imposthume it is concealed till the Integuments are laid open, yet, from what I have suggested, when it is laid open, the Sore is to be look'd on and treated in all respects as the

Sore of the Stump heretofore described.

If therefore you carry your Thoughts further, and consider how the smallest Gland or Tubercule of the Skin comes to imposthume, the preceding Description will account for the Cause of all alike; it must be owned nevertheless, that, upon reasoning on these Points, there may be somewhat thought on for the first Cause of these Obstructions; which may be from the Redundancy of the Salts of the Blood; which not being discharged by the Emunctories or Kidnies at certain Seasons, they thereby accumulate to such a Degree, as to become the first Cause of great Obstructions; and when once an Obstruction is formed, every
Evil

Evil that can be thought on may follow from it.

This Consideration gives me an Opportunity to advise the young Surgeon when he is sent for to a Patient ever to keep in his Thoughts that he is call'd in only to help Nature; and therefore he should ask this Question, What Obstruction or Strangulation is the Cause of the Disease I am sent for to cure ?'

If a Sore has too small an Exit for the Matter to get off, as in *Fistula's* or the like, divide it so that when it becomes an open Sore, and the Matter issues not from a long Entry, it will the more easily heal, as it is generally found to do from Practice.

Again, if Glands are obstructed, divide them where you safely may,
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if they will not easily suppurate, which will take off this Obstruction: And as you may from these two Cases, find what taking of Strictures may do towards the easing your Patient, so if you keep this Doctrine in your Mind in almost all Cases, and only ask yourself, How and where can this Case be produced by an Obstruction? you will plainly perceive it will open to your Understanding much Reasoning about it, which you at the first View might not think on: For every Tubercule will in its proper Place be shewn to be an obstructed Gland, only overcharged perhaps with that which in a due Proportion would have been of great Advantage to it, and the Parts about it.

Thus far I have dealt in Generals almost, and endeavour'd to do what
before

before I never have seen attempted to be done, which is to treat only of such Things, as may from Reason settle such Rules for the Practice of Surgery, as may enable the Surgeon to know, without relying on an Author, when he acts on a rational Foundation.

I proceed now to treat of the *Cuticula*, the *Cutis*, the Glands of the *Cutis*, and of such Diseases as they are liable to, either from the Redundancies of Nature, or from their being wounded or affected from outward Accidents.

CHAP. III.

Of the CUTICULA.

I SHALL describe first the *Cuticula* or *Epidermis*; not as an Anatomist would describe it, but only to shew its Use, and the Diseases it is liable to.

The *Cuticula* is the outermost Covering of the Body, composed of a horny or scaly Matter, which has no Blood-Vessels belonging to it, as all other Parts of the Body have, but is only some glewy Part of the Blood left on the Skin, from its Tenacity, after the Sweat or thinner Parts of Transpiration passes off; each Scale having been secreted by the Glands of the Skin, which are situated there for that Purpose, and
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are so infinite in their Number, as that to each Scale one of them serves for a Pedicle. Although in some Parts the *Cuticula* does not appear scaly, but as a thick Leather, particularly at the Bottom of the Feet, and on the Palms of the Hands of labouring Men; and also wherever the Part is constantly pressed and worn; for by this means the great and benevolent AUTHOR of Nature hath wisely provided that the industrious Man shall not be prevented in his Industry by any Fault to be charged on Him.

Those Glands of the Skin which are the most constantly pressed, from that Pressure sending out the greatest Quantity of this Glue, which the Blood of all Animals very much abounds with, all Glue being made

I out

out of it ; as I have shewn this Glue flows most by Pressure, the Hands and Feet have therefore such a Quantity, that they look like Leather, from the Number of these Scales increasng and adhering to one another ; and yet you will find them to wash off in different Flakes or Scales, when you wash the Feet after soaking them in warm Water for any moderate Time. This Glue is that likewise which at length hardens into a Scar or Cicatrice, on the healing up of every Sore, as I before hinted.

SECT. II.

Of the Cause and Cure of CORNS.

THIS Glue before described is likewise the Cause of Corns ; for if what I before hinted be true, that when the cutaneous Glands send out most of this where the Glands are continued to be pressed, then it necessarily follows, that if any Point of the Toe, or any other Part continues to be pressed, the horny Matter increases at that Point till the Pressure ceases. This is the Cause of a Corn ; to cure which, what is grown dry and hard must be pared off, and the Patient must wear an adhesive Plaister, which may keep the Part moist, and so prevent its hardening into a *Clavus*. By this means the Cure will be performed.

S E C T. III.

Of the Cause and Cure of WARTS.

THE Cause of Warts is quite different from that which produces Corns; but as Warts arise from the Glands of the *Cutis*, and not originally from the *Cuticula*, as I have shewn the Corns do, perhaps it may be thought I had better not to have treated of them, till I come to demonstrate the Nature of the Skin and its Glands; but I hope I may be excused for doing it before, since a Wart has the same Appearance to outward View as a Corn has, and is produced by the same Matter; nevertheless when I have done this I shall beg Leave to resume my Subject of considering the Causes of some other Diseases of the *Cuticula*, before

I return to those of the *Cutis*, because whatever appears belonging to the *Cuticula* may plead my Excuse for it, though its Origin be from the *Cutis*. And here it may not be improper to describe the Formation of the *Cutis* and *Membrana adiposa*.

C H A P. VII.

S E C T. I.

Of the CUTIS.

THE *Cutis* is the next Covering of the Body under the *Cuticula*; it has a great Strength of Texture in it, and in which all the *Papillæ* of the Nerves terminate; by which you may as well receive the Pleasure from the Touch of an agreeable Thing, as you may receive and judge of the Pain caused by touching disagreeable ones. And as these Nerves are infinitely dispersed; so let this be ever remember'd, that there is no Nerve where there is not an Artery; and wherever there is an Artery there must be a Vein to join every the most minute Twig of the Artery to receive its Blood, after it has given and left Nourishment

Nourishment to such Parts as were in want of it.

Now if there was not at the Extremity of every Artery a Vein to carry back its Blood, that Artery being stopped at its Extremity, the *Impetus* from the Heart would cause the Blood to stagnate there, for it could not return by the Artery it came in; and also their Extremities would become globular thereby; but the Veins do not only inosculate with them, but that Union every-where produces a secretory Duct also, where they unite for the Discharge of Sweat, to moisten and clean and keep open the Pores of the Skin. Moreover where these are thus united there must also be a Gland to separate this Sweat, or other cuticular Secretion it is intended to secern from the Blood.

S E C T. II.

*The Cause and Cure of WARTS
continued.*

THE Cause of Warts arises from the Efflorescence or Prevalency of the Artery over the Vein in one of these Glands of the Skin; for thereby the Materiality of the Blood, which forms the *Cuticula*, when discharged from these Glands on the Skin, being stopped in the *Capsula* of the Gland after it was secreted, it becomes horny, and is what we call a Wart. The Cure of it is performed by some Salt of *Sal Armoniac*, or Spirit of Vitriol, or what else may fate and fill up the *Capsula* of the Gland, till it can receive no more Nourishment from the Artery; and by this means for want of more Nourishment, it dries and crumbles away.

S E C T.

SECT. II.

Of the TINEA or Scald-Head.

MY chief Aim in this Performance being to treat only of such Diseases as I hope I shall describe from Nature and Reason, I should not in Strictness, no more than in the preceding Chapter, have described this Distemper whilst I am shewing the Diseases of the *Cuticula*, but have consider'd it as proceeding from the Imperfection of the Glands which separate the Matter, that, as it transpires beyond the Surface of the Skin, hardens into Hair: But as Hair is an outward Covering of the Body, as well as the *Cuticula*, I beg to be indulged in this as in the former Case.

As I have hinted therefore, that there is a Gland to every Hair,
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which separates the Liquor, of which Hair is caused, so when this Gland is overcharged with this Liquor, either by Nastiness and Obstruction from without, or from an undue Separation of this capillary Matter, it becomes rancid; and from thence Ulcerations are caused, and a stinking *Ichor* issues from the Roots of the Hair. To cure which, let loose as much as you can this diseased *Ichor*, which is the Cause of the Malady, by a digestive Cerate, which will soften and discharge all dried Scabs and Incrustations: And if this don't do, rather than fail, pluck out some of the Hairs, which will easily come away, when the Roots of them have been any time softened from the Distemper. And to save Trouble in this Operation, a Plaister spread with Pitch, by its Adhesion

hesion to them, will bring them away by the Roots; after which a digestive Cerate, apply'd properly, will cure the Patient, and frequently without any internal Medicine: For this being a local Disease, it were better for the Patient's Health that it be cured by Topics than by Internals.

And this ought to be the Practice always in all Cases which are local; for if you can discharge outwardly that which affects any external Part, the Patient is more safely cured than by Purging, or other Evacuations; by which you first retract your Enemy into the Blood, and then you are to get rid of it afterwards, if you can.

From hence it may be very proper for every Practitioner to think of the mechanical Cause of all Dis-

eases first; for every one has such a Cause, whether the Practitioner hath Sagacity enough to discover it or not. And thus, when you are acquainted with the Cause, you may the better know your Intention in the Cure, without doing more Mischief to the Patient in attempting a Cure unskilfully, than perhaps you could have done Good by his Cure, had you effected it injudiciously.

SECT. III.

*Of the MORBUS PEDICULOSUS,
or the Lousy Disease.*

AS my Intention is, in every Description I shall give of a Disease, to make it as plain and brief as I can, I shall in this loathsome one consider it in its worst State only; for whoever can cure the worst and
highest

highest Symptoms of any Disease, cannot fail of Success in the lowest.

This Disease is a Loufiness in every Pore of the Body. There are three or four Sorts of Lice which the Body is liable to; but the smallest Sort, which are called *Pedicelli*, are the most difficult to cure: I have seen them as small as Hair-Powder, and they increase to so great a Degree, and always nestle themselves under the Scales of the *Cuticula*, that they are from thence very difficultly destroy'd. They are produced, as all other Insects are, from a Male and a Female, and their Increase in Number is monstrous.

They, as all other Insects do, seek for and find the properest *Nidus* where to produce and nourish their Species ;

Species; and that is where the Blood abounds not with Salts in it strong enough to destroy them; for they, as Worms in Childrens Bowels, are preserved by weak Juices. This proves, that the common Saying, of giving the Child a little Wine to kill the Worms, is not often an improper one; for it is certain, that the same Children, who were both liable to breed Worms or Lice, ceased to be troubled with either, when they became Adults, and their Juices were more confirm'd.

Again, it is a just Observation, that old People, for want of a firm Constitution, when their Juices become so weak as not to be able to encounter with these Animals, are often eat up with them in spite of Art.

The Cure of them must proceed from one or both of these Methods. The first is, to destroy them, and then endeavour to strengthen the Patient by good Nourishment, and by giving such Medicines as may brace up the Juices; and they are such as are frequently made use of in curing an Ague.

The Medicines that will kill them are to be applied either in the Form of an Ointment, or much rather in the Form of a Tincture drawn in rectify'd Spirit of Wine; for the Spirit alone (but more especially, if mixed with some Spirit of Turpentine) will insinuate itself further under the Scales of the *Cuticula* than any other Thing, and thereby destroy them. But the *Indian* Coal, the Stave-
acre,

acre, and many other Things which are known to kill Vermin, being made a Tincture of in the Spirit, cannot but help forward in performing the Cure: And some of these constantly applied, will effect it.

S E C T. IV.

Of the PRURITUS or Itch.

THE Itch is a watry Pustule, occasioned by an Insect nestling under the *Cuticula*. Those who pretend to have seen it by a Microscope, resemble it to the Weavel bred in stale Oatmeal; and from thence attribute the Frequency of this Distemper to a certain People, on account of their living more on Oatmeal than others do.

This Insect gets into the Skin, where it is most soft and tender; and
therefore

therefore most frequently betwixt the Fingers, at the bending of the Wrist, the bending of the Arms, or the clinching of the Ham, or where-ever the Cuticle is most unctuous; for in these Parts it gets a Lodgment most easily, till by degrees it finds a Passage under the Cuticle, and there causes that violent Itching which occasions the Patient by scratching to tear off the Top of the Pustule; from thence commences a Scab, with Ulcerations, &c.

Internals have nothing to do in the Cure; but as it is local, those Medicines which will kill the Vermin in the preceding Disease, are proper in this; to wit, Mercury, Sulphur, Spices, *Cocculus Indicus*, &c. mixed in some Ointment: And some of

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these constantly applied will perform the Cure.

S E C T. V.

Of the Leprosy called ELEPHANTIASIS.

THE next Disease which I shall treat of relating to the *Cuticula*, and a very formidable one, is the Leprosy called *Elephantiasis*. This being the highest Degree of the Leprosy, I shall treat only of it, and of the lowest, omitting the intermediate Species, for the Reason given in the former Chapter; being satisfied, that if I can cure the greatest Symptom, the lesser will by the same means be subdued.

Moreover as Brevity, with Clearness of Reasoning, is my Aim, I shall think I have done enough, if I have from some Degree of it given a *Rationale*

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nale for what is to be done ; though others may have shewn a larger Number of Examples, without any Reason given for their Practice.

Were I fond of being thought a great Reader, I have here a large Field for describing from Authors the Difference betwixt that call'd the Leprosy of the *Arabians*, and that of the *Greeks*; and I could quote the Names of many, who have, I think, wrote very ignorantly about them ; for I see very plainly, that very few who have written large Tracts, have been acquainted with all they treat of.

I shall describe the *Elephantiasis* therefore as taking its Name from the Likeness it has to the Skin of an Elephant, without telling you who

first said so; and that it differs only from the milder Sorts of Leprosies in appearing something rougher than they do, as not having so much of the Matter accumulated as to cause the same Deformity.

The Cause of this curable Disease proceeds from a Redundancy of the glewy Matter, which, as I before described, forms the *Cuticula*, and which, when pushed too violently on the Glands of the *Cutis*, stagnates in them.

This, as one Cause, seems to me to proceed from too glutinous a Nourishment; for none are so liable to be afflicted with this Distemper as those who live much on Fish. And what countenances me in this Conjecture is, that Fish-Glue or Isinglass
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is the strongest and most pellucid of all others. Now suppose my Conjecture to be right, and that from an overloaded or distended Gland this false Secretion is begun, then of course there is an incipient or local Disease of the Leprosy-Train, of which the Tetter may be reckoned as one of the first or milder Class: And it arises frequently from a Check given to Perspiration, only when the Patient was very hot, and his Blood in quick Motion. At such a time a Check has been given by drinking a large Draught of cold Water or Limonade, or sitting in too cold a Situation.

We find nothing so abhorred by Nature as the Return or Compulsion of any Juices of the Body back again after she has rejected them as unfit for her Service. From hence the
violent

violent Fevers of all Kinds have taken their Origin ; and my Lord *Bacon* has said, that the highest Poison which can be thought of arises from the Juices of Man's Body ; and as a Proof of it, he instances the Plague. But to return : I now suppose, from this or any other Cause, a diseased Gland of the Skin spuing out an inordinate Quantity of that Matter which causes the *Cuticula*. When once this is the Case, instead of its lying equal with the rest of the orderly Scales of the *Cuticula*, it begins to discharge more of it there than it ought ; and so it dries and looks whiter ; and, for want of Moisture, which the rest of the *Cuticula* enjoys, from its close Connection to the *Cutis*, where the constant *Effluvia* of the Body keep it in due Temper, these Scales begin to cast off. This State is what I call one
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of the mildest Species of the Leprosy ; but after these Scales have taken deeper Footing, and, like the *Clavus* of a Corn, enter into the Gland which first formed it, by them drying on the Top or Surface ; and so the Glands pushing to discharge their Contents, till their Ducts are distended beyond their natural Diameters ; it is no Wonder that they discharge from them at length even bony or other Secretions, which at first they were not intended to separate.

