

A dissertation on the contents, virtues and uses, of cold and hot mineral springs; particularly, those of Scarborough: in a letter to Robert Robinson. Esq., recorder of that corporation / [Peter Shaw].

Contributors

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DISSERTATION
ON THE
CONTENTS,
VIRTUES and USES,
OF COLD AND HOT

Mineral Springs;

Particularly, those of

SCARBOROUGH:

IN A
LETTER
TO

ROBERT ROBINSON, Esq;

RECORDER of that CORPORATION.

We may affirm, with respect to the SPAW at Scarborough,
That it is,

————— *Rivo dare Nomen idoneus, ut nec
Frigidior Thracam, nec purior ambiat Hebrus,
Infirmo Capiti fuit utilis, utilis Alvo.
Hæ SCATEBRÆ dulces, et jam (si credis) amænæ
Incolumem tibi Me præstant Octobribus Horis.*

HOR. Ep. 16.

L O N D O N :

Printed for WARD and CHANDLER, at the Ship,
between the Temple Gates, in Fleetstreet.

And Sold at their Shop at SCARBOROUGH. 1735.

(Price One Shilling.)

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A
DISSERTATION

On the CONTENTS, VIRTUES, and
USES, of cold and hot Mineral
SPRINGS, &c. In a Letter to
ROBERT ROBINSON, Esq; Recorder
of *Scarborough*.

S I R,

I Thought I could no where more properly
address this Essay, than to you; on ac-
count of the Relation you bear to one of
our most celebrated English Springs. I have
not confined myself to any particular Well,
because, whatever is said of one Spring, is
applicable to all of the same Sort; though in
a more eminent Degree here than there, as
the Water may be stronger of the Mineral.

Mineral Waters are called *Acidulae*, from
that pungency of Taste in them, that argues
such a Prevalency in Fact, and the Suppositi-
on our Naturalists make, That there is a uni-
versal *Acid* contain'd in the Earth, as well as
Air, seen in the corroding of Metals, and
which in suitable Grounds, operates to the
making of Alum, and other Mineral Ores:
The Vitriols of Iron, Copper, &c. gives the
Salutary, and prevents, by the same providen-
tial Chemistry, the subterranean Streams from
partaking of any noxious Quality.

These *Acidulae*, are divided into the *Aluminosa*, or purging Chalybeat, as *Barnet*, *Epsom*, *Dulwich*, *Acton* and *Northall* Waters; and the *Aqua Ferruginea*, or Diuretick Steel Waters, as *Tunbridge*, *Scarborough*, *Hampstead*, and *Islington*, the one partaking more of Salt, the other of Iron, and of different Strengths at different Wells: Some of which, and those noted, the Learned tell us on their own Knowledge, have been found, on re-examination, to have lost their Medicinal Principles, and others we know, have had their * rise and fall of Reputation, by Art in some, and Fancy in more.

The

* *Pancras* Waters turn *Syr. Violar.* somewhat Green, are Diuretic and Purgative, like *Dulwich*.

New Tunbridge strike Purple with Green Tea, Galls, or Oak Leaves; Green with Syrup of Violets; a little Milky with *Ol. Tart.* and do not curdle Milk; which argues their alkaline Nature; they purge a little, and pass presently by Urine: And from Dr. *Moreton's* Experience, are said to cure Consumptions, especially with Milk.

Canterbury, has Dr. *Moulin's* Recommendation for Asthma's, Coughs, Catarrhs, Consumption, Gout, Jaundice, Scab; and in the Gravel, Colick, Green Sickness, and Ulcers of the Bladder, to be Specifick.

Astrop in *Northamptonshire*, are of Irony Smell and Taste, and are said by Dr. *Lower* and *Willis*, to be good in Scurvy, Chlorosis, Asthma's, &c.

Alford, *Colchester*, *Lambeth*, have marine Salts, nigh alike with *Dulwich*, or *Epsom*, and purge well with $\frac{3}{4}$ *Sal. Glauberi*, in Scurvies, *Flatus*, and Eruptions.

Upminster and *Brentwood*, have alkaline Salts, correct Acidities, and are used in Vomitings, Retchings, and too copious Hæmorrhoidal Fluxes.

St. George's Fields, Dr. *Baynard* says, cures Cancers. Of late Years the external and internal Use has effected the same sort of Cures.

Glocestershire and *Staffordshire*, for Leprosies and Palsies.

Holt,

The *Aluminosæ* are more Cathartick, the other more Diuretick, these better adapted to obstructed *Viscera*, hardness of the Liver, Spleen, and Bowels, suppressed *Menstruæ*, beginning Dropsies, Diseases of the Reins, weak Stomachs, cold Constitutions,

B 2

Hypo-

Holt, changes not with Galls, containing, its thought, only a Nitre and calcarious Earth, without other Salts; or, as some think, they wash through an Earth of Silver: They are found Diuretick, Alterative, and Sweetning, and from thence extolled in foul Juices, Impurities of the Skin, old Sores, Ulcers, Scab and Leprosy.

The *Spaa*, so celebrated, as to give all other Medicinal Springs their Name, is in the Bishoprick of *Liege*, a mountainous Country (says Dr. *Perry*, in his *Enquiry into the Nature of Spaw Water*) with several noted mineral Waters: That called the *Pouhon*, springing up into the Basin, in the middle of the Town, is commonly used for Transporting, as keeping best (tho' *Bru*, and other Waters, are sometimes impos'd): He mentions an odd Story or two from Dr. *Coquelet*, Physician at that Place. That he prescribed the *Pouhon* or *Spaa*, after 26 Years bottling, preferable to the Spring. In another part of his Book, that he cured a Patient, *who had not the least Discharge by Urine, for a Year and half; and is surpriz'd any Body should account it a great Prodigy.*

The *Pouhon* Water turns Purple with Galls, and subsides clear again with the putting *Ol. Vitriol.* or *Sp. Sal. Armon.* to it, *i. e.* with either *Acid* or *Alkali*; which proves, he thinks, a predominant *Vitriol*, or rather the Steel they contain, with this; is worked by Nature into a perfect *Vitriol. Mart.* that still has its Virtue more increas'd (as Deobstructive and Detersive) by an Incorporation also of Nitre and Salt.

They give a Giddiness and a Numbness at first Drinking, but, from this Analysis, he concludes them good in all Tumours and hardness of the *Hypocondria*; inordinate or obstructed *Menstruæ*; for dissolving viscous Humours, and rendring the Blood fluxil; correcting Acidities, and strengthening the nervous System; in the King's Evil, Sterility, Imbecility, inveterate Quartans, Concretions in the Reins, Ureters or Bladder; Scurvy, or weakness of the Stomach; a large Draught after 24 Hours fasting, surprizingly enlivening and invigorating: He believes also they

destroy

Hypochondriacism, Worms; strengthening decay'd Nerves, and giving turgescency and warmth to the Blood. Those better fitted to *Plethora's*, ill Habits, Cachexy, *Grumous* Bloods, Corpulency, Vertigoes, Apoplexies, and Distempers from Repletions.

Their essential Principles are four.

First, Their Elemental Parts.

Secondly, Their Saline.

Thirdly, An Æther, Air, or Mineral Spirit (as diversly called by different Men); and

Lastly, An Earth or Sediment, containing (with Earth and Salt) a Proportion of Vitriol of Iron.

These are all, at least all the Principles that are Medicinal and obvious to Sense in *Spasms*, and from whence all the Phænomena in Trials, are drawn. I shall expatiate a little on each Head, with Occasional Reflections on the Diseases, which such Principles and a Regimen, are adapted to.

First,

destroy Worms, because an Eel, or other Reptile, plung'd into it, gives a Spring and dies immediately; but prescribes a cautious Use of them to Persons that are Gouty, Asthmatical or Pthifical.

In all (Foreign or Native) this Rule. Those that are Chalybeat, three or four half Pint Glasses, is a sufficient Dose: In the *Aluminosæ* more; or instead, may be quickned with $\mathfrak{z}j$ of *Sal. Glauber.* or *Polychrest*: To both may be joined, their external Use in Bathing, especially in all foulness of the Skin and Eruptions; these, as well as the hot Baths, cleanse and open the Pores, contract and strengthen the nervous and muscular Fibres, dissolve hard Tumours, and relax Parts stiff with spasmodick Contractions: The Caution herein, is the Patient being of sound *Viscera*, and no inflammatory Distemper on him.

