

The natural history of the mineral-waters of Great-Britain. To which are added, some observations of the cicindela, or glow-worm / By Benjamin Allen.

Contributors

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B/s

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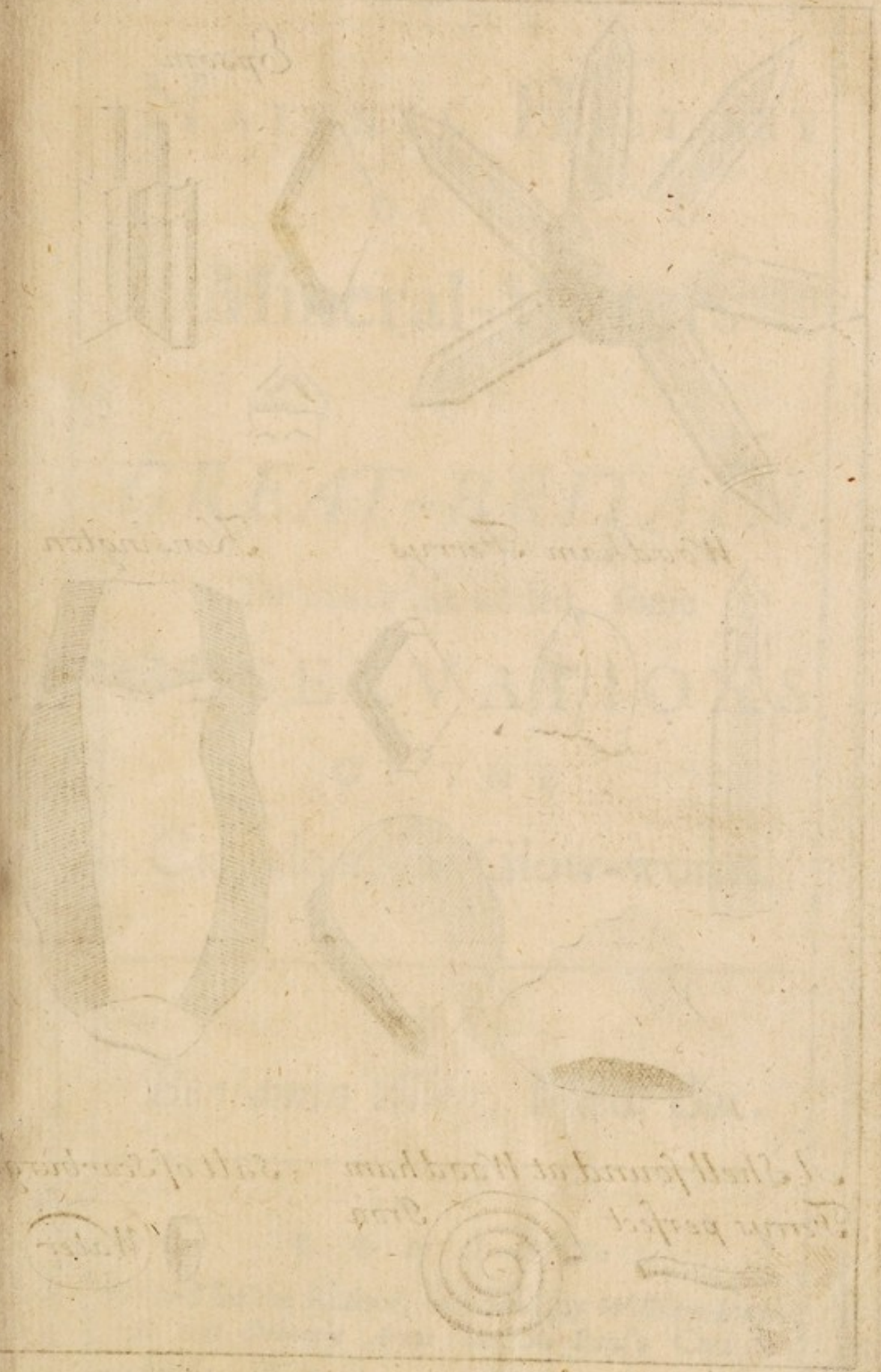
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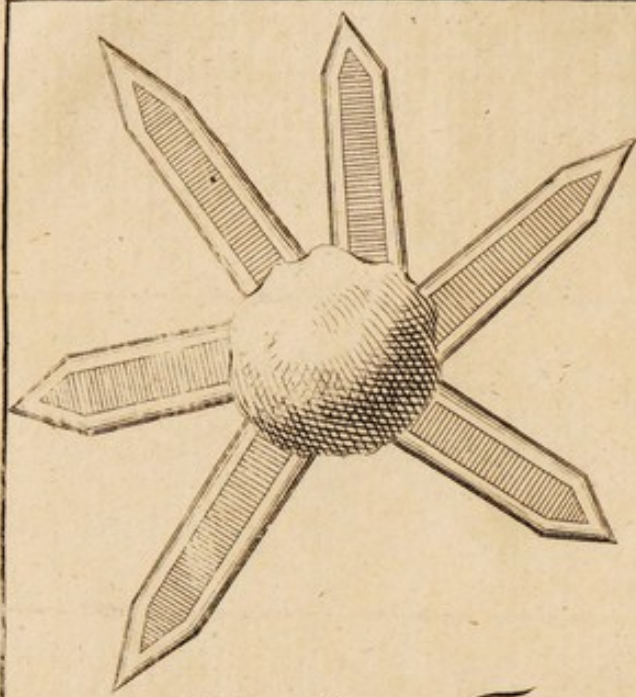


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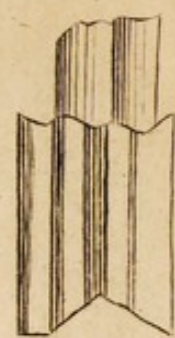
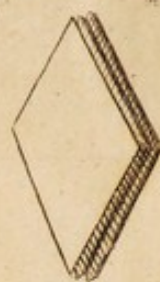
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Shells found at Warrington
Grove

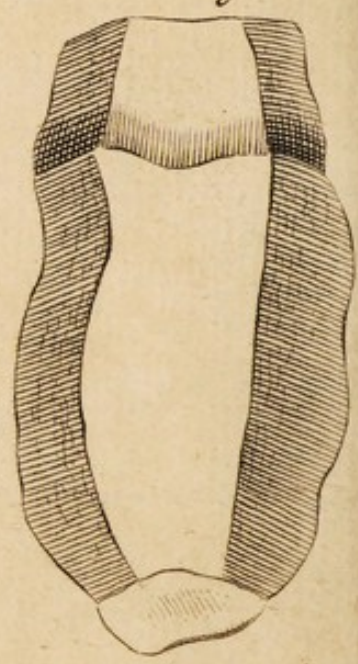
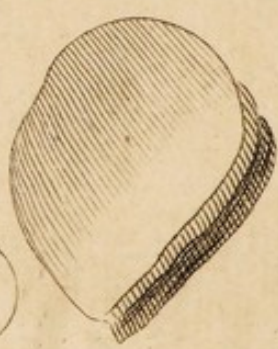
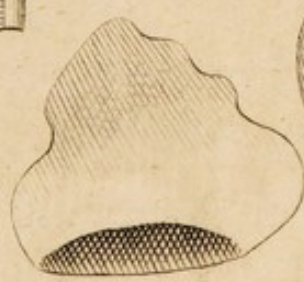
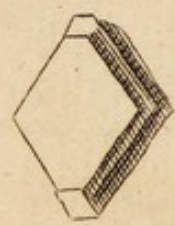


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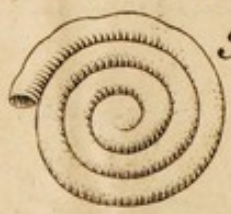
Woodham Ferrys

Kensington

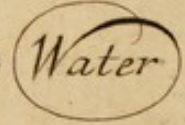


A Shell found at Woodham Ferrys perfect

Salt of Scarborough



Iron



THE
NATURAL HISTORY
OF THE
Mineral-Waters
OF
GREAT-BRITAIN.

To which are added, some
OBSERVATIONS
OF THE
Cicindela, or Glow-worm.

BY
Benjamin Allen, Med. Bac.

L O N D O N:

Printed for the Author, and Sold by *William Innys*,
at the *Prince's Arms* in *St. Paul's Church-*
Yard. 1711.

22785



To the Right Honourable

C H A R L E S,

Earl of *Manchester*, Baron of *Kim-*
bolton, Lord *Mandevil*, and one
of Her Majesty's most Honourable
Privy-Council.

My Lord,

I Have had the Opportunity of observing
your Honour's first Years, Crown'd
with the Approbation of a very good Judge,
one of the best of Schoolmasters of the
Age; and your riper answering, being as il-
lustrious as the steady Service of your Prince,
and Firmness to your Country, and a
virtuous Life can render them. It is from
the Brightness of your Honour's Character,
and the Obligation I lie under of your
Favour and Encouragement, and the Ho-
nour I have to be employ'd in your Lord-
ships Family, that I Dedicate this Treatise

The Epistle Dedicatory.

to your Lordship. *Medicine* hath been thought worthy the Favour and Study of many Princes, and this Subject, is no inconsiderable Member of it; I know your Lordship hath a Taste for Learning, and a Candour as exemplary; I hope you will please to overlook the Imperfections of the Work, and receive the Subject in its own Merit, and the Intention of the Author to make this publick Acknowledgment, that he is,

My Lord,

Your Honours most Humble

and Obedient Servant,

Benjamin Allen.

THE
Epistle PREFATORY
TO
Dr. MARTIN LISTER,
PHYSITIAN
TO THE
QUEEN,
AND
Dr. TANCRED ROBINSON.

YOU, Gentlemen, have been both so singular
in the Advancement of natural Learning,
the Foundation of true Knowledge; and the
Prosecuting and Publishing this Subject, is so much
owing to your Encouragement, that I am oblig'd at
least, on my particular Reason, to Address to you the
Account of this Treatise.

What hath been done on this Subject. you know,
hath been but general, and that by several Hands, on
some

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Some particular Waters, who have been content with the obvious Principles, and delivered only experienced Virtues. The Principles of some, as of the Purging, have not been clearly discovered; of others but imperfect, and neither Nature, Differences, nor Reasons, even in the Chalibeats, observ'd. Those who were best qualify'd for such a Work, never thought fit to apply themselves to the particular Enquiry. Mr. Boyle, the Reviver and Ornament of Physical Learning, gives little more than Directions and Suggestions for the Prosecution, while others rested in taking the Principles in gross. Your self only, Dr. Lister, enter'd on the Enquiry, and in the Purging rightly, discover'd it to be a Niter, but not descending into a more particular Examination, left much for a more unfit Hand. The Virtues have been as unaccurately, and in gross, delivered; whence the Principles, Differences, and Reasons remain'd unobserv'd, and their Use and Application indistinct, and liable to Mistakes; and what was known, lay in distinct Treatises. My Design was to enquire more particularly, and strictly, into all these, and what was disperst, to clear, digest, and collect into one System, for Practical Use.

I had some Opportunity of seeing some of the Wells when first open'd, and thereby of viewing the Matter, which others after me were not likely to have, which was thought favourable to the Entertainment of this Account. For the justness of the Exament, I us'd all possible Care; and there are but Three Waters, namely, Barnet, Stretham, and Dycheling, which I trusted to obtain, by any general Carriage, and so cannot so well answer for; the rest were either visited by my self, or sent me, or examin'd
by

The Epistle Prefatory.

by unquestionable Hands, at the several Places.

The Occasion drawing me to be thus Inquisitive, was the necessary Satisfaction of knowing, not short of this Accuracy, if I would Practice as an Art, of which I at first had some Sight in Feavers of distinct Natures.

And that this consisted in, and was to be had by Strictness in working Diseases; and seeing Operations of Remedies, which least were so large, and numerous, that they required great Distinction to discern their Effect, the Light of which, I saw helpt me to the Reason of Cure. That the Art of Curing was not to be supply'd by Notion, Fram'd slightly at Sight; I easily saw, and had confirm'd, in that the Ingenious van Helmont, could not rely on his own Notion of the Gout, to which he had spoke so much of the Arcanum Corallinum, to discharge it, so as to use any Remedy of that sort himself; for so Mr. Ray inform'd me, he was assur'd by his Son, the younger Helmont, when he was desir'd to come to Leez, to assist the late Earl of Warwick, to find the true Hellebour niger verus, to which Helmont, who was brought by the great Mr. Boyl, in that Disease, had advis'd him, as what his Father us'd, and nothing else, in that Disease, with which he was often afflicted.

And of the Insufficiency of acting only on the Score of Nature's Indication, Dr. Sydenham, in some Directions to me, freely own'd; and that the Difficulty and Point, lay in finding the Intentions of Medicine; so that the reason of Physick seem'd to be as the Result, the great Secret, and to have it as an Art. To get these, it was plain, requir'd a firm and distinct Knowledge, and the Sight of the Disease, and
accurate

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accurate Observation of the Faculties of Medicines, This set me on the Knowledge of a rational Anatomy, and the Use and affecting of the Air, and of some Subjects of the Materia, among which I found this, though not the least, yet not known to Satisfaction

What I have done in it, I must leave to the Reading, only I shall acquaint the Reader, I regarded not the way of using so much as the full Knowledge and Reason to a Skilful one. To this there seem'd requisite two Things; first, a Knowledge of the Diseases concern'd, the Reason of Application, and Cases coming within these, that requir'd them; and Secondly, how to Cure. I own here to compleat it, is wanting an apt Description of the Cases within the Reach of Constitutional Decays, which are apt not to be so easily seen; and also of some Hypochondriacal, which in some are very odd; and also an Account of the Method of Cure; the first, my Brevity advis'd to by my Friends, and my Indisposition to Writing forbad; and the last, many Reasons, apparent enough, made not convenient. However, I have not been wholly wanting in some Idea of both. So that if any ask what I have done in this Essay, I answer, I have shewn the Nature, Faculties, distinct Properties and Uses, as far as I was able from my own Observation, or communicated; and this answers all my part of the Subject, and of the other part requisite; namely, the knowing the Diseases I have given a Taste of, and brought the Subject as far as to Method of Cure, which is another Subject. And for the Benefit, he must consult the Oversight, and of what Moment they be, when either what the Virtue consists in, or indistinct Choice

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Choice of Waters, or their Properties, and Cases concern'd in, are not observ'd, which I shall not instance here, but leave to their falling in my Way in due Order. After this Account of the Occasion and Foundation of the Design, taken with the known Efficacy of the Remedy, and Want of the Subject, nothing more seems necessary to be said of a Part of Medicine, the materia Medica, to the Requisite of its being known, and of a due Information in it, if we consider the Fallacy and Defect of gross Knowledge, and that the Knowledge of the Operations of Medicines, is the point wherein Art seems founded, and to fail in, when our Experience is uncorrect, and that Skill must fail with it; it is clear the point of main Moment is here, and of how much Consequence it is; how much an Inlet it is to the other part of Medicine Diseases, and how careful a Physician ought to be, in seeing the Foundation of his Knowledge and Notions.

Indeed it requires the greatest Accuracy to get just Notions, when we apply them to Practis. Other Observations of Remedies and Cures, are of Necessity and Service, but the Direction is lost without an Artificial Exactness and Care in this Point to attain Skill firmly, and in due Order, and on right Reasons and Notions. Hippocrates took this Course, and for Direction and Caution, places a hint of the Fallaciousness of Experience at the front of his Collections or Aphorisms. But what enervats all this, and lays in me to clear, is, that this Exactness is necessary in general, which is look'd on as Notional, and a Pretence to refine on a Subject.

This Notion strikes at Art and Knowledge in general, and is founded on a Mistake, that Medicine is not an Art, and that knowing the Reasons accurately,

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is neither of Use, nor is to be had, Observation and Experience is all, and well enough, and no Difference in Reality of Matter, or Effect. What gives the Colour for this, is the Preferrableness of Experience, Mistakes and Unusefulness of Subtilty, Variety of Remedies prov'd, Uncertainty of their Effects, and Impossibility of knowing, and that the Effects are out of our Power. Now this Argument setting aside all Just and Minute Knowledge, and taking away all the Strength and Stress, Notice, and Sight of the Direction of my Subject, as I propose it, it lyes in my Way to clear, and so much the rather, as a wrong Notion of Art is of great Effect, and gives the turn of true and false, it is of Importance to be rectify'd. The Question lyes between a rational and empirical Knowledge, and so I am obliged to consider it in general, and then particularly in my Subject. I shall therefore endeavour to shew a distinct Knowledge, and regular as an Art necessary, and on a solid Foundation. I shall not be particular in shewing the Mistakes, in putting the Question between Experience and Notion, or un-examin'd Idea's, or the Uncertainty of Medicine, from Uncertainty of Effects, or the Sufficiency of Nature, and general Effects, and simple argued to a Sufficiency in all; but with Brevity illustrate the Matter from Observations to the main Stress and Ground of the Mistake, as to the Necessity, 2. The Justness and Reality. 3. The Advantage. 4. The Difference. And lastly, the Consequence of the Notion. And first, for the Reality and Truth, which ought first to be satisfy'd.

The Question is answered, by rectifying the Mistake of Art, which I intimated in what I now premis'd, and illustrating it in Example, in Matters most in Question. Now this Mistake arises from a wrong Notion of Art, and
collecting

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collecting our Idea's, which is only a genuine Way and Method to a distinct Knowledge, on due Examination, the Validity and Rectitude of which, is what I assert, and not any Infallibility and universal Comprehensiveness, but to be clear, and of Proof when to be had, and justly attain'd, and Rectitude of the Rule : And that when ever we break in on the Distinction of Causes, and sufficient Notes to direct us. It is best demonstrated by exemplifying, and the questionable Parts, being the Anatomical Knowledge to conceive, and have right Notions by ; or, 2dly, The Reasons of Remedies and Diseases, I shall take them distinctly. As to the first, I must confess in my own Sentiments, with submitting them to better Judges, and particularly, Gentlemen, your selves ; I understand not the bare Notes given to the Parts to be sufficient and real ; but the Parts discovered, with their examin'd Uses, to be just, not a charging our Notions on Appearances, when we see a Conflux of Blood by Natures endeavour to raise the Blood, to make a Conatus at Discharge, not a taking that Fluid with what doth not belong to it ; as in Feavers, and the Itch, which are confin'd to particular Parts ; not a taking the Glands for Secretories only, which, in my Notes on the Jaundice, I have endeavour'd to explain ; but their prov'd Distinction and Uses, and Relations of Juices and Parts, to make together with the Cause of a Disease, a fair, intelligible, and just Explication to Sense. To which the Instance of the Use of the Gall, I shall offer as an Instance, to which I refer to my Treatise.

The Reasons of Medicines I take to have distinct Idea's likewise, without just Exception. The Barks seems most difficult, yet if we

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rightly note the Propriety of it to bind externally, as is seen in Suppurations, to draw internally, as is seen in the Looseness it effects; the Parts, the Glands, and Glandular Coats it hath effect upon, and particularly the Membrana communis, prov'd the Place in Agues by the Cures by natural Ulceration, or Attraction where it ends, the distinct Species, and Nature of Fevers, we have a just Notion of its Effect, Use, and Place. The same Sufficiency of Notes I might shew in a peculiar Faculty, of a Medicine in Dropsical Swellings, or Agues, when past the Benefit of the Bark, and Relief by Purgers. In simple Remedies, as Purgers, there is a visible Propriety well known. The Reason of Diseases will appear rather from want of Examination, than of distinct Characters, if we justly consider them; for I go further than the bare Idea's of them. Of Fevers I have given an Instance in Part already, I could descend to the particular Distinctions of others, not owing to simple cold; but that is not to be expected, being Matter enough for a large Treatise, ex professo, wherein I could shew it; but asking proper Questions, and comparing the Symptoms with all of that Sort, and it is done. A Dropsy, if the Glands be considered that are Stopt, Nature of the Parts, and cause the Deficiency and Disease, with the Cure, are fairly to be come at. I adventure to conclude, that it is not the Matter in Sight, or the Art, but the Want of Application is chargeable, and that it is not any Argument against the Proof and Conviction of the Course, when it is mist. The Necessity of Art, and distinct Knowledge, is evident from the Necessity of the Knowledge of the distinct Place and Propriety of Remedies, appearing from the Place and
Specifick

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Specifick Effects of even common Medicines, a Pain in the Side is not to be relieved, but by a Propriety, the Carminative to Ventricle Bowels, or Fleſhy Parts, which Ginger, ſem. Carui. Fl. Chamomel, &c. have ſome as Diſcuſſives, Anodynes, Emollients. There are others of peculiar Force, to expel ſome Diſeaſes, as the Small-Pox, reſiſt Putrifaction, to oppoſe Con- vulſions on ſome peculiar Reaſons and Conſiderations; but what makes it neceſſary mainly, is the Demand of the Diſeaſe, and theſe want a Workman to analyſe to the Point wanting. I ſhall not inſiſt on the new Caſes, ſuch as Conversions of Fevers on the Lungs, particular Rhumatick Caſes, Decays from Colds, or the varying of Caſes, to be apply'd to in almoſt every Patient; but urge only the common Diſeaſes moſt general. And were the bare Face of a Diſeaſe, and general Intention of the Remedy ſufficient, the Argument would be wholly againſt me, but the Truth is far otherwiſe. To this Purpoſe it will be neceſſary, to conſider what is real curing; and that this is not a bare Application to the Symptom, is plain, by conſidering, that the part of a Phyſician is to help compleatly, and at a Strait, and to ſee that directly to the Pinch, and Point, this requires exquisite knowing. What is clearer than in the Small-Pox, 'tis not here ſufficient to know the Intention of Nature, the ſeveral States, and experienc'd Reliefs in a current Diſeaſe, but to know the Neceſſity and Weight of driving them out well, and the Influence of it at the turn, which depends uſually on their Expulſion; the Meaning. ſo as to help when they come out difficultly, or with a Hemorrhage, or bloody Urin, with an Itch-like Face and watery Pimple, and Blister or Rhuming, to aſſiſt in a Loſſe- neſs, Delirium, or Convulſion, and help at the Turn,

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In a Rhumatism vulgar and sily, 'tis not easing, but curing. In a Fever, not the curing one Species, and be at a stop at a Symptome, or Difference: In a Decay not relieving, but curing. 'Tis knowing special Cures, such as Phrenzies, Tympanies, Epilepsies, and the like, and to be able to read a Difficulty, and a stop of Cure. There are Proprieties in most Diseases. Now in this sort, knowing fully, and acting like a Workman, is required: And this requires a true and accurate Knowledge; and is not to be done without a sily Rhumatism requires the Knowledge of the sily Matter, Vessels, and how to rid and extirpate it, to mend, take off any Scorbutick Cause. A common Hemorrhage requires the Knowledge of the Cause to be apply'd to, be it Ague, Scurvy, Decay of Nature, and Weakness, the Glands, and their Vice, or of the Blood. In every case the Disease is to be regarded nicely, to see the Application to be to the Purpose. A common Cough requires it, to see it be Catarrh, or decayed Vice of the Lungs. Now it is not knowing in gross, is sufficient here; it is not enough to know a Fever, and use the Bark, nor a Dropsy, and not see the Cause, Decay, Stoppage, State and Point, or to cure some. For the Intentions of Cure from the Demands of Diseases, are first to be had, and Sight of the Point, and that the Face of the Symptom will not shew it, appears first in the various Rises of Diseases and Springs. Some of these fall under Schemes, such as proceed from Teeth, Turns of Life, Hypochondriacism, Decays of Nature, or some Frame of Constitution. Diseases are often curable, only as the true Rise is hit, and these are various, and must be strictly seen. I have seen compleat Cures expedited, and fatal Issues on the hitting or missing the Sight of the Rise of a Phthisis from a turn at 21, and of the

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Dropsies from Trouble; the Cure of which is confined to one Idea and Remedy. And the first of the two hath many Origins, and accordingly Species and Intentions of Cure, as Hypochondriacal, Scorbutick, Catarrhal, from a Fluor, or Decay, or Chlorosis, and the last may be Scorbutick, Decayed, from Trouble, or declining, or from a present simple Reason of Sinking, or thickness of Humour, Asthma, Defects in the Constitution, preceeding Diseases, or in Children from Teeth, so again in Asthma's, bloody Urines, and the like; how wide, and how necessary, this Reach is, some more unlikely and remote cases shew, which I have seen one of Ulcers in the Leggs, when from cold only, by excluding the Air, and supplying cover and warmth, but further inveterate Ulcers in the Leggs, and sinuous Ulcers, in another I have known render'd liable to an easy Cure, and sometimes without any topical Remedy considerable, when before they rejected all, only by discerning it to depend on an Error of the Constitution and suitably taking that off.

I have given an Instance in my Treatise of a Cure of this kind in a Fistula; and I have known Inflammations of the Breast, and some of the Head in Women at 50, wherein a hitting the Cause was the Discovery of the Cure. Again, there is no Trust in, nor knowing by the Face of a Disease. The Symptoms of a Decay, and an Ague, are frequently one and the same. An Obstruction of the Thorax passes off uncur'd by Application to a Phthisis, Fevers, under the Species of Vapours, and the Symptoms incommon to all Fevers, such as Pains in the Side, Singultus, load at precordia, Vomiting, and Convulsion, taken without Knowledge of the distinct Reason, will shew the Mistake of so doing, as is seen frequently, when a Pain may be Catarrh, Wind, Congestion, specifick Poyson,

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or quality, the missing of which costs a Patient his Life, when a Fever is taken in gross.

How various is the Face of a Jaundice from the Origin. The Intention of the Remedy, and the Disease it self, differs, sometimes mixt, various Forms of it, the Stoppages different, and in one sort after Agues, and another after Drinking, totally wide, and in the common too much Heat in the Remedy; or too apt to make a Fluor of Blood, as Icteries do, or want of opening, or raising Nature, shall give the turn of Cure, or Miscarriage, and that a farther Knowledge is necessary, beyond the single Face of a Disease, is evident in Fevers, which have no constant Symptom, or Denomination of Intention, as a Fever, which is only a Symptomack Character, without which we really know neither Disease nor Remedy; and what is in one Patient an intermittent, in another may be a Catarrh; that this requires a strict Knowledge of the Matter, I might proceed in Fevers; but not to seem straitned to one, I shall name a Dropsy, wherein neither Disease, Cure, nor State, is visible by any of the best Practice, nor in Decays, as I have seen prov'd. Nothing but a thorough Sight will serve, and this the Success hath demonstrated. I could run through the Variety of a Rhumatism Catarrhal, Scorbutick, nervous, or tendinous membranous, fizy, windy, Paralitsck, Hypochondriacal, and Decay. Colicks and Ileon, which last the simple Consideration of a Stoppage touches not but the Quality; the Fountain, as is often the Liver and Pancreas, the mending Juices, and opening the Obstructions of the Fountain; the same Niceness even to a Quality, is necessary in an Angina, when in the Internal Muscles of the Larynx.

Now in all these Cases, that there is no knowing,
but

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but this distinct and artificial one, is sufficiently evident, and that Medicine that neither can turn to any Disease in its Difference, nor Case can never come ad rem, but by Chance, and how far it is to be trusted to, or is worthy of the Name, I shall not need to observe; and this I have shewn in the Differences, right Notion, Point, Matter and Art, to attain regularly, requisite to attain; and nothing more need be say'd to assert the Necessity of it to hit these, unless I were to shew how wide, how absurd, and how impossible for any Empirical Knowledge to come at, or have any Knowledge of how false, and how fatal, the Pretences of, in extending their Science in the intermittent Kind, or of a happy Purger, to numerous Species of Fevers and Decays out of Knowledge; which Imposition I have known very costly, and how little Service is the best Indications of Nature to discover a Cause, such as to Vomiting, or Bleeding; but these being Consequences clear from the preceeding Instances, I shall not trouble the Reader with. Now to reflect a little, there is a vast Difference between taking regularly, and only by Symptom, without examining, and home to the Point: So in curing, between seeing the distinct Disease, and applying properly and directly, and have a Power to see when he is out, and the Reason, the Alteration, and to be able to discern his Way in a rational Design; I say between this, and chopping at general Relief by Chance, considering further the Advantages and Excellency of Artificial Knowledge.

Now the Advantage of knowing truly and fully, the Matter appears under these Considerations, which I can but name. And not to repeat the Excellency of it in the Heads now mention'd, in seeing the Matter and Case truly, and going directly to them, the Benefit of it appears in the Reach and Power.

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1st, *In new Diseases or Cases.*

2^{dly}, *In the View of a right Notion, as he that sees the true Reason of Hypochondriacal Symptoms, sees the Fault, and particular Error, and direct Course; without which, I have observed in some Cases, Success impracticable; and that it is not a gross Notion of a Nervous case, or lowness of Blood, or other Expedient would serve; and this I have seen give the turn in a very good Friend of mine. The not conceiving how a Jaundice could be produced by a Chlorosis, cost the loss of a Child, morally speaking, to a very great, as well as good, Friend of yours, Gentlemen, as well as mine.*

3^{dly}, *It enables a Physician to cure, by helping his Understanding, and Discovery of the Reasons, as in the Small-Pox, as the Difficulty of forcing out a real Pox, or suppurating Pustule in many Persons, or when the Rhuming stops them, the fear of checking the Rhume, without knowing the true Cause and Remedy; and the applying on other Notions, from the Symptoms of Bleeding, Blistering, and the like, to no Purpose, sufficiently makes appear. The same I might observe in the Symptoms of Fevers, and other Diseases.*

4^{thly}, *It gives the Physician a better Condition for curing by the fair Course, to reach a clear View, a distinct Notion of an Epilepsy, from an Orgasm on the Ventricles, or internal, shews the Difference from an Apoplexy, gives the Condition of the Humour, and the several Defects and Intention of Cure directly, which with rational Medicines, gives the direct Course. It prevents Disorder, by Variety or Contingency.*

5^{thly}, *By affording him more Compass in curing, as in Fevers, he that knows the Nature of the Disease, hath the Advantage of Means to compass rationally,*
and

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and not being confin'd to a Remedy, or stopt by a Symptom, or waiting for a Crisis.