I have before shewn, that the Blood has all the nutritive Properties of the Body in it, and whatever is to answer its proper Use is separated by a peculiar Strainer : But as all Parts of the Body, when they become diseased, will separate quite different Juices from those which they in a sound State

State were wont to do ; from hence proceed the many Parts ossify'd, which occasion a Wonder to young Practitioners at first ; but to old ones a *Lusus Naturæ* only teaches him to wonder how Nature can go on so long without producing more than it commonly does.

Having thus far reason'd upon, and I think shewn, the natural Cause of this Disease, the natural Cure must be to obliterate and wear out the first Footsteps of the Complaint, as is usual in the Cure of a Corn ; that thereby having discharged the outward Part of the Incrustation, by dissolving it, by wearing a soft Cerate and then scraping it, which you may do like soft Cheese, you go on in the same manner, till at length you recover the Tone of the Glands which first caused it by an undue Secretion.

This Method I have often practised with Success, without giving any Internals. These are Cases not much observ'd in private Practice, but, from the Difficulty of their Cure, frequently met with in Hospitals.

Now altho' I promised not to be prolix nor too particular, either in my Description of Diseases or Medicines; yet for once I will give an Instance of what I am saying from a very extraordinary Case, which fell under my Care in *St. Bartholomew's Hospital*.

And this was in a Youth of about sixteen Years of Age, who was more afflicted with the *Elephantiasis* on the Soals of both his Feet, and on his Legs, than ever I saw before; the

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Scales

Scales being thicker than a Half-Crown, and so hard and horny, that a Knife would hardly touch them; his Countenance very pale, and his Constitution seem'd to me to be much impair'd, as I judg'd, from the Matter which caused this Disease being confin'd, and from thence driven back into his Blood; and as it is my constant Practice to think of discharging where I can every thing that Nature deposits on the Surface of the Body, rather than by Purging be liable to lick it into the Blood, I order'd him to keep in Bed, and apply'd a mucilaginous Cataplasm very thick spread over both Legs. After it had been renew'd daily for six or seven Days, I could, with my *Spatula*, scrape off the Incrustation down to the Glands of the *Cutis*, with

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as much Ease as I could have done if it had been Cream-Cheese. I still continued my Cataplasme, by which I cicatrized many of the worst of them firmly, and beneath the Surface of the Skin, and left each *Cicatrix* as soft as any Part of his Skin which never was diseased; during which I never gave him a Grain of any sort of internal Medicine. He visibly mended, not only in his Countenance, but he grew perfectly well in all respects, except in some Parts in which the *Crustæ* were not yet quite obliterated; and having continued the Poultice for a considerable time, thinking his Confinement would grow irksome to him, I alter'd his Dressing for one I have often found effectual in the Cure of lesser Degrees of a Leprosy; and that was, by applying a digestive Cerate in lieu of the Poultice.

Now that the Reader may understand what I mean by a digestive Cerate, I don't mean such a one as the *Ceratum de Lapide Calaminari*, nor one made of Wax and Oil; both which being become such Favourites of late to many who know no better than to think that they are as good as any, I will describe the digestive one. I confess with them, that in their proper Places they are both very useful ones; the former as a Cicatrizer of some Ulcers at certain Seasons, the latter on the tender Skins of many, after a Blister, or the like, where a Plaister is likely to excoriate.

The Difference wherein a digestive Cerate varies from the former is in some degree from an Adhesion in the digestive one more than in them.

That which I chose to use in the finishing this Cure, which I perfectly did in a very small time, I made of the *Emp. Demin. cum Sapone lb. j. Terebinth. Venet. unc. jv. ; m. lento Igne, f. Ceratum.* Which Cerate I daily applied, spread on Linen, till the *Pedunculi* of the Incrustations were quite obliterated.

Now the Preference of the digestive Cerate before the two former in such a Case as is here described, consists in its Tenacity over the other two ; for, if the Part had been dress'd with those made of the *Lapis Calaminaris* or the Wax, they would not have insinuated themselves into the *Moleculæ* of the Skin as the digestive Cerate will, which I know by long Experience ; and moreover they want the balsamic Part of the Turpentine to
invite

invite Nature to fill up such Cracks as I know the other will perform.

I have been the more particular in this Case, because, as I said before, if the Cause and Cure of any great Disease be understood, the lesser of the same Family will thence be more easily effected. I proceed therefore to shew the Cause and Cure of a Tetter or Ring-Worm, as it is one of the lowest Class of this Disease, that thereby intermediate Cases may more easily be cured.

S E C T. VI.

Of the Tetter or Ring-Worm.

THIS shews itself in a white Scurf on the Skin, which, as it spreads the Scurf, grows thinner in the Middle, and thickens on the Edges : It disperses itself on the Skin circularly, but not in a regular Form. It has the whimsical Name of a Ring-Worm given to it.

It may be cured three different Ways : The first is by Bleeding and Purging, and thereby withdrawing the Nourishment of the Body, that so it may die away. The second, as it is local, is by applying some vitriolic Water, to dry the Surface, and constringe the diseased Glands, which
separated

separated this Salt, and thereby to dry it away. The third, and what I in all similar Cases much recommend, is, to discharge this local peccant Matter, by giving a Loose to it by the Application of a digestive Cerate, till the Glands come to their natural Tone again; and in both Cases a little mercurial Ointment first apply'd may be of Service, as being a great Deobstruent, and very penetrating into the Blood in general.

S E C T. VII.

Of the Herpes Exedens.

I HAVE chosen to consider next the Nature and Cure of the Ulcer called the *Herpes exedens*, because of its Resemblance to the former Disease

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ease in its Progress: For tho' this differs from the Ring-Worm in its being a superficial Ulcer, which the other is not, yet as they both make a Progress alike in travelling over the Surface of the Skin, I therefore have chosen to speak of it in this Place.

This *Herpes* first appears in a Pustule without much Pain, nor is there commonly a Slough found in it; and yet it never fails giving the Surgeon a greater Opportunity of exerting his utmost Skill in the Cure of it than most Ulcers do; because, after the Pustule breaks, it leaves the Edges of the Ulcer undermined by an *Ichor*, which continues to dissolve the *Substratum* of the Skin under the Lips, without Inflammation on the neighbouring Parts, travelling up and down where this *Ichor* most affects the Parts,

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till it becomes a most formidable Complaint; unless the Surgeon knows how to prevent its Incroachments.

As it must be considered as a local Disease, before he can cure it, whatever was its first Cause, no common Dressings can do any thing with it, because the Texture and Consistence of Lint, Ointment, and Plaister, with which common Sores are generally cured, will serve to keep in the *Ichor*, which is the Cause of the Erosion under the Lips of it, which I have observed; whilst it has healed in the middle in the Form of an Island, by the Help of some Mercurials added to the Medicine, with which the whole Sore was dressed.

The *Ichor* being the Cause of this Complaint, Internals will do little to remove it; but if a mucilaginous
Cataplasm

Cataplasm be applied next the Sore, thereby giving Leave for the *Ichor* to come away as it is formed, it loses its Force, as the Cataplasm is blended and infinuated into it. From hence I have known it to stop its Progress, and effect a Cure.

But if this fails (as frequently it will) some caustic Medicine should be applied, beginning with one Lip first, and as that succeeds, with the rest. Your Intention in this Practice is, by forming a Slough or Eschar, to get beyond, and thereby destroy, the Secretions of this *Ichor*.

And here it may be proper to reconsider my first System of the Cause of Incarnation, and the forming of *Pus laudabile*; to which End I'll beg Leave to respite this Cure for a

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while,

while, and suppose an Eschar formed by a Caustic quite through the *Cutis*. All Authors tell you it must be thrown off by Incarnation, or the granulating of young Flesh; but as nobody so much as pretends to shew how and why the Thing is performed, I will suppose, that as, by the Caustic, the Blood-veffels, as well as every Fibre which is in the Eschar, are destroy'd, and consequently the Circulation of the Blood can but come up to the Eschar, and no further, for want of the Veins to carry off the Blood from the Extremity of the Arteries, the most minute of them, as well as the largest, must have some of the Globules begin to remain at their Extremities, not being able to return for want of a Vein, which cannot inosculate with that Artery, till it comes to the next
Branch,

Branch, below where it is obstructed by the Eschar. In Process of Time, more and more Globules adhere to one another till Incarnation is effected; and then whatever Fluid passes thro' it must despumate, and become what is called *Pus laudabile*; and by this means the dead Part must be separated from the living in all Cases, whether caused by Caustics, or from any other Mortification,

To return to the Case under Consideration: When an Eschar is fixed on the Edge of the Sore, or *Herpes exedens*, beyond the diseased Part which caused this bad Secretion, that Eschar being cast off by a sound Granulation, Healing of course will follow; for were not this Ulcer local, the rest of the Body would not have continued in a sound State. Many
Medicines

Medicines may be made use of to cause this Eschar; but the Butter of Antimony seems to me the best for this Purpose: Therefore if the Surgeon finds one Part of the Sore heal, after the Method prescribed has been tried, it naturally follows, that the other Part will heal by the like Practice.

S E C T. VIII.

Of a foul scorbutic ULCER.

HAVING begun with such Diseases of the *Cuticula* as may illustrate the Nature of them from the Form and Nourishment of it, I have proceeded in a cursory manner to shew first the most troublesome Ulcer of the smallest sort of the *Cutis*; and that I may proceed as I began,

began, I will now describe the most troublesome one of the largest sort, with some Directions towards its Cure.

That both I and the Reader may be excused considering the intermediate ones of either sort, I am now to describe one of the worst sort of scorbutic Ulcers affecting the Leg or Legs of a sickly Man or Woman, who has the *Facies plumbacea* or *leuco-phlegmatia*, from his Juices in general being contaminated by the Returns of them into the Blood from the thicken'd Lips of the large Ulcer before spoken of, which, from the eroding Quality of its Matter, has quite eaten round the Leg. This Ulcer abounds likewise with large *Scirrhus's* and *Fungus's*, and sends out monstrous Quantities of a poisonous

ous *Ichor*, which nobody can abide the Stench of, corroding where-ever it touches the sound Parts of the Skin, although it be frequently cover'd with thick Scales, which are caused by the diseased Secretions of the aforesaid Ulcer.

Now what must an unexperienc'd Surgeon attempt to do with such an Ulcer as this? If he attempts to digest it with any balsamic Medicine, whose Consistence can direct the *Ichor* on the surrounding Skin, it never fails corroding it like *Aqua fortis*. From hence nothing was more common formerly, than for many Gentlemen of the first Characters to treat such Ulcers as incurable, and either reject them, or proceed to Amputation, as soon as they were receiv'd into the Hospital. At

length I began to revolve in my own Mind whence this disorder'd State of Nature proceeded ; and after having, to my own private Satisfaction, accounted for a regular Incarnation, I was from thence I think enabled to account for a disorder'd one, by imagining that the bony and horny Matter which impregnated the *Fungus*, and with which the Lips of the Sore became so horny, must arise from a false Secretion somewhere, either from too great Stricture, or too much Relaxation ; which occasioned me to try if lapping up the Leg affected in a suppurative Cataplasim would not dissolve such bony and horny Matter, as easily as it can be done in *Papin's* Digester ; and to my very great Satisfaction I constantly find, that after the Application of my Poultice next to the Sore, and be-

yond every diseased Part, I begin in a Day or two to get rid of the terrible Stench, by the Cataplasim's drinking up the foul *Ichor* as it is discharged : Next follows an Appearance of Relaxation, and the Stricture begins to be taken off from every *scirrhus Fungus*, and its monstrous Lips, without any of the Methods made use of, which are commonly prescribed by Authors in general. There is no need of paring the Edges with a Knife, nor of reducing the *Fungus* by any caustical Application; but as I find the worst of these terrible Ulcers gives Way immediately to this sort of Treatment, and to no other, have I not great Reason from hence to rest satisfy'd, that the Cause I have given for producing a *Fungus* is here demonstrated? For if the Reason I have given for Granulation

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tion be ever so true, if it rested only on my first probable Conjecture, every body would have a Right to doubt of the Certainty of it; but, in my explaining the Cause of reducing these enormously diseased *Fungus's*, not once by Accident, but constantly, I think the Principle is established by which I perform it: And I promise never to fail doing it, provided my Patient be regular. And this I will effect by quite contrary Means than any I know of prescrib'd in Surgery for that End; for every body who has written concerning it, has agreed to subdue *Fungus's* only by drying vitriolic or caustical Applications; whereas my Method is quite contrary to what is universally laid down, which is, that greasy or mucilaginous relaxing Medicines do ever create *Fungus's*.

I readily own the Proposition to be true, that they do so ; for which Reason I make use of a mucilaginous Cataplasm to relax these scirrhus diseased Parts, and thereby make them discharge their Enemy. And in these Cases I let the *Fungus* increase as much as it will. There can be no other Consideration had about it, than that, in a regular well-digested Sore, there must be as much Granulation as can just occupy the Space it stands on. And this Granulation, when it begins to become firmer, and to reject any more of the Globule, the corny Matter of the Blood, which is the Cause of the *Epidermis*, and every *Cicatrix*, dry upon it ; and so the Part is healed.

Now consider a Sore of the same Part, arising from a diseased Bone
spuing

spuing out a medullary and bony Discharge under the Granulation before described: The Consequence must be, that this bony Matter mixing with the Granulation, it must thence partake of its bony Property, and thence likewise of its Texture, and, of consequence, becomes of a bony Nature.

If the Original of this Ulcer sprang from a diseased Bone, that Bone must be laid bare, and treated as I shall shew, when I come to speak more fully of the Bones. But I have before supposed, that bony Matter may be separated by accidental Strainers, which Nature in a sound State never intended for that Purpose. The same has been said of other Juices; so that the Diseases of any Part will serve to promote more Diseases, as Soundness

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in any Part promotes Health. If therefore the bony Matter here spoken of be what causes the *Fungus*, do but just get rid of it, and it leaves on the Part its own natural Granulation; so that, till all Points in a Sore are equally granulated, some are weeping under those which are first incarned, and so every *Fungus* is created.

I think I have fully explained this *Phænomenon*; and if it be understood, it will be no Wonder, that tho', in order to get rid of any of the peccant Matter here described, you, by the relaxing Medicines, increase your *Fungus* for a Time, yet, on my own Experience, I never think of destroying it by Vitriol, or the like; but rather choose to give a full Loose to the Parts, finding them healing faster from the Edges, when the Strangulation

lation has been taken off, by sweating out that which occupied Spaces which did not belong to it, rather than by Art, cropping off the Top of the *Fungus* by Vitriol, &c. and thereby forcing it to heal, whilst it remains callous and diseased.

Before I leave this Subject, I should be unjust to it, if I did not remark, that when these terrible scorbutic Ulcers are cured by this Method, you may perceive, during the Cure, the Patients Countenances, which were generally of a squalid Hue before, to be clearing up daily by the Discharge from the Sore, till they come to a perfectly healthy Appearance. And this being done without any internal Medicine, I lay it down in all Cases, that it is better for the Patient to discharge any peccant Matter externally from

from the Part which Nature laid it on, than to retract it into the Blood, by Bleeding, Purges, or other Evacuations; for by this means this Matter is often translated to the Lungs, or some other noble Part: For it is a known Maxim, that *ab extra intra redire malum est.*

I have been very circumstantial in this Chapter, because I think it clears up my first Proposition; which was, to shew the Nature of Matter, Granulation, and the Increase of *Fungus's*. And though my first Description of them may be sufficient to shew, from Probability, that I am on the Side of Reason concerning them, I think, after I have proved the Facts related in this Chapter of the scorbutic Ulcer, it amounts to a Proof, if any thing can, that my Conjectures concerning

concerning them are well-grounded. I shall give but one more Circumstance to illustrate this by, and that is from my constant Observation on the Appearance these scorbutic Ulcers make towards the End of their Cure, when the unnatural Secretions have been sweated out of them ; then you may always perceive them looking as mild and gentle, as before they look'd fierce and implacable ; for then they are cloathed with their natural Granulation only : And from hence they naturally cicatrize from the Reasons before given, as easily as a Burn generally does.

C H A P. VIII.

S E C T. I.