First, Of Water. Dr. *Hoffman* says, *The opening of any Visceral Obstructions, depends greatly on the goodness of mere Water.* A Mineral quickens and stimulates its Operation, and therefore has its Praise in distemper'd Bodies, but Fame, without it, has ascrib'd a Curative Virtue to many Springs; To all *pure Streams*, a preventive Power, though they give no sensible Mark of saline or mineral Principle. The Purity, which gives an Excellence to them, is tried with a few Drops of *Ol. Tart.* a less or greater milky Cast and Subsidence following, as it contains more or less foreign Matter and Impurity.

We see all Animals have their Strength and Health better establish'd than the Human Race, who have foolishly deviated into a voluptuous way of Living, particularly in their use of hot Spice, Wines, Brandy and strong compound Liquors; the certain Source of most of our Chronical, and, in a manner, Endemial Distempers. *Vinum, Venus, Exotica, sunt primi Parentes Morborum, viz.* Gout, Stone, Colick, Rheumatism, Consumption, Tremor, Palsy, Apoplexy, and Melancholy, evident, in that Nations, unexercised in the Folly, scarce know what they mean.

In some of these Distempers, the Blood is demonstrably changed, from a balsamick, to a corrosive Nature, preying on the nutritive Power, and exciting fixed, or periodick Returns of Pains: Or, if Eating, Ease and Indolence,

dolence have the Choice ; Repletion, Corpulency, inflamed Eyes, red Faces, Gouts, Vertigoes, and Apoplexies, sooner succeed ; varying thus, into bodily, or mental Disorders. No Nation producing more fatal Instances of the latter, than our selves : Apoplecticks, rather, through a Redundancy ; Melancholicks, by fixing what Dr. *Willis* calls an Heterogeneous *Copula* on the Spirits, which a long Course of debauching the Appetite with unfit Drinks, and season'd Diet will do ; and in the end, if it does not overturn, stands ready, with any violent Passion, to veil and cloud the Intellect, affording, among other Evils, occasion to immoral Men, to laugh at the Affinity of Soul and Body. The Drunkard and voluptuous (if they live long enough) habitually fix that weakness of Mind and Body that were by Intermissions in their temporary Surfeits.

Water therefore, as far as any thing can be Infallible, is the Foundation of Cure in all Distempers, where Age has not too far spent the Vital Principle : It is the properest *Menstruum* to dissolve the Food, to wash off tough viscous Slime, that frequently lines the glandular Coats of the Stomach, and lesser Intestines ; gets easier into the Lacteals for diluting the Blood, and restoring that Fluidity, and consequently Circulation, on which Health and long Life depend. *Celsus*, *Riverius*, *Boerhaave*, *Cheyne*, and others, have recommended

mended it as a universal Remedy; have cured obstructed *Menstrua*, Cold, Ophthalmia's, Fevers, Gout, Stone, &c. with it; and, where it has cured one, has prevented ten: All strong Liquors, and Sugars, contribute a great share in scorbutick Taints, and so the Breath; Blackening and rotting the Teeth; Nature kindly forwarning us by these, *viz.* Head-Achs, and sick Stomachs, the Steps we are taking to rivet on our Constitutions greater Evils. If then there were no other Virtue in *Spaws*, than a recess from the toil of Drinking, and Voluptuousness, they are excellent: May be made by every Man, of as political Benefit, as Fasting and Abstinence in Catholick Countries; because the *Regimen* of a *Spaw* requires that Regularity, which at the same time it gives a Man Pleasure, makes his Excuse.

To this will be very conducing, the Amusements in Journies, the Companies and Diversions in a Place, which soothes the Mind in room of that Devotion formerly practis'd at dedicated Wells: We all know how Opinion operates towards a Cure, and whenever the Mind can be propos'd to be easy and pleas'd, there, making a little Allowance, the Waters are best: For the very same Reason, and because we take them with the same Air and Food we have been accustomed to, we ought, generally speaking, to prefer, with PROVIDENCE,

DENCE, our own Native, to Foreign Fountains.

Secondly, The Salts contain'd in *Spaw* Waters, are gained, the greatest Part, by evaporating of the *Menstruum*; the Chrystals, in a few Days, precipitating in various Figures; our Chemists say Pyramidal, Prismatical, Hexagonal; as they are Sugar, Nitre, or Alum: Those from *Sal. Armoniac.* appear like Branches of Trees; *Regulus* of *Mars* like Stars; Chrystals of Vitriol resemble Icicles; common Salt Quadrilateral; or, what others call cubical Pyramids; and *Glauber's* Salt (made from the two last) exhibits both Figures. In all (they observe) you may as easily divest them of their Saltness as their Figure. Whence that Art gives some Insight into the Properties of these Waters; strengthened more, to common Opinion, by their Taste and a Tradition of Cures; because such Chemical Analysis alone, is liable to Contest, unintelligible Contest. Some have said that *Scarborough Spaw* contains a Vitriol and no Alum; others, an Alum and no Vitriol: And others again, that they have a Nitrous and Marine Salt, without either Alum or Vitriol. Dr. *Short*, in his Account of the Hyperborean Springs, says, their Salts are Vitriolick, and make good the Proof better from the harsh, rough Irony Taste in them, than his Furnace. Further, That of all the numberless Springs he examined, he found no other than

than this, or a nitrous Salt in them ; and thinks his Predecessors, (*Willis, Tunstall, and Simpson*) who had ascribed other Principles, were out in most of their Assertions and Experiments ; but did they not differ so much about the Contents of *Spaws*, yet their way of trial by Fire, subjects to great Alterations ; things separately Innocent, may be combined into a Poison, and a Poison, by purging through it, made Medicinal.

Dr. *Lister* took all the Medicinal Springs in *England*, to contain only a Lime-stone Salt, a common Salt, and a sulphurous Vapour, occasioned by the *Pyrites* they wash through, (Substances partaking of Iron) ; and that they are Lapidescant, on Animal, Mineral, or Vegetable Bodies. In Men *Dicuntur Calculum Renis generari*, and for that Reason advised them but little, unless in *Hyppo's*, Worms and *Diabetes*.

The Quantity of Salt our best Wells yield, are trifling, compared with the Loads sold as such : A Gallon of the *Epsom*, * gives no more than four or five Drams ; the *Scarborough Spaw* two Drams, (more or less, as the Season is dry or wet) ; and when genuine, makes a pleasant purging Whey ; 3ij of it dissolved in Water and Milk, working off three or four Stools without Gripes. By the same Rule it

* Prepared in *England* and *Germany*, from the Bittern (or bitter Liquor,) that remains after the making of common Salt.

is used to quicken the *Spaw*, and abate of those Draughts, that without it, might be necessary, tho' Nauseous. The Salt is bitter, transparent, solid, smooth, crackles on hot Iron, readily dissolves, and shews its alkaline Nature more, by making a strong Ebullition with Acids.

The *Third* Principle of *Æther*, Air, or Mineral Spirit, (as diversly call'd in *Spaws*,) is thought to be a Communication of Steam, from a Mineral *Gas* to them, the same which Workmen in Mines frequently meet with, call'd Damp, or Vapour; and though detain'd in Water, must be extreamly fine and volatile, by its flying off so soon, when separated from the Fountain; so that catching it in a Bladder, bringing it over a Retort, or supplying an Assembly Room with it, seem all *Chimerical*. It is sufficient for our Purpose, that such a Spirit obviously resides in them, beyond other Waters; seen, *First*, by the greater Quantity of Bubbles generated, in shaking a Vial of them; In mixing with Rhenish; or arising from under an Air Pump. *Secondly*, in their being seen, in some measure, to answer the Design of Yest in Bread, which, according to the Doctrine of Fermentation, is carried on in any Substances, from their Aptitude to admit an easy Entrance, or difficult Egress, of a *materia subtilis*, or *Ethereal Matter*, which is thought the principal and efficient Cause of Fermentation. *Thirdly*, they

they weigh, when fresh, considerably lighter than common Water; and sit easier on the Stomach. Though, by the Way, the specific Levity of some Waters above others, is no Argument of their being more wholesome, or fittest for common Use: No, there is a Degree of Heaviness better suited to Salubrity. For, as in Air, that of Mountains is more difficultly drawn in than Vallies, so Water, from the Condensation of thin Vapours, (Snows, Dews, or Mists,) are neither so wholesome, nor fit for Washing, Brewing, and Kitchen Uses, as River, Rain, or Springs; and if *Spaws* be specifically lighter than other Springs, they are better; because for that Reason, among others, they are Medicinal. *Lastly*, this Aerial, Mineral Spirit, is best evidenced from the brisk, pungent, and irony Taste they have, and to which, no doubt, their Medicinal Efficacy is owing.