6thly, *He is capable thereby of various helps, without some Idea of this kind, who would apply in a Gangrene to, Vomits, or Cordials, or removing some æstus from Drinking; yet the Use of the first, by recalling the Vis to the Brain, and clearing the Spring, and giving a new turn to the Plastick or Archeal Power, is found of great Effect when Topicks fail, as is known to Physicians, and the best Surgeons. And of the Second, the Honourable and Great Mr. Boyle hath given a rare Instance in his Treatise of the Usefulness. Cold-Baths, Change of Air, Exercise, Issues, and many other more particular Helps might be named, that may be a means of saving a Life at a Streight.*

7thly, *By giving larger Notions, it is seen that many of the gradual Intentions in Medicine and Surgery are plain'd, and better substituted in curing common Ulcers, Abscesses, Felons, or Whitlows, and Gleets, passing otherwise into Fistula's. I have seen an inveterate Ulcer of the Leg, judg'd to have foul'd the Bone, cur'd happily, when usual Methods fail'd by Lint and Bandage, much like the healing Cankers in Trees.*

8thly, *and lastly, To examine the specifick Medicines, find Cures, and that in particular Diseases.*

But before I pass from this, I must observe the natural Tendency of Art to perform this. How genuinely doth the Consideration of a Diabetes, particularly in the Defection of the Juice, and Nature of the Part, the Secretory Glands lead to the Cure, by cleansing, and Remedies to the taking off the Decay, known to be the Condition of the effectual Remedies in this case.

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case. Bare Examination of a Fever, or any other Diseases, readily leads to it for the most part. A Jaundice known, shews the Reason and Differences.

This glance may serve to shew the Mistake of invalidating a distinct Knowledge and Art; which with Regard to its obtaining among Persons of Consideration, through want of Inspection, I have particularly consider'd. What I endeavour to shew is, that the bare Direction from the Face of Disease, without Design and Art, is of no Sufficiency nor Argument to prove Skill from the Knowledge and Cure of some Diseases. 'Tis not barely sufficient to apply to the Face, as if an Ague were an Ague, a Fever, a Fever, a help in a Dropsy, or Decay a Cure; and again, that true Knowledge hath a Foundation, and is not otherwise to be had.

But when a distinct Knowledge is prov'd never so clear, there is another Objection from the Effect; and it may, and is usually ask'd, can you save Life, against the Notion of Period, or Providence? Now in the first, I allow a course of Nature, and in the other a Divine Hand, for the Issue and Direction to be first implored, as the Author of Skill and Means, and Blessing, at whose Disposure are all Things, and nothing without, but it is by no means an Argument on our part, against a distinct Knowledge.

To maintain this, they look on the Term of Life to be fixt, so no withstanding Fate; now taking Fate as a fixt Determination of Providence, tho' I allow a sort of Fate in a strange Disposition of Circumstances, looking much like it, but is really a Providence, if we look home, and see our selves the Fate, when we are left to undue Course, usually, and when it pleases God to intervene, as I have often seen, proper Means

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Set aside, by a Nurse, or an Aversion; It is not Argument against natural Means, which is his ordinary Will, which I assert not against the Disposer. It seems to me that much ordinarily is left to the Means, as we see in all Occurrences of Life. And Hazael received this Answer from the Prophet, that the King his Master might live, but that the Lord had shewn him he should certainly die; that is, that he would kill him. And this Means we are required to look to, and it seems not so peremptory, as by this Notion they would insinuate; nor hath it any Force against lawful regular Means us'd, under the invok'd Blessing of the Divine Being, ordinarily. And then next, that we arrogate to our selves, and derogate from the Sovereignty of Providence to insist on skilful Means; I own the Event and Blessing is from the Divine Author of our Beings. I acknowledge I believe, and I know there is a God, and I believe his whole revealed Will, his Sovereignty, as a present Numen, seeing, judging, and providentially disposing; he will maintain his Being, and his Law, and who lifts his Hand against him in either, shall not prosper, but find his Mistake; but then he is so far from discouraging Means of his own creating, that he makes it our Duty to use them. I compare Medicine to Sailing, in which we are under the Divine Blessing as to the Event; but though no Man is sure to come at his Harbour, yet no Man ever would argue to take a Pilot unskill'd in the Art; to throw aside proper Means, is wicked and inexcusable, as to us, as not looking up to the Author, is impious Blasphemy. So I have endeavour'd to clear genuine Art and Skill from this Misrepresentation of so much Importance; abus'd against using accurate Means, and making it indiffe-
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rent whether Means be proper or no, or the right Case, Notion, and Point, be attended upon a ground of true Knowledge, that would render the Means to it without Foundation.

In sum, when the Matter is well understood, there lies no Objection against the Thing to be seen, or Correctness of Idea, and Accuracy, without which we loose Truth and Knowledge, and Capacity to reach and compass a Cure, or see the Defect by a plain and clear View.

And the Consequence of rectifying this Notion, not only as it found a Mistake, but also as it gives the turn against Fact, is considerable for the Notion as it gains Opinion, may hinder the Use of Means, or the bare attempting proper means on the clearest Foundation, by gaining the turn, as I have experienced. And, Gentlemen, in my Proof I have not proceeded on Notion, but the clearest Sight, and confirm'd by Experience. The cases I have nam'd, I have found this Way of so convincing a Use, that I can appeal to my Practice for the Successfulness of, beyond all just Exception; but I do not apply this to a personal Regard, the Question not lying so. But for my talking that way, you may allow me an Excuse, when I discourse you Personally.

To come now to my particular Subject, I think it affords as pregnant an Instance of what I have said, as any, in all the respects. In point of Sight, how many Cases have been overlook'd, capable morally of Relief, that I have instanced afterwards. How many have failed of Cure, by using ineffectual Waters, or improper, by not knowing the Reason, and Differences. How many, for want of the Thread, as in Dropsies, upon Trouble, have never apply'd to the proper Remedy?
And

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And without the Cure, a proper point of a Phthisis and a Rise of an Inflammation at 50. Tho this be only real, and what the Cure depends morally upon; and the Matter of Fact exploded as Notion.

To obviate this Mistake, I have directed my self to shew the Mistake, and though it had sufficed to my Purpose, to have rested in the Proof of a distinct Idea, I have plain'd the Objection in the Extent of it, in particular Diseases, objected against it. My Confinement to Brevity, excuses me from amplifying on the Diseases and Practice, to shew the real Differences and Notes to make it clear. To support what I have said, I have a warrantable ground from the Examination of the several Diseases, and Practice of Art, and the Conviction of Success, under the Divine Blessing, particularly for the Knowledge of the Reason of Diseases, and their Causes, I have seen proper Phrensies cur'd, and have perform'd them with Constancy, in what came to my Hand. Epilepsies, among several Scores cured, I remember but three that escaped Cure, that comply'd to follow the Course, and those very accountable, as from Infancy, or where the Brain was damaged. In Fevers, when of different Species; in Malignity, in Cure of Anomalous, that requir'd a Notion of what a Fever was, and a methodical ridding it. I have given Proof beyond Exception, when timely, and I had Freedom, for the Benefit of Reason, and true working to a Point, and so in a Phthisis and Dropsies.

For the Discovery of the Nature of Diseases by Analysis, I can produce Timpanies, a I mention afterwards, Translations of Diseases to the Lungs, peculiar Decays, Catarrhal, Icteric, and Hydropick Decays, rational Cures of stubborn Agues, where I was early, and had my Liberty of acting, I have had the Happiness to succeed.

And

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And how many have fallen short of Cure, through want of a right Notion, where the Disease and Remedy lay, and its Nature and Fitness, how many Decays treated Symptomatically, as Asthma's and Phthisis.

The Instances which I have given, I think Satisfactorily clear, what I design'd that no gross knowing or irregular, is sufficient, and that none will serve as real, but what is exquisite and exact to a Nicety and true Distinctness, by a due Analysis; and that the Foundation of any Exception against the Notice to be taken of it, the Possibility or Use is a Mistake, as far as it is to be had. I ought to make Apology for so much insisting on so plain a Matter, as the Care to see exactly, no Person of Understanding and Application, but sees the Necessity of distinguishing the Reason of the Case, and Remedy to a Propriety, as the ill Success in curing empirically Fevers of a distinct kind, and of Decays, makes appear, as well as the Cures of the Jaundice by Error of the Glands, perform'd by the Waters, and the nice Impediments of Cures in the common Jaundice.

Were it not evident the contrary Notion is ascerted, when a carrying a right Distinction to a point, and a due Analysis is set aside very often, with the Distinction and Reason of the Disease in Fevers; what a Dropsy stops at, and the Disease itself what it lies in; the Sight of the Reason in a Decay, without the Disease known, or Stoppages, or rotting of the Membranes, Happiness to succeed, and I never found Art mislead me, but ever serviceable. In Difficulty in the Small-Pox, of Symptoms, or when unkindly, and required Skill to expel to a right Pustule, I have had Proof, and once, when it was declared by an Emperick impossible.

I could name Cures of Rhumatisms of distinct Species,

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cies, and perfectly extirpating the common Sisy, and others, but I have nam'd enough for my Encouragement to assert it; and these have been the clearer, because distinguishable in crouds of different Successes. The Distinction of this Notion is material and weighty, in the Concession, and is to be insisted on, because the turn of the Scale depends upon it, Distinction and Proof of Truth, either for true Art, which is special to Idea's, and Way of Cure, and Reason, and hath the Capacity of acting as a Workman, or Empirical and uncertain, that neither follow nor distinguish, nor work regularly; for take away Conviction and proof of a distinct Knowledge, and all Skill is confounded and spoil'd. I shall not follow the Matter to the Sights used to evade, misrepresent and supply it; and the Reality of the Deceit.

Rhumatisms, Diabetes, Paralytick Weakness of one side, Apoplexies, when from this Reason, liable to be mistaken, for essential and primary Diseases? Fevers, undertaken as such, which have been Decays, and again, Decays and Vapours, which are really Fevers. I have noted more in the Virtues, and particularly in the Use of the Bath and German-Spaw, of great Importance, to which I refer, looking on the Hints as a sufficient Direction.

In the Performance, I have directed my self only to give a just Idea and Elenchu's, and to endeavour at a right Notion, which I take for the most serviceable Course. Accordingly, I have wav'd a Course of History, as less material, and well known upon the Places. I am still not ignorant in the Scarborough-Water, there is wanting a Notice of a Distinction to be made of Scurvies, and Hypochondriacism, or Decays, and a due Conception of their Mixture, to take the Observations of Cures right, and whether they on account of their

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Purging, so not allowing a due Course, do remove the Obstructions totally, which I note as a Hint to be inquir'd by Persons of Skill at the Place. I am also advis'd, that a large and orderly Distinction of the Species of Jaundice, and other Diseases, requiring this Remedy, Rise of Symptoms, which cause Mistakes, and a compleat Account of the Diseases, is necessary to a full Knowledge; but I must desire the Reader to consider, that my Subject is satisfied without the last, which requires a Physician for a Guide, if I had pares humeri, and the Subject will scarce allow a last Hand. It answers my Proposal, if it doth your good Opinion, in that some Notices of Use may be in it, that deserve not to be lost. I ever propos'd to my self a just Knowledge of the Matter, as the main Thing in all Learning, which lead me to the Application to Natural History. Thus, Gentlemen, I have acquainted you with the Design of my Treatise, and also of my Studies, which was sincerely aim'd in Life and Profession, as doing the Will of God, and my Duty, which I have endeavour'd in my Practice. The Draught, I confess, hath met with Stop and Disorder, through want of Firmness, against the Power and Effects of Misrepresentation and Injury. I Administer my own Medicines, as my Predecessor, and honoured Relation, left it; to say no more of its Defence in the Country. I can say thus much for a presumptive Assertion of the Rectitude of my Notions, and the Use of them, as clear Inquiry was the Direction, so I have had the Happiness, under God's Blessing, of succeeding in rightly judging capable Diseases, and curing those that timely'd apply'd to me, and that I think with Constancy; and if the Deficiency may be allow'd a Confirmation, I have ever seen the want of the same Notions fail in difficult Cases, when

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it came to the Issue, but I have been overlong perhaps, in shewing this Design of a clear Knowledge, to be to some Purpose, and with a just Direction,

The Book itself can displease justly no Man. I set up no particular Lordship. What I was obliged to produce in Cures, as proof of Art, and its Usefulness, and to justify my Notions, I must desire the Reader to understand as extorted, and not design'd to distinguish my self from my own Faculty. I deliver nothing as peremptory and perfect, and have only in my Eye a helping Hand to improve the true Art of Medicine; and the same Reason will make me not uneasy to see it mended, candidly and hope the same Design and Tenderneſs will take away all Cavil or Opposition. If any are offended, it is likely to be those Gentlemen that are concern'd in the particular Waters, who may judge I have injur'd some in attesting their Virtues. I have herein follow'd my own Observation, and without any Prejudice to any, and shall readily admit of better Information, and be thankful, if friendly communicated to the Bookseller. So I have excus'd this unpolish'd Piece in some Measure; and the Benefit I aim at, gives me a Right to the Plea of Charity, which ought to give me the turn of the Scale, considering the real and general Use of Waters, and Benefit of knowing them. This is not my own Sense alone, but is judg'd so by the Gentleman in the Philosoph. Transf. No. 51. whose Words give it a high Encomium, by way of Encouragement. All which being consider'd, we cannot but add, says he, that whoever discovers such healing Waters, and and publickly prescribes the safe and right Use of them, does really distribute larger and nobler Alms, than if he built and endowed a Sauer; for this

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prolongs Life, and restores Health (which is sometimes better than Life) both to Rich and Poor, to Natives and Strangers, to Neighbours and Travellers.

And now, Gentlemen, I must gratefully acknowledge, that whatever in the Design or Discovery proves of any Use in this Treatise, owes its Being to both your Encouragements to my Prosecution and publishing, whose Judgment and really valuable Friendly Candour outweigh'd the Difficulties obstructing it. And this I can no ways better do, than by giving the Publick the real Instances of in two of your very obliging Letters.

S I R,

I Am exceedingly pleased you are writing about our *Mineral Waters*. The Questions you propose, [*viz.* about the *Scarborough-Water*] are very well designed, and very particular; some of them I have answer'd, and for the rest, it is not in my Power to get them answer'd, my Acquaintance being long since worn out in those Parts, it being many Years since I left the Country.

To the second, it constantly purges, and in small Quantity, and quick, and as briskly as any Water I ever tasted; it Tinctures pretty much with Gall, and is Ink-like. To the 10th, the Salt is of the Figure I have described, of which I have some by me, of perhaps 20 Years Christallizing, it is as dry as Allom in Chrystals, and near as hard to dissolve. These Chrystals are the same with the rest of *Epsom* and *Stretham*, and the petrefying

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petrifying Well of *Knaresborough*, and one half of the Salt of the *Bath-Water*. I am,

S I R,

February 16.
1696.

Your most Humble Servant,

M. Lister.

S I R,

I Ought to have return'd you e'er this, my humble and hearty Thanks for your ingenious Natural History of our Medicinal Waters, which you was pleas'd to present me. I dare venture to give you my Opinion freely upon it, seeing you write so much like a Philosopher.

I take the Piece to be much the best upon the Subject, containing more Variety of Observations and Experiments, than any Author whatsoever; at least, that I have had the good Fortune to meet with; but then I fancy 'tis not dispos'd in an easy natural Method.

First, I think you ought to have begun with the simple Natural Products found about the Waters, as the Earths, *Selenites*, &c. then to have proceeded to the Contents found in the Waters. Their Effays, then Effects, &c. And first of the Purging Springs, and then of the *Chalibeat*, 'tis but transposing your Book, taking the Materials to pieces, and you may build a regular

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lar finish'd Piece, which will last to the end of all Things, &c.

S I R,

*London, July 8.
1699.*

Your most Humble

and Obliged Servant,

Tancred Robinson.

I Am not, Sir, so vain as to think this answers your Directions, and merit the Commendation which you were pleased to give upon the first Essay, though I take your Judgment and Honour as a Favour to the Design.

I trust to your and the Reader's Candour, to overlook Disorder and Brevity, in what required a larger Treatise, and a better Capacity and Temper for; that both your selves and the Reader will receive it favourably, for the sake of those few honest Examinations and improveable Notes, that may be of some Use, to be found in it, till a better appears, which, if it be servicable to, answers the Design of,

Gentlemen,

*By entry in Essex,
Aug. 6. 1710.*

Your most Obliged,

and most Humble Servant,

Benjamin Allen.

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I should advise the Reader, that I omitted all Particularizing the Waters of the Chalibeat Kind; which if we descend to small ones, are endless, which are all reducible and distinguishable by the Notes given, which are sufficient. So what in the former Treatise I took the Liberty of my Subject, to mention of small ouising Springs, one near the Right Honourable the Earl of Manchester's Seat, and another adjoining to the honoured Sir Edward Southcott, two Families, to whose Generosity my self, as well as many others, am obliged; the Order I here observe made me in this to pass by.

W A T E R S.

WATERS.

A CTON	17	Lambeth, nearer	22
Alford	21	Lambeth, farther	23
Barnet	14	Leicester-Pool	
Bath in Somerset	36	North-Hall	24
Buxton-Bath	39	Queen-Camel	40
Brentwood Weal	20	Richmond	26
Bristol, St. Vincents	41	Scarborough	33
Dullwich	24	German-Spaw	7
Dycheling	21	Shooters-Hill	19
Epsom	13	Stretham	16
Felstead	30	Sulphurwell of	
Hamstead	32	Knaresborough	40
Islington the same		Tunbridge	30
with Tunbridge,		Upminster	18
but less strong		Wellenborow	30
in Apor.		Woodhamferrys	35
Kensington	15	Woodford	19
Knaresborough	31		

MINE.

T H E
Mineral W A T E R S
O F
G R E A T - B R I T A I N.

Mineral Waters, which we understand by that Name, of which I am to treat, being such as are found to be Medicinal, must be restrain'd in their Notion and Character: In this Sense I shall not take a Mineral Water, in Gross, in the Latitude of the Name, as any Water or Spring found in the Earth, carrying in it any Salt of the Earth, nor as carrying any Salt differing from that of common Spring Water, from the Soyl; nor as a bare Solution of any Mineral Substance, by a Vitrioline Salt, which may be prepared as well by Art out of the Earth: But consider it as a Water having some Essential Qualification from the Gas, or Aporrhea of the Earth, which gives it a vital or peculiar Quality from some Mineral Production at its Origin, thereby qualify'd to alter a Human Body, so as to become salutary. And this Notion will be found to agree with our Mineral Waters, of any considerable Energy. The Minerals that medicate the Waters of *Great-Britain*, are some Principles of Iron, Lead, Copper, Sulphur, Allum, and Niter. These certainly are the Principles of our Waters, upon due Examination; but whether Steel be the only Principle giving the Virtue, being really in all of them almost; or whether this Mineral yields the Spirit that renders them agreeable, and fit to pass and agree with our Bodies, is a Question with me; since it is plain that it is the Mineral Gas or Aporrhea, or Mineral Juice and Salt that can hold the Mineral Quality or Nature,

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probably

and probably may be common to all Mineral Productions ; the *Bristol* Water hath not any gross parts of this Mineral ; and the Mineral Principle, tho' not clean of Iron, is most of a distinct Nature.

The more common and principal are the Parts of Iron and Niter, as the grand Actors, the first giving them a Dieuretick Character, the other a Purgative.

The Waters may be divided into Saline, or such as hold, or essentially are, Impregnant with a Mineral Salt and Juice, to which they owe their Virtue ; or that carry some Mineral Parts of some Metalline Substance, or more purely Spiritual.

Of these we have these several sorts or Species.

1. The Saline, from a peculiar Salt and Juice, which are our Purging Waters.

2. The Chalybeat, Tinctured by Steel or Iron.

3. A Compound of both, such are the Chalybeat Purgings.

4. Sulphurous, tho' not simply, so with respect to the Principle from which the Sulphur proceeds, such as are our Bath Waters ; and of this Kind, some from the Body open'd, as that of *Knaresborough*, and another at *Queen-Carnel*.

5. The Steamy, or more purely Spirituous, from a firmer Limestone, or Marble, join'd with some vitrioline or ferreous Parts, whether excluding Sulphur, by reason of the Heat, questionable. Of this Sort we have only one, that is, the Water of *St. Vincent's Rock*.

The Parts observable of these Waters are.

1. The grosser Mineral Parts, Saline or Metallene.

2. The Juicy Menstruum, be it Juice or Spirit, or gas and aporrhea.

3. The Body, or Vehicle Water.

The Origination of these, since we have no Vitriol Waters found in our Island, is by the passing of Water within the Earth, over the Minera of these Bodies, where it imbibes the Juice or Spirit together with the substantial Parts ; together with the Aporrhea where such is. There are some Waters found among the Chalybeats, which carry a mixt Salt, partly nitrous, from the washing of the Soil, which being not clean or Medicinal, belong not to my Subject ; so I shall not make this a distinct imperfect Mixture.

The Seat, or Place of their Production, is at the solid Earth, or on the bottom dead heavy Loam, covering immediately the inner Earth, the Matrix of Minerals, as an inner Bark, differing in Weight and Nature from the upper Loam, whereon the common Springs run ; and thus I find all
Mineral

Mineral Springs in Bottoms, with other common Springs running above them.

The Nature of the Minerals in the Waters, agreeing exactly with the Minerals found at the several Springs. I am not concern'd to clear the Origin of the Vehicle, or Water, but as it is one of the Parts of my Subject, it lies in my way to give some Account of it. The Opinion that is now generally receiv'd, is, that it rises from Rain and Dews, and I think hath all the Arguments that can be expected to make it clear, and are fully satisfying; which are these,

First, That Springs are deriv'd and fed by Rains and Dews, hath the highest Probability, in that they cease on Want of Rain, and flow from the Supply of it; which hath the Force of a sensible Conviction: What other way do we seek to prove any Cause?

2dly, The Nature of the Earth, which, after all Disputes, is found to be solid within, and free of all Springs. This the Miners know, when they come at the dead Loam; and our Pump makers, when they come at it, never seek any farther for Water, as from a Conclusion founded on Experience, having often essay'd lower, but never found any.

3dly, The Nature of the Salt of common Water, which where it is not locally Impregnat, hath always a common Salt, near a Kin in Nature and Weight, and such as the upper Soil affords, and not any Vitrioline or Esurine Salt, as the inner Earth affords: This is a good Argument, to any Man that considers, that Water is not to be clean'd of that Salt, nor of Sea-Salt wholly, by any Percolation.

Lastly, That it cannot be from the Sea, which is the only probable Competitor, is clear, in that the Water cannot ascend above its Level. I know it is urg'd in Favour of that Opinion, that the Sea is higher than the Land, urg'd from its Appearance, to this it is a sufficient Answer; which Authors, and particularly, my late honoured Friend, Mr. Ray, gives, that all Springs and Rivers run down into the Sea. And that Appearance of the Sea, which hath not been well accounted for, I have reason to fix to a Cause mixt partly to be from visive Rays, contracting at a Distance, and which is seen in a long Gallery, and partly from the Nature of Light, which by some Property of its own, makes its assisting Medium appear higher than it really is. The Explication I shall leave to Mathematicians; tho' I do not think the Refraction of Rays simply can account for it, that take, and convey the Object to our Sight, without somewhat done in the Object by the

Nature of Light, and Medium it is in, reflecting the Light, and so bearing the Object with it in the Medium.

But Matter of Fact it is, that I have observ'd a long and level Mead near me, when flooded, appear higher than some Neighbouring Grounds and Houses lying above it.

These Reasons I take to be conclusive; tho' the fit Disposition of Mountains and Hills to receive the Water, which are usually Gravelly, deeper than the Plains, and the vast Tracts of Ground to feed these, and the condensing Nature of them, I confess requires a farther Consideration, to explain the Reason for the Quantity and Continuance of Springs; for the Disposition of these to produce that Effect, seems to require an admirable Design and Frame, worthy its Author's, and not to be so simple an Effect of Nature, as necessarily and fully to be explain'd, without a farther Consideration of the Disposition for it.

And for the Quantity of Water discharg'd by the Rivers, which make the Difficulty exsuperant; it is plain Mathematicians are out in their Computations, since the necessary Nature of fluent Bodies, and the Confinement of the lower Parts, make it plain, that the Rivers run more at top than at bottom; and is to be seen by Fact in small Rivers, and that Motion the Rise of the Sea makes, not so equal, nor so quick.

The History and Examination of the Purging Waters.

THE Purging Springs, when unmix'd, (for otherwise *Scarburgh* will be an Exception, tho' not a Contradiction) are all of the level Kind, and not quick and running, but are found in Clays in which the Wells are sunk. The Clays are even and reddish, and are very near a Tile-Earth, between a Loam and a Clay, being near the close Fatness of a Loam; yet, in Water, not so soluble as a Clay, nor consistent as a Loam, but a little dispos'd to Slack. Tiles are made of the same Earth, with the inner Earth of the Purging Waters at *Richmond*, in the Yard adjoining to the Well. These Wells are mostly in Hills, but not constantly. The Depth of the Wells, to the Loam at bottom, where the Materials or Signs terminate, never exceeds 20 Feet, and rarely is so much. The Water flows in slow, or rather ouseth. The Water hath a com-

common Taſt in all, which is a bitter, mix'd with a maukiſh ſweet. The firſt Diſcovery of them was about the Year 1635, whether from bare Experience, or from the Taſt reſembling the *German Spaw*, or from both. The Taſt and Notes of the Earth, have occaſion'd many ſince to be diſcover'd. In all that I have viſited, the Loamy Bottom is paved, or founded with large Stones, or ſtony Concretions of the ſame Clay, as large as a Mans Head, and moſtly many times as large, incruſted about, and divided into Cells by a thin Coat, of a friable, but Horn-like Matter, the Threads of which broken, lie tranſvers thro' the Plate, and not longitudinally, the Matter included ſeems the ſame Clay petrify'd, and of different Hardneſs, ſtain'd at Places with Iron of a Ferrugineous Colour in ſome, and in ſome of a Blue, or Colour of Iron that hath been in the Fire. In the Stones at *Dullwich* and *Woodhamferrys*, I obſerv'd ſome ſparkling Particles. In the Generality, if not all, is obſervable ſome white Mould, or Effloreſcence on the Earth about the Wells, where it lies dry; and on the Earth caſt out of them; the Earth is uniform, or nearly ſo, from top to bottom. There is another ſort of Purging Wells in the ſame kind of Earth, and Depth, but differing, in that the Earth is interſperſt with Multitudes of little pieces of ſhining Stones, and pellucid, vulgarly miſtaken for Alum.

Theſe Stones are the Selenites, ſo call'd from their ſhining in the Night, and lying in Water, and from a Notion ariſing from both theſe Subjections to the Moon, that they increas'd and Decreas'd with that Luminary. Theſe differ in Shape, in the Publick Wells at *Epfam*, near the Shape, which we vulgarly call a Diamond Form, or Rhomboid, and where they were Cubical, they were in Cluſters.

At *Symonds's* Well, in the Town, the greateſt part of them were Bacilli, like Salt Peter, Chryſtals, or Shoots, of Two or Three Inches Length at leaſt; the Side of which is compos'd of Two Plains, riſing to an Edge, which, with the Superficies, or broadest Plains, and the Four that conſtitute and form the Point, make Ten Planes; one End was uſually broken, and fix'd in the Clay, which was more Loamy than the upper Clay; they found them moſt ſticking thus, as Radij to a Center, with the broad Sides facing each other, and the Edges downwards: At the next Houſe adjoining to this, they found the Stones of a Diamond Shape, (as they call'd the Rhomboid) only longer one way than the other, and with the Sides riſing to an Edge, to uſe his own Expreſſion. In *Woodham-Ferries* I found them uſually, with one half reſembling the

Rhomboid; and the other End thinning to a semicircular Edge; some I found Bacilli, the same Figure as at *Epsam*, and some Rhomboid, most of those that came near the Rhomboid, had their Ends flat, as if they had been cut, and not pointed.

At *Kensington*, this Stone is vastly large, being more than Two Fingers Breadth broad, compos'd of Eight Planes, not taking notice of that made by setting together the lesser half of it, of which I have given a Cut, or Figure, but delineated this in its natural Size. The Earth, or Loam wherein these grew, I often found form'd into the like Figures. The Earth of these Selenitical Wells, besides the Mixture of these Stones, is usually variegated, by Lays of differing Colours and Consistence but not regularly dispos'd; some small Lays were of a Brimstone yellow, with some small White Parts; and some Lays of a Ferrugineous; and this both at *Epsam*, and *Woodham-Ferries*. But at *Epsam* Publick-Well, the Red Parts were collected most into the Stones, which were incrusted with a White Crust, the rest of the Earth, more generally alike, which was of a Reddish Colour, sparkling with the Selenites, except where the Air had whiten'd it. Of *Symond's* Well, which I view'd Two Days after the Digging of it, I receiv'd the following Account from the Men employ'd in the sinking it. The uppermost Earth was the same with that of the Hill, for a Foot, or Two Feet deep; then they came to a harder, and more properly a Clay, which lasted for Six or Seven Feet; and then they came to a looser Clay, which was sparkling, as if Salt or Glass had been mix'd with it; this held for a Foot or Two, and then they came to the Stones, meaning the Selenites; of which those in the Figure were some that I receiv'd there.

Below the Bed of the Selenites, he said, the Earth was a black, dead and heavy Loam, and reputed to partake of Iron, on which were some hard Clods, collected like more tender Stones. The bottom of that ferreous Loam, was the common dead Loam. There were not any of these Signs found deeper, nor any Water, tho' they dug lower by Three or Four Feet. The Water did not come plentifully in, but oosed at the rate of about a Barrel in 24 Hours, as he had found upon the emptying it.

As the Selenites had the Shape of Vitriol of Iron, so where they lay in that Form, were constantly Veins of Iron colour'd Earth, and some pure Iron, that without washing obey'd the Loadstone. At *Woodham-Ferries*, I saw the Matter cast out, and discours'd the Digger; I observ'd an intire Resemblance in

in the Earth, and the Lays: I found among the Earth next to the Superficial, more Chalkey, distinct Parcels, then a harder Lay, under which a mellow Lay, as in *Epsam*; in which were little Lays, or Parcels of a Ferrugineous, and some of a Brimstone-Colour; about these Earths, and below, lay the Selenites. The Pebly Stones, or Petrifications at bottom, which were large, were hard, and exactly the same as at *Richmond* and *Dulwich*, and the rest of the plain Earth Wells, only with some few Sparkles in them, as in *Dulwich-Stones*. These Stones at *Epsam*, are not so hard and petrify'd, more Red within, and the Coat White and Mellow.

The Purging Condition of the Water is owing to a Salt which it contains, in the Quantity of about half a Dram in a Pint, and is white, and shot into small *Stiræ*, as is well known, being now much us'd for a cooling, sure, and easie Purger; but the Salt doth not Purge in so small a Quantity, proportion'd to that in the Water, by reason the bittern, or not coagulable Part, is lost in the preparing it, and not with it.

The *Epsam* Salt was not to be so shot, without more Niceness, being so soft and liquid, as boil up, and concrete without shooting, unless very heedfully done, and would then melt in the heat of a Man's Hand, the *Stiræ* finer and whiter than of any other Water.