Of the MEMBRANA ADIPOSA.

AS I was under a Necessity, in describing some of the Diseases relating to the *Cuticula*, to describe the *Cutis*, as some of its Secretions appear to become the Disease of the *Cuticula*, in like manner as the *Membrana adiposa* lies next under the *Cutis*, and as its Use is chiefly to provide that Unctuousness which the Skin would stand in need of, were it absent, I shall describe the *Membrana adiposa*.

The *Membrana adiposa* lies under the *Cutis*, and is composed of infinite Cells like Net-work, which open every

every Way into one another. It is so formed as to receive into it an oily Fat, with which, from time to time, the Skin is softened; as, from the Heat of Weather, or outward Accidents, it may be in need of it to keep it in a proper Temperature. This Membrane is likewise the Seat of the Dropsy called the *Anasarca*; the Cause of which Disease proceeds from the lymphatic Ducts discharging their Lymph into this Membrane, from the Blood's becoming too poor, and overcharged with watry Parts, either from the Kidneys not doing their Office, or the Pores of the Skin being obstructed, or both: When this is the Case, you may prove what I have said, that these Cells of the Membrane open freely like a Sponge into one another, by your being able to press the Water contain'd in it

every Way under the Skin, as you may impress Dough. Moreover if you make an Incision down to the *Membrana adiposa*, it will discharge the Water from all Parts of the Limb it affects.

The *Cutis* having before been described, as being indued with an infinite Number of Blood-veffels, Nerves, and Glands, to separate the Lymph, and other Secretions, I have before said, that where-ever there is an Artery to carry the Blood, there must be a Vein to return, and a Nerve always accompanies them. This will raise in our Minds a Doubt of their Multiplicity, I am persuaded; but if it does, I can ease that Doubt, when I consider, that you cannot enter the Skin any-where with the smallest Point of a Needle where it meets not
Blood,

Blood, or where it gives not Pain :
Which will shew, that the Artery
which brought the Blood, and the
Nerve which felt the Pain, are present
with the Point of the Needle, and
would be so in all Parts of the Body,
where-ever the Experiment should be
made.

Since then the Body of Man is
made up of such an Infinity of Con-
duit-Pipes, it is a greater Wonder
that they are not oftener disorder'd,
than that they serve the several Pur-
poses they were made for.

C H A P. IX.

S E C T. I.

Of W O U N D S.

I HAVE here treated of the *Cuticula*, the *Cutis*, and *Membrana adiposa*, in some degree as Anatomists generally do, dividing them into three distinct Membranes: And what countenances this Appearance of their being so divided is the Method used to separate each from the other; for, by the Application of a hot Iron to the *Cuticula* of a dead Person, you may cause it to separate from the *Cutis* as a Blister will cause it to do on a living one: The *Cutis* may also, by flaying it with a Knife, be separated also from the *Membrana adiposa*.

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Now, as I promised Brevity, with as much Clearness as I could, I shall not therefore, as Anatomists usually do, display every *Fibrilla* of it; but choose rather to consider this Covering of the Body in one general View, and as it appears to be contriv'd for various Uses. In this Light, notwithstanding that Anatomists have allow'd of a *Cuticula*, a *Cutis*, and *Membrana adiposa*, yet let any one take a Piece of the *Cutis* of a fat Person, and he would be inclined to believe, that the *Cuticula* is but a Part of the Skin, being a Substance of a horny Nature, separated out of the Glands of the Skin, as a Covering of the Nerves, to enable them to bear the rude Touches of hard Bodies; and at the same time he would think, that the Use of the *Membrana adiposa*, which is inseparable, after all, from
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the *Fibrillæ* of the Skin, is to lubricate the Skin with its oily Fat, whenever it shall stand in need of it, after it has been injured, either from a blasting Fire in the Air from without, or from some undue Separation or Secretion of its own Glands from within. I proceed now to treat of Wounds of the Skin; and first,

S E C T. II.

Of Wounds made by a keen Instrument.

AS I have shewn, the Skin so abounds with Blood-vessels, as that no Part of it can be enter'd with the Point of a Needle, but Blood will appear, so every incised Wound must exhibit an Infinity of Blood-vessels, which are divided in it:
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If therefore the Skin be wounded only, without going down to the *Membrana adiposa*, the Blood-veffels will emit into the Wound fuch a Quantity of the Globules of the Blood, as, by their balsamic or adhesive Quality, if the Wound be soon bound up before the Air has taken hold of them, or its Fire, has not alter'd their Texture, it feldom or never fails of healing by Agglutination, tho' the Wound be very large.

What conduces often to this Method of Cure is, first, applying to the Wound *Musitanus's*, or what is called the Frier's Balsam, which at once secures the Air from seizing on the Globules of the Blood, which are ever liable to be affected and dissolved when a Wound lies open any time to it.

By the Experience of this Practice I am taught, whenever I take off a Limb, if the Membranes have not suffer'd higher up than what appears to View, to apply a Varnish made with Gums and Spirit of Wine; which serves not only to crisp up and straiten the weeping small Vessels, but it prevents the Air from taking hold of the weaker Parts of the Membranes, and causing them to separate deeper than otherwise they would do.

On the whole, incised Wounds, if bound up in time, will heal by one Intention, tho' they may be very large, provided they lay not open the *Membrana adiposa* to the Air; for the Marrow of the Bones, or that of the *Membrana adiposa*, soon becomes putrid, from the Air's being admitted to it; which Air, from its
Energy

Energy and Force, as it is the chief Officer of PROVIDENCE to actuate all created Nature by, when in its proper Place, so, out of it, it becomes a violent Enemy to her.

I have in like manner before been shewing, that the mildest Secretions of the Body, whenever they have been forced, or by Accident received into other Juices they were not intended to join with in the same Body, become a rank Poison.

The Air, when it is received into the Lungs, is of that salubrious Nature, as to mix with the Blood every time the Lungs operate in Respiration, renewing thereby its Vermilion-Colour, and invigorating it so as to give Nourishment to the se-

veral Parts it is allotted to support, both with Strength and Spirits.

Now, as the Air causes such a Change on the Blood every time it joins with it in the Lungs, it also greatly affects it when out of the Body; Instances of which we may see in the Flesh of all dead Animals; for, if you observe the Meat in the Butchers Shambles in a hot Day, you will perceive it not only look dry, but as if it had been burn'd in the Fire.

To give a greater Proof of the Air's influencing the external Parts of the Body, let any Surgeon open a cold Tumor, which was caused by Congestion, it shall, on its discharging perhaps a little Curds and Whey, appear to have no Signs of Inflammation

mation for a few Day: But he must have had but little Business, or have been a slight Observer, who knows not, that not only very great Inflammations, but very dangerous Fevers, usually follow the Opening of these cold Tumors, which are kept quiet generally till they are exposed to the Air.

I have endeavour'd here to give the Practitioner some Hints concerning the Influence of the external Air on the Blood, because I have known an Author advance, that, in his Opinion, the Air could not influence a Wound, or make it the worse for being exposed to it. Now, if what I have endeavour'd to shew be true, then a Surgeon ought not only to be careful not to expose Wounds in general to the Air, but, as soon as
may

may be, to defend them from it, by applying such Digestives as may secure the wounded Part from the open Air, till Nature relieves herself, by supplying her own Wants: For it has so pleased God Almighty, that he has not only most wonderfully form'd this World as coming out of his Hands in great Order and Perfection, but has also been so merciful to all his Creatures, as to provide them with Assistances proper for their Support, from Nature, without which they must have perished from every small Accident. And tho' the Skill of a good Surgeon must be of great Consequence to Mankind, it must ever be consider'd as well in doing his Patient no Harm, as in doing some Good; for, generally speaking, a Surgeon is but a Scavenger to Nature: For, if the various Parts of

the Blood did not supply the many Losses of the Body, what could the Surgeon's Art do for him?

Thus I have endeavoured to shew, that, by the Globules uniting in an incised Wound, which has been kept from the Air, Nature only does the Work ; but, as Wounds are of various Sorts, I shall proceed to speak,

S E C T. III.

Of Lacerated Wounds.

EVERY lacerated Wound, or Wound made with Contusion, has not only ragged Parts, which the Blood-veffels for a small time may preserve with Life, but such Wounds have likewise frequently, from Contusions happening at the same time, a Quantity of Blood lodging under
the

the Skin, or betwixt the Membranes, Tendons, or adjacent Parts of the Wound. Now, if what I have said, be admitted, that the Air is liable to affect the Juices of the Body, by causing a Putrefaction in them, the chief Care of the Surgeon, when he has the Cure of such Wounds as are here described, ought to be, first, to apply *Musitanus's* Balsam to the lesser Sort of lacerated Wounds; for thereby this Balsam, which is made of Gums dissolved in Spirit of Wine, will serve as a Varnish to cover such small Filaments, or lacerated Parts of the Wound, as the Air without it would immediately take hold of and mortify; and so they would become what Farriers call Setfasts, or what Surgeons call Sloughs, sometimes taking such deep hold of the membranous Parts, as to endanger the Life of the Patient.

The

The Air moreover, in these Wounds, does great Injury, by affecting the contused or extravasated Blood, and rendering it putrid: For where-ever it is found, that extravasated Blood, which always lies quiet till the Air comes to it, is exposed to the Air, it acts upon it as Fire does on Gunpowder, every Corn of which, when it takes Fire, blows up its Neighbour. In like manner, when an *Ecchymosis* is by Mistake opened (which it never should be), one Particle of Blood being contaminated by the Air, it taints the next; and so, as far as the Blood lay, the Sore of consequence extends itself.

This Doctrine will shew why a compound Fracture differs so greatly from a simple one: For, tho' the Bones in a simple Fracture be ever

so much macerated, it seldom or never, with proper Care, fails of doing well; but if the Skin be broken ever so little, if the Air be admitted to some extravasated Blood, it makes a terrible Difference betwixt one Fracture and the other; which every knowing Practitioner finds there is, from the Causes before given.

But to return to the lacerated or contused Wound; if, by Neglect or otherwise, you find such a one in a crude State with large Sloughs, what is the mechanical Cause whereby they are made to separate from the sound Parts? My Answer is, From Nature's pushing the Globules of the Blood on to the Extremity of the sound Parts, till they so accumulate as to become incarnated, and from thence the dead Parts of Necessity

are separated from the sound. This may be consider'd as the Operation of Nature only ; but, since Nature stands in need of Art sometimes to assist her in her weak State, it may be found proper in these Sores to use some warm balsamic Application to help off these Sloughs, which should be composed of the same kind of Terebinth or Gums as are found in *Musitanus's* Balsam ; but with this Difference only, that as, in *Musitanus's* Balsam, they are dissolved in Spirit of Wine, the better to dispense the Gums as a Varnish most intimately on every Part to defend it from the Air, so, when they are to act as a Digestive, and are to assist Nature to cast off those Parts which are become her Enemies, they must be dissolved in *Ol. Lini*, or the like, the better to mix with such Acrimony as

the Sloughs may have caused, and to help them to separate from the sound Flesh. By the Gums and Oil becoming so thin a Balsam, they the more easily penetrate, warm, and relax the sound Parts, so as to promote Granulation.

It has been asserted, that dry Lint is as good a Digestive as any: If what I have said of the Cause of producing Matter be true, I cannot see that dry Lint has any thing to do with it.

Having given such Hints as may be of Use to the young Surgeon concerning contused Wounds in general, I shall proceed, and consider a Wound made by Gunshot: And altho' it is a contused or lacerated Wound; yet I think it so far differs from the
rest

rest of that Class, as to induce me to give my Thoughts upon it.

S E C T. IV.

Of Gunshot Wounds.

AS Gunshot Wounds are made with a Bullet, or some obtuse Body, they must be treated as contused Wounds are, for the most part ; but as I have frequently seen them have an Appearance or Face which I never observed in any other contused Wounds, I am willing, if I can, to account for it.

If any one observes a Gunshot Wound given to Man or Beast, he will find such a Blackness about it, as I have never seen from one made by a Hedge-stake, or any such-like Thing ;

Thing ; besides, I have often observed a sort of putrid Matter discharging from them not unlike Yest ; which I never have seen produced from any other contused Wound. It must nevertheless be acknowledged, that some Gunshot Wounds will heal without any of these Symptoms, and a Bullet has lain in the Body of a Patient for many Years after the Wound was given.

The Reason to be assigned for this Difference in the Appearance of such Wounds, may arise from the Bullet, or other Material, the Wound is made by, having a Poison sent in with it, from the Explosion of the Gunpowder : And the Reason why it don't always happen, may be from the Wound's being made at a great Distance from the Gun ; so that the
Bullet

Bullet may have lost the *Effluvia* of the Gunpowder, by its passing so far through the Air; whereby it was cleared from it.

This Notion may, and I suppose will, be slighted, by such as have not observed the Symptoms I have been speaking of; but if it should, I have great Odds on my Side, that it will come from those who never will observe any thing new themselves, but how to find new Faults.

This Opinion having not been started before, that I know of, it may be questioned, how it is possible that a Poison should be the Cause of such Symptoms? But they who consider how small a Quantity of Venom there is in the Point of a poisoned Arrow to cause such direful Symptoms, and
even

even Death, by the Venom dispersing itself into the Blood, or how small a Quantity of morbid Matter will set afloat the Small-Pox through the whole Mass of Blood, need not wonder at my Conjecture.

As I intend to speculate only on some Things relating to Gunshot Wounds, in a Manner which I have not observed in any Author, so in this, as in other Cases, I shall refer my Reader to the Practice of any one who has written largely on that Subject for the operative Part; it not being my Intention, as I said in the Beginning, to make this a practical Treatise of the Art of Surgery. To proceed therefore: Notwithstanding Gunshot Wounds are contused ones, yet they differ from all others; or else, why should the Jesuit's Bark
be

be so much recommended in the Cure of Gunshot Wounds in particular more than in common ones?

All that I shall now offer towards the Cure of Gunshot Wounds is, that the Surgeon should lay open the Orifice of every Wound that is made by Musket-Shot, as soon as he sees his Patient, provided there be nothing to prevent it, and dress the Wound with as mild balsamic Dressings as can be thought on; and be sure not to keep in any Matter, by crouding Dossils, or making too strait a Bandage on the Wound.

As to the great Influence the Bark is said to have in the Cure of these Wounds, I own I never could prove it to be so effectual, either in Gunshot Wounds, or Mortifications, as some
S declare

declare it to be; yet, notwithstanding that, I never refuse the Use of it where it is proposed, nor will I advise others so to do; because, if it does no Good, as it is a Bitter, and a kind of Alexipharmac, it may be of some Service otherwise.

Thus I have given my Thoughts concerning Wounds; and as I intend to proceed in the Method I first proposed, of beginning with the Diseases of the *Cuticula*, and from thence descending till I came to those of the Bones, I shall think it proper, before I leave the *Cutis* and *Membrana adiposa*, to describe the Causes of some Diseases relating them.

In order to this, it will be necessary for me to establish some Principles, which were for many Ages maintained

tained and agreed to by the Antients, though by the Moderns as much decry'd as I have seen the Doctrine of an elementary Fire to have been, which now is, or may be, as clearly shewn to exist, as that Water does.

What I would demonstrate in this Place is, the Tumors arising from the four Principles of *Blood, Phlegm, Choler,* and *Melancholy.* Now, though I have heard some triumphantly despising, and endeavouring to destroy these Principles (but I think in vain), they would do well to remember, that they have established nothing in their Place: Which occasions me once more to remark, what I have said before, that, whether we can find out the Causes of Diseases or not, it is as certain that they exist, as that the Seeds of the

Small-Pox will never produce any other Disease than its own: And this is as certain, as that a Carrot-Seed can never produce a Turnep. I shall therefore now proceed to shew the Diseases relating to them in their Order; and first shall describe those proceeding from the Blood.

C H A P. X.

Of TUMORS *proceeding from the*
BLOOD.

S E C T. I.

Of the Aneurism.