This Spirit is incoercible, and flies off in a very little Time, warm'd, or exposed to the Air. *Pymont*, the briskest of the cold Springs, will lose its Vertue in Twenty-four Hours, so exposed, nor will the best adapted Cement preserve them for *many* Weeks; however, the Goodness of a Cement, the Spring they are taken from, and as it is a drowthy, or rainy Season, will make some Alteration in this Respect; and while this is dissipating in Air, the Waters are growing worse; 'till at length, the grosser, irony Particles, that *in*

fresh Spaw, and under one Form, was actuated by it, does now, as it were by Consent, subside, and the Whole becomes vapid, if not stinking.

It is to the Subsistence of this Mineral Spirit in Waters, that on mixing the Powder of Galls, Pomgranate Rind, or Flowers, Balauftians, Tea, or Oak Leaves, they give the Appearance of a dark purple Colour, more or less, as this Principle abounds ; done, *Chymists say*, by the Absorbency or Astringency of those Vegetables, which weakening the *Menstruum*, make the darker Particles of Iron more evidently shew themselves.

What we may learn from this short Description of the Mineral Spirit, is, *First*, That as a purple Colour, by Infusion of Galls, or Oak Leaves, shews the subtle irony Principle in Waters, so the failing of that Phænomenon (be the Bottle never so well stopp'd and secured,) will tell us when they are vapid and useless, improper either for weak or sound Viscera's. *Secondly*, It shews all *Spaws* most effectual at Spring Heads, before this Principle, in which their chief Virtue exists, is broke or lost. *Thirdly*, It distinguishes them sensibly from Waters of other Qualities. Common Waters, or those having a nitrous Predominancy, never alter with these Infusions. And where a Sulphur prevails, they turn muddy, instead of purplish ; Solution of Gold, Silver, or *Sacchar. Saturn.* changes them

them black; Spirit of Vitriol, white; Tincture of *Brasil* Wood, red; and when used, change the Silver in your Pocket, to a yellow, or Gold Colour.

The *Fourth* and last Principle is a Vitriol of Iron, bearing a Proportion to the Water, of about One to One hundred and sixty, presum'd (a small Portion of it) to be in the Sediment; because it has been found, that when a Præcipitation of the *Scarborough Spaw* Water has been made with Powder of Galls, it turns black, and when dry'd and scorch'd, shews some considerable Particles of Iron, that rise to the Loadstone; and also, because the Sediment still continues slowly to turn * Syrup of Violets green, Ironmoulds Linnen, and takes off the Acidity of *Ol. Vitriol*: All which shews the Mineral Part of Water, that, when fresh, exists in one Form, and partly lost here, and partly in Dissipation, is yet inimitably united in the Fountain, and the Cause of its *Medicinal Virtue*; and that by a natural and easy Piece of Mechanism, *the specifick Gravity and Figure of the constituent Parts of Iron*. Their Weight and Solidity increase the *Momentum Motus* of the Fluids, necessarily breaking through (as far as Medicine can) all Concretions and Obstructions, assisted, secondly, by the *pointed* Figure of their Par-

* This is doubtful, others having found a Reincorporation of the Contents, will neither exhibit the same Taste, nor the same Colour, mix'd with Galls.

ticles, (judged of from the Roughness of the Taste,) a rugged Asperity, whose Points improve the attractile Force of the Blood Vessels and Solids in Circulation.

In the Sediment, besides these Irony Particles, there is a much greater Portion of Salt, *æ* in *æviij*, Dr. *Short* says, (pag. 180;) and the rest is a fixed earthy Substance, that dry'd is indissoluble in Water, and harden'd by Fire, which with the Crust such Waters are apt to deposite in Bottles, or the Channels they run in, gave Occasion for *Kircher*, and others, to ascribe (though unreasonably) a *Lapidifick* * Quality in them, and clogging up the Passages; instancing Fits of the Gout and Stone brought on by drinking of some *Spaws*: But this (if imputable to any Water,) must mean not chalybeate but nitrous petrifying Springs; such an one as may be seen in the Garden of *William Thompson*, Esq; at *Ebberston*, in *Yorkshire*; a Fountain that has turn'd to a firm rocky Substance, the Roots of the Trees it washes over.

* This Variety of Opinion about Waters is taken Notice of, only for the Opposition of it to all Experience, no Springs whatever having such Tendency in human Bodies. The most favourable Construction on it is, an Art to advance one, and lower the Reputation of another Spring. And just for the same Reason we, at this Day change our Affize Towns.

The SCARBOROUGH SPAW.

ALL Purging, or Diuretick, Chalybeate Springs, have the Four Principles above, demonstrated to Sense: And as a Priority of Excellence is by most People given to this or that, as the Mineral abounds, *Scarborough* may, on that Score, claim a first Place.

There are Two Springs in the Neighbourhood, one more purgative, the other, nearest the Town, more Chalybeate, and both of a brisk irony Smell and Taste. Besides these, there are numerous Ebullitions up and down the adjoining Sands, that strike Purple, as well as the capital Springs, and argues every where about the contiguous Grounds, Plenty of those *Strata* of *Pyrites*, Iron, Stone, Ochre, or *minera ferri*, through which the Waters pass, and find a never-failing Source of Impregnation.

That commonly used, being at the Bottom of a high Cliff, feels some Security against that sudden weakening and Alteration many other Springs are subject to in wet Seasons. Add to this, That the Situation is a short and easy Exercise from the Town, on a fine Sand, open to that grand azure Expanse, the Ocean; where Ships (the Glory and Support of a Trading Island,) are continually delighting the Eye, and with the same Wind passing adverse,

— *In tam*

— *In tam diversa Magister
Ventus & unda trabunt,*

gives it a Precedence both for Pleasure and Use. The Mineral is found, by many Experiments, to abound; and not so dissipable by Warmth, or keeping bottled, yet not altogether Aerial; for draw that off by the strongest Exsuctions of the Air Pump, it purples still with the Mixture of Powder of Galls.

At the Spring, four or five half Pints gives two or three Stools, and at the same Time exhilarates. When this is found too great a Measure every Day for a feeble Stomach, as it sometimes may, inducing Qualms and Sickness, take less, and quicken it with the Addition of a little *Sal. Scarburgens.* or take the *Scarborough* Whey, made from a Dram of it, put into a Quarter of the Quantity with Milk. Of this more under the following Head.

The general Method and Use of SPAWS.

THE Age, the Constitution, and Nature of the Distemper, are always to be respected in a Course of Waters. If the *Viscera* are weak and unsound, (the principal Objections,) then the Mineral they contain, may give a greater Velocity to the Blood, than will suit the Elasticity of the solid Parts of very weak People; or, in other Words, causes
a Rup

a Rupture of their membranous Teguments; whence great Caution must be taken in the Measure, the Manner, and Continuance of Drinking.

The Season should be Summer, the Springs being then of greatest Virtue, and the Distemper they are appropriated to, more accessible; humane Nature, like every Thing sublunary, receiving Life, and fresh Hopes, with approaching Suns.

Previous to the Course, should be two or three Days Rest after a Journey, and a gentle Purge of Lenitive Electuary, Manna, *Crem. Tartar*, and Salts; or an Infusion of Senna, with some purging Syrrup: This I think necessary, because purging off too great a Mucosity, or Viscidity in the Intestinal Passage, tends to their easier Admission to our Constitution by the Lacteals; a Practice approved by judicious Men, in all Physical Courses, or great Operations.

The Quantity taken at the Beginning may be two Half Pints, supplying a little of the Salt, rather than create nauseating, and so steal by Degrees into the Custom of three, four, or five. Large and repeated Draughts are not taken down so kindly, 'till thus reconciled: And for the same Reason, I would chew, at the Time of drinking, Comfits, or a candid Stomachick, (Lemon or Orange Peel,) to relish the swallowing.

