

Hampstead-Wells: or, directions for the drinking of those waters ... With an appendix, relating to the original of springs in general; with some experiments of the Hampstead Waters, and histories of cures / [John Soame].

Contributors

Soame, John.

Publication/Creation

London : [The author], [1734]

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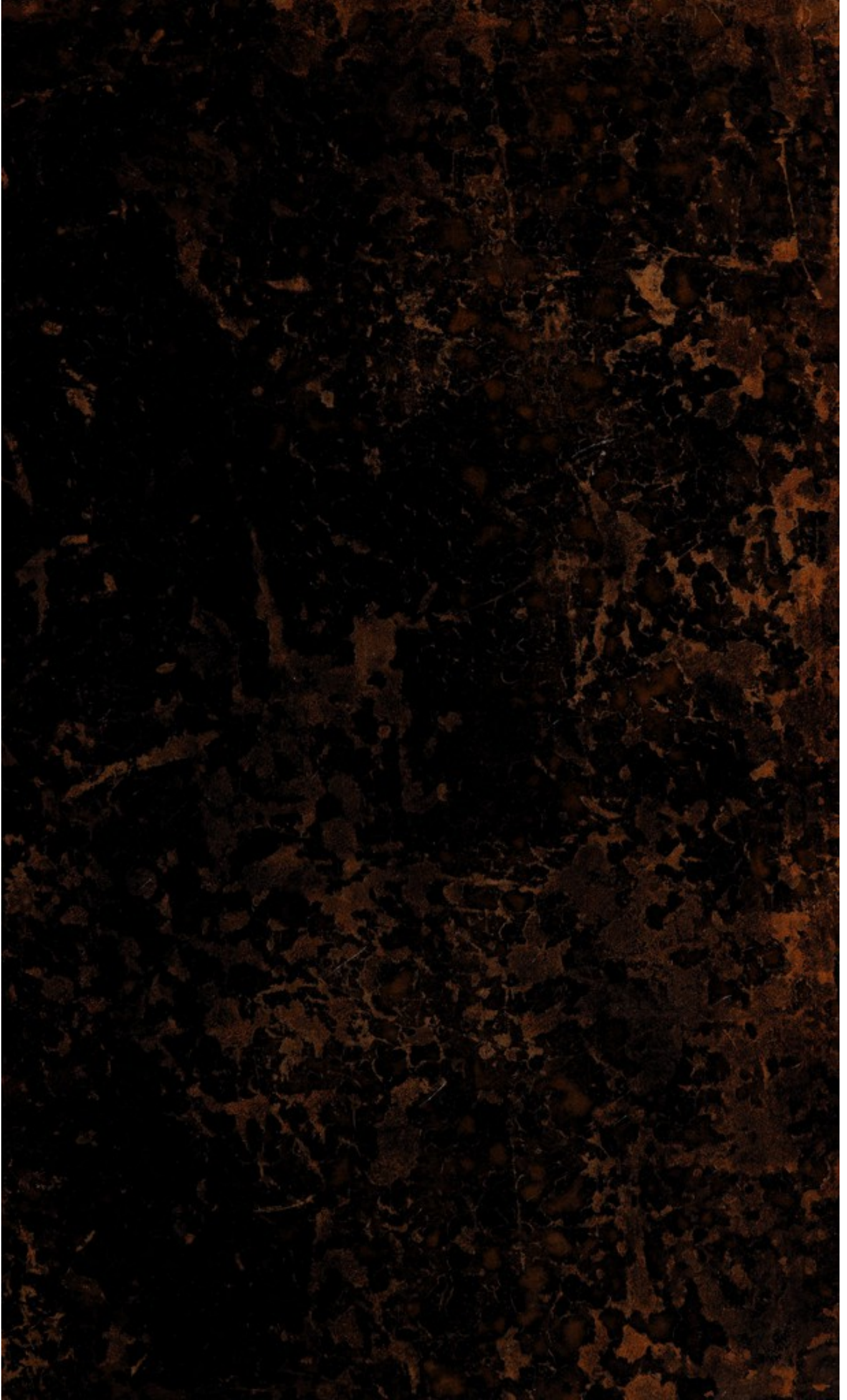
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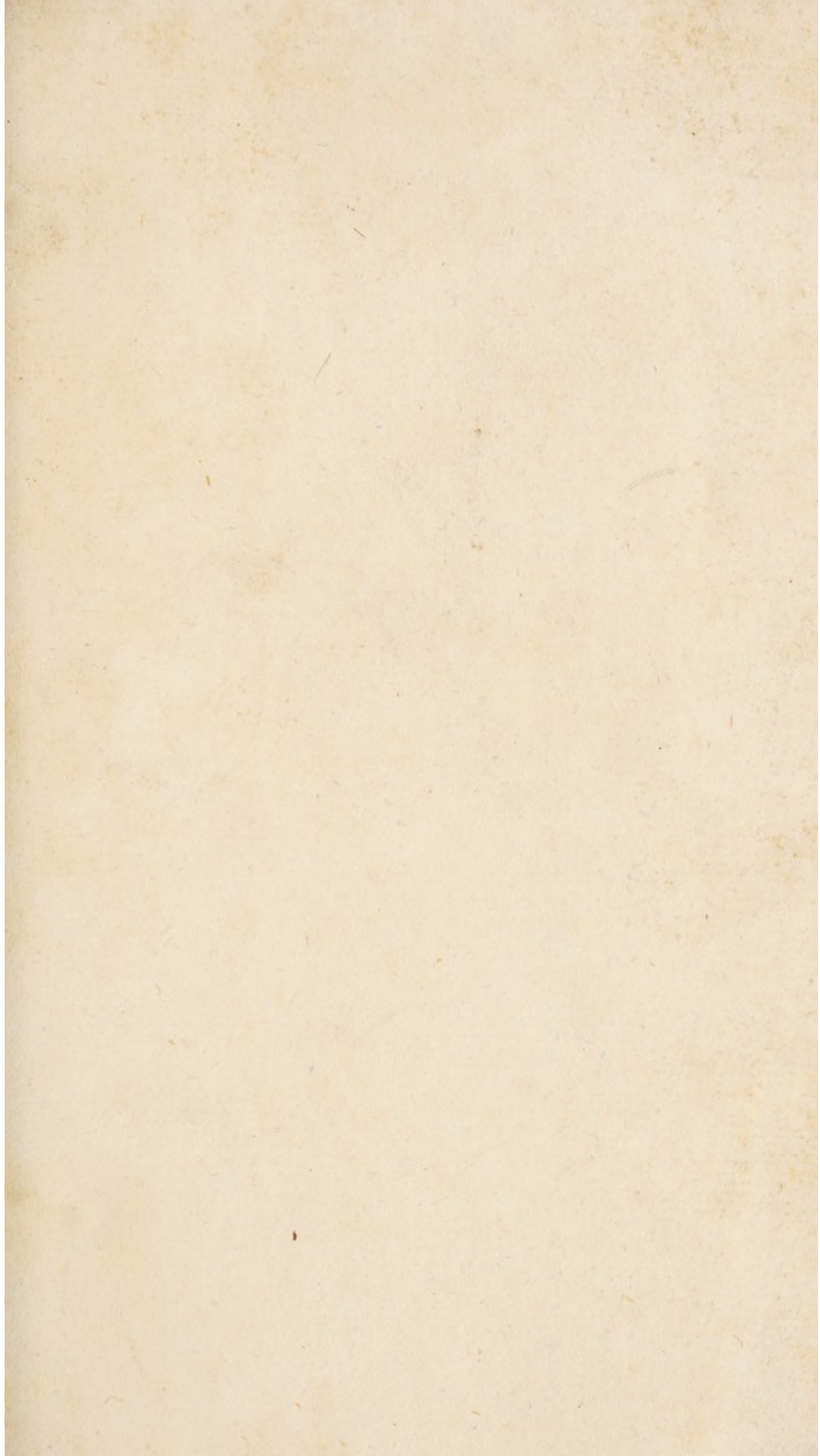



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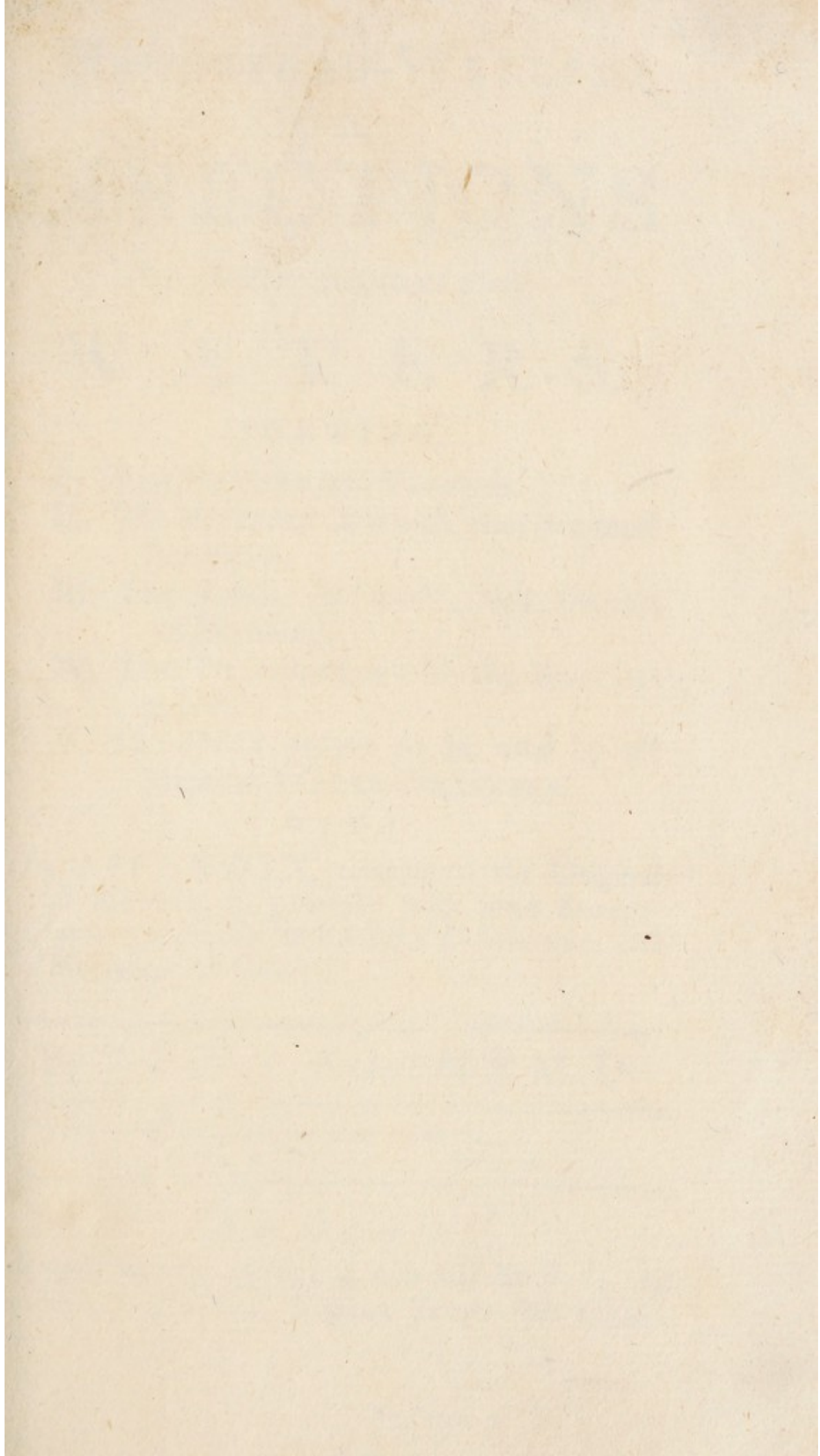
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HAMPSTEAD-WELLS:
OR,
DIRECTIONS

For the DRINKING of those

W A T E R S.

SHEWING,

- I. Their NATURE and VIRTUES.
- II. The DISEASES in which they are most Beneficial.
- III. The TIME, MANNER, and ORDER of Drinking.
- IV. The PREPARATION of the BODY requir'd.
- V. The DIET proper to be used by all Mineral WATER-DRINKERS.

W I T H

An APPENDIX, relating to the Original of SPRINGS in general; with some EXPERIMENTS of the *HAMPSTEAD* WATERS, and Histories of CURES.

By *J O H N S O A M E* M. D.

— *Juvat integros accedere Fontes
Atque haurire.* LUCRET.

L O N D O N :

Printed for the AUTHOR; and sold by F. CLAY,
and D. BROWNE, without *Temple-Bar*. 1734.

HARRIS BAR WELLS;
OF
DIRECTIONS

For the Drinking of them

W A T E R S

THE WINE

- I. Their Nature and Virtues.
- II. The Diseases in which they are used.
- III. The Time, Manner, and Order of Drinking.
- IV. The Preparation of the Waters.
- V. The Part proper to be used by all Mineral Water-Drinkers.

WITH

An APPENDIX, relating to the Original
of Springs in general, and some
particulars of the WATERS OF
HARRIS BAR WELLS.

BY JOHN ROSS, M.D.

Printed by J. G. & J. H. B. at the
Wellcome Library, 1, Euston Road, London, N.W.1.

LONDON

Printed for the Author, and sold by F. & C. G. and
D. B. G. at the Wellcome Library, 1, Euston Road, London, N.W.1.





T O

John Mitchel Esq;

S I R,

I S with the utmost Pleasure and Satisfaction, that I can now present you as Proprietor of the *Hampstead-Wells*, my small Tract of the Nature and Usefulness of those Waters; your Character in Life for Candour, Justice, and good Understanding, are sufficiently known to the World

A 2

already;

already; and, indeed, all the Actions of your Life and Deportment, are the greatest Proof of your Virtue: but knowing you to be an Enemy to Flattery and Panegyrick, I shall therefore be silent on that Head.

In this little Treatise, I have faithfully related several Experiments, made both by myself and others, as also the Histories of Cures, that those Waters have wrought, both on myself, and divers other Persons; whose different Cases are printed at the end of this Treatise, by way of Appendix. I do not design to depreciate all other Waters, whose several Virtues may, no doubt, have done much good, and have been of considerable Benefit to Mankind, and hope will continue so. But if kind Providence has open'd a richer and more salubrious Fountain of Waters, shall not we with grateful
Hearts

Hearts acknowledge this Gift of our
beneficent Creator ?

I must confess, Sir, so nice and
intricate a Subject, deserved to have
been directed by a much better
Pen ; but how much soever it may
suffer from my Incapacity, I am
infinitely oblig'd to the Negli-
gence of others, who have given
me the first Opportunity of paying
this Respect due to your Merit ;
therefore hope, you will allow it a
friendly Acceptance ; from

S I R,

Your most obedient,

humble Servant,

JOHN SOAME.



T H E
P R E F A C E.

Pag. 5.
Experi-
ments and
Observa-
tions on
Mineral
Waters.

P. 102.

THE Dignity and Usefulness of Steel-Waters, which is the Subject I am now writing upon, cannot be better express'd than in the Words of the learned and ingenious Dr. Hoffman, Archiater to the King of Prussia; who says, that Mineral Waters, both of the hot and cold Kind, preserve Health, and cure Diseases in the highest Degree, better than the nicest Shop-Medicines. And again he observes, that those Waters infallibly cure, where rightly apply'd, both with Expedition and Safety. And in Page 102, he goes on further, and concludes, that such Waters are the most efficacious, as also the most innocent of all the Remedies hitherto discovered; and that they never fail of Success, when the Physician knows how to apply them in a right manner.

These Considerations were a great Inducement to my writing the following Sheets, and that Mineral Waters, which deserv'd so
great

great an Encomium, both by the learned Gentleman now quoted, as well as several others of our own Country-men, should not lose their Reputation by the Ignorance of a Multitude of People; who, without consulting either the Nature of the Waters, or their different Cases, drink them often, where they do more harm than good, which otherwise might have been of signal Service to them; provided their Cases requir'd the drinking of them at all, and they were under a proper Regulation in this watery Regimen. I have therefore laid down some general Rules, as to our Management in drinking Mineral Waters in general, and of Hampstead Waters in particular; and likewise given a short Sketch of the Nature of ferruginous Waters. But I shall be more particular on Hampstead Waters, where I have resided several Years as Physician. Here it was I had the Happiness of being acquainted with Dr. Gibbons, who has frequently told me, that Hampstead-Wells were formerly in as great Repute as Tunbridge in Kent, or any other Chalybeat Waters near London: farther, he declared to me, that they were full as efficacious (in all Cases where ferruginous Waters are advised) as any Chalybeat Waters in all England, unless Scarborough-Spaw, which is Purgative. Dr. Slare, who was here about six Years past, join'd in the same Opinion with Dr. Gibbons concerning the Excellency

cellency of those Waters; and said, they were as good Waters of the Chalybeat Kind as any in England, and came very near in Virtue to the Piermont Water; and which Waters, no more than the Piermont, have the least Sharpness or Acidity in them: this Quality he has taken notice of, in his little Tract on Piermont Water, dedicated to Sir Isaac Newton, President of the Royal Society, and to Dr. Bateman, President of the College of Physicians*.

*Dr. Slare.
P. 39.

There are, no doubt, several chalybeat Waters in England which are very good, and have been of great Service and Benefit to Mankind; and, I hope, will yet continue to do much good: But yet, since kind Providence has bountifully discovered a more wholesome Treasure of Waters, shall we not thankfully embrace them, and give an impartial Account of the Experiments that have been made of them, and those of New Tunbridge-Wells at Islington, by myself, and other Gentlemen of undoubted Reputation? But what gave me still a greater Satisfaction and Encouragement to go on in this Work, is, that those Waters can be brought to any Part of England, in that Perfection, that, being sealed up well in Bottles at the Spring-Head, they will hold their Spirit and Virtue a considerable time, and far better than the German Spa. As for New Tunbridge-Wells, there is no Comparison; for, every
body

body that is acquainted with those Waters are satisfied, that they lose their Spirits in less than a quarter of an Hour after they are removed from the Well, and turn foul and cruddeled. But Hampstead Water, after it has been well cork'd and seal'd down, kept in a Cellar for one or two Years, when you have drawn the Cork, it would be almost ready to fly; and when poured into a Glass, it sparkled and knit up like a Glass of Champaign, or Herefordshire Cyder. This I have seen myself, as well as Dr. Stephens, who has frequented Hampstead for some Years, and Mr. Miles, being Gentlemen of great Worth and Veracity, who have affirm'd the same to me.

The honourable and ingenious Mr. Boyle, takes notice in his Memoirs on Mineral Waters, "That when a great Quantity
 " of Rain has fallen, it makes Men doubt,
 " whether the ferruginous Waters of Tun-
 " bridge, Spaw, &c. be not so diluted, as
 " to be spoil'd in their medicinal Capacity;
 " and indeed (says he) I have more than once
 " found they have lost their martial Quality,
 " and Power of producing their wonted Colour
 " with Galls: and therefore to find whe-
 " ther the Rains have made the Waters
 " unfit for drinking; in order to this, I shall
 " take notice that usually a small Rain does
 " little or no harm to the Mineral Spring,
 " and sometimes even a moderate Rain,

Vid. Boyle's
 Memoirs
 on Mineral
 Waters.