THE Aneurism proceeds from a Rupture of the Artery ; which is the Vessel that carries the Blood from the Heart, as the Vein brings it back again to it. This Rupture may be either partial or total. The partial one is, when the internal Coat of the Artery is broken, and the outward Coat at the same time so distended, as to retain in it a very great Quantity of Blood. When this is the Case, it may be restrained by the Patient's wearing a laced Bandage upon it, which has been done for many Years ; and thereby the Limb remained

remained useful. There are two other Kinds of Aneurisms ; the first arises from a total Rupture of the Artery, so that the Blood becomes extravasated ; the second of these complete Aneurisms proceeds likewise from the Artery's being opened by an unskilful Bleeder, or the like Accident. In both which Cases there must be no Time lost, before the Surgeon opens the Tumor, and ties up the Artery *S. A.*

S E C T. II.

Of the Ecchymosis.

ANOTHER Tumor proceeding from Blood is called the *Ecchymosis*, which is an Extravasation of Blood under the Skin, frequently occasioned by a strained Ankle, from
the

the Rupture both of Veins and Arteries, or by a Contusion on any Part.

In the strained Ankle, the Surgeon's first Intention is, to restrain the Blood from flowing through the lacerated Vessels, that thereby there may not be a very great Quantity of the Blood extravasated. To prevent which, a cold Charge with Bandage may be applied, for the first or second Dressing, but by no means any longer: For, when you come to your second Intention, which is by the *Theriaca Londinensis*, or such-like rarefying Applications, to let the extravasated Blood perspire through the Skin; then, I say, if you keep on the cold Charge, or put on an astringent Plaister, they only serve to do great Mischief, by locking in the extravasated Blood, which

which should always be suffered to perspire away, before your strengthening Plaister be applied.

So far as I have gone on this Subject, I think I have proved one of my Points, that there are some Tumors arising from Blood : It may be, some Authors have described a *Phlegmon* from its Colour being deeper than that of an *Erysipelas*, as proceeding from Blood; of which I shall speak in its proper Place.

But first, I shall endeavour to shew what Diseases may be said to proceed from Phlegm.

C H A P. XI.

S E C T. I.

Of Diseases proceeding from PHLEGM.

I SHALL first endeavour to describe the Nature of Phlegm, before I proceed to shew the Diseases arising from it.

Phlegm is by Authors called a slimy Excrement of the Blood ; but, to give the most intelligible Description of it, I take it to be that cold glutinous Part of the Blood called Size, which appears on the Surface of some diseased Blood, when cold : That which looks florid, and whose Globules are largest, with a proportionable Quantity of *Serum* in it, without any of this glewy Matter on
T the

the Surface, is esteemed the most sound and healthy.

I apprehend the primary Cause of this Phlegm, or Siziness of the Blood, proceeds from an Obstruction in some of the glandulous Secretions: For the Use of all the Glands is to separate from the Blood such Juices as Nature stands in need of: For instance, those of the Nose are to separate just so much *Mucus* as will serve to keep the Nostrils soft, and prevent them from becoming dry like Parchment; which would quickly be the Case, from the continual Flux and Reflux of the Air through them, were it not for a due Quantity of this *Mucus* to keep them soft and pliable. In like manner, were the Kidneys, the Ureters, and *Urethra*, not to have a *Mucus* constantly secreted to line them withal,

the very Urine, which they were made to convey, would destroy them.

Thus all the Ducts of the Body have a *Mucus* separated to defend them ; and yet, whenever this very *Mucus* superabounds, which was at first designed for the Preservation and Ease of the Part, it becomes a Disease.

I could give Instances of this in many Cases ; but first I think it necessary to shew the Cause or Origin of Phlegm, or Siziness of the Blood.

This Siziness generally arises from taking Cold ; the Manner of which is as little understood perhaps as any thing ; for, tho' every one knows that Colds proceed from receiving the Air into our Bodies improperly, yet

few consider the State of the Air as abounding at one time with all the Means of restoring and preserving Health to us, and all the rest of the Creation; and at another as containing in it the Causes of Plague, Pestilence, and Famine, by its occasioning Death to Cattle, and Blights to all the Fruits of the Earth.

It is therefore no Wonder that we are susceptible of such Evil from it, by its sending into our Blood at unguarded Seasons some of its deadly Poisons. When this happens, the Quantity is not the Thing; but the Genus or Species of it is to be consider'd; since any one may see how small a Quantity of Matter will inoculate the Small-Pox, and convey it through the whole Mass of Blood.

Whenever,

Whenever, therefore, a Cold is taken, that is, when the Air has affected the Blood with some heterogeneous Particles which were in it, the *Stimulus* they cause in the Blood is called a Fever; and as the Poison by which it is caused is more or less of a deadly Kind, the Fever is more or less pestilential or dangerous. If Nature, in her Struggle to throw off this pestilential Matter, deposits it on the Glands of the Kidneys, the Lungs, the Nose, or the Bowels, so as that they are not obstructed thereby, a Discharge of this peccant Matter ensues, and saves the Patient. But sometimes the mucous Glands of the Nose or Lungs are so overloaded, as to be unable to discharge it: And at such times, I apprehend, as the Bile is liable to overflow into the Blood, tinging it everywhere

where as in the Jaundice, for want of its natural Passage through the Gall-Duct (for when it was separated into Bile from the Blood, it must get on somewhere) so the *Mucus*, when separated from the Blood, if it get not off from the Glands through its proper Ducts, will of course get into the Blood.

And from hence I apprehend Phlegm, Siziness, or the *Pituita* of the Blood proceeds; and as this may abound more or less in the Blood, so quite different Diseases may arise from it. As an Instance of this, when the Blood is perfectly sound, and in a vigorous State, all the Functions of the Body are performed accordingly: In the Instant of its beginning to be attacked by the Intanglements of some of this fizy Matter, Nature
in

in her full Strength begins to be disorder'd, and by her Endeavours to get rid of her Enemy, Inflammations arise.

Here I consider Phlegm as getting only into the Blood before its Texture be quite broken; but it may also be consider'd as having impregnated the Blood to such a Degree, as to become so great a Portion of it, that it thereby is quite debased. And hence seems to arise the depraved State of the Blood, when, on letting some of it out, it looks like Beef-Brine; the Globules being much broken, and the Number of them few, in proportion to a thin Size, which, in their stead, make up the rest of the Fluid; for in this State it can hardly be called Blood; but it is become a poor cold phlegmatic Fluid;
from

from whence proceeds the Train of scrophulous Diseases, among which arise the Tumors call'd the Cold Swellings, or Tumors by Congestion.

Having shewn these different States of the Blood, I shall endeavour to explain the Difference betwixt Tumors by Fluxion, which are hot, and Tumors by Congestion, which are cold ; and as the *Phlegmon* is of the deepest Red of the inflamed Tumors, I shall first treat of that.

S E C T. II.

Of the Phlegmon.

A *Phlegmon* is an inflamed Tumor not circumscribed, as if it arose from some Gland ; but generally it possesses a large Portion of the Skin ; for Instance, either of the Cubit, the
Leg,

Leg, the Shoulder, or the like: It is commonly of a deep red Colour, and, in that, essentially differs from the *Erysipelas*, the pathognomonic Symptom of which is a pale Inflammation, with a Tincture of the Bile in it; but the *Phlegmon* is, properly speaking, no more than a Name for a great Inflammation not otherwise distinguished. Now, as I shall endeavour to shew the Cause of the *Erysipelas* to be very different from that of the *Phlegmon*, I shall in the first Place shew the Cause of a *Phlegmon*.

In order to which, I need only refer the Reader to my Reasons given just now for the Inflammation of the Blood occasioned by a Cold; for, during this Struggle in Nature to exonerate herself of her Enemy, which I call Phlegm, Size, *Pituita*, or the
U like,

like, there being no Way to do it but on the Surface of the Skin, or where-ever Nature finds the easiest Vent; it is natural to conceive, where-ever this Siziness is deposited, many Globules of the Blood will be admitted with it; and, if they fall on the *Pleura*, it becomes a *Phlegmon* called a *Pleurisy*; and in like manner it becomes a *Phlegmon* of every other Part, which Part gives a different Name to it.

As a *Phlegmon* is of a deeper Colour than any other Inflammation, so that Colour must proceed from those Parts of the Blood which are of that Colour, and they are the Globules of it; and from hence the Antients considered a *Phlegmon* as proceeding from Blood. Now, when this Inflammation is become very tense,
so

so that no Circulation can any longer be maintained in the Part it affects, the Vessels and Fibres of it give way, and burst; and, of course, these inflamed Juices are thereby become extravasated; the lacerated Parts, having their Blood-vessels thus destroyed, thereby become Sloughs fit to be cast off by the Granulation of young Flesh at the Extremity of the Blood-vessels which are not destroyed. And this may demonstrate, that all Matter is produced from one and the same Cause, as well that from an Impostumation, as that from an open Sore.

All other Parts of the Blood are more perspirable than Matter, because every Particle of Matter is a real Bladder or Bubble of Air; and it thence becomes very difficult for it to escape. This may shew why the

first Fluid, which proceeded from the ruptured Vessels in an incipient Impostumation, may in time perspire, and leave behind it only what is called digested Matter ; so that, when these Tumors are opened before Granulation be quite formed, and the first Fluid not perspired away from the more perfect Matter, you then find the Sore continue undigested, and in a crude State, for a long time ; that is to say, till Granulation is formed ; which is always the longer for having opened the Tumor too soon, because the Air prevents its coming to Digestion so soon as it would otherwise have done. It is better to suppurate these Tumors always as they proceed from peccant Matter in the Blood, than attempt to discuss them ; and, when they are opened, they should be dressed with
such

such a Balsam as I formerly recommended, which should be composed of the most fragrant Sorts of Gums or Turpentine, let down with good Oil to a thin Consistence; they should be such as the *Gummi Elemi*, the *Strasburgh* Turpentine, the Balm of *Gilead*, the natural Balsam, *Storax*, and the like. A Balsam made of some of these, mixed with Oil, may help Nature to complete a Cure, by throwing off the injured Parts by the Assistance of Granulation. If to this Balsam you add some essential Oils, such as the Oil of Cloves, or that of Amber, or Oil of Turpentine, as the fetid or putrid Matter lodged in the Sloughs of some of these Impostumations are sometimes so acrid, as to tincture your Probe on the immediate Touch; and as it will also excoriate whatever Parts

it touches; so the Warmth and Fragrancy of these Oils seem to me to be best able to subdue the poisonous *Ichor*, and convey thereby the Balsam to the living Parts.

I think, from what I have now shewn, that the Phlegm here spoken of being deposited on some particular Part, the Globules of Blood may be thereby caught and retained in it as in a Net; and thus, when this Phlegm quite prevails over the Globules of the Blood, and operates alone, it may be the Cause of all cold Tumors; but, when mixed with the healthy and vigorous Parts of the Blood, this hot or inflamed Tumor called a *Phlogosis* or *Phlegmon* is likewise produced, and may originally have obtained its Name from it.

Having considered what may be the Effect of Phlegm, when it does
not

not so far abound in the Blood as not to have quite destroyed its Texture, I shall proceed to shew the Consequence of it, when it is so far become predominant, as to be the chief Governor in the Garison.

Whoever observes the different Appearances the Blood of the same Person makes at different times, may be inclined to think with me, that the Distinctions I have made have a great Probability in them; for, after catching Cold, on the first letting Blood, you will find the Globules of Blood appear as florid as if the Patient had received no Cold; but yet, on its standing awhile, some Size will appear to be here and there interspersed in it. This is the State of it I have been speaking of, that is, when it may produce an Inflammation.

The

The next State of it is, when, on letting Blood, it appears not to have its Globules fair nor florid in their Colour; but its Parts float as if some Oil had been mixed with them, and seem inclinable to separate from each other; and, when it begins to grow cold, it appears to become one Quantity of Size or Phlegm, without any red Colour belonging to it, as though its Globules had been dissolved, or absorbed into the fizy Parts. Now, when it makes this Appearance, I then, with many of the Antients, suppose the Mass of Blood to be in a depraved State; and from hence there seem to arise all cold Tumors, or those which are called Tumors by Congestion; which induces me to treat of them in their Order. And, first, I shall treat of Scrophulous Glands.

C H A P. XII.

S E C T. I.

Of the Disorders on SCROPHULOUS
GLANDS.

I HAVE formerly shewn, that, in a sound State, the Use of the Glands is to secrete the various Juices they were designed for, at the same time sending back into the Mass such Parts of the Blood from which they were secreted : From whence it will appear, that, when the Blood becomes unsound by its being intangled in an Abundance of this Phlegm, instead of the Glands being the Servants and Assistants of the Body, they become destructive Enemies to Nature ; for, from the Blood being thus entangled, which should ever be vigorous and active,

this cold Phlegm quite choaks up these Glands, from its glewy Quality ; and, from being retained there too long, it becomes rancid, and consequently acrid ; and so, by slow Degrees, it destroys the Substance of them, by which they appear, on opening them, as if they had contained Curds and Whey. Sometimes, indeed, they do not produce a Fluid in them, but swell to a great Degree, growing hard without any Inflammation : And as there are everywhere Ducts leading from each neighbouring Gland, which secrete the same Kind of Fluid from these Ducts, they affect one another, till I have frequently observed Clusters of them on each Side of the Neck of the Patient, tied together by their Ducts, as Grapes are by their Stems to the Bunch ; and though these severally

are by the Anatomists called conglolated Glands, yet, when they are thus diseased, they become, to Appearance, one conglomerate Gland. Now in either Case the Patient can be cured by no other proper Means than by discharging this phlegmatic Matter, either from opening these cold impostumated Glands, or from dividing such of them as will not have a Fluid in them, and afterwards turning out their Infides by your Spatule or Fingers : By either of these Means the Blood may be exonerated of this Poison better than by any Internals; for it is undoubtedly certain, that, in all the obstructed Parts of the Body, even in the Bones themselves, till you discharge the peccant Matter, and give a Vent to it from the Part it possesses, you never cure the Patient properly : for, if the Disease lies in the *Medulla*, till you open

the Bone which confined it, you may purge, nay, salivate the Patient to no Purpose; for what is once destroyed, will ever remain so. In like manner, these indurated Glands now spoken of, by your opening some of them, the Sores from thence arising will discharge such Matter from the Blood, and neighbouring Glands, as caused their Disease; and, from a Continuance of such a local Discharge, more Health is produced generally than by all other Means.

I could treat of the *Melliferis*, and other cold Tumors; but I hope I have said, in this Chapter on strumous Glands, enough to shew, that their Origin proceeds from this Phlegm now described. They, who pretend to know otherwise, would do well to inform the World of it; for, before
this,

this, I never knew any one attempt to shew how this Phlegm was formed, or of what it was produced. Nevertheless, before I leave the Consideration of this dissolved State of the Blood, it may not be improper to hint at the Cause of Rheumatisms, as also proceeding from this glewy Matter, by its adhering to the Muscles, which should ever, in a healthy State, move in a *Sinovia*, such as the Joints and Tendons are endued with, for their more easy Motion. Now, when the Muscles and Tendons, instead of it, are entangled with such a glewy Matter as the Phlegm is described to be, I apprehend this may be the Cause of a Rheumatism; but I forbear, lest I should grow too prolix, and therefore shall endeavour no farther to describe any other Diseases proceeding from Phlegm; but remark only so much,

much, that what can cure such a depraved State of the Blood, must proceed from a Change of Air, or such Medicines as will, from the *Primæ Viæ*, create new and sound Globules to the Blood, to overcome this Size.

I shall now proceed to speak of such Inflammation as proceeds from the Bile, and first of the *Erysipelas*.

S E C T. II.

Of the ERYSIPELAS.

AS I apprehend, an *Erysipelas*, from its Colour, proceeds from the Bile, I shall therefore first describe the *Erysipelas* in its Appearance; and then speak something of the Bile itself.