To these Rules of Induction, we must always add a Regularity in the Non-Naturals. We should use a moderate Exercise of Walking or Riding, in the Morning after drinking; a natural and kind manner of assisting Secretions and Evacuations: Have our Sleeps, as near as will consist with Decorum, at one constant Hour; and at Meals to be abstemious: The Dinner not before the Waters have passed off in a Stool or two: And Supper three Hours before Bed Time, of such Meats, Fish, or Fowl, as are of easy Concoction, and at the same Time hit the Palate; but to avoid all salt Meats, strong and pungent Vegetables, compound Sauces and Dishes, Pickles, and every Thing else of slow or hard Digestion, never exceeding two Glasses of Wine with Victuals, nor at any Time else a stronger Potable than small Ale, brew'd from the *Spaw*. Such Conformity, and Way of living, added to a *Spaw* Course, is, in many Cases, a Completion of the Cure.

Three or four Months Course is another Requisite. If the Distemper be chronical or stubborn: There must be Time for the Spirit and Alkaline Salts of these Waters, to take off the Sharpness, the Stagnancy, or Viscidity of such distemper'd Juices: It is the gentle and continued instilling into the Mass of Blood, and so our Constitutions, that must give *Spaws* here, or, indeed, any Medicinal Process, a proper

a proper Force and Success. Habits are neither acquired nor mended in a Day.

With tender People, or in Winter, when attending a Spring is too great a Fatigue, and hazards the catching Cold, a Whey is often substituted thus. Boil a Quart, or three Pints, with a little Nutmeg, and at the End, throw in half a Pint of Milk: If taken alone, Damask them; and when their Virtues are suspected to be abated by keeping, brisk them up with Rhenish Wine, a few Grains of *Sal. Chalyb.* or two or three Drops to a Draught, of either Spirit Vitriol, *Nitri. vel Sulphur.* and when you are minded to encrease them as a Purgative, add an Ounce or two of Manna, Syrup of Peach Flowers, or Roses solutive, in the first Draught.

So far, we are going successfully on; but when through Wantonness, too long a Course has been continued; An ill Habit, or great Tenderness in the Patient, Any Irregularity in the Manner, or Excess in the Measure, they sometimes produce ill Symptoms: The purgative Waters mostly a Thirst, slow Fevers, and Itching; the diuretick more often Nausea's, Head Aches, and Pain at the Neck of the Bladder. Both of them may sometimes bring on undue Digestion, large and fainting Evacuations, a scalding of the Anus, Piles, bloody Stools, and Pain at the *Sphincters*, Symptoms that reflect oftenest on our Discretion, because that Power in Waters that thus irritates, by a skilful

Direction is meliorated to a medicinal Purpose: Any of those sinister Accidents, therefore, intervening, we are to take the Alarm, challenge our Conduct, and intermit Drinking for some Days; To use Lenients, purging Clysters, mild Catharticks, and Anodynes, 'till they remitting again, or vanishing, we may cautiously return, and very reasonably, under the Regimen proposed, expect Relief in *Hyppo's* or *Hystericks*, in Strangury, Dysentery, Suppression of Urine, Cramp, Convulsions, and nervous Disorders, Repletion, Inappetency, Worms, beginning Dropsies, Jaundice, Gout, cold Sweats, Catarrhs, and other Defluxions; in Rheumatick and Scorbutick Pains, *Asthma's*, *Hæcticks*, *Pthysick*, and *Consumption*, with *Asses Milk*; Sterility, suppress'd *Menstrue*; and most effectually as an Alterative, and Deobstruent, in all beginning Hardness, Tumor and Pain of the Bowels. This last I take Leave further to illustrate in the History of my own Case.

OBSERVATION.

HAVING been six Months under the Affliction of a Jaundice, the Cure left a deep obtuse Pain in the right *Hypocondrium*, which, I think, I had felt more obscurely, tho' less mindful of it, while that Distemper was upon me. This Pain, when all other *Icteric* Symptoms were vanish'd, by Degrees, came

came to such Uneasiness, that as constantly as I sat down, it seized me, more if bending, or leaning to it, and could not, at any Time, continue so with Pleasure, without my Hand close press'd upon the Part; yet walking, or standing, was as certainly free.

This I took to be an Obstruction of the common *Chole-duct*, or some considerable Branches of the *Biliary* Vessels spread through the Liver, and communicating with it; which I believe, is always an adjunct, if not the sole primary Cause of Jaundices.

I purged often, used emollient Oils and Plaisters, Volatiles, Flannels, and bathed in cold Water now and then, for two Summers, without any Relief; when fearing such Obstinacy of Pain might, in the End, bring a Return of the old Distemper, I determin'd to use some *Spaw*, and being call'd on Business to the West Country, would mix the Pleasure of seeking a Recovery there. *Somerset, Devon, Cornwall*, have Variety; and I am not fond of this or that, from the Inducement of Company, which engage less phlegmatick Constitutions, but account all good, just as I find them impregnated. Iron and Steel are certainly the best Deobstruents in the *Materia Medica*, and such Springs a natural Preparation of it.

I chose to journey in the *Exeter* Coach, thinking the Shocks in such a Carriage might contribute to some Alleviation, and so far

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was right, as to be easy there ; but in the same Pain sitting any where else.

In the Country, I instructed myself in three or four Mineral Springs, among which, that of *Tavistock* bore a good Repute ; yet I prefer'd for my Use, one in the Parish of *St. Landulph, Cornwall*, which no Body, except the Parson, heeded : It had a near Resemblance to *Scarborough*, I thought, not only in the Taste and Phænomena's of the Water, which discover'd an equal Impregnation, but the Situation, *at the Bottom of a high Cliff, to which the full Sea came up*. The whole was a sort of rusty Alcove, whose Dew, or Sweat united into two or three slender Streams, the largest whereof would be nigh half an Hour in running a Gallon. The little Channels made in its Course through the Beach, as well as the Alcove, were lined with a natural *Crocus Martis*. It would change any sort of Rind, or Reed, that I placed for running the Stream into a Bottle, very black with twenty four Hours running. Yet cork'd never so close, made no Change with Oak Leaves, after two or three Days keeping.

My Lodging was a short Mile off for Exercise, and having blooded and purged, began drinking in *May* : A Quart every Morning, *early, and fasting*, unless a few candid Carraways, to gust it down, encreasing in a Week to three Pints : When I began to think, that where the Mineral was adapted to a Case,
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the more and faster a hale Constitution could swallow such Water, the better, and that one might reconcile the Load, by diversifying the Taste: To be done by different devised Methods of uniting them with our ordinary Food. Wherefore, besides my Morning Doses, I procured the Water to brew and bake with, for Broth, Tea, and Punch, which, though of dingy Colour, went agreeably down in their Turns, from the expected better Success: But herein I was mistaken, for endeavouring to enlarge the Quantity by every of these Methods, I found, in a Fortnight, great nauseating, scalding bloody Stools, and Pain about the Region of the Bladder.

I saw the Error, made an Intermission of ten Days, during which Time, I took two or three mild Cathartick Draughts, from an Infusion of Senna and Rhubarb, when those Symptoms vanishing, I began as at first, (the *Spaw* Ale only excepted,) and between both, confined myself now to two Quarts, or little more, in a Day, without using any other Sort of Liquor, designing the Rule as a good Equivalent to the former Regimen, because I could assure myself, by such Forbearance, whether the Mineral would effectually answer: Exercising myself in the Morning with moderate walking, in the Afternoon with riding, eating of the lightest Meats only once a Day.

By *September*, (for I continued the Course all Summer,) the Pain had grown much easier, and a Month or two after I had left the Spring, found myself wholly freed of Pain, without any Return to this Day; *now two Years and half.*

T H E R M Æ :

O R,

Hot Sulphur S P R I N G S.

TH E warm Springs in *England*, * most celebrated, and deserving our Notice, are those of *Bath*. Abroad, *Aix la Chapelle*, and *Caroline*, (*German Springs*), and *Bourbon* in *France*, all of them, by the most curious Enquiries and Examinations, abound with a *Mineral Sulphur*, and a *small Portion of Salt, and Steel*.

