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Contributors

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AN
 ESSAY
 ON THE
 EXTERNAL USE
 OF
 WATER.

IN A
 LETTER to Dr. * * * *

WITH
 PARTICULAR REMARKS upon the present Method of using
 the Mineral Waters at BATH in SOMERSETSHIRE, and
 a Plan for rendering them more safe, agreeable, and
 efficacious.

By T. SMOLLETT, M. D.

Δεῖ δὲ καὶ τῶν ὕδατων ἐνθυμέσθαι τὰς δυνάμεις.

ἹΠΠΟΚ. ΠΕΡΙ ὙΔΑΤ.

L O N D O N :

Printed for M. COOPER, in Pater-noster-Row; and sold by D. WIL-
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M.DCC.LII.

ESSAYS

ON THE

EXTERNAL USE

OF

WATER

IN A

LETTER TO DR. ...

WITH

PARTICULAR REMARKS UPON THE PRESENT METHOD OF USING
THE MINERAL WATERS OF BATH IN GOUT, RHEUMATISM,
AND A PLAN FOR RENDERING THEM MORE USEFUL, AGREEABLE,
AND EFFICACIOUS.

BY T. SMOLLETT, M.D.

Author of the History of England, &c. &c.
LONDON: Printed by ...

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at the Strand, and by the Booksellers in Bath.



To Dr. * * *

S I R,

SINCE our last conversation, I have been endeavouring to collect and digest my thoughts, touching the external use of Mineral Waters, as comprehended in the three several articles of *Pumping*, *Bathing*, and *Fomentation*; but in the course of my reflections, I find the subject cannot be properly discussed within the limits of a small occasional Pamphlet; and, with regard to a compleat system, I have neither time nor opportunity to confirm by experiments, the particular notions I entertain concerning the efficacy of those Waters: Nevertheless, I shall, in compliance with your request, commit to the Public, these opinions, singular as they are, with the reasons on which they are built, in hope that they will prove serviceable hints to those who are better qualified than myself, for prosecuting useful inquiries in the medical world. True it is the *Thermæ* and *Acidulæ*, or hot and cold Mineral Springs, have been investigated by so many different pens, and produced such a variety of opinions among physicians and chemists, that there is very little encouragement for any man to commence author on the same

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branch

branch of natural knowledge, because he must run a very great risque of seeing his sentiments neglected among the number of those vague *Hypotheses* which are looked upon as the children of idle imagination.

One writer denies that the Water in the generality of Hot Wells, is impregnated with *Sulphur*; while another affirms, that, without *Sulphur*, no such natural Hot Waters can exist. Yet, both these authors quote experiments to vouch for the truth of their different assertions; one asserting, that although he had immersed silver in many of the most noted *Thermæ* on the continent of *Europe*, he could not perceive the colour of the metal changed; neither could he procure any real brimstone by evaporating the Water; nor would the residue, when mixed with Salt of *Tartar*, produce the *Hepar Sulphuris*. But, in opposition to this Doctrine, there are so many concurring observations, that it is amazing to see it maintained by an author of *Hoffman's* reputation; for, besides the Hot Baths of *Austria* and *Hungary*, described in the Philosophical Transactions, and the Spaw at *Harrigate*, in which Dr. *Shaw* found actual brimstone floating in flakes; *Hoffman* himself owns that the Waters at *Aix la Chapelle*, which are better known than any other in *Europe*, abound with this Mineral in such quantities, that whole pounds of the flowers of *Sulphur* are found sticking to the stones that line the fountain-head of the Springs.

Nor are the opinions of chemists less contradictory in their *Analyses* of cold *chalybeate* Waters. Some of that class

clafs say, they contain an *Acid*, whence their Name *Acidule*; while others (and among the rest, *Hoffman*,) deny the *Acid*: Nay, he pretends to have found a manifest *alkaline Salt*, and upon this Proof, erects a theory of their operation on the human viscera, when drank in large quantities: but this *Alkali* is, by Dr. *Short* explained into a sediment of *calcareous Earth*, and a portion of common salt. *Hoffman* likewise denies the existence of fixed or real *Vitriol* in these Waters, though he allows they are impregnated with a *vitriolic Acid*; but *Short* justly blames him for making such a distinction without a real difference; and Dr. *Shaw* hints a method for obtaining from them a solid *Vitriol*.

Such diversity of opinions, among those who have laid themselves out for *analysing* Mineral Waters, cannot fail to perplex and embarrass people who attempt to reason upon the use of them, without having had the advantage of seeing their effects, in a long course of practice, by which alone their Medicinal Virtues are to be ascertained.

For my own part, without having recourse to the assistance of a *Spiritus Reſtor*, an *Acidum vagum*, or subtile *elastic Spirit*, universal cause and fountain of all particular *Spirits*, whether in the mineral, vegetable or animal world ---I say, without the interposition of any such unintelligible influence, I can easily conceive how extraordinary cures may be performed by the mechanical effects of simple *Water* upon the human Body; and I

fully believe that in the use of *bathing* and *pumping*, that Efficacy is often ascribed to the *mineral Particles*, which properly belongs to the *Element* itself, exclusive of any foreign assistance.---*Hoffman* indeed, acknowledges that the energy of mineral waters, both in preventing and curing Diseases, is in a great measure, owing to the Water itself; though he alledges the other principles serve to stimulate and quicken its operation.

Pure Water is certainly of all others, the most salutary beverage, as being the best fitted to mix with all the animal juices, assist the different secretions of the human body, and prevent that Rigidity and *Coalescence* of the vessels, which are the immediate causes of old age; and while it thus acts as an universal *Deobstruent*, by diluting the Fluids; instead of *abrading*, or offending the solids, it clears them from all *extraneous* adhesions, and manifestly contributes to the preservation of their due tone and flexibility. These admirable qualities inherent in simple Water, are clearly evinced by the uninterrupted health, good spirits, and *Longævity* of those who use nothing else for their ordinary drink; and many instances might be given of acute and ardent Fevers cured by plentiful draughts of warm water; as well as of *chronical* Distempers that have yielded to a regular course of drinking cold, Spring-water at the Fountain-head. But, such an enquiry does not fall within my design, which was that of considering the Fluid in its external application.

I have known the most fordid and inveterate *scrophulous* and *scorbutic* ulcers cured by the *asperfion* of common Well-water, which to the taste and smell, exhibited no signs of mineral impregnation ; but, at first, derived its reputation from the superstition of the people, by whom, in times of ignorance, it had been dedicated to one of the legendary saints of the Roman kalendar. Such cures are undoubtedly performed by the coldness, pressure, and moisture of those waters : the first communicates a spring to the decayed or diseased solids, by which the vessels are enabled to propel their contents, and renew the circulation, which had been impeded ; the pressure supports the weakened sides of the capillaries or fine lymphatics against the increased momentum of the juices thus again set in motion, helping, at the same time, to restrain the *fungous* excrescences, in determining that præternatural *Incrementum* in a lateral direction, by which a re-union of the fibres is effected ; and the moisture deterges the ulcer, by washing away the *acrid* matter, which would otherwise *corrode* the parts, and consequently obstruct the cure.