An *Erysipelas* is an Inflammation much paler than a *Phlegmon*, from whence many have considered it as a *Phlegmon*, affecting the Surface of the Skin and capillary Blood-vessels only. It affects all Parts of the Body as a *Phlegmon* does ; but it is demonstrably of another Nature from that of the *Phlegmon* ; for it is as much of a yellow Colour as of a red, which is no Characteristic of the *Phlegmon*. Now as the Bile is the only Fluid belonging to the Body which has this yellow Tincture in it, and as the Excrements, and what else has the Tincture of Yellow in it, are known to proceed from the Bile only, had no Author before me described it as proceeding from the Bile, it is evident, from the Observations I have made, that an *Erysipelas* must proceed from Choler or Bile ; for which Reason it will

will not be improper to describe the Formation of the Bile, with its Uses.

The Bile is a Fluid of a deep-yellow Colour, separated in a very great Quantity by the Liver: Its Receptacle is the Gall-bladder, which is tied to the Liver: It has a Duct into the *Pylorus*, or Lower Orifice of the Stomach, the more readily to meet with such other Juices as are necessary to form first of all a milky Softness, and a Slipperiness in the Chyme, as it passes along the *Duodenum*, the *Jejunum*, and *Ilion*; for on these the Lacteals are bestowed. My Intent is not to go farther with the Passage of the Chyle from hence into the Blood; but to shew the Nature of the Bile only, and to demonstrate its Use in as brief and express a Manner as I can. It bears the nearest Resemblance

blance (of any thing factitious) to the *Lixivium Capitale*, when it is mixed with Oil ; for, if you add warm Water to either of these, they instantly give it a great Slipperiness, and the Appearance of Milk ; besides, it answers the same Use in scouring any thing withal, as the *Lixivium* will do ; so that this will prove it to be a Fluid of more Activity than any other in the Body : And, as I have hinted before, that the mildest Fluids, when out of their Bounds, produce bad Effects, what must be the Consequence, when the Bile, which is this acrid first Mover of all the rest, shall happen to stray out of its proper Bounds, and break into the Blood, after it is become perfect ? Is it any Wonder that it should dissolve the Globules of the Blood, and cause some of them to pass with it where

Y they

they should not? And thence, if they appear on the Surface of the Skin, it is called an *Erysipelas*, or *St. Antony's Fire*: If on the Intestines, a bilious Colic, &c.

In the Cure of either, great Regard must be had to the bleeding of the Patient, and what else is properly prescribed.

There is a mild Sort of this Disease, which is occasioned by the burning Heat of the Sun drying the Surface of the Skin of tender Persons; but this I look upon as a spurious or weak Species of the *St. Antony's Fire*, without any Fever, which the other always has; and a little Oil of Almonds, or the like, generally cures it in a Day or two. As to the genuine Species of it, I can shew, that

it not only affects the Surface of the Skin, but I have known it often impostumate, and bring away the *Membrana adiposa* in Sloughs, with the Discharge of the Matter occasion'd thereby.

I might shew moreover, that the Bile out of its due Bounds is the Cause of the Jaundice, and many other Diseases, which for Brevity's sake I shall forbear to treat further of.

S E C T. III.

*Of the Common HERPES, and of
EXCORIATION.*

BEFORE I leave the Diseases which affect the Surface of the Body, I chuse to speak of the Causes of the common *Herpes*, or Pimples

Y 2 which

which the Skin is liable to be affected withal ; and, at the same time, to account for the Excoriations of it ; as I apprehend both Diseases proceed from a Redundancy of the Salts of the Blood. Now, as I have before observed, that of Necessity the Blood must abound with Salts, which are left therein by the Aliment that nourishes us (for all Things have Salt in them), so, were it not for the two Outlets of these Salts from the Blood, I mean the Kidneys, and the Pores of the Skin, they would produce infinite Diseases in us.

As to those which are produced from them in the Kidneys, I shall treat of them in another Place ; but as, by the Discharge of the Sweat, the Skin is liable to have these Salts at certain Seasons left in the Glands of
it,

it, they are thereby heated and inflamed so as to make the Appearances which are called *Herpes* or Pimples; and from the *Spiculæ* of these Salts the great Itching is occasion'd.

In like manner all Excoriations of the Body may from these Salts be accounted for. As the Pores of the Skin are designed for the Discharge of the Sweat, so, when they happen to be overcharged with these Salts, they become quite caustical, not only eroding the *Cuticula*, but even ulcerating the Skin; particularly under the Toes and behind the Ears of Children, and the other Emunctories of the Body.

As both Diseases are occasion'd from a Redundancy of these Salts, Bathing or Washing the Skin frequently

quently with warm Water, will, as it discharges the Enemy externally, greatly conduce to the Cure of both, with more Safety than any drying or purging Means can. For I have known many, who, by the Use of Pin-dust sprinkled in their Stockings, and other vitriolic Remedies used to dry and repel the Humour occasion'd by sweaty Feet, look as if they had been poison'd. But when Ulcerations are produced by these Salts, I have found a soft digestive Cerate of great Service in their Cure, when applied constantly after washing the Feet and Toes.

C H A P. XIII.

S E C T. I.

Of TUMORS proceeding from
MELANCHOLY.

HAVING shewn, that *Blood*,
Phlegm, and *Choler* are pro-
ductive of various Diseases, it remains
that I further shew, agreeable to the
Opinion of the Antients, that the
Blood at certain Seasons is liable to
become void of all Floridness, appear-
ing almost as black as Ink, which the
Antients have termed the *atra Bilis*,
or Melancholy of the Blood. When
it is in this State, carcinomatous and
cancerous Diseases are said to be oc-
casioned from thence. Now, as I
have said before, whether we have
Sagacity enough to find them out or
not, every known Disease must have

a certain regular Cause for producing it : Because, if a *Cancer*, for Instance, be known to be so, as it must be from the regular Appearance it makes ; then of course this must proceed from a regular first Cause.

Now, since every Surgeon of any Degree of Practice knows, that the Blood, especially of elderly Women, who want the usual Benefit of Nature, is frequently of an adult Complexion ; and moreover, since it is generally found, that these People now described are most liable to cancerous Complaints, why may not the Antients be regarded in this Particular as well as in most others ; seeing that those who oppose their Sentiments establish nothing in the Place of what they would destroy ? I can add one Observation of my own to
countenance

countenance this Opinion, which is, that I seldom take off a cancerous Breast but I look for some black Spots in the Glands of it; and I scarce ever fail to find them appear like a Drop of Ink, sometimes only in one Gland, sometimes in divers Parts of the Breast.

Whatever this Poison is which occasions a *Cancer*, it is a very deadly one, but yet not so fatal as to have the Cure of it always despair'd of: For it is frequently local, and then Extirpation will cure it. The Difficulty of its Cure proceeds from its Uncertainty of being come at; because, when the Operator thinks he has extirpated the Whole, some distant unperceiv'd Glands, from the Communication of their Ducts with the former, have render'd the Cure incomplete.

178 *The Art of Healing.*

I confess, from these Considerations for the Benefit of human Life, a Surgeon who may be admired for preserving Limbs on, deserves more Commendation than the best operating Surgeon that ever liv'd, who only may be able to boast of the Numbers he has taken off.

I have said all that I shall offer on this Head; only wish, if this be not the Cause for the Origin of a *Cancer*, that it may be the means of inducing others to give a better Reason for it.

C H A P. XIV.

S E C T. I.

Of the O P H T H A L M I A.

I SHALL proceed to treat of the *Ophthalmia*, and some Diseases of the Eye; chusing to keep as near to the Method I first proposed as possible; which was, to consider such Distempers as affect the Surface of the Body, and afterwards proceed to those of the Bones. And although the Eye be not esteemed a Part of the *Cutis*, yet it is a Part in the View: But, as I propose in this, and in all I have written, or shall write, to speak only of such Things as have not (at least not to my Knowledge) been remarked by any one else, I intend to be as

brief and explicit as the Subject will admit.

The *Ophthalmia* is a general Name for a *Phlegmon*, or Inflammation of the Eye. The Cause of it frequently proceeds from taking Cold, a scrophulous Disorder, or some external Accident: Of all which I think I have already so fully treated, that it will be needless to say any more in this Place. But that which I insist on, as knowing it from long Experience, is, that, from all the Authors I have read on this Disease, nothing has been less understood by them than its Cure. For, as I have been particularly appointed by the Governors of the Hospital to take care of the Diseases of the Eyes, I have prescribed to so many of them in my Time, that I am quite satisfied, let the first Cause

Cause of these Inflammations be what it may, nothing but topical Applications will cure them soon ; and in the worst of them, which are curable, I find no Difficulty in doing it by Topics only.

When the Body seems easy in other Respects, I consider it as a Strangulation or a Stricture left on the Blood-vessels of the *Conjunctiva* and of the *Cornea*, which wants an external Relief ; and, as I said before, when I see any Part inflamed, I begin to think from whence the Obstruction or Strangulation of the Part can proceed, and how I may be able to take off its Stricture : And after having found, that Bleeding and Purging will do little toward performing the Cure, and perceiving that some had made a Scarification of
the

the *Cornea* by a Beard of Barley, and thereby boasted their Success in its Cure, I considered, that the Good arising from thence must proceed from its just cutting into the first *Laminæ* of the *Cornea*, so far only as to open the Extremities of the Ramifications of the Arteries; and from reflecting on the Cause, by which the Cure from Scarification could be made, I apprehended that, if it was performed, it must proceed from the Strictures of those Vessels being taken off by their weeping through these very slight Wounds made by the Beard of Barley.

This Consideration put me on trying if some sharper Waters than those which had hitherto been used, might not, from their vitriolic Quality, crop the Points of these inflamed Arteries

as effectually as brushing them with the Barley-beard was said to do, but with more Certainty: And there-upon I made the Trial, by dipping a Pencil into a Water, and drawing it through the Eyes four times a Day; some of which I at first thought too strong, but afterwards found they would bear the Application of one made much stronger than any I ever met with in the Prescriptions of any Author with good Success, without giving any Internals; and how this Method has succeeded, the Patients who have tried can best testify.

I have observed, that all those Waters, which are reckoned among the cooling Tribe, such as Frog-spawn, Plantain-Water, and the like, have rather increased the Inflammation; but the sharpest Sort immediately
4 give

give Ease. This I am sure I can say, that I never saw Calomel administer'd in an *Ophthalmia*, but that the Eye was more inflamed thereby: And I think it natural it should be so; for, by all that we can speculate on the internal Use of Mercury, we can no otherwise account for its Operation, than as it splits and rarefies the diseased Parts of the Blood, so as to render them more apt to pass such obstructed Parts of the Body, as they could not enter before.

Now as the Inflammation of the *Cornea*, in Fevers, will, sometimes appear so very delicate, as to cause it to resemble burnish'd Steel, so, after greatly inflamed Ophthalmies, it will make the same Appearance; and, in either Case, if, by giving Mercury to the Patient, you do not push off the
Obstruction,

Obstruction, you load the *Cornea* the more.

The *Cornea* is so constructed, as to admit the Rays of Light to pass thro' it in the greatest Perfection; from whence it is proved to be more pellucid than Glass; and therefore its Blood-vessels cannot be perceived but in an Inflammation; which is, when they are strangled. And at such a time, the Use of Mercury will croud them with Blood still more. And this Consideration may serve to shew why cancerous Glands also are frequently loaded by the Use of Mercury.

Having now completed my Purpose in the foregoing Treatise on the Inflammation of the Globe of the Eye, and not intending to offer any thing

but what I think may be a new Conception of my own, I shall just treat of the *Anchilops* and *Ægilops*, and say no more concerning the Eye.

S E C T. II.

Of the ANCHILOPS and ÆGILOPS.

THE *Anchilops* is a Tumor proceeding from an Obstruction of the *Saccus lacrymalis*. In order to render the mechanical Cause of this Disease more intelligible, it will be necessary first to describe the *Saccus lacrymalis*, and its Use.

The *Saccus lacrymalis* is a Bag lodged in the inner *Cantbus* of the Eye, just under the *Puncta lacrymalia*. Its Use is to receive the Tears, with which the Eye is kept moist,

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that

that it may thereby move with more Freedom. There is one Duct into this Bag out of the Eye to convey the Tears into it, which would otherwise overflow the Eye-lids; and another Duct out of it into the Nose, to convey the superfluous Quantity of Tears down the Nostril.

This, for my present Purpose, is all the Description I need give of it; except in this material Circumstance, that it is lined with a *Mucus*, as I have said all the Ducts of the Body are, to defend it from the Acrimony and Inflammation which the Tears would otherwise occasion in it. Now whenever the lower Duct of this *Saccus* becomes obstructed, by the Eye-lids shutting together, and thereby driving the Tears through the *Puncta lachrymalia* into the Sac-

cus (if at that time its lower Duct into the Nose be stopped) the *Saccus* becomes so distended with the Tears, that the mucous Glands, which should only line the Bag with no more than is just sufficient, are by this means so stimulated, as to discharge *Mucus* enough to fill up the *Saccus*; so that the Tears can find no Admission thereby.

This *Mucus*, by lying there, produces an Inflammation; and from hence arises the Tumor here described called the *Anchilops*.

When the Tumor is formed, if you press it hard with your Finger, it discharges no Matter into the Eye, but a large Quantity of *Mucus*, not less sometimes than a Tea-spoonful. When it breaks of its own accord, it degenerates

degenerates in time into a *Fistula lacrymalis*; if not, you must, in order to cure it, open it with a Knife, rather than by a Caustic, which would take away great Part of the Skin, and thereby cause a much greater Scar: Besides, notwithstanding the Caustic, you are frequently obliged to use other means to go deeper through the *Saccus*. However, it must be cured as the *Fistula lacrymalis*, which is another Name for the *Ægilops*. I shall now proceed to treat further of the Manner of their Cure.

S E C T. III.

Of the FISTULA LACRYMALIS.

THE *Ægilops* and *Fistula lacrymalis* being the same, as I have before observed, I need go no farther to shew wherein its Cure must consist. Therefore, till these diseased Glands of the *Saccus lacrymalis* are destroy'd, no Cure can be obtain'd : To which End, if the Aperture or *Fistula* be not large enough, I divide it, and make it so either with a Pair of Probe Scissars, or the Knife, till I can, by the Help of my triangular Probe, introduce into the *Saccus* itself some acrimonious Medicine, which may excoriate and destroy the distended and diseased Glands of it. When this is done, the Cure is in a great measure effected ; to which end I have

have sometimes used the *Pulvis Angelicus*; at others I have dipped my Lint in a little of the *Lixivium capitale*: But Care must be taken not to destroy the *Saccus* quite through into the Eye, which indeed I have never yet seen done. The *Saccus* has often burst of itself, and from thence has occasion'd a Foulness in the *Os Unguis*; and when the Bone has come away, the *Saccus* has heal'd up.

This Accident has given Rise to a very injudicious Proposition toward obtaining a Cure; and that was, to burn with a Caутery thro' the *Os Unguis*, that thereby the Matter might have a Passage from the *Saccus* down the Nostril. How injudicious this Thought is, will appear to any one, who considers, that, by the same means that Nature fills up this Wound
on

on the Outside of the Nose, she must heal it up on the Inside also. Moreover, as the Perforation of the *Cranium* is ever filled up by a membranous or bony Substance, so must this.

I have seen a Caутery apply'd for this Purpose, which destroy'd the *Crepitum* or Edge of the Eye-lid to such a Degree as to cause a Lippitude, which proved a worse Disease than the former.

Others have preferr'd perforating the Bone only with a cold Instrument ; but the Impropriety of both Methods is equal.

Cures may have been performed by these Methods ; but then they happen'd by destroying the *Saccus* by the Accident of Burning or Perforation ;

foration; and so the Inflammation it occasion'd crisped it up: But I have so often found the Method I at first prescribed for the Cure of this prove effectual, that I dare pronounce it the best that can be used; keeping it open with a Tent dipped in the red Digestive for some time; or, if the *Saccus* have been distended very largely, it may be kept open with a small silver Pipe, till it comes to unite; but I never saw it do otherwise than well by this Method. For the same Reason I offer'd for treating of these Diseases of the Eye, I shall treat of some which affect the *Penis*. And first,

C H A P. XV.