Their Sulphur, and their Heat, obvious to Sense, are the chief Properties in which their Medicinal Virtue subsists: Sulphur, in the divers Preparations of it, being the greatest

* *Buckston*, in *Derbyshire*, is a warm Spring, though inferior, the Heat of this being judged, as a Quart of boil'd Water mix'd with a Gallon of cold. (The hot Baths in *Somersetshire*, as three Quarts to one cold.) Their Warmth, therefore, is scarce perceivable, 'till after you are in. The Bath is an arch'd Room, 10 Yards long, 5 $\frac{1}{2}$ Yards wide and high, a Stone Bench, to dress and undress, paved with smooth flag Stones, and descends with Steps; as a warm Bath, it answers to the removing all Impurities, and Foulness of the Skin, Weariness and Pain, and urges Urine.

Purifier of the Blood, and the most excellent Medicine known in all cutaneous Diseases; the natural Warmth, and subtle Confusion of it in those Springs, giving it additional Force.

The Sulphur is apparent to the Smell, Taste, and Exhalation seen from these Waters, and in particular *Aix la Chapelle* * is said to have a sulphurous Cream always upon the Surface: And what more evidently displays this Prin-

* *Aix* is the most famous of all hot Springs. This and the *Caroline*, drank very hot at the Fountain, prove purgative; otherwise, they rarely pass by Urine or Stool, but by Perspiration; and the better, assisted by Exercise, or a warm Bed. They promote Digestion, warm the Stomach, correct redundant Acidities, exterminate the Seeds of Worms, and of many chronical Diseases; are good in *Scrophula's*, cutaneous Eruptions, Leprosy, Asthma, and Distempers of the Reins. *Hoffman* says likewise, That with Ass's or Goat's Milk, they are very good in consumptive weak Nerves, Cough, and Pthysics; yet bids us abstain from the *internal* Use of them in Cholical and Hypochondriacal People, where the Menfes, or Hemorrhoids, are flowing, Spasmodick Disorders, Pthysical, Hydropical, and Paralytick Patients.

Brought to a moderate Warmth, which they can do by Cocks, to every Patient's Taste and Infirmary, they are bath'd in more commonly, for resolving fixed Tumors and Pains, contracted or paralytick Limbs, and spasmodick Disorders, from excessive Heats or Colds. They do, this Way, rather astringe than soften, block up the Pores; and therefore reckon'd preventive of Asthma's, Abortion, Dropsy, Sterility, Scurvy, and Gout: Used too hot, they are apt to give Headach, Palpitation, Intermittent Fevers; induce Sleepiness, a Distention of the Body and Feet.

Bourbon in *Burgundy*, for the Number of Baths, their different Degrees of Heat, quenching Thirst, agreeing with, and comforting weak Stomachs, &c. have a near Resemblance with our own in *Somersetshire*. At *Bourbon* are many Remains of *Roman* Grandeur and Magnificence found; those People having introduced the Custom of Bathing with their Conquests, spared no Cost to beautify and fit them for publick Use, neglected many following Ages, and now, for the last Century or two, brought out of Ruins, and repair'd by the States of *Burgundy*, and the Munificence of the Kings of *France*.

ciple, they collect, sometimes, several Pounds of the true Flower of Brimstone, sublimed by Heat against the Arch, and Top of the Well Rooms, of such Purity and Subtility, by so natural a Piece of Chymistry, that it is in very great Esteem, and sells for twenty Times the Price of the common Sort, made by a Furnace. Other lesser Indications of Sulphur in all, is their changing Silver yellowish, turning white with Galls, conflicting with Acids, turning Milk, and præcipitating with *Alkali's*.

The Salt contain'd in these hot Springs, is of an *Alkaline* Nature, seen in the Effervescence it makes with Acids, &c. but exposed to the Air long, it becomes neutral, imbibing some Portion of that universal acid Spirit in the Air; is then of piquant Taste, melts presently in a Crucible, and fumes there like burning Sulphur: Every Gallon may yield about a Dram, and is extracted, by making an Evaporation by boiling, and putting it to filtrate, the Salts will go off with the Water, and the Sulphur Part remain in the Paper.

The great Use of this Salt, is opening the sulphurous, and supposed irony Particles in the Water, to a better Efficacy; for while these attenuate, rarify, and resolve, that stimulates and irritates the Solids to more perfect and absterfive Secretions.

The Existence of Steel in hot Springs is much debated: Why I am inclined to think it a Principle in them, is from some Phænomena's like

like the Chalybeats, though so subtle as to be lost the Time they are cooling: There is something of an irony Earth perceivable in the Taste, fresh pump'd: They deposite also an Okery Sediment in their Pipes, which, wash'd and calcined, contains some Particles that are attracted by the Loadstone, and they conflict with Acids: And *Secondly*, That all our Earths, I think, partake something or other of this Mineral, and particularly the red and clayey are a sort of Iron Oar, more universally dispersed by Providence, as it is more universally necessary and serviceable to Mankind.

The Heat in these Springs, and the Cures they are adapted to, conjoin to attest this: The irony Particles are subjected, indeed, by a Predominancy of Sulphur, but Dr. *Cheyne*, when he is accounting for the Heat of *Bath Waters*, explains it on those two Principles: " Mix (says he,) Filings of Steel up to a
" Paste, with Powder of Sulphur, and put it
" under a Cock that drops regularly; and the
" Paste will ferment, giving the Waters that
" come off the same Heat and Virtue with
" the Bath."

These their Principles, subtilly and inimitably blended in warm Springs, evidence themselves pretty plainly to Sense, and more demonstratively than what others do that have been assign'd, from a various Chymical *Enchirresis*, such as a Sea Salt, a Nitre, or an Alum: A Confusion that points out this good

Rule to the Valetudinary, not to trust too much in Principles or Theory, but to follow what Experience and Tradition in the History of Cures dictates.

The Heat in these Springs, how it is communicated, has been variously contended: Some think it owing to the Rapidity of a Stream, in various and retrograde Turnings, where, if the Channels are conical to make a greater Resistance with their Sides, and the influent Water contains *heterogenial* and dissimilar Particles, they will together excite intestine Motion and Heat: Which others deny, and say, the strongest Agitations will never give Heat to Water actually cold.

Some place it to sulphurous and iron *Marcasites*, already heated and inflamed in the Bowels of the Earth, through which the Water passing, is not only powerfully impregnated but such Steams, *through Heat raised*, that by condensing against the Concaves of Rocks, are turn'd over, like as by a Still, or Retort.

Others, That these *Marcasites* are not antecedently heated, and on Fire, because there are no where near them any Vent Holes; Fires no where subsisting long, without the Admission of Air, and letting out of Smoke, (unless the Exhalations may be esteem'd such,) but like as in some chymical Mixtures, the accidental Passage of Waters through inflammable Mineral Substances, raises, by their Heterogeneity, a Conflict that excites intestine Motion

Motion and Heat ; and which, without it, had lain torpid. This Conflict and Ebullition must also be nigh the Issue of such Fountains, or the Waters would cool again, and will cease or relax, whenever any Accident shall divert or obstruct that Course, or bring any other cold Spring to mix with it.

Several simple Bodies, on a Mixture, will produce Heat. Water cast on Quick Lime, Common Sulphur and Steel, * powder'd and mix'd up in equal Quantities with Water ; Sulphurous Bodies, as some sort of Coal, or Hay ill cured ; Barley, by being exposed in a Heap to the Acid of the Air, will sometimes grow hot, and even flame. In Chymistry there are various Mixtures, which display this Phænomenon ; *Spirit. Nitri*, and *Ol. Tereb.* or *Caryoph.* *Ol. Vitriol.* and *Spirit. C. Cervi.* excite great Ebullition and Heat, which they resolve, upon the Principles of *Acid* and *Alkali* : The Essence of one consisting in the Length, Sharpness, and Hardness of Parts, the other in being porous, full of Passages, that are sometimes oblong, triangular, sexangular, &c. and so are apt to imbibe this or that Acid with more or less Ebullition, as it is proportioned to their Holes.