What the Mineral of these Waters is, was never made sufficiently appear, having been look'd at, rather than examin'd, perhaps thro' the obvious Difficulty of seeing into the Earth to any Satisfaction; and therefore, even the Learned contented themselves with taking it as a *Sal sui Generis*. The great Mr. Boyle only gives some Essays of the Weight and Titles of Suspicions and Directions propos'd for Inquiry. The only Person that comes to any particular Point at it, was my Learned and Honour'd Friend, Dr. Lister, in that curious Treatise of his, *De Aquis*, rightly taking it for a Niter.

Now that this is a Niter, but not simply so, but join'd with a Juice of Iron; and how it rises and differs, I shall make appear by the following Account.

Niter I take in the common Signification receiv'd for a Salt naturally produc'd by a sort of Growth, or Efflowscence out of the Substance of any Earth of any Kind, and as a general Name from that Character. The Niter of the Antients, was certainly the same, or near to our *Terra Cimolia*, or fulling-Earth, and was Alkalizat, wrought upon by Vinegar, and the Earth, originally, had that Name, and not the

Extract, or Preparation from it, from *Diascorides*, who says, *cum Nitro, aut Terra cimolia*; and the Use of it to whiten Garments; and this is confirm'd by Dr. *John Francis Gimelli*, in his Passage on the *Nile*, who observ'd at *Terrahna*, a Village upon that River, a great heap of Earth, dug for Transportation, to whiten, and take Spots out of Cloaths, which they call *Natron*. But since the Name was used to the Extract, and now become generical to the Salt growing out of any Earth; now that the Salt of the Purging Waters is the Product of the Earth wherein the Springs are found, we have a sure Guide and Evidence. First, that it is not of a Forreign Product, and brought from distant Parts, by the peculiar, constant, and uniform common Signs of Earth, Depth, Stones, as is the Water itself, near enough the same in all the Wells, leads us to this particular Earth to be examin'd.

2. The Salt of the Water is in *Stiria*, Shape flat, not corrosive, white and small, as nitrous Salts are.

3. The Earth of the Wells yields it, when in the Air, cover'd a little from Rain and Sun; and round the Wells at *Scarborough*, and other Places, plainly shews it growing, or proceeding from it.

4. That this is naturally so, is seen in the like Figured Salt, gathered in Vaults and Cellars, and on such Clays by Wood-Sides, on cover'd dry Banks near Moisture. So that we have only to see for the Specificat Sort of Earth, and the Minerals, whether there be more in it. Now for the Specificat Sort of Earth; it is plain a peculiar Clay near a Loam, ferreous Juice appearing on the Stones, and a ferreous Juice in Parts in the lays visible, and which tasted pleasantly sharp; some of the Yellow and White parts burnt, tasted very agreeably sharp, like Spirit of Sulphur, or Vitriol, and the other of the Iron, which with a convenient moist Vaultage within the Earth, produce this Salt. And upon Examination, I found the Signs of the Water, to be only Signs of this simple Original, and not of any other Mineral, when I came to understand them, and the Reason of them. For First, for these petrify'd Masses of Clay, or Stones, which we find at the bottom of the Wells, they are nothing but Clay, petrify'd by lying where the dead Loam is rich of Iron, and ferreous Juice, and is the common Substratum of this kind of Earth, when it reaches quite down to the dead Loam; for I found the slacky Crust a perfect *Gypsum*, and the contain'd Clay petrify'd, so have not the least of any Mineral Parts, but of Iron, and its Juice. I try'd Stones from all the several Wells that I visited, to this end, Selenitical, and not, as particularly of *Richmond, Epsam, Dulwich,*

wich, and *Woodham-Ferries*, by Roasting them, Calcination, and Lotion, and Tincture, or Solution in acid Spirits, and Precipitations, which are too long to repeat particularly, least any Mineral should lie conceal'd, or Salt, as Allum, which is with us extracted from a black Slate-Stone, when first burnt; but neither by these Ways, nor by Sublimation, was there any Mineral Parts evident; neither did they, upon Fusion with Glass, with and without Salts, save only a little Iron; which in the *Woodham-Ferries*, and *Richmond Stone*, had a considerable Stain; nor was there any Tact, or Flower, or Burning, like the Sulphurous Marcalites, as Antimony, Annick, Spelter, and the like. And since my Essays, I find that some Naturalists know this Stone, by the Name of *Lusus Paracelsi*, as what had deceiv'd him in his Expectations from it, after many fruitless Endeavours and Tortures. There was one thing particularly observable in this Stone, or its Juice; that their Solution in *Aqua Fortis*, would not become liquid under several Days standing. The same Parts I found to be in some of the Earth at *Epsam*, that lay among the Selenites, tho' the Stones by the Mixture of the Chalk did not. This suggested to me a Suspicion of some of those Minerals now nam'd, which with Salts, whence *Aqua Fortis* is drawn, would yield a Butter by Distillation; but I try'd that, and Sublimation, and fail'd of that Effect; nor did it agree with them in being produced in Heat, nor had it a Caustick Tact, or Effect, but only mortify'd the Acid, instead of becoming corrosive. But a Journey to *Harwich* to see Marine Plants, resolv'd me of all my Suspicions, by showing me a large Parcel of the same Stones, lying under a Pillar, or Parcel of the Cliff, and before it, where the Earth had reach'd only as far as that sort of Earth was, tho' no Purging Water was there; which inform'd me this was no more than a common *Substratum* to this Earth, and was produced when it reach'd to the inner Crust of Earth, or dead Loam, and rich of Parts of Iron; neither am I concern'd to examine, or answer for the Cause of petrify'd Shells lying at top of the Cliff, when there is Clay under that Crust, which is not petrify'd, which argue it to be carry'd up; however, I leave it as no Objection to me. In Sum, these are naturally effected, by the Petrifactive Quality of the Earth they lie upon, as far as that sort of Matter is dispos'd to receive, and hath nothing more in it. But for those shining Parts, I found them only Iron in a different Shape, from a differing Salt, and Collected as in Marcalites, or Vitriol Stones; and I found the Salt of *Dulwich-Stone*, of a more Marcalitical Nature than the rest. By Marcalitick I intend the

Nature

Nature that Stones rich with any Mineral, have by the Juice of the inner Earth, which differs from the Salt of the upper, as more cold, and Esurine, and not so friendly to the Body, so collecting, and separating the Salts, make the Mineral Parts appear in Particles or *Striae*.

And I find *Dulwich* Water a much more churlish Water, to those that try it with the Freedom us'd in other Waters; as if drank when we are hot, or in a Quantity a little excessive. The Selenitical Wells afford more Suspicion at first Sight of some Forreign Mixture; but upon looking nearer these, I observ'd, that being constant Producers of purging Waters, they clear'd the Question, being plainly the Product of the same Earth, the same ferreous Juice to have the same Lay of claggy petrify'd Stone at bottom; the Parts only more separated, and obvious, and only to be produced by a Mixture of Lime, or Chalk-stone, which perform the Difference, and separate the Parts; and that the *Selenites* is but a sort of Sparr, produc'd by, and the Sign of all these Circumstances. For first, all the differing-colour'd Earths, only shew'd, upon burning, an Ironish Tast, and Acidity, and the yellower Parts more acid, and some of the white Parts were simply acid; neither of them the least corrosive, nor shew'd any, when digested in Vinegar; nor had any Metallin Parts, or Mineral besides. Indeed I wondered to find a perfect *Spiritus Vitrioli*, or *Sulphuris* thus distinct in the Earth.

The white Crust of the *Epsam* Concrete Stones, had the same Tast when burnt, tho' some of the gross white Parts differ'd little from Chalk, or *Gypsum*. I prov'd the Metalline or Mineral Parts by Solutions, and Sublimations, but found the whole variegated Earths, only from Iron and Chalk-stone Salt, and no other Mineral concern'd. And when I came to see what Account Experienced Naturalists give of the Production of the *Selenites*, I find *Georgius Agricola*, cited and approv'd by Dr. Plot, in his Natural History of *Oxfordshire*, Cap. V. Parag. 9. speaking of the *Selenites*, saith, *Georgius Agricola*, differs from them all, and makes it a Product of Limestone and Water: *Gignitur*, says he, *ex Saxo Calcis cum pauca aqua permisto*; and thus I find it here with us at *Hedington*, in a blue Clay that lies over the Quarry; so that it is a Sparr of the Limestone; and this agrees well enough with the Production of it at *Epsam*; for there a Mixture of Limestone appears in the very Pit, and Earth at one end of the Town at least I saw myself a great Chalk Pit. And this Salt will give some reason for the Separations made of the Juices and Parts that were terreous, into collected Parcels. Indeed here is a dif-

different-colour'd Earth in our Wells, namely, reddish; which is a Tincture of the Iron, which is strong in these; and therefore, also give the Selenites a different Shape, many resembling Shootings of Vitriol of Iron, shew their Parent. To specify the distinct Selenites, and Earth producing them, we must observe these several sorts of them:

1. Those Selenites that are really fissil, into tough flexil Plates, which is properly the *Glacies Mariæ*, or *Lapis Specularis*, *Muscovy-Glass*, us'd for Windows of Ships, call'd *Isinglass*.

2^{dly}, Rhomboid, and compos'd of Flakes, the Superficies of which are divided, or consist of Thread; the Marks or Lines of which appear in the Surface. These seem to be found only where they are produced at Stone Quarries; of this Kind, is that of *Heddington*, in *Oxfordshire*, noted by Dr. *Plot*; and the same at *Kettering*, in *Northamptonshire*, and may properly be distinguish'd by the Name of *Selenites Talceus*.

3. A Third sort have a Cubica Rhomboideal Form; these are constantly Hexaedra, of equal Oblique Angular Sides, or Oblique Angled Parallel pipeds, are fissil into thick Plates, or consist of a Constructure of Cubick Pieces, of the same Figure, such as are at *Slindon* in *Staffordshire*, mention'd by the same Author. *Natural History of Staffordshire*, Part II. Cap. 5. Dug in Marle Pits. These are less transparent, and as a Species of *Gypsum*, may be call'd *Selenites Gypseus*.

4. Fourthly, Those that consist of brittle Plates, or Flakes, as the Second Sort, which are not easily separated, and of an equal Superficies, some of which I have seen unform'd, but mostly towards a Rhomboid Form, and varying as the Soyl or Mixture of Iron makes a Plostick Difference. The most regular usually consist of Six Sides, the Breadth being more than the Thickness, makes the two Level Superficies broader than the other Planes; in this they generally agree, but the Ends, and the Length and Disposure, is various, having sometimes flat Ends, as *Woodham Ferries*, *Kensington*, and some at *Epsam*; some a pointed End, the Sides being cut at the end by Four Planes; the other End commonly, as it grew in the Clay, unequal. As to the Disposition of the Planes, some are Bacilli, some Rhomboid, as *Acton* and *Epsam*, by oblique or differing Position of the Two Parallel Sides. Some are imperfect Rhomboid in one half, and of an imperfect or irregular Figure at the other, as at *Epsam*; and some so, but thinning to an Edge, as at *Woodham-Ferries*, the unshap'd End ever sticking in the Clay; all transparent, equal in Surface, consist of Flakes.

These

These are peculiar to red even Loamy Clays, mixt with a ferreous Juice, and Lime, or Chalk-Stone, of which it is a Sparr, or signal Stone and Product, which are the Characteristics of this sort of our Purging-Wells, and are varied; as I observ'd, with Mixture of Iron, and Salt of the Earth, and may be call'd *Selenites Calcarius, ferreo Lutosus*. They are all found produced in a moderate Quantity of Water.

The Formation or Production of this Salt, is partly by a sort of vegetable Generation and Growth, partly Extraction, and shooting as Salts, and have a Peculiar to be bred in moist Cavities in the Earth, in which Moisture they swim and shoot, as in Cellars, and are generated by the peculiar Air, and a sort of Reverberation, by the help of an Acid, Subtil Vapoury, or Substantial Juice.

The Figure is constant to Niters, and it may be call'd fitly *Nitrum, ferreo Lutosum, cavernosum*. Niters resembling this are found in Cellars, hanging on Cobwells, carry'd, and shot out of the Moisture of the Air, rich of the Calcarious Salt, and comes near *Epsam* Salt in melting.

This Salt hath a peculiar Condition to dissolve, and be held in a lesser Quantity of Water than any Salt, and to work without Sickness, and Disorder.

The Bitterness is common to the *Liquamen*, or bittern of common Salt, and is owing to the Sulphurous Tangle of the Earthly Parts.

It works as Spirit of Vitriol mixt with common Salt, and partly by its cleansing and scouring off the *Mucus* of the nutritious grosser Vessels.

There are many common Proofs of this Salt, as Acidity, Form, Taste, Working and Effects, to recover the Appetite, and cool and purge, when no other Medicine hardly will; and some Qualities to curdle Soap, and to turn Purplish in some Degree, with Logwood boil'd in it. But there are others which differ much from the Nature of the Salt of the Soil, or Clay they are found in, which make a different Effect, and may constitute several Species of them, which I shall shew in their particular Examination in their several Classes. I did not find any of them to contain a Salt-Peter, when I prov'd them by a Salution of *Sal Saturnis*.

Purging Waters.

CLASS I.

Of a Cretaceous Juicy Salt: Or, a Water containing a Salt, approaching to the Nature of Salt of Chalk, but more resembling the Spirit, than the Body of Niter, without Corrosiveness, and Selenitical.

*EPs*am Water in *Surry*, near the top of the Hill, *Westernly* one, the other in the Town, in a reddish Clay, and brittle, the Depth of the Well is about 12 Feet. The Hill here and there, hath Veins of Blew Loam; Chalk is found in a large Pit at the end of the Town. The Water is moderately clear, of Taste bitter, join'd with a maukish Saltishness, a little of the Taste of the Second Salt of *Sal Marine*, and of the Salt gathering to Things in Cellars. It did not precipitate Vitriol of Iron, but with it made good Ink, which Salt of Chalk precipitates, notwithstanding it agreed with a cretaceous Salt, in that it restored the blueish Cast of Turnsole sharpened. It took a Purple, with Tincture of Logwood, made by boiling in common Water, very lively, not dusky, as Salt of Tartar made with Salt Peter effects; nor Tawny, as Salt of Cellars. As Salt of Chalk is troubled, a Solution of Sublimat in fair Water, and sent down a white Precipitat, which Allum doth not. With Syrrup of Violets, a Grass Green, yet it differ'd from Salt of Chalk, and all grosser Salts, taking a high Yellow, and clear Tincture from Nurgall, which is pale with that, and peculiar to Spirit of Niter. Salt-Peter only draws a clear, but pale Tincture. With Syrrup of Clove july-flowers, it became dark, footy, and greenish, as *Alkalis*, and the *Fuligo Vitrioli*, adhering to Vitriol Houses.

The Acidity that came over in Distilling, pleasant and little. The Salt was peculiar, in being Calcarious, yet agreeing with Vitriol of Iron, and resembling Spirit of Niter.

The Salt grey, but carefully made, was purely white, and boil'd up with the bitter, unfigur'd mostly, and melting in
the

the least Heat, but short, was in fine *Stirie*, and smaller, and whiter, and sharper-pointed than any of the Salts of the other Waters I yet saw. It made an Effervescence with Acids, it yet coagulated Salt of Tartar, but not a Solution of white Vitriol; it did not inflame with Sulphur, blister'd on a hot Iron, but was not Caustick burnt or unburnt. The Earth of this Salt, dissolved in part in distill'd Vinegar, and bore the Proportion of an 8th part of the Salt. The Salt, which is said, in a dry Season, to amount to near seven Drams in a Gallon, scarce then exceeded the half of that Quantity, after a wet time, if quite so much. The *Liquamen*, or fluid part, was very great. This Salt dissolv'd in its own Water, deepned Nutgal to a Pink, near to a red, as Spirit of Niter causes in this Water. But this thickned, as embodied Salts do; it bore boiling up in Copper, it works quicker with the *Liquamen*, than separated, and shot, as it is usually made. The stony Clods, with Acids, made an Effervescence, or Ebullition, but slack'd, not in Water, it weigh'd in the Air Two Ounces, and 47 Grains; in the Water, One Ounce, One Dram, and 26 Grains. The slacky Outfides, were almost all Salt, and wrought with Syrrup of Violets. not with Alkalis.

The ferreous Parts of the Earth, both Yellow and Red, were all acid.

C L A S S. II.

Water of an Embodied Salt, Cretaceous, and of the Nature of the Niter, of common Earth, rather than of its Spirit or Juice.

Barnet Water, in Hartfordshire.

THIS had the Taste of common Pump water, with an Addition of Bitterness, which was not so full, as in the other Waters; in the Quantity of Ten Ounces in Summer-time, exceed common Water in Weight near a Dram. The Salt of this Water agreed with Salt of Chalk, in giving a deep Verdigrisee-Green, with Syrrup of Violets; rendered a Solution of Mercury sublimat, milkey, and troubled a clear Solution

of *Hungarian* Vitriol, and did not precipitate fine Silver out of Spirit of Niter.

It further agreed with Salt of Chalk, mixt with the Nitrous Salt of common Earth, in growing thick, whitish, and turbid, with Nutgall, not free of the Yellow Tincture; not in hard Curdles, as common Salt, nor dark Clouds, as Salt of Vitriols, nor deep Yellow, as Spirit of Niter; it differ'd from Salt-Peter, in rendring a Solution of *Sal Saturni*, in common Water, Milkey.

The Acidity was light, or mild, in curdling *Deliquium* of Salt of Tartar, and also Spirit of Hartshorn, in fine Curdles.

The Infusion of Iron made but a Sooty Ink, and Purplish, yet this Water differ'd from all Alkaly and Niter, and came nearer Salt-Peter and Vitriols, in taking a bleuish-dark-Red, or Purplish, with Syrrup of Cloves.

Kensington-Water Selenitical.

THE Water from the Well of *Kensington*, was clearer than these usually are, and less bitter than *Epsam*, but of a more manifestly saline Taste; in the Quantity of Nine Ounces and Five Drams, and 48 Grains, outweighed common Water 37 Grains. It was Alkalifate, in that it became Purplish, with Tincture of Logwood, and that it was not disturb'd with Spirit of Niter, and that it render'd Milkey a Solution of Mercury, sublimat in fair Water, and sent down a white precipitat, as Salt of Chalk doth; and in giving a Green, with Syrrup of Violet, and with Lign Nephritick, a high Yellow.

Its Acidity curdled Spirit of Hartshorn, and Salts of Plants, and agreed with common Salt, or Salt-Peter's second Salt, in not taking off all the red of Syrrup of Cloves; tho' it turn'd dark and Sooty, with Nutgall it became thick and white; Niter of common Pump-water turns a little white; common Salt, and Salt of Chalk, Yellowish; Rock-Salt reddish; Lime-Water a dirty Yellow; Allum thick, dark and curdled; Salt of *Hungarian* Vitriol, thick, white, a little darkish; so that it resembled herein a Salt of a middle Nature, between Salt of the upper Soil, and Vitrioline; but with Iron and Gall, taking a rusty Black, as Alkalis, and ready to precipitate; yet it troubled a Solution of *Sal Saturni* in fair Water, much less than

than Nitrous Salts, Alkalifat, so near to Niter, or Salt-Peter.

Two Quarts had about 40 Grains of Earth, light, leafy, and Grey, which Distill'd Vinegar wrought upon, the Water boil'd up, had many Selenitical Particles in it. The Salt was soft, and ready to shoot in Figures, the *Stirie* flat, and mostly not pointed.

The Salt melted not easily, as *Epsam*-Salt, but bore a good Heat, and had a much greater Quantity of Earth in it, and hard on the Tongue, and did not shew a Scum till near boil'd up.

This Salt did trouble a Solution of fine Silver in Spirit of Niter, which in a long time precipitated, and not so quick and large, as with Sea Salt; so it appear'd a high Alkali, Cretaceous and Nitrous.

The Selenites found in the Well, hath somewhat of the Face of the more common Columns at *Epsam*, but broader, thicker, and larger, like Lumps, and consisting of Two united by the Ends, as in the Figure; but the *Laminae* were more truly separable, so nearer the *Muscovy* Glass; and the Water in boiling up, had more of the Gypseous Parts; for in the *Epsam* I discern'd not any; which Notice is of Use, to direct the Boiling and Clarifying it before Drinking, for nicer Bodies. The Pyrites which I receiv'd, was very hard, of a greenish Gray, or Hazel Colour, it differ'd from the others, in wanting the Crust of *Gypsum*, or *Trichitis*; upon Infusion in *Aqua Fortis*, it did not coagulate into a Jelly; but yet after the working, which was very violent, the Powder settled not, but remain'd of an Iron Rust-Colour. Yellow, flying and turbid, tho' it stood many Days. This Matter wash'd, with Water, had a ferrugineous Taste, and the diluting Water with Gall, turn'd blue Black.

Stretham-Water.

THIS Water was sweetish to Taste, Nauseous and Saline, not so bitter as *Barnet*, tho' taken at the same time, and was lighter by Ten Grains in Seven Ounces and a half; and 23 than common.

It answered the same Essays with *Barnet*-Water, only with Syrrup of Cloves, a little more blue, as Salt-Peters second Salt;

Salt, when near boil'd up, the Salt on the Sides, when cold shot in long and flat Bacilli, not apt to melt in Heat, and tasted cold and sweetish. The bottom had Three sorts, some flat, broad, and grain'd like common Salt; and some soft, like *Epsam*, that had Flakes in it. Four Scruples of Salt had about Eighteen Grains of Earth. white, and clearish. They burnt white, and made an Effervescence with distill'd Vinegar, which did not take up any considerable Quantity of it. It was not so high an Alkely as *Barnet*, not giving so high a Yellow with *Lignum Nephreticum*.

C L A S S III.

C A L C A R I O U S.

Acton-Water in Middlesex, Selenitical.

THE Earth of this Well yielded the Selenites, or Rhomboideal Talc, as the Gentleman, my Informer, living at the Place, and sent me the Water, express'd it.

This Spring opens Northerly; it is reputed one of the strongest Purgers about *London*; and is noted to occasion a great Soreness of the Intestine, as doth *Epsam*, perhaps as Calcarious. The Water was whitish, not so clear as *Epsam*, not saltish, but seem'd to my Taste rather sweetish, with a little of the Bitterness of *Epsam*. It curdles Soap, as do all.

The Salt of this Water shot in *Stiria*, is soft, and not so ready to ChrySTALLIZE, in that more agreeing with *Epsam*, tho' not so soft; the Salt of this Water appear'd of a Calcarious Nature, or of Salt of Lime; the boil'd Water disturbing a Solution of Mercury, sublimat in fair Water, and precipitating a faint Yellowish Sediment; with Syrrup of Violets, Green; with Tincture of Logwood, a dark Purple. It took a pale Yellow from Gall, but Dusky, and disturb'd, as common Salt, and Salt of Chalk. But the Salt did not precipitate fine Silver out of Spirit of Niter, which common Salt would. A Pint and a half of this Water yielded Forty Eight Grains of Salt, in which was Six Grains and a half of a reddish Earth, on which acid Spirits wrought. The Earth precipitated in boiling.

C L A S S IV.

Waters containing a Salt Alkalial, resembling Salt of Tartar, and the Sulphurous Salt of Vegetables.

1. *A Water more simply so.*

Upminster, in Essex.

THis Water was very clear of Taste, a sweetish nauseous bitter, in the Quantity of Nine Ounces, Six Drams, and and Six Grains, outweigh'd common Water Fifty Five Grains.

It differs from Alkalis and cretaceous Salts, in that it makes no Alteration in a Solution of sublimat, made in fair Water ; it curdled *Oleum Tartari per deliq.* but not very large, nor quickly. It curdled Spirit of Hartshorn strongly ; it agreed with Alkalis, appear'd in thickning a Depurated Solution of *English Vitriol*, and much sooner a Solution of *Hungarian*, making a large Precipitation ; also in taking a high Yellow Tincture, with *Lignum Nephriticum*, near an Orange ; with Gall, aturbid dark, and Greenish, which precipitated, leaving the Liquor Yellow ; in making an Effervescence with Oil of Vitriol ; in taking a dark, footy, thick red Colour, mixt with Syrrup of Cloves ; in giving Syrrup of Violets a Verdigrisee Green ; in troubling a Solution of Silver in Spirit of Niter, not so effectually as common Salt. It differ'd from Salt-Peter, in rendering a Solution of *Sal Saturni* Milkey.

2. Shooters-Hill-Water in Kent,

WAS clear, and upon standing some Days, had precipitated thin Flakes at bottom of the Bottles. The Taste was very bitter, and full of the nauseous Sweet, in the Quantity of Eleven Ounces, lack 24 Grains; it was 30 Grains heavier than common Water; with a Solution of Sublimat, it made no Alteration. The Purple which it made with a Decoction of Logwood, was dark, and a little dirtyish upon standing, as calcarious Salt, adhering to the Walls of Cellars; with Gall, a whey'd, or bleuish White, settled pale, and the clear Liquor became Green, as is the Effect of Salt of Wormwood, which gives still a higher Green, with a few Drops of Spirit of Sulphur or Vitriol; with Spirit of Hartshorn no Alteration; with Spirit of *Sal Armoniac*, a white Cloud hanging at top, where the Spirit spread. With Syrrup of Cloves, a little Syrrup went a great way, in giving a strong Colour, and kept a dirty dark red; which Salt of Tartar, and also of Lime, turn Green, agreeing herein with more acid Salts, as common Salt, and Salt Peter's second Salt. Spirit of Niter turn'd it White, and so did Allum a little; as in Pump-water, and with embodied Salts, of Salts of Tarter, or common Salt.

3. Woodford-Water in Essex.

IN the Quantity of Ten Ounces and a half, within a few Grains, it weigh 29 Grains more than common Water, after a dry Year, 1702. The Salt of this Water was not so high on Alkali, taking a pale Colour with *Lignum Nephriticum*, not deeper than Rain Water; not high, as Salt of Tarter communicates. It curdled equally with Spirit of C. C. and Spirit of Salt *Armoniac*.

Like Spirit of Salt *Armoniac*, and Salt Peter's second Salt, and Vitriolin Salt, with Syrrup of Cloves, it lost all the red, turn'd near a Black, and not Green, as Alkalies; not reddish as common Salt, and acid Spirits.

It curdled, and turn'd white, with a Solution of *Sal Saturni*, so differing from Salt-Peter. With Syrrup of Violets, and Logwood, just as Alkalis. It resembles Salt of Chalk, in turning thick and White with Gall, which on standing, turn'd Dusky, and settled a Fleshy-Colour'd Settlement, and left the clear of a pale Greenish Yellow; yet made no Alteration with Sublimat.

CLASS V.

A Water indewed with a Salt highly Alkalifat, with a highly austere acid, like the Liquamen of common Salt.

Brentwood-Well in Essex.

THIS Water is of Taste Lixiviat, with a little Bitterness, and not so maukish altogether as *Epsam*; it gave Evidence of a high Alkaly in a Green, with Syrrup of Violets; a dusky Gold Colour, near that of *Malaga* Wine, with *Lig. Nephritis* and in not precipitating Silver out of Spirit of Niter, more than common Water will.

But the Salt, or its acid part, seem'd of a middle Nature, inclining to that of common Salt; for it did not make any Alteration with sublimat Water. With Gall, it turn'd white and thick, as vitriolin Salts, and upon standing became a pale Yellow, which precipitated; and with Syrrup of Cloves, a dull pale Red, all which resemble common Salt, and did not disturb a Solution of *Hungarian* Vitriol. The Ink made with this Water by Iron and Gall, was dirty, and precipitated. The severe Acidity was shewn, in its coagulating the *Deliquium* of Salt of Tartar, hard like Stone, as the *Liquamen* of *Sal marine*, but I thought more strongly.

This Quality is the more nicely to be consider'd, because of some Effects observ'd in it, directly contrary to that of *Lambeth*, and peculiar from all the rest. This Water in Boiling, threw up much of the Salt in the Scum, as *Sal Gemma*, and had some gross White, Earthly Flakes precipitated. The *Stiria* were some pointed, some not; the Earth was white,

white, and near a fourth Part. Some part of the Salt at bottom seem'd of a more hard Nature, and was a hard concrete Lump, which precipitated Silver more strongly out of Spirit of Niter, and made a greater Coagulation of the Liquor of Salt of Tarter.

C L A S S VI.

Waters indued with a Salt of the Nature of common Salt.

1. *Alford-Water, in Somersetshire,*

AGreens with common Salt, and in some Effays with the Spirit of Salt, giving no deep Colour; with a cold Tincture of Logwood, and with Gall, a very pale Yallow; and the same with *Lignum Nephriticum*, but deeper, in which it agrees with the Spirit of Salt; and accordingly it gave a right Purple, with Iron infus'd in it, when Gall was added.

2. *Dycheling-Water, in Suffex,*

TO Taste apparently Salt, and of a more mild Bitterness; in Six Ounces, exceeded common Water Eleven Grains; no Alteration with a Solution of Sublimat, or *Roman Vitriol*, tho' it turn'd Green with Syrup of Violets; and as common Salt, it gave not a white, but a pale Yallow, a very little turbid, which upon standing 24 Hours, turn'd Green at top, as far as the Air extended, about the breadth of a Straw, but not so Green as Alkalis, nor precipitated; and as common Salt, with Syrrup of Cloves; tho' it darkned a little, it did not loose the red.

3. Lambeth nearer Well, in Surrey.

THIS Water hath some remarkable Qualities, peculiar from the rest, (which make the Essay the more to be heeded,) that capacitate it to correct and mortifie the Scorbutick Error of the Nutricious Juices, luxuriating towards a Leprosie, or a Scabbiness. The Power of Sea-Salt being here in a way not gross, and which the Stomach and Lacteals separates, but in a familiar and passable Capacity, and so of great Energy, and yet without the severe *Coagulum* of common Salt, and is directly opposite in Nature to *Brentwood*-Well.

This Water try'd by me at the Well, after a dry Season, was clear, but not so limpid as common Spring-water, having somewhat of the Colour of Rain-water, and near the Taste of Salt-Peter's second Salt, but left a Vitriolick brackish, or nauseous Taste on the Palate, tho' not very full; exceeded common Water 24 Grains in half a Pint, and half an Ounce.

It answer'd the Test of common Salt, in making no Alteration in a Solution of Sublimat; and in changing the Red of Syrrup of Cloves, into a cloudy pale-colour, in which the Red, upon 24 Hours standing, was wholly lost, but was restor'd by a Drop of Spirit of Niter; perhaps any other Acid might have restor'd it as well. It curdled strongly *Ol. Tartari per deliq.* in giving a pale Yellow, not very fine, with Gall; in precipitating fine Silver out of Spirit of Niter, tho' I thought not so quick, or strongly, as Rock or Bay-salt, in not changing the Colour of Syrrup of Violets, and in holding in it the Inky-colour it contracted with Gall and Iron steep'd in it, and not suffering it to subside, tho' I kept it several Days; with *Lignum Nephriticum*, it answer'd the Effect of Salt Peter's second Salt, giving a Whitewine-Yellow.