Surgeons in general, are, in my opinion, too neglectful in making due compression, in sores over-run with *Fungus*, or circumscribed with *Callus*. In these cases, the tone of the solids is always debilitated or lost ; and when the excrescences regerminated (as it were) under the knife, and sprung up, in spite of all the *Catheretics* and even *Caustics* that could be used, I have known them subdued by moderate compression, and a kindly digestion obtained.

ed. In all wounds also, that happen in parts of a loose or membranous texture, and are become *fistulous*, from the nature of their situation, such as those in the *Urethra*, or in the cheek, when the salival duct is divided, it will be almost impossible to effect the cure, without a particular attention to this circumstance of pressure, which, if properly conducted, will seldom or never fail.

The efficacy of the *Cold Bath*, tho' unimpregnated with mineral principles, is so well known in *hypochondriac* Disorders, in diseases of the lax fibre, and partial weaknesses, when the *Viscera* are not unsound, that there is scarce a Physician, Surgeon, or Apothecary, who has not opportunities of seeing it every day. Those, therefore, who want further information on this head, I refer to the writings of *Floyer* and *Baynard*; together with a very ingenious essay written in Italian by *Antonio Cocchi*, and printed at *Rome* in the year 1738, in a collection intituled, *Saggi di Dissertazioni accademiche, pubblicamente lette nella nobile accademia Etrusca dell' antichissima Città di Cortona.* Tomo II.

The author of this dissertation, which is the tenth as it stands in the volume, justifies the external use of cold Water, from the practice of the Antients; and, in the course of his disquisitions, forms a very plausible conjecture, touching the distemper of *Augustus*, which was cured by the celebrated *Antonius Musa*. He refutes the opinion of those who supposed the Emperor's disease was

a gout, by mistaking the word *Arteria* for *Articulare*; and brings very good reasons for believing that it was a *Tabes pituitaria*, seated in the glands of the Palate, Fauces, and *Asperia Arteria*: Accordingly, *Musa* prescribed cool gargles, and ordered cold Water to be thrown upon his body. But I shall now proceed to consider the effects of simple Water, in the article of Pumping; a method of application, in which it will undoubtedly act with great and surprizing energy, upon the nerves and fibres of the human body.

The learned and judicious Commentator upon *Boerhaave's* Aphorisms, says, he has sometimes cured chronic Tumours about the knee, that resisted almost every other remedy, by letting warm water fall from an high place, *guttatim*, or drop by drop, upon the part: if therefore warm Water descending with such an inconsiderable *Momentum*, and in so small a Volume, will prove efficacious in removing one of the most unyielding of all Tumours; what may not be expected from the descent of a full Stream that covers at once, the part affected? It may be supposed, indeed, that a succession of single Drops falling upon different parts of the Tumour, may produce a gentle undulation in the diseased vessels, by which the obstructed Matter is *comminuted*, put in motion and expelled; whereas, a large sheet of Water, that covers the whole surface of the diseased part, presses equally on every point of it; so that the obstructed matter cannot move to any one place of the Tumour,

mour, where there is less resistance than in any other ; but, if the Pump be of a moderate diameter, and the Stream properly managed and played upon the part, the resistance may be varied to much better effect, than we can hope from such a trifling distillation of one single Drop succeeding another ; and warm Water pumped upon any diseased part, not only acts by pressure, but has other effects in common with cold Water applied in the same manner, a practice which I will venture to recommend as a very powerful and salutary method of application.*

If a white swelling of the Joint, or contraction of the *Flexor Tendons* of the knee, be subjected to a temporary cascade of cold Water, the part affected, instead of sustaining a continued and equal pressure, as would be the case, were it immersed in the Bath, undergoes a succession of impulses from the falling stream, infinitely more delicate and effectual than any kind of dry *Friction* ; for while the obstructed and stagnating Fluids are (as it were) driven from the places of their confinement, by the re-

* *Hippocrates*, in his Chapter ΠΕΡΙ ΥΓΡΩΝ ΧΡΗΣΙΟΣ, expressly says, That swellings in the joints, together with gouty pains in the feet, are extenuated and eased by a plentiful affusion of cold Water. And the same method of practice was adopted by *Celsus*, who, in treating of arthritical pains, observes, That if they are attended with tumour and heat, refrigerants are proper ; and therefore orders the parts affected to be plunged and even detained in the coldest Water, tho' not for any length of time ; nor would he have this practised every day, lest the tendons should be contracted, and grow stiff. We are also informed by *Ætius*, that *Archigenes* recommended the same remedy, on the same occasions.

peated strokes of the Water, the momentary interval betwixt every shock, gives more play to the elastic sides of the small vessels, and creates an *oscillatory* Motion, which helps to divide the preternatural *Moleculæ* of the impacted juices, thereby rendring them more fit for the purposes of minute circulation; at the same time, the sudden dash of a cold fluid, acts as a *Stimulus*, upon the relaxed or obstructed Tubes which assist in the general *Nifus*, by a succession of extraordinary contractions.

What passes within the obstructed vessel, when the stagnating fluid is propelled, hath been curiously described by *Leeuwenboeck*, who, in the membranous expansion that serves instead of a wing to a bat, observed, by the help of his glasses, the first tendency to *Resolution* in the blood which had been totally congealed by cold: at first, he could perceive no motion either in the arteries or veins, until the animal reviving by degrees, he beheld an oblong mass of concreted blood, which filled the whole cavity of the artery, begin to move backwards and forwards in the vessel, which, by its successive contractions, gradually dissolved the *Coagulum*, so as to render the whole fit for circulation. Here, indeed, the obstruction was thawed by the revival of natural heat, and the motion first began in the fluid; but, in Pumping, the *Resolution* is immediately owing to the contraction of the vessel, occasioned by the effects of the Water upon the nervous system. --- Perhaps, too, the imagination is concerned, being acted upon by a

certain timidity of expectation between every stroke of the falling fluid. --- That fancy operates with great power upon the human body, is so evident in all *hypochondriac* and *hysterical* disorders, that it would be idle and superfluous to call in the evidence of facts in support of a truth so well known.