Analogous to this, we may think, that Springs have commonly, and without the ac-

* This put into an Air Pump, on Exsuction of the external Air, that contain'd within the Steel, bursts out with prodigious Force and Violence, and shews the great Elasticity of it.

cidental passing through mineral Substances, something of the Acid. Dr. *Oliver* takes Notice, that the cold Springs at *Bath* are harsh, acid, and will not lather; some making even an Ebullition with *Sal. Tartar*, or other *Alkali*, and that Violets turn them reddish, which contrarily should be greenish, did an *Alkali* preside. The same has been already observed in the Entrance upon *Acidula*, and perhaps is communicated by the pervading of Air through the Bowels of the Earth; which every where accompanies Water, we see, in the Elasticity Bubbles ascend with at Fountains. Now as all Acids readily dissolve Iron, and conflict by their Dissimilitude of Parts with Sulphur, Streams are here and there in Countries abounding with Mineral, impregnated with Medicinal Virtue and Heat, according to the Substances they meet; and points out the Care of Providence, that has provided so cheap, easy, and almost universal Remedy, to the Afflictions of Mankind.

We may also observe, there must be a Medium in the Mixture of *Acid* and *Alkali*, to make a Conflict, (the greatest Conflict,) or to be a proper *Menstruum*. Put a Quantity of Spirit, or the Oil of Vitriol, (which is stronger,) on some Filings of Steel, the Salts are so condensed as to make little Impression; but when weaken'd with three Parts Water, it will fall with more Velocity on the Iron, as the Particles of that will also more attract them; from

from which Rapidity, and intestine Motion, comes a violent Heat, and, in Time, a Solution.

Again, if this *Menstruum* is not good in its Kind, or you weaken it too much with the Water, it will not succeed: Nor will it very little on Brass or Mercury, tho' Spirit of *Nitre* a weaker *Menstruum*, will; which shews this Medium necessary, and in our present Subject, is still more wonderful to account for.

Lastly, it may explain a little upon the Warmth of Springs, by observing what succeeds on the Mixture of Leaven or Yeast, in Baking or Brewing. The Mass continues dead and spiritless without these Ferments, and on intimately mixing, they not only excite the intestine Motion we call Fermentation, but give actual Warmth, (*ex motu fit calor*) and this from the Abundance of Air contain'd, and the Heterogeneity of Parts, which stirr'd up well, commences a Conflict immediately, by its Elasticity, and attractive Power; and that continually augmenting by Repercussion, and Warmth rarifying, drives up, in the Agitation, all those Globules that enclosed it; and the heavier subside, never ceasing more or less Action, 'till the whole is made homogeneous, or proportional.

I say, the Air and Acidity in these Ferments may bear some Resemblance to the State of Water in subterranean Channels, and the mineral Bodies they meet with may have that
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Disposition and Configuration of Parts, more or less, easily to admit this Elastick Air, or by the Aptitude to communicate or receive, *that* Air is put in Motion which they contain themselves.

I have thus far related the different Ways of accounting for the Heat in our *Bath* Springs; which, on the whole, I must confess, is abstruse, yet as easy for a divine Chymist, as making salt Water fresh, by bare Transcolation through a Cloud. The principal Thing that concerns us in them, as ailing and distemper'd Mortals, are their salutary Effects.

The *Bath* was little known before Queen *Elizabeth's* Time, and then only for Bathing; the internal Use now often accompanies it, and has been introduced by the present Age.

The Waters are clear, and of agreeable Taste; are observed always near an equal Heat and Quantity, retain that Heat longer than other Water made so by Fire, and is at several Baths, in several Degrees; that call'd the King's Bath is hottest and largest: Then the hot Bath, which have both their own Springs, and by the Guides turning of Cocks, can still, on particular Occasions, be made hotter. The Queen's and Leper's Baths are Appendixes of these, and so less hot, as farther from the Springs. The Cross Bath is most temperate, and therefore endured longer without Heat and Fever, that will attend the

too long use of the others : This most frequented, from a pleasing Temperature, and having its own Springs, in Hysterical Cases, and Contractions of the Tendons ; those in old Rheumatick Pains and Aches, Palsies, and Cholicks.

To be more particular ; the internal Use of *Bath Waters* are appropriated to weak and decay'd Constitutions, debauch'd Stomachs, and Pain there ; Ulcerations of the Bowels, Cachexies, Scurvies, Jaundice, or Dropsy, proceeding from Indigestion ; Gout and Stone, taken at the Intervals from Pain ; the King's Evil, Strangury, Women's Diseases, *Fluor Albus*, and Barrenness ; even pulmonary Cases, (Asthma's and Consumptions,) taken when they have stood to a Milk-warm : Hot, they are not so agreeable in these Cases ; and quite cold, they have neither Taste, nor Smell ; but a gentle natural Heat applies their balsamick Parts with more Success, to the soft vesicular Contexture of the Lungs, and are thus peculiarly fitted to the strengthening of the Nerves in weak People, and restoring the Tone, and Elasticity of the Solids.

The Dose, three or four Half Pints leisurely, in a Morning fasting, and though hot from the Pump, rarely nauseate, but rather stop Vomiting. A moderate Exercise should accompany, a Glass of Mountain before Dinner, and be continued a five or six Weeks Course in Summer ; unless in some obstinate Cases,

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and then they are continued longer, and at any season. They will purge a little at first, but when that increases, or the Stomach palls; a Vomiting, Sleepiness, or Giddiness ensues; it indicates the Quantity too much, or too long continued, and demands an Intermission; that the Patient be put into a warm Bed, to perspire more, and take down some aromatick hot Wines, Anodynes, Cordials, and the like, as the Disorder indicates.

Externally, they are experienced to be a kind and friendly Fomentation; sometimes, join'd with the internal Use, in Itch, Scab, Tetter, and Leprosy; because it cleans the Skin, and opens the Pores for discharging those acrid Salts, the other is preparing to expel. Alone, which was the ancient Custom, Bathing is found excellent, when pump'd, or immerfed, in part, or entire; for all Cramps, stiff Joints, contracted Limbs, the paralytick consequences of *West-India* dry Belly-aches, Gripes, Cholicks, nephritick Fits, Hypochondriacism, Convulsion, Epilepsy, and Tremors, where the Conscience is found; they being found plainly, in the Cures they perform, to have a corroborating, as well as relaxing Power.

The Pumping is usually at Bed-time, to some hundred of Strokes on the Head, Neck, Shoulders, Arms, or Legs; and in particular Affections, wrap in Flannel.

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The Bathing is in a Morning fasting ; an Hour more or less, according to what Bath, the Age, and Distemper ; sometimes drinking a Glass or two from the Pump, when in.

They frequently go from the hot into the temperate Baths, (which communicate) to cool by degrees. The Operation is warming the Blood, and promoting Sweats ; and therefore, to answer the End better, and guard against the ill Consequence of so general a relaxation, they are usually put warm to Bed from them.

The Inconveniencies People are found subject to in warm Bathing, is the great Discharge by the Pores, rendering costive and thirsty, and subjecting to Cold : However, if such Disorders are not always to be avoided by Rule, there may be Cautions in the Use ; and when they do happen ; may be remedy'd ordinarily with forbearance, and a gentle Purge or two of Salts : They are likewise, in the regular Management, a Preparation for the cold Bath.

Bathing in the S E A.

BATHING in the Sea, is, of late Years, at *Scarborough*, with the *Spaw*, grown into great Credit, frequented by both Sexes, and those of the best distinction, as a pleasant, and a medicinal Exercise ; there being few Cases, wherein a moderate use of it, cold or warm, *that is*, Morning, or After-

noon, when the want of Sun has chill'd, or his lucid beams beat for hours on the Surface. They have a fine long Sand from the Town to the Cape, commodious for Gentlemen to retire and undress at any Distance from Company, or to push a little off the Beach in Boats; and the Ladies have Guides, Rooms, and Conveniences for it, under the Cliff.

Bathing, as an Emblem of Purity, has been put into the religious Rites of *Jews*, *Gentiles*, and *Mahometans*. The *Turks*, in every Town almost, have a publick one, and the building of them thought an excellent kind of Charity. The *Christians*, anciently, also were more fond of their Use, and dedicated Wells, to entice People to a religious, as well as physick Use; the Reputation this way, improving a Reverence for that: *Baptisteries* are those ancient Baths; and retain the Name among Catholicks, because applied to the same Use; Immersion in Baptism having succeeded to the *Gentile* Purifications.