S E C T. I.

Of a GONORRHOEA.

A *Gonorrhœa* proceeds from too great a Quantity of that *Mucus*, which, in a healthy State, should only line the urinary Passage.

It is generally occasioned from an Excoriation of the Glands which line the *Urethra*; as frequently those under the Prepuce are by the same Cause from a venereal Taint after Coition. But there is such a material Difference in the Manner wherein the *Urethra* is affected with this Poison, that it will be necessary to treat further of it.

If

If it happens, that, after Coition with an unsound Person, the mucous Glands only of the *Urethra* are heated thereby, and from thence a large Discharge ensues, it proves well both for the Patient and Surgeon ; for then there is a good Cure soon performed, to the Satisfaction of both. But this happens in like manner as when a Person breaks his Leg well ; for in this Case the Surgeon will set it well. Now suppose, instead of the Case before described, a Patient very unhappily infected, having little or no Inflammation, nor much Discharge, so that the Patient, and perhaps the Surgeon, are not apprehensive of any Danger arising from so small a Complaint ; for which Reason I shall endeavour to shew wherein the great Difference may

B b 2 arise

arise between being differently infected by the same Poison. And as that must proceed from the Locality of it, I shall first describe the *Urethra*, and such Parts of the *Penis* as may serve to illustrate this Matter.

The *Urethra* reaches from the Bladder to the Extremity of the *Glans*. Its Use is, to discharge the Urine at certain Seasons, and at others the *Semen masculinum*. Besides the common mucous Glands, which should uniformly line the Inside of it with the *Mucus* before spoken of, there are other large Glands, as the two *Prostratæ*, which lie just on this Side the *Sphincter*: They admit thro' them the Ducts from the *Vesiculæ seminales*, that when they discharge their Contents, these Glands at the same time may emit a Liquor to facilitate the other in its Discharge,

Discharge. There are other large Glands lower down, whose Operation is the same with the *Prostratæ*: These Glands have, by certain Ducts, a Communication with the inguinal Glands. The *Urethra* is composed of a double Coat, betwixt which is a spongy Substance, called the *Corpus cavernosum Urethræ*: This communicates with the *Glans Penis*; the Covering of which is formed out of the internal Coat of the *Urethra* in a kind of *Convolvulus* or Hood; which Membrane is terminated with the Origin of the Prepuce.

As I have before described other Parts only for the sake of what I am to shew concerning the Diseases of them, so in this I avoid saying more than will serve only to illustrate what its Disease may proceed from.

Besides

Besides the *Corpus cavernosum Urethræ*, there are two other Bodies called the *Corpora cavernosa Penis* : They are situated on each Side above the *Urethra*, and are of the same Texture with the former ; when distended with Blood, they all serve to increase the Size of the *Penis*. As the Inside of them is spongy, when the venereal Poison gets into that Part of the *Urethra* which also communicates with and forms the *Glans*, it renders the *Urethra* callous, and thereby the whole Length of it feels quite rigid. Now, beside the different Nature of the Poison where-with a Person may be infected, it becomes difficult to eradicate it from a local Situation ; for I have seen the *Glans* so distended with venereal Matter, that, by pressing it with my Fingers, it discharged as much as a
Sponge

Sponge of that Size could have done. In this State of the Case, tho' it is called only a *Gonorrhœa*, yet there is a wide Difference betwixt what is called a simple *Gonorrhœa*, and a Discharge from the *Penis* issuing from behind the Covering of the *Glans*, or from the *Capsula* of the *Prostratæ*, or the other larger Glands. From hence, when balsamic or astringent Medicines are too early given to the Patient, the Mouths of these Glands are sealed up thereby, and so the Poison is thence, by the Ducts leading to the inguinal Glands, convey'd to them; and if they inflame so far as to form Matter in them, when they are opened, and treated as they should be, they never fail to discharge all the Poison affecting the neighbouring Parts which com-

communicated with them, as well as from themselves.

If they will not come to Suppuration, I always, if the Patient will admit of it, divide the largest of the inguinal Glands into the Body of it with my Knife, and with my Fingers or *Spatula* turn out their Infides, or destroy them with Escharotics. This I take to be the easiest, the safest, and most expeditious Method of any towards a Cure.

In this State of the Disease you see a great deal depends on the Locality of it, as well as on the Degree of the Venom. A further Consideration may be had on the Cause of Shankers, and the large Clusters of the *Verucae*, which I have often seen possessing the Bottom of the *Glans Penis*. Now, whoever considers the

Nature of the internal Infection of the *Glans*, which I have seen and described, need not wonder that it should from thence infect the neighbouring Glands, and cause them to produce these Effects: For, as I have shewn in *Chap. VII. Sect. II.* concerning Warts, that they are produced from the Efflorescence or Prevalency of the Artery over the Vein belonging to each Gland that forms them, so when this Matter begins to obstruct these odoriferous Glands, as they are called, the Artery pushes more Increase upon them than the Vein can carry off.

And this may account for these Warts and Chankers, and also for the Carnosities which are so often found in the *Urethra*, which arise mostly from the Prostrates, and

sometimes from Mr. Cowper's Glands, which are situated about two Inches on this Side the *Prostatæ*; but, as I profess not to treat accurately of their Cure, I shall leave it to the Experience of every one who may be employ'd in it.

I shall proceed no farther with this Disease at present, but hasten to shew the Nature and Cure of a *Fistula in Ano.*

C H A P. XVI.

S E C T. I.

Of a FISTULA in ANO.

EVERY Impostume near the *Anus*, arising from Piles or otherwise (though not properly), is called by this Name; provided it extends itself up by the *Rectum*, or into different *Sinus's*. But that only should be called a *Fistula*, which having broke of its own accord, the Part through which the Discharge was made becomes healed on every Side.

If it reaches up high by the *Rectum* in various *Sinus's*, which turn many Ways, they must each be traced and laid open as far as is con-

sistent with Safety ; and if dress'd with red Digestive, the Patient does well. This is what concerns the common *Fistula in Ano* ; which, if rightly understood, is as easily cured as any other Disease.

There is another Sort, which I have never seen properly described : It will try the Skill and Patience of the most able Surgeon ; and yet, if persevered in with Judgment, is commonly curable ; I mean a *Fistula* rather *in Perinæo*, but commonly called *in Ano* : It arises from a Crack in the *Urethra*, which lets the Urine thro' it when the Patient makes Water ; whereby Impostumations through the whole Length of the *Urethra* are frequently brought on, which break through various Parts of the *Scrotum* from all of which the Urine is discharged

charged at one time. The Cause and Cure of it are as follows.

It proceeds from an Abscess first formed in the Prostata Glands, which breaking inwardly into the *Urethra*, as their Situation is just on this Side the *Sphincter Vesicæ*, on the Urine's passing out of the Bladder, the hollow Sore, which was the impoftumated Gland, is filled therewith ; which, in Process of Time, perhaps by the Coat of the Gland's being destroy'd behind, as well as it was forward in the *Urethra*, gets into the *Corpus cavernosum Urethræ*, causing the terrible Impostumations I am speaking of.

To cure this, you must trace every *Sinus* up to its Fountain-Head, and lay them open into one another ; for
as

as they sprang from this first Cause, till they are traced back to it, no real Cure can be obtained: And when they are thus laid open, you may commonly perceive the Urine come away backward through the Sore more plentifully for laying open the other *Sinus's* leading to it: But let not that terrify the Operator; for what he has done is justifiable; and thence he will, if the Parts are so treated, seldom fail of a Cure.

There is a still worse Disease proceeding from the *Vesiculæ seminales*, which are situated on each Side above the Neck of the Bladder; their Ducts entering the *Urethra* by the *Prostatæ*, and are frequently so infected by the Venereal Taint, as not only to convey it from them to the *Testes*, leaving the *Vasa deferentia* as hard

as

asa Quill; but sometimes the *Vesiculæ* themselves are also destroy'd thereby; from whence Impostumations arise, which discover themselves on the Points of the *Nates* near the *Perinæum*, which often bring on a Mortification of the Parts affected; provided the Surgeon don't cut into each Side as soon as he is sure there is a Fluctuation, not waiting, as in other Cases, for its coming near the Skin. This timely performed *f. a.* will effect a Cure, as I know many now living can testify.

Having treated of the external Parts of the Body as far as I intend to go, I propose to descend to the next Coat or Membrane under the *Cutis* or Skin, which is called the *Membrana adiposa*; the Use of this Membrane being to retain the *Adeps*
4 or

or Fat in manner of a Sponge, thereby to lubricate and nourish the Skin, which, for want of it, would, from the circumambient Air, grow as stiff as Parchment. In the first place I shall attempt to shew the Cause of the Putrefaction of this Fat, and the consequential Diseases arising therefrom; which will lead me to treat,

C H A P. XVII.

S E C T. I.

Of the VENEREAL DISEASE.

I HAVE before shewn by what Means this Venereal Poison gets into the Blood. My Intent, therefore, is now to shew what Situation it may have in the Body, and by what Means it so operates, as to cause the miserable Effects it produces for Want of a proper Remedy. The Venereal Poison chiefly affects the fat and unctuous Parts of the Body ; and this is not mere Conjecture, but it proves itself, when we observe the Parts which are most injured from it.

The Use of the Fat, either in the *Membrana adiposa*, or the *Medulla* in the Bones, is, from its mollifying
D d Nature,

Nature, to assuage and soften any Rigidness, which might begin either in the Bones, or on the Skin. Now, when we constantly perceive this Disease chiefly affecting the Bones, or the *Cutis*, it is no Question but that their Protector is become their Enemy, and so its oily Nature is turned to an acrimonious one; as if, instead of Oil, one should by Mistake use *Aqua Fortis* for any Purpose. Now, to bring this to the Point, the first and mildest Symptom this Disease shews itself in, is on the Skin, when it appears in small Copper-coloured Spots, as if they had been touched with somewhat dipped in *Aqua Fortis*; for that would occasion the same Appearance. At length they grow more formidable; and, as I doubt not but that the Fat in the *Membrana adiposa* is become diseased, so, instead of its protecting,

protecting, and keeping the Skin soft, it sends to it a burning Oil, which, as *Aqua Fortis* would, incrusts the Skin at length with great Scabs, and afterwards produces perfect Eschars ; yet is this the mildest and least dangerous Symptom ; as on the contrary, when this Disease affects the Bones, it is the most dangerous, tho' at first it appears the least formidable ; but this Complaint is only so from its Situation, and, in respect to that, it always becomes a sad one ; seeing that, let the Surgeon do what he will towards a Cure, till the Bone is opened, so that the poisoned *Medulla* may be discharged from thence, no proper Cure can be obtained. Where-ever therefore, as I have often before said, the Surgeon lets out the Disease from whence it was imprisoned, whatever may be further necessary towards a

D d 2

Cure,

Cure, it greatly assists it. This may account why Bathing much in warm Water not only assists this Disease on the Skin, but all others. I shall speak more of the Diseases of the Bones in their proper Place ; and shall therefore proceed to shew other Diseases affecting the *Membrana adiposa*, and, first,

S E C T. II.

Of the ANASARCA.

AS I before have shewn, that the *Membrana adiposa* is cellular, and that its Cells communicate with one another, as those in a Sponge do, I need only describe the Disease, and shew, that it is a Dropsy, or a Discharge of the Lymphatics into it, which should, by doing their natural Office, have conveyed it through the Skin.

Skin. If, by Purging, and what else is proper, it cannot be cured, it will be necessary to let it out by small Scarifications; for, when some of the Cells are opened, they, from communicating with the rest, frequently will empty the Part affected. I shall treat of another great Disease this Membrane is the Seat of, and that is a *Sphacelus* or Gangrene.

S E C T. III.

Of the SPHACELUS or GANGRENE.

AS the *Membrana adiposa* is always the Seat of a Gangrene or *Sphacelus*, I shall shew, that, after a Fever, when Nature attempts to throw off the morbid Matter of it by a *Phlegmon*, or an *Erysipelas*, on the Skin and *Membrana adiposa*, the
Load

Load of it may be laid on both sometimes, so that the *Cutis*, which was at first affected with it, has, by outward Applications, been relieved ; but the Membrane having been distended beyond its natural Tone, it mortified : And thus, as if a Man's Waistcoat were burning, the Fire would not shew itself, till the Coat is burnt thro' in divers Parts at the first Appearance ; in like manner, the *Ichor* proceeding from the Membrane underneath destroys the *Cutis* at once, perhaps, the whole Length of the Limb which it affected, without giving any Warning ; and herein it manifestly differs from a Mortification, which proceeds generally from a Privation of the Nourishment of the Skin, Membranes, and Tendons, all at once. Scarifying the Skin in a Gangrene is a very idle Practice, unless the Surgeon, if he

he hath Sagacity enough, when the Membrane is not destroyed, but only ready to suffer, then cuts largely through both, and thereby lets out the inflamed Juices, which distended it, and by that means takes off its Tension. In such an Act he shews both Judgment and Resolution; such good Treatment, continued, may cure the Patient. Having said what I proposed on the *Membrana adiposa*, I shall begin to treat of the Joints, Muscles, and Tendons, with some of their Diseases.

C H A P. XVIII.

S E C T. I.

*Of the Diseases of the JOINTS,
MUSCLES, and TENDONS.*

BEFORE I treat of the Diseases of the Joints, it is necessary to speak of the *Sinovia*, or what is vulgarly called the Joint Oil, with the *Ligamentum Bursale*, formed out of the *Periostium*, which is a strong Membrane that covers the Bones. Now as every Joint of the Body would, by constant Use and Motion, grow dry, and unable to act, were it not for the *Sinovia* before spoken of ; so this *Sinovia* would not be retained in the Joint, did not the *Periostium* of one Bone continue on to the next, and thereby form, over the Joint, the *Ligamentum*

gamentum Bursale, which, like a Purse, contains this oily and slippery Fluid in it, to moisten each Extremity, and preserve them smooth, as Nature formed them, by capping the Extremities of each Bone with another Substance called a Cartilage. This being a true Description of every Joint, I need say no more, but first treat of one of the worst Sort of Diseases which affects any Joint, and that is, of a Luxation of the Head of the *Os Femoris*; I do not mean a Dislocation caused by a violent Accident, but from a Humour formed in the *Acetabulum*, which corrodes the Head of the *Os Femoris*; and from thence large Impostumations arise, which give infinite Trouble to the Surgeon, by employing his best Skill, and often not to his great Advantage or Credit; for, on the first Appearance of these

Impostumations, by the Matter beginning under the *Ligamentum Bursale*, the Joint is distended greatly before it breaks of itself, few Surgeons caring to be very enterprising in these unhappy Cases, which, after all his Care and Skill, will often, by too great a Discharge of Matter, run off his Patient ; and, if he happens to recover, it is generally on very bad Terms ; for though, during the first Distention of the *Ligamentum Bursale* and the *Ligamentum Teres*, the Limb at first is elongated, yet no Cure is ever obtained, that I have seen, till the Head of the Bone has become carious ; and thence, after a long Attendance, it has insensibly mouldered away in a long Discharge of Matter, and so in the End the Limb is left as much too short, as at first it was too long. The Head of the Bone, or the Joint of the
Hip,

Hip, is so furrounded by a Number of short strong Muscles, besides the *Vastus Externus*, that no Surgeon will like to cut thro, whereas, on the first Formation of Matter, after all other Means have been tried, it might have been the best Method to be pursued ; for want of which the Matter generally gets into the *Fascia lata* which embraces the Muscles of the Thigh as a Boot does the Leg, and thence it frequently insinuates itself amongst all the Muscles, and thereby renders the Cure difficult, which generally depends on making a free Discharge of the Matter, by passing into the *Sinuses* large *Canulas*, or by opening them so, that the Matter, as it is made, may be constantly dislodged.

I have described the natural Cause of this Disease, and its Cure ; but,

as it commonly gives the Surgeon more Trouble, and procures him less Esteem, than most others, it may be proper to consider the Origin of it more fully, by which I shall perhaps more easily explain some other Diseases of the Joints and Tendons, when I come to treat of them.