Excess of passion hath often proved fatal both to men and women, and the common symptoms of fear indicate a total contraction of the animal machine: the blood is driven from the cheeks, and surface of the body, towards the head, heart, and other internal parts, whence palpitations, throbbings in the arteries of the brain, and a general constriction of the whole fibrile system. --- *Van Swieten* relates the case of a woman in good health, who, from a sudden fright, was seized with a tumour in one of her breasts, which, in spite of the most skilful treatment, hardened into a confirmed *Schirrus*: it is a constant observation, that, when soldiers march to battle, there is among them a remarkable evacuation by stool; and I know an instance of a woman, who, being apprehended on a criminal accusation, was so terrified when the officers of justice appeared, that her urine and *Fæces* were expelled with incredible force.

The cure of *Wens* by the application of the hand of a person who hath been hanged, can be accounted for no other way but from the coldness of the cadaver, the friction
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of the member, and the power of imagination. Neither is this to be reckoned among those idle remedies that owe their credit to the superstitious fables of old women: I knew a young gentleman of good sense, who had a large *strumous* swelling upon one side of his neck, and submitted it to this application, which, (he owned) had a remarkable effect upon his spirits, from that natural antipathy which almost every body has to the touch of a corpse: for some days, his imagination dwelt upon the experiment with a kind of horror that seemed to thrill, in repeated vibrations, from the part, which began to put on a more inflammatory appearance, and, I make no doubt, would have been altogether dissolved by frequent repetition of the same medicine, which, (however) he refused to undergo. ---

It was, doubtless, from such effects of fancy, that our kings, of old, derived their power of healing *scrophulous* distempers by the touch; a poor diseased wretch, of low station, and weak intellects, prepossessed with the superstitious notion of a delegated power from Heaven, and struck with the *Apparatus*, as well as with the sublime rank of the *Operator*, acting in the double capacity of apostle and king, could not fail to be extremely affected through the whole system of the nerves, and suffer such agitations in the blood and spirits, as might work great changes in the constitution: yet these effects would vary according to the different dispositions of different patients,

and their various situations in life. --- But to return from this digression, *Pumping* is attended with another consequence, which, in all probability, adds to its salutary effect: the Water, in its fall, is broke into very minute particles, by the resistance of the air, as well as by its dashing against the diseased limb, and the cistern or pavement that receives it; so that the atmosphere is loaded with a kind of mist, which being kept in motion by the *Pumping*, may act by way of *Fomentation* upon the part affected. True it is, the coldness of the fluid seems to contradict this supposition, because it is the known property of cold to contract the pores of the skin, consequently, to refuse admission to those floating corpuscles: but Water, suspended in separate globules, has not that aggregate coldness which we find in a collected mass; therefore we are not to suppose the *vasa inbiantia* on the surface of the body altogether shut: and it is well known that the particles of cold Water are more penetrating, because they are more contracted than those of hot Water: *for fire with all its force, however applied and continued to Water, can never divide its component particles, or make them smaller; but, on the contrary, will enlarge their bulk, and strongly agitate them, one among another; and Water rendered as cold as possible, may pass through pores which it could not enter while hot.* --- At any rate such an agitated mist will produce an undulation in the air, which operating upon the surface of the body, will assist and promote a brisk circulation in the blood and animal juices. --- In the neighbourhood

bourhood of every *Cataract*, or *Cascade*, whether natural, or artificial, there is, (if I may be allowed the expression,) a cold, vapour Bath of this kind, which might be converted to useful purposes, could the agitated steam be collected in a proper receiver, without destroying its motion, and directed in full Stream to the part affected, whether *Ecchymosis*, indolent Tumor, or contracted Tendon. --- We know from *Hydraulics*, that such a steam is obtained, and might be easily and commodiously conveyed by a tube three hundred feet high, through which Water precipitated would be so broke and attenuated by the resistance of the air, and the sides of the pipe, as to issue at the lower end in form of a thick mist: but this would not be the case, if the descent was less than three hundred feet; and therefore, the expedient is not likely to be tried.

Having thus signified my opinion touching the use of common Water in the *cold Bath*, and in *Pumping*; I shall now communicate my sentiments of the *warm Bath*, and *hot Fomentation*, which, when properly used, are certainly very effectual remedies in many disorders of the human frame, even when the Water is free from all mineral impregnation.

Warm Water is of all fluids the most mild and inoffensive; insomuch, that, when applied to parts of the most exquisite feeling, it gives no pain; on the contrary, in ulcerated Cancers, when the nerves are corroded, laid
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bare, and smart with every other application, this alone mitigates the torture.

It is not my province to expatiate upon the virtues of this element when used internally; I shall, therefore, limit my observations to the outward use of it, in the different forms of *Pediluvium*, *Semicupium*, *universal Bath*, and *Fomentation*. Bathing the feet in warm Water, is known to be an efficacious remedy in the *Head-ach*, *Vertigo*, *convulsive Asthma*, *dry Cough*, *hypochondriacal* and *hysterical Disorders*, *Palpitations of the Heart*, *Obstructions of the Menses*, and all cases, where it is necessary to make a revulsion from the head, and to invite the juices downwards: nay even in *ardent inflammatory Fevers*, I have known it used to great advantage, for taking off the tension and rigidity of the skin, assuaging the extreme drought, and procuring sleep to the restless patient: Yet this practice is condemned by a great many ingenious Physicians, who affirm, that the heat, by rarifying the blood increases the fever; and that the pressure of the Water upon the extremities, being eight hundred times greater than that of Air, must of consequence drive the contained fluids towards the head and heart with a most dangerous impetuosity: but, the resistance of the fluids is an over-match for this pressure, great as it is; for it will be found that the feet, even while immersed in the Bath, are considerably swelled beyond their natural dimensions; and this must be entirely owing to a relaxation of the vessels; or at least, to their distension from an

an extraordinary *Impetus* of their contents.---After all, it is a question with me, whether the vapour of the *Pediluvium*, may not contribute to its good effects, by acting as a *Fomentation*, upon the parts of the body contiguous to the Bath; for I have frequently observed that the suppleness and moisture of the skin, that manifest a restored perspiration, begin to be perceivable upon the legs and thighs of the patient, who has had recourse to this expedient.

The *Semicupium* has the advantage over the *Pediluvium*, in many diseases of the *Viscera*: In *Cholic Pains*, and *spasmodic Contractions* of the intestinal canals, and in violent constrictions of the tender membranous tubes, (such as the *Ductus Cysticus*, *Ureters* and *Urethra*) when they are blocked up and irritated by rough and angular concretions.