“ especially after a long Drought, may, in-
 “ stead of weakening it, increase its Vir-
 “ tue, by washing down into its Channels
 “ some Salts, that, during the dry Weather,
 “ were concreted in the Pores of the Earth;
 “ perhaps, also by heightning the Water in the
 “ Channels, so as to dissolve some Salts concre-
 “ ted there, which it could not reach before.
 “ But if the Rains have long continued,
 “ the Estimate may be made partly by the
 “ greater or lesser Depth of the Spring,
 “ beneath the Surface of the Ground, and
 “ partly, and indeed chiefly, by the peculiar
 “ Nature and Strength of the Mineral Wa-
 “ ter; for some Springs are much more co-
 “ piously impregnated than others, and there-
 “ fore will bear a greater Dilution by Rain
 “ Water, of which I shall give you this no-
 “ table Instance; That whereas I found (as
 “ I lately noted) that more than one of our
 “ Martial Springs, especially those near
 “ London, were too much weakned by the Wa-
 “ ter that rain’d into them, I had the Curio-
 “ sity to try how much of that kind of Liquor
 “ some German Spa Water, that came to me to
 “ London, very well condition’d, would bear.
 “ In pursuit of which Design, I warily
 “ made some Tryals, which shew’d what
 “ probably will be thought strange, that when
 “ the Mineral Water was diluted with no
 “ less than thrice its Weight of Rain Wa-
 “ ter, yet it retained Strength enough to at-
 “ tain

“tain, with newly powder'd Galls, a purple
“plish Colour.” So much from the learned
Mr. Boyle.

The learned Dr. Gibbons has made the
same Experiment on the Hampstead Waters,
with equal Success.

On Monday Aug. the 8th, 1733, I made
the following Experiment on the Hampstead
Waters. About six in the Morning, being
very clear Weather, and the Sun shining
very hot, I put one Ounce of the Mineral
Water to three Ounces of Soft Water in one
of the Water-Glasses; then I grated about
three Grains of Galls into the mix'd Waters,
which, in less than four Minutes, turn'd it of
a dark purple Colour. I then try'd the new Mi-
neral Waters, fresh drawn at the Spring-head,
with Galls after the following manner; I put
half a Grain of grated Galls into four Ounces
of the Well Water in a Glass, and in two Se-
conds of a Minute, it began to make an Altera-
tion in the Water. And here I was diverted in
viewing the Change of Colours, both while
it was producing, and when it was produ-
ced, by placing the Water in a good Light,
and with a careful Eye; for by this Me-
thod, I discovered several Shades, or Variety
of the more principal Colours. So the great
Mr. Boyle has experimented before; in about
two Minutes time it was all ting'd of a fine
purple Colour. Now, if half a Grain of
Galls will turn four Ounces of the Well
Water into a fine purple Colour; and Mr.

Boyle's Experiment on the Spaw, was but one Ounce of Water to one Grain of Galls finely powder'd, and fresh, to answer the same Experiment; it then plainly shews the Difference as eight to one.

N. B. These Experiments are best made upon the Spot, that you may have the Water in its full Force and Vigour, and 3 Grains of Green Thea will produce a fine purple Colour on the same Quantity of Water, as the before-mention'd Experiment of half a Grain Weight of powder'd Galls: and indeed those Waters will answer all the Experiments of the true Pohon Spaw, or any other pure Chalybeat Water in England. Several more Experiments will be added at the End of this Treatise, by way of Appendix.

Dr. Gibbons was the first Physician that encouraged the drinking these Waters, and gave them the Reputation that they once had, when these Wells used to be frequented with as much, and as good Company, as used to go yearly to Tunbridge Wells in Kent. The good old Doctor continued the use of them himself, and advised them in all Cases, where Chalybeat Waters were proper, with great Success. He very seldom miss'd drinking two or three Glasses every Morning, when Business and the Season would permit him to be here; which Course he continued for many Years, 'till Death bereaved us of him some few Years since, not without a
general

general Regret, for the Loss of so learned a Man, as well as able Physician.

He generally enjoy'd a good Share of Health to the Day of his Death, unless now and then some slight Attacks of the Gout; and at last died more by the Weight of Years than any Distemper, being above fourscore Years old.

I wish this Son of Æsculapius had oblig'd the World with his curious Observations on these Waters. They might have been of great Service to the Publick, as well as the Place; which, in my Opinion, is as delightful a Village as any near London. The Honourable and Learned Mr. Boyle, speaking of the Nature of Mineral Waters, thus expresses himself: The surest Way of knowing them, is by long Experience of their good and bad Effects; for there are beneath the Earth divers mineral Substances, some fix'd, and some volatile, some in the Form of Hard Bodies, some of *Soft* ones, some of Liquors, and some of Fumes; divers of which, the Generality even of learned Men are as yet altogether Strangers to: Besides those that some may chance to have seen, have their Natures so little known, that they have not so much as Names assign'd to them. So that when I consider, that of the Ingredients we are unacquainted with (to pass by all the rest, that the Earth may conceal) the Proportions wherein

Boyle's
Memoirs
on Mineral
Waters,
P. 3, 4.

wherein they are mingled may be numberless, and the Qualities resulting from their Commixture may be very different, from those of the separate Ingredients.

“ I am to look upon the Difficulty of surely
 “ determining the Effects of Mineral Wa-
 “ ters, à priori, as little, if at all, less than
 “ insuperable to human Understanding.”
 This was that great Man's Opinion of this thing; and if this honourable Gentleman, endow'd with such bright Parts, improv'd by indefatigable Industry, and Ability to be at the Charge of Experiments, look'd upon these nicer Enquiries, so difficult and uncertain; how easily may I be excused, if I gave myself chiefly to the diligent Observation of the Effects of these Waters; some of which you will find faithfully communicated by way of Appendix at the End of this Treatise? And as none has as yet particularly wrote on Hampstead Waters, which deserve a far better Pen than mine to display their Virtues in a proper Light, and to satisfy the World what a Treasure of Health is continually flowing from this salubrious Fountain: yet as it is my Lot to be the first, I do not pretend to direct the Gentlemen of my Profession, but shall be oblig'd to any of them, that shall instruct me better; for I declare frankly, I am ready to be convinc'd. And as I will not persist in, much less defend any Mistake that may have escap'd me; so
 neither

neither do I think myself under any Obligation to answer every frivolous Cavil and Objection, especially from some who are never easy, but when they are scribbling.

I can assure you, my Chief Design in writing this Treatise, was only to do Mankind all the good that lies in my power: and if it shou'd answer, I have then a Recompence of my Labour; if not, I cannot help it. Be it as it will, I am sure it was meant well, and hope it will answer its Intent so far at least, to excite some better Pen to correct its Errors, and fully to supply all its Defects.



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T H E

I N T R O D U C T I O N .


WHEN I proposed writing on *Hampstead Waters*, I then resolved not to meddle in the different Disputes concerning the Generation of Mineral Bodies, or how Waters came to receive their mineral Qualities, whether good or bad: Only so far as relates to the Waters I am now creating on, I desire to avoid as much as possible the troubling you with Theories, or setting up new Hypotheses, but shall endeavour only to relate Matter of fact; for I declare, that in writing this small Tract, my chief Design is to direct my Patients, where, and how, to seek for Remedy, by the Examples of several that have here found it, in the same and like Cases with theirs; neither have I here related any Cures, but what have been well attested by Persons of Reputation and Credit; and some that I have known myself, whose Names I have, by their leave, inserted in the *Appendix*. If you have a mind to amuse yourself concerning the Nature of hot Waters, you may peruse *Dr. French's Art of*

C

Dis-

Distillation, the second Edition, printed at London in 1653, in 4to. Page 155. It is of *Monfieur de Rochas's* Demonstrative Experiment, as he calls it, which can no where else be made but in an uninhabited Place, such as was that (on the *Alpes*) where this *Monfieur* found his hot Spring. I suppose *Dr. French* was oblig'd to one *Dr. Rochas's* Book for this *French* Story. His Book *Dr. Pierce* says, he never saw, only found his Name mention'd by *Monfieur Blondel* in his Treatise on the Waters of *Aix la Chapelle*; if he had, shou'd have quoted him rather than *Dr. French*. But there are innumerable Authors, as well antient as modern, as *Guidot* and *Jordan*, who have wrote on Mineral Waters in general, and the *Bath* in particular. So has *Dr. Pierce* and *Dr. Oliver* since them; but the latest are *Dr. Cheyne* and *Dr. Winter*. Those that have wrote on the *Englisch* Spaws or *Chalybeat* Waters are, *Dr. Lister*, *Dr. Allen*; *Dr. Wills* on *Scarborough* Waters; *Tonstall* and *Simpson*, his Antagonists, on the same Waters. But these, as well as all the rest, have of late been condemned by a later Author. There is, since my writing these Sheets, a large *Quarto* published by *Dr. Short* of *Sheffield*, in *Yorkshire*; intitled, "The Natural, Experimental, and Medicinal History of the Mineral Waters of *Derbyshire, Lincolnshire, and Yorkshire*; particularly those of *Scarborough*." Wherein you will find (as he says) they are carefully examined and compar'd; their Contents discover'd, and divided; their Uses shewn and explain'd, and an Account given of their Discovery, and Alterations. To which is added, "The Natural History of the Earths, Minerals, and Fossils, through which the chief of them pass; as also the groundless Theories and false Opinions of former Writers" and

Dr. Pierce's
Preface to
his History,
and
Memoirs
of the
Bath.

“ are expos’d, and their Reasonings demonstrated
 “ to be injudicious, and inconclusive:” which is as
 much as to call them a Parcel of *Ignoramus*’s; that
 know nothing of the matter. Then at last he con-
 cludes with his large marginal Notes, contain-
 ing a methodical Abstract of all the Treatises
 hitherto publish’d on these Waters; with many
 curious Observations and Experiments; as also
 four Copper-plates, representing the Crystals of
 the Salts of thirty-four of those Waters, which
 you may peruse at your leisure.

Mr. *Samuel Derham*, in his Preface to his *Hydrologia Philosophica*, or an Account of *Ilmington Waters* in *Warwickshire*; mentions several eminent Writers, that have given their Judgment on Mineral Waters: such as *Georgius Agricola*, *Libavius*, *Solinander*, *Adr. Baccius*, *Fallopianus*. Of our own Countrymen, he mentions *Dr. Jordan*, *Simpson*, and *Turner*, *cum multis aliis*, both antient and modern.

The antient Authors (he says) did usually take a general Survey of Mineral Waters, without entering into a strict Scrutiny by Experiments on particular Springs, whereby they have left their Works very imperfect, and of little use, and which must be the Work of Posterity to illustrate, by a few Experiments justly made, rather than in great Volumes of conjectural Philosophy; as *Dr. Tyson* in his *Phocæna*, pag. 9. rightly saith, *Malpighius* in his Silk-Worm has done more than *Johnston* in his whole Book of Insects; and he and the ingenious *Dr. Crew*, have taught us more of Plants, than either *Gerard* or *Parkinson*. Then he goes on to treat of the Nature of Earths and Minerals in general; but it is too tedious to be inserted here.

Oliver's
Practical
Disserta-
tion on
Bath Wa-
ters, Chap.
2. p. 7.

I shall just mention Dr. *Oliver*, who, speaking of the Original of Springs, says, there is but one Universal Matter infinitely divisible, the only Element in Nature, out of which all things are made, according to the Specifick Motions impress'd on it by the first Mover of all things, which denominate it of this or that Species of Beings. So Matter, consider'd as such, by one Motion became Water, and by the Variety of Motions given it, will become Earth, Stone, Tree, or Animals; and to this Universal Matter, all things are reduc'd at last, when they have quite lost their specifick Forms, which gave them their first Denomination; of which we have a large philosophical Account in *Ovid*. The four Elements, by the Ancients, are said to be the first Principles out of which all things were made, and to which all will at last be resolv'd.

Ovid Me-
tamorp.
Lib. xv. *Nec Species sua cuique manet ; rerumque novatrix,*
Ex aliis alias reparat Natura Figuras.
Nec perit in tanto quicquam (mibi credite) mundo ;
Sed variat, Faciemque novat : nascique vocatur,
Incipere esse aliud, quam quod fuit ante ; morique,
Definere illud idem.

I shall then here consider it only as an heterogeneous Body, such as we find it in Springs, and Fountains. In the next place, Authors, who treat of the Origin of Springs and Fountains observe two sorts of them.

First, Such as are temporary, often dry in Summer, because they lie near the Surface of the Earth.

Secondly, Perennial, such as in Winter and Summer, wet and dry Seasons, are always the same.

same, not at all alter'd as to Quantity or Quality, because they lie very deep in the Bowels of the Earth, and cannot at all be affected by the scorching Sun-beams, they being out of their reach. Of this last sort are our *Bath Waters*, which was this Author's Subject; for in the dryest Summer, or in the most dropping Winter, they have always remain'd the same. Now there are various Causes of Springs assign'd by Authors, which are as follows:

Some are of Opinion they proceed,

1st, From Caverns and Lakes under ground, which, by subterraneous Fires, may ascend in Steams or Vapours, and by the cold Rocks near the Superficies, be condens'd into Water, and form themselves into Springs and Rivers.

2ly, From Rains and Snows, melting from the Tops of Mountains, and falling down through the Clifts of Rocks.

3dly, From Vapours condens'd by the Sides of high Mountains, as Mr. *Hally* thinks, from some Observations he made at *St. Helena*.

4thly, From some hidden Passes in the Earth, through which the Sea soaks into its Pores, as Water through a Sponge or dry Cloth, leaving its Salt behind it: so being as it were one *Continuum*, Water still pushing on Water, by its own Weight, and Impulsion of the circumambient Air, as thorough a *Schyphon*, being once in Motion, may be conveyed to the Tops of the highest Mountains. And thus by Filtration only, the Nourishment, Vegetation, and Augmentation of Gems, Stones, Minerals, and all subterraneous Bodies, as well in the Bowels of the Earth, as on its Superficies, are by Nature constantly and steddily carried on. The Salt in the
Water

Water left behind, supplying what the watery Vehicle washes off in its Passage; Salt being the Medium between Earth and Water. And this will seem the more probable, if it be true, that the Sea near the Equinoctial, is much higher than at the Poles; and that its Superficies there is higher than any Mountain in the World. Besides, many are of Opinion, that the Center of the Earth's Gravity, and that of its Magnitude are not the same, but at some distance one from the other; and so it will not be very difficult to account, how Water may rise to the top of the highest Mountains, only by its own Weight or Gravitation, without any external Force at all.

5thly, and lastly; 'Tis probable the Earth, as all other solid Bodies, has its Perspiration, or Atmosphere, from its whole Superficies; whose Vapour or Moisture, being check'd near its Surface, by Cold, may be condens'd so as to cause Springs.

This perhaps may serve to solve a very odd *Phanomenon* in Nature, that happened in the Year 1683, during the hard Frost here in *England*: for Mr. Ray, that curious Enquirer into Nature, tells us, that he had observed at that time, all the Springs in the Country about him broke out, and ran more plentifully than they used to do at any other time, tho' very wet Seasons.

Now these are the Speculations and Notions of Philosophers upon this Topick; some contesting for one, and some for the other, as the original Cause of Springs. So the *Sieur Du Clos*, in his *Observations on the Mineral Waters of France*, made in the Royal Academy of Sciences in the Year 1684, says, that the Difficulty

Miscellan.
Discourses
p. 91.

Sieur Du
Clos's Ob-
servat. on
the Mine-
ral Waters
of France,
p. 20.

culty of knowing the Causes of the Properties of Mineral Waters, is very great, which depend particularly upon the Mixtures of certain Substances, which meet together in their Passages in the Earth, or in the Cavities or Interstices of the Rocks, which are various, and many, as Vapours, Juices, Salts, Earths, &c.

The greatest part of these Substances wherewith Mineral Waters are impregnated, cannot be discovered ; and the different Mixture, which is made of several together, may constitute so great a number of Kinds of Mineral Waters, wholesome or unwholesome, that it is impossible to give any Knowledge or Determination of them all. But I shall not enlarge here farther from this Author, but refer you to him, being as sensible and concise a Tract of Mineral Waters, as any I ever read. But as I design chiefly what is practical, and to accommodate these Waters to the proper Uses design'd by Nature, in their Composition, to the common Exigencies and Infirmities of Mankind; I shall not therefore enter into dispute with any one, but shall content myself with giving you my Opinion upon the whole, That the first and original Cause of all Springs is the Sea, into which all Rivers run, as into the Place from whence they came, (*per modum Circulationis*) so that all other Causes mention'd may be allowed to be secondary, subordinate, or rather the several Ways Nature takes, to make sweet Springs from salt Water.



copy of knowing the Cause of the Frigidities
 Mineral Waters is very often, which depend
 particularly upon the Mixture of certain Salts
 hence, when they meet in their Passages in
 the Lungs, or in the Cavities or Intestines of the
 Lungs, a kind of Stricture may arise, as Volvulus,
 James, Salt, &c. &c.
 The greater part of these Substances which
 with Mineral Waters are here explained, cannot
 be collected; and the mixture of them, which
 is made in several together, may continue in
 a great number of kinds of Mineral Waters,
 whose use in Rheumatism, that it is impossible
 to give any Knowledge or Information of
 them all. But I shall not enlarge here further
 than this Author, but refer you to him, being as
 famous and creditable a Treatise of Mineral Waters
 as any I ever read. But as I design chiefly what
 is practical, and to accommodate these Waters
 to the proper Uses designed by Nature, in their
 Competition, to the common Exigencies and In-
 firmities of Mankind; I shall not therefore enter
 into dispute with any one, but shall content my
 self with laying out my Opinion upon the whole.
 That the Air and original Cause of all Springs
 is the Sun, into which all Rivers run, as into
 the Place from whence they come (see below
 Continuation) In that all other Causes towards
 may be allowed to be secondary, subordinate,
 or rather the Mineral Waters derive their
 make from Springs from Salt Water.





HAMPSTEAD-WELLS.

CHAP. I.

In treating of HAMPSTEAD Waters, it will not be amiss in the first Place to give you a small Description of the Place.

HAMPSTEAD is a most delightful Village, very happy in its Situation, being somewhat romantick, yet every way pleasant. It is situated upon several little Hills, on a high Ground of different Soils; some Parts being upon a Clay Loom, and other Parts on a Gravel. Here it is, that you draw in a pure and balmy Air, with the Heavens clear and serene above you, in that Season of the Year, that the great and populous City of *London* (from which it is distant not above four Miles) is cover'd with Fogs, Smoaks, and often thick Darkness, being frequently oblig'd to burn Candles in the middle of the Day; while we are here blest'd with the benign
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and comfortable Rays of a glorious Sun, breathing a free and wholesome Air, without the noisome Smell of stinking Fogs, or other malignant Fumes and Vapours, too too common in large Cities; especially where they are situated near navigable Rivers, or the Sea: which is the reason that numbers of Citizens are obliged to rusticate very often, to avoid the necessary Stagnation, and Fermentation of such variety of all kinds of Atomes, as often are produc'd in great Cities; which brings *Asthmas, Coughs, Consumptions*, and a vast Train of nervous Disorders, which cannot be reliev'd, nor any solid Cure be had, 'till the Diseases'd are remov'd into the Country. And no Place better adapted for their Recovery than the dry, clear and balsamick Air of *Hampstead*; for it is certain, that the Nitre of this Air, which it abounds with, is as necessary for the Preservation of Life and Health, as the most balmy Nourishment; and what adds still to the Blessings of this Place, is the salubrious Water of *Hampstead*, which may justly be call'd *Fons Sanitatis*, or the Fountain of Health: and which is the Subject of the following Treatise.