I observe the Qualities of the Sea-salt in this Water, to be vigorous, by their being so lasting, and answer so many Trials, as it were universally, yet it seem'd to resemble Salt-Peter's second Salt, which is a middle sort of common Salt, in rendering white a Solution of *Hungarian* Vitriol, which common Salt did not, Rock-Salt a little, but the second Salt of Salt-Peter readily effected in like manner, but scarce in so high a Degree; for this sent down a Yellowish Precipitat forthwith:

I must also still own, there may be some Quality from the Marcasitic Nature of the Salt; I mean, as of a Production of the more inward Earth, or as the Salt may be passable within us, so make a Water excel in Energy, which may be over and above what these, or perhaps other Trials, may expose to our Senses: But these Essays give a pretty good Account of its Nature; and if we compare these with those of *Brentwood*, in some Degree Satisfactory.

The Salt was Grey, near White, mostly near Cubes, or in thick Plates, as common Salt; the Scum precipitated in Boiling the *Stirie*, and their Proportion to the rest, I had not a Quantity sufficient to examine.

The Quantity of the Leafy Earth, was 24 Grains in a Quart; it was light, and made Effervescence with Distill'd Vinegar.

The Salt precipitated fine Silver in large Curdles, which Salt-Peter's second Salt doth not so soon, or so much, but only disturb.

4. *The Water of the farther Well at Lambeth.*

THIS Water came nearer the Taste of common Pump-Water, and seem'd to me only weaker, a little in the Nature of its Salt, agreed with the other in every Trial, by Weight as well as other, only Syrrup of Cloves did not loose its Red in it wholly, neither did a drop of Spirit of Niter restore it; so it seem'd to be of a less Vitriolin, or common Salt Nature.

 CLASS VII.

A Salt of the Nature of that part of common Salt, which Chrystallizes in the Cold chiefly, perhaps mixt with a Spirit of Iron.

North-Hall-Water in Hertfordshire.

NOrth-Hall-Water was not so bitter as the rest, but brackish, and saltish to Taste, as common Salt; it did not disturb a Solution of Sublimat; it preserv'd the Blue of Syrrup of Violets; it took Yellow with cold Tincture of Logwood, which grew paler upon standing. As I remember this Tincture was made in Spirit of Wine. But it differ'd from common Salt, in taking very little Yellowness from Gall; and suffering what it took to subside presently; which last seems the Effect of Spirit of Vitriol. It did not coagulate Salt of Tartar liquify'd, so universally as the *Liquamen* of common Salt, tho' it curdled Soap in large Curdles; when shook, it kept a great Froth a great while.

CLASS VIII.

A Water medicated with a Salt of the Nature of common Salt, but of a mixt Nature, with a Nitrous Quality, and a little more Marcasitical.

Dulwich-Water.

THE Wells are at the Foot of a heavy Clay Hill, about 12 in Number, standing together, discover'd about 1640, they are about Nine Feet deep, as I ges'd at View, in which

which the Water stood about half a Yard. The Petrify'd Incrusted Stones, when broke, glitter with ferreous Parts, as Sulphurous Marcasites produce; which I prov'd, and found to be only Parts of Iron. This Water Purges very quick, and is of a colder, or less amicable Nature, and apt to make the Blood flow by Piles, or otherwise, in nice Constitutions, if unaptly, or unseasonably drank, as I have known. The Water taken the same Day with *Richmond*, in the Quantity of Nine Ounces, and near a Quarter, was 28 Grains heavier than common Water, and 12 than *Richmond*. The Nature of the Salt of this Water, which it takes from the Peculiarity of the Earth that generates it, is that of common Salt; in that it turn'd with Gall, first Yellow and clear, then thick and muddy, white, not free of Yellowness; in making no Alteration in a Solution of Sublimat, and in making an Effervescence with Spirit of Niter, but none with Spirit of Salt. It agreed with Acids, in not relieving the Tincture of Turnsol sharpen'd; in curdling Spirit of Hartshorn very much, but Spirit of *Sal Armoniac* very little, or not in so strong Curdles. Yet this common Salt Quality was not pure, but somewhat of a Nitrous, or at least not strong and simple, in that, upon drawing a Tincture from Iron and Gall, the Colour was Sooty, and it did not sustain it, but precipated, and left the Liquor Yellow, in which it differ'd from common Salt, and Vitriols.

I gather it to be Marcasitical, from the shining Particles in the *Lusus*-Stone; and the Essay of that peculiar to penetrate, and throughly to Glassify Earth, and the Operation on Bodies, with more churlish Effect. By Marcasite, I mean a Quality more alien to our Bodies, from the Nature of the inner Earth, and Sulphurous, both which produce Marcasites, of which the Shining is a Sign. The Salt in *Stiria*, it Blister'd, and lost much by a hot Fire, 28 Grains in 40, done in an Earthen Vessel; the more fix'd Parts remaining Angular and flat, like Sea Salt.

And this will give a tolerable Account why this Water pierceth so much; and from its Sulphurousness, and subtil Nature, it puts the Blood and Humours on the flow, and not be so kindly to Nature.

Whether the hint of this Earth's piercing Tobacco Pipe-Clay, and rendring it Glassy within, like *China*-Ware; I mean the Petrify'd Earth, or Stone, be a hint of any Use, I leave. The Earth of the Well expos'd to the Air, had no Efflorescence.

CLASS IX.

A Salt of a milder Nature, mixt of common Salt, or Vitriolin, with a Nitrous of the Nature of ours, immediately under Gravelly Soil, and such as is found shot in Cellars.

Richmond-Water in Surrey.

THE Well is on Hilly Ground, near the River *Thames*, in a brown Loamy Clay, about Nine Feet deep. A Tile-Kiln is in the Yard adjoining; the Ground round it a Gravel, discovered about 1686. Mr. Brown inform'd me the Earth was an even, Loamy Clay; the Water issued from the Side, among the Petrify'd Stones. No Selenites found here; the Clay about it had a Nitrous Efflorescence; the Water smooth on the Tongue, salutes the Palate with the Taste of common Water, but leaves it with the common Farewel.

That the Salt is of a mixt Nature, Vitriolin, and Nitrous, appear'd in not curdling Milk hard; in that Spirit of Niter dropt into it, made no Change, tho' boil'd half away; Spirit of Salt *Armoniac* render'd it thick, white, and curdled, and precipitated; Spirit of Hartshorn a small Curdle; Spirit of Salt no Alteration; with Gall it became turbid, white and thick, not Milk-white, as *Hungarian* Vitriol Salt, nor dark, as Alkalis, nor colour'd, as common Salt, nor reddish, as Chalk, nor ready to precipitate, as with Spirit of Vitriol. The Ink made with it was reddish, as with Salt shooting in Cellars, where Gravelly Nitrous Salts are.

The Salt was some *Stiria*, some *Prisms*, some *Lamellæ*, and did not easily melt; did not inflame with Sulphur; made no Alteration in a Solution of Sublimat: The Earthy Parts were not wrought to a Ferment with Acid Spirits of Niter, or *Aqua Fortis*. The Stones had a Tincture of Iron; in the Essay with Spirit of *Sal Armoniac*, it was just the opposite to *Dulwich*-Water.

The Chalybeat-Waters.

THE *Acidule* is a large Name, and is common to all that have a pleasing Acid Juice from Iron, as well Purging, as distinctly Chalybeat, so I take for no distinct Denomination. As to the Chalybeat, the Dispute whither they proceed from Iron, or Ocre, because the Sediment of them contains none, I pass as grounded on a Mistake, taking the Separation for a Principle; since the Mineral is evident to Taste, and Proof, with Gall. These proceed from the immediate, or inner Cortex of the Earth, I conclude, because I have ever found them in the bottoms, below the upper Loams, on which the common Springs are carry'd.

That they are only Washings imbibing the Spirit or Juice with some Mineral Parts, is plain, in that they contain no Vitriol with us, or corroding Salt; but a Juice, or Spirit. I have already distinguish'd these from the Waters of a mixt Nature, from the Salt of the Earth; so I desire to be understood specifically of these. They seem to be fed by some *Spiracula*, with a Spirit and Juice that takes some of the Tincture of the Iron with it.

They are quick Springs, and always in Bottoms.

They have these Characteristics in common.

1. To precipitate an Ocre out of the Water, upon standing; and to throw it out at the Spring.
2. To turn Red or Purple, inclining to an Inky-colour, upon Proof with Nutgall.
3. To carry a Bituminous Blue Scum upon Separation, made by the Air, in standing open.

But taking them peculiarly, as I confine the Name to my Subject distinct. I find the Choice of these Waters to be liable to many Mistakes, by taking any Water that will tinge with Gall, tho' they be Lifeless, as to the Spirit, or through the mixt Terrene Salt, or want of Communication of a Quantity of Juice and Spirit, thro' the *Spiracula*.

I shall therefore observe that the Characters of Effectual, or Waters of Energy, that may be trusted to, and by which I have ever found distinguish'd, and had confirm'd by Success, were these. Where I had visible Characters, I judg'd by the hard Rocks of cemented Clays and Stones, an Argument of the

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the Subterranean *Aporrhoe*. Secondly. The Taste, which is Keen, Winy, and Spiritous, and with Vigour: These are what I distinguish them by from the rest. I never yet could find any sufficient Test besides that was Mechanical hitherto; tho' I dare not say they admit of none, by Proof of Coldness, Precipitations, and the like.

For these Waters, when strong, have always Two Signs worth Consideration, and which inform us of the Reason of their Effects.

1. They have about the Springs Rocks of Stones and Earth cemented; and thus we find them at *Tunbridge*, and at several lesser Springs; as one at *Felstead*, and many others.

2dly, Which gives the reason of this *Phenomenon*, the Water, if it join soon from the Spring, any Gravelly Spring, it precipitates the Nitrous and Earthly Parts, and cements them by Precipitation, and Adhesion to Stones and Sticks; and thus I have often observ'd Stones and Sticks Incrusted. This I discovered first at *Felstead*, at a small Spring or Ousing; where the Chalibeat rising in a Meadow; the Gripe made for a Gravelly Water to pass thro' the Meadow, shew'd the Stones Incrusted just so far as the Chalibeat Water issued; which, upon considering the Chalibeat to be of the light sort, and as light as *Tunbridge*, was to me a Demonstration. This not only clears a Suspicion in many, even learned Men, and particularly *Don. Panarolus*, who, *prima facie*, took this Effect, for an ill Effect of the Water, to petrify, when it really separates; and by Contrariety of Nature, imbraces and unites with, and which shews only a Firmifying, and Clarifying Nature; for he Censures the Waters Four Miles from *Rome*, *extra Portam Hostiensem vulgo, St. Pauli*, from the Stony Matter suppos'd to be in it; whereas, upon better Knowledge, had he distinguish'd the Chalibeat above the Mixture, and understood it, he had had another Opinion. This is not the Place to consider the Consequence of the Mistake, and of the Discovery: But this also helps us to understand the Reason, and better to be satisfy'd in, and apply these Waters in many Cases; since they confirm and clarify, by striking off the Recrements of the Chile, &c. as they oppose Niters, restore the Fermers, and Sulphur, and the due Temper of the Juices, for a smooth Procedure of the Machin, without too great a Decay of the Vital Oyl, or Jog of Nature. However, I must here note, I have observ'd great and formidable Mistakes, thro' the Want of Knowing, or Consideration of the Essential Qualifications, to an Effectual Water, or distinct of a proper one, or Want of the true Reason they act by; of which in its Place.

The *Menstruum* of this Water, is an Acid of its Mineral, and is in some very light, and Volatile, or rather Alterable; light in Weight, and effect where the Spirit is clean of heavier Juice; the Water is Clarify'd by it, and weighs lighter than even Rain-water, or Water Distill'd; as doth *Tunbridge* for Instance.

In others it is a Juice rather, and these usually retain the Tincture longer of the Steel, and are as weighty as common Water, and with the same keen Taste. These Two appear to me to be the only distinct Species of these Waters; but this last admits of Difference in Degree; some having but a slender Quantity of the Mineral, and more of the Juice, give only about a Claret-red, with Nutgall; some a fuller Purple. These have a peculiar Qualification in Effect also; for where the confirming, as well as opening Nature of a Mineral Water is requisite, they are of especial Use, as in Dropsies. And some Cases, such as of Bleeding, and Apoplexies, make the Juice free, almost of the Body of Steel, to be peculiarly apposite, as it is found by Experience. For the judging of these Waters, I find a considerable Notice to be taken of the Quantity and Strength of the Aporrhoe, which is observable by Taste, Effect, Quantity of Ground, Rockey and Ironny, that the Water comes from, and also of the Degree of Petrification, to be seen usually by the Cemented Stones.

There may be, I own Subdivisions of the Species, where the Juice is richer of the Body of Steel, and the Juice less pure, yet may have some useful Efficacy: I have observ'd the Salts of the Earth to join these often, in a more or less Degree; so as I have found some Tincture deep with Gall, yet almost without any of the Keen Spirit, and so of the Aporrhoe, and yet would hold the Colour pretty long. But mostly those that have much of the Salts of the Earth join'd, or the chief *Menstrum* in them, do precipitate the Colour the Gall gives in an Hours time, or less; and from *Lignum Nephriticum*, take a full Yellow Tincture; so that Taste, and holding the Colour, shews them. I do take these as Degeneracies, rather than Species of my Subject. But I distinguish these, because I have found many, even Physicians, take the Notes of Chalibeat-Waters too grossly; and in Cases where a Wrong or Lifeless Remedy prov'd a fatal Error. These Waters are too numerous to be inserted or visited. The Notes I have given may reasonably suffice, so I shall only produce an Example of each, and omit any lesser ones.

The Light Chalibeat-Waters.

Tunbridge-Water in Kent.

THIS, as the most Ancient, and most us'd, so I am induced to believe to be the strongest of these Species; the Spring rising at the Foot of a vastly long Course of Hills, from the Iron Country. The Rocks of Cement, and I have reason to like it the better, as in a Sandy Country, where the Acid that attends Gravels, is not so strong. I must confess I have seen as excellent Cures done by Chalibeats in a Gravel, where there have been Notes of the Strength of the Aporrhoe, as *Tunbridge* hath done; but then the Spring was small. *Tunbridge Water*, in the Quantity of about Seven Ounces, and a Quarter, weigh'd 10 Grains lighter than a River-Water near me, which was lighter than Spring-Water; and as I remember, Mr. *Boyl* observes it lighter than Rain-Water Distill'd.

The Colour with Gall, is a Purple, turning to a Black; The Taste Winy, and Keen, mixt with the Ferrugineous. I observ'd a Patient that went thither for Obstructions of the Glands of the Mesentery, mend upon the Air, before he enter'd on Drinking. I propose it as a Question, Whether the Aporrhoe had a share in the Occasion? To confirm the Validity of my way of Estimation of Chalibeat-Waters, I may add, that I had the Success of curing a Young Gentleman of the same Stoppages just now mention'd, suppos'd to be a *Phthisis*, by a small Ousing Spring at *Felstead*, which I chose by the Taste, Lightness, and Rocky Cements, on which I ventur'd to recommend it.

This Water at *Felstead*, took no Stain from *Lignum Nephriticum*, but only a Milkey Cloud swimming in it.

Wellenborough-Water in *Northamptonshire*, weigh'd 18 Grains lighter than common Water, in a Quantity of about Twelve Ounces.

These alter their Spirit, and tinging Power, in a few Hours time, and sometimes upon Carriage, tho' but Five Miles, or less; and indeed, no Mineral-Water, that owes its Efficacy to the Aporrhoe, will bear Carriage to any Distance. The Spaw itself, tho' it will bear the Steel, by its Salt, towards a Vitriolin;

lin; yet, when it hath been us'd here in nicer Cases, and not in Diseases of the first Ways, I have seen elude the Expectation, tho' it had preserv'd the Nitting Salt, and the Steel; but I have seen these light Waters hold their Virtue pretty well, with their Colour and Taste, 24 Hours, if brought with a Cork Pitch'd, and the Mouth of the Bottle downwards.

The Juicy, or heavy Chalibeat.

*The Spaw-Well near Knaresborough,
in Yorkshire.*

THE Water springs directly up from the Sandy Bottom, in a Moorish Ground; within less than half a Mile of which, there is no considerable Ascent.

It is of the same Weight with common Spring-Water; the Colour, with Syrrup of Violets, is much the same as in Chalibeat-Waters at *Islington* and *Hamstead*, not so Intense, as in *Tunbridge*, or the *German-Spaw*; as my Honoured and Learned Friend, Dr. *Tancred Robinson*, inform'd me, upon his proving it at the Spring. There is one Circumstance worth noting, to the Difference of these Waters from the light sort, and as a Note to help us to judge of their Strength by, is, that it tinctur'd with Powder of Galls, at Two Days end, and suffer'd not by warming, at least as to it Tinging. And indeed, in these Waters, the holding the Steel, is a proof of their keeping the Spirit, or *Menstruum*; tho' in the *German-Spaw*, that hath a Salt to support it, the Case is not the same, and so it is not so clear a Proof of the Spirit, where this will stay, after the *Aporrhoe* is lost.

The Acidity of this Water is not so durable as to bear Boiling, in that it will not coagulate Milk, as do the *German-Spaws*. This Water, mixt with Powder of Gall, became as red as a well-colour'd Claret.

These Observations I take from Dr. *French*, who try'd them at the Place, and of whose Authority, besides its Currency,

rency, I had Confirmation from my worthy Friend before named.

A Sub-Species of the same: Or, a Juicy Chalibeat, more full of the Body of Steel.

Hamstead-Water.

THIS is certainly an excellent Water, and in as good an Air, and not only in Trial, but in Nature, comes most near to that at *Knasborough*; I may say, having experienced the Effects in the like Cases, where there was great Weakness and Swelling, and Rupture of Blood-Vessels, in my Sister, whose Husband, *Mr. Parker*, on that Account, try'd the Waters, as I did afterwards my self; a piece of bruised Nutgall in a Wine-Glass of this Water, turns it by Degrees to deep a Purple, bluer than Claret; when I essay'd it, it turn'd at last more towards a Black. At a Days end, after Bottling, it did much the same; and at Two Days, end very little less. It weigh'd exactly the Weight of New-River-Water; it seems a little fuller of the Chalibeats than the last, and hath the right Keen Taste, where the Juice is right and clean, and Aporrhoe strong; which, with the Durableness of the sustaining the Steel, I take for a sufficient Test, where the cemented Rocks, and inner Soil, is not to be come at, that it is a sufficiently Apertive Water, in most Cases, and of the most strengthening and allaying Vapours.

The Third Genus.

The Compound, or Chalibeat Purging.

I Shall not engage, in asserting whither the Mixture be from a Chalibeat Spring, at Distance, flowing into a Nitrous Vault, or whether the Principles lie together, tho' there is good room for the first, since the Ground round both these Waters, presently to be examin'd, be a Gravel; and the Effect of the *Scarborough*, shew not only a Juice, but an Aporrhoe.

Scarborough-Water in Yorkshire.

IT hath a running Spring, and proceeds from a Gravel, Situate close to the Sea-shore, so as to be overflown by Spring-Tides, the Allum Slate being dug just by it. That the Salt If this Water is the same with that of the rest, and of the same local Origin is evident; in that the Earth above, and about the Well, bears the same Nitrous Efflorescence, that shews it to be the Parent; and the Purging Quality is owing to the Salt. The Water was Essay'd at the Spring at my Address, and Direction, by the Accurate Hand of my worthy Friend, and Ingenious Gentleman, Mr. *Edward Carter*, of *Scarborough*, by the Means of whose Trials, I inform'd my self as follows.

The Mixture of the Two Principles, Steel and Niter, appears in that; tho' a Grain of Gall in Eight or Ten Ounces of Water, immediately strikes a deep reddish Purple, yet it presently becomes turbid, and precipitates a Colcothar-Colour'd Powder.

2dly, In that, upon stagnating, or standing a few Hours in an open Glass, there is an Azure-colour'd Bituminous Film, or Scum upon it; and if the same be expos'd to the Air about a Week, there is one rises up, much like that which swims

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upon Lime-Water; tho' I by no means can judge it to be the same Kind. For the Principles of this Water, I found no Allum, which as it may well be without, since the Allum is yielded by the black Slaty-Stone only by Ustion, and hath no Taste before. So I had other Arguments; for *First*, There is no Taste of that Mineral in the Water. *Secondly*, No Virtue which is Astringent. *Thirdly*, The Stony Parts precipitated in boiling up the Salt, which was of a reddish Grey, or light Brown, and was near equal to the Salt in Quantity, upon Trial, with and without burning, yielded no Allummy-Taste, or Proof. And Sea-Salt, which is another Principle suppos'd, I saw no Reason for from the Effect in Tetters and Scurvies, as well as other Effays, any further than some Nature of that Salt, is in the Salt, from the Nature of its Parent Earth, which is observable in the other Waters, to be a distinct thing from the gross Body of Salt, and to be Friendly and Passable, and carrying the Medicinal Qualities, without the Corroding or Acid.

Certain it is, there is no Appearance of Allum in this Water, or Stony Parts it hath taken up; and the Juicy Acid of Allum, being a Preparation from Vitriolated Matter by Separation; there is no Dispute to be made of the Rise of the Acid. Steel itself is a sufficient Antiscorbutick in most Cases. But I must allow that this Water is most indow'd with these Acid Streams by this means, and may repute it as most Medicinal in Scurvies, on the Score of the Quantity of the Acid, Chalybeat, and Allummy, extraordinary in this.

The Salt of this Water is of that Nature, that is Friendly to the holding of the Steely Tincture; for my Friend says, the Water kept Three Days in an open Glass, will take a Purple-Colour, as before, with Nutgall; tho' something more remiss, yet it was not Vitrioline. *First*, In that this Water gives only a light Green, with Syrup of Violets, and next that the Salt, I mean the Grain'd Part of it, did not precipitate fine Silver out of Spirit of Niter, as Sea-Salts.

Notwithstanding this Salt did not disturb a Solution of Sublimat, which Alkalis and Allum do. The Salt seems just the same with that of our Purging VVaters from the Niter, and somewhat of the Nature of that peculiar Sea Salt Quality in some other Waters, and somewhat Sulphurous. The Quantity of the Salt was about an Ounce in Four Gallons at that time, and had a remarkable Bitterness, and when new, a strong Sulphurous Scent; and the Grain'd Part was not easie to fuse, put upon a hot Iron. The Christsals are clear, and transparent, comprehended under Eight Plains, Two of
which

which are Sexangular, and the other Six are Rectangular, Parallelograms: The Sides are constituted of the Two Sexangular Planes; at Right, Angles with the largest Parallelograms; the Ends of Four lesser Parallelograms, each inclining; as the Figure shews. These Points of the Principles being clear'd, as they remove error in our Notions of the Principles, which might make us lay Effects to wrong Principles; so maybe of some Use in the Cure of Scurvies, which this Water is famous for, where we cannot come at this.

The Chalybeat Purging-Water of Woodham-Ferries in Essex.

THIS Spring is of the Level Kind, being a Well in a plain Ground. The Soyl, Lays, and Stones, are before describ'd; only I may add, that I found in the Clay cast out, several Vermicular Bodies, of the Bigness of a pretty large Wire; some almost strait, or turn'd a little, as a Worm lies; and one *Tubulus marinus*, being involuted, all of Iron. This Spring hath a Disadvantage in its Standing, by want of Air, Passage, and frequent emptying, it is liable to corrupt, and be fetid, which otherwise it is not, and might be of good Use. The Water exceeds common Water in Weight, Thirteen Grains, in Nine Ounces, Five Drams, and 24 Grains. The Salt of this Water hath the Nicety of the Qualities, or Nature of common Salt, as to its Operation, and yet without the gross Condition of Curdling, so as to meet with Rejection, in the passing the Separation, and be communicable; which makes the Natures of these Salts, of different Moment from what common gross Salt would have upon us, besides their Formal or Essential Impress.

The Salt agreed with common Salt in the Waters, not changing the Colour of Syrrup of Violets, nor wholly of Syrrup of Cloves; no Alteration in a Solution of *English* and *German* Vitriol; nor in a Solution of Mercury Sublimat precipitated readily Fine Silver in Spirit of Niter; and with *Lignum Nephriticum*, a pale Yellow; and the Ink produced in this Water with Iron and Nurgall, did not precipitate; yet it did not agree with the Acid of common Salt, for it curdled Spirit of Hartshorn less than Spirit of *Sal Armoniack*, and that but lit-

tle, and it made but a fine Curdle with the *Liquamen* of Salt of Tartar; so that it seems Foreign, in Effect to common Salt. The Salt seem'd of Two Sorts, the first hard, not readily flowing in Heat, Grain'd, and Crackling a little in the Fire, and leaping; some flat Shoots, like *Bacilli*, and most of it soft, like *Epsam* Salt. The ruddy Earth was about Forty Grains in Two Quarts.

The Water retain'd its Power of tinging, with Gall, many Days, in Glass Bottles only Cork'd.

The Fourth Genus.

The Sulphurous.

1. *Hot, from Sulphur intire, though not unmix'd.*

The Bath-Water of Bath in Somersetshire.

THIS Water rises in a bottom near Moory-Ground, surrounded almost with Hills. The Ground thereabout yields Quarry-Stone.

From the Effays of this Water made at the Place by Two unquestionable Hands; as well as of the Water, and Matter brought to me, I observ'd as to the Principles, that Sulphur or Brimstone was the most apparent, in that Silver or Copper lay'd in the Bath one Night, turns black.

2dly, That the Guides Gild Silver, by rubbing it with Bath Mud, spew'd out with the Spring, with Bath-Water and Urine: And the Bath Mud would gild Silver at several Days end, when brought to me.

3dly, The Bath Mud, boil'd in Oyl, yielded me good Balsam of Sulphur.

Yet this Sulphur was so clouded with Earth, or else not so perfect, as in a Crucible, it did not Smoke; neither could I separate it by Washing.

Ano.

Another Principle is Iron or Steel ; but whither on that Account this Water be Medicinal, is not clear to me ; or whether any Minerals will make a Water so without that ; certain it is, that all natural Sulphur that ever I try'd, hath some in it. However, the Quality of the Iron is spoil'd in great Measure by hot Liquor ; and the Bath-Water with Nutgall, doth therefore give a fine bright Brown, the Colour of bright Beer at the Spring. But the Mud, upon Infusion, cold in any Acid, as Distill'd Vinegar, or Vinegar or Water acuated, with Nutgall, by Colour, and to Taste, gave Proof of Iron.

A Third Mineral that is mixt in the Principles, is Lead ; this I try'd in both Parcels that I had sent me, and found by boiling the Mud, calcin'd, and not in Vinegar, to be just like a Decoction of Litharge, and by full *Saccharum Saturni* Taste, and the dull Black with Gall : And I understand there is Lead dug not many Miles from the Place, and the Sulphur may be from this Mineral join'd with the other.

The Salt of this Water is not easily distinguishable, because it may be suppos'd to be alterable by the Heat ; but as it is, it appears to be nearer a Sea Salt, or a Vitriolin Salt, turning Silver black, tho' not perfectly Vitriolin : In that, the Water fresh Pump'd, with Syrrup of Violets, turns only Green, imperfect, inclining to a Blue ; and with Syrrup of Cloves, a dirty Sad colour ; with Sublimat-Water no Alteration ; and not a high Yellow with *Lignum Nephriticum* ; Curdling Spirit of Hartshorn much, of *Sal Armoniack* very little, which is a Peculiar this Water hath in common only, with *Dulwich*.

The Acidity is remarkable, and that it is easily lost, in that the Guides use fresh Bath-Water with the Mud to gild with. The Mud was of a Greenish Cast, when dry, and had many shining Particles in it, as Sulphurous Marcasites, the Mineral Parts being Curdled, and rendred sparkling. And I observe, that bare Brimstone, tho' it will Yellow Silver, it will not last, but go off presently ; but Money Gilt with the Bath will last Years ; there being a Metal join'd with it, to give it a Duration. I must observe, besides the Uses that this Account of the Mineral will occasionally suggest, and the Diseases it will explain ; the Mineral of this Water, is not purely to be considered as a Chalibeat ; tho' perhaps without Steel no Waters may be of Use to our Natures, to pass or agree with our Ferments.

2dly, That the Virtue, or Force or Power, consists in the Aporrhoe, and Acidity, which is wholly lost in all the Bath-Water that ever I saw brought near me, tho' never so quick ;

and is not to be expected in the Water, but only fresh at the Place. This I have prov'd, not only by Trials, which may seem Notion all, but by real Effects and Experience. Now the Salt of this Water seems to proceed from the Loamy Bottom, which here is very low, as in the Purging Water, but the Loam not open'd, nor yielding the Growth, shooting or Subtile Acid to collect in Quantity.

For the Cause of the Heat, the Opinions hitherto have been, either for a Subterranean Fire, or a Colluctation of differing Salts, or Juices. The Ground of the Existence of the first being had from *Volcano's*, and Earthquakes. But that the first are not deep, and only Sulphur set on Fire, is now granted; and for the last, that they are not Explosion by the last Earthquake, sufficiently appear, by the vast Tract, and gentle Stroke, so powerful to be large, yet not bursting; but they really proceed from some Change, and peculiar Motion in the common Subtil, Ethereal, Firmamental Matter, that as a Spring affects our Air, and the Subterranean Gas, appears plainly in that Circumstance, which the Author hath Providentially dispos'd to make the Earthquake sensible; and that is, that there is a Calm at the time when the Vis is exerted on the other Region, the Air is not mov'd by the Subtle. A clear Proof that the Motion of Wind, and of the Causes of the Earthquake, hath a common Spring, and near the same Mode.

And that Sulphurous, Hot and Maritime Places, should morally be more liable, there may be some Reason; But it is plain, that they are often pointed to Places, and judicially sent, or signally, and assert the Providence of God so clearly, that to enquire further, or rest in a Second Cause, is foolish, daring, and profane.

The very Bath is a Proof, the Fire not breaking out with Heat, but indeed the Earth is found to be solid within, and it could not subsist without Vent, and it is plain it hath not any here.