But the most effectual use of the warm Bath, is supposed to be that wherein the whole body is immersed: Indeed, the warm Bath is so well understood in its Anodyne capacity, that every body (almost) after the fatigue of a journey, or other hard exercise, has recourse to the *Bagnio* for refreshment: and so agreeable is the operation of this medicine, that in ancient times, as well as in these days, it has been considered as a point of luxury and pleasure; witness those magnificent Baths of the *Romans*, described by *Pliny*, *Vitruvius*, and other eminent writers of antiquity: together with the constant practice
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of many modern voluptuaries.---Nothing, surely, yields a more easy sensation than that which we feel in a Bath of pure, simple Water moderately warm: that expansion of nervous *Fibrillæ* stretched to almost every point in the surface of the body, is, as it were, unbended into a pleasing state of relaxation; and a charming indolence or *Languor* steals upon the spirits.

The warm Bath conduces to the restoration of health, by rendering the rigid fibres more pliable and supple; by washing away those unctuous and *acrid* impurities, which are apt to obstruct the pores, corrode the nerves and disorder the perspiration; by enlarging the openings of the cuticular strainer, and inviting the fluids towards the surface; by reviving the natural heat, and causing an *Oscillatory* motion, which will restore to parts that are cold, insensible and contracted, their former warmth, functions and flexibility: and in a languid circulation, proceeding from a *Viscidit*y of the juices, the warm Bath will be serviceable by encreasing the velocity of the blood, which is agitated and attenuated by the rarefaction of the heat within, and the pressure of the Water without the vessels.

From these effects of the warm Bath, it must be salutary in *paralytic Disorders, contracted Sinews, spasmodic Affections of the Nerves, hypochondriacal and hysterical Cases, Obstructions of the Menses, Hæmorrhoids and Perspiration*; the Scurvy, venereal Distemper, and all diseases, the

the causes of which are to be discharged through the *Emunctories* of the skin ; accordingly there is often an amazing quantity of foul humours, expelled into the *Bath* from this outlet. In the *German Miscellanies*, we read of a woman afflicted with a pain in her loins, who after having tried other remedies in vain, found nothing gave her so much relief as warm Bathing, upon the use of which, a gross, *unctuous* matter was found floating upon the water, and might have been taken off with a spoon. There is likewise another history of an *hypochondriacal* man, who upon using the warm *Bath*, found also such a scum, which grew every day more and more *corrosive*, and smelled so fœtid, that they were obliged to infuse fresh herbs to correct the noisome stench, as well as the *Acrimony* of the water, which even affected the hand of the rubber ; and this *Excretion* continued until the patient was quite recovered. Indeed, (as Dr. *Shaw* observes) such an *unctuous* matter is observable in the *Baths* at Bagnios, after they have been used by persons apparently in health.---Among the Ancients, this remedy was always applied to those who were bit by a mad dog, even after they were seized with the *Hydrophobia* ; and *Hoffman*, from the information of a physician of *Duderstad*, gives an account of a mad wolf, that coming out of the woods, bit several persons, who died of the bite ; till at length, by the advice of an ordinary man, some others who had met with the same misfortune, had recourse to the use of a moderately hot Bath ; having first taken a dose of *Theriaca Veneta*, and

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the *Fungus* of the *Dog-Rose*; and by these means repeated every day, were delivered from the terrible consequences of the poison. It must be owned, however, that in these cases, part of the credit of the cure, was due to the *Spongia Cynorrhodi*, which is a very powerful *Diuretick*, and of such efficacy in a great many distempers, as to have obtained in *Sicily*, the epithet of *Sanatados* or *All-beal*.---And here it will not be unseasonable to observe the difference of practice among the ancients, as well as moderns, in treating patients bit by a mad dog, with regard to the article of Bathing.---*Celsus* says, that some practitioners of his time, ordered the patient immediately into the warm *Bath*, that he might sweat plentifully, while his strength was sufficient to undergo that evacuation, and that the poison might have an opportunity to distil from the open wound; then he was regaled with a good quantity of Sheer wine, which they considered as an antidote to all poisons; and by this method repeated for three days, he was supposed to be out of all danger: but *Celsus* himself orders the wound to be *cupped*, then *cauterized* or seared (if the part is not nervous or tendinous) and afterwards treated as a common *Burn*.---In the *Hydrophobia*, which he looks upon as a very dangerous symptom, he says, the only remedy is to plunge the patient unawares into a fish-pond, and duck him in it several times, so as that he shall be compelled to swallow a great quantity of the Water; by which his thirst may be quenched, and his abhorrence of the fluid at the same time removed.--This practice of almost drown-
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ing the patient, Dr. *Mead* observes, was revived in the beginning of the last century; and though he thinks such severity altogether unreasonable, he prescribes the cold *Bath* to be used for a considerable length of time, from the accident of the bite; and ascribes its efficacy to the pressure of the Water upon the surface of the body, and the constriction the cold makes upon the fibres of the skin and the small tubes; whereby the distension of the vessels by the fermenting humours is repressed; and a flux of urine promoted for so many days, that all danger of the nervous fever, the consequent of the instilled poison, is quite over. He likewise, in this case, condemns the use of the Warm *Bath*, as productive of an inflammatory heat, which occasions a dangerous distension of the vessels. But how shall we reconcile this opinion with that of the accurate, the experienced *Hoffman*, who pronounces the use of the Cold Bath, precarious and uncertain, and recommends Warm Bathing as serviceable in bringing the subtle Venom to the surface of the body, where it finds a free exit? I believe both the one and the other may be successfully used on this occasion, under proper cautions and restrictions. Warm Bathing, in the beginning, will relax the fibres, widen the strainer of the skin, quicken the circulation, and promote the secretions of urine and sweat, by which the *Virus* may be discharged before it has had time to produce any dangerous distension of the vessels; and even after the *Hydrophobia* hath begun to rage it may be serviceable in relaxing and removing that convulsive constriction of the nerves, which prevails in divers parts of

the body, and is the immediate cause of that direful symptom; while, at the same time, it may solicit a critical evacuation from the skin, or some other emunctory of the body, without distending the vessels beyond a possibility of retrieving their tone. --- On the other hand, a sudden immersion into Cold water communicates a spring to the whole nervous system, by which the solids are strengthened, contracted, and stimulated, to propell the juices with additional force, the velocity of the blood is increased; consequently all the secretions are augmented, and a glowing warmth being generated on the surface of the skin, is commonly followed by a profuse sweat: thus the vessels are supported against the rarefaction supposed to be produced by the *Virus*, which may likewise be expelled among the promoted secretions of the body: but I am far from thinking it unnecessary to harass and affright the patient in the *Cold Bath*: for, if the intention is to induce a strong contraction in the solids, nothing more effectually accomplishes that aim, than such treatment as inspires the passions of anger and fear. There is upon record, a famous instance of a lady of very high rank, who was cured of the *Palsy* by an affront and mortification purposely offered to her pride, whereby she was seized with a fever of indignation. --- I have known a gentleman who was *paralytic* to a deplorable degree, enraged to a perfect use of all his limbs, while his anger predominated: I have seen persons under the influence of a *Pannic*, exert their muscles in an incredible manner; and in some parts of this island it hath been a common practice in the *Mania* and bite of the

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the mad dog, to reinforce the power of the Cold Bath, by shutting up the patient alone, and properly secured, in a solitary church, where his fancy might be haunted all night long, with images of superstitious terror.