This Chalybeat Water breaks from the Declivity of the Hill to the East of the Town, near the Chapel and Bowling-Green; where you have a noble and extensive View to the East in particular, where I have (by the help of a Telescope) seen very plain, in a clear Day, *Gravesend* Windmill, which must be twenty-five Miles distant from this Place. But when we mount up higher upon the Heath, you have the View more extensive; and at the Summit, you may see into nine or ten Counties at least. I have seen out of Mr. *Brookes's* Parlour*, with his Telescope,

* In a good Brick House, situated about half way over the Heath in the Road to *Hendon*, and about two Furlongs from *Hampstead* Town Northward.

scope, the Ships lying at Anchor before *Gravesend*, and even a good way beyond it. Here you may divert your Eyes, either by seeing the Ships sailing up and down the River, or with the View of several fine Palaces, which you may see with your naked Eye; as *Windsor-Castle*, which, in a clear Morning or Evening, appears very plain and noble, tho' above twenty Miles from you; the Duke of *Chandois's* Palace at *Edgware*, appears as if it was within two or three Miles of you; and the Earl of *Tilney's* at *Wanstead* appears the same, tho' they are both of them above seven Miles distant. This View that we enjoy at *Hampstead*, is, I believe, more than any other Village so near *London* can boast of; if I was to add, in all *England*, I believe, I should not mistake. We are also blest'd in the Enjoyment of all the Conveniencies of Life, both as for Food and Diversions. Our Provisions are full as good as those at *London*; but I can't say altogether so cheap, as to Butcher's Meat: but as to Poultry, Butter, Milk, Eggs, Salleting, &c. we have them better, and often cheaper than in Town. *Hampstead* Heath being chiefly Gravel and Sand, is always dry and pleasant, unless it be in excessive and long Rains; yet then in a few Days time of dry Weather, you may walk very well, the Water soon running off. This Heath also is famous for the vast number of useful Plants that grow all over it, especially Thyme, Wild Marjoram, Lillies of the Valley, Betony, Phu or Valerianus Sylvestris, *cum multis aliis*. The Apothecaries Company very seldom miss coming to *Hampstead* every Spring, and here have their Herbarising Feast; and I have heard them often say, that they have found a greater Variety of curious and useful Plants, near and about *Hampstead*, than in any other Place. But

it is not famous for Herbs alone, but also for the great Variety of curious *Agates* and *Pebbles*, with which it abounds: Some of them I have lately polish'd, and, I think, that they come up, if not exceed your *German* and *Oriental Agates*, or the late famous *Egyptian Pebbles*; and which I can produce, if desir'd, at any time, for the Satisfaction of any Gentleman or Lady, that may be in the least doubt of it, or are curious that way. As for Walks and Shady Groves, we have our share, and those very delightful. But to return to the Chalybeat Wells, that we are to speak of; it is a Spring adjoining to the Chapel, as I mention'd before, where there is a Bason fix'd upon a large Pipe on the Declivity of the Hill. This Pipe is so well stor'd with Water, that (as the Man, who belongs to the Well, has inform'd me) it will throw off five Gallons of Water in four Minutes; it has that force, that it may be made to throw the Water up in a perpendicular Height, twelve or fourteen Foot at least, there being always a large Quantity running away to waste. Here is Water enough for thousands and thousands of People to drink every Morning, without dipping; running from a Stone-Bason through a Pipe; it being like the *Widow's Cruize*, having never yet been known to be dry, or scarce ever diminish'd: so that it may justly be call'd *The Inexhaustible Fountain of Health*.

C H A P. II.

The COLOUR of this Water.

Colour. **T**HE Colour is perfectly transparent and bright, as the *German Spaw*; it leaves a ferruginous, oker Colour, both in the Bason, and

and round about the Place where it runs to waste.

The Taste of *Hampstead* Water is no ways un-
pleasant, tho' it be full as strong, if not stronger of the Iron Mineral, than the *Tunbridge*-Wells Water in *Kent*; and much stronger and better than the *New Tunbridge* Wells at *Islington*, that have been frequented so much of late. To prove this Assertion, and shew the Strength of this Water, they will retain their Spirit and Chalybeat Quality, for some Years, in Bottles, either seal'd up at the Spring-head, or Oyl put on the top of the Neck of the Bottle, and so cork'd down; and when you open this Water, and pour it into a Glass, it will sparkle and knit up, as well as any of the *German* Spaw Waters, and will be as brisk as a Glass of *Champaign*, or *Herefordshire* Cyder. This Experiment has been try'd by the ingenious *Dr. Stephens*, myself, and several other Gentlemen of the Town, and it has answered in every respect as here related. As for the *New Tunbridge* Wells, I have not heard that any one, who has made the like Experiment, cou'd find, that those Waters would answer in any respect to the *Hampstead* Waters: the Reason seems to me very plain, for there is so quick an Avolution of the volatile and spirituous Particles of this Water, that in a few Minutes after it is remov'd from the Well, it turns cruddel'd and foul. The *Hampstead* Waters have nothing of an Acid in them, more than the *Piermont*, tho' the *German* Physicians reckon'd these Waters among the Acidulæ, or Sour Wells, or Waters. I made the same Experiment on the *Hampstead* Waters, as *Dr. Slave* did on those of *Piermont*. The first Tryal I made whether an Acidity was prevalent, or as much as to be found in the Waters: I drop'd a good quantity
of

Dr. Slave
pag. 41.

of Spirits of Hartshorn *per se*, and Spirits of *Sal. Armoniack* into these Waters, and did not find the least Luſtation or Motion appear, as they uſually do, with an Acid. I made another more critical and certain Examen of the Acidity, which might be thought to be in these Waters, by mixing them with Milk in various Measures and Proportions; and I also gave various Degrees of Heat to them: " some were
 " tried in a tepid or luke-warm; others in a
 " boiling Heat, but did not cruddle the Milk at
 " all. On the contrary, the Waters preserv'd
 " the Milk four or five Days from cruddeling
 " or being ſour, which ſtrong Alcalies will do in
 " like manner. These Experiments plainly ſhew,
 " that these Waters do not contain an Acid.
 " Dr. *Slare* ſays in his Examen, the Chalybeat
 " or *Spa Waters*, call'd by the *German* Phyſicians
 " *Acidulae*, or ſour *Brunes*, or *Wells*, are proved
 " to be of a contrary Nature, that is *Alkalies*.
 " This was printed in the *Transactions* of the
 " Royal Society for the Year 1713, which you
 " may read at large in his Account of *Piermont*
 " Waters, fol. 36. therefore I ſhall not tranſcribe
 " the whole, only juſt mention ſome things:
 " as that the *German* Phyſicians, when they name
 " these Chalybeat Waters, or write of them, do
 " call them *Acidulae*. (Ex. Gr.) *Spadenses*, *Swalba-*
 " *censes*, *vel Pyrmonta*, &c. *Henricus ab Heers* agrees
 " with *Vitruvius*, *Fallopius*, and the ſagacious *Hel-*
 " *mont*, and other Men of great Fame, in juſti-
 " fying the Acidity of ſeveral ſorts of *Spa*, and
 " *Chalybeat Waters*; and concludes, after a te-
 " dious and obſcure Harangue, that they owe
 " their Birth and great Virtues, to Vitriol and
 " Sulphur. He obſerves, that Vitriol and Sulphur
 " are found in the Globe, or Earth, from whence
 " thoſe Waters do ſpring; but yet does not give us
 one

Dr. *Slare*.Philosoph.
Transact.
A.D. 1713.Dr. *Slare*
on *Pier-*
mont Wa-
ters, fol.
36.

“ one Proof or Experiment, of his having found any
 “ real Vitriol or true Sulphur, or any Acidity
 “ in these Waters. But Dr. *Jordis*, an eminent
 “ Physician at *Francfort*, and a Fellow of the
 “ Royal Society, being at the famous Well
 “ or *Sour Broan* at *Swalbak*, in Summer-time,
 “ and practising there during the Season, I was
 “ then myself examining the Nature of all sorts
 “ of Waters, Cathartick and Chalybeat, or
 “ Steel Water, and the other, which contain the
 “ purging bitter Salt: my Request to this very
 “ learned Physician was, that he would give
 “ me an Account of the Contents of this Wa-
 “ ter, number’d amongst the *Acidulae*; particu-
 “ larly, whether, by Distillation, he could ob-
 “ tain any thing sour, or acid, as Vinegar and
 “ Juice of Oranges will do this way; but he did
 “ not perceive the least Drop of Acid did rise
 “ or distil over. He also evaporated a great
 “ quantity of this Water *ad Siccitatem*, and
 “ thought he found some sulphurous Parts in it;
 “ but Sulphur itself is far from being an Acid,
 “ but the contrary. He also found Ocre, and
 “ other ferruginous Particles in it, but those are to
 “ be found in all Chalybeat Waters, which do
 “ truly belong to the Nature of *Alkalies*, and
 “ not *Acids*.

“ But that which proves there is no Acids in
 “ the strong ferruginous Waters, was by using
 “ accidentally some Years ago a strong Iron
 “ Water, in a Place where I could get no other,
 “ and in washing my Hands with Soap, found
 “ this Water to lather excellently well; I also
 “ shav’d with it, and most Chalybeat Waters
 “ will do the same, and all much better than
 “ Pump-water.” So far the ingenious Dr.
Slare.

I have tried the same Experiments on *Hampstead* Waters, and find it answers incomparably, and commonly shave myself with it rather than any other Water ; and indeed I think, that the *Hampstead* Waters, instead of any Acidity to be perceived in them, rather leave a sweetish Flavour, or Farewell behind.

Dr. *Slare*,
P. 39.

Dr. *Slare* is of the same Opinion in the same Book.

C H A P. III.

Some EXPERIMENTS *used in proving these Waters.*

THE Method of trying these Waters; first, by Weight in the *Hydrostatick* Balance, they are found to be lighter than common Water, even purified by Distillation. There are several Mineral Waters, that contain Salts in them, are much heavier than common Water ; so some ferruginous Waters are impregnated with so fine and volatile a Substance, as to be lighter than common Water after it is distill'd ; as are the Chalybeat Waters of *Hampstead*, *Spa*, &c. (which I mention'd but now) than common Water ; and in most that drink these Waters, they prove

Dr. *Slare*, only Diuretick. And Dr. *Slare*, in his Book on p. 12, 13, *Piermont* Waters, says, no true Chalybeat Waters can be purgative; they afford but little *Caput Mortuum*, or dry Substance upon the total Evaporation of the Liquor ; whereas the Purging Mineral Waters are manifestly more ponderous in Specie than common Water, and leave upon Evaporation a considerable quantity of Residue, tho' some far less than others. To prove what I have been saying, from a Pound of *Barnet* Waters

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ters (which are very well known to be purgative) slowly evaporated, there is obtained one Drachm of white Powder ; and from the same quantity of *Dulwich* Waters, evaporated as before, there was got four Scruples of the same sort of white Powder : but from the like quantity of *Hampstead* Water, there was not the least Particle that could be perceived of *Caput Mortuum*, as was tried by Mr. *Bright* Chymist, at Mr. *Sylvanus Bewan's* Laboratory in *Lombard-street*, in *October* last ; which I shall be more particular upon in the Appendix.

It is generally allowed, that Mineral Waters, of the Nature of the *Spa*, *Piermont*, *Tunbridge*, *Hampstead*, &c. are impregnated with spirituous and volatile Exhalations ; it is not hard then, to account for the loss of a great Part of their Virtue, by the Avolution of many of their fugitive Parts, upon their being remov'd to a distance from the Spring-head, tho' they be bottled and sealed up, with all the Care and Art imaginable ; which daily Experience shews us. But this Defect is more plainly perceived in the Colour and Taste of the *Islington* Waters of *New Tunbridge Wells* ; which are soon clouded, cruddely, and of a yellowish Cast, as well as vapid and dead in Taste, in comparison of what they are at the Spring-head ; which plainly convinces me, (and I hope all unprejudiced Men) that this Water is the weakest of all the rest. But yet of late they have been strongly recommended ; insomuch, that part of the *Royal Family* has lately honour'd this Place with their Royal Presence, and have drank these Waters (as it is said) not without Success. Now, if these weak Waters, (as I have proved) in comparison of those of *Hampstead*, and the *German Spa*, can have so good an Effect ; how much more Benefit may we reasonably expect

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from our *Hampstead Waters*; which, I think, is very plainly and fully proved, to have all the Virtues in a higher Degree of Perfection than the *Islington Waters*, without any of their Vices? These Considerations certainly claim the highest Recommendation of the Faculty in their favour, if you will allow the Honour due to their Virtue, in curing all Distempers, where Chalybeat Waters can be of any service. I only wish, that *Hampstead* had been so happy and fortunate as *New Tunbridge*, to be recommended by one of the first Rank in Physick: I doubt not then in the least, but it would have had as great a Resort all the Season, as *New Tunbridge-Wells*; neither should I despair next Season of seeing this Place as much honoured with the Presence of some of the Royal Family, (if advised to them, as the Waters of *Islington*) both for the Virtues and Excellencies of these Waters; which, in my Opinion, as well as Dr. Gibbons's, Dr. Plumtree's, Dr. Stephens's, *cum multis aliis*, (who have proved them often, as well as myself) are far more prevalent, and therefore greatly to be prefer'd before those of *Islington*; and if I was to say, to any in all *England* of the Chalybeat Kind, I should not err.

If any thing in Nature comes near an universal Remedy for all Distempers, how universally would that Medicine be desired? and how happy would it be for that Person, that should be so fortunate as to find it out? He would be esteem'd greater than *Æsculapius*, or any human Power. But there is no such Medicine known, which will never fail in the Cure even of one Distemper. Methinks then, there's but little hopes of such a Proficiency in Medicine, as to be able to cure all Distempers in general.

I'll leave to Calculators of Nativitys to prognosticate what crude Mercury may do in time and which has made its way in some Cafes pretty well ; although it has met with great Opposition from several ingenious Men. But let them take care, that they fix him safe, lest he should slip through their Fingers, and so the Controversy should revive. I shall not any ways concern myself in the Dispute ; only wish, that Gentlemen, who write on this Subject, would, for the future, behave more like Gentlemen, in opposing those that cannot think as they do : so that by cool and gentle Methods, they may in time all come to be reconciled and good Friends ; tho', at present, they seem to be very warm on both sides, each side producing (as they say) undoubted Authorities of the good and bad it has done, by the large Collections of Letters daily printed, *Pro* and *Con*. They all value themselves upon Truth, and Matters of Fact, in opposition one to the other ; but to reconcile them, I should give them this Piece of Advice, that each side would be cautious in stating their Facts, and not be too credulous as to the Truth of every Story, that may be told, or printed, by any prejudic'd Person, either of one side or the other ; and then, no doubt, but this Heart-burning, and immoderate Heat, will soon cool, and Gentlemen will come to be calm, and use one another with more Candour and Good-Manners. So I shall take my leave of them, and now shall proceed: If any thing therefore can be call'd Universally Good in most Chronick Distempers, it is Mineral Water ; and where a pure Chalybeat Water is esteem'd proper, *Hampstead* is as good, if not better, than any in these Parts of *Great Britain*.

C H A P. IV.

The DISTEMPERS cured by Hampstead-Waters.

MOST Chronical Distempers take their Rise from the Obstructions of the Glands, and *Viscera*, abundance of impure Humours, and their Stagnation in the lower Vessels; all which, Reason tells us, must be removed, and I know no better way than by drinking *Hampstead Waters*. What noble Effects this wholesome Mineral Water has produc'd! and still continues to manifest itself in curing the Scurvy, a most prevailing Distemper in these Northern Climates; as also the long Train of other Distempers belonging to it, as Leprosy, Gout, Stone, Rheumatism, &c. in all which Cases these Waters have done Wonders: their Virtues are still the same; and, if any thing, more prevalent for these two or three Years last past, than they were before. They are counted very excellent in all Obstructions of *Katamenia*; in all Cutaneous Eruptions they are daily used, and always with good Success, where the Patient will be ruled, and observe the Directions of his Physician—— These Waters make the Humours fluid, and so become excellent in all Disorders of the *Hæmorrhoids*, and in opening all Obstructions of the Bladder and Kidneys; insomuch, that they make not only the Sand and Gravel pass off pleasantly, but often Stones of a pretty large Size come away by Urine, with little or no Pain.

In Nervous and Hysterick Disorders, whether Spleen, Vapour, or Lowness of Spirits, here you will find a never-failing Remedy, taken in time, and with due Regulation: and indeed

Cheyne,

Cheyne, in his *English Malady*, speaking of ^{*Cheyne's*} Chronical, Cachectical and Obstinate Cafes, ^{*English*} says, " That he could never learn, or discover, ^{*Malady, p.*} " but two universal, certain and natural Anti- ^{*191.*} " dotes, Remedies, or Methods of Cure, viz. " the Ponderous and Mineral Medicines; the " chief of which are Mercury, Antimony and " Steel; and secondly, Assistants, which are " Air and Exercise: both skilfully join'd " together, and duly persisted in, is the highest " pitch, Art, in his Judgment, can arrive to, " under the present Laws of Nature, and of " the Animal Oeconomy." Now if it be so, where is there a finer and more pure Chalybeat Water than *Hampstead* Wells? And for Air, where have you a more balsamick, dry, and clear Air than at *Hampstead*? And for Exercise, where have you a finer Country, better Roads, and pleasanter Views than at *Hampstead*? Yet the Application, in particular Cafes and Constitutions, will require the utmost Skill, Address, and Attention of the most knowing and experienced Physician, to make you happy in a perfect and lasting Cure.

Another Excellency in these Waters, and which may be matter of great Comfort and Joy to the Ladies; they miraculously assist, and I know nothing in Nature can exceed them, in all Weaknesses, whether from the *Fluor Albus*, or other Seminal Weaknesses, and against Sterility. They will certainly make them fruitful, if other proper Means be not wanting, which their different Cafes may require, join'd with those Waters; and for other Weaknesses, either from Lying-in, Miscarriages, or decay'd Constitutions, I know no Waters preferable to them; invigorating the Blood and Spirits, filling up the relax'd Solids, and bracing up the Fibres to their due Tonic

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 nick Tension. They are esteem'd as an excellent Remedy in all Disorders of the Stomach, when too much relaxed, as also in want of Appetite, or Defect of Digestion, by the Fibres of the Stomach being too much relaxed by hard Drinking, especially when grown flabby, and the Coats of the Stomach washed smooth, by frequent wetting in a Morning, and drinking of Drams; a thing too too common now-a-days; and I wish! it may not spread its Contagion beyond our own Sex, for ill Customs are too apt to spread, and become as it were a general Contagion; which if it shou'd, the Consequence may be of universal Prejudice to Mankind. I hope the inordinate Drinking of Thea will be re-trench'd, which, if continued, must bring a thousand Ills upon us, and Generations after us. What severe Cholicks, Sinkings of the Spirits, and a vast Tribe of other Nervous Disorders, does not the immoderate Use of this pernicious Liquor continually bring upon all that use it? when nothing can revive their drooping Spirits, nothing can give them Ease in the racking Pains of their Stomachs and Bowels, but some generous Cordial Water; so that if this nefarious Custom long prevails, the next Generation may be more like Pigmies in stature, than Men and Women. And indeed to consider, how we are already diminished, to what we were at the time of the *Romans* being here; which is plainly proved by the large Bones found in the antient Foundations of Antiquity in this City, and other Parts of *Great Britain*; that it is enough to surprize one, to consider how Luxury has introduc'd itself into this Country, and what vast Destruction it has made amongst the Inhabitants of this Isle.