That it cannot be from Colluctation of Mineral Juices, appears; that upon Mixture they soon mortifie, and are never lasting. But to examine closer for positive Proof; the Heat seems most likely, from the peculiar Heat, produced peculiarly in the Production of Sulphur, which is a sort of Ferment of the Sulphurous Parts of Iron, and its Acid Juice, the very Body of Brimstone, when refined, bearing a Resemblance, by its Lightness and Hollowiness, being full of Holes. Certain it is, that all the hot Baths that I could yet get Knowledge of, have Sulphur produced at the Place; and where
Sulphur

Sulphur is form'd, is usually Heat; so it seems to me a kind of Ferment. There is a Heat in the Mine-Chamber of all Mines. This Heat Dr. Brown observes in Hungary, to burst out through Cracks of the Stone; and other Travellers inform us, that in the famous Grotto near Naples. The Heat comes out at the joining of the Clay and Stone, so that this Fermentation for Sulphur, is but an Increase of the Natural Heat, from the Tumult of the Matter capable of it. And the other Circumstances for its Breathing out, probably are the same here, the Stone making the Breach for it.

Buxton Bath-Water.

There are Three Wells, of Antient Use, and of like Nature, Two of which are for Bathing, and the Third for Drinking; they are of temperate Heat, neither hot nor cold, but about the Warmth of Blood newly exhausted from the Body.

For the Mineral, we need not inquire, the Country thereabouts affording us much of our Lead. The Gentleman, to whom I owe my Information, Mr. Thomas Biscope, School-master at Buxton, tells me, there is Brimstone and Antimony in all Minerals found thereabouts, or near it. But I judged some of the Minerals nearer Lead, as Spelter, or Tingleass, or the like Minerals might be meant by Antimonial; however it be, this he attests as what he can shew.

The Water hath a Sulphurous Taste, and gives a brown Colour with Nutgall, as the other Bath-Water, but darker, as Lead gives, as I understand it; and there is a Chalibeat-Water not far from it, so that Lead and Iron, and some Sulphur, are the Principles that medicate this Water. The Sulphur seems not so much in Quantity, nor so distinct, but a Sulphur of Lead, or in the State of Leaden Marcasites; for this Water will not change the Colour of Silver, when clean Scour'd, and so made fit to receive the Tincture; so that they want the Sulphurous Acid, at least in Quantity. The Mines seem to lie in a Stone; and there is no Mud spew'd up with the Water, that would give Matter for examining. But the Aporrhea may be as much, and as strong, if Depth, Firmness of the Rock, and the Quantity of the Mine, which are Signs, may be a Proof.

They are in a Stony Country, in a Bottom or Vally, between Two Hills, very little descending.

*A Second Species of Sulphurous Cold,
and from the Body open'd.*

The Sulphur-Well at Knaresborough.

THIS Water hath a Sulphurous Odour, and will, upon standing Three Days, deposit a white Sediment, and is easily understood how it is form'd, only by considering how *Lue Sulphuris* is made; so I shall not insist to explain. This Water being of less considerable Use; and Dr. French having examin'd it, I shall take the Liberty to take from him these Observations.

That it tingeth white Metals.

That the Salt is a real Sea-Salt in kind; and a Pint of this Water weighs Forty Grains more than a Pint of common Spring Water.

He observes, that about 240 Yards above the Head of this Sulphur-Well, is a small Bog, which is full of a rotten Mineral Substance, like Iron Cinders, which burn blue in a Fire, and smell like Sulphur; I have found the same in a Brick, or Tile-Earth Pit near me. This, he says, is in Taste like Vitriol.

This not only gives the Principle of this Water, but helps me to an Account why these Sulphurous Waters, which only proceed from Sulphurous Collections, or Marcasites, may be cold, which are form'd distinctly by Separation, and are less perfect.

Queen-Camel in Somersetshire.

THIS Water, as the Hand that did me the Favour to Essay it, the Reverend Mr. Samuel Adamson, hath the Scent of

of a foul Gun. It tingeth the Stones black on which it falls; this shews it plainly from Sulphur, as well as the Smell; in taking a pale Yellow with Gall, and *Nephriticum*, the Salt or Spirit of this Water resembled common Salt, but it appeared an Alkaly, with only a volatile Acidity, in not curdling Milk, in curdling a Solution of Sublimat, and precipitating it of a Feuille Mort-Colour, as Alkalis, and Salt of Lime, which Oyl of Tartar, *per del.* deepen'd to a Copper-Colour, and precipitating the Lead out of a Solution of *Sal Saturni*, of a dark brown Colour. The Sediment of this Water, which is small, and dark-colour'd, would not burn, nor communicate any Tincture to *Aqua Fortis*, as Metals will. The Gentleman tells me that there have been Marcasitical Stones, or shining, found upon digging near this Spring, one of which sent to London, did, upon Essay yield Copper. However, it concurs with the other Water, that it is endow'd by a Sulphurous Marcasite, or a Stone rich of Sulphur. And this Water also Gilds Silver, as doth Bath Mud, and as common Sulphur; so for the Copper-Proof, I leave as an Intimation, tho' upon no slight Presumption.

The Fifth Genus of Waters.

More simply Steamy, from a Mine, or Quarry of Vitrioline, or Ferruginated Limestone.

The Water of St. Vincent's Rock, near Bristol.

THE Water rises up with a pretty good Discharge, so as to afford more than is drank, and a Collection for a small Bath, at the Foot of St. Vincent's Rock, in the Channel, the Spring, till built over, being overflow'd every Tide. It is hardly up to the Warmth of Milk from the Cow; of Taste, soft and simple; its Use hath been of very few Years.

The Water brought to me at the latter end of a dry Summer, 1706, was much about the Weight of common Water; and tho' I had several Parcels sent me, and I was assur'd it

was

was genuine; it differ'd in all the Effays but a very little from common Pump-Water, giving a light Golden Yellow, and clear with Nutgall, and a bright Claret-red from Logwood boil'd in it. It had so much Acidity, as not to bear Soap; no Liquor disturb'd it by Precipitation or Thickning; it is plainly from a Steam. For Matter that enriches it with this Steam; I consider'd the Rock from under which it proceeds, which is high and large, and this affords Marble in several Places, but near the Spring, a Stone which they burn for Lime; and in some parts a Stone, known by the Name of *Bristol Stone*, being a sort of hard Sparr, where the Rock is stain'd with red.

The Water not containing a Calcarious Salt, I examin'd the Sparry red part as likely to shew me the Mineral, which with, and without burning, I boil'd in Vinegar, and in the same Distill'd, and extracted a Tincture, as Chymists speak, or enrich'd the Liquor with a Taste like white Vitriol; but not very full, tho' plain enough, and which with Nutgall, like that, turn'd a dirty-black: It seems to me to be a Product of Iron and Limestone, which we may consider in the distinct Principles, or the Aggregat. The Warmth, since the Rock only lets it out at the Side of it, and is so gentle, may be no Proof of a Sulphur.

It appears that the Water contains not any gross Part, or Body of any of the Minerals, or Limestone, and is far enough from Lime Water, yet hath a Vital Effect, plain enough in the Diseases that Lime Water is us'd in; that the Medicinal part consists in a Gas, or Steam, and Impress from the Mine, whether the Minerals have any considerable Share in the Specifick Effects; whether the Aporrhoe be stronger, according to the Firmness of the Stone; whether a Gas from the Iron be necessary, I leave to further Enquiry.

Of the Virtues and Use of the Mineral Waters of Great-Britain.

IN the general Consideration of the Propriety of the Waters, which respects the principal Application of Moment; and being in some degree in common, so gives Knowledge of the Nature of them all; we may set aside the Particular and External Uses, to their places where they fall in.

I shall first enquire the Nature of them thus consider'd, respecting the Chalybeat. and *Bath*, and perhaps *Bristol*; or peculiar Condition, by Virtue of which they act. to know what they do. 2^{dly}, The Diseases specify'd. 3^{dly}. Ajust the Effects, and give what Light to the Diseases is necessary; to know their fit Application.

Now since no Preparation of Steel will answer their Virtue, and the *Bristol*-Water hath none in it, and the *Bath* but little; and even a Chalybeat-Water may want that Power; I conclude the Efficacy of Mineral-Waters to be owing to the Aporrhoe of the Earth, communicating a particular Nature or State, by way of harder Ferment, either deriv'd from the Mine, or general Nature of the Earth. To this Iron doth very much concur, as appears in its Nature above-mentioned, fit, peculiarly to depurat, confirm, assist with a peculiar Acid, and in some Cases with a proper Sulphur. But whither this Nature may not be without this Mineral, where any Mine, or *Spiraculum* of the Earth is, is not clear to me without further Examination. Of this Effect we may conceive, by considering, that our Diseases, such as Decays precipitate, are only from Errors of our *Succus Nutritius*, or Sap, towards a Flatness, Sourness, Sugary, or Sermentative Sweetness, hastening it to a suddain declining, evident in Phthises, and the Effects of Malt Liquors. That this Quality, the Steam of the Earth doth take off, is apparent in the effect it hath in taking the Must out of Bottles, turn'd with their Mouths into it for some time. The Effect is the same in Human Bodies, as hath often been prov'd in Phthifical Persons on following the Plough. To convey this, the Vehicle of Waters is most fit, as it is a calm Fluid, not apt to ferment, and gives a gentle Growth; hinders the hasty Expende of the
Vital

Vital Oyl, and our Bodies turning to an Ash, of which Seignior *Cornaro* hath given a sufficient Proof, in that the drinking of it took off a Disease Constitution. I have had other Instances, one of a Gentleman of good Quality, who was dispos'd to Cholick and Stone, and found a Cure in the Drinking Water sweetned with Honey every Morning: And a Gentlewoman that was cur'd with the same of a *Urina Cruenta*, that had eluded all other Medicines. Now this, taking it no higher, help'd by a Spirit, or Breath, resisting the Quality, giving Firmness, and a Mineral opposing Niter, and precipitating it, and an Acid peculiarly agreeable, and a Sulphur suitable to raise a Vigour in the Juices, may be easily apprehended to become Medicinal, if we consider the Passableness of this Steam and Mineral, and the Parts, and Reach of it. The Parts these Diseases belong to, are the Nutritious Glands and Passages; indeed the whole *Chylus duct*, from the Stomack, to the Secretory and Excretory Offices, at Liver, Kidneys, and Bowels. These we always find affected upon Dissection, finding these stopt, and stony, upon which the Membranes grow rotten, in all Decays, and also in the Affections in Diseases; for tho' Physicians limit the Offices of these nutritious Glands, to Percolation; yet on their Error, we find the want of Vigour, as if they rais'd the Spirit, and prepar'd the Juice, and give a Vigour in the Distribution.

Their Operation is by taking off the Faintness, as they take off the Error, or Vice of the Fermentative State of this Juice, and Odour of the Vessels, and induce a firmer and nearer terrene

On the Soundness and Fitness of these, depend the Constitution of a Man, as we shall see, when we come to consider the *Affectio Hypochondriaca*, and the Jaundice. So that the Effect and Virtue of the Mineral-Waters, is to wash, penetrate with their Spirit, depurat, and strike off, and wash away the Replements of the Chyle, take off the Disease Quality, cool, harden, and restore the Ferment, and that more fix'd, and so at length make all tite, and raise the Constitution, take off the Jogs of Nature, put the Wheels into an even Course, and hinder the two hasty Consumption, and so conduce to long Life. And no wonder then, that they should rid such various Diseases, and seemingly so odd, as Catarrhs, &c. or opposite as the Stopages, or overflowing of Nature.

On the Foot of these Decays of our Constitution, are all the Diseases cur'd by the Waters to be consider'd, and not by any Symptom of Catarrhs, or Stopages, those being only Effects. In general, they are peculiar in all sinking of Nature, falling into Jaundice, Dropsies, Wilting, Swelling of
Legs,

Legs, Asthmas, Colicks, Fluxes, Headaches, Vapours, and Scurvies, and all others, where a Constitution drops, or failing stops the Cure, through Error of their Juice failing; but to understand more particularly the Thread: Diseases Constitutional, are either where the whole Constitution becomes Diff-easy. 2dly, some Beginning of it, or Quality in a Parr, as Loss of Appetite, Windiness, Sourness, Weakness of the Head. 3dly, when one part is affected with a Decay. 4thly, When a little sinking of the Constitution, not so apparent, makes a Disease not otherwise to be suspected, or cured. The most considerable Decays we are liable to, at some Joins of Life, call'd the Climacterick, tho depending on those Turns, yet not to be taken strictly to a Year. The Climacterick have been long observ'd to be mostly, if not altogether at the Septenaries; Nature then receiving a great Alteration, most considerable at 27, or 28, and at 49, or 50, the Change is usually found to be at the Head first; and then, if Nature be not firm, and Vigour is wanting, and the Body grows Humorous, and foul; and if the softer Parts do not Conform and harden, that Vigour may follow, a declining into Diseases, is the Consequence. The first sort of Constitutional Decay is natural, being at the decline of Life at Fifty. The Consequent Diseases are generally Decays, Jaundice, Dropsies, Wilting; or particularly, as Colicks, Stone, Gout, Scurvies, Hickups, Diabetes, Bleedings, Stops of any natural Course, Piles, Asthma's, Catarrhs, continued Diarrheas, or *fluxus alvi*; Pains of the lower Limbs, Weakness of the Brain, Scalding Urine, Cancers, Ulcers of the Leggs, &c. *Sexui femineo insuper peculiares accidunt per annum quadragesimum quartum, Catameniorum fluxus inordinati, Cerebelli imbecillitas, ardores collum & pectus invadentes sursum deq; repentes; affectus pituitosi. Annum quinquagesimum, excipiunt, Symptomata similia ingravescentia, item Paralytes, vertigines, Cephal algia dolores vagi, tumultus Spirituum vapores hysterici dicti, Comatosi affectus, &c. Cancro & Mammillarum tumores humorosi, vel erisipelatosi, &c.*

The second sort is at Twenty seven, and is a VWeakness at the first Deflorescence of Nature, which if not recover'd by the raising the Spirit, and making the Flesh submit, that Nature may go on with Vigour; the Constitution fails, and first, Giddiness of the Head, *flatus* of the Stomach, and other Hypochondriacal Cases, carrying the Disorder often into Epileptick, Convulsive, and Apoplectick Fits.

A third Alteration at a Climacterick, tho' less considerable, is made at Twenty-one, at which time, if the Body set not well: to use the Expression of Fruit, Phthises, Ruptures at Lungs or Head follow. Now to distinguish Decays total, it is either at the natural time after Fifty, or preternatural at the other Joins, which we call Hypochondriacal, or violent, such as are contracted by Drinking, or superinduced by it, on a Hypochondriacal Case.

But a Constitution fails sometimes after those Joins of Life, when Nature comes heavily on, or after Diseases, the Effects of which are so various, as not to be reckon'd up readily, but read in the Origine of them, as they appear another particular Disease of the Constitution, is the Scurvy, with all its Symptoms, as Faintness, Pains, Livid Spots, and Lifts, like Bruises at the Legs, Rhumes, loss of Teeth, &c. whither simple, or from a Decay coming in Diseases, or old Age, for I have seen it so often.

Another Constitutional stop is, when Nature, failing in the midst of a Disease, hinders the Effect and Recovery, as is often seen in the Jaundice especially.

The particular Decays, where a Constitution seems to remain firm, but contracts its Force, and so suffers a Defect in one Part, or else makes it a sink. I shall not need to repeat at large; such as Gouts, Stone, Hickup, Diabetes, Bleedings, Pains at Stomach, and the like.

In Sum, this is the Foot, and these are the Diseases, which are within the Virge of the Waters, so that where ever a Decay is in the Constitution, sinking any of these Ways, generally or particularly, when such Signs of Decays, as loss of Spirit, when such Cases as Hypochondriacks, or Jaundice, Dropsies, come Spotted, and Livid, or Incurable; or Disease stop their Cure in a proper Course, or Stoppages be too confirm'd for other Means; as in the Jaundice, Black, or Old, or Dropsies, or Concoction be lost, Head weak, and the Symptoms of Wind and Phlegm appear, the Waters specifically relieve; and in all Vapours, Tumults, and Species of Decay, Flatness of Spirit, or want of Concoction, and Weakness of Head, or Body, that is Chronical; all Ulcers within, and all Stoppages at any Part, as Breast, or the like; and all other Cases produced by Drinking.

But then a Person may be deceived in their Use, if these Virtues are taken in gross, without a sufficient Skill in their Powers, and just Force, and distinguish their Effects; now their Power is to take off the Faintness, by removing the ill
Quality

Quality offending; but they can neither do more than their Part, and therefore require a competent Knowledge of the State of the Stopage, so the *Viscera* be not rotten, Obstructions too confirm'd, and Operations confounded, and Skill to Cure and see the Intention and Defect, or not see the Cases; therefore their Effects must be consider'd, and distinguish'd to avoid Confusion, or want of Notice.

Some Constitutional Declining in the Nature of the Disease, will not be cured by them; as I once knew an Instance in a Relation of my own, in a Cough, with a Flux of Phlegm, not free of Pus, or the Nourishment of the Part from the Lungs, where the Waters would not effect Relief, yet was cured by the ordinary Method: In another in a Scurvy: And a third in Scorbutick Swellings, all cured by the Intentions of those particular Diseases. Some Effects are general, as a small Disposition to Hypochondriack at Head or Stomach: Some Diseases allow, when come not at a Cure by these, which they are effectual to prevent, as Convulsive Cases, and Phthisis at the Climacterics.

Some Effects are common in some Degree to all the Waters, tho' for Sureness, some are peculiar, as in the Diabetes, as I was inform'd by my late Honoured, and Learned Friend, Dr. *Clopton Havers*, upon his own Knowledge, that tho' the especial Waters to be trusted to, were *Bristol* and *Tunbridge*, yet he had known the Purging remove in one Patient.

Some Cases require a particular Constitution and State to be rid by them, as the Stone, or Gout, and will not universally hold.

Some Diseases require Skill and Knowledge, and other Helps, as all Decays. In some Waters, lastly, the point of Cure is to be consider'd, to what is owing, as in the *Scarborough*, ought to be distinguish'd what Effects are owing to the Steel, &c.

For special Effects, there are some Diseases require the Waters, as a Specifick to be Morally rely'd on, and which the Waters have a Prerogative in, so as not to be cured without, or most efficacious in, when other Medicines fail. Such Hypochondriacism, when in a high Degree, it removes the sticking Sickness, and all confirm'd Decays. All Diseases thence arising, all Stopages of the Gland tending to gross Stopages, and Ulcers of the Liver; black Jaundice, grown so from the Length of Time; stops in the Cures of Jaundies; Jaundies Scorbutick; some Colicks, Hickups, and Diabetes, and perhaps Stone and Gout, when ever cur'd; and the last Peculiar is the Apoplexy.

In short, where any Obstructions want to be opened, or the Quality offending to be taken off, be of this Nature, and too confirm'd for other Medicines, or if a Decay of the Juice be enter'd the Glands, and possess of the Habit of the Body, this Remedy hath a Capacity, which no other Medicine was yet observ'd to have besides, and is peculiarly to be apply'd to.

By this we may understand some Decays to be general, to all the Reasons and Points, as the Jaundice, and Failings of Nature; some peculiar to the Joint of Nature, as Giddinesses; some to the Elderly, as scalding of Urine, Nephrites, Hickup.

Many fall in under the Head of Constitution failing, some particular.

And also distinguish when the Waters is requir'd, as the sole, and generally, trusty Remedy, as far as is reasonable to expect.

But the Diseases these Waters are useful in, must be carefully distinguish'd, as well as the Points of those they are proper in: For first, many acute Diseases, especially of the Fever kind, have of late had the same Face, and Symptoms, with Decays. And 2dly. In Catarrhs, and all Fevers, especially those of the Intermittent kind, they are often mischievous in, by opening the Habit of the Body, and the Entrance into the *Stamina*, so suffering, and helping the Malignity to spread. And in Dropsies they require great Caution of the Case.

Besides, where they are suitable, it must be consider'd, we are not to expect the whole Matter from them, in that they have but one Operation and Regard, bearing but a part in the restoring the Constitution: For to raise a Constitution, we must understand, that there is gradual Rise to a clear and vigorous Spirit, which is to be restored to its due Sovereignty and Activity; and this requires several Points and Helps: As,

1. To the Preparatories, as cleansing and restoring the first Ways.

2. The cleansing, opening, and taking off the Peccant, and so Weakness, and Faintness, which these effect.

3. Mending the Juices, and attending the Point.

4. Recovery of the Ferment, and Digestion, which is done in the Dietetical Part.

5. Raising, and rousing the Spirit, by early rising, and not sinking into Softness, and unsettle the Frame, and Diseasy Fancy.

6. To the same end, the leaning of Nature to be help'd by change of Air.

7. To harden to feel Cold, and to harden the Flesh, and quicken the Spirit by Exercise, Business, and Riding, and the Cold Bath.

8. To rouse the Brain, and clear it, and give the *Stamina* and *Archeus* a Force by Vomits, as is seen in the use of them in Gangrenes.

9. All that conduces to keep it up, as Cheerfulness, and Business, and a due Diet.

The noble Extent of the just Use of the Waters on these Considerations, that may give a useful hint, appears in some Cures, that are scarce to be look'd, or hoped for, or the Remedy not apply'd to; but as they are thus led to; as who would hope for a Cure, or look for it in this Remedy for a Fistula, or a Cancer; and yet I knew a young Gentleman, who, as his Father related it to me, was cured of a Fistula, that was so inveterate, and had so resisted all Means, as to render the Hopes of the young Gentleman desperate; only by Six Weeks Drinking of *Tunbridge-Waters*.

And of a Cancer, that Disease, which all concur to be incurable, that are best able to judge of it, yet we have a good Encouragement to attempt, and hint to see a Cure from, as Dr. *Baynard* relates in his Postscript, or part of the Treatise of the Cold Bath, p. 130. of a Smith cur'd of a Cancer on his right Side, that had eaten to the Ribs, by Bathing in a Mineral-Water, and keeping a Cloath wet in it, always to it. And of another in *Herefordshire*, cured by Drinking, and Washing in a cold Spring; and indeed, if we consider the Internal Rise of this, and as a Disease; and that *malimoris humor*, is to be alter'd, and its Rise, as to Constitution, it is not so improbable a Remedy, but rather the sole one. And what confirms this hint, and shews it not to be neglected; I have known the Decay of a Constitution, that was in its own Nature curable, bring sinuous Ulcers in the Anus, and incurable, without removing the Original Cause.

Another Case is a Phthisis upon a Hæmoptoe, or a Hypochondriacism, or on a Climacterick Turn, in which the Cure depends essentially on the Remedy I am now giving Account of. The Cures, and the Failures, of which, thro' the want of Knowledge, or Consideration of the Remedy to be apply'd to; I have known many Instances among my Friends, and some among my Relations, and which is frequent at the Age of Twenty one.

Another Case depending on the Constitution, is Annual Feavers; I knew two Persons, one liable to an Annual Feaver at the *Autumn*, and the other at the Spring, who inform'd me, that since the Drinking *Tunbridge Waters*, they had never been troubled with its Return.

That the Waters are proper, and perhaps the true Specifick in *Soporos* Affects, seems not unreasonable, if we consider it as a Jet in Age, or the Subtily and Decay of the Part, and the Nature of that Remedy that relieves them, whenever they are; but what gives us an encouraging hint, is an Experience of their Effect, in a Case of that Nature, tho' restrain'd, which I shall give presently.

I shall not give all the Cases overlook'd, or not seen, of Moment to be remark'd; some for the Odness of the single Symptoms, as a *Singultus*, or the Distance of the Thought, as an *Ileon*; some from the Reason leading, as Lameness in aged People, false, or humorous Cancers like Tumours; some for Symptom, as Chronical Catarrhs; some for their Resemblance to a true Phthisis, as the Stoppage of the Breast; of Obstruction, Thymi, or other Resemblances to various Diseases, that need be distinguish'd, and in which happy Cures, turn or a Neglect is fatal. the particular Characteristicks; The Diseases, the several Cases of Jaundies, and Symptoms of Species of Hypochondriacism; The Reason for Apoplexies, &c. that may direct us, or discover the Cases requiring them; I say all these fall in, either in the Waters, or the Diseases; and therefore I shall only mention this part of the Extent in general, so as to give a Point. I cannot offer all the Reasons of the Failure of their Effect or account them all to Means; but I must observe, that too often there are gross Oversight occasion it; such as the Knowledge of the Disease, or Case, and point to be gain'd, and how to Cure; Use of Waters wrong, or Effete, Neglect of using them timely; in all which, I can bring so many fatal Instances; one less considerable Impediment I must name, which is, the not Drinking them continually twice a Day, or in due Quantity, and also in not staying in the Use of them long enough. This last is the most common Defect, and makes the Returns so quick, not allowing what all Remedies almost require, as long a Continuance to eradicate, and prevent Return, as it did so remove the Force of the Disease; usually they allow but six Weeks, whereas it is known, that under a Month, few feel the least Benefit; and he that considers how much Time the Fust, or Odour of the Vessels require, to obliterate it, and suffer the
Vessels

Vessels to tighten, may have some Conception of the Necessity of it; and it is no Notion, but Matter of Fact.

The Knowledge of, and particular Use of the several Waters, I now come to.

Of their Particular Virtues.

First, Of the Purging Waters.

THE Cleansing, and Solubility of the Niter, Fluidity of the *Liquamen*, the Chalibeat Acid, the cooling Mineral Nature, give the Waters an extraordinary Aptitude to the Ends they were appointed to, to wash off the Recrements of the Chyle, restore the Appetite, bestowing also a Degree of the Faculty in the *Spiritous*, and some Advantage above the others, where gross Parts are to be cleans'd off, or Purging surely wanting, or a cool Purger, or the Disease be from the Qualities above-nam'd, and be in the grosser *Viscera*, or where less Degree of Power will suffice. So in the Stomach, they cleanse, and restore the Appetite, allay *Flatus's* of the Bowels, and Stomach, take off the flat, or sour Odour, Disease Tumult, Heat, and Quality peccant, as far as they can reach, or the Stomach affects.

For a general Purge, they fail not of working, in the most difficult Bodies and Cases, at least boil'd up, and given inwardly upwards and downwards, the Salt of them being soluble in so small a Quantity, as no Salt in Nature will besides. They Purge without Sickness, they are experienced to restore Appetite, and Concoction, take off Heat at Stomach, Giddiness at Head, Foulness, or Sourness of Stomach, Foulness in the Bowels, and so the consequent Effects, as Belchings, Tumults, Cholicks, Worms, Scurvies, Bleedings, Heaviness of Head and Spirit, Giddiness, Heart-burnings, Faintness.

They are proper and beneficial in Vapours Hysterical, especially in the Gross, and the Sanguin. In Hypochondriacal, they are the best Preparative to the Aperitive Waters, and have often help'd, those of the Bath particularly, to pass, as I have known; moreover, they have so much of the Mineral Nature, as to do somewhat to a Cure, as a Specifick Altera-

tive. I have known the Epsam Waters take off a beginning Hypochondriacal Case, when it began at the Stomach; and in a Gentleman who was deeper in it, they reliev'd. and took off the Convulsive Tumult, and Belchings, and Vomitings, and Weakness of the Stomach. To be more particular where they are prevalent primarily, & quasi specificæ.

In Curatione Diabetis quandoq. sufficere jamjam memoravi.

Valent etiam in Doloze colico, à Succo viscerum per ætatem, Affectionem Hyp. vel temulentiam deficiente orto. In Colica affectione Ictericâ, ab hepatis Obstructione vel deficiencia adhuc nascente, morbum unâ cumqualitate tollunt.

Mulierum item quinquagenariarum morbos, & senescentium tum virorum cum sæminarum dolores & membrorum inferiorum infirmitates cum ex hujusmodi deficiencia pendent, levant & ubi non delent, medelam faciunt. Faber, quidam Londinensis quinquagenarius Doloze colico per aliquot septimanas afflictus, purgantibus & sedantibus incassum adhibitis, tandem usu aquarum Ebbishamensium lactis admissione, vel hyeme solent, temperatarum, liber evasit; meteste qui adhuc adolescens od fui.

Datur etiam alia affectio colica vel potius colici doloris admonitio, quæ hæc tis defectum semper comitatur, hujusmodi affectio Generosum quendam ejusdem ætatis occupavit, symptomata præcordiorum & ventriculi regionis debilitas & languor. Faciei cutis subicteritius vagus, seu subindè recurrens rigor levis & dolor Colicus minime intensus, incertis intervallis remittens, evacuandi gratiâ Dosim Salis Aquarum Ebsamensium Purgotioni sufficientem exhibui, & singulis ferè Diebus subsequenter ejusdem Salis, quâ alterativi dosim minorem drachm. sc. 4. vel. 6. continuavi, & hujus ope adjectis solummodo Electuarii amari Chalybeati usu & regimine dietetico, morbum dilui, facultatis alterativæ & medendi artificii documentum non remnendum si morbum respiciamus, qui Aquis minerabilibus solum manus dabit, & iis neglectis in Fecinoris abscessum desciscet.

In abscessu etiam levamen non exiguum exarundem usu sæpius præpinavi.

Eadem ratione morbis ex intempestivo vel immoderato cerevisiæ lupulæ veteris usu ortis succurrunt; cujusmodi sunt colici dolores, Asthma, &c.

Mulierum autem quinquagenariarum morbis amovendis quandoque solæ sufficiunt; diluendo, corrigendo egerendo & constitutionis spiritum & circulum instaurando, virtutis amplitudinis specimen, generosa quedam in proximo à Capitis gravedine, in somnolentiam incidit, in quam tanta ei propensitas, ut ne amicorum colloquio per quartam horæ partem cederet, medicamentis cephalicis & abstergentibus nihil præficientibus aqua Ebbishamenses in usum vocavi

cavi; nec successus defuit, cum his per septimanam continuatis cessavit omnino capitis aegritudo. Quum autem citius quam par suis destitit, se colligendi hosti facultatem reliquit, qui genua tumore adoriebatur feminae non medicinae imbecillitatis exemplum.

Eidem morborum familiae accendendus glandulae mammarum prope axillam sita tumor humoralis Cancris æmulus verum mollitie situ turgescencia incerta, & cum cæli tempestate variante, æquabilitate & radicum absentia manifestè distinctus. Hunc sæpius delere semper vitæ innocuum reddere, usum aquarum catharticarum, cum decocto Guadaci & Sarsæ subsequente, observavi; Equibus remediis clerici cujusdam reverendi in vicinia uxor nuper liberata est.

In Pains, and Loss of the Use of the lower Limbs, they prove the way for a Cure, and take off the Rub, where they do not effect it alone, and often do it.

For the Dose, it being well known, and when given as an Alterative, I have already noted.