But, to return to Warm Bathing : the use of it is in nothing more successful, than in *maniac* disorders, whether of the melancholy or frantic species : both these are owing to a disordered circulation in the brain, occasioned by a thick foul viscosity in the juices, which, by a nervous constriction of the lower parts, are forcibly driven upwards, yielding an impure and interrupted secretion of the animal spirits, and disturbing their containing vessels, so as to create various *Chimæras* in the imagination. In this case, the Warm Bath is eminently serviceable, by *softening, suppling, and relaxing the nervous parts, opening by its warmth and moisture, the cold and hardened skin, and thus deriving the course of the blood upon the habit of the body, and giving it a free and general circulation.*

Hoffman, who is very full in the praises of this remedy, observes, that, in cases of madness, he had prescribed it with surprising success, after *Bleeding, nitrous and diluting* medicines ; and wonders, that a practice so much depended upon by the ancients, should be almost entirely neglected by the physicians of these days. *Hippocrates, Galen, Celsus, and the methodists, held the use of Bathing in great esteem for the cure of fevers, especially of the intermitting kind ; and this chiefly in the interval between*

two fits, or when the fit is going off; or even in the beginning of an ardent fever. In this last circumstance it is administered to this day by the *Negroes* in the West-Indies, the *Bath* being medicated with emollient herbs, which enrich the Water with a mucilage that adds to its softening and relaxing virtues. By these means a vent is often procured for the obstructed perspiration, before the heat occasioned by its detention hath increased so as to produce a total putrefaction of the juices.

Besides these uses of the Warm Bath, it is of great service in promoting delivery, by relaxing the parts in those women who are turned of thirty before the first child; and in such as are naturally contracted in consequence of a rigid fibre, and robust constitution, which is the case with all those healthy young women, of a florid complexion, who live in the country, and are used to hard exercise; insomuch that a country practitioner told me, he found great difficulty in delivering his patients, until he had recourse to the Warm *Bath*, for relaxing and rendering the parts more dilatable.

Having considered these effects of the Warm Bath, consisting of pure Water only, I am inclined to believe, that the Mineral Principles in Hot Springs, have often, in the cure of patients by Bathing, usurped that praise and reputation which was really due to the simple element; and that the external use of common Water, properly warmed, would have the same, or nearly the same, effect in the
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gout, which an ingenious physician attributes to the *saponeous* and *sulphureous Particles* with which the Waters of *Bath* are impregnated. --- That a *Pediluvium* made of good soft Water warmed, is of service in solliciting the gouty matter to the extremities, is an incontestible truth; and, doubtless, the operation of its heat upon the contained fluids, may produce such a gentle fever as will be sufficient to *grind* that matter small enough to circulate thro' the finer passages, in order to be discharged by sweat, urine, or stool. ---

Howsoever minute and volatile those Mineral Particles may be, I very much question, whether they will find easy admission into the blood, by the small *inbaling* vessels of the skin, while they are confined in a ponderous fluid, that surrounds the surface of the body, and by a considerable pressure, *quaquaversum*, blocks up the very pores through which only they can enter; and such obstruction may be increased by the astringency which those Minerals impart to the Waters of the Bath: so that, instead of opening, softening, relaxing, and purifying, they will, (exclusive of their additional weight and pressure, which are greater in these than in common Water,) be apt to contract the pores, crisp up the fibres, harden the surface of the skin, and leave upon it a sort of mineral crust, which may corrode, and hurt, the tender, nervous papillæ, produce a disagreeable itching and heat, and totally disorder the perspiration. As to the volatile parts in which the chief virtues reside, they are continually flying off in a perpendicular direction; so that they
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can have little effect upon the body *immersed*. --- This supposition is partly confirmed by experiment: for there are many hot sulphureous Wells upon the continent, in which a piece of silver being *immersed*, will receive no stain; whereas, when suspended over the steam of the same Waters, it soon acquires a fine yellow colour. Mr. *Boyle*, in his history of air, says he found a certain metal more suddenly and evidently affected, by being sustained in the air, over the fumes of a *menstruum*, than it was when totally covered by the *menstruum* itself: and it is commonly observed, that in a moist air, occasioned by a plentiful evaporation, iron guns will contract rust in a shorter time, and much larger quantity, than if they were actually sunk in sea Water. --- These observations, though they do not altogether disprove the common notions of a Mineral Hot *Bath*, at least invalidate its supposed effects; and plainly demonstrate, that the subtile and volatile parts are more efficaciously communicated in *Vapour* or *Fomentation*, which is the method of using the Waters, which we now come to consider.

The ancients used the *Vapour Bath* composed of natural Hot Steams, which, rising from the earth, were received under a proper Arch, or Hot-house: but this was solely with a view to procure sweat; for which purpose they also had recourse to a dry heat, such as Hot Sand, Horse Dung, Stove Rooms, and artificial Bagnios; together with the method of *insolation*, in which the patient was exposed to the

the sun-beams, that they might exhale the peccant humours in some chronical distempers.

Fomentation is so frequently used, and so well understood, in all external inflammations, that it would be superfluous to describe either the manner of applying *Stupes*, or the common disorders in which they are beneficial. They have often stopt the progress of a *Gangrene*, dissolved the *venereal Phimosi*, and *Hernia humoralis*, and allayed the pain, and removed the tension of the *Erysipelas*: the Vapour of hot Water, breathing through the pores of a bladder, hath assuaged the torture of the *pleuritic Stitch*, and even dissolved its cause; and the *Angina* is often cured by the steam of this fluid, received into the mouth, through a *Funnel*, or the spout of a tea-kettle, under the cover of a blanket, which, by detaining the *Effluvia*, encourages a total *Diaphoresis* of the head: nay, in *strumous* swellings of the neck, *Van Swieten* observes, that all other *discutients* will be of little service, unless the parts affected be frequently *fomented* with the vapour of hot Water; and he relates the case of a stiff joint from the *Induration* of the ligaments, which, in two months, perfectly recovered its motion and *Flexibility*, by being exposed to the steam of hot Water, for an hour every day.