But to proceed: These Waters will in a great measure remedy those Disorders, we have now been

been

been mentioning, if they be taken in time, and under a due Regimen; being counted very excellent in Diseases of the Bowels and Stomach; such as griping Cholicks, proceeding either from Lowness of Spirits, or from corrosive and fretting Salts, contained in the Bilious, or other glandulous Juices of the Bowels. These Juices are all diluted, and duly corrected by the Chalybeat Virtue of these Healing Waters; the Chyle being better prepared, and elaborated into the Region of the Bowels; as also being clean'd from all its Heterogeneous Qualities, that might otherwise have caused Distempers, is thereby conveyed into the Bood in a pure balsamick State; by that means giving a natural and good Nourishment to all the Parts of the Body: as also where confined Vapours and Disorders of the Spirits, together with flatulent Tumours arising from the same Cause, rack and lacerate the tender Fibres, and Membranes of the Stomach and Bowels; these salutiferous Waters very seldom or ever fail of the desired Effect: and by a due Regulation, in a convenient and proper time, make a perfect Cure, by mending the Texture of the Blood, and chearing up the drooping Spirits, making them lively and brisk, thereby perfectly fitting them for the various Offices of Nature. Their Influence upon the Spirits is so benign and kind, that they produce this desirable Change, without the least heating, ruffling, or inflaming them; which Wine, Brandy, and other strong spirituous Liquors must do, as we see by daily and woful Experience. And here it may not be improper for those that may read this Treatise, for their Relief and Cure, and desire no farther to be acquainted with a human Body than in what is directory and practical; for these, they need only suppose, that
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the Human Body is a curious Piece of Mechanism, of an infinite Number and Variety of Channels and Pipes, fill'd with various and different Liquids or Juices, continually running, circulating, or creeping forward, or returning backward, in a constant Circle; and emitting out little Branches; and Outlets, to nourish, lubricate, and repair the Expences of Life. Then suppose that noble and intelligent Principle, the Soul, resides somewhere in the Brain, being the Boundary and Seat for all the Nerves or Instruments of Sensation; that it may be compared to a Musician, in a curious, well-tuned Organ-Case; and that these Nerves are like Keys, which being struck on, or touch'd, convey the Sound and Harmony to this intelligent and sentient Principle the Musician. Or this intelligent Principle may be compared to the Sound of a Bell in a Steeple, which has several Hammers all round it, with Ropes of different lengths, terminating or touching at every Point of the Surface or Case; any one of these Extremities being pull'd, or touch'd, by any Body whatsoever, conveys a measured and proportion'd Impulse, or Stroke, to the Bell, which gives the proper Sound. These, or such like Similitudes, tho' very lame and imperfect, are all, I doubt, was ever design'd for the Generality of Mankind in the necessary Knowledge towards Health and Life, in such matters. Those that are acquainted with the best Philosophy, Natural History, the Laws constantly observed by Bodies in their Actions on one another, need not be informed in the manner here laid down; but this being the plainest and easiest for common Understandings, and being the Method the ingenious and learned Naturalist and Physician, Dr. *Cheyne*, has lately made

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use of in his Book, in his late Treatise of the *English Malady*, it may, I hope, be received without giving Disgust to any one, for this Digression.

Dr. Cheyne's
Intro-
duct. p. 4.

C H A P. V.

The TIME requir'd to cure CHRONICAL Distempers.

THE Difficulty, as well as Time required to cure *Chronical Distempers*, is next to be consider'd; and therefore from what has been written concerning the Virtues of these Waters, it can't be suppos'd, that a Cure can be perfected in a very short time; especially upon those that labour under Chronick Distempers, and which have been a long time in contracting, *Longo Tempore saevantur, quæ longo Tempore contracta sunt Vitia*. We must certainly allow as long a time for the Cure, as was employ'd in the Pursuit.

Baccius,
lib. 2. Cap.
10.

Some good Constitutions may be easily and soon impair'd; but they are not so easily repair'd, when so abused. And there are many in the World, that I have been intimate with, who have brought brave, hail Athletick Constitutions into the World with them, abounding with good Strength, and Spirits derived from healthful and sober Parents, who have taken no small Pains to get the better of them; and one, among the rest, has often told me, with a hearty Curse, that he had tried all ways imaginable, in all Excesses of Debauchery, to ruin his Constitution, but could not as yet get the better of it. But yet let me tell him, it may be gone before he is aware of it; therefore I would advise him, and all in his way of thinking, to

take up in time, for our Lives are not our own, but derived from a Supream Power, to whom we must render an Account: and what Account these Persons will give of themselves, I dread to think of.

Another Difficulty in curing *Chronick* Distempers arises from the following Reasons; that for the most part, but little Assistance is to be depended upon from Nature, which is very often much weakened and grown languid, and almost quite worn out and spent, before they think it is time to apply to a Physician.

Others there are, who think to be cured of their Disorders, in as few Days as perhaps have cost them Months, or even Years to acquire them.

In acute Cases, Nature is very often the chief and sole Determiner; and is a sure and certain Guide to the skilful Physician; who, by his Vigilancy, Judgment and Observation, makes his Remarks, and distinguishes aright, in order to assist her in all her Endeavours, to a safe, sudden and perfect Cure. But in Chronical Cases, we have more Difficulty upon our hands; we must give new Life (as it were) to those that were half dead, and repair the decay'd Organs; we must give a fresh Spring to the relax'd Fibres, and a total Change to the fluid State. Here a sound Judgment is most necessary, with a constant Vigilance and Assiduity in the Physician, to make a true and just Observation of the slow Advancements of Nature; which, not unlike the Growth of Vegetables, are so minute, that they are almost imperceptible; that so he may in all convenient times assist her Progress, and thereby let no Occasion slip of serving his Patient.

C H A P. VI.

EVACUANTS *and* ALTERATIVES.

EVacuants and Alteratives are equally used in curing Chronical Distempers, as Catharticks, Emeticks, Salivation, &c. The two first are not so entirely to be depended upon for a Cure as the last; being chiefly designed to cleanse the Stomach and Bowels, for the more successful Introduction of the Alteratives or Correctors. But these latter often pall the Stomach, by their Continuance and long Use; so that they entirely destroy the Appetite, as well as Digestion. In this Case, we are obliged to call in to our assistance, Mineral Waters, and the right use of Exercise, Diet, wholesome Air, and sometimes a different Climate. But I shall confine myself chiefly to Mineral Waters, and more particularly those belonging to *Hampstead*: therefore must beg leave to lay down this Rule to the sick, *viz.* That they totally abstain from whatever gave birth and countenance to their Grief, be it never so grateful and darling a Favourite; let the Self-denial be never so difficult, make the more use of that more noble, or, as I may say, divine Part, your Reason: and then you will with ease conquer your most beloved Vices, when you know the pernicious Consequences of living in the pursuit of them, can be but of small duration, and must inevitably soon destroy you. Therefore let me intreat you to cast off this old Inmate, for she is false, and only flatters you, in order to destroy you. This, you may say, is a hard Injunction, and a very severe Rule; but let me tell you, that I really wonder, and stand amaz'd, that Mankind will be

more indolent to recover a deluded, abus'd, weak and languishing Constitution, and yet will labour hard, and take a vast deal of Pains to destroy a good one.

Therefore, if the Custom and Manner of the Age will incline Men to continue a Method of living, that must be destructive to their Healths, neither Steel Mineral Waters, nor any Preparation of Steel, nor indeed any other Medicine, can prevent those Evils, that Mankind will wilfully pull down upon their own Heads. For if the farthest Parts of the *Indies* are to be search'd for Spices, and the remotest Regions of the West for strong and spirituous Liquors, and for unusual Dainties, and indeed all other Countries for the most delicious Wines; if Mankind will more study to tickle their Palates with pungent Sauces, than with wholesome Food to qualify their Hunger, and will more delight to warm their Heads with strong Liquors, than to allay their Thirsts with innocent ones: if Mankind will, in all things, prefer a voluptuous Luxury to a temperate Sobriety; and if to all these things, they will indulge an unactive, sedentary Life, rarely employing their Limbs for such uses as they were adapted for: it is no wonder, if they are afflicted with various Pains and Infirmities, when thus their continual Endeavour is to contribute as much as in them possible, to procure such Grievs. In vain then do we complain of the Inefficacy of Medicines, when we thus suck in our Diseases with our Drinks, and swallow our Infirmities daily with our Food. For by this means, the Efficacy of Mineral Waters, and indeed all Medicines are destroyed. What is a Cordial to that Person, whose daily Liquor is continually Drams of the strongest and hottest Spirits? What can warm and invigorate the
Blood

Blood of those, who are daily heated by what they eat and drink? What can help a Stomach, that is every day gorg'd with what should cherish it? What can give those Persons Spirits, that wanton every day, even to a Debauch, in those very things that should give it? This being one bad Custom, that has of late prevailed very much, therefore it might not be improper to reason a little upon it; as also to condemn the Usage and Custom of our Country, and indeed several other Parts of *Europe*, who have introduc'd a sedentary and unactive Education, for the tender Years of the Female Youth; and also the squeezing and cramping up their young and yielding Bodies with Stays: Pale Faces, sickly Looks, unhealthful Constitutions, and mishapen Bodies, must be expected, especially narrow and high Chests in some, which often produce incurable Asthmas, and these poor Creatures live miserably all their Days. The Blood can never preserve its due Crasis, or perform its natural Functions, when what Nature requires for the doing of that, is in part wanting: farther, how should every Region of the Body receive its just and natural Proportion; when, by the Compression of its Vessels, the Passage in several Parts is streightened or impeded? Or, how should the Parts themselves perform their Offices, when they are so bound down, that they want Power to do it? Therefore, in my opinion, it can't be otherwise but that Bodies must be often deform'd, when Nature is hindered from performing its own natural Operations, and the Blood is diverted in its regular Course, and forc'd to run unequally; and if the Blood runs disproportionably, the Parts consequently must be nourish'd so. Now, if the Parts be so nourish'd, what can ensue but Deformity? for

Swathing
and Ban-
dage for
Infants.

Vide Wa-
fer's Hist.
of Virginia

in this Case, some Parts grow, while others starve; therefore all natural Proportions must be destroyed. But we are not contented with this alone, but have introduced another bad Custom; and which, I can only call an over-tender Cruelty, by torturing the Bodies of Infants by Swaths and Bandages, under a foolish Notion of supplying Weaknesses that are inseparable from our Nature. Thus likewise do we destroy the Healths and Shapes of growing Youth; and this likewise is the first Cause of their narrow and high Chests, and which certainly brings along with it those inveterate Asthmas I mention'd before. Thus thinking ourselves wiser than the great God that made us after his own Image, we pretend to give Shapes, and (not being content with the Workmanship of the Almighty) we really by such unaccountable preposterous Measures, entirely destroy them. For, look but into the History of those Nations we esteem barbarous, as the *Indians* in *Virginia*, and other Parts of *America*; and to go farther yet, let us view the Inhabitants of *Barbary*, all along the Coast of *Guinea*, and in the *East-Indies*, and the Coast of *Malabar* and *Madagascar*, where Nature is left to itself in shaping and fashioning human Bodies, where the Members of the Infant are left at Ease and Liberty, and where the Bodies of the Youth are left at large to grow and spread; where there is no use made of Swings to half hang them, nor no Go-carts to learn them to walk, nor no Back-boards to pull their Necks and Heads back upon their Shoulders; yet you shall there see no Hunch Backs, no Full Shoulders, no Deform'd and Crooked Shapes, and the Men and Women are strait and due proportioned, walking upright, and with as good a Grace as those that have gone through all those

Experi-

Experiments, with the Assistance of a Dancing-Master, to make them compleat fine Gentlemen and Ladies.

In those Countries, they know no such Distemper as the Rickets. Among all the *Blacks* and *Indians*, that I have seen, in my Travels, in *France*, *Spain* and *Portugal*, which have not been a small number; I never yet saw one crooked, that was born so in their own Country, unless produc'd by some Accident: whereas in our own Country, and in several other Parts of *Europe*, how many miserable Objects of our own Follies have I daily seen! This Custom being a prevailing Evil, I could not avoid taking notice of it in this place, in order, if possible, to persuade both Men and Women to alter those Habits and Customs, tho' never so old, and we never so bigotted to them; when, by continuing of them, they prove a publick Detriment to our Posterity. I shall now return to my Original Subject, and in the next Chapter lay down some Directions in drinking the Waters.

C H A P. VII.

Some useful DIRECTIONS in Drinking the Waters.

I Shall not here prescribe a particular Regimen, but only tell you in general, that it will be of little Service to any one, to have drank a Quart of Mineral Waters, whether *Hampstead* or any other Chalybeat, if you can't be contented without drinking a couple of Bottles of Wine, whether Port, or any other sort, before you go to Bed: tho' I do not design to debar you altogether from Wine (especially those that
have

have been us'd to take a hearty Bottle, as they call it) and have long accustom'd themselves to this bad Habit. No, I will allow you now and then to dilute your Wine with a little Water; and if you can't sleep at Night without a Composing Glass, a Pint of Wine, I hope, will be sufficient; and which, I suppose, will be no great Hardship for any one to comply with. You may drink three or four Glasses at Dinner, but none betwixt Meals. Thus you may go on pleasantly enough in your watry Regimen; and I presume the Quantity of Wine will be sufficient, unless it be to those who may think, there is no Virtue in any thing but Wine: as for those Patients, they will be of little Credit to any Waters, or any Physician. Sage, Balm, and a little Lemon-peel made into Thea, Chocolate, Milk-Porridge, Chicken or Mutton Broth, Bread and Butter, are counted best for Breakfast; about half an Hour after drinking the Waters, Coffee may be used; but the less the better. But as for the Green or Bohea Thea, it ought to be banish'd out of your sight for the time you are in this watry Course; for it will undo, in many Cases, all that the Waters have done for you before: besides, in general, they commonly disagree with these Waters: Neither is Malt Liquor advisable with them. As for your Meats, they ought to be of easy Digestion, and the Juices not over abounding in them. In my Opinion, it is an excellent Rule, to eat but of one Dish at a Meal, by which means many have lived to *Nestorian* Years; and the less Quantity of Flesh we eat in the Season we drink these Waters, (which are commonly the Hot Months) the better. I should rather recommend Shell-fish, Roots, Milk, Puddings, or any thing where Milk is a Part, which will agree very well with these Waters,

Waters, if Milk is agreeable to them at any other time ; as also those Foods that nourish most in the smallest Quantities. For our eating too much, and improperly, often feeds the Disorder, and not the Sick ; it is over burdening Nature, that is already quite jaded and tired out ; or like one that will mount up a Hill of Sand, who will, every Step he takes, sink down, and go rather backward than forward.

The Method of using these Waters, as to Time and Quantity, is best left to the Learned of the Faculty, that either live upon the Spot, or are near at hand, with whom *Hampstead* is always abundantly supply'd. I cannot excuse myself, if I let slip one Remark on an Error of a great many of the Mineral Water-Drinkers ; That they often drink them in too large Draughts, and too great Quantities, which, if they do not pass freely, often give them Cholicky Pains, Vertigoes, and swell their Bellies, and frequently make them very sleepy. Others there are, that are never contented, or better pleas'd, than when they pass off very soon : but let me tell you, this is a very wrong Notion ; for if you do not allow a due Distance of Time, and take them in small Draughts, they can never answer the Intention they were designed for. Moreover, if they do not remain first in the Stomach, and afterwards be receiv'd into the Blood, by a convenient space between each Glass ; how can they answer as an Alterative ? Some perhaps may think this Caution unnecessary ; but the Errors I have seen committed of this kind, have surpris'd me so much, that I have really been at a loss where to fix the Ground of such Practice, unless it be from Ignorance, or a Design to do Mischief ; and so bring an Odium on

the most Salutary Waters in this Nation, and render them as destructive as the worst of Poisons.

C H A P. VIII.

Some farther Rules to be observed in the Use of Hampstead and other Chalybeat Waters of the same Nature.

IT is certainly very good, as well as very necessary, in drinking Mineral Waters, as an alterative Course, to drink them for a Fort-night or three Weeks; and then to intermit 4 or 5 Days, lest the Patient become too habituated to them; and they become of the Nature of a Diet to him. Having once begun this Regimen, your Evacuants, should but seldom, or but sparingly be advis'd, unless there should be some urgent Necessity to the contrary: for many Physicians may have undone in one Day by Evacuants, what may perhaps have been the Work of some Weeks.

Cheyne, p. In the alterative Course, Dr. Cheyne laid down this Method of Evacuants, in his Book on the Nature of Bath Waters.
42.

The great Dr. Sydenham, our English Hippocrates, is directly opposite to him; where, writing on the same Subject, he thus expresses himself:

Sydenham *Etenim hoc ut firmiter retinendum quod quoties*
Tract. de *cujuscunque Morbi Curatio Remediis Corroborantibus*
Podagra. *innititur, Evacuaciones qualescunque ea fuerint of-*
p. 424. *ficiunt prorsus.*

And in another Place in his Epistolary Dissertation, he says (in speaking on Mineral Waters)
Sydenham *Quod si ipsæ aquæ Humores, ac Spiritus exagitando,*
Differrat. *turbandoque aditum sibi met ipsis præcludant, quo mi-*
Epist. p. *nus facile transeant, videant illi quam importune a-*
379. *gunt,*

gunt, qui Medicamenta Purgativa per harum usum imperant.

The Time of the Year for drinking these Waters, I just hinted before; but beg leave to be a little more particular on that Head. The Summer Season is certainly most proper, especially from *June* to *Michaelmas*: and according to the Season of the Year, you may begin sooner, and end later. When the Weather is clear and dry, the Water is strongest, and best in a dry Season, as well in Winter as in Summer: and in hard frosty Weather, it is prodigious strong, by reason of the Antiperistasis, or Pressure of the Air, hindering, in a great measure, the Evaporation of the Mineral Spirits of the Water; but in much Rain, it loses considerably of its Virtue; though, after a moderate Rain, it is stronger, for Reasons I have mention'd before in my Preface. I cannot pass by a Proposition the ingenious *Dr. Slare* takes notice of, in his Tract on *Piermont* Water. “ It was of the learned Physician *Dr. Steygerthall*, Archiater to the late King, and Fellow of the Royal Society; who, in a curious Tract of his, gives an Account of great Variety of Waters in *Germany*, and other Places; and particularly mentions this, that at *Heallback*, when the Weather is cold, they bring the Waters to the Fire, and warm them before they drink them. He proposes the making these Waters warm by an Ignited Rod, or Rod of Iron. The Doctor confesses, with great Modesty, that he never made the Experiment; but to me, it seems so rational, that it ought to be taken notice of, and that it may be made practical, give me leave to add these Directions. Take a small Bar, or Rod of Iron, about a Foot long; fit a wooden Handle to one End, to

Dr. Slare's
Treatise
on *Pierm.*
Waters. p.
33.

“ be put on or off at discretion ; pour half a
 “ Pint of Water out of a Flask or Bottle, into
 “ a convenient Vessel of Silver or China, not
 “ of Glafs, then plunge the ignited Iron into
 “ the Water ; bring the Water to a very low
 “ degree of Heat, when you pour more out of
 “ the Bottle, get your Heaters always rea-
 “ dy. Thus you may serve the *Hampstead* as
 “ well as the *Piermont* Waters ; for in this Ex-
 “ periment you lose none of the Chalybeat
 “ Virtue of the Waters, but rather receive an
 “ Addition from the heated Iron.” You like-
 wise prevent another Inconvenience, when a
 whole Flask or Bottle is warm’d in boiling Wa-
 ter, as we use the *Bath* Waters, it will be apt
 to dispirit, and make the whole Bottle flat and
 lifeless. But this way may the *Hampstead*, as
 well as *Piermont* Waters, in the coldest Sea-
 sons of the Year, be drank with the same
 Virtue ; and therefore, with as much Benefit as in
 Summer, nay, perhaps, with many People, to
 better Advantage ; the Water being more likely
 to pass off by Urine in cold Weather, than in
 the hot Summer.