I have mentioned the *Sinovia* of the Joint; but, as it is of infinite Consequence to the Use of a Limb, I will, if I can, explain the Cause of its becoming diseased. The *Sinovia* should ever be a Fluid, left as soft as Oil, to keep the Joints pliant and free in their Motion. Now, when it becomes otherwise, it must answer quite different Purposes: For Instance, good Olive-Oil is fit to oil a Lock withal; but if, instead of it, you oil your Lock with Oil of Vitriol,

trisol, I need not tell you the Consequence. But it may be asked, Since there are in all the Joints Glands formed in Conjunction with the medullary Ends of the Bones, to separate this soft Fluid, whence can it become so acrid, as to corrode and dissolve the Head of the Bone? To which I answer (as I before said), When the Juice of any Part falls in, and improperly joins, with that of another, they both from thence may become diseased. Now, when the *Sinovia* is separated alone for the before-mentioned Purposes, it is a soft, and gentle Fluid; yet if, by Accident, the *Ligamentum Bursale*, or any of the Fibres belonging to any other Ligaments of the Joint, be cracked or broken from an Overstrain or Contusion, it from thence weeps
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and discharges its Juices into the *Sinovia*, it thereby becomes inflamed; and so the Limb, for want of its slippery *Sinovia*, becomes uselefs; and, when it is so, there can be no great Hope of getting rid of the diseased Fluid before described; for, as it may be observed, nothing is or can be made in vain, whether or no we are able to find out their Uses, so the *Sinovia* is occasioned, as the *Saliva* is, merely for its Use, and by Necessity; for, just as the one is increased by Mastication, so is the other by Walking, or using the Part. Therefore, when the Muscles grow uselefs, they cease to employ the *Sinovia*. Wherefore, when the *Ligamentum Bursale* begins to be distended with a diseased Fluid, dipping the Patient into a cold Bath is often prescribed, thereby

thereby to keep the Part, as much as may be, from Fluction. Bleeding, and gentle Purging, for the same Purpose, are prescribed, and a discutient Plaister, is also applied, in order to give a Perspiration to the outward Parts, that those underneath may also, as being their Neighbours, feel, by their Communication, the good Effects of it.

I have been shewing how, from an external Accident, this great Disease may be produced ; but, as it oftener happens from an internal Cause, I think proper to shew, that, as a scrophulous Disease of the Bones frequently produces the same Effect as the Venereal does ; so when the Blood in general, or the *Medulla*, becomes tainted with a scrophulous Mixture, the *Sinovia* must thence partake of

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its Nature. From what I have said on this Disease, I am induced to treat of the *Anchylosis*, or White Swelling of the Knee, the Elbow, or the like.

S E C T. II.

Of the ANCHYLOSIS, or WHITE-SWELLING.

I H A V E said so much in the former Chapter on the Origin of an Impostumation on the Joint of the Hip, that, as this arises from the same Cause, I shall only shew, from my Experience, how it may be cured. There are none of them curable after any of the Cartilages have been at all eroded ; but I have cured many of the Knee, and other Joints, after they have been very large and painful.

An

An Anchylōsis is a large Tumor on the Knee, the Elbow, or any one of the large Joints of the Limbs, without any Appearance of an Inflammation, from whence it has the Name of the White Swelling given to it. It frequently, by causing a Contraction and Stiffness on the Joint, renders it quite useless.

In order for a Cure, my Method is, to bleed them, and keep them in Bed, applying quite round the Joint a discutient Plaister of the *Emp. de Sapon.* This in Winter I have warmed, as I pleased, by adding the *Emp. e Cymīn.* By thus keeping the Patient constantly in Bed, not inviting the *Sinovia* to increase on the Joint by the Motion of the Limb, and by keeping the Body more inclined to perspire than when out of

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Bed,

Bed, and the Joint being in a more than ordinary Perspiration all the Time by the Use of the Plaister, I have effected many Cures ; but I never saw one performed by the Methods formerly in Use by the first Men in our Profession ; which was, to give the Patient *Turbeth* Vomits, and apply the *Calx* Pultice, which was made of the Sediment of the *Aq. Calcis* mixed with some of the warm Herbs powdered. As I have said all I intend on this Disease of the Joints, I shall proceed to shew, that the *Sinovia* is as necessary to the Use of the Muscles and Tendons, as it is to the Joints ; and, by explaining it, I shall the more easily shew the Diseases it may occasion on the whole Limbs. I shall therefore from hence take the Freedom to give my Thoughts on the Gout.

S E C T. III.

Of the GOUT.

THE Gout is a painful Swelling generally beginning in the Joints, as I apprehend, from the *Sinovia* becoming diseased. I have said before, that the Muscles and Tendons do all of them move in a *Vagina* or Sheath, which retains their *Sinovia*, as the *Ligamentum Bursale* retains it on the Joint. Now, as I have shewn, that the Use of the Limb increases, and at the same time disposes of the Quantity it causes of this *Sinovia*; so, whenever a Superabundance of it, by too great a Degree of Nourishment, without Exercise, becomes more than the Patient can afterwards carry off by Exercise, that Quantity will, by lying longer in the Joint than it should, grow rancid;

cid ; and, from the thinner Part of it being perspired, the Remainder may be inspissated or thickened ; and thence it causes the Parts, it used to lubricate, to be inflamed. Now, though this Disease generally begins in the Joint, it sometimes conveys itself, from the same Cause, down into the *Sinovia* lodged in the *Vagina* of the Tendons. And this may account for the difficult Motion of the Muscles, as well as for the burning Pain in the Joints from the Gout. Nor does it end here, when it becomes habitual to the Patient : A small Accident of a common Cold produces it ; for, where-ever Parts have been contaminated or extended by any Kind of Disease, they the more easily admit it ever after. Besides, this Disease, when it is thus formed, is liable to be translated to other Parts, as to
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the Head, the Lungs, the Stomach, the Kidneys, the Urinary Passages, &c. The Origin also of this Disease may sometimes proceed from an hereditary Taint; and, tho' I cannot then account for the Form of its Subsistence, I may be allowed, I hope, to speak of its Effects. Therefore, as there must be another besides an hereditary one, I have endeavoured to shew, that the first mechanical Cause of the Gout arises from the Source I have ascribed it to. Whoever further attends to its Symptoms, and the Nature of its Cure, may be the more inclined to concur with me about it. I have said, in a former Chapter, if, by any means, the *Sinovia* changes its natural Oiliness, and becomes as an Oil of Vitriol, it thence serves as a Caustic, heating and burning the Parts it was intended to succour.

Now

Now examine, from the Symptoms occasioned by the Gout, if I have not here shewn the Cause of it ; for the Patient is generally first affected in the Joint of the Great Toe, as it is a large Joint, which from thence may retain the greater Quantity of the *Sinovia*, and also from its being situated at the extreme Parts from the Heart, which is the first Mover of the Blood ; so that, not having the full *Impetus* of the Blood, as the larger Joints, which are nigher to the Fountain-head, it from thence lingers, and begins to stagnate in that Part, where it burns as Oil of Vitriol would, till, by Length of Time, it gets through the *Ligamentum Bur-sale*, after which all the exquisite Pain begins to abate. As the outer Membranes cannot give it so great Opposition as the former did, and as
its

its Strength and Acrimony is abated by its mixing with the other Fluids it meets with in passing off by Perspiration (but yet in a smaller Degree) its burning Quality remains ; for, in its Passage, it affects the *Membrana adiposa* and *Cutis*, and, by its obstructing their circulating Juices, it causes them to swell greatly, and sometimes leaves their Tone not recovered a very long time after. Such Persons, whose Membranes have been often pervaded by this fiery Enemy, lose the total Use of their Limbs. When this happens, the Membranes have been so frequently distended by the *Sinovia* passing through them, so that they become at length quite easy in every Fit for the future, from the Apertures it has occasioned by its passing through the Membranes, whereby it enters the Muscles,

Muscles, without causing Pain, and by this means at length the Limb becomes quite stiff and useless. If the Cause I have given for the Gout be not a true one, I should be glad to find another Conjecture which will appear so probable as this does ; but when I make it appear, that the cretaceous Matter, which, in an healthy Person, is only subservient to the Use of the Bones, and in this Disease, and the Stone, it strays out of its natural Bounds ; and that in the Gout it forms within the *Ligamentum Bursa-*le, at first, a chalky Matter, and at length it produces perfect Chalk, with which a Person may write as with common Chalk ; I think I need not beg the Question, but absolutely pronounce, that the Origin of the Gout is as deep as where this Chalk is produced by it.

It

It may be worth Inquiry, how this Chalk is separated from the Bone into the *Ligamentum bursale*; but when I treat of the Diseases of the Bones, and shew, that both the Venereal Disease and the *Scrophula* will not only destroy this Chalk, but the whole Compages of the Bones, and when I have made it appear, that the Diseases of the Bones are as uniform as those on the Skin, and that they travel from each other quite through them all, we need not wonder, that, since we find this Chalk in the Joint, it must be brought out of the Bone with the gouty *Sinovia*. For I am of Opinion, that the *Medulla* of the Bone helps as well to supply the *Sinovia*, as to keep the Bones from becoming too fragile: It is true, the Middle of the Bone contains the greatest Quantity of the *Medulla* to

Appearance; but when we see the Heads of the Bones are like a Honey-Comb, for what Use is it, but to convey the *Medulla* more immediately to the Extremities of the Bones?

Now, if from hence we may perceive the Diseases of the Bones travel about from one to another, the *Creta* in the Joint, occasion'd by the Gout, may be accounted for; and as it will not be retained in the Ligaments of the Joints only, but in Time work thro' them, so it may, by the Apertures made by the Disease in the Heads of the Bones, shew why the Chalk gets out thro' to the Joint.

Those who have been subject to the Gout for a long time, will find the Muscles liable to grate in their Motion, occasioned oftentimes, by walking too much; and, for want of a
proper

proper Supply of a kindly Secretion of what should lubricate them, thereby bring on a new Fit, which otherwise the Patient would have escaped.

As to any Method of preventing this Disease, no absolute Rules will, I fear, ever be established ; because those who are of a hot Constitution, and breed Blood plentifully, must either abate in their Living, or use great Exercise, before the Body becomes habituated to the Gout ; or else they must lose Blood, and, by lenient Purging, keep the Body cool ; for it will be too late generally, after this Disease has made its Inroads, to bring the Constitution into its pristine State. Again, those who have it from too slow a Motion, where this Matter will lag by the way, and the Persons are of a

cold Constitution, must use a contrary Regimen to the former; and by this means they may sometimes push off what otherwise may cause this Distemper, by drinking more liberally of generous Wine.

I shall say no more of this Disease, but only observe, that I think the Occasion of it chiefly arises from the Redundancies of Nature; and rather from eating too much, without using Exercise enough, than by too much Drinking: And the Cure of the Symptoms can proceed only from keeping the Parts affected very warm; by which the burning *Ichor* may be transpired or sweated away.

As I am treating of the Diseases of the Joints and Tendons, before I speak of the Bones, I shall consider the Method of curing a pricked Tendon.

S E C T. IV.

Of a Pricked TENDON.

WHEN a Tendon is wounded, as I have shewn that they all move in a *Vagina* or *Capsula*, the Fibres of the Tendon, which have been divided, discharge themselves into the Wound, and, by the Motion of the Tendon, it is drawn up and down in the *Vagina*, and so the Discharge mixing with the *Sinovia*, the two Juices become an inflamed one; which, if not soon discharged, by laying the Wound open, insinuates itself sometimes throughout the whole Length of the Muscle: And if it be the Tendon of one of the Fingers, or the like, it must always be laid open as soon as it can be; for after it has been exposed to the Air, it must produce
Incarnation,

Incarnation, and, on healing, adhere to the *Vagina*, and from thence cause a stiff Joint.

As I am treating of the Tendons, I shall consider the Cause and Cure of a *Ganglion*.

S E C T. V.

Of a G A N G L I O N.

A *Ganglion* is a Tumor arising from a strained Tendon. Those of the Wrist are more subject to this Disease than any others of the Limbs are: The Reason is, because the Tendons of the Hands are oftener strained, by lifting heavier Weights, in proportion to their Strength than any others are. As the Strength of a Tendon arises from its Fibres, so when one or more of them cracks,

its

its Fluid discharges itself into the *Vagina*, and there it is retained, appearing like the White of an Egg. If it has lain there long, its thinnest Parts will perspire away, leaving what remains of the Consistence and Appearance of the vitreous Humour of the Eye.

It may often be cured by Accident, when, by a Knock, or greater Strain than the Membrane will bear, its Texture is so alter'd, that thereupon this Fluid perspires quite away.

This I have often seen ; but if, by this means, it gets backward amongst the Tendons of the Wrist, as great Care must be taken in the opening of them, as in the opening of an *Ecchymosis* : For, as I have shewn the Air will agitate every Globule of the

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Blood

Blood in an *Ecchymosis*, it will in like manner affect every Part of this extravasated Glear, inflaming the Neighbourhood, which retained it, to such a Degree, as to endanger the Life or Limb of the Patient. For which Reason, if it is to be opened, let the Surgeon consider how deep the Glear may reach ; and if it appears to lie no farther than in the *Vagina*, provided it be opened largely, and treated as it should be, it will do well.

C H A P. XVIII.

S E C T. I.

Of the BONES.

I SHALL now first of all describe the Formation of the Bones. The Bones, as I have said before, in their first Formation, are, in an *Embryo*, hardly solid enough to be called membranous: As the other Parts become more compact, the Bones grow harder, by a chalky Matter, which will be retained in them: When this Chalk begins to shew itself, its first Appearance is on those Parts of the Bone which become hardest and most compact, in the Form of small Stars, whose Points every-where decussate, and shoot their *Radii* over each other, until the soft Membranes, being har-

H h dened

dened by this Chalk, become the Bones we observe in all Animals.

Whilst these Bones are growing and distending with the young Animal, the membranous Parts distend at the same time that the *Calx* is adding to them ; and so the Bones, not being overcharged with this *Creta*, acquire such a Degree of Flexibility, as occasions them to bend before they can be broken. And from hence arises the Difference between the Nature of them in Youth and Age ; the Cause of which I never expected to have explained ; but is, according to my Apprehension, as follows.

I have often heard it asked, Why the Gravy of all young Animals, after they are dressed fit for eating, turns to a Jelly ; when that of the
same

same Sort of Animals, of a greater Age, does not; yet never heard a satisfactory Answer given to this Question: But whoever considers the Use of Mr. *Papin's* Digester, which will dissolve the hardest Bone, so that it may be eaten with a Spoon, may account for it, from there being so much more Heat necessary to dissolve a hard Bone than a soft one.

As every one has not seen nor consider'd the Nature of this Digester, it may not be improper to describe it with its Use. This Digester is no more than a Boiler made very thick with Iron, having a very strong Cover, which is fastened on with iron Bandage and Screws, of as great Strength as possible, that it may not burst, and thereby destroy the Operator. In this the hardest

Part of any Bone may be dissolved, by adding Water to it, and applying a proper Degree of Heat, which will so rarefy the Water, that the Steam, not being able to escape, is sent into the Bone with such a Force, as to dissolve the membranous Parts of it; whereby its Chalk is let loose into the Soup, which was produced from the membranous Part of the Bone. When this is done, by adding warm Water you may wash the Remainder till you may, by the naked Eye, discover it to be mere Chalk. The Bones may be macerated in Acids to cause them to produce the same Effects. I shall say nothing further on this Subject, but only consider how the Bones and Membranes may be dissolved by Heat only.

Whoever

Whoever considers, that the Method of making Glue is by dissolving the membranous Parts of Animals in Water by boiling, may from thence, and from the Dissolution of the Bones before described, infer the Cause whereby the Gravy of Lamb and Veal is converted into Jelly, when that of Mutton and Beef will not : For in the former, the Bones and Membranes are in their tender and growing State ; and therefore a small Degree of Heat, whether in boiling or roasting, will be sufficient to dissolve them into their Gravy, and cause it to jelly ; whereas, after they are become more compact, and fully saturated by Age, we find the Heat of *Papin's* Digester is but sufficient for the Purpose.