That this *Vapour* is a most powerful dissolvent, is indisputably proved from its effects in *Papin's Digestor*, which are so violent as, in a few minutes, to reduce the hardest bone into the consistence of a jelly: nor is the effi-

cacy of this *Vapour* upon the human body, to be wondered at, when we consider into what minute particles that fluid is divisible, and what millions of *inhaling Vessels* gape upon the surface of the skin: for, according to *Leeuwenboeck's* computation, upwards of one hundred thousand of them may be covered with one grain of sand.

The steam of hot Water therefore, not only relaxes the sides of the obstructed vessels, so as to allow the humours to pass, but, also acts as a *diluent*, after having insinuated itself into the circulation: for, with respect to the *fluids* of the human body, nothing is so powerful in *diluting* and *attenuating*, as Water, which, in the language of the *Adepts*, being changed by the *Seminale Principium*, is the universal *Cement* of all things, and that, into which, by the efforts of nature and of art, all things may be resolved: but, over and above these effects, the *Vapour*, in relaxing the vessels, lessens their resistance, by which means, the circulating juices flow thither with increased *Momentum*, and sweep before them all remains of the obstructed matter; accordingly, we see the part begin to swell and redden, in the same manner as when cupping-glasses are applied, in order to make a *Revulsion*, by removing the pressure of the *Atmosphere*.

Although such benefits are obtained from the *Vapour* of simple hot Water; we know how to reinforce its virtues, so as to render it much more efficacious; and readily

ly allow, that, in this form, the hot mineral Springs are applied to great advantage.

The steam of common Water is enriched by the infusion of vegetables, as well as by the solution of salts: for all the fine, *aromatic* particles of vegetables are *volatile*, and continually flying off; consequently adapted for entering the smallest order of vessels, along with the *Vapours* in which they rise; and this is eminently the case with all *acid* and *urinous* salts. --- The air is always impregnated with the finer parts, and native spirit of those vegetables that grow upon the surface of the earth: thus, while we sail along the coasts of those countries that abound with *aromatic* plants and trees, we are regaled with their *odorous exhalations*, even at a great distance from the shore. Mr. Boyle, from the report of an ingenious physician, informs us, that the *Dutch* having destroyed almost all the clove-trees that grew upon the island *Ternate*, with a view to enhance the value of their spice, such a change in the temper of the air immediately ensued, as plainly proved, that the *aromatic Fragrance*, exhaled from the blossoms of those trees, had corrected the natural unwholesomeness of the clime, for the whole island became very unhealthy; a circumstance (as the physician imagined) owing to the *corrosive* steams of a *Vulcano*, the ill effects of which had been prevented by the spicy *Effluvia* of the trees. --- The *Volatility* of many salts is perfectly well known: that there are numberless *saline Corpuscles* floating in the air, is proved by a thousand different experiments: the *Vehicle*

of all these is Water; and many more which the sun hath not power to raise, may be driven upwards by the hot steam of that fluid. --- The *attenuating* qualities of *sal Ammoniacus* and *Sea Salt*, are remarkable in their effects upon the human body: by an excessive use of the last, the blood is sometimes so dissolved as to burst from the vessels in dangerous *Hæmorrhages*; and a solution of *Sal Ammoniacus* in Water, externally applied to a contusion, will surprizingly dissolve the *coagulated* blood.

Minerals are also *volatilized* by chemical operations. Dr. *Mead* says, he had once in his possession, a spirit procured by a combination of salts with *metallic* bodies, so volatile that it would all fly away in the open air, without being heated, and so corrosive as to *erode* the glass stopple of the *Vial* in which it was contained. --- What is effected by Art, is sometimes performed by Nature, in the bowels of the earth. --- The effects of subterraneous fire are manifest in the eruptions of every *Vulcano*; in *Earthquakes*, *Hurricanes*, *Mineral Damps*, and *Exhalations*, termed by the ancients, *Mephites*: but, in nothing are they more conspicuous, than in those *Thermæ*, or hot Springs, which now claim my observation.

There is in the cold *chalybeate* Waters, for the most part, a spirit of surprizing volatility, which is not easily retained when they are removed from the Spring head; and this, in some of them, is so intoxicating to the nerves, as to produce *Giddiness* in the very instant of drinking.

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Though this very subtile spirit is, in part, dissipated by the heat of the *Thermæ*, yet the *Vapour* of these hot Waters is certainly impregnated with *sulphureous* particles, or a *volatile Vitriol of Iron*, which cannot fail to operate powerfully on the surface of the human body, and introduce themselves within the laws of circulation, not only by the pores of the skin, but also by the *Saliva* and *Respiration*. The air contiguous to the bathing places at *Bath*, in *Somersetshire*, is furcharged with *Sulphur* to such a degree, as to be very offensive to tender lungs; and those *Vertigos* and *Palpitations* with which some of the Bathers are seized, may be partly owing to the *Mineral Effluvia* operating upon the nervous membrane of the nose, as well as to the heat and pressure upon the parts that are immersed.

By this time, you will have perceived the whole of my opinion, touching the external use of mineral Waters, whether *Acidulæ*, or *Thermæ*: that, in point of Bathing, they are not preferable, not even equal to pure simple element, except in those cases, where their *styptic* or *astringent* quality may be of service, namely in some particular kinds of ulcers, and *oedematous* swellings; and that, in general, the most effectual way of applying them externally is in form of *Vapour*, whether conveyed to one particular part, or extended to the whole surface of the skin: yet this method, so safe and salutary, approved by every physician of candour, learning, and experience, hath never been practised at *Bath*, which is the great hospital of the nation, frequented by almost all the valetudinarians whose lives are of any

consequence to the commonwealth. This defect, together with the inconveniences and danger that attend those who bathe in this place, must occur at once to a judicious observer: nevertheless, they have been overlooked with the most supercilious and willful neglect by the Corporation, which has even rejected the earnest and repeated remonstrances of those who have tasked their ingenuity to contrive schemes for rendering their Waters more safe and serviceable. --- The same indolence, or indifference, prevails among the managers and directors of their hospital: for, although, in the plan which was handed about to solicit subscriptions, they observed, that, by the execution of it, many parishes would be eased of the burthen of their poor cripples; that the knowledge and use of the Bath Waters would be greatly improved, to the benefit of all succeeding generations; and that the hospital would, in a few years, furnish more histories of cures that might be depended upon, than could possibly occur in private practice, during a whole age; the public hath not, as yet, been favoured with the history of one cure performed under the auspices of that charity. Dr. *Summers*, physician in that place, hath indeed, of late, published an accurate account of the success of Warm Bathing in paralytic disorders, and, from the books of the hospital, favoured us with a list of all the paralytic patients who have received benefit from the use of the Bath. So far the public is obliged to that gentleman: but, as he himself justly observes, the same public *hath a right to be informed how far their noble intentions have been answered; and what good their*

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Benevolence has produced : and this information can only be conveyed in a succinct detail of all the cases in which the Warm Bath has proved serviceable or detrimental. Many people were induced to contribute largely, by these arguments which were equally solid and specious : from the regularity of patients in an hospital, they hoped to see the uses and virtues of the Waters ascertained ; and did not doubt that their success upon such as were restricted to the most exact regimen, under the immediate eye and direction of physicians, would encourage others to imitate the same regularity, and, of consequence, bring a greater concourse of people to *Bath*. --- A satisfaction of this kind, is what the public, in general, has reason to expect, and every subscriber, in particular, a right to demand ; and that the world hath been hitherto disappointed on this score, must be owing to a shameful laziness in those who belong to the hospital, in a medical capacity ; or to a reserve in the directors, which is equally unaccountable and unjust, and very ill becomes the trustees of a voluntary subscription.