If the Waters should at any time prove too
 strong for some weak Stomachs, this is easily
 remedied, by mixing a just Proportion of good
 fair Water with it. We must not condemn a
 good strong Wine, because some Constitutions
 can’t bear it by itself ; but when mixed with
 Water, it proves a great Cordial. This Notion

Dr. Slare’s
 Tract on
Piermont
 Water, p.
 31.

Dr. Slare, in his Tract on *Piermont* Waters,
 takes notice of, and that he was confirm’d in his
 Opinion by a Case that was related to him by
 Dr. Steygertball before mention’d, “ who cured
 “ a tender Lady labouring under several despe-
 “ rate Distempers, (when she could not bear the
 “ Water of the Well) by mixing equal Parts of
 “ simple

“ simple Water with the *Piermontane*.” He farther recommends this Method to be made use of by others, if they have any Reason to suspect these Waters to disagree with them, as being too strong; and so you may use the *Hampstead* Waters. I would advise the drinking these Waters an Hour after Sun-rising, as the best time of the Day; for when the Sun begins to mount higher, it encreases in its Force, and thereby attracts the Mineral Spirits, which makes the Water weaker: besides, the Morning is most convenient, as well as delightful and wholesome for the Ladies, for gentle Walking and Exercise. You ought to stay near half an Hour between each Glass, that will hold a full half Pint; thereby you will prevent the Stomach from being over charged. Drink about three, not exceeding four of these Glasses, which will be sufficient.

These Waters are much better, and far more efficacious, if you drink them at the Well-head, than being brought to your House; therefore if it be but a small distance from your Lodgings to the Wells, you had much better walk gently to them: so that you but just warm your Body, and do not sweat, for such a degree of Heat would be pernicious; only desiring, that the natural Heat should be somewhat stirred up, because then the Water will be better received, and have a more easy Passage. Those that take Tobacco, may do it here with all the safety in the World; but let them have a Regard not to offend the Company, especially the Ladies, who cannot well relish that Smoke with their Waters. All violent Exercises ought to be avoided, (and I think none more violent than some of your Country Dances) for it will hinder the due Digestion of the Waters, and often brings

brings it up again; by that means debilitating the Stomach, which, Emeticks of this kind do always, unless when the Stomach is very foul, and then a proper gentle Emetick is of great Service. An Hour after you have done drinking the Waters, you may then divert yourself with the Diversions of the Place; and all who expect to reap any Benefit from the use of these Waters, must be of a merry and chearful Disposition, and an entire Stranger to every thing that is the least melancholy or sad. After you have eat your Breakfast, and return'd to your Lodgings, you had better ride 4 or 5 Miles than walk; because, by the Motion of the Horse, the Stomach and Viscera are hereby born up and contracted, by which means the Waters will be better digested. The great *Baglivi*, in his Practice of Physick, recommends this Exercise of Riding after the following manner:

Baglivi's
Practice of
Physick,
Chap. 13.
Sect. 4.

“In several Diseases, Remedies do more harm than good; and Benefit is reaped from Motion and the Country Air. ’Tis the constant Opinion of all the most learned Physicians, that some obstinate Chronical Diseases, especially those arising from Disorders of the Spirits, and weak Nerves; and especially where Grief has affected the Mind any considerable time, admit of no speedier Remedy than riding in the sweet Country Air.”

In a very obstinate bilious Cholick, in Pthicks, accompanied with a melting Looseness, and the other Symptoms of a desperate Case, in inveterate Hysterick and Hypochondriack Disorders; in a word, in all Chronical Diseases, and such as arise from an Obstruction of the Viscera; after all other Remedies are tried to no purpose, we find nothing better than riding out on Horseback; first, for a few Furlongs, and afterwards as many Miles as their Strength will

will bear, and that chiefly in the Morning, and in clear sunny Weather.

This is religiously acknowledged, as well as strongly recommended by the excellent Dr. Sydenham, and was mentioned long before him by Hippocrates. 'Tis no Objection, that the Patient is too weak, and so low in Strength, that he cannot be moved in his Bed; for in that Case, the Exercise must commence, first, in a Coach, for a few Furlongs, and so proceed gradually to riding on Horseback, and that for several Miles: for by this sort of Exercise, occasion'd by riding, the Viscera of the Abdomen are gradually shaken and jogg'd; the jogging of the Horse falling all upon the lower Belly of the Rider, and the rest of the Members being very little affected. By virtue of this repeated Succussion, the languid and almost flagging Spring of the Fibres is retriev'd, the diminish'd and obstructed Motion of the Humours and Spirits is roused up, and what Viscidity sticks to the Glandules of the Viscera, recovers its lost Circulation. Now the Ferments of the Viscera being thus restored and exalted by a continual Course of riding, not only their concocting Faculty, but even the Secretion of the Humours, is put upon the primitive and healthful Foot; and the peccant Matter, that has so long hung upon them, is thrown out by such Passages, as Nature finds most convenient. This Secret of the Benefit receiv'd by riding, ought not to be concealed (says Baglivi) from my Countrymen, especially the Citizens of Rome, (and I may say the same of my own Countrymen, the Citizens of London) where the Atmosphere is almost perpetually clogg'd, and foul'd with moist cloudy Weather, and consequently has but a small elastick Force. So that it is no wonder, that it

commonly

Hippocrat.
lib. de Di-
eta.

commonly occasions a loose Flagginess in the solid Parts of the Human Body, and a sluggish Inactivity, with a sort of Clamminess in the Fluids. 'Tis for this Reason, that the three Diseases described by the learned *Petronius, de Victu Romano*, rage chiefly in *Rome*; I mean, a constant Heaviness of the Head, a Weariness, and a costive Habit of Body; from all which 'tis manifest, that in the Air of *Rome*, the Motions both of the solid and fluid Parts, become too languid; and that this Air will ever be the Bane of the Health of the Inhabitants, unless they rouse and increase the Motion of the Humours and Spirits by exercising themselves abroad, that they may have a free Passage through their different Tubes. And the Tone and Spring being thus relieved, Concoction and Secretion may be performed in the Viscera, and other Parts of the Body, pursuant to the Laws of Nature.

Drinking the Waters too soon after Dinner, or later in the Afternoon, does very often more harm than good, often preventing the right Digestion of the Food: and when they are drank later, the Waters forcing their way for themselves, carry with them the Chyle raw and unconcocted, which will soon produce Crudities and Obstructions, by that means becoming more detrimental than beneficial to the Patient. Therefore, I think, once a Day, and that in the Morning, is enough; and as to the Quantity, it must often vary very much, according to the Age and Constitution of the Patient that drinks them: therefore in this Case, it will be very proper to consult the Physician on the spot. It has made me laugh very heartily oftentimes, to see some Patients, (sent hither, either by ignorant Quacks, or some pretended Physicians) who (have by these learned Gentlemens Orders) drank 10 or

12 Half-pint Giasses in a Morning. Sure the Doctor was resolv'd not to underdose his Patient, and that he should have Water enough for his Money.

The next thing I shall speak of, is the Air, where we drink these Waters, which ought to be maturely consider'd, as having as great a share in assisting the Patient in his Recovery, as the Waters: that of *Hampstead* is hardly to be equalled; the Village being so delicately situated, and so convenient, both for our constant Residence, as well as for the Season of drinking the Waters.

The Air here is very dry, and perfectly Balsamic, not passing over boggy and marshy Lands, nor very high Mountains, nor excessive large Woods; both which, according to the Naturalists Opinion, commonly attract the Moisture of the Clouds: but we are situated upon several low Hills, with a gravelly and sandy Soil, and, as mention'd before, not above four Miles from the *Thames*. Neither are we confin'd in by Hills, which hinder the Winds from having their free Passage over us, which, by their Motions, purify the Air continually, preventing thereby any Stagnation. *Hampstead* Air and *Montpelier* in *Languedoc*, a Province in the South-East Part of *France*, are very little different; tho' both of them may in some Cases be too sharp: and indeed in those Cases, we must remove into *Spain*, *Portugal*, or *Naples*, where they enjoy a more favourable soft Climate, and equality of Weather for a longer time than we do in *England*. The misfortune of the great Pressure and Moisture of the Air, in the Winter Months, in *Great Britain*, is too apparent, by the sad and melancholy Tragedies, Men and Women are too often guilty of, in committing Suicides, which the Weekly Bills

so frequently acquaint us with ; and that there are more Self-murders in the four Winter Months in *England*, than in *France*, *Spain*, *Portugal* and *Italy*, in twice seven Years. So that in these Cases, where the Air is so very heavy and thick, we ought to chuse the dryest Situation ; and when we cannot walk abroad nor ride, we should do well to walk in some large Greenhouse, surrounded with Aromatick Plants, and where there may be such a degree of Heat, as may, together with gentle Exercise, increase insensible Perspiration, and not so violent as to make you sweat, lest the Pores being too much opened, you should get cold, and thereby do yourself more hurt than good. If the Ladies, who are of the nicest and most delicate Constitutions, would use this Method every Year, when the Season requires it, they would certainly enjoy their Health and Strength, together with a large share of Spirits, that will hold them to a very old Age, and at the same time make Life comfortable to them. Sir *William Temple*, in his third Part of his Memoirs, seems to favour this Practice. The Air acts upon the Body different ways, either on the whole Body, or the Lungs ; it either promotes or lessens Perspiration, according as it is more dry or moist, hot or cold, more specifically heavy or light ; and accordingly the Lungs must find a great Difference from the different Alteration of the Air ; which asthmatick People, of all others, are the most sensible of. But I shall not enlarge farther upon that Subject at present, but leave it to another Opportunity.

Sir *Will.*
Temple's
Memoirs,
Part 3d.

C H A P. IX.

The TIME of Residence, Preparation of the Body, and the Use of the Non-Naturals.

TH E certain Time of our Residence cannot be fix'd with any certainty; for, in some Distempers, a few Weeks will do, in others, several Months will scarcely be sufficient. Nay, in some obstinate Cases, it will be requisite for the Patient to return hither 2, 3, or 4 Years successively. These Directions, I hope, will be sufficient as to the Time. The next thing I shall just touch upon, will be the Preparation of the Body before the drinking those Waters.

Tho' I have before laid down to you the chiefest Diseases, that may be cur'd by these Waters; yet at the same time, I would not be understood, that they are to be cured by drinking these Waters alone, without any Help and Advice of a Physician: for, tho' a watery Regimen, as I have observed, be an Empirical Remedy, yet ought it to be manag'd with Reason and Judgment, as well as the greatest Circumspection, otherwise it will do more hurt than good. Many have contracted Fevers and Agues, by drinking the Waters unadvisedly, and without due Preparation; tho' nothing is more assistant in the Cure of such Maladies, than they are when rightly used, the Body being first duly prepar'd. Therefore, those that regard their Healths, must, before they begin to drink these Waters, take some proper Preparatives that their Physician shall advise them to, in order to

prevent any Inconvenience that may arise from the Neglect of it. You can't expect from me a Prescription of the Kind, or of the Dose, those varying according to the Variety of Constitutions, and different Cases, that may offer; therefore it will be very convenient for such Persons to take their Preparations upon the spot, lest if they live any distance from the Wells, and should travel upon it, the Consequence may be very hazardous. It will also be convenient sometimes to take your Physician's Advice in the time of drinking them in several Distempers, in order to make the Waters more beneficial to you, and thereby produce a happy Event.

I shall in the next place advise the due use of the Non-Naturals. All these must be strictly observ'd, as well to preserve, as to restore Health. As for the Air of *Hampstead* (as I have mention'd before) it is the best adapted for those that drink these Waters of any in *England*. It has been an Observation of several Gentlemen, Inhabitants here all the Year, as well as myself, that the Air is neither so cold nor raw here in Winter as in *London*; and you may easily perceive an Alteration as soon as you come to *Pancras* Church; there being felt a sudden Chillness and moist cold Dampness in the Air from that Place to *London*, where you have it continued; and which, I attribute to the vast Quantity of Water that surrounds it, and the River *Thames* running all along that great City; whereas we are mostly dry, and not so much troubled with stinking Fogs, as in that large City: neither are we so sultry and hot in Summer, as in *London*, breathing in a free dry Air, without Confinement; the City of *London* being so low in comparison of us, that we can see 20 or 30 Miles beyond it.

As for Motion and Quiet, the Passions of the Mind I took notice of before.

The next is Sleeping and Watching. A due Moderation must be observed therein ; though I think, it is rather better to sleep somewhat too much, than to sit up too late ; and one Bottle of Wine after 11 o'clock does more harm, than two Bottles before 10. If you eat any Supper, let it be very light and easy, and about 7 in the Winter, and 8 in the Summer, that so you may sit up till 10, or half an Hour after, never exceeding 11 ; so that the second and third Concoctions may be over before you begin to drink your Waters the next Morning. As for things voided and retain'd, you must endeavour to have the Benefit of Nature, by all manner of natural Evacuations ; as by Stool, Urine, Perspiration, &c. Food I have mention'd before : then, as for Fruit, the less you eat, the better.

Now to draw to a Conclusion, having briefly gone thorough those things most needful to be known and practis'd, by those that shall have occasion to drink these Waters, I shall only beg leave to give this Word of Advice : That they be well acquainted with the Nature of their Distemper, before they come here ; and when they are come, to observe the Rules and Directions laid down : neither let any one be discouraged, if he, or she, be not cured the first Season ; for many have been cured before the end of the second, that have hardly perceived any Alteration by the first ; and, I hope, by the careful Observation of the Rules, I have here propos'd, many may receive benefit. And I can assure you, 'tis with that view, together with my best Wishes, that all, who come to drink these Waters, may find a perfect Cure
of

of their different Maladies, and may go away
cheerfully, *Mens sana in Corpore sano* ; giving
Praise to the Great Creator, who has bestow'd
so great and universal a Blessing to Mankind.





A P P E N D I X :

Being some OBSERVATIONS of different Cures Hampstead Waters have perform'd: faithfully collected from several Persons, whose different Cases, and some of their Names, are faithfully related.

HAVING endeavour'd in the foregoing Treatise to explain the extraordinary Virtues of this light Chalybeat Water, I hope I have therein fully demonstrated, that as the Chalybeat Principles of *Hampstead Waters*, are the most refin'd, so the Spirit is the most subtile and volatile, which makes the Water both light and thin: this is the Reason of their invigorating a poor Blood without heating in the least, penetrating farther without ruffling the Spirits, (or in the least disordering the Nerves) but rather volatilize them, and make the Person that drinks them gay and easy. And the Acidity which some may foolishly think to be in them, (and which I, nor no one else ever could find) is so frivolous, that it is not worth taking notice of; being wholly imperceptible to the Taste, as well as demonstrable on the contrary, as you will perceive by the Experiments that have been made, that they are peculiarly adapted to open
all

all Obstructions. I shall now therefore proceed to show you what Obstructions they have removed, and the Cures they have perform'd; from the History of several Cases that have been sent me, as well as those I have been concerned for. But I shall begin first upon myself.

Among the innumerable Cures these Waters have perform'd, none ought more to be considered than that of the Stone, both in the Bladder and Kidneys, by removing the Cause of its Generation, and restoring the Blood and Juices to a good Habit, as well as the other Parts of the Body; which the Subtleness and penetrating Nature of these Waters have an extraordinary Quality in performing. From thence, I shall proceed to give some instances of the good these Waters have done in Obstructions of the Glands of the Mesentery, which shows itself by Chyleous Excrements, and Rejection of the Food in a small time after eating; which, in time, produces a small Fever, Pains, or other Diseases, as Coughs, want of Rest, with a general Marasmus, or wasting of the whole Body. In these Cases, *Hampstead Waters* have been an effectual Remedy, and very seldom or never fail'd of making a perfect Cure on those, that have made use of them in a regular way: and in all Obstructions of the Glands in general, these Waters have a particular Efficacy in moving them and giving Relief.

OBSERVAT. I.

ABOUT the Year 27, I was grievously afflicted with the Gravel and Stone, both in my Bladder and Kidneys, and in such excessive Pain, attended with the Strangury, Tenef-
mus,

mus ; Vomitings, Stoppage of Urine, with an unusual Weight in my Bladder: infomuch that Dr. *Slare*, happening to be at *Hampstead* at that time, would have perswaded me to be cut ; telling me, it was impossible I could be relieved any other way ; but being very unwilling to undergo that hazardous and painful Operation, I tried several Remedies of a soft, oily, balsamic and diuretick Quality, which gave me some Relief: Then I began to drink the *Hampstead Waters* regularly for a whole Season; by which means I found myself much relieved, and in some few Days after I had begun this watery Regimen, I voided a large Quantity of Gravel and Sand, of a reddish Colour, and in a Week's time, after gentle Exercise, I voided several small Stones, some as big as Peas; and what is to be admir'd, they came from me with little or no Pain: the Strangury that I laboured under before, together with the other Disorders before mention'd insensibly, went away, and have continued tolerably easy, and well ever since; which I attribute, in a great measure, to the drinking of these Waters, and should not do them Justice, was I not to publish it to the World:

OBSERVAT. II.

Stone.

Being a Letter sent me by the Reverend Mr. Watts, Curate and Lecturer of Hampstead, which I have here publish'd in his own Words.

September 10³

I Having perused this Treatise upon *Hampstead Wells*, do certify the Reader, that what he shall find advanced therein, is most just, and grounded upon the greatest Experience; or perhaps,

haps, the Author's Modesty scarce gives those Waters a Character adequate to their worth. I have used them betwixt 30 and 40 Years, always once, sometimes twice or thrice in a Year, and to the best of my Knowledge, they never failed more or less to answer the Design. And not only my own Experience, but that of my Family, Neighbours, and Friends do loudly commend them, in all the Cases taken notice of by our Author. How often have I seen my Friends go from *Hampstead*, with sound Bodies and joyful Hearts, that came thither a few Weeks before in deplorable Circumstances, and sometimes as to the last Resort ! and that in so many different Maladies, that Experience only can make it credible ! How often have I in mine own Person experienced their Virtue, in Summer Coughs and inflammatory Colds ! How often in other Indispositions ! particularly the Gravel, for which I began to drink them three Weeks ago ; and the first Day parted with a Stone before I went into my Bed, and almost without pain.

Cou'd my Pen convey to others the Idea I have of them, and the Advantages they wou'd find in using them, we shou'd see the Walks crouded as heretofore, 20 or 30 Years ago. And it is some pleasure to me to be informed, that this Summer they have not been without a pretty number of Visitants ; which have been of late Years almost desolate, thro' the Knavery of some, and the Folly of others, and the exceeding great Zeal that has appeared for the Glory of God and the Good of the Poor.

G. WATTS.

OBSERVAT. III.

Is a second Letter from the same Reverend. Divine, of some Persons that he was intimately acquainted with, who were cured of different Distempers, as you will see by this Letter.

TO the AUTHOR OF HAMPSTEAD-WELLS.

DOCTOR,

Sept. 20, 1733.