The Sea, when warm'd with bright tropical Suns, does with Pleasure answer, in some kind, the Intention of temperate Baths: It relieves Weariness, cleanses away all Defœcations, and Impurities of the Skin; contributing powerfully with internal Means in all cuticular Diseases, Itch, Scab, Tetter, and Leprosy; especially with a Flesh Brush, or coarse Cloth, because it opens the Pores to promote Perspiration, the Foundation on
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which the common Complaints of Mankind (wandering Pains and Aches, Heaviness, and Debility of any sort,) do ordinarily depend: For if that Discharge is allow'd above double to all other Excretions together, a little Suppression will turn immediately to our Disadvantage; we shall either be affected with breakings out and Pimples, Blotches and Foulness of the Skin, Joint-pains; or what is worse, Cough, Asthma, Fever, or other inflammatory Distemper. But the Sea I shall consider principally, as a natural and ready cold Bath, that may be made more or less so, according to the Time of Day we use it in Summer; and therefore, its Virtues this Way (as of all other cold Baths,) depends *on its Coldness*, its *Fluidity*, and here by being salt, (and therefore heavier,) on the *greater Pressure* it is able to make on our Bodies, above the fresh Water of Rivers, or Lakes.

Dr. *Wainwright* supposes, the greater Pressure sustain'd in Bathing, beyond what we do in Air, straitens the Vessels, dissolves viscous Humours, and renders them more fluid, and apt for Circulation; by that Means passing the Glands, Elaboratory, or secretory more easily, consequently effectual for removing all Obstructions in the Bowels, and Distempers dependant; for Bites of mad Dogs, Melancholy, and Palsy, not too far advanced. And if common Bathing will do this, the additional Weight of Salt in Sea-water will do it more.

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From this greater Pressure also, he thinks the Water more able to insinuate through the Pores, and that in Bathing it mixes and dilutes the Blood to good Purposes. All the Hindrance, in a living Body, to this Consequence, is the perspirable Matter continually exhaling; very unequal, by his Calculation, to the *Impetus*. For, supposing the perspirable Matter, in twenty four Hours, to be $\frac{5}{8}$ of our Meat and Drink in that Time; then, to hinder this Effect of Bathing, it must raise a Weight, continues he, 6912000 Times greater than itself, to resist the Entrance of the Incumbent Water.

That there is a greater Weight in salt than fresh Water, appears by any ordinary Balance, and by the greater Buoyancy of Vessels in one than the other, great Ships floating nigh a Foot lighter at Sea than in Rivers, and so the pressure in Bathing at Sea increased; but far short, in my Opinion, of the Force assign'd by his Calculation: *First*, Because the Water, this Way, might pour in so fast, by the Body being inspirable, as, in a little Time, to drown a Man by the Pores. *Secondly*, Should he dive deep, he would hazard, by the increasing Pressure, to be crush'd to Death; whereas, we see Swimmers rise with more Ease than they can sink, more from this, than their specific Lightness, in respect to Water, and find no more Burthen at ten, than two Foot deep; and that because each Part and Particle
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of Water is in its Place ; and as it presses from and to every Part around it equally, there can be little more Pressure on us, than what comes by Repercussion upon the Strokes in Swimming: For, if a Man's Body took up fifteen square Feet of Water (1140 *l. Troy*) in Bathing, or that it pressed on us at two Foot deep double, (2280 *l.*) &c. there must be more Violence either to dive, or come up again ; and drown'd, could never sink ; because Bodies continuing specifically lighter than the Fluid immersed in, swim. *Thirdly*, Men grow thirsty, especially where the Bath is temperate, or warm, and depends altogether on the expirable Faculty resisting the Admission of Liquid ; which, lastly, I think more favourable to the Purposes of Bathing: For, should abundance of salt Water be received, it would neither be so wholesome, nor agreeable.

The Benefits in Bathing here, arise better from the other two Properties in Water, its Fluidity, and the sudden Coldness and Surprise it strikes in Immersion: This, we know, gives a very sensible and general Contraction and Tensity to the Fibres, which, thus strengthen'd and lessen'd in their Capacities, help forward the Heat and Circulation of the Blood ; consequently add Strength to us: For the Quantity of Blood, (the Measure of it) is augmented in the Proportion it bears to its Vessels ; and it is all one, whether that be
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increased, or the Dimensions of these straiten'd and lessen'd.

An increased Quantity of Blood, Heat, and Circulation, the Effect of cold Bathing, does, by a greater Impetus, and oftener repeating the Succussions at the Bowels, force open their Obstructions, urge Urine ; and so is good in beginning Jaundices and Dropsies. It will quicken the Secretions, and the Elaboration of appropriate Fluids, by bringing greater Quantities of Blood to the Organs in a lesser Time ; multiply our animal Spirits by the same Rule, and so be proper in Frigidity, Palsy, Tremors, Bites of mad Dogs, Madness and Melancholy, invigorating Mind as well as Body.

Further : This Chill upon the Solids, or quickning their Vibrations, makes Bathing peculiarly useful in all Pains, (Rheumatick, Nephritic, or Cholical) : In sprain'd Joints, Ædematous, or viscous Tumors, and Rickets, dissolving the obstructing Matter, and strengthening the nervous Fibres and Parts against the Ingress of more.

There are only two or three Rules to make Cold more effectual to the Purposes above ; *First*, That our Bathing be only two or three Times a Week : If as a cold Bath, in the Morning, dip two or three Times, and out again. If as a Temperate one, in Summer Afternoons, tarry no longer than you can bear it *untired, and with Pleasure*. An immoderate, or irregular

regular Use, makes pale and bloated ; and does not answer so well with its contracting Power. *Secondly*, For the same Reason, we should not continue long ; the contracting Power, so beneficial in the preceding Cases, is lost in the relaxing Property, which succeeds to long Immersion, and gives those Cramps, which, Physically used, it cures. *Thirdly*, It must always be observed in cold Bathing, that Patients are not too far advanced in Years ; their Constitution and Viscera too much worn, or decayed : For then, such a universal quickening the Vibrations of the solid Parts, will throw a greater Quantity of Blood on the Bowels, than can be admitted, in such a State of Decay, without Danger ; and consequently, rupture the Vessels, stagnate the Juices, or, at least, refrigerate, and make aguish. *Fourthly*, we should shave, and let the first Immersion be total ; it will help, in a great Measure, to prevent the Head-achs some are subject to : For the Contraction of Cold, propagating from the external Parts, derives a greater Quantity of Blood in Circulation upwards, where there is least Resistance ; and consequently, swelling the Vessels spread upon the *Maninges*, excites Pain, it is a Divulsion of their Coats. *Lastly*, A cold Bathing and Regimen, consider'd with the foregoing Circumstances, is esteem'd, by the most judicious, a more excellent Method of Cure for the Injuries con-

tracted by Heat, or hot Things in a cold Country, than the contrary. And, *vice versa*; shutting the Pores in hot Countries, by Cold and Neglect, brings on Fevers, Fluxes, and Belly-achs; and keeping them open in our own, by too great Tenderness and Regard, creates Defluxions, Pains, Coughs, Weakness, intermitting Fevers, and Hystericks. We should wisely, therefore, give up too great Caution in this respect, laugh at the Inclemency of a cool Air, or Bath in Summer; because Providence (if our Belief is not staggering,) has temper'd them and our Diet to the Soil; those Things being every way fittest to Peace and Health, we have about us, and the Wise will always prefer to what is foreign, which, but for the political View in Trade, would most of them be despised, and sumptuary Laws, the Health of the Publick, (repeal'd with the Increase of Importation, at the Beginning of King *James* the First's Reign,) be again revived.

To conclude the Subject of Bathing; we find the same End attainable, by the different, and, as it were, contrary Means of *cold or warm Baths*: Both answering the same Purpose, in many the same Cases, and that by encreasing the Warmth and Motion of the Blood. *This*, by a general and pleasing Relaxation of the Skin, opens and enlarges the Pores to a greater Discharge of what is recrementitious, and so relieves: *That*, by as
gene-

general a Contraction, forces the Blood with greater Rapidity inwards on the *Viscera*; and so better fitted to remove the Obstructions, and Incumbrances to their several Secretions. *This* more suitable to Pains and Distempers in the muscular Parts, Contraction of the Tendons, or other Evil more superficially seated, and the Patient tender, or aged. *That* to Distempers more remote, deep in the Joints, or *Viscera*, and with Patients more robust. In short, the Warm begins, and the Cold Bath more effectually finishes a Cure.