In the progress of my inquiries, touching the external use of the Bath Waters, I understood that the physicians and surgeons residing at that place, had presented a memorial to the mayor, and corporation, desiring they would petition the parliament, to enable them to make several alterations in the Baths, which are necessary for the good of the public. To this memorial they received an answer, importing that they would by no means apply to parliament, but, so far as their own power extended, do
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every thing for the advantage and improvement of the Baths; and they desired that those necessary alterations should be specified. Accordingly, the gentlemen of the faculty held another consultation, at which Mr. *Cleland*, Surgeon, presented a plan for that purpose, which was read, and referred to the report of a committee appointed to examine the particulars of it, with more attention. Desirous of knowing the nature of these proposed alterations, I addressed myself to that gentleman, whom I found to be of a very communicative disposition; he not only favoured me with a copy of his plan, which, for the satisfaction of the public, shall (by his permission) be printed as an appendix to this essay, but, also, communicated to me, the remarks he had made on the Baths, and a very ingenious apparatus he had contrived, for some complaints peculiar to the fair sex, as well as for sweating any particular part of the body, with the steam or vapour of those Waters. This was a piece of satisfaction he had never refused to any person of the least consideration, whether a foreigner, or of our own country. The machinery, together with the former proposals he had offered to the same intent, had been approved of by most of the learned men in *London* and *Bath*, and presented to His late Royal Highness the Prince of *Wales*, by whose command they were sent to Mr. *Nash*, with a desire that he would lay them before the corporation, in his name. --- Yet, notwithstanding such powerful recommendation, the plan was never executed: on the contrary, a most rancorous spirit of opposition was raised against the author, whose reputation

tion with the public could not fail to excite the malevolence of some narrow-minded people of the profession, who had acquired plentiful fortunes by their practice, without having made one improvement for the benefit of their own patients, or the advantage of mankind: no wonder, then, that they should take umbrage at Mr. *Cleland's* presuming to contrive methods for making the Waters more safe and effectual, and endeavour to prevent the success of his plan. The cruel treatment he underwent upon that occasion, compelled him to appeal to the public, and the whole contest betwixt him and his adversaries appeared in print; when he was allowed, by every unprejudiced person, to have greatly the advantage in the dispute. At last, his enemies had recourse to the pen of an author as notorious for the servile homage he yields to his patrons, as for the insolence and scurrility with which he treats all the world besides. True to these principles, this champion published an anonymous letter to Mr. *Cleland*, wherein, after a chain of false reasoning, twanged off in all the arrogance of expression, some awkward attempts to ironical humour, and the most abusive low sarcasms, levelled at a lady of distinction, and, indeed, at a whole nation, on her account, he takes it for granted, that he has fully proved the truth of his unjust allegations. This author must have entertained a very contemptible idea of the understanding and judgment of the public, if he hoped to impose upon them by such an effusion of idle sophistry, in the course of which, he is even driven to the subterfuge of making false quotations: but his talents, as a commen-

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tator, are so well understood, and so justly celebrated, that he had nothing further to fear for his reputation on that score.

That the reader may distinctly perceive the necessity of reforming those Baths, I shall here enumerate the inconveniencies that attend the present method of using the Waters externally; the knowledge of which, I, in a great measure, owe to the information of Mr. *Cleland*.

Diseased persons of all ages, sexes, and conditions, are promiscuously admitted into an open Bath, which affords little or no shelter from the inclemencies of the weather, such as wind, rain, hail, and snow: for, by the peculiar sagacity of the learned in that place, the bathing time is limited to the most severe season of the year. This being the case, it may be reasonably supposed, that many of the fair sex are withheld by modesty from going into the Bath, where they must not only mingle with male patients, to whose persons and complaints they are utter strangers; but, likewise, be exposed in a very mortifying point of view, to the eyes of all the company, in the Pump-room, as well as to those of the footmen and common people, whose curiosity leads them to look over the walls of the Bath: some may be apprehensive of being tainted with infectious distempers; or disgusted with the nauseating appearances of the filth, which, being washed from the bodies of the patients, is left sticking to the sides of the place.

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Although the king's and queen's Baths have been known to contain five-and-forty patients at one time, the number of guides does not exceed half a dozen of each sex; so that if any of those Bathers who are unattended should be seized with a sudden *Vertigo*, fit, or other accident, they might lose their lives for want of proper assistance. But, granting no such accident should happen, some of them, on retiring from the Bath, must, from this defect in point of attendance, remain in the wet bathing dress, until their constitutions are greatly endangered. This inconvenience is rendered more grievous by the nature of that dress, which, being made of canvas, grows cold and clammy in a moment, and clings to the surface of the body with a most hazardous adhesion. If they should escape the consequences of both these risques, they may still be subject to another, in being obliged to wait in a cold slip for their respective chairs, which cannot always be brought to them in proper time, because the passage is frequently blocked up. After all, they are carried to their lodgings, while their pores are open from the effects of the Bath, in paultry chairs made of slight cross bars of wood, fastened together with girth web, covered with bays, and, for the most part, destitute of lining: these machines, by standing in the street till called for, are often rendered so damp by the weather, that the Bathers cannot use them without imminent hazard of their lives.

The slips, or places for undressing, are not only too few in number, but, also, cold, damp, uncomfortable, and altogether improper for the use to which they are put; and, lastly, the fine volatile parts of the Mineral are suffered to evaporate, without being converted to any medical use.

From these considerations it plainly appears, that those patients who are deprived of the use of their limbs, and incapable of helping themselves, must be subject to great inconvenience and danger; and that, in all probability, many persons of a delicate frame, and timorous disposition, are altogether deterred from that way of using the Waters; for these evils are not frivolous, or chimerical: every day are heard complaints of the bad effects of Bathing; and if these are minutely inquired into, they will be found (for the most part) to proceed, not from the Water itself, but from the inconveniencies attending the manner of Bathing. I myself, who have had very little opportunity of seeing the immediate consequences of the Bath, could produce several instances in which the patient's lungs were dangerously affected by Cold, caught either in the Bath, in dressing, or in waiting for a chair.