IN Answer to your Desire of some Account of the Reverend Mr. *Wilmer*, relating to his drinking *Hampstead* Mineral Waters; please to take what I know of that matter as followeth:

The Reverend Mr. *Wilmer* was in his Youth thin, pale, weak, and consumptive, and so continued till he was betwixt 30 and 40 Years of Age. But going to *Tunbridge*, and drinking the Waters there, he perceived his Health improving, and having heard that *Hampstead* Waters were of the same kind (which were much nearer him) he went to *Hampstead* instead of *Tunbridge*, and finding his Health still improve, he went every Season from his Rectory of *Elsborough* near *Wendover* in *Bucks*, to *Hampstead*, where he stay'd seven Weeks, and drank the Waters. And this Rule he observ'd betwixt 20 and 30 Years. I not having seen him for many Years, met with him at *Hampstead* in the Year 1699, and perceiving that he was better in Health than formerly, I discours'd with him on that Subject; and he told me that the Waters had done the feat; and in a few Years after, he appear'd plump, fresh, and of a strong firm Constitution, which he maintained (abating for the natural Decay of Age, and some slight Attacks of the Gout) to the Year he died, between 70 and 80, of a sore Leg; (per-

haps for want of skilful Surgeons) when his Look and State of Health promis'd several Years to come. He assur'd me, that the whole Honour of that amazing Change in his Constitution, was due, under God, to the Mineral Waters, and, with the utmost Confidence, attributed all to them.

To this Account, (which is of my own Knowledge) let me add a Word of Mr. Bee, a Citizen, who drank *Hampstead* Waters many Years.

This Gentleman was never easy but while he was drinking them; he therefore drank 'em all the Year round. His Disease (as the Physicians determined) was the Stone; and who would not in that grievous Distemper drink for Ease, and think it a Blessing to have so easy a Remedy, and so nigh at hand? I have known abundance of Cures in lesser Instances, and some Advantage in almost all; having been upon the spot ever since 1699: but these two are so very remarkable, that I hope, they may be of use to convince the World of the Excellency of *Hampstead* Waters.

I am, SIR,

Your most humble Servant,

G. WATTS.

OBSERVAT. IV.

Leprosy.

MAtthew Baily, a Servant of Mr. Miles, a Gentleman living in *Hampstead*, being about 40 Years of Age, laboured under a Leprous Disorder, and with Scabs mostly on his Face for several Years, spreading down each side of his Cheeks towards his Neck and Chin, appearing often with dry scurfy Scabs and violent itching; but after a due Preparation of his Body, and
the

the use of the *Hampstead* Waters, with some proper Drops to drink with his Waters, he grew in a little time much better; and to finish the Cure, he used the Cold Bath, which he still continues, is now perfectly well, and no Marks or Signs of that Distemper to be seen; his Face being perfectly clear and smooth. He has continued well above a Year.

OBSERVAT. V.

Leprosy.

T *Thomas Scarret*, a Boy of about 14 Years of Age, living at the Upper Flask Tavern at *Hampstead*, being of a gross and ill Habit of Body, was grievously afflicted with a Leprosy in several Parts of his Body, but chiefly on the Backs of his Hands, where they were perfectly ulcerated, and then would shake off great quantities of Scabs, insomuch, that he was not fit to come into any Company; yet by bleeding, purging, and other proper Medicines, in two Months time, he was very much recovered: and to compleat the Cure, by the use of a Liniment and drinking the *Hampstead* Waters, with some Preparations of Antimony and Guaiacum, and a proper Regimen, he is now, by the Blessing of God, and the Virtues of these Waters, perfectly well; tho' he had been afflicted with this Distemper near two Years before he came to me.

OBSERVAT. VI.

Disorders of the Stomach.

THE Reverend Mr. *Partington*, Minister of the Dissenting Congregation at *Hampstead*, in September last 1733, was seiz'd with an
unusual

unusual Disorder in his Stomach after eating, throwing up his Food about an Hour after his Meals, whether Dinner or Supper ; which made me conclude there was a Fault in the Digestive Faculty. I advis'd him to a gentle Puke, which he delayed taking for a considerable Time, out of fear and dread of the Operation; in the *interim* I order'd him some warm stomachick Alteratives, as *Tinctura Sacra*, which he repeated two or three times at due Distances, at Night going to Bed ; but he found but little Relief. He was sometimes very hot and feverish in the Night ; and his Body wasting continually, and finding him some Days better, and other Days worse, I order'd him the Bark, to take one Drachm of it three times every Day in a Glass of Red Wine, for three or four Days, and to drink the *Hampstead* Waters Morning and Afternoon with some Drops of *Mynsicht's* Elixir of Vitriol and Tincture of Castor, and Compound Spirits of Lavender ; which he took with Success, and following this Method, in about three Weeks, he found himself tolerably well, and is now, blessed be God, perfectly recover'd.

OBSERVAT. VII.

Marasmus, and Loss of Appetite.

MR. *Ochtorlony*, a very worthy and wealthy Merchant, being about 40 Years of Age, and of a spare thin Habit of Body, who has a House at *Hampstead* ; coming to this Place about two Years past to drink the Waters, being then in a very bad State of Health, labouring under Indigestions and Sickness of the Stomach, with nauseous Reachings, and almost a total Loss of Appetite, together with a general Marasmus, or wasting away of the Flesh, that he was reduced

ced very low and weak ; yet by the help of these Waters, accompany'd with gentle Exercise of riding on Horseback every Day, when the Season would permit, he in a little time recover'd his former good State of Health ; having now a very good Appetite, and no manner of Complaints, being perfectly well : and who, for the Good of Mankind, and doing Justice to the Waters, gave me leave to insert his Case, and which I have done as near his own Words as possible. He has so good an Opinion of these Waters, that he has often declared, that it was his real Opinion, that *Hampstead* Waters were full as good a Chalybeat as any in *England*. He tried the *New Tunbridge Wells* Waters at *Islington*, but they did not answer any thing like our Waters at *Hampstead*.

OBSERVAT. VIII.

Nervous Disorders.

A Widow Lady, not quite 40 Years old, about 3 Years since, came to drink these Waters, in a very deplorable State, being full of heavy Complaints of the Nervous kind, (her Name I must beg leave to conceal ;) being afflicted with violent Head-achs, Sinkings of the Spirits, and great Disorder in her Stomach and Bowels, with Reachings and tormenting Cholicks, and hysteric Flatus's, blowing up her Stomach, and sometimes swelling her Hands, Face, and several other Parts of the Body, to an unusual Form ; attended with Cramp Pains, sometimes in one Side, sometimes in the other : with a long Train of other Disorders, too tedious here to be related. Yet with very little Physick, and the Help of these Waters, is
now

now in a tolerable State of Health. She drinks them every Season by my Advice, and which she finds great Relief from.

OBSERVAT. IX.

MRS. *Edwards*, a Gentlewoman, who has a House in *Church-Row*, about three Years since, was seized with a violent Hæmorrhage upwards and downwards, and was reduc'd to a very weak and low Condition; but by the Care of Mr. *Wilson*, an Apothecary in this Town, was so far recover'd, as to make use of the *Hampstead Waters*. By the use of them, she in a little time found a sensible Alteration for the better; and in one Season drinking of them, she was quite recovered, and her Flesh and Strength return'd to her. She has continued drinking them every Summer, and is now in a perfect State of Health, and desired me to publish this for the Benefit of Mankind. She also acquainted me of a Maiden Lady, that lodg'd and married from her House, whose Maiden Name was *Turner*, and married one Mr. *Rock*, that, from a very weak low Condition, attended with Sinkings of her Spirits, a total loss of Appetite, accompany'd with great Weakness and loss of Flesh, was recovered by the use of these Waters to a good State of Health, and continues so in her Married State.

She gave me an Account of several others that have received great Benefit from drinking the *Hampstead Waters*, that lodg'd in her House; but those mention'd will, I presume, be sufficient to satisfy the World of the Excellency of these Waters, and which are now more efficacious and pleasant, since the cleaning of the Well,
and

and which will be as commodious a Fountain (as it is now alter'd) as any in *Great Britain*, none excepted.

There are several other Cafes, as Scorbutick and Paralytick Disorders, in which I could give Instances of the good they have done, both to an eminent Gentleman at the Bar, as well as a noted Doctor of the Civil Law: but as I have not their leave for mentioning their Names, I can only tell you thus far, that they both receiv'd benefit from the Waters, tho' one of the Gentlemen did not drink them above 14 or 15 Days.

CONCLUSION.

AND now I have given you some few Instances, out of very many, that might have been produc'd, had it not been for fear of making this Manual of too great a Bulk. (Yet, I hope, these are enough to shew how effectual the drinking these Waters have been in the several Cafes here enumerated; and again, I assert the Veracity of each Observation, in the main Concerns of each Case, tho' in some little Circumstances not material, there may possibly be some Alterations.) And I hope, I have no occasion to apologise for the different Cafes here related, no one's Name being mention'd, without leave given for so doing; that it may be offensive to none, and profitable to many, being the only Design of troubling the World with this Tract.



S O M E
 A C C O U N T
 O F T H E
 O R I G I N A L O F S P R I N G S :

By the S I E U R D U C L O S, and some others.

TH E *Sieur du Clos*, Physician in ordinary to *Lewis XIV.* King of *France*, in his Observations on the Mineral Waters of *France*, made in the Royal Academy of Sciences, printed in *English* in 1684, tells us, 'tis easy to judge, that all Waters of Running Springs, such as are the Mineral Waters that are used in Physick, may have particular different Qualities, if it be considered, that some of these Waters come from Places near the Surface of the Earth; others from certain Places more deep. Those that have not been able to penetrate farther, because of the Beds of Stone, or fat Earth, which happen underneath, rest on this sort of Bottoms, and run out only where they find any Passage. They have their Original only from the Fall of Rain-Water, or by the Percolations of Water of the Rivers and Lakes, or of the

the Sea, through the neighbouring Earths, or those which they can't reach ; and in traversing these Earths, which are less compact, they dissolve the Salts which are there, and impregnate themselves with certain subtle earthy Particles, which are found by Evaporation.

The Water which comes from Places more deep, whether its Weight caus'd it to fall, according as it could pass, cannot rise again in its liquid Consistence without force ; but being rarified by some inward Heat of the Earth, it riseth in Vapours : afterwards resuming its first and natural Liquid Consistence by the Cold towards the Surface of the Earth, in coming forth it produces Springs, and also little Lakes on the highest Mountains, whither it may very well rise, since it mounteth even to the middle Region of the Air, where Snow is form'd, and whence Rain falls. These Waters being rarified in the Profundities of the Earth, whence they rise, receive easily Mixtures of Mineral Exhalations, and Vapours, which are frequent in those Places. But those Mixtures being not often distinguished in these Waters, rising from their Springs, either by Scent or Taste, cannot be understood, but by their Effects ; the Assignment thereof to their proper Causes is not always easy and certain.

The Information we give here of the Salts and Earths, of several Mineral Waters, will not satisfy the Curiosity of those, who would be likewise instructed, concerning the other Causes of the Properties of these Waters, since that besides the Mixture of Concrete Substances found in them, according to the Observation here related, there may also be contain'd Substances not concrete, so subtle and volatile, that there can remain nothing in the Sediment, which may

be perceived to differ from the Salts and Earths, and which is not at all found in what passes by Distillation. This Taste somewhat aigre, or vinous, which is lost in the Air, and by Heat, ought to have for its Subject a spirituous, and most volatile Substance. The Heat, which some Waters have in their Springs, and at coming out of the Earth, may be attributed to hot Vapours, which are mix'd with them in their Course through subterraneous Profundities, where the Cold of the Air has no free Access; and some particular Effects of these Waters on divers Subjects, give occasion to judge, that they are not pure and simple: wherefore, the Academy have propos'd to labour, in order to the Enquiry of these things, for the Satisfaction of the curious and publick Benefit. I shall now add the ingenious Dr. *Cheyne's* Opinion of the Cause of Heat in Bath Waters. He says, the Learned have been divided, and much perplexed about the Heat of Bath Waters. I have always endeavour'd to account to myself for it, from the common Experiment of mixing Filings of Steel and Powder of Sulphur, working them into a Paste with Water, and putting them into a Cellar under a Cock dropping Water slowly and regularly. The Paste will ferment to such a degree, that the Water running from it shall be of the same Heat and Virtue with the Bath Waters, tho' not quite so pleasant, nor so well fitted for Human Bodies. This is a common Experiment, and these are the only natural Bodies known, which meeting together will produce Heat in Water, without artificial Fires. *Tournefort*, in his Voyage to the *Levant*, says, that even in the gross Body of Sulphur powder'd, you'll see this Mixture really burn. *Sir Isaac Newton*, in his last Edition of his *Opticks*, says, That even the gross Body of Sulphur

Cheyne's
Essay on
the Gout,
P. 42.

Pag. 122.
Part 1.
Engl. Edit.

Newton's
Opticks,
P. 354.

phur powder'd, and with an equal Weight of Iron Filings, and a little Water made into a Paste, acts upon the Iron, and in 5 or 6 Hours grows too hot to be touch'd, and emits a Flame. That the Heat of the *Balb* Waters is owing to a Principle within themselves, is evident from their retaining it longer than any other Water, heated to the same degree will; wherefore there can be no Necessity to have recourse to *Vulcanos*, or subterraneous Fires, to account for this Appearance.

The next thing to be observed is the Salts and Earths of Mineral Waters, and their Physical Use deducted from them. The two Genders of Salts, under which are ranged the Salts of those Waters, which Monsieur *du Clos* has hitherto spoken of, may possibly have differences, which divide each of these Genders into several Species; as the Naturalists of the Royal Academy have remark'd in Salts, drawn from the Ashes of several Plants; which have been observ'd, some to resemble the true Nitre, others common Salt, and to retain the Participation of the specific Properties of their Subjects. Some of the Earths which are found together with these Salts in the Sediments of Mineral Waters evaporated, or distill'd, may have particular Uses, according to their Differences. Some *Germans* (says he) have remark'd, that the white Earth of the Mineral Waters of *Schwalbach* is Purgative. But Dr. *Stare* seems to be of another Opinion, and says, ^{Stare on Piermont} that there is not Salt enough in a Quart of *Pier-* Waters, p. _{36.} *mont* Water, to purge a Sparrow. Nay, he says farther, that there is little or none at all of purging Cathartick Salt; or indeed very little real Salt of any kind to be found in it. But to proceed; *Du Clos* says, they had in the Academy some Bottles of this Water of *Schwalbach*, the Taste

Taste whereof was vinous and strong. The Salt of its Sediment was nitrous, and caused Mercury sublimate dissolv'd in common Water, to precipitate in a deep Crimson, as do *Alkalies* of Plants. *Sieur Du Clos* says, the Earth separated from this Sediment was white as Chalk; but there was not Quantity enough to make Experiment of its purgative Faculty; and we had neglected to observe this in several like Earths, taken from the Nitrous Waters of this Kingdom. The true Nitre of the Ancients being sulphurous, and having Resemblance to the *Alkalies* of Plants, has likewise this Property with them, to move by Siege; and this white Earth, which is found with nitrous Salts of Mineral Waters, may participate of the same Quality; even as the Coagulum of the Salt of *Tartar*, made by the second Part of *Sal Marine*, retains some Properties of its Salt; altho' it be insipid, and not dissoluble in Water, but only in acid Liquors; such as is distill'd Vinegar, which dissolves it with an Effervescence, the like whereof has been observ'd in several white Earths of nitrous Mineral Waters.

As to the Observations of the Taste of the Waters brought to us, we have been only able to judge, by what has been remark'd by tasting of them at their Arrival. They who are at the Place of their Springs, may make a better Distinction, particularly in those which are aigre and vinous; the Taste whereof is either weakened or lost, by being expos'd to the Air. They may also perceive the Degrees of their colouring with Powder of Galls, Oak Leaves, Mirobalans, Pomegranate Bark, and other like Substances; and also judge more concisely of their Consistence and Weight.

The

The Naturalists of the Royal Academy have not been able to observe all those things in the Waters, which have been sent there from distant Places, and which might have received several Changes, as well by Time as Carriage, both in their Taste and Disposition, to take Colours with certain Substances, and in their Consistence more or less thin and subtil. The Method, that the Academy followed in their Experiments on the Waters which have been sent them, may be of service to those who will examine them at their Springs, in order to gain a more exact Knowledge of them.

This vaporous Substance of Mineral Waters, which are somewhat vinous and aigre, is probably the first, being a Mineral Sulphur, and the Concretions thence arising. There are found Earths impregnated with this acid vaporous sulphurous Substance from the Concretion, whereof are sometimes made sulphurous and vitriolic Minerals. And for the most part, there is not made any Mineral Concretion discernable in these Earths, where there is not found Mineral Sulphur, or Vitriol, or Metal. This mineral, vaporous and indigested Substance, may very well be the Principle of Vitriol; but in its first State, it cannot be a vitriolick Product, if it be not in those Earths, where there is not always somewhat of Vitriol. It is more easy to observe it in its Products, when it has received some Mineral Concretion. The humid Air penetrating into the Mineral Stones, which are insipid, but impregnated with a Mineral Sulphur, which is easily perceived, when 'tis disengaged by Fire, does manifestly give to the Taste a sulphurous Acidity, which before was not sensible. And of the concrete Sulphur of those Mineral Stones, or Marchasites, penetrated by the humid Air, is
made

Slave on
Piermont
Water, p.
36.

made a concrete vitriolick Juice, which is the Product of this Mineral Sulphur; the Principle of which has been an acid and most vaporous Substance. Doctor *Slave*, in his little Tract on *Piermont* Water, speaking of the *German Spa Waters*, call'd *Acidulae*, or Sour Brune, or Wells, proves them to be of a contrary Nature, that is *Alkalies*, after the following manner: " I have
 " for many Years past, had more than a bare
 " Suspicion, that Physicians and learned Persons
 " had imposed upon themselves and others, erroneous
 " Notions about the Nature and Properties
 " of those Mineral Waters, which are of
 " the *Chalybeat* and *Iron Species*. *Germany* abounds
 " with these Waters, and they bestow one general
 " Name upon them, and call them *Sour Brunnes*, that
 " is, *Sour Wells* or *Springs of Water*. The learned
 " *Germans* do call them *Acidulae*, Ex gr. *Spadenses*,
 " *Swalbacenses*, vel *Pyrmontanae*. *Henricus ab Heers*
 " agrees with *Vitruvius*, *Fallopious* and the sagacious
 " *Helmont*, and other Men of great Fame, in
 " justifying the Acidity of several sorts of *Spa* and
 " *Chalybeat* Waters; but not being satisfy'd with
 " their Reason, assigns others; and after a very
 " tedious and obscure Harangue, concludes, that
 " they owe their Birth and greatest Virtues to *Vitriol*
 " and *Sulphur*. He observes, that *Vitriol*
 " and *Sulphur* are found on the *Glebe*, or
 " *Earth*, from whence these Waters do spring;
 " but yet does not give us one Proof or Experiment
 " of having found any real *Vitriol* or true
 " *Sulphur*, or any Acidity in these Waters. *Dr.*
 " *Jordis*, an eminent Physician at *Francfort*, and
 " a Fellow of the *Royal Society*, visited formerly
 " this famous Well, or *Sour Brune* at *Swalback*, in
 " Summer-time, and practis'd there during the
 " Season; I was myself then examining the Nature
 " of all sorts of Waters, Cathartick and
 " Cha-

“ Chalybeat, or Steel Waters, and the other,
 “ which contain the purging bitter Salts, where
 “ this worthy Gentleman gave me an Account of
 “ the Contents of the said Water, number’d among
 “ the *Acidulae*; particularly, whether by Distillation
 “ he could obtain any thing sour or acid, as Vine-
 “ gar and Juice of Oranges will do this way: but
 “ he could not assure me, that the least Drop of
 “ Acid did rise, or distil over. He also evapora-
 “ ted a great Quantity of this Water *ad Siccita-*
 “ *tem*, and thought, that he found some sulphu-
 “ rous Parts in it; but Sulphur itself is far from
 “ being an Acid, but the contrary. He also
 “ found Ocre, and other ferruginous Particles
 “ contained in it; but these we find in all Cha-
 “ lybeat Waters, which do truly belong to the
 “ Nature of *Alkalies*, and not of *Acids*. But to
 “ proceed farther, the Doctor made several Ex-
 “ periments to prove, that there is no *Acid* in
 “ *Chalybeat* Waters; first, in dissolving *Soap* in a
 “ very strong Iron Water, which he found to
 “ lather very well; and afterwards tried it with
 “ several other *Chalybeat* Waters, which did the
 “ same, and much better than any Pump Water
 “ did. He made Experiments by consulting his
 “ Palate, and tried, if he could distinguish any
 “ Acidity or Sharpness, in any of our *English*
 “ Steel Waters, as *Tunbridge* in *Kent*, at the
 “ *Black Boy* at *Franfield* in *Suffex*, at *Hampstead*,
 “ *Sunning-Hill* in *Berkshire*, and several other
 “ Places; but could never perceive any such
 “ thing, but seemed rather to leave a sweetish
 “ Flavour or Farewel behind. Thus many *Al-*
 “ *kaly* Salts, if nicely examin’d (of the fix’d kind)
 “ have affected his Taste.”