Thus, Sir, I have endeavour'd to reduce to a concise and instructive Sense, what may have been more abstrusely deliver'd by others. If it has your Approbation, I am pleas'd; my chief Intention being to shew how much I am,

S I R,

Your humble Servant, &c.

An

*An Extract from Sir JOHN FLOYER,
and Dr. BAYNARD, on the Subject
of BATHING.*

IMMERSION in Baptism was used with us until the Beginning of the last Century, when the Reformation becoming more established, expunged this salutary Custom, with other Catholick superstitious ones; though Dr. *Floyer* thinks it's not yet abrogated, but recommended by the Canon. It was found to invigorate the whole Body; and, probably, kept off some Hereditary Diseases, that, with the Neglect of it, (at least, in part,) became first known; such as Rickets, Rheumatism, and Pleurisy, (which he reckons a Species of it,) scarce ever heard of in *England*, 'till King *Henry* the Seventh's Time. St. *Augustine* mentions many Cures; and that, in general, it procured a healthfuller Juvenility. Others, that it removes the Stone, and Gripes, in Children, by forcing Urine, and expelling a sharp black Fæces from the Intestines: Relieves also those Inflammations common in Children's Mouths, about their Ears, and other Parts; Coughs, Vomits, Frights, and Convulsions; which depending mostly on a sharp Serum, are evacuated by Urine, Stool, and Sweats. There is only this Caution in Infancy: That a cold Immersion be used either
so

so very young, that the Child is unapprehensive of what is done ; or not 'till six Years of Age, when the Remedy may be recommended to agree with his own Judgment, or not so terrified ; otherwise, it may frighten and convulse, instead of removing them. And if Immersion was found contributing to a better Health in Infants, it might be concluded of signal Service, to amend, or keep it so in Adults ; (for whatsoever Distemper they are proper to cure, they are proper to prevent :) Not that our Ancestors could deduce the Benefits so much from this, (which might be alledged something obscure and conjectural,) as from the Experience of Mankind, who, in most Countries, made Bathing and Washing a Part of their Religion ; wherein they observed, without much Physical Knowledge, these natural Effects : That the *Warm* prevented Abortion, cured Scab, Itch, Leprosy, Palsy, and Contractions of the Limbs : The *Cold*, Deafness, Hernia, Gonorrhæa, Madness, wandering, fixed, or Inflammatory Pains, varicose Tumors and Ulcers ; for these depending on salt corrosive Humours, Sizyness, or Grumosity of the Blood, were, by this Means, evacuated, or restored to a Fluidity and Sweetness, and the Laxity of the Solids braced. Our Author thinks also, there can be no better Way to prevent Epidemical Fevers, than by a cold Bath, which will harden the Skin against Changes of Weather, and strengthen

strengthen the Stomach, preventing the breeding of *Cacochymies*.

What helped, like a Charm, towards the same End, in former Days, was that inward Purity of Mind, imagined to follow religious Bathing, and a Reverence to the Places. *Naman* was cured by dipping seven Times in *Jordan*. The miraculous Pool of *Bethesda* (St. *John*) had certain Formalities, in order to Cure: And it was from a Change of religious Opinions, that Baths became disused in a manner among us; for the Virtues of most Wells resorted to, being imputed to some Saint, (*Cbad*, * *Mongah*, *Winifred*, &c.) which the last Age could not credit, their Reputation sunk. The Effect, perhaps, not being found the same in a weak as a strong Fancy; but has now been some Time recovering again, on the Foundation of more certain and demonstrable Properties: Hot Things

* St. *Mongah*, (about A. D. 560,) fled from his Bishoprick of *Glasen*, and built a Monastery in *Wales*. Succeeded by his Scholar *Asaph*, he return'd to *Scotland*, changing his Name from *Kentigern* *Servanus* Bishop of the *Orcades*, commonly calling him *Mongah*, which in *Norish* signifies *Dear Friend*, and to whom fabulous Legends and Miracles, in after Ages, were framed.

St. *Winifred*'s, in *Flintshire*, was of greater Note formerly. She for not yielding to the Embraces of *Caradoc*, Lord of *North Wales*, had her Head cut off, Anno 644, and St. *Bueno* put it on again; the whole Story, fillily invented by the Monks, (and not 'till A. D. 1300,) is portray'd in the Glass Windows of the Chapel, (Mr. *Collier* says.) And that the Well is still frequented by Gentry of the *Romish* Persuasion, for the Cure of many Diseases.

are more adapt to Nature in hot Climates: Tobacco, Spice, Aromatics, Compounds in Eating or Drinking, and the warm Bath, are all used to better Purpose, or with less Hurt, in the Soil where they are Natives, (there than here.) Contrarily, cold Countries, look for a cold Regimen, suitable to the State of the ambient Air: For keeping the Pores open here, by very warm Clothing, beyond what our Constitution may demand; great and needless Indulgencies have been found to create Defluxions, and intermitting Fevers. Shutting them in hot Countries, *that is* disregarding the Stop to Perspiration the cooler Evening Air makes, by constipating the Pores, will induce continual Fevers and Fluxes; of Caution, in respect to our Deportment, or the Bath: The latter may have their cold and contracting Power improved with a Mixture of Vitriol, Nitre, or Acids; their Temperature, with Sulphur, Bitumen, or common Salt.

Again, in the Use, he advises, that the warm Bath be two or three Times a Week; never after plentiful Eating or Drinking; to stay but a few Minutes; to immerse the whole Body; to Bleed, Purge, and come under proper Diet before and after. In Rickets and Palsies, (and Distempers akin to them,) to put between Blankets in a Bed, and sweat after it: And in all, to drink Water; for then, says he, you will live safe from Diseases of the
Head,

Head, and not have Hiccoughs, burning Heats; Thirsts, and Fætor of the Mouth, common to high living.

A Cold Bath. He advises it in an Asthma, and condemns all hot Regimens in that Distemper, bids the Patient to shave often, wash the Head; to drink cold Water in a Morning, and use a total Immersion only once a Fortnight.

Dr. *Baynard* commends the hot Baths of *Somersetshire*, as of wonderful Efficacy: A friendly Fomentation, a natural *Sal Volatile*, that relieves and cures Distempers, both of Relaxation and Contraction. The *West-India* Gripes, Cholics, *Aphonia*, Agues, Cramps, stiff Joints, *Fluor Albus*, paralytick and wasting Limbs, Scorbutick Atrophies, and to be specifical in Diseases of the Liver.

They contain a volatile *Vitriolick Gas*, (seen in their changing Purple with Gauls, Oak Leaves, Tea, or any austere Alkaly,) which is lost, if carried elsewhere. Their inward Use is Drinking them hot at the Place: augmenting the Quantities by Degrees, continuing them a great while together, and under a Regularity of Diet; forbearing eating, or swallowing any other Liquid, 'till they are pass'd. At Dinner, he allows a Glass of Wine. The only *Bitters* he found agreeable, were wild Sage, Horehound, and Hops; which last he recommends in a Beer of moderate

rate Strength, as Diuretick, Antiscorbutick, Stomatic, and good against Stone and Worms. To all this he joins Bathing; there being few Cases but what will admit it, more or less, and together, more effectually answers the End.

On cold Bathing he proceeds poetically just.

*Cold Bathing has this Good alone,
It makes old John to bug old Joan, &c.*

*Vinum Venus Otium & Crapula sunt
Origines Calculorum ac Podagræ,
Aquæ potus, lactis usus, Sobrietas & exerci-
tium eisdem medentur.*

He instances a particular Case, where the Weakness of the Muscles of the Head, and the Distortion of the Vertebra, were so great, that unless continually supported, it fell on the Shoulder; cured by cold Bathing.

In a Suppression, or long Retention of Urine; bathing the Feet, wrapping a wet Towel round the Waist, or a total Immersion, will relieve; and may be assisted with Venæsection, and Fasting: Or where the Suppression has a viscous Blood for the Cause, not parting easily with its Serum, Acids, such as Lemons, or Spirit of Nitre, will, like Rennet, do the Business.

Lastly;

Laſtly, The Cold Bath he recommends as the moſt excellent Remedy in all Sprains and Wrenches; which may have its Virtue increaſed with the Addition of Verjuice. I knew a Gentleman, continues he, that went ſlip Shoed a Year and half, for a Sprain, cured by a Mixture of Verjuice and Water, uſed three or four Times a Day.

F I N I S.