Mr. *Cleland*, urged by these considerations, formed an easy and rational plan for rendering the Baths more safe and commodious; and, as I have already observed, contrived an apparatus for confining the vapour, and directing it in full steam to any part of the body, as the exigency of the

the case might require ; a method of application which is, of all others, undoubtedly, the most effectual, in the external use of medicated Waters. He invented a close warm chair, for conveying the patients to and from the Bath, which hath since been imitated by the governors of the hospital, as well as by many of the chairmen who ply in the streets ; and he proposed that a Bagnio should be erected with proper conveniencies for Cupping, Sweating, Bathing, Pumping, and Fomentation, and supplied by a pipe from the kitchen or reservoir of the king's Bath. Such an improvement would afford a safe, easy, and agreeable accommodation to any of the royal family, who may, (as heretofore) have occasion for the Waters ; as well as to the nobility and gentry, and those who want to refresh themselves after the fatigue of a journey. People of remarkable delicacy, either in sentiment, or constitution, might here receive the benefit of the Waters, in the most effectual manner, and avoid all the dangerous and disagreeable circumstances of bathing in the open air : for it would be an easy matter to temper the fluid to such a degree of Warmth or Heat as might be necessary to the case of every particular patient ; whereas, at present, all the Bathers are obliged to undergo the same degree of heat, tho' the various nature of their complaints, and constitutions, may require a very essential difference.

Though the interest of the corporation was evidently connected with the execution of this scheme, in order to leave them absolutely without excuse, Mr. *Cleland* offered to erect such a Bagnio at his own expence, and pay yearly
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into the chamber of *Bath*, a reasonable consideration for the use of their Water; or, if they would be at the charge of building one according to his plan, to take a long lease of it, at a certain yearly rent; to discover all his contrivances for topical Fomentation; and to exert himself, to the best of his power, for the advantage of the place.

These proposals, disinterested, just, and reasonable as they are, which contain the most plain, easy, and effectual remedies for those evils and defects that are the continual subject of complaint, have been, hitherto, neglected by the very people who would reap the immediate advantage of the proposed alterations; and Mr. *Cleland*, who must have been at a considerable expence of money, time, and application, in bringing his schemes and machinery to perfection, will, in all likelihood, see his designs for the public good still defeated by the same mean, selfish, and malicious arts, which have thwarted him so long; unless they are overbalanced by the interposition of that authority which hath power to examine and remove every thing that appears an obstruction to a national advantage.

Narrow minds will ever have narrow views. The corporation of *Bath* seems to have forgot that the ease and plenty they now enjoy, and to which their fathers were strangers, are owing to their Waters; and that an improvement upon their Baths, would, by bringing a greater concourse of company to their town, perpetuate these blessings to them and their posterity. How little is to be

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expected from them, in this particular, might have been guessed by their conduct to Mr. *Wood*, the architect, to whose extraordinary genius they are indebted for a great part of the trade and beauty of the place: yet they have industriously opposed his best designs, which, had they been executed, would have rendered *Bath*, in point of elegant architecture, the admiration of the whole World. It is, therefore, to be hoped, there are still some among us, whose exalted station, superior sense, and public spirit, will be sufficient to interest the legislature in an affair which is truly national, that the public may no longer suffer from the private claims, sordid passions, or selfish views of any particular set of men. Those salutary Springs are the gift of heaven, of such consequence to the health of individuals, as to claim the particular protection of the public; and *Bath*, under proper auspices, would soon rival the *Baiæ* of the ancients; for it might easily be brought to excell as much in beauty and convenience, as in the salubrious efficacy of its Waters. In an age like this, when such sums are expended by private persons, upon works of magnificence and decoration; when such considerable aids are granted for the utility and encouragement of commerce; and our administration seems so well disposed to consult, and promote, the welfare of the commonwealth; we have reason to believe, that some attention will be paid to those fountains flowing with health, which, at a very moderate expence, might be so improved as to become the greatest boast, ornament, and blessing of these kingdoms. --- But, if our expectations from the legislature

gislature should be disappointed, and the Corporation of *Bath* still turn a deaf ear to the proposals which have been made; the proprietors of other Baths, either in this, or in any other country, will probably take the hints which they have rejected, and then they may chance to see their Springs deserted, and their town utterly impoverished and ruined. This is far from being a vain apprehension; in as much as some ingenious physicians from *Portugal* have obtained models of Mr. *Cleland's* apparatus, and copies of his plan, with a view to carry it into execution at the *Caldas* near *Lisbon*; and I make no doubt that the people of *Aix la Chapelle*, and the proprietors of the famous Hot Wells in *Bohemia*, and other parts of *Germany*, will seize the first opportunity of improving those Waters, from which they derive such advantage, in the concourse of strangers which they draw together.

Indeed, Mr. *Cleland* seems to have waved all considerations of private emolument, in consenting that his own name should not appear in the plan, but that it should be offered as the joint opinion of all the physicians and surgeons of *Bath*: but, in all probability, they are determined to reject every thing that is known to come from his quarter, how much soever it may tend to their own honour, or the good of their fellow-creatures; for I am informed by a particular friend who lately came from that place, that since his last scheme was presented, the physicians have come to a resolution to exclude all surgeons from their consultations on this subject. This must be an
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arrow directly levelled at him, (as it does not appear that any other of his profession has proposed any thing worthy of public notice) and justifies the old observation, that an injured person will never be forgiven by those who have done him wrong. Nay, so industrious are his adversaries in the prosecution of their enmity, that all methods, even the lowest arts, are practised to prepossess the minds of strangers against him, by a most malicious misrepresentation of his character; though, to those who will give themselves the trouble of inquiring into the truth of facts, he will (I am confident) appear to be a man of good morals, and uncommon ability.

REGULATIONS *proposed to the Mayor and Corporation of BATH.*

- I. **T**HAT the king and queen's Bath be used three days a week for ladies, and three days for men, alternately.
- II. That the Cross, and Hot Bath, be used three days for ladies, and three days for men, alternately, differing from those in the king and queen's Bath.
- III. That no holidays be allowed as to bathing, except *Sundays*.
- IV. That all female guides shall assist in either Baths, those days on which the ladies bathe; and the men guides do the same, those days on which the men bathe.
- V. That a table of fees be established by the Mayor and Corporation, to direct strangers in paying the serjeants, guides, clothwomen, pumpers, &c.
- VI. That no serjeant, guide, clothwoman, pumper, &c. shall presume to take, or demand, from