I have

I have now described the Formation of the Bones, with the Cause of their Density, and have also shewn how they may be dissolved by Art. I shall in the next Place endeavour to demonstrate what Diseases they may be affected with, or dissolv'd, whilst they remain in the Body: And as we find the Bones of young Animals are easiest dissolved when out of the Body, I shall therefore first treat of the Disease which affects the Bones of young Children; which is the Rickets.

S E C T. II.

Of the RICKETS.

THE Rickets in Children are discover'd by the Swelling of the Joints, and by the Bones becoming

becoming so soft and tender, as to yield and give Way in all Parts, but more especially in their Heads and Extremities ; so that there is not a sufficient Quantity of this *Creta*, in proportion to the membranous Parts, to make them strong enough to bear the Weight of the Body : But as the Nourishment, in Children affected with this Disease, is in general too luxuriant, the Bones partake of it, and from thence (more particularly at their Extremities) they cause the Joints to become weak, and very much deformed.

To cure this Disease, Care should be taken to send this sort of Children into a sharp Air, and to feed them with more austere Diet than ordinary, rousing their Blood by shaking and tossing them often, giving them

now-and-then a little red Wine, and dipping them every Morning in cold Water. This may be the best Means to set Bounds to this Luxuriancy in the Growth of the Bones ; for, till the *Creta* is separated to a certain Degree of Solidity, the Bones are liable to receive too much Nourishment.

The Heads of these Children will sometimes dilate to an enormous Size ; but, by using some of the preceding Methods with them, they are in time generally restrain'd, and the Children outgrow the Disease.

This Distemper is supposed to arise in the Bones of Infants during their Growth ; but as there is a second, which sometimes affects them a little

a little, I shall describe it in the following Section.

S E C T. III.

*Of the Scrophulous Disease in the
BONES.*

THE scrophulous Disease in the Bones appears generally in young Subjects, but not so early as the Rickets do. In the Rickets, the Bones give Way in their first Formation; but this scrophulous Disease never affects them till they are completely formed.

A diseased *Medulla* is the Cause of the Dissolution of a scrophulous Bone; and, as I have before shewn, whenever the *Medulla* is not serviceable to the Parts it was to succour, it must be-

become prejudicial to them ; and from hence arises that which is whimsically called the *Spina ventosa*, which is a great Swelling of the Bone itself.

There is this Difference betwixt the Swellings generally produced from a scrophulous diseased *Medulla*, and those produced from a Venereal diseased *Medulla* ; the *Spina ventosa* of the scrophulous kind does not begin to decay externally, but, like a Pear, perishes from the Heart of it : For when the poisonous *Medulla* has begun to destroy any of the Blood-vessels belonging to a Bone, it does not cease till it has consumed them all.

When this is the Case, there remains nothing to be done ; but if it happens in a Finger, the best Method
is

is to extirpate it at the Joint: If in the carpal or metacarpal Bones, &c. pinch off as much of them as you can with a Pair of Watch-maker's Pliers, that thereby a Discharge of that poisoned *Medulla* may commence; for, as it is manifest that the Diseases of the Bones are communicated to one another through the Body, as the Diseases of the Glands are, so in both Cases nothing relieves them properly till they discharge their Enemy from the Camp; and by this means the *Medulla* will be renovated, by a Succession of a more healthy in the Place of the diseased Kind.

By this means the Blood-vessels which are not destroy'd in the remaining Bones, may be reprieved, and at length saved; for where they

are once destroy'd, no Incarnation can ever be produced.

As a very fetid *Ichor* ever flows from the *Medulla* of such Bones as I have been describing, altho' I do not intend in general to prescribe Dressings in the Cure of such Cases as I have been hitherto treating of, yet as this *Ichor* is frequently so sharp as to admit of no Plaister, or what may, by retaining it on the Skin, cause it to excoriate, and emit a most nauseous Stench, I recommend *Aq. Calcis* camphorated, which does better than any thing to dress these Sores withal, if it be apply'd internally with Lint pressed out of it warm, and externally at the same time by Linen in several Folds pressed out of the same *Aqua Calcis*. Great Endeavours should be made to open these
these

these Sores as large as conveniently they can, to come at the diseased Bones early, and pinch them out before the Skin has been much heated and inflamed by the *Ichor*.

As I have been somewhat prolix in this Section, I shall proceed to treat of the Diseases in the Bones arising from the Venereal Distemper.

S E C T. IV.

Of the VENEREAL DISEASE
in the BONES.

I SHALL have the less Occasion to dwell long on the Description of this Disease, having said so much before on the Causes of other Distempers

pers of the Bones proceeding from a diseased *Medulla*, therefore I shall only endeavour to shew the Cause of the different Effects produced from the diseased Marrow of a scrophulous Person, and from that in a Person affected with the Venereal Disease.

Many are liable to reckon them of one Species, from the Effects they each produce ; but on account of the Numbers of Children, who are descended from worthy Parents, being greatly affected with scrophulous Complaints, I shall suspend my Sentiments upon it. But tho' the Bones are subject to be quite destroy'd by the infected *Medulla* in both these Diseases, they differ vastly in the Manner of their Operation ; for, in the *Scrophula*, it destroys the Bone quite through at once ; but in the
Venereal

Venereal Disease, it oftener begins its Mischief externally, first raising and thickening the Membrane or *Periostium*, by the poisonous *Medulla* or Oil that lies under it.

But perhaps this different Operation may proceed only from the different Subjects it operates upon; for the scrophulous Distemper seldom affects any but young Persons; and their Bones being very tender, it destroys the Whole at once. It must be confessed, that, in the Venereal Disease, when it seizes on the more spongy Bones, it acts in the same manner as in Infants; as for Instance, When the *Os Nasi*, or *Os Palati*, are at all affected, it seldom or never happens but that the Whole of them is destroy'd. For, as I said before, if their Blood-vessels are destroy'd

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(which in these Bones are very numerous), the Bones themselves cannot be supported. And although the Patient be quite clear from the Venereal Disease in all other Respects, yet if the Compages of these Bones have been destroy'd, they will moulder away a long time after, to the Disgrace of the Surgeon, in the Opinion of some, who notwithstanding is no-way to blame.

The more solid Bones, as the *Tibia* and the like, are from hence not so liable to be attacked all at once; and therefore they generally begin to have their *Laminæ*, or rather Fibres, affected externally, thereby heating and thickening the *Periosteum*.

When this is the Case, the Tumor of the Bone is called a Node, which seldom

feldom or never has any Matter, must be open'd to discharge the diseased *Medulla*, or else you never can properly cure your Patient.

I know the common Method of doing it is a very bad one, being very painful to the Patient, and very tedious in the Cure, which is to apply a Caustic on the Node, which seldom or never reaches deeper than to the inflamed *Periostium*; this is afterwards generally to be got thro' by Escharotics, and when the Bone is laid bare, which is commonly found soft and spongy on the Outside of it. To dry up this diseased *Ichor* of the Bone, the *Pulvis Calcis*, *Pulvis Euforbii* or *Aluminis usti*; but, preferable to all the *Actual Caутery* is generally apply'd, that the sound Parts underneath may, by

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their

their Granulation, cast off those which are diseased.

My Objection to either of these Methods is, that as you cannot guess whether the Node be rotten quite to the *Medulla* or not, what End does the Burning answer, if it serves to dry up the exterior Part of the diseased Bone, thereby enabling the sound Part underneath, by Incarnation, to cast it off? which I acknowledge it sometimes may; yet, for once where it answers this Purpose, it ten times does the contrary; for the Operator, not knowing how nigh he may be to the sound Parts underneath, or whether he may find the Parts destroy'd quite to the *Medulla*, burns on frequently when he should not; thereby consuming the young Granulation
from

from time to time just as it is forming, to the great Delay of the Cure.

To prevent all of these Evils, my Method in opening all Nodes is, to apply a Piece of Plaister, the Length and Breadth of the Node, and, by each Side of the Plaister, I divide with a strong pointed Knife the Teguments quite to the Bone, and do the same at each End; by which the Piece in the Middle becomes as an Island. I then take one of my Sculpers, or broad Gravers (for I have always two of them, one half an Inch broad, and the other half as broad as the former), with the largest I enter under the *Periostium* at the End of the separated Island before described, and with it I bring away as much of the spongy Bone as I can, and what remains I continue

to sculp it all away at that first Operation, till I feel some sound Parts of the Bone underneath with my Graver ; if I find none, but that I get to the *Medulla* before I find any Blood-veffels in the Bone, there is nothing to be hoped for ; but that the other Side of the Bone may not be quite destroy'd ; and if it be not, a good Cure naturally follows from the Discharge of the poisonous *Medulla*, without which it always communicates the Disease to the neighbouring Bones.

I have seen a Sceleton with every Bone of it carious ; for, as I before remarked, if the Bones are affected, the Distemper makes its Progress through all of them, and spares the rest of the Body ; in like manner
when

when the *Cutis* is affected, the Bones seldom or never are.

My Manner of operating on the Bones has this Preference to that of a Caustic, that I perform the whole Operation at one and the same time, before any Heat or Turgescence from the coming on of Digestion is arisen on the Edges of the Wound ; whereas, if the Bone is laid bare by a Caustic, a large turgid broad Sore is made before any thing can be attempted ; but, in my Method, the whole that Art can do is performed at once with much less Pain than the Patient would have suffer'd in the same time, only during the Operation of a Caustic.

I would not be understood to mean that I am wholly against the Use of
a

a Cautery on any Occasion ; for the passing a Cautery into a carious Bone, or the like, may possibly be of some Service ; but, in burning the Surface of a Bone, as you cannot know how nigh you are to sound Parts, so you may be destroying what your Graver or Sculpter immediately would have discover'd, when the Bone begins to shew any Signs of Bleeding ; for then you may be sure Incarnation will follow.

I find this Graver of great Service in the small Bones, which are softer than the *Tibia*, as the Ribs, the *Os Calcis*, and the like, whose Surfaces only are often foul'd, after the *Periostium* has been destroy'd by any means ; for then it frequently is not advisable to expose them to the Air, by laying open the Part which covers them ;

them ; and sometimes you cannot if you would, by reason of your Situation : In such a Case you may pass your smallest Graver almost where you can a Probe ; and if thereby you can cause the Bone to bleed, it will soon be cover'd with young Flesh ; without which it proves more carious, the more it has been greased with Medicine, or exposed to the Air.

This Doctrine may serve to shew how a *Callus* is formed in a broken Bone ; for first the Blood-veffels, which are opened in the Bone, form a Granulation, which receives a Density from the cretaceous Matter shooting into it, which originally hardened the Bone.

Having, as I proposed, shewn the different Diseases of the Bones, with
2 the

the Nature of their Cure, and being inclined to go a little further, following the same Method I have hitherto pursued, which has been to treat next of such Diseases as the Reasoning in the former Chapter led me to ; therefore, as the cretaceous Matter in the Bones, when out of its natural Situation, must be the efficient Cause of the Stone in the Kidnies and Bladder, as well as in the Joints of such as are afflicted with the Gout, I shall proceed to speak of it.

C H A P. XIX.

Of the STONE *in the* KIDNIES
and BLADDER.

TO shew the probable Cause of this Disease, I must have Recourse to what I formerly have advanced, *viz.* that every Secretion or Separation of any kind of Matter in the whole Body is owing to the Form of the Strainer it is secreted by; and therefore I shall first shew, that the Nature and Use of the Kidnies, in a sound State, are to separate the Urine only: Now, as their Situation is nigh to the great Artery, which supplies them by the Emul-gents with the great Quantity of Blood out of which the Urine is secreted, it is no Wonder, that, from
L 1 thence,

thence, and the great Pressure they are liable to receive sometimes after a Debauch, or from their being charged after a Cold by glutinous Matter in the Blood, that those Ducts in the Kidnies, which were adapted only to secrete the Urine, should be overstrained, and from thence enlarged; whereupon they begin to let more than Urine through them into their *Pelvis*; and perhaps the *Mucus*, which should be no more than is sufficient to line the urinary Passages is increased, and so it begins to lodge by the Way. If at this time cretaceous Matter shoots into it, here commences what is call'd a *Saburra*, or a petrify'd Slime.

In this Case, bleeding the Patient, to take off the *Impetus* of the Blood, and large Draughts of Whey made of the purging Waters, or common

mon Whey with Salts, and sweetened with soft Syrup, being taken, may cause the Urine to flow more plentifully, and by that means drive the *Mucus* along with it. If they do not, and the *Saburra* grows too large, and hardens by its Stay in the Kidney, then it becomes a *Nucleus*, or the Beginning of a Stone ; which, if it continues there, may increase to a great Size ; if it descends into the Bladder, and passes not from thence, with the Urine, it becomes a Stone of the Bladder ; for in all People there wants a Beginning or *Nucleus* only, for the calculous Matter to shoot on to produce a Stone, as may be seen by the Quantity of this Matter which an unglazed Chamber-pot will shew, when it has not been cleaned for a long time. And as those who have the Gout are most

liable to be troubled with the Stone, it seems to me that the Gout lets loose the cretaceous Matter from the Bones into the Blood, and from thence I suppose it to be discharged into the Kidnies in the forming a Stone.

I have treated this Subject of the Stone as a Conjecture only, and therefore shall say no more concerning it; but as the Disease I propose to consider next has not been directed, by any thing already treated of, to be spoken to, and as it relates to the *Thorax*, I have reserved it as the last.

CH A P. XX.

Of the EMPYEMA.

THIS Disease is an Impostumation in the Breast; and as most Authors recommend to the Surgeon not to open them till some thin Point offers itself to the Touch, it gives me the Occasion of treating of this Disease: For there are many People now living, who would not have been so, had it not been for a peculiar Observation I have made, from the opening a dead Body heretofore, whose left Hemisphere of the *Thorax* was so full of Matter, that, the Ribs were all lifted up with it. when I open'd the Breast, it discharged more than a Gallon. This set me on examining afterwards into this Disease, and by the Result of

of that Examination I have been instrumental in saving the Lives of many, who if they had stay'd till some Point had offer'd would probably have lost them: For I have very often discharged not less than a Gallon of purulent Matter at once through an Aperture made by Incision betwixt the Ribs, when no Inflammation has appear'd on the Part.

The best Method of doing this Operation is to divide the Skin with the intercostal Muscles near to the *Pleura*; and that I chuse to push thro' with my Finger for Safety. When I have discharged the Matter, I keep the Wound open by a *Canula* large enough to discharge such glutinous Matter with small Sloughs through it, as are often separated from the Lobes of the Lungs: For I believe these Abscesses, when they are quite in the Cavity, generally

generally proceed from the Lungs ; and probably the *Empyema*, which appears inflamed outwardly, and comes to a Point, arises from a Pleurisy, or an Inflammation only of the *Pleura* ; although it may distend itself largely inward at sometimes.

That which I have described, I never saw discolour'd ; but the affected Side of the Breast seems greatly distended ; the Ribs not falling one after another, but appearing on a strut ; not but ocular Demonstration in this Case is far better than Description.

I had not mention'd this Disease, had I ever met with it thus distinguish'd before ; therefore I thought, it suitable to the Purpose of this Treatise, which was only to account for such Things in my Profession, as no Author I have met with has yet

2 done.

done. As I have now finished it, I must submit to the Public of what Service it may be : And altho' I give my Opinion only, without Regard had to any Author, yet, on shewing the Chapter on the Venereal Disease to a Friend, he said my Notions of it were those of Dr. *Boerhaave* : I answer'd, I was glad of it ; and tho' I knew no Book that contained one Description like mine, yet I should be very well pleased to find them all in some Author or other. And as to the Favour or Disfavour of my Readers, if it be approved of by such who know little, and they shall say they knew it before, or if it be disliked for deviating a little from ancient Practice, I wrote it with a good Intent, and therein shall rest satisfied.



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