The Salt is of good Use, and is fitter, by reason of the Quantity in some Cases, and is fit to be used in Glisters, in which it is very serviceable; or drank where the Stomach will not bear much Liquor. I confess the Water is best where it can be had for the Qualities, especially peculiar, which are alter'd by the Fire; besides that, usually the fluid Part, or bittern, is lost, for which Reason the Salt works less than the Water. Before I come to the different Salt, or Nature contain'd in the Waters, I must caution, that these are not to be slighted, and look'd on with a gross Thought of common Salt, or the like, which make no Alteration on our Bodies; but as a Quality that can pass, and not be separated in Straining, and so can affect our most intimate Juices; and of these I shall give some remarkable Instances in their Places.

CLASS

CLASS I.

THE Softness and Fluidity of the Salt of *Epsam*, and the Nature of it, give it an especial Capacity to Purge, and agree in proper Melancholy; and all dry Salt Eruptions, and Itches; I have proved these, and *Woodham Ferries*, which hath the like soft Salt to have some Speciality in this Particular; and in Melancholy it may be presum'd, as being only a Transflation of the Nature to discharge, and so a consequent Stricture of the Alvus. It may be conceiv'd fitter for four Humours, and all Stoppages; but this I shall leave to Observation; on what Account soever it be, I must note, I have my self found these to be the best Remedy in Heart burning, so as to rid it for a Twelve month; by clearing the Pancreas, and most of the Cures before mention'd were perform'd by these, but that they were peculiar to these, I do not assert.

CLASS II.

THese are most appropriate to take off the Acidity of the Juices and Blood, and to Incarnate, and suits in Heart-burning, and some sort of Phthises; and may agree with the Cold, and Phlegmatick best.

CLASS III.

SUIT in all Cases, where Salt of Lime is directed.

CLASS

CLASS IV.

S E E M agreeable where a florid Colour is wanting, or Vivacity, after Agues, and in Melancholy; if I rightly may transfer the Effects from the Qualities of Salt of Tartar, separate from the Consideration of its Origin, as in some I think I may.

CLASS V.

B inds the Blood Vessels, increases a florid Redness; and in the Female Sex, of a Sanguine Complexion, will stop the *Catamenia*; but in the Pale and Phlegmatick, are very advantageous, as I have had Experience; and whither they may not be useful to those that are liable to *Hemor-Ages*, I leave to Trial. I have found them hurtful to Scorbutick Leprous Cases, an opposite Effect to *Woodham-Ferries*, and *Lambeth*; I speak this upon Knowledge.

CLASS VI.

T H E S E are suitable in a Phlegmatick Stomack, in Worms, and in the Stone.

The Virtues of *Lambeth-Waters*, are registred at the Well, to be in Scurvies, Leprosies, Vertigo, Jaundies, Stone, and Cholick. The Effect of it was Medicinal in a Neighbour of my Brother's at *London*, that was Scabb'd almost all over, of which it freed him. And it is observable, that it hath the Nature of common Salt, without the severe *Coagulum*; And so it had a contrary Effect to *Brentwood-Weal*. Now this mortifies the Humour, which Viper-Wine only raises and separates, and so doth not always effect a Cure, that Viper-Wine only separates, is clear, in that Vipers strike a Tartar out of Canary, which else yields

done; and so in some Leprous Cases it will increase the Rising, as I have experienced; which shews this Water's Nature and Excellency, and may be of good Use to the Cure of Scabby, Scorbutick, Leprous Cases, tho' in a confirm'd one, require a Preparation of a certain Mineral, appropriate thereto.

The other three Classes, or Species of common Salt, are especially preferable in the Stone, a flatulent Stomach, and for Phlegm, where a Humour needs mortifying; the *Dulwich* is the best, but being more Sulphurous, is apt to make the Blood flow, as I am inclin'd to believe, having observ'd them to produce the Piles; but then indeed it was when drank by a Person in a Heat.

Whether the *Richmond*, being of a middle Nature, or Compounded, be not more agreeable to such Constitutions as need a Check, and yet are rather too low, as People above Fifty, I will not determine; but I have a Probability of Reason on my Side, and the Table at the Well agrees with it.

Virtues of the Second Genus: Or, Chalibeat Waters.

THE Chalibeat are the most consummate in Virtue, being qualified to open Obstructions, and that even when the Stoppages are gross and hardening, and depurate the Juices, and harden the Constitution, restore the Ferment: The general Effects whereof are particularis'd before, in all Vapours, especially Hypochondriacal, and Decays, and are peculiar in opening confirm'd Obstructions, and to finish the Cure above all other. In Giddinets, in a Jaundice, confirm'd to a Blackness, and not submitting to other Remedies. In Dropical Cases, in mixt Decays of those two, which produce a Rottenness of the Parts, or Ulcers, in the several Species of Hypochondriacism, and Decays of Nature in declining Years; *Diarrhæas*, or Fluxes of the Belly, Scalding of Urine, Diabetes and Stone: They are an *Asylum*, under God, and have effected mighty Cures, and familiarly I must not be understood, so as to appropriate all Hypochondriacal Cases, and Diabetes, which other
Waters

Waters may do ; but in Hypochondriacism, and perhaps Diabetes, these may be necessary to come last, to harden, and take off the Odour, and Faintness, and leave the Part strong. Before other Remedies may do much, as I have seen to take off swell'd Legs, breath short, Convulsive Belchings ; but the ridding of the inward Weakness, as the Spring I have found stick till these come. Tho' the most material Point in the Waters, is the Choice of one full of the Acid. Winy, Keen Spirit, and of the Aporrhoe to be known by Tract of Iron-Mine, or Strength of it, to be seen usually by the Rocks about it ; yet the first Species of these, namely the light Sort, I have found most effectual in some Cases, where the Part was fine, and requir'd the Spirit. And as *Tunbridge* is most strong in this ; so I have done happy Cures by it, and known others. To leave Hypochondriacal Cases Universally so, till I come to that Disease, and Ictericus Cases, which are seen by every body that frequents them ; and so constant and sure a Remedy I need not give Instances ; and for their Place I likewise reserve. In the Head that requires this Spirit, I have found these in difficult Cases, most effectual. A Gentlewoman, deservedly of a very extraordinary Character, at the declining of Years, had a Weakness and Lightness grow upon her ; which together with a high Disorder, which unapt Cupping, that drew too strong, without touching the Disease within, had at last thrown her into Convulsive Distortions of the Face, and which after Means us'd had left her so, as not to expect the Continuance of Life, or of getting thither ; was at my Instance, and Direction, recover'd to a very sufficient State of Health, tho' the several Years it had been, could not but make the Parts more weak, at least, without a frequent Repetition for as many Years as it had been Contracting.

In the Jaundice I have found these full as sure a Remedy, and am of Opinion more effectual than the rest of these, or the Bath.

In Pains of the Stomach likewise, I have had a frequent Proof their Virtue.

A very near Relation of mine knew a Gentleman, that assur'd him he was freed from the Stone, so as to continue so, now for above seven Years, by drinking *Tunbridge*-Waters, which before had troubled him many Years ; and the Waters, if we consider the History of their depurating Nature, and raising the Defect of the Constitution ; and that the Stone is nothing but a Degeneracy, and Increase of Recrements of those Parts that are most firm, namely, the Bones. makes this Remedy

medy not so unlikely, but that it may be of frequent Effect.

Mr. *Boyl*, from *Monardes*, as I remember, notes the same Effect, or larger, so as to dissolve it, in a Mineral *American-Water*.

A Gentleman himself told me, he had receiv'd a Cure in the Cholick, to which he had been long Subject, by the Use of the same Waters.

That they cur'd a young Gentleman of a Fistula, upon my own Knowledge, I have mention'd before. As also,

Another Gentlewoman inform'd me, she had been always seiz'd, for many Years, with a Feaver, about *October*, from which she was deliver'd, by Drinking *Tunbridge Waters*, so as never to have her Constitution suffer any more.

But I need not confine my Notion wholly to the Intent of the Iron Mine; I must observe, that by the Rule before given, I found a small Ousing Water at *Felstead*, in all Trials answering *Tunbridge*; and with the Signs of the Rocky Ground: To my Judgment, and Notes, I so far trusted, as to recommend a young Gentleman who was afflicted by an *Obstructio glandularum Mesenterii duosq; ut cibum quam primum illas attingeret chylus, rejiceret, quo morbo Corpus per famem quasi emaciatum & viribus privatum. Phthisici faciem prae se ferebat.*

Appetitus & concoctivæ facultates signa integra nec dolorem nec morbum querebatur.

Hunc morbum curandi facultatem aquarum Chalibeatarum mihi ediderunt aquæ Tunbrigenses, experimento apud amicum probato, cui ratione sola dirigente præscripseram. Successus etiam in hoc casu respondebat duabus vix elapsis septimanis priusquam cessit omnino vomitus intra horam à pastu subsequens, & sanitas earundem usu brevi restituta est.

Earum Aquarum usu Diabetem sustuli cum Pulveribus Corallii & Gummi Arabici, & Aq. Benedictæ D. Bates, cum Tinctura vel decocto Guaico non cesserat.

Aquarum Tunbrigensium Specificam in eodem morbo facultatem frequens comprobavit experientia.

I should pass on to all the particular Defects, or Species of Hypochondriacal and other Decays; but these either belong to the Consideration of the first, or under the general Effect of Chalibeat Waters. In Sum, these, besides the general Use of Chalibeats, have a peculiar extraordinary Force, where the Head or Liver is concern'd, or Stoppages of the same Bowel, and omentum or Mesentery, Glands is obstructed grossly, or sinks thro' Tendernefs.

The Second Species.

THE juicy Chalibears are useful to the same Ends, and in the same Cases with the Light, with this Difference, that the Light, as I have said, have their Excellency in subtiler Passages, and these in greater Astriction; and so in all Bleedings, or Dropsies, or Intense Weakness, I look on these as a really different Power, as having less Steel, and a more gross juicy Aporrhoe. The best of this kind is *Knaresborough*, take the Virtues from Dr. French, who collected them at the Place.

It cuts, dissolves, attenuates, absterges, viscous, tartarous Humours in Stomach, Mesentery, Hypochondries, Reins, Bladder, &c. and evacuates by Urine, so opens Obstructions, &c. it penetrates thro' every narrow occult Passage of the Body, where other Medicines cannot come.

It allays all Acid gnawing, and hot Humours, and cures all Symptoms from thence; as Agues, Consumptions, Quinzies, Tumours, Impostumes, Ulcers, Wounds; it stops Bleeding, the overflowing of Cholera, and the Dysentery, and such like Fluxes.

It corroborates the Brain, Nerves, &c. and prevents, or cures the Apoplexy, Epilepsy, Palsy, Vertigo, inveterate Headach, and Madness, and all such Symptoms as proceed from the Weakness, Coldness, Heat, Dryness, or Moisture of the same. It corroborates the Stomach, and causeth good Digestion; consumes Crudities, which are the Causes of Obstructions, and breed ill Blood, and infirm Flesh, or an ill Habit of Body; it maketh fat lean, and the lean fleshy, cureth, and preventeth the Cholick, and Worms.

It strengthneth and openeth the Lungs, Liver, Spleen, Mesentery, and cureth Difficulty of Breathing. The Asthma, Dropsy, Melancholy, and fearful Passions. Hypochondriacal Wind and Vapours offending Head and Heart, afflicting Women, and many Men; so cheering the Heart, cure and prevent Palpitations, and Passions thereof, as also all Faintings.

It purifies the Blood, cures the Scurvy, even in those whose Teeth are ready to drop out; also the foul Diseases, the Leprosy, Jaundice Yellow and Black; and for the more perfect effecting of these Cures, it doth in many open the Hemorrhoids.

It provokes Urin; cures the Suppression, and allays the Sharpness thereof; it diminishes the Stone in the Bladder, and prepares it for Cutting, forces out Sand, and small Stones; cures all Ulcers and Wounds in the Body, so especially, and much sooner in the Reins and Bladder, suppressing also Pissing of Blood, and the Gonorrhea. It cures the Gout, Aches, Cramp, Convulsions in what part of the Body soever, and gives great Ease therein suddenly.

It opens all Obstructions, and suppresseth all manner of Overflowings in Women; strengthening the Womb, cureth the Mother, maketh the Barren Fruitful, and is a great Preventive against Miscarriages, and rectifies most Infirmities of the Womb.

It is also used by way of Infection, in Grievs of the Womb, and by way of Injection into that, as also into the Bowels, and Bladder, where all the Qualities act immediately upon those Parts, mitigate, heal, and corroborate.

It may be us'd by way of Fomentation, and Lotion, in external Wounds, Ulcers, Itch, or Scabs; and being done into fore Eyes, wonderfully cooleth, drieth, and cleareth the same. In a Word, if any Intentions be to be perform'd by the Qualities aforesaid; these are affected in a very good Measure, if not fully and perfectly by this Water. And I myself have seen many of the aforementioned Diseases cur'd by the help thereof; and for other Cures effected thereby, I have been assur'd by them themselves who receiv'd the Benefit, or by others, who have been Eye-witnesses of the same.

The Subspecies, or Juicy, with more of the Steel.

Hamstead-Water is of the same Juice, astringent Kind, uot so clear of the Steel ; this qualifies them for general flatulent Cases, weak Stomachs, and pale Constitutions where Steel is wanting, and a little binding, or strengthening ; Waters of this Kind, as of good general Use, and was a means suitable, so as to Cure my own Sister of a Dropsy that was Hypochondriacal. Tho' this sort is not so much to Purpose in the peculiar Cases of Bleedings, with the *Knareborough*, not so deobstruct as the Light, nor good in Natural Melancholy. As for the particular Water, the Juice is genuine, and is not mixt with the Salt of the upper Soil, and it hath the right keen Taste, but seems not so full, neither hath it the full Signs of high Strength, as those Rocky ones of *Tunbridge*, and *Knareborough* ; but it hath a mighty help, from its being in so excellent an Air.

Now if we consider the nice Differences, and abstract those Cases, then the Virtues of all these three fall in as serviceable, under each Head. I have transcrib'd Dr. *Frenches* intirely, because they give Intimations, and Light, that may be applicable to the other Two. And from his, and my own Collections, I shall make these improvable Remarks, of the Use of Steel-Waters ; including all Three for some Notices, if not Discoveries of Moment.

Præter certiores ad morbos dignoscendos methodum quam hic rationis glomus dirigit, Morbi quidam valde perniciosi, vel alios Curandi artificium hujus ope in conspectum ducitur.

Huc referatur morborum farrago quam jamjam generali usu comprehensam notavi ; ex his Agmen facillè ducat Phthisis, seu periculum seu prætermittam sepe opem respiciamus notatu dignissima cum ex hujus solius applicationis remediî salus sæpissimè pendeat.

Obstructio Thoracis præcipuè Mediastinum afficiens dolore extensivo Thoracem affligens, cujus notæ characteristicae sunt dolores vagi, & sputum Phlegmatis pellucidi particulis Chylosi albis interspersis, Morbus hic sæpissimè Curationem eludit ; sub Phthiseos specie in errorem remediî abducens, hunc morbum aque Chalybeatae feliciter auferunt. Asthma etiam hypochondriacum vex ex deficientia naturæ languentis ortum.

Singultus è quod quàm *Symptoma* non verò *Morbi* nomine à medicis quòd memini, tractatus *Notitiam* effugit; semel patientem hoc malo vitâ confectum observavi, cui in extremis sum accitus; tempestivè autem consultus duos liberavi aquarum *Chalybeatarum* adminiculo.

Has autem in aliis morbis curandis usui fore ex ratione debite collata conjicere licet. Passio *Iliaca* primâ facie quidè si alvi *strictionem* & *intestinarum inflammationem convulsivam* respiciamus, hujus remedii opem vix speret, sin ejus *Naturam* inspiciamus, & ut sæpè sit sine ulla viscerum obstructione crassâ, & à *Colica* dispositione procedentem & à *jecinoris* & *succi Pancreatici* vitio originem trahentem uti ex doloris situ & sanguinis grumosi rejectione patet; deprehendemus etiamsi *Paroxysmi* remedium esse specificum quoddam probavi, morbosam tamem dispositionem qualitatis peccantis respectu aquis his extirpandam esse.

Angina cum internos *Laryngis* musculos afficit & potui erevisse debetur eadem sola intentione amovetur.

Affectibus soporosis universis appropriatas esse, innuit non tantum ratio, verum etiam usus *Spiritus Vitrioli*, & *Aquarum Purgantium* effectus probatus indicant.

Old Pains in the Head they have been often successful in.

Old Pains in People growing into Years, are generally Paralytick, and yield to Medicines of that Regard, and at last need the Warming, and Discussing Nature of the Bath, but very often are Scorbutick, and will submit to Antiscorbuticks, and the Chalibeat, if the Constitution be in fault, or the Quality Peccant be the Decay of the Juice nutritious, and the Heat be good.

Loss of Teeth is another Case the Chalibeats are excellent to prevent, adding, the Washing the Mouth with cold Water, unless a Catarrh attend from any other Febrile Cause.

Thus I have answer'd, what these Waters are good for, and which are best, or where proper, as far as a general Account can reach, according to my Judgment, and Observation.

In these, great Care must be us'd to have an effectual Spirited Water. if the Case be extraordinary, as well as not to miss the Disease, and the Remedy. For here is also a Mistake often made, by either chusing them ill, or taking these, or the Bath-Waters, at a Distance, when Effete of which I have seen Instances in Miscarriage; where the Waters drank at the Fountain-Head, were never hardly known to fail.

The *German Spaw* is a *Succedaneum* us'd for the Waters; and to deliver only what I have observ'd, and not Decretorily; I must note, that they are of that Nature of Salt, as to Sparkle, or Nit, tho' long kept, and shew the Face of Spirit, and in some Cases will avail, even when they have lost not only the Aporrhoe, but their Chalybs, when the Disease was in the first Ways, I knew them when but tolerably new, take it off; and the Singultus I once took off with them in an Ictericus Decay; but I had an eminent Patient that dy'd of an Abscess of the Liver, who Miscarry'd, after a long Course with them, tho' indeed commonly they had lost their Steel, but not always, when I saw no Reason to have question'd Success from an effectual Chalibeat Water, which I think may excuse this Caution, in a Case of Moment, (without deciding whether the Loss of the Steel, or the Aporrhoe, were the Reason) that it requires Consideration before these can be depended on in such nice Cases, as they commonly are had; and therefore I must prefer the Drinking a Water at the Spring in any Case of Danger.

Virtues of the Third Genus.

Of Chalibeat Purging.

THESE are of excellent Use where both are wanting, as in Scurvies, *obstructio Mensium*, and the best Purging in Hypochondriacal Cases. They differ indeed in the Instances before; as *Woodham Ferries* is a soft Salt, like *Epsom*, and proper in the same Cases, but by Reason of its not having Discharge, if that be the Reason, it is difficult to have Sweet, and any of the Spirit. I have known it agree well in a Scorbutick Case, near a Leprous.

For the *Scarburgh*, it hath been so well travers'd by Dr. *Witty*, that I shall only observe, that upon my own Knowledge they cur'd a Tetter of old Standing, on a Gentleman, which nothing else would rid; and shall take the Virtue from his own Observations made at the Place. And he adds, that no Disease is by him said to be Cur'd, which he had not particularly observ'd, and mostly often repeated;
only

only I shall premise, that they are celebrated in the Scurvy, and deservedly, and to carry off Humours of mixt Cases, of Scurvy, and Hypochondriacism, and any stop of Humour, especially at Lungs, or Breast, or in the grosser Cavities of the Stomach, and Bowels, these make quicker Dispatch ; But that they extend not to Stoppages more confirm'd, or where a long Course is requir'd, is plain from the Grossness of their Body, and Purging Quality, and from Dr. Witty's own Observation, and Intimation.

Their Effects on the simple Chalibeat Account, are remarkable, and easily distinguishable.

In the Scurvy, he relates the taking off the Pains in the Joints, Difficulty of Breathing, and the rest of the Symptoms of that Disease, in fourteen Days ; and the Year following, the taking off the chief of Goutish Pains ; and the Year following, of the Scorbutick Pains returning.

It is profitable in the several Diseases of the Head, from the Vernicle, and Hypochondria ; Nervous Effects, and Spasms, from bilious Humours, or Worms ; *Paralysis Scorbutica Vertigo* ; he instances in a Relation that had a Scorbutick Palsy, with Distraction of Mind, Blinding of Sight, Convulsion, and Weakness of Limbs, reliev'd, together with proper Medicines, by these.

Another Paralitick, and Convulst, from Hypochondriacal Vapours, Phlegm, he commends them for, and Shortness of Breath, Asthma ; of the first he gives a rare Instance ; and of a Salt Catarrh, and of a Weakness, contracted by a frequent Gout, so as to make the Hand black, which recover'd its Heat, and in a great Measure its Strength.

It suppresses *Anorexia, Cardialgia*, Belching, and the *Singultus*, Hypochondriacal Flatus, he instances a Cure of. Likewise in the Belly, not Subsiding after Childbirth, he gives farther Proofs in the Scurvy, inveterate Tertians, and Quartans, Hypochondriack Melancholy. *Alvi fluxus, Dysenterici, & Lienterici*. Of a Dysentery he gives an Instance of a Cure in three Days, p. 189. Heat of the Kidneys, Stone, are Diseases these have carry'd off ; abate Pain in making Urine in the Aged. *In mortis uterinis & suffocatione Matricis egregie prodest. Chrolosin curat virginum, & vividum faciei colorem restaurat ; fluori albo medetur & inordinato mensium fluxui opitulatur & retentricem uteri facultatem roborando Abortionem prevertit ; nonnullas causas sterilitatis adimit & conceptionem promovet.*

In summ, these answer, where *Calida Intemperies corrigenda. Opilationes referenda, humores evacuanda, vel partes, naturales roboranda.*

Virtues of the Fourth Genus.

Of the Bath-Water in Somersetshire.

I Consider in this the Mineral Steam, the Minerals themselves, in the Nature, but not considerably in the Substance to be of Moment, the Discussing Faculty from the Sulphur, the Allaying and Discussing from the Lead, and the help of the Warmth of the Steam, to penetrate and comfort, and help the Discussing. Accordingly, their Property is to exert the Power of a Mineral-Water, and with those Advantages, and where those are proper. So clears and restores, comfort the Archeus; to use Dr. *Baynard's* Expression, with a mild and gentle Warmth, a Friendly Fomentation, and a Cordial to faint and languid Spirits, and put them in a Power to act vigorously indeed, where there is a great Languor overcoming the Natural Heat, in the Cause, these are of excellent and sole Use, either outwardly, or inwardly.

Outwardly, in Pains, Lameness, Contractions, Humours, Tumours, especially from such Reasons as bring Decays, especially in the *West-India* Gripes, Colicks, and where a Paralysis hath been general, with a total Loss of their Limbs. Of my own Knowledge a very good Lady, lusty, and a little Phlegmatick, about Forty, had a Resolution of one Side of her Face, who receiv'd her Cure from the Bath; who observ'd, (as a Note, which I find hold in all particular Affections or Local) that the Bathing was ineffectual, but the Pumping on the Part did it, giving that a Warmth, and Openness, and Pressure, above the rest of the Body. As I have given the Reason of their Effect, so it is not to be expected unnaturally in a Sisy Rhumatism, nor in a Nervous, or Membranous, of which I have had Proof of their Ineffectualness, tho' they give some Relief; but in other Rhumatisms, Scorbuticks, Gouty, or from Decays, they are of great Use; but then their inward Use is join'd to the External.

They have not been drank much above twenty Years, but have now been experienced, to have an Effect in common with the rest, for Hypochondriacal Cases, and Jaundies, and Diseases of the Aged, and of Elderly Women, suffering by their Change; but they have some Advantages in Coldness, Flatulent Tumors, and Convulsive Cases of the Elderly; to remove these, and Comfort the Constitution, these are the most excellent, or Illness from Weakness, not otherwise to be fetch'd up, where Natural Heat is Deficient, or Stoppages are apt to be, be it Jaundice, Asthma's, or Catarrhs.

They are especially, and specifically requisite, where there is any Atrophy, or falling away of any one Part, where the Stomach wants Warmth, by loss of Heat, or spoiling it by hot Liquors, in Wilting of the Constitution, in Hypochondriacal Cases in the Thin, or where it is overcome by cold Phlegm, or other Causes, and in all Stoppages; of these I have had Proof, as the proper Cases for the *Bath-Waters*. I have sent several thither, some in a flatulent Stomach, where Lowness of Nature hindred the Cure. Another Gentleman, where the Thinness of Constitution, made an *Obstructio Thoracis*, not bear *Tunbridge-Waters*, without receiving a suddain, and unbearable Cold; and in several I observ'd in the last Case, the Flatulency, and in one Case when the Humour stop'd; I say, in all these Cases, the *Bath-Waters* succeeded, after the *Tunbridge* had been fruitlessly, or disagreeably try'd.

The happy Effects of these in general, and in some Cases especially above others, have given these justly a Reputation. There is a fresh Instance of a Gentleman recover'd from great Infirmary and Danger, by Gout and Scurvy, by Drinking these Waters, both which they did rid, which is very extraordinary, and sufficiently known; and indeed in the Gout it seems the most safe and proper, and perhaps only Remedy, if we consider it to be only an Error of the Juice of the Glands, that separate the Nourishment for the Bones; and from the declining of these, and of the Constitutions, loss of Vigour to manage all its Offices, and how agreeable the Nature, and the Warmth together are, to eradicate it. But then as these are not universally proper, being not safe in Cases of the Lungs, of some sort; and of the Kidneys, as the Stone; or in Diseases of the Head, tho' they can unstop at a difficult Rub, and Tumult, yet they cannot open a confirm'd gross Stoppage, tending to hardning such as breed in the Liver, Lungs, and *Omentum*, which are the peculiar of the Chalibeat; nor can they finish, so as to leave the Parts so firm and hardned; and therefore even
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in the Cases where the *Bath* Drinking is peculiar, the Chalybeat are necessary to conclude with, to which the *Bath* Waters are a good Preparative, as the *Bath* externally us'd, is to the Cold *Bath*.

Sterilitas item ex harum usu, nisi cum ex Constitutionis vitio pendet excipienda est. Cum enim ut sapissimè ex Uteri per obstructions vel duritiem, non attrahentis vitio vel laxitatis ad retinendum fœtum inepti, intentiones curatiæ ex causis petende sunt, ut variâ experientiâ probavi.

In a dry Itch, that pouders the Skin, as if dry'd Salt were upon it, I have known these try'd without Effect, neither was it reasonable to expect it.

I must remark one great Miscarriage, from the not due Consideration of what their Virtue consists in, that they are often drank at a Distance, when the Aporrhoe is lost, which will not bear Carriage.

A Gentleman near me found this fatal, when he would not take my Opinion; but in an Hypochondriacal Asthma, after many impertinent Applications, did at last, by some Direction, drink the *Bath* Waters at Home. So vast, yet so seemingly inconsiderable is the Mistake, whereby all the Virtue and Propriety of the Means was lost, when Life at Stake.

In this Case of Asthma, and Catarrhs, stuffing of Lungs, Faintness in going, and want of Breath; a Wilting Look, where the Vigour is gone, of Constitution, Stomach, or Part, thro' Drinking, or Nature. These are to the Purpose, and in reasonable Cases do not fail.

Dr. Baynard relates a Cure by Drinking, and temperate Bathing, of a Lady, with all the frightful Symptoms of Death, and Look, accompanied with Dispondency, Sighing, Swooning Singultus, and Convulsion, with an universal Atrophy.

And of another Lady cured, when the vital Flame was blinking in the Socket, by the *Bath* Waters, drank with Bitters, tho' at the first she could take but two or three Spoonfuls of the Waters at a time.

Dr. Baynard observes them to be strongest, and enliven most in a Draught, when the Wind is North, or North-East, and that the best Cures are perform'd by small Quantities, regular Living, and drinking them a great while.

As to the Wind, no doubt it condenseth the Spirit, so hinders the Water from being so vapid, and so renders the Constitution less faint; I concur with him likewise in the Necessity of Drinking them a great while; but for the Quantity, I think the under Dosing it, by confining the Dose to a Quart, is wrong, where no Minerals are in Substanc^e, to heat over much, and

the more Water, more Steam to rectifie our Ferments, which evident in the Drinking *Tunbridge-Waters*; and I have known hath occasion'd the *Bath-Waters* not to be so effectual as might be expected.

Virtues of Buxton-Bath.

THEY are celebrated, says Mr. *Bishop*, my Informer, from Rhumatick Pains, and Stone, in the Cure of which they very seldom fail.

In the Scorbutick Rhumatisms, says others.

Now from the Nature of Lead, to heal and discuss, and their temperate Warmth, they seem fit for healing internal Ulcers. How useful they may be in Vapours, I can only hint, as not unreasonable in some kinds, where Steel is not requir'd, and Leave to Trial, which I think well worth while; as in Vapours, in the Sanguine, and in the Hectical. For the Waters from a Solut Sulphur, I have nothing of Fact to offer.

The Water of *Queen-Camel* I can deliver nothing, but that some Physicians that knew it well, have recommended in Cancers, and some Itches; I suppose externally only.

The Fifth Genus.

THE *Bristol Waters* are Celebrated Specifically in a Diabetes, the Virtue of which many have found, upon Drinking them but 14 Days, so as justly to deserve their Reputation. And I have reason to suspect, that their Virtue might extend to many other Cases, as Hypochondriacal, and to confirm a decaying Constitution, if we take notice how much is owing to the Steam, which here seems of a very firm Nature, as I believe will be found upon Trial.

The Diseases the Waters especially regard, consider'd more particularly.

I Have hitherto prosecuted the Knowledge of this Remedy in the Cases, or Diseases, Consideration or Reason, and Line or Thread, special Effects and Extent. Now the compleat Knowledge consists of two Parts, the one regards that of the Medicine, as to the Diseases in general, and what they do; the other is of the Diseases, to know their full Nature, and Cure, to use the Waters with Success.

And what is done as to the first part, how serviceable, and what use it is of to us, is seen, by considering how necessary a right Idea is, in the Mistakes commonly made, when the Diseases, the of that, and of the Medicine, is not truly seen, and the wrong Notions applied.

And first for Diseases, I have nam'd some not seen, or taken notice of, so as to be cur'd, viz. the *Singultus*, of which I saw two Persons dying, where I was not time enough to assist with this proper Remedy, which I find had escap'd several Physicians in one of the Patients. Some Diseases are lost by confounding them, as the Obstruction of the Breast is with a Phthisis, which erroneous Notion hath cost several Patients their Lives, morally speaking as I think I may say, when I never saw any Person die of it, in the Use of a right Remedy, and Course. I have had Instances, one a Gentleman, my good Friend, whom with some Difficulty, I preserv'd from being treated with the Method to a Phthisis, and so was a means to the Cure; whereas that Method which seems most obvious, morally, cost two Persons their Lives within my Knowledge.