“ The 2d Experiment the Doctor made, was
 “ by dropping several Sorts of such Spirits, as
 “ are apt to ferment with Acids; such as the
 L Spirit

“ of *Sal Armoniac*, *Hartsborn*, &c. but these made
 “ no Ferment, nor any Motion, nor Effervescence
 “ in these Waters.”

“ In the next place, the Doctor considered the
 “ Diseases in Humane Bodies, which these Wa-
 “ ters were prescrib'd for by Physicians to cure,
 “ that they were often such as proceeded from
 “ sharp, acid, or acrimonious Causes; as *Cardi-*
 “ *algias*, or Heart-burnings, sour Vomitings, cor-
 “ rosive *Diarrheas*, Cholicks from Scurvies and
 “ Stranguries; and that for these Distempers
 “ sweetning and alkalifate Remedies are made
 “ use of.”

“ In the fourth place, the Doctor considered
 “ these Waters as containing in them the Proper-
 “ ties of Iron, and he found by Experience,
 “ that it is most opposite to Acids, being one
 “ of their great Correctors, and therefore rather
 “ to be esteem'd an *Alkaly*.”

“ 1. Take some Filings of Iron, perhaps a
 “ Dram, and pour on them about an Ounce of
 “ the milder Acids, such as Vinegar, Verjuice,
 “ or the Juice of Lemons, and it will destroy
 “ the Sharpness of their Juices: or if you
 “ pour on those Filings Mineral Acids, as the
 “ very corrosive Spirit of Nitre, or of Salt, or
 “ what is called Oil of Vitriol, they will imme-
 “ diately lose their Acidity, be disarmed of their
 “ sharp Points, and, by Evaporation, give a
 “ Salt that will taste sweetish, and is by *Chy-*
 “ *mists* called *Saccharum Martis*, if duly prepar'd;
 “ which is safely given inwardly, and is esteem'd
 “ a good altering Medicine.

“ 2. Steel beaten to a fine Powder, is with-
 “ out any farther Preparation given inwardly,
 “ with great Success, for *Stomachick* Diseases; as
 “ in the Green Sickness, *Hypochondriack* and va-
 “ rious other acid and acrimonious Disaffections.

Then

Then he goes on to his Experiment on Milk, as a proper and obvious Subject, to bring this Controversy to a plain and unquestionable Decision; but I have spoken of this before. But he comes to a Conclusion in the following manner: "Since (says he) our Experiments discover, that those things that are of a sweetish alkalifate Nature, do so very well agree with these Mineral Waters, it will appear by the following Experiment, the Acids do very much disagree." *Slare, p. 43.*

1. I put but one Drop of Oil of Vitriol in a large Glass full of strong *Spa* Waters, which before the Addition of this Acid did give a deep Purple to the Solution of Galls; but now would not give the least Tincture, tho' I put in four times as much of the Galls. From hence I conclude, that the Virtues of the Chalybeat Ingredients, which I take to be the Life and Soul of these Waters, were so far bound up and destroyed, as to have lost their Cordial, or Corroborating Faculty; and that the Bile or Gall in the Humane Bowels could not be able to separate the Chalybeat (which are the only medical) Particles, and mix them with the Chyle, in order to answer any End in Physick.

"Let this be a Caution therefore to those that design to make these Waters pass better by Urine, that they do not make use of any Acids, it being a common Practice to use Spirit of Vitriol, *Spt. Nitri Dulcis*, &c. as a Diuretick; unless it should so happen, that they have a design to take off, and divest them of their warm Cordial, altering Power, and so bring them near to common Water; which, I must confess, we are forced to do; especially in the use of *Bath Waters*, in some hot inflammatory Cases."

“ 2dly, I shall conclude with one short Experiment in favour of our *Alkalies*, that if you put any *Alkaly* Salt, volatile, or fixed, such as volatile Salt of Hartshorn, or of fix’d Salt of *Tartar*, of Wormwood, or any other true *Alkaly*, you will then destroy the above-named acid Spirit, which was drop’d into the Water, and will recover the Virtue of the Waters, and dispose them to give their Tincture as they used to do in their natural State.”

So much from the learned Dr. *Slave* concerning the Acidity of the *Brun* or Sour Wells, in *Germany*, as well as the Chalybeat Waters in *England*. I shall now proceed to Mr. *Du Clos*.

Du Clos,
P. 114.

He says, this subtile, vaporious Substance, acid, or rather harsh, produceth not always vitriolick Concretions; and it happens in many Earths, that thro’ default of requisite Dispositions, it remains in its first being. Then it is not a Vapour of Vitriol; and the Mineral Waters, which pass thro’ the Earths where this subtile Matter is found, and which contract an Acidity by mixing therewith, ought not to be called vitriolick. We have observ’d, in many Waters with this acid Vapour, that nevertheless there was not found there any true Vitriol, or any Substance resembling *Alum*; and that the Salt, which remain’d in their Sediments, was a Nitre, such as the Ancients have describ’d, and which is as far different from Vitriol, and Alum, as are Alcalies, or fixed Sulphurous Salts of Plants.

The Salts, Vitriols, *Alums*, and other Concrete Substances dissoluble in Water, may be so mix’d with Mineral Waters, that they may not be much perceivable, except in their Sediments. But the Sulphurs and Bitumens are always easy to be discerned in the Waters, wherein they are contained, because they either settle, or swim

on

on the Surface, being not capable of Mixture as the Salts. We have not perceived any in the Waters which have been sent us.

Those which were the hottest in their Springs, have not seemed to us more sulphurous and bituminous than the others; and if there is found any Sulphur or *Bitumen* in their Basons upon the Sides of their Receptacles, or in their Mud, it may be, that these are not those inflammable Substances in the Earth, which have rendered them hot. It is more probable, that they contract this Heat by the mixture of some hot Vapours, which they meet with in deep Places, thro' which they pass. Experience doth sufficiently shew, that no combustible Matter takes Fire, or keeps it long without Air; and that to extinguish the Fire of Sulphurs and Bitumens inflamed, it is enough to hinder them from the Communication of the Air, by covering well the Vessels, which contain these Substances. The Sulphurs which burn in certain Cavities of Mountains, as *Ætna, Vesuvius, &c.* do not take Fire but in those Places where they take Air: and when that which lies open is spent, the Fire ceases in what remains cover'd, altho' it be equally combustible: and if some Substances take a Fire, strong enough not to be stifled, under Ground, it causeth what covers it to crack, to give itself vent and take Air, as does Powder in Mines.

If there are not perpetual subterraneous Fires, the Heat of some Mineral Waters, which continue to be hot in their Springs, cannot be attributed to them. It is more probable, that there are in several Places of the Earth hot Vapours and Exhalations; the Heat whereof is preserved in Places deep and close, where the Air doth not penetrate to cool them; and where
these

these Substances rarified have not room enough to distend themselves more, and suffer by some weakening of their Heat or Dissipation, a greater Rarefaction: but the Heat of these Vapours may be augmented by their pressing together in close and narrow Passages, whereinto they insinuate themselves; and if they meet with Waters running thro' the same Passages, they may heat them by mixing with them. There have been made some Observations, which give occasion to judge, that the Waters of Hot Springs and Natural Baths, are made warm by hot Vapours, which pass with them.

1. That these hot Mineral Waters burn not the Mouth and Tongue of those that drink of them at the Spring-head, as common Water to a like degree of Heat, by the help of Fire, would do. The Flame of Spirit of Wine burns not the Hand so strongly, as that of a burning Coal.

2. The Heat of Mineral Waters does not act on some tender Substances, as doth that of common Water raised by Fire to that degree; for it hath been seen, that Dock-Leaves, which were softned, boil'd easily enough in common Water, moderately heated on the Fire, did not soften in the Mineral Waters of *Neris* in the *Bourbonnois*, which are the *hottest* in *France*, and which are very difficult to drink, by reason of their great Heat. But these Leaves only chang'd Colour, and became yellowish, like dead dry'd Leaves; which gives occasion to judge, that this Heat proceeds from some Vapour or Exhalation, different from Water, and more proper to dry than to soften, as doth common Water, which humects.

3. That these Waters are more hot in their Springs by Night, than by Day; which may be
caused

caused by the Cool of the Air, which hindereth the Diffipation of the hot Vapours and Exhalations, that are mixed with them.

4. That these Waters being exposed to the Air out of their Springs, cool'd not so soon, as doth common Water heated by Fire; because the cold Air, which maketh the Motion, excited by the Fire in common Water, soon to cease, keeps in the hot Vapours, which warm the Mineral Waters by their mixture, and hinder them from dispersing so soon.

5. That Hot Mineral Waters have no more Disposition to boil on the Fire, than common cold Waters, there being as much time to cause the one to boil as the other; which clearly shews, that the Heat, which Mineral Waters contract in the Earth, proceeds not from a Motion of their Particles excited by any subterraneous Fire: for this Motion being continued, and augmented by the Fire of a Chimney, or Furnace, would cause them to boil sooner than those which being cold, have not that Disposition by a Motion commenced. Wherefore the Heat of Mineral Waters proceed from certain warm Vapours, or Exhalations mingled with them, which the Fire drives away before they can boil thereon.

If there is, without Fire in the Earth, any Heat strong enough to warm the Waters of some Springs, it must necessarily be, that this Heat, which is communicated to Waters, which are warm from thousands of Years, and perhaps have ever been so, in order to perpetuate itself, keeps in deep Places, and far distant from the Surface of the Earth, where the Air which encompasseth them, might weaken it by its cold, which seems to be the most extreme. According to this Supposition, the Difference of Waters of hot and cold Springs, whereof some are observed

ved to make like Sediments, and to have Salts of the same Species, should proceed from this, That these Waters pass in the Earth through places more or less deep.

We observe, that Waters, which run on the Surface of the Earth, are cold, unless warm'd by the Sun ; and we find not any Heat very manifest in the Parts of the Earth, which are not very deep, which gives occasion to judge, that what there is of Heat remarkable in the Earth, ought to be placed far therein.

It is not easy to comprehend the Qualities of these Vapours or Exhalations, which mix with Mineral Waters, and warm them. It seems not necessary, that they should be all Bituminous or Sulphurous, tho' some are such. At *Aix la Chapelle* are found Flowers of Sulphur rais'd upon the Walls of Hot Springs which are there ; and in the Burning Fountain of *Dauphinè*, is seen a Flame, which issues forth with the Water, and which probably was not Flame under the Earth, where it had not Air enough to burn ; and scarcely the Water, which issues forth with it, is heated. But in many other Springs of Hot Mineral Waters, there is nothing seen either Sulphurous, or inflammable.

There are many other Subjects that are heated without taking Fire ; the Vapours whereof mix with hot Mineral Waters ; but their Qualities are not understood but by the Effects which they produce.

The Royal Academy of Sciences has not had Opportunities to observe the divers Effects of Mineral Waters, as well hot, as tepid, or cold, by employing them to different uses. The Observations of the Effects of these Waters on Persons, who use them in Drinking, Bathing, Pumping,
Washing,

Washing, Embrocation, &c. are reserved for the Physicians; whose Duty it is to know the particular Constitutions of those Persons, and the State of their Health declining and improving. As for the Uses in mechanical Arts, it may be easy to remark, what one or other sorts of these Waters can do, in the steeping of Hemp, whitening of Linnen, dying of Wool and Silk, dressing of Leather, tempering of Iron, boiling of Peas, &c. watering of Plants, Cattle, &c. As for the Observations concerning the different Weights and Consistences of Mineral Waters, they are certainly best made at their different Springs, where they are not yet altered, either in Composition or Consistence; which they certainly are, being carried and kept, having lost some part of those vaporous Substances, which being mixed with them, made their Consistence more thin and subtil; or having contracted some Corruption, which has rendered them more thick, and almost mucilaginous: or having made a Precipitation of some mineral Earthiness, which being imperceptibly mix'd with them, renders them less subtil, and which is not ordinarily separated when they are drank fresh; at which time they are judg'd more efficacious than when they are kept.

The Instruments used by the Academy to observe the Weight and Consistence of Liquors, were the *Areometer* and *Compound Ballance*.

The *Areometer* is a little hollow Globe of Glass, having in its bottom a small Cavity, to contain so much Quicksilver as is necessary to make this Globe sink in the Liquor wherein it may be put.

In its upper Part is a little Pipe an Inch long, and at the End of this Pipe there is a small Scale to receive the adjusted Weights, which cause it to sink in different Liquors to a certain Mark,

made in the middle of the Pipe. By this Instrument, put in several Liquors, is found not only the Difference of their Consistence, but also how much the Difference is, by the Observation of the Weight of the Instrument, and of that which is put into the Scale, to make it sink equally in divers Liquors.

The *Compound Ballance* is an ordinary Ballance, moving easily and very exact; to one of the Scales is hung, by some Horse-Hairs, a Cylinder of Tin or *Laten*, well polish'd, having about four Inches Height, and as much Diameter, to be able to take up in the Water the space which a Pint of Liquor, of *Paris* Measure, would take, and of such a Weight, that it may sink in all sorts of Waters; the Cylinder being put in the Water, the Weight and Consistence thereof is to be observed. There is put in the other opposite Scale of the Ballance so much Weight, as is necessary to keep the two Scales equipois'd; and according to the Difference of the Weight, which is requisite to keep this equal Poise in divers Waters, Judgment may be made of the Difference of their Consistence and Weight in like quantity; and to know what is the Weight of this Quantity of Water, which the Cylinder takes up, the Weight put in the opposite Scale is to be subtracted from that of the Cylinder. This may be practis'd on Mineral Waters taken at their Springs, and immediately examined.

The like Observation may be made on common Waters, in ordinary use, as well for drinking as dressing of Victuals, to the end, that by the Knowledge of their Properties, Judgment may be made what they contribute towards Health. These Waters are ordinarily called Common, in distinction from Mineral, being not
al-

altogether pure and simple, and may have acquir'd divers Properties by the Diversity of Mixtures which in them are made, either in the Earth or Air; and altho' they contain none of those Species of Minerals, which may be reserved to the middle Mineral, or *metallick Gender*, the Participation whereof gives the Name of Mineral to those Waters which are impregnated therewith; nevertheless they have something Mineral, for the Salts and Earths, which are always mix'd with them, are Mineral Productions. And in the most part of the Waters sent for Mineral, whereon the Observations made in the Royal Academy are here related; there was found only Salt and Earth in different Proportions. The Distinction of the Waters of this sort, that are used only medicinally, and those which are commonly made use of in order to Aliment, depend only upon more or less of these Mixtures. The common Waters, which are esteemed the best, are the most subtil, light, and least mixed.

Most Naturalists of late are of opinion, that there is no certain Standard for the weight of Waters, being scarce ever one Day exactly the same, but always varying from the Air, and Fire contain'd in them: for as the first is more or less rarefied, the Water will be lighter or heavier; the Weight is also varied according to the sundry Properties of Materials the Water brings along with it at different times, and from several other Accidents, and even the Air itself has no certain Standard; for the more or less Water there is in it, the Basis of its Pillar will gravitate more or less on the Surface of the Water, or Body weighed. So that it is impossible absolutely to determine the specifick Gravity of any medicinal Spring; only thus far we can judge in general, which are the light and which are the

heavy ones. And as the light Waters are esteem'd the best, I can affirm those of *Hampstead* are full as light as any other Chalybeat Water within 40 Miles of *London*. I shall now proceed to relate some Experiments made upon the *Islington* Waters called *New Tunbridge Wells*, by Mr. *Brown* Chymist, in *Old Fish-street*; Mr. *Bright*, Chymist to Mr. *Silvanus Bevens*, at his Laboratory in *Lombard-street*; and some Experiments made by myself.



SEVERAL



SEVERAL
EXPERIMENTS

Made on the
HAMPSTEAD-WATERS;

By the AUTHOR, and OTHERS.

Sept. 10, 1733.

I Put one Grain of fresh powder'd Galls into one Pint of the *Hampstead Spaw*, which, in the Second of a Minute, gave it a fine Purple Colour; and in about 5 Minutes time, the Purple turned to a fine Crimson; and so continued for 4 or 5 Days with little or no Alteration.

On the same day, I put $\frac{1}{2}$ Grain of fresh powder'd Galls to 8 Ounces of the *Hampstead Spaw*, immediately drawn from the Well; which answered the same as the former, only the Change into the Crimson was made sooner, and lasted longer so without any Alteration, being about 8 Days that I kept it by me.

I made another Experiment on the same Day, by putting 1 Grain of fresh powder'd Galls into 6 Ounces of *Hampstead Spaw*, after it had stood 6 Hours in a Vial uncork'd; yet the Galls coloured the Water in about 3 Minutes, of a darkish Red Colour.

Sept. 20.

I put $\frac{1}{8}$ of a Grain of Galls into 4 Ounces of the *Hampstead Spaw*, at my own Lodgings, being just brought from the Wells; and in one shaking, it gave a fine Purple Colour in a moment's time.

The same Day, I put 3 Drops of strong Tincture of Galls into one Ounce of the Waters, which immediately produced a fine Purple Colour, and so continued with little or no Variation for 6 or 8 Days, as did the former; tho' they were both put in large open-mouth'd Vials.

The 10th Ditto.

I put $\frac{1}{10}$ of a Grain of powder'd Galls into 2 Ounces of the Well-water, and it turned it to a pale Purple in 2 Seconds of a Minute, giving it but one shake.

I have tried the *New-Tunbridge Wells* at *Islington*, with the same Quantities of Galls, when brought to me at *Hampstead*, well cork'd and seal'd down; but the Waters were turned cruddleley and foul, before I could make the Experiment. It is true, the Galls turned the Water of a faint Purplish Colour, inclining to a Red; but in less than an Hour it precipitated, and then rose up to the top in a Scum or Film, and left the Remainder of the Water in the Glass of a cruddleley foul Cast; whereas the *Hampstead* Waters stood uncovered in a large open Glass 5 or 6 Days, and but little of its fine Purple Colour diminish'd. Which plainly shows, that it retains its Spirits
far

far better than the *Islington* Waters, whose volatile Parts are immediately avoluted and gone, by being removed but 5 or 6 Minutes from the Well-Head. For at the Spring Head those Waters will give as deep a Tincture, and as soon, with the same quantity of Galls, as these of *Hampstead*; but then it will not retain them above half an Hour.