How many Asthma's, when upon a Decay, kept by Empiries, in the Use of Pulmonary Medicines, nothing to the Purpose; Decays of another kind, treated with the Bark for Ague, which stop't the Glands irrecoverably; Jaundies on a Decay treated with Icteries. I could enlighten with Instances, to great Advantage to the Readers; but that besides the too great Length it would have in Proportion, I must be on an uneasy Work.

There are several other Diseases I cou'd name, thus mistaken. But because these rather fall under the Consideration of the Disease, I shall remark the excellent View it gives, by bringing in sight other Diseases, not otherwise to be come at, but by this Scheme; such as Secrets stop't of Cure; and Disorders, as Ulcers, Fistula's, Cancers, Dropsie, sore Legs, swell'd Legs, Sinuous Ulcers; which treated, with respect to the Symptom, can never be cur'd; and only by the hint of Decay, like a new Disease discover'd, direct to the Cure. And besides these, and the Knowledge of a proper Water, there are other costly Mistakes, of what is the Edge of the Medicine, make these account worthy our Notice; what Mischief a Mistake of an ineffectual Water, in case of Danger, may be, I have seen in that Stoppage and Decay of the Liver, where it came not upon Drinking, and so tended not to a Dropsy: Of which a very worthy, and largely good Gentleman, dy'd, in the use of Icteries, and of *Spaw* Water, which had lost the Aporrhoe, and Power, to tinge when he drank it; and which, when fresh, I never saw to effect any thing in that nice Case, at this distance from the Spring, when the constant effect of a proper Method, and a good Water, drank at the Spring, not usually failing, may fairly enough give room to judge, he wanted the Remedy, when he seem'd to use it. The same Mistake of the *Bath*-Water, I had in a Neighbouring Gentleman, in an Asthma of this kind, who took *Bath*-Waters at such a Distance, as made it of no more of Medicinal Virtue, than Pump Water. I do not assert any Infallibility, or full Knowledge in any Physician, much less in my self, it being my Sense, when a Man hath made himself as full a Master, and takes care to consult, if the Case be new to him or unexamined, he is clear, be the Issue what it will; but I speak only against the Boldness of Emperick to proceed, and maintain their Ground on a Patient, when they have seen their Failure of their Notion in the same Case before, and know they know nothing, yet will rather have their Patient die, than his Cure by any Man else, to fully the Reputation of his Pretences. I could illustrate every Head, when we go upon the Notion of Steel in or out of the Waters, or take the Condition of Cure, or Sight, on any other than a true and right Foot: But having intimated these in the Way, as they fell in, I only make this Remark here as a Direction, and for Notice, to give Force to make Impression.

But besides this part, as to the Medicine, we are still short, without a competent Knowledge of the Diseases they are applicable to, nor can be said to know how to use them, but
when

when we can properly apply, and carry on a Cure with them. This requires an exact Knowledge of the Disease, and Skill to Cure, and is a new Subject to treat of professedly; and besides, particularly to descend to in every Case, is not only too large for the Place, but scarcely can be so particularly regarded, but left to the Physician. I shall therefore, not to leave this Part wholly imperfect, and a Gap, disentangle my self from that Obligation, if I give a true Idea, and Notion of the Nature and Differences, and where we are apt to go wrong, it being ever a Rule to me, I never knew anything, till I saw the Reason; and this generally was sufficient for me, to master the Art to Cure, and turn it to every case; And what at Decays, I have here to consider, will fall under the Head of Hypochondriacism, or that of the Spring, or Root, which is the Apoplexies.

The *Affectio Hypochondriaca*, is better known by its Effect on the Spirit and Fancy, by the Tumult, as an Umbra of Diseases, than by any clear Knowledge of the just Cause and Reason. The Name is from the Symptoms of Fulness after Eating, and Palpitations at other times, at that Region. The Explication of it is as imperfect by any Signs, be it as an Affection of the Liver, or unbracing of the Nerves, nor doth the Inquiry, whether the Nerves, or Stomack, be the Seat conduce to the clearing it, which is only to be done by the right understanding it, and its Cause. How it is produced by a Degree of Vigour, slipt first at the Brain, and Heaviness of the Correspondence of the Spring, of the parts of the Flesh, so spoiling the Wheel, and that the Glands are the Part concerned, taking in the whole Tract from the Stomack, I have shewn in general already. As to the Disease, I take the chief Diagnostic, and Essential Character, to be an inward sinking at Stomack, and Dissolution of Vigour and Spirit, by a Dissolution of the tineness of the Glands of the Nutritious Duct; and this lost Tightness to be in a want of Spirit, to make a vigorous Juice, and Pressure of that to the Brain, and a real Tightness to each other, taken as a general System. The reason of this Failure is from the Flatness, and Sourness, or too fermentative a State, below the right Spiritous one of the nutritious Juice, in due Reference to our Animal Luminous Spirit it is to produce, and this Sourness imprest on the Vessels, by way of Odour. From Vapours Hysterical it differs, in being more than a bare Tumult, but a real Weakness, and affecting the Spring.

From the Scurvy, which it is often mixt with, and usually resembles, in the Essence of Loss of Spring, and in not be-

ginning at the Error of the Cuticular, or Articular Juices, and Grievs first.

The Brain not having Vigour, its *Stamina* cannot exert their *Vis*, by pressing the Idea at the common Sensory, or Expansion of Sight, enfeeble the Fancy, and Judgment. The Reins of the governing Power thus lost, each Member is weak, and a Disorder, Stoppages, taking cold, and Pains and Illness follow.

But not being within, in the Juice of the Part, any Error, but want of Spirit, and Power, to carry on the Juices, it is but an *Umbra* of a Disease, and the Part recovers, and another is seiz'd or another Symptom, till the Government is firm, to hold all strongly. Hence the *Umbra*, the Change of Diseases, and their Removes; such as Contractions, Cramps, Convulsive Motion, *Subsultus Tendinum*, *Nervorum tremor*; Palpitations, Stoppages, Catarrhs, Numbness, wandring Rhumatick Pains, Straintness at Head or Back; Daffings running Pains, Straintness at Head or Back, Daffings running Cold, Hurry in the Spirits, Symptoms resembling an Apoplexy, Phthisis, Colicks, Bleedings, Aquishness with Fear, and loss of all Power to exert Rhumatick Pains in the Arms, coming and going with swell'd Hands, num'd Fingers, as if the Ute were lost; or else snatchings, and starting in the Night, like Fits Convulsive.

The Jaundice is a Disease that this issues in, when it is a through Dissolution, or it is indulg'd, and the Juices spoil'd, by Drinking ill Liquors, or in a Morning, as of Stale Beer; or following the Stomach every Hour with any Beer, so as the Ferment can never recover its own Nature; it comes at first flushing, and going off in a few Days, or Weeks again; and after several Escapes, produces Swellings at Legs, and so to the Belly, or of Belly at first, the Preliminary of Death. To clear this, we are to know, that the Preparation of the Chylebeat to raise and depurat it for a fit Vehicle of a Luminous or Animal Spirit at the Brain, the grosser part, and firmer, is fat, and Lodg'd round the Glands in that Form, which I think all the Glands are bedded in, save only those that either transmit Saliva, as the Spleen, or pass the fat parts, as the Liver, or separate from the pure as the Brain, and Testes; the softer, and more fluid and mixible fat parts, carried off with the returning Lymph, to the Blood at Liver, are separated, by being first rendred gross, which is perform'd by the Salt of the Blood, just as Spirit of *Sal Almoniac* turns Milk Broth yellow. Then the Lymph strained thro' the Glands, leaves this on their

their outside, to be receiv'd, and convey'd to the Receptacles assign'd for the Gall, where some is laid up, to be most wonderfully, without our Privity, discharged, as occasion requires, for several Uses, into the Bowels. That the Gall is not strain'd thro' the Glands, but the Lymph, I was assur'd by several Dissections of morbus Bodies, Beast, and Man, dying of a Jaundice, wherein I ever found the Glands, tho' often swell'd, large, and always stop't up; some very hard, like Stone, yet cut white, without any Tincture of the Gall, and the subsequent stop of the Lymph confirms it. The further Account of the Passage of the Lymph, and Use of the Gall for the keeping the Bowels from Colick, and its Use in San- guification, I must reserve to my Treatise of *Rational Anotomy*, I design in my Collections for *A History of the Air*, if I live to Publish it. Now a common Jaundice is only a Defect of the Pass of the Blood, or Bile in the Liver, through its over Grosness; such as we usually help by a Soapy, Dungy, or staining Medicine, to thin the Gall, and make the Blood flow; what cures a Jaundice, provoking the Menses. But this flushing Yellowness upon a Decay, is from a Vice of the Glands, preparing the Chyle, breeding too low an Excrement, like Molosses, and not a fine natural Spirit, through a Diseasy State, such as I mention'd before, which is to be mended, and the Cure consists in, and is the same almost as in Hypochondriacism in Nature, but more vitiated and through; which Nature recovers itself against till all the Glands are seiz'd, obstructed, and Swelling follows. Now this gives us a true Notion to help us to see the Reason, State, and where any stop lies, and the Method to Cure, and when it is past Cure, or not to be cured entirely.

To give you some Idea, I shall shew, how, upon knowing the Diseases, the Case alters, and give what Remarks are necessary. Now there are in the Cases, which vary much from their Differences, and have special Proprieties of Cure. There are also requir'd a special Skill to Cure, and to give due Idea's a full Knowledge of the *fontes Symptomatum*, to be able to apply rightly, and take them off. There are several Ways and Degrees of Cure; I have seen Three Ways of Cure without the Waters, which turn on differing Reasons; but then it is but in Degree, without knowing the Place, and Force of the Waters. To see when more is requir'd, and what; where the Defect of a Cure lies, and how to complete it; some Hints of the several Cases I shall produce; and first, for particular Specimens of Hypochondriacism, when Topical.

A Pain at Stomack.

I Mean that distinct from a Colick in the Stomack, and from the Contractive pain of it, which requires other Methods. This Pain is common to many Persons of both Sexes, but mostly Women, who have it *ceteris Sanis*. This Case is not to be rid so generally, and constantly, and in the common Order, as other Hypochondriack Effects; the Seat of this Humour being the Vessels, from the Outside of the Ventricle; the Stoppages and Sourings of which, makes the Stomach affected by it; Now the Looseness of the Parts, and Nearness to the Stomach, makes this Humour more apt to sour, and less liable to a Discharge, and to be more easily affected; and commonly the Remedies are various, as in this, Fit Milk-Glisters, that draw off the Humour, and so set aside the Pain, or cure it, continued for Four Mornings; Chewing of Gentian, and other Bitters; and some prepare Chalibeat with Bitters, or *Bare Ens Veneris*, and urinous Salts will sometimes do it for one Term.

The *Tunbridge* Waters here much avail; but to clear it, requires the Chalibeat Purging, and the *Bath* Waters, and at last the *Tunbridge*, which drawing off the Humour, and mends the Vessels, the perfect discussing all Stoppages, and restoring the Ferment, can only settle a more durable Cure, which will last, if the Mind be free from Trouble, and once a Year a little Purging-Waters be used.

A Gentleman of Credit informs me, that the *German-Spaw* in this case, performed a Cure in a Gentleman, who related it to him, who after the full and fruitless Tryal of our *English* Waters, and particularly *Tunbridge*, for this Pain, by Advice, went to the Waters of *Aix-la-Chapel*, and was cured, when our Waters did him no good. Perhaps the Astriktion of the Salt, and Strength of his Nature, may be in the Case most effectual; and perhaps the change of Air may come in for a Share; but in the Stomach, and first Ways, these are most excellent, and seem to have a peculiar Propriety, as I have often observ'd in this Case, and the Singultus, and Convulsive flatus.

2. *A Colick from a Decay of the Part.*

YOU may observe to be cured by several of the Waters, but then it alters the Case much, whether it came from an Icteric Affection, or Decay common to the Liver, and from a Drinking Quality, wherein the *Epsam* Water Course is directed before.

Or from the same in a higher Degree, where the removing the Stoppages by aperitive Waters is requisite, such as *Tunbridge*.

Or from a want of Heat and Warmth Natural, where the *Bath* Waters have Place.

Or purely Hysterical.

Or from a Coldness, induced by too low Living, when Nature declines turning the Juices souer, wherein proper Bitters, and generous Liquors, may be sufficient.

Or a bare Disposition in a tolerable sound Constitution, a Caution to Diet, and Beer, a care to drink only on Mornings Water, and Honey, doth often take off, and secure, as I have known often, especially in Colicks from Vapours.

And sometimes lastly, it is from a Failure in the whole Constitution, which then is to be mended by the whole Course requisite in a Hypochondriacal Case, and perhaps to be assisted by Vents for the Matter, such as Issues.

3. *An Ileon, or Iliaca Passion.*

TH O' somerimes it is a single separate Disease, beginning in this Bowel, yet often it is but the Effect of an old Cholicke, and doth not necessarily require a gross confirm'd Stoppage, as I have prov'd in several, and most commonly spoiling the Juices of Liver, and Pancreas is the Cause. In this case, the removing the Colicke, and preventing the Danger, is to be done only by the Water serving to that end, as the *Bath*, and *Tunbridge*; but then in the Fit, tho' the Purging Waters, or Salts, excel all other Purgers, (which indeed do nothing in it to relieve the least) yet the peculiar Medicine I have seen prov'd, was a purging Salt, some of which I have now in my Hand; which, for the Publick Good, in so deplorable, and quick a Disease, I shall not conceal; to be as far as I can judge by Taste, and Figure, to be only a Preparation of Salt Peter, with *Ol. Vitrioli*, as *Glauber's* Salt is made.

4. *Old Pains, chiefly of the Lower Limbs, especially Hips.*

TH E S E differ in Nature and Causes, as much as the last Two, some of these being of a Rhumatick Nature, or a Sive Cold, and admit of the same Cure, as proper, ordinary, simple Rhumatisms.

Some are Rhumatick, and of the Nature of a cold Humour induced; and here Hothouses, and Cupping the Part only, avail.

Some

Sometimes it is a Pure Weakness of the Nerves, Tendons, Ligament, and Fibres of the Muscles, and then I have often reliev'd it by this Liniment;

Acc. Ung. Nervini Ol. Excestr. an. unc. un. ss.

Ol. Terebinth. unc. unam. Misce.

Or simply Oil of Exceter, laying on the Place a Plaister of *Empl. è Sapone.*

Sometimes it comes nearer a Paralitick Case, and is a perfect Resolution of the Part. Here Antiparaliticks take Place at beginning; but if it be a perfect Resolution of the Part, then the *Bath-Waters* inwardly, as well as outwardly, are the only Medicine that can effect a Cure; tho' other invigorating warming Means, such as *Bullocks Paunch*, apply'd often, will abate it; but the Use of, even of the Purging, and Steel Waters here, are of more Moment than is usually expected, if timely us'd, by taking off the decaying Quality and Humour first seiz'd, and the latter, by restoring the Constitution, the slip of which occasion'd it, and stops any Cure by other Medicines. And indeed, if we consider this Occasion of the coming of this, and other Illness, we may discern, that the Use of Waters for Prevention, is almost as great as to cure, if timely before the great Climacterick, or at first Disorder. But for the present Case, I must not conceal, I have often made a good *Succedaneum* to the *Bath-Water*, that hath availed to a great Degree, by a Decoction of fine *Brimstone* in Lumps, such as the Chymists use; and a small Quantity of Bay-Salt, in a quantity of Water, for perhaps Two Hours, for External Use, by which I have help'd several to walk very tolerably, and comfortably, that were before incapable to help themselves, which may be of Use till they can get to the *Bath*, and make them capable of the Journey.

I have known a stubborn *Sciatica* entirely cured, by bare Uction, with *Ol. Petrol. & Lumbricorum*, and keeping the Part warm.

Hypocho-

Hypochondriacism.

A Hypochondriacal Case I take to be a Weakness, and Laxity from that Remission, and there are great Mistakes in the Differences requisite, and Intentions of Cure ; as,

A Vapoury Hypochondriacism

MAY be when all is secure from an indulged Heaviness, where the Softness is in fault, and wants only a slender Diet, and Action, and resolv'd Mind, to employ the Life and Spirit we have, and not yielding the Body to a soft Sense of its own Alterations. This is not to deceive the Body, but take off the Effect ; so that this Disease is of the Mind, from its Vices, Laziness, Lust, and Pride, as a Physician truly worded, tho' courly, to a Patient that wanted help to keep up the Body to its Softness, and not a Cure of the Disorder.

True Hypochondriacism, and Vapoury,

IS when the Body is disordered, and Spirit down, and Apprehension seiz'd, as offends Studious Persons, in a light Degree ; the common Method is Use of Volatile Spirit, as *Sal Volatile*, and clean the Body by Purgers good for the Stomach, and to allay *flatus*, such as *Sal Epsam*, or *Crem of Tartar*.

This attends Persons that need no Advice for Care, only they do not often consider what Effect the little Things have to keep the Poise, that the Mind and Spirit may be free, and without Load ; and how much an even Nourishment contributes, and active employing the Body in some cheartful Business, and Proportion of Nourishment, and never suffering the
Thought

Thought to fix, but when there is a genious Present, and clear Thought, nor any longer.

To know the Point the Body yields in, and suffers by what it wants, is it Cleansing, any Quality to be reduced, putting in Food more than to serve it ; and what hinders the Vigour, and how to relieve it, is all ; more lies here in the knowing the Disorder, than want of a Medicine to Cure, to keep an even, right Frame ; in which cleansing, and taking off the Dis-easy Quality, by Purging Waters, tho' in a small Dose, and means to harden the Body, by cold Exercise, and cold Bath are useful.

II.

The next Degree of this is a Vapoury, Vapid, Tremulous State of Body, with a wilting Aspect, the Cure of which is of the preceding Reason partly, and partly of the same with that consider'd, in the Case of Wilting.

III.

A Third, not in Progress, but Kind, is a *flatus* at Stomach, with great Disturbance, Belchings, and almost Convulsions ; here a Cure in a great Degree may be had, by hardning the Body, and keeping the Mind easie ; and for Medicine, it is capable of it at Home, from an easy Course ; sometimes even our Purging Waters, or Salts, will do it in great Measure ; and the *Spaw*-Waters are experienced to have done as great Cures, one within my Sphere ; but what other Waters are necessary, may be seen in the several Waters. And this I have done, sometimes without the Waters ; but the Warers, together with Remission of over Care, suffice in.

IV.

Another State, which happens to some at the first Change, at 28, which is a Disorder more Nervous, with Epileptick, or Paralitick Symptoms. wherein the comforting, as well as rectifying, is wanting, from the general Consideration ; and the Waters properly apply'd, perform'd alone, as they do also in another Species, which comes like Rhumatism Pains in the Arms, Numbness of Fingers, and Swelling of the Hands, which

which I once knew even *Islington-Water Cure*. This Case being often without any inward sinking, or Failure, and so is not of that Danger with the following, and liable to be cured by Waters alone, and especially the cold Chalibeats are the *Vertigo*, or swimming of the Head in Women towards Fifty.

V.

Is a real Seizure, but in *Vestibulo*, or Entrance; for a real Seizure is when the flat Juice taints, and enters the Habit of the Body, or Juice of the *Stamina*, and chiefly of the Glands. This is a beginning of Danger, and is always known, in that the Patient is seiz'd at first with an Agueishness, in which a Cold, or Catarrh, follows, and Stoppages at Breast, or Throat, or it lies in the Back. When this Seizure is light, 'tis Indisposition, rather than a Disease, with a Loss of Spirit and Ability. Now in this, and the following Courses there's some Agreement, as that the Waters are necessary.

But the following especially require further Skill, and further Helps, which are absolutely necessary to direct, and further the Cure, the Defect of which will spoil it, which turn on somewhat peculiar in the Nature of each.

VI.

The actual Possession of the Disease in the Glands, and *Stamina*, require a perfect Skill, concurrent Medicines to help on the Cure, and at last to compleat it. For the Patients die often, after coming from the Waters, thro' want of a perfect Cure, in Cases which morally allow of a Cure, and often, if not generally, fail of doing alone, without a very skillful Physician to direct the Cure, and complete it. I shall only name the Cases. The Degree is either,

I.

- A Chilliness in Form of Paxoxism, or not.
- 2ly, A Stoppage, with pain at the Thorax.
- 3ly, Beginning at the Thorax, and spreading into the Bowels, attended with raising Blood.
- 4thly, Apoplectick.

II.

The highest Degree is Icteric from a total Spoiling Chylification, a case of extream Danger, and a nice Judgment is requir'd. Here great Mistakes are apt to be committed, in knowing the Disease, or point of Cure, and Defect, for without all three be known, the Cure fails too, as also in not knowing the Disease to be apply'd to in the Cure.

I have observ'd these Sorts, when a stop from the Constitution, or stop of the Glands, or want of Vigour, hinders the Cure of a common Jaundice; it allows not of Cure, or grows confirm'd to a Black. *Secondly*, With an Ague Periodical every Day, every other Day, or once a Week. *Thirdly*, Livid-Legs, and Swellings, coming at first together. *Last/y*, A Decay at Liver, with a flushing Yellowness, either towards an Abscess, and breach, and voiding of Blood, and Matter, once a Week, or without, as is usually that on Drinking, issuing in Swelling. Here the Art of curing, and compleating, is not very often seen throughly, nor wherein the Disease lies, and its Cure. The Patient often is in fault, in not applying timely, and to Skillful Means. The Cure is not often undertaken till he swells, and then he is often deceiv'd, by plying the Symptom, by carrying off, or unloading. And in this also there are usually wrong means us'd, as gross Purgers, as the *Pulvis Elaterii comp.* such as is *Etmuller*. a very unsafe Purger, and when it is given with a present Safeness, it is not seen that the Parts growing decay'd, are Intenerated, and Lacrated by these Purges, and the Cure not touch'd. I have seen five several Ways on different Reasons carry it off, as the Patient's Condition requir'd. For when it is early, when the Constitution is sound, or Spirit low, or the Swelling comes first in the Belly, it admits of a peculiar Cure, and the greater Part of these Five were without Purgings Medicines. I have seen fatal Effects of these Mistakes, from only an Empirical Knowledge, without the Patient's discerning the Imposition, and that his Cure was not touch'd, when in all Probability he was capable of Cure.

There are other Cases, wherein as much Skill to discern, and Cure, and the whole Constitution to be in fault, and Help is requir'd, and wherein the bare Use of the Waters is not sufficient, and which Diseases by that Skill are often remov'd without the Waters, which is worth nothing; such as is an Asthma upon a Decay, or swell'd Legs. Sudden Mixtures, like
 Scorbu-

Scorbutick, with Swellings, Hypochondriacal Diabetes, or Paralyses of one side Hypochondriacal.

The same Mistakes Dropfical Swellings are liable to, if taken in Gross, and the Matter, Fault, and stop of Cure be not seen. These are so various, as to deserve a just Treatise, and are not curable without a distinct Knowledge, tho' the Pretences from Purging Remedies may be supported to the Ignorant or Unheedy to the Deceit of the Patient, by those that will not value the Life of a Man, so as to let it stand in the Way.

III.

Wilting, or Withering, requires a different Intention to be added, from the knowing what an Unthriftness is owing to, and the Decay, the Stoppages, and how far it is capable of Cure. For over and above the other Reasons regarding the Juices, and raising a Constitution, the Ferments and Juices of the Vessels, here want ways to take off that Unthriftness, put the Juices in State, make them pass, renovating and confirming Medicines, and if the *Stamina* be in fault, Antiparalytick, and Invigorating.

I have said, as to these Diseases, as much as I propos'd for Distinction of the Cases and Reasons, to confirm what Care is to be apply'd to these Hints I can assure you I have seen my Judgment of Cures without them, confirm'd by the Event, and that these Notices have help'd me to discover Cures, and to compleat them, I might add Scurvies, which the Help I us'd by Purging, and other Chalibeats, are not always capable of entire Cure, without Addition of other Means; and I have cur'd by Specifick Antiscorbuticks, (but not the common, of which I never saw any tolerable Effect.) tho' the Legs were swell'd, and the Body disabled from Walking. In Scurvies I could give many, and in Dropfies I could give abundant Instances of the Advantage of Skill, and other Helps; and as these Notions help me to compleat Cures, and that in a Clergyman of a Scorbutick one; and in several of those from Drinking; and in Decays at Fifty, upon sinking of the Constitution, all which requir'd several Considerations. In Timpanies it discover'd to me a Method that never fail'd me, and I think compleat; I cured a Young Man a few Miles from me, who, who without Purging, discharg'd a Load of Water, of about Two Pails full, by Estimation, in Three Days.

In a Woman in our Town, I brought down the Swelling in a Week; and others I could name in this Disease, that is so difficult, as within my View I never could observe to be cured. In Decays I have given Proof of regarding the Disease and true Knowledge in all the Cases, where I could prevail so far, as to get the Patient to follow Advice.

It help'd me to see Rubs, when Stoppages differ'd, and were too confirm'd; and the Way to cure. the Validity of this was plain, when I cured either altogether without the Waters, or with but little Use of them, which shews the Use of such a Help.

I cur'd a Clergyman of an extraordinary Character, particularly for his Goodness and Generosity, of a Stoppage at Breast, raising Specks of Matter, and some Particles of Blood, changing into a Diseasiness of the Head, by such previous Course, and Use of a weak Water near me, a little help'd.

Another Gentleman, a Clergyman also, by my Advice, and with Addition of another Physician, was recover'd of a Stoppage at Breast, and universal Disorder, and Pains at his Bowels, with a Periodical bringing up great Quantities of Blood; who, though sent by me to a Water, yet on the Return of his Illness after, it was recover'd again without.

I could Instance in a Yellowness, and Swelling, in another, taken off without the Waters, or Purging, but then the Stoppages made that not compleat without the Waters.

I cur'd a Woman of a Periodical Ague, Colick, and Icteric Yellowness, coming every Day at Two a-Clock, and some times every other Day.

I cured another Lady, Wife to a Clergyman, very famous for his exact Life, of a Periodical Feaver of this Nature, without the Use of any Mineral-Water.

And a Gentleman remarkable on the same Score, as well as the Cure was for his Age, of a Wilting, or Withering, which had made his Face, and Strength, carry the Signs of Death, and with the Load of Seventy-seven Years, who recover'd his Strength, and got rid of his Disease, a Catarrh excepted, before he us'd any Water to that Degree, as now to have an Athletick Habit, and Constitution.

It hath always succeeded so, as I never had a Patient die of a Decay, that follow'd my Direction from these Notions.

I could give as happy Instances of Swellings, and Yellowness, from an Intermitting Fever, which requires a Nicety to cure, when the Swelling is down, and before, in a peculiar Medicine.

I could instance the same in proper Phtheses, with a *Hæmoptoe* one, and another without; but with all the Signs of Matter; both which are rare Cases.

Scurvies inveterate, when with livid Spots, Faintness, bringing on Bleedings; so as I had a Patient that had like to have bled to Death at his Gums, and in swell'd and livid Legs.

All these (not to name Cases cur'd, or finish'd by the Waters) are Instances of the Use of an assistant Knowledge, to be added to the Waters Differences, and Truth of my Account.

I shall only add the true Notion of an Apoplexy, which is a particular Decay, or Failure, *ad Radicem*; the Account whereof will shew the Differences, and different Intentions of Cure, and what is to be expected, or more done.

An Apoplexy.

I Intend the Particular Decay, and not the *Umbra* of it, when on a Hypochondriacal Affection. The Essential Characteristick (for it is but in two Cases sudden, without Procatarxis evident, as I shall note by-and-by,) is a preceeding Vertigo, an affecting the Sight, and a Hurry, and Beating at Temples, or a fainting. I take this to be a Failure of Course of Nature, thro' Defect at the Spring and Fountain.

That it is not to be conceiv'd as a gross Stoppage of the Blood-Vessels, *Willis* hath demonstrated in the Formation, and Number of Vessels, Nature hath taken Care by; and the Case of an old Man, where no Rupture was.

The Disease is a stop of the Lymph, when burthening the *Stamina*, or oppressing them, so as not to be capable to exert. These *Stamina* are those of the Optick Nerves, and the Disease is first felt near the Thalami, by the Sight and Hurry, at the Exit of the Juices, which makes the Hurry at Temples, the Rupture is either at the Admission, as mostly

at the Extremities of the Arteries, or at the *Plexus*, it hath been found where the Lymph is returning. The Error in the Juice nutritious, seen in *Wepfer's* Dissections.

It would be agreeable to give a Notion of the Brain, the Ogreement of that, and a Rout, and why moving, why erect, how differ in Men from other Animals, particularly in the Termination of the Optick Nerves, and the Membran to fasten the Fornix to the Roof, or *Corpus callosum*, of a Muscular Use, as the Fornix is for a Ligament, the Ascent of the Nourishment, and true Use of the *Glandula Pituitaria*, to carry the Nourishment and Lympheducts, I shall not enter upon, but wave as Notional, and liable to Controversy. It is plain the Vice is in the *Succus nutritivus*, and that any stop of those Parts from exerting, or disabling them, must make this fit suddain, and it must be before, as Sight is our Fountain of Life, our Understanding being nothing else, and perhaps the Luminous Part either within or without, or both, is where all Being have their Rise; so that to fail, *ad radicem* must be just where an Apoplexy is.

This Load must be on the very *Stamina*, the Matter having pass'd the *Cartical* Glands, or violently pressing out of them. The Disease is Twofold, as a Fit, or a Disease.

In the Fit we consult, what concurs to produce it; Pressure, what, and whence, as a Symptom, be it Fulness of a Phlegmatic Nature, as I have known, or a Pressure of Blood on a weakned Part, at a Climacteric, or too great a Congestion from Food to be digested, or a fainting through want of Spirit.

Thus after Eating, or for Revulsion, or reviving the Brain, and general Derivation, Vomits are of most evident Use, and to the Purpose. Indeed Bleeding is of general Use, and is not to be omitted; but more is laid on that than the Reason, or Experience shews necessary; for I knew a Gentleman die the same Day in a Fit, that he had bled plentifully in, for Caution to prevent one.

Another Means which I must remark, and condemn, is the Use of Sternutatory, which provoke the Brain to press the Humour forwards, which is contrary to its Discharge, and loading the Parts in Danger, and where no Discharge can be made, none being that way to the Nostrils. Blisters at the Ears are of great Moment, and Cupping, tho' of less Effect, is of some Use, as a hasty Blister.

For particular Cases, where it is from Blood, B'eeding; from Phlegm, Glisters, Purging; for Fainting, as it often is in aged Spirits, with Things comforting; and for Wind, these usually feeling the Change at their Stomacks, near the Fit, as they do at their Breath before it. A Fit may be sudden at a Climacterick in a fresh colour'd Man, or at Twenty-seven, I have known it on great Fulness, and the Brain weakned by great Evacuation. These are rare, and I believe there was a previous Disorder there.

For two Things must concur as Causes, what weaken the Head, and what presses.

Now abating those two Cases, to consider the Disease itself; an Apoplexy is produced from,

1. A stop at Temples, felt of which I cur'd a Neighbour, only by *Deopilantia*, with some Specific Comforters, and Strengtheners.

2. A perfect Decay of the Forepart of the Head, smelt by an Ulcerous Savour by the Woman her self; for I speak what I have experienced.

3. An Epilepsy translated upon a Hypochondriacal Weakness, and Giddiness, of which we have an Instance in *Bantholine's* Centuries; and one I knew.

4. A Vapid Apoplexy in the Aged, shewn before by want of Breath, and is a Fainting.

Lastly, A Disposition by spoiling the Juices seen in *Wepten's* Dissection, in Blisters, Stoniness, &c. contracted by Years, Care, Anger, Drinking, and the like.

Thus we may see how to prevent, how timely the several Cases, where the Waters come, is to a Hypochondriacal Case, or take off the Error of the Juice, where only clearing it off, where raising a whole Constitution is wanting, and a whole Course is necessary, and the State of it.

There are some other Differences, as in that of *Malphigi-ous*, from a turn of Diseases to the Brain; but then the Brain's Juice was found spoil'd before. And another Case is a fainting upon a Weakness of the Brain, thro' some load of a Beery Quality near the *Stamina*, or in Coëstical Glands; here the Deopilating Course must be precede, and the Waters finish'd.

But others require from an obstructed Frame of Vessels, seen by the Redness of Eyes, and Largeness of capillary Vain, or Disposition to bleed. These may demand an Astringent Course, a Regard to Stoppages, and Failure of Nature.

For Prevention of the Disease, or real Cure, I consider the Disease, Nature, and Rise, Brain, how deficient, and wherein the want of Spring is, or Decay.

When it is without *Præcatarrhis*, you have to derive by Bloody Blisters, Vomits, and these as the Matter presses.

If it be with a preceding Beating, and Hurry at Temples, it is a Diseasey Stoppage, to be regarded, and may be with Signs of Soundness, of which I gave an Instance before, cured by Incisers, and Cleansers only, or it may be with a more universal spoiling of the Juices, and ruin of the *Stamina*, to be applied to by Waters, after the cleansing Medicines.

If in the Aged, by fainting, the Course, for to mend a Decay, is necessary.

If from Phlegm, the Waters, and strengthening Astringent Tinctures, after previous clearing.

When from a fainting in People that Drink after the Preparation before mention'd. the Waters. Here the Cretical Glands, and Juices, being spoil'd, the Juice pressing in, burthens the *Stamina*, which touch'd, produces a Fit, and taking off the Quality, cures it; together with rule of Drinking, and Diet.

If Juices foul, the Waters.

If it proceed upon a Hypochondriacal Weakness, the Cure is mentioned before by the Waters, and Course for a Decay.

Thus I have in effect given a Process of Cure to distinguish and direct by, which I have constantly observ'd, and cured by. succesfully, of which I have many Proofs living.

But the whole Course, to raise, mend, and to finish, or bind, requires a Physician at hand, my Task to shew the different Reasons, clear from Mistakes is all I intend.

But to give my Judgment of two Helps, Coffee I must wholly condemn, upon Experience, as weakning the Brain, and impoverishing it; and so good in no Paralytic Case; and have known the other, which is Issues, as extraordinarily happy, when the Constitution hath been low, or Nature wanted a Discharge. For the last Issue in *Hemiplegia*, I meddle not with.

I could confirm the Use and Truth of this Notion also, by Reproof in the Cures, on several of these Respects, having clear'd several of it to a perfect Cure, where it depended on several of these Conditions of the Stoppages, in those who were continually before dispos'd to it.

And these, which the Waters had no Faculty to remove ; And this I observe to shew, that the whole Cure to all Intentions, is not to be expected from them, and how necessary the Knowledge of the Case is, in that the Cure is not to be done without, in any of these Cases. Seeing what Condition the Stoppage is of and take that off, is one Thing, and taking off the Decaying Quality of the Juices, which is the Office of the Waters, is another ; and a special Skill is requir'd to take the Nature of the Weakness, the State of the Decay, or Stoppages, and the Reason of the Aptitude to Rupture, what it consists in, and depends on, such as a perplex'd Frame of the Blood Vessels, rendring the Course of the Blood difficult, or a Failure in whole Nature, or spoiling of the Juice of the Part, or other Causes before nam'd ; and when it is fit to bind, or when the Point lies on the Quality to be taken off by the Waters.

But so much may serve for Caution and Direction to true Application in the Diseases.

I should now proceed to shew, of what Use they may be of to long Life, and how to make them so, by shewing of what Use the absolute clearing all Faintness, which lays a Seed of Mischief, the preventing Climacteric Disorders, and removing them, are to keep up the Vigour of a Man's Spirit, and Rectitude of Constitution, and the Use the Air might be to live in, at least sometimes, from many Instances of the Benefit of even such Airs, as are enrich'd by strong Chalibeat Streams, found in Cases, not to be reliev'd by change of Air, or other Airs.

So that in Sum, when we find the Constitution dropping, produce a stop of Cure, or Disease, or discern the Quality, or any preternatural Gland, or Tumor, or any of the special Cases, or any Effect of Trouble, we may see what Remedy we are to apply to, and have an Idea of what Water is proper, and some notice when a further Course is necessary, and what that must answer.

I might add somewhat of the Impediment of Success, besides owing to the too short Continuance of Drinking, which I find a very common Reason why Cures are not complete. The common Time of Drinking tho' the receiving Benefit be usually within that Term, being found by Experience to be insufficient to rid the Diseases ; and that it is owing to this, is evident from the happy Cures that are receiv'd from a long Course, of perhaps half a Year, tho' in the Winter-time, as is taken notice of by Heers at the Spaw ; and I have known

here

here at *Tunbridge*, a Hint of which I have given before.

There are many useful Deductions to be made from what hath been delivered, applicable to particular Cases, such chiefly as regard the Mistakes, in chusing a Water proper and effectual, I have noted, and the peculiar Virtue of the *German Sprw*, when here, in Diseases of the Stomach.

The Use of the Waters, from the Reason of their Effect on the Constitutions, gives Use a Remedy apt to be overlook'd in many odd Diseases, and particularly Failures; as the *Bath Water* often raises a sinking Constitution, which would end in a Consumption, and take off De-Fluxions of Rhumes on many Parts, be it Limbs, Head, Eyes, or the like, when Medicines to the Symptom, hits not the Matter.

Some Diseases are not seen, but by these Descriptions; as Pains in the Arms, with swelling of Hands, and numbness of Fingers, taken for Rhumatisms, and Scurvies, curable only by, perfectly by the Steel'd Waters best.

Some Uses of the Purging Waters, or Salt, in Hysteric Vapours, and the Way of giving it in little Quantities, is a Note of a great Use; and I have known extraordinary helpful in Vapours, wherein the taking off the Quality by this Method, is not ordinarily taken notice of. Likewise the Essential Quality, and the Obstructions are not usually distinguish'd; some Obstructions being only in the Quality, or Place, which the Bath Waters peculiarly, at a Dead list, remove; some are confirm'd to a Degree of Hardness, which only the Chalibeats perform, if any will.

All these apply'd to particular Uses, are worth Observation to enlighten Successful Practice. These, and other Observations, I shall only note to help the Remarks which I made by the way, to instruct in their due Application, and discover their proper Places, and when to be apply'd to.

The Bathing Pool near Leicester.

THE Publisher of this Water hath given Account of a good Reputation it hath for relieving Lamenefs, Rhumatic Pains, and for Cures of Cutaneous Diseases, and of Wounds, and perhaps Ulcers, wherein it may be of good Use.

He acknowledges to me, that it comes from no Mineral, and gives not any Colour with Galls. From the Account of this Gentleman, Mr. *Judd*, it appears to be a Water in a Marle, and to have the Nature of that Marle, which is blue; and with Rain, flakes and mells into a Butter, like Lime. The Water Lathers with Soap, as with Rain Water; it is in a Rock of Marble, and Course Freestone.

It is cold, and no doubt is a good Cold-Bath, with the Advantage of a cleansing, healing Quality from the Marle; and perhaps the Springs which are slow, may bring some terrene Aporrhoe from the Quarry, which may make it better than usual Cold-Baths, which ought to be inquired, since it is open, and may not probably have so great Degree of Cold in it.

The Virtues of a Cold-Bath are great in relieving Pains, and giving Nature Vigour; by hardning the Flesh, which hath mighty Effects in Pains, and pressing out the Humour, by the universal Horrour, and giving a strange Rise to the Spirit, which raises Nature, takes off the Softness, and Diseasiness of the Flesh, as I have been inform'd, in tender Feet, and sore Eyes, with great Effect; which I use as an Instance, and is of Use in all Vapours provided no Decay be, nor Stoppages. To which Property, the healing and cleansing Nature join'd, renders these more effectual in the Cases before nam'd.

Mr. *Judd* says, there is a known Tradition in *Leicester*, that after the Battle of *Bosworth-Field*, the Soldiers resorted to this Pool for the Cure of their Wounds. He further adds, this
Water

Water hath been successfully used in Cures of old Ulcers, Running Sores, Out-Breaks, Scald Heads, Scrophulous Diseases, old Rhumatick Pains, Soreness of Eyes, Lameness, and Rickets in Children.

To take this occasion to take notice of the cold Bathing, now in Use ; I must observe, that the Effects of a suddain Repulse, with a Consternation to Nature, and pressing to the Ureters, and the Power of hardning the Flesh, by this means, to take off Pain, are very extraordinary, beyond Expectation ; and the Effect this Effect hath to rouse the Spirit of a Man, and give the *vis animalis*, a vigorous Intention at the Brain, the giving a free Action to the Spirits, which are means of continuing our Life, as they are vigorous, how much the Freedom of the Spirit, and a new Turn to it doth to remove Diseases, seen in the Power of a Fright, are all to be noted to understand this Effect rightly. And then, as it is no wonder it should produce such Effects in curing Pains, and Lameness, and assisting a decaying Lapse, and preventing a falling into one ; so also it informs us well, that we are not to use cold Bathing in unsound Constitutions, where are Obstructions of the Glands, the Parts almost rotten ; as Icteric Decays, Dropsies, and Sympanies, which are an Affection of a Part that hath no Relation, nor Passage, by Urine. And these Observations are not only from Reason, but Experience, and Matter of Fact.

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<i>Nature of the Principles before each Water.</i>	
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Dulwich Stone more near Sulphurous Marcasites, than the rest.	ibid.
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	And

And lastly, sinking of it in any Disease.

Under these Heads are Hypochondriacism, Diseases of People in Years, and at all Decays, Dropsy, Jaundice, and stop of Cure in a common Jaundice, or when past common Cure.

The Extent of this Effect on Cancers, and Fistula's, Feavers, &c.

Particular Decays.

These depend at a Strait, wholly upon these.

Odd Diseases not seen, and not to be cured without, as a Singultus, Hæmoptoe, and Soporosi.

These Decays to be distinguish'd from Feaverish.

The State the Part is reduced to, and Use of the Form of Remedy, receives an Idea from the Use of Drinking Water.

Choice of Water.

In the Chalibeat, the Signs of an effectual one, are Colour deep with Gall, and clear, and turning by a Red, Purplish red first, to have a Winy keen Taste, and vigorous Sharpness, and retain the Power of Tinging with Gall, and not dropping it suddainly, and to have the Signs of Strength, such as those Cemented Rocks, and Quantity of Iron Ground.

But a Water may, if of the light sort, be good, tho' it be apt to loose soon the Power of tinging; and one of the heavy sort, tho' it have not the Steel fully, or so high a Degree of Sharpness, as I have known in Springs that I have used; but these will be not so trusty a Remedy in a difficult case, as where the marks are compleat.

The Nature of the Air is certainly more Healthy, as these Chalibeat Waters, to Disease Bodies, many receiving Benefit before they Drink them; in several Cases, perhaps the Air may be most conducting also to long Life, from the confirming Faculty of the Steam, seems very rational.

Reasons why not Cure more effectually, either using not long enough, or singly relying on them, without knowing the stop, and what wanting to Cure.

The Purging Waters Virtues.

Where the Stomach is in fault, by Foulness, or Sourness, or want of Concoction, and disordered by Consent at the Head, or cooling, or allaying Vapours, is wanted, or breakings out. Of great Use in Worms.

They

- They have a share in Degree in Specifick Virtue, as far as the grosser, or first Ways, and Urinary Vessels, and also in Diseases of Women in Years, and in particularly in a Diabetes, a Decaying Jaundice beginning, and a Disposition to Jaundies and Cholick, which comes near the last nam'd.
- Their Effect in a Soporouse Disease.
- Dangerous in Catarrhs.
- Of good Use in Hysterick Vapours.
- And in this Case, and a Colick, with a yellowish swarthy flushing Colour in the Skin, they are useful as a specifick to cure, tho' given in too little a Quantity to work more than once, or not at all. 52
- Use of the Salt for Carriage, and Glysters, and to the same ends as a Specifick. 53
- But not in the peculiar Properties, in which they differ. 53
- Virtues of the particular purging Waters, severally specify'd. 54
- Lambeth-Water in a Scorbutick Scabbiness. 55
- To raise a fresh Colour, Brentwood Well, which agree with the Pale, and Phlegmatick or Melancholy, but not with the Sanguin, and is opposite in Nature to Lambeth. Cl. 5. 55
- Dulwich Water a little more Sulphurous and Churlish, and makes the Blood flow. 56
- Epsom-Waters did most of the Cures nam'd of the Colick, and comatous Affection. 51, 53
- Kensington Water foul with Selenitical Particles. 25
- Richmond in Women of 50 most excellent, who often bear not a sharp Water, at least in some Constitutions. 56

Chalibeat.

- I**N Vapours got farther into the Body, and Stoppages, and Decays, Jaundies, Diabetes, Fluxes, scalding Urine, and all Hypochondriacal Cases, and where a Constitution fails, these have their Place; and in Dropsies, and Scurvies. 56
- The lighter, as Tunbridge, for the nice ways at Head, or Liver, and Omentum, and in all confirm'd Stoppages of any Glands. 57
- The Juicy without much Steel for to Bleedings, and si strengthen where Steel is not needed, or may do harm; as in Dropsies in fresh-colour'd People. 59
- The mixt kind of Juice and Steel, good in common Uses, and in some Dropsies. 61

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<i>These differ from the Bath-Water in Effect and Place, opening hardening, and confirming, but agree in many Cures of, Jaundies, and Infirmities of aged People.</i>	
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<i>Specifick, and of extraordinary Force in Stoppages, not barely in effect by Weakness, or some ill Quality, possessing a Juice, but real and sensible, and confirm'd to a Hardness, are the Chalibeats, and especially the light sort, as Tunbridge.</i>	56
<i>Chalibeats in general, in Diabetes, and in common Hypochondriacal Singultus, Scurvies, Soporos Diseases, and one sort of Quinzy.</i>	62
<i>To fasten Teeth, the Astringent best.</i>	59
<i>In Diseases of the Head Tunbridge.</i>	57
<i>Hamstead, tho' not mighty strong, did a Cure in a Dropsy Hypochondriacal.</i>	61
<i>Islington cured a Gentlewoman of a Rheumatick Pain in Arms, and swell'd Hands, with a numbness of Fingers, being a particular Hypochondriacal Cuse, or Decay, and as well as Tunbridge.</i>	79
<i>The German-Spaw with us, will not cure an Icteric Decay, or Abscess of the Liver, or Stoppages of it.</i>	63
<i>But in a Singultus will do, and in flatul at Stomach, tho' almost Convulsive.</i>	79
<i>Spaw-Waters extraordinary Efficacy, is in Diseases at Stomach, and Pains of the Sttmach, when all other Waters fail.</i>	74
<i>Spaw-Water will sparkle when it hath lost all its Virtue almost, tho' the Virtue of it differs in the Reason of the cases admit; for in some it is worth nothing, even tho' never so quick brought, by losing the Aporrhoe, as in cases of Liver, and yet effect in others, by the means of the Steel, and in some cases at Stomach will do, tho' the Steel be lost also.</i>	63

The Bath-Waters

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H AVE the same Spirit and Faculty.	65
Discuss more, and in that way remove Obstructions, and so are peculiar in some Stoppages, as at the Breast, and in thin Constitutions.	65, 66
They warm and restore the Heat, and so are good, and beyond any, in a decay'd Stomach by Drinking, or Age, and in a wilted Constitution.	67
But they do not open harden'd Glands, as the Tunbridge, nor do they harden nor finish a Cure.	67, 68
Else in Hypochondriacal Cases they are often better than Tunbridge, to remove a Stoppage in the first Sense, and raise, and in Jaundies, and Women of Years, they are equally serviceable.	66
In Colicks also they are excellent, and in Catarrhs, and Asthma's in the Aged, a Rhume or Defluxion in any one Part, and in Gout and Scurvy, 66, 67, &c. And in Atrophys.	ibid.
Loose their Virtues by Carriage, and indeed sooner than any Water, by reason of the Heat, are totally effected at a Distance.	67
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Queen-Camel, or Sulphur solute, probably mix'd with some Principles of Copper.	ibid.
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The Bristol,

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Scarburrough-Water cures Tettars, and is an excellent Medicine in the Scurvy. 63

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OBSERVATIONS

ON THE

Cicindela, or Glow-worm,

AND THE

NATURE of LIGHT.

THERE is this Advantage in Natural History, that he that is curious to know Nature truly, must read it here. Every part of the System ought to be consulted for the clear Account, and with respect to Life, and the Author of it, and the uses of Parts, the Animals are most informing, the minute Insects are not wanting in this Instruction. For the Locality of the Flood we read it in the Variety of Butterflies, there being some peculiar to every Region, even of Ten Miles Distance, or District.

For the Nature of Life in the several Changes of some, and some Notices from the Ephemeron, whose first Rise is in Water.

For the Uses of Respiration in others.

For the Changes possibly consisting with Life, in many.

For the Providence of a Maker, in the time of Wasps coming forth for their Food, otherwise unaccountable why not before.

A Present being alwise in the Instinct of many, as Bees, directing to work without Reasoning.

For the Nature of Sight in the Eyes of Beetles, Flyes, and the Mermaid.

For the Discussing spontaneous and fortuitous Production in that all are *ex semine*.

The Sagacity, Variety, Disposure, is worth observing, many call their Mates, by Noise, some find them by Smell, as some Night Butterflies from a great Distance; as Mr. Ray observ'd in some curious ones, and scarce, and of calling the Mate by Sound; the Death-watch Beetle, of which I gave Account before.

But none are more extraordinarily informing, than the *Cicindela* is for the Nature of Light. The Design of my publishing some Observations of this Insect, is principally to confirm Mr. Ray's Account that the flying one is the proper Male of the creeping one; which I perform, as Discharge of a Promise made to him, for this he had cited, *Fabius Columna min. cognit. stirp. parte alterâ de Eruca rutacea*, p. 89. communicated from *Carolus Vintimeglia*. In Confirmation of this, I have observ'd them several times, in several Years, coupling, both coming to some Females I had in an open Box, and to some I kept in a Grass plat before my Garden, and also in the Lanes and Fields, where I alight to observe, when I suspected them coupled by the Obscurity of their Light. In the Year 1692, I put one into my Box, and it coupled presently, tho' the Box was open; which Male drop'd on the Table near it; and the same Year I found them coupled in my Grass plat, and several Summers since in the Roads and Fields. And one time I found this flying Male, a little Luminous.

And therefore I think it clear, having had several flying ones, which never Coupled among themselves. The Mistake might easily be made of another Beetle, like this Male in Colour of Wing, and near it in the Cap, and whitish Rings at the Tayl, tho' not like it in the Colour of the Body; which in this Beetle is reddish, and without the large Eyes of the Male *Cicindela*, whose Eyes are almost all that is seen of the Head, and placed underneath. The Light of the Female, is for the Male to find them by. They are of the same Kind, and way of Feeding, with the *Millepedes*; it is observable that the Part the Light is in, is only the Three or Four *Plicæ*, or Joints of the Tale, which are whitish; and this in Heat of Summer chiefly; which upon any Offence, they can draw back, so as almost to loose their Shining; so that it is a Juice prefixt to that Part. Looking into the Body, I found many Vessels on each side to these Scaly *Plicæ* from the Ovary supplying this Juice, and that it was a Seminal Sap; and I judg'd there it met with some Urinous Salt, without which

which it would not shine; the shining seems to me in the Juice of these Scales, as in some Oistershells, and to be performed, by giving the *Æther* a Luminous Capacity. I find the *Noctilucas*, or *Phosphori*, made of the Salt, of the Scumm of Dung, and Urine. To find what this Light is produced by; I consider'd that Fire is made by Collision, between a Nitrous and Sulphurous hard Body, separating the Atmosphere, and giving a Body of these Two Parts, for the *Æther* to Cloath itself in; Mr. Ray observ'd the Spark to be a Shell like a Bomb, or Grenado, with a little Hole in it, out of which the Fire issued.

But that Light was also by Putrefaction in a fit Body, as corrupted Herrings; and that Wood of some Sorts, as Ash, and I think Alder, and Maple, when the Sappy Part was reduced to Touch-Wood.

While I was considering this, I had a Poast of Oaken Wood taken out of a House of Office Vault, which shone as far as the Sap went, which agreed with the Light of a Phosphorus. Hence I learnt, that this *Lumen* did not consist in a violent Motion imprest by Collision, but a Substance ready to expand itself in a fermented fit Body, and that it had a Being in a different Form, only by Matter to Cloath it, became fit for the Eye, but that this Subtile Light must be join'd with it, and that Light keep'd several Properties different from the Rays of that Vision; what those were I observed to be these.

1. That that differs from the Rays of Vision, which is the *Medium* and *Vehicle*.

2. In its Unity and Intireness, not passing like Matter, which hath *partem extra partem*, and requires Time to extend itself.

3. In the Impress, or Union of Singleness of the Object seen, which the Rays of Vision cannot account for, but is a Miracle, why we see but one Face, as in a Looking-Glass, this, and the Necessity of Reflection, seems Divine, like Thought itself.

4. Another Propriety is colours, which are neither by Refraction of Rays, nor by any peculiar Rays of several Forms, as some great Men explain it; in that they are produced only by Light falling on a Circular Body, as in a Rainbow, which the Rays of Vision transmit to us, but not produce. I observ'd, that in a Glass of Water held near a

Wall

Wall against the Sun, that the Colours rise as it was held, so as to make the Light fall in a Circular way of Surface, as the same doth the Prism. So that Colours are the primary Effect of Light itself, and in that Condition to be receiv'd in an Orb.

Lastly, Another Property of Light is, that on the Surface of a Medium of Water, it makes it appear higher than it is, as in the Sea is apparent. But the State of this invisible Light, and what Condition it hath to become fit for our Organ of Sight, I leave to be inquired by better Capacities.

F I N I S.

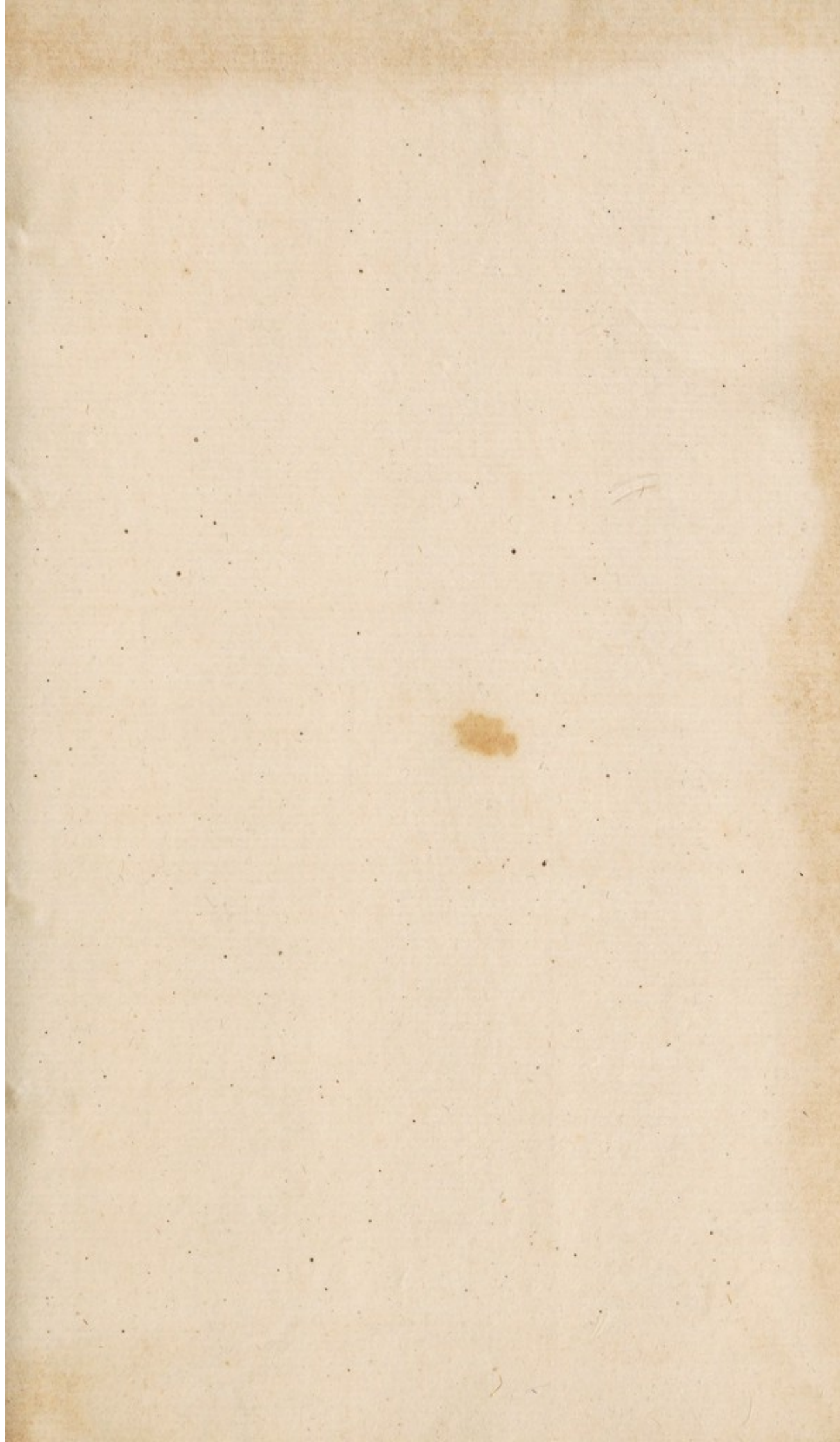
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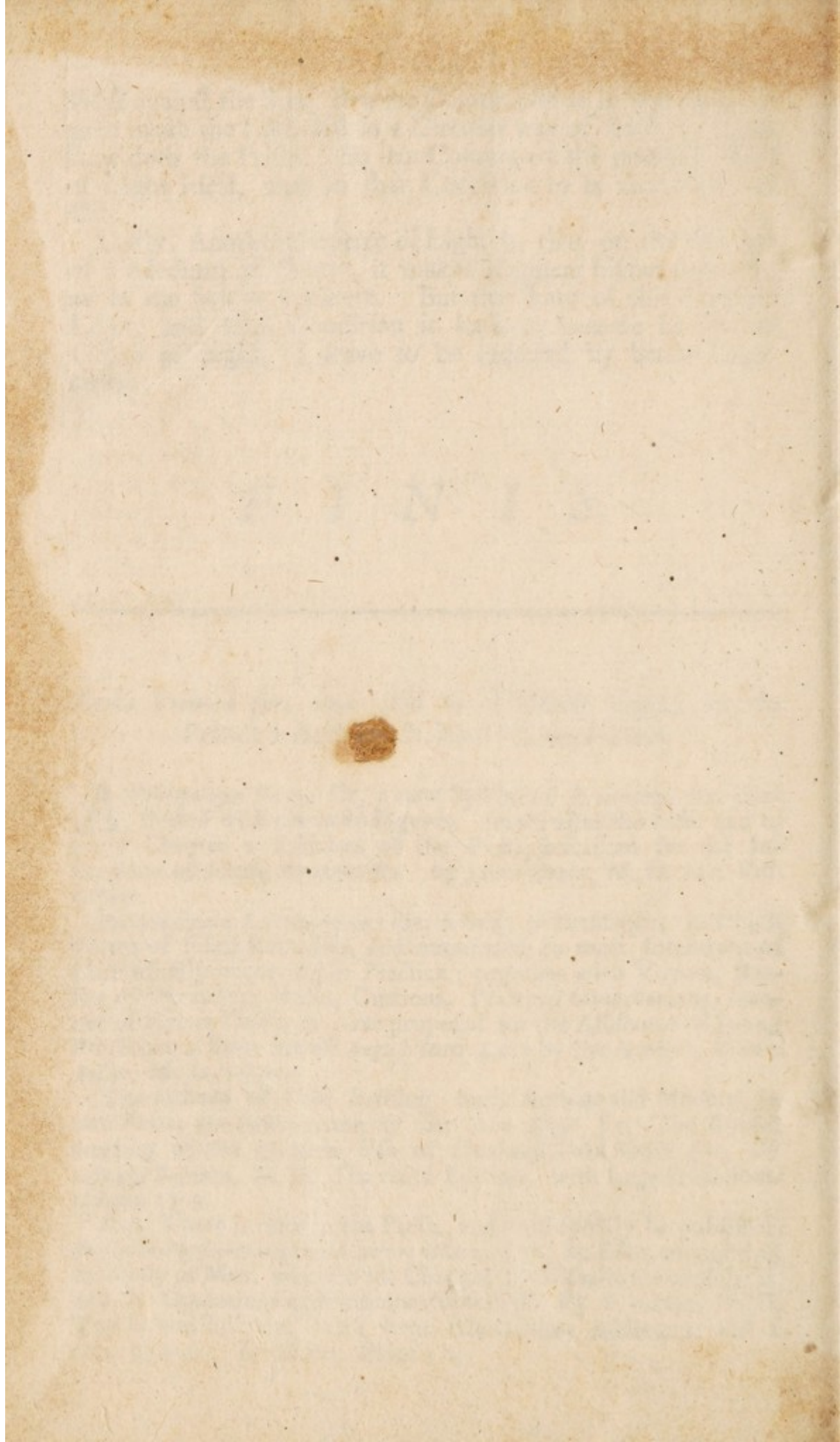
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