September 28, 1733.

About a quarter of an Hour after 9 this Morning, being very dry pleasant Weather, I put half a Grain of Galls into 6 Ounces of the *New-Tunbridge Wells* Water, and in about 10 Seconds, it gave it a reddish Hue or Colour, inclining to a Purple; then I gave it a shake, when the Colour seemed to be of a somewhat deeper Red, after it had stood 3 Minutes. In about half an Hour afterwards it precipitated a thick Purplish Sediment to the bottom of the Vial, which was very well corked down, and left the Water in the Body of the Glass at first, of a Dusky-Cast and foul; but the next Day the Water was left intirely clear, as if there had been no *Mixture* in it.

The same Morning, I put half a Grain of powder'd Galls into 3 Ounces of the *New-Tunbridge* Water in a large Water-Glass; and after stirring of it two or three times, it then gave it a deeper reddish Colour than in the Experiment before. The Water, tho' it had been close corked up and sealed but one Night, yet was foul and cruddleley, tho' it was also brought from the Wells on a fine dry clear Day, after a Shower of Rain that had fallen the Morning before, having had a dry Season for some time before; which certainly must make the Waters the strongest, and most spirituous: Yet in about half an Hour

it

it had a thick Film or Scum upon it, like that you see in your standing Puddles of Water, and the reddish Colour breaking away and precipitating towards the bottom. And the Film, that was on the Surface of the Glass, was all precipitated to the bottom in 6 hours time; and the Water that remained in the Body of the Glass, was clear, but not bright, being of a somewhat darkish Colour.

Sept. 28.

The same Morning I put 2 Drams of Syrup of Violets into about two Ounces of the *New-Tunbridge Wells* Waters, of the same Freshness as the others now mentioned; it turned it of a palish Green Colour in about one Minute, and continued in that manner about two Hours; but the Water was muddy, and very foul.

October 7, 1733.

I put 6 Grains of the Shavings of *Lignum Nephriticum* (which I procured from Mr. *Gabriel Smith* Druggist, at the Three Crowns in *Little Lombard-street*) into 3 Ounces of the *Hampstead* Waters, and in half an Hour it gave it a pale brownish Amber Colour; and in an Hour's time it seemed to be a deeper brown, and the Surface seemed to be green. The second Day it became of a still deeper brown, with a reddish Cast; and so it has continued till this time. But the Surface appear'd of a Verdigrease green Colour. I pour'd off the Water from the Nephritic-Wood the third Day, and fill'd the Viol again with fresh Water upon the Wood, which then gave it a greenish Tincture in a Minute's time, after once shaking; and so continued for two Months or more, without any sensible Alteration.

October

October 7.

I put 1 Grain of powder'd Galls into a Vial; containing 3 Ounces 2 thirds soft Water, and two thirds of the Well Water, after it had been drawn from the Well 22 Hours; it gave the Water a beautiful Pale Red, after one shake, in 2 Seconds of a Minute.

October 12.

About 8 this Morning, after a hard Rain most part of the Night before, I put one Grain and a half of the dried Flowers of Viola Tricolor, or Pansie or Hearts'-ease, into half an Ounce of the *Hampstead* Waters brought from the Wells directly, and close stop'd; which, in shaking once or twice, turned the Water of a pale Green, and in two Hours standing, it changed to a more beautiful Green; and so continued several Days.

October 12.

The same Morning I put 4 Leaves of Green Thea into a 4 Ounce Vial, fill'd with the *Hampstead* Water; in about a Minute it began to open the Leaves, and a number of fine Purple-streams, like Rays, striking thro' the Body of Water to the bottom of the Vial, and rising up like a Purple Cloud, inclining to a Blue, which in 5 Minutes time tinged the whole Vial of a fine Purple Colour. This retained its Colour for 6 Days, without any Alteration, unless it was when you held it against the Sun, there appeared a Ring or Circle in the middle of a Mazarine Blue, and a fine Crimson Red Shade towards the top of the Vial. I then added to this Tincture 10 Drops of Spirit of *Sal Armoniac*, which, in a Moment's time, turn'd it into a deep Red, and so continued

for above two Months, without the least Alteration.

November 20.

I put one Grain and a half of the dried Crimfon Leaves of Stock *July*-Flowers, into 3 Ounces of the *Hampstead* Water, which, in half a Minute, began to strike down the Body of the Water fine Crimfon Streaks, which was very beautiful to behold, and in about 5 Minutes, it turn'd the whole Body of Water into a lovely Crimfon Red, which retained its Colour 4 or 5 Days, without any Alteration, and for above 10 Days with a little fading in the Colour, when the Leaves that swam on the top of the Water began to sink down, and to have lost their Colour; so that the Water grew every Day of a paler Red, which continued of a Pink-Colour Red for near 30 Days, when I threw it away.

20 Ditto.

I put one Grain and a half of Chesnut Leaves, cut into little bits, and put into a 4 Ounce Vial of *Hampstead* Water, which, in 3 or 4 Minutes, began to turn it of a Purple Colour; but rather of a duller Purple than that with the Galls. Acorn Cups will do the same, *cum multis aliis.*

Here follow the EXPERIMENTS of my ingenious and worthy Friend Mr. John Browne, which you have in his own Words.

To Dr. SOAME.

SIR,

“ A Greeable to your Desire, I have made the
 “ few enclosed Experiments, which may
 “ perhaps be leading to some further Disco-
 “ veries. Dr. Shaw, in his Essay on Mineral
 “ Waters,

“ Waters, has treated particularly on the *Islington* ; where he differs somewhat from what I
 “ have tried, perhaps, by his being on the Spot,
 “ and taking them immediately from the Well.
 “ I hope they will prove satisfactory to you, and
 “ am, S I R,

Your most humble Servant,

Old Fish street,

Oct. 1, 1733.

JOHN BROWNE

If this gives you any Satisfaction, it answers
 the End of yours *ut supra.*

These OBSERVATIONS made *Sept. 29, 1733.*

*An EXPERIMENT of Islington and Hamp-
stead Waters.*

*Islington Waters from the New-Tunbridge Wells,
filled, Sept. 27.*

I Took a ζ iv Vial and fill'd it up to the Neck,
 it weigh'd ζ iv. ζ ii. gr. 34. Troy. *Mem.* this
 had a large yellowish Sediment.

I put a Grain of powder'd Galls to ζ iv. of this
 Water, and it gave no Colour, though it stood a
 considerable time; but on putting a few Drops
 of Ol. Tartar. it caused an immediate Separation;
 the top was wheyish, the bottom almost trans-
 parent. Ol. Tartar. put to this Water *per se*
 had no effect.

Ol. Vitrioli drop'd into this Water produc'd an
 Ebullition, Heat, and a little Smoak.

Turn'd of a pale Green with *Syr. Violar.*

I evaporated in an earthen Porringer, over a
 Charcoal Fire, ℥ ss. of this Water, and the
 Residuum was about gr. 1, of a yellowish Mat-
 ter like Oker, which fermented a little upon
 pouring to it *Ol. Vitrioli.*

Hampstead Waters taken from the Well, Sept. 24.

I fill'd the same Vial to the same height, and it weighed ζ iv. ζ ii. gr. 36. Troy. *N. B.* This had very little Sediment.

I put a Grain of the same Galls to this, but it did not in the least tinge, till by putting on a little *Ol. Tartar*, it just turned of a Colour like Brandy.

Ol. Vitrioli drop'd into this Water produc'd an Ebullition, Heat, and a little Smoak.

The same Experiment on these Waters caus'd a somewhat greater Ebullition, &c. than the former.

Turn'd of a Purple, with *Syr. Violar.*

I evaporated half a Pint, but obtained scarce 20 minute Particles; they were like the Earth from the *Islington* Waters.

Hampstead Waters fill'd Sept. 28.

The aforesaid Vial of this Water weighed ζ iv. ζ ii. gr. 32. This had a Sediment in it.

A Grain of Galls being put to ζ iv. of this Water, in $\frac{1}{2}$ a Minute's space it turned of a Purple Colour, and held it 3 Hours, till by dropping a little *Spt. Vitrioli* it recovered its natural Colour.

Ol. Vitrioli drop'd into this Water produc'd an Ebullition, Heat, and a little Smoak.

This still caused a greater than any.

Turned of a Purple Colour, as with the Galls. *N. B.* Galls thrown into this Water warm'd, gave no Tincture.

I evaporated half a Pint, but obtained scarce 20 minute Particles, they were like the Earth from the *Islington* Waters.

The next are the EXPERIMENTS made by Mr. Edward Bright, Chymical-Operator for Mr. Silvanus Bevan Apothecary, in Lombard-street.

October 20, 1733.

I Evaporated one Pound of the *Hampstead Water* in an open Glass Body, which left not one Particle of Sediment remaining.

I evaporated the same quantity of *New Tunbridge Wells*, which left about 30 or 40 Particles of Residence behind, of the Colour of *Crocus Martis*.

28th Ditto.

I put to distil, two Pounds and a half of *Hampstead Water*, by a very gentle Heat, in a Glass Retort, to separate the more volatile and subtile Part; what passed first was not found different from what followed, and what remain'd in the Cucurbit ceasing Distillation, after having drawn about $\frac{1}{4}$ part; neither was there any Alteration in the Colour, or Taste, of the whole Water. What remained in the Cucurbit, having been put upon warm Ashes to evaporate gently, in order to observe whether there was made any Concretions during Evaporation, this Water remained always limpid.

The Retort, wherein the Evaporation was made, had a sort of a saline Concretion, mixed with a yellowish Earth, somewhat of the Taste of Vitriol or Steel. The Sediment being taken from that quantity, weighed only one Grain and a half.

The same Day I tried the same Experiment on 2 Pounds 4 Ounces of the *New Tunbridge Wells Water*. There was very little or any Variety in the Operation of one and the other, only that the Water was more vapid and dead, than the
Hamp-

Hampstead Water, and not so clear. It left upon Evaporation, gr. $2\frac{1}{2}$ of Sediment; the most part of which was a reddish Earth, and had some Salts in it, that, by a Microscope, I could discern to be spiculous, and of the Nitrous kind.

November 20.

I made the same Experiment on 5 Pounds of *Hampstead* Water, after it had stood above 10 Days, sealed up in the Bottles, found little or no Alteration in the Operation, with the former, only it left about three Grains of a pale ruddy-colour'd Sediment, or Earth mixed with some Salts; which, by the help of a Microscope, appeared to be of a Cubical Form, and had an irony or vitriolick Taste.

The same Day I made another Experiment on 5 Pounds of *New Tunbridge* or *Islington* Waters, which was brought the Day before from the Wells. I found little or no Difference in the Experiment made now, and on that of the 28th of *October*; only this left a Sediment of a more reddish Ocre Colour than the former, and the Quantity larger, being 7 Grains.

These Experiments were faithfully and carefully made, by

Your Humble Servant,

EDWARD BRIGHT.



Some



Some farther
E X P E R I M E N T S
Made by M Y S E L F,
O N T H E
H A M P S T E A D - W A T E R S,
With M I L K.

TO find whether there was any Acid in this Water, I first took about half a Pint of new Milk; upon which, in a Porringer, I poured this Water fresh from the Spring-head, but could not discern the least Coagulation; neither did it in the least differ from a Mixture of Milk and common Spring Water. And that part of the Water, where the reddish Ocre began to subside towards the bottom, I poured a pretty quantity of it upon warm Milk, at let it stand at least 12 Hours. But neither in this Mixture, nor in the *Hampstead Spaw*, and Milk boil'd together, did any

any Coagulum appear. I have likewise kept the Milk and the *Hampstead* Water thus mix'd together 4 Days, and it was not changed in the least, but as sweet as when it came from the Cow. From which, I conclude, that this Water will no ways hinder a Milk Diet or Regimen, and is also very proper when you drink the Asses Milk, and will assist very much the Patient in his Cure.

And lastly, I concluded, that no Acid Salt was here predominant, it appearing to me to be far nearer to an Alkaly, than an Acid Salt. To prove farther, that this Spring is very strong of the Steel, witness the Experiments of the Tincture it gave to so small a Quantity of Galls; that no Spaw Waters, either in *Germany* or *England*, doth exceed. So that were it from an Emetick, or Purgative Mineral, as from Alum, or Copper, this must have been a Cathartick; but we have no such Assurance from Experience: besides, were it from Copper, a great Vomitive, then the Mineral being mixed in a less Quantity, must purge by Stool. For, as the learned *Dr. Willis* has proved, when the Irritation of the Intestinal Fibres is less than is requir'd to cause a Vomit, it worketh by Stool. Now, had there been so much Copper, as clearly to have manifested itself, this *Hampstead* Spaw, if not an Emetick, must have been a Cathartick at least in an inferiour Degree.

Considering, in the next place, the Solution of *Vitriolum Martis*, or Vitriol of Iron, with Galls, will strike a Purple, and from thence a Black, with addition of more Galls. I began a Comparison of this Spring Water and Vitriol of Iron, otherwise called *Sal Chalybis*, made out of Filings of Steel, and Oil of Vitriol: I took a Pint of common Spring Water, in which I dissolved $\frac{1}{2}$ of

Dr. Willis
Pharm.
Ration.
Sect. 2. C. 1
De Vomit.

of a Grain of Galls finely powder'd, and upon the Mixture both became Purple; only with this Difference, the Mixture of *Sal Chalybis* turned more to a Bluish; but that of the *Hampstead* Spaw more to a reddish Purple, much resembling fair Water mix'd with a little Syrup of Dmask Roses. The Dissolution of the *Sal Chalybis* in fair Water, and the *Hampstead* Spaw had the same Taste, as near as Art could imitate Nature. A very small Variation of Colour, and as little as possible in Taste, may well be allowed, by reason of the reddish Oker contained in the *Hampstead* Water, that upon Stagnation of the Water will subside, and which must needs cause it to incline something to a light Purple, and to be something more Stiptick, than the Solution of *Vitriolum Martis*, containing none of this red Oker. Neither can it be expected, that the *Hampstead* Water, after the Oker fallen, should be of the same Colour, with a Solution of *Sal Chalybis*; for that reddish Oker which falleth, is not only an Earth, but carries with it a great deal of the mineral and saline Particles; for in as much as the Oker falleth, the Water loseth its tinging Property, yea degenerates from a Mineral Water, and at last becomes effete in its Virtue. After this first Experiment, I added more Galls to the Solution of *Sal Chalybis*, and to the *Hampstead* Water, both began to turn to a Dark, and at last to a Black Inky Colour: then I poured into each of them a few Drops of Spirit of Vitriol, and both return'd to their pristine Clarity. Then I instill'd upon these clarified Liquors a few Drops of Oil of Tartar *per Deliquium*, and again they became muddied, but with Spirit of Nitre they became clear again; from whence I infer a Similitude betwixt the *Hampstead* Spaw, and a Solution of *Sal Chalybis*,

or Salt of Steel, or Vitriol of Iron, being alike in their Variation of Colours, Precipitation and Reduction to Clarity again; and I really believe a great deal of what is sold in *England* for Spaw-Water, is this Artificial Water of Vitriol of Iron, which is so easily, and with little Cost, prepared. For the small Difference in Colour betwixt a Solution of *Sal Chalybis* in fair Water, and the *Hampstead* Spaw, (I mean, when Galls are added to both) which inclineth more to a Purple, is from the ruddy Ocre in the *Hampstead* Spaw. For all natural Vitriol containeth in it a *Terra Metallica*; whose Colour may be changed into a Brown, Black, &c. according to the different Analysis of Vitriol by Fire; but before any Chymical Preparation of this *Hampstead* Water, its Ocre is of a dull reddish Colour, as may appear by the Stagnation of the Water, to them that will be curious to observe it, at the Spring-head.

If therefore we will be a little more diligent in scrutinizing into the Nature of the thing, we shall scarce find any or no Difference between the *Hampstead* Spaw, and a Solution of the Vitriol of Iron. For, as to the Colour, Blue and Purple are but a Black in a remiss Degree: for Proof hereof I could bring several Authors, who have made Trials on that Head; but I shall at present satisfy myself with the following Experiments.

First, That Blue and Purple do only differ by Addition of a little Red. Take a Blue, as Indigo Blue, &c. ground into a fine Powder, which being divided into two Parts, add to one part a little Vermillion, finely powder'd, and it giveth a Purple, by reason that the Blue and Red Particles do reflect their Rays *intermixtim*, which cannot be distinguished without the help of good Microscopes. If this be the Result from dry Powders, much more then, and farther from Distinction,

tion, when Bodies are *in Fluore*, and the Particles of one implexed, and insinuated into the Pores, and Interstices of the other.

2dly, Observe, that Blue and Purple are (as I have said) but a remiss Degree of Black; for by an Addition of a small quantity of Galls to the *Hampstead* Spaw, and also to a Solution of *Sal Chalybis*, or Vitriol of Iron, doth arise a Purple, and a Blue inclinable to a Purple. Even so it doth in making ordinary Ink, when to a Solution of Vitriol, there is made an Addition of a small quantity of Galls, a Purple is the Result; but by an Addition of more and more Galls, it turneth to a Black: for the same thing by Variation in its Quantity maketh both. A great deal more may be said, but this I think sufficient at present: and I think I may justly conclude from the Experiments made both by myself and Friends, That the Composition of the *Hampstead* Spaw, which in a Moment's time will give a glorious Purple Colour to Galls, Green Tea, Oaken Leaves, Flor. Balauftin, Chestnut Leaves, Acorn Cups powder'd, and divers other Astringents, and will continue its Colour for some Weeks in Vials cork'd up, and for several Days in an open Vial, expos'd to the Air; is from a volatile and fixed Vitriol and Iron, but very little Nitre. For I could never perceive, that Spirit of Hartshorn, or Spirit of Sal Armoniac would ever turn this Water white, or make any Precipitation; but it remained pure and clear: which, if it had any nitrous Particles, would have turned white, and then caus'd a Precipitation, which I never could discern; tho' I let them stand for 24 Hours, and the Water remained pure and clear, without any Precipitation or Fermentation. So that if there be any Nitre in these Waters, it is so small, that it is not worth taking notice of.

There are some other Observations I made on *Hampstead* and *New Tunbridge* Waters, whereby any one may distinguish where there is only a volatile or fix'd Vitriol, or where both.

The *New Tunbridge* Water loses its Tincturing Property, by being expos'd any little time to the Air in an open Vessel, or on being warmed, which is a Sign of a volatile Vitriol only ; but the *Hampstead* Water answers even to a Miracle in these Cases.

The *Hampstead* Water gives a fine Purple Colour to Galls, tho' warmed next to that degree of heat that it is ready to boil. Yet half a Grain of Galls, in a moment, strikes a fine Purple to two Ounces of Water thus warmed ; yea, an Infusion of its Sediment does it. Another thing I have observed of the *New-Tunbridge* Water, that the Liquor above the Precipitation is clear after some time standing : but that of *Hampstead* Wells leaves a deep Red ; neither can you find Vitriol Crystals interspers'd with the Salts of the first ; but if you exhale a Quantity large enough of the last, you may procure them. These Observations, I hope, will be sufficient to prove, what I have all along asserted, *viz.* That *Hampstead* Waters have all the Virtues to a greater Degree than the *Islington* or *New-Tunbridge* Waters ; but none of their Vices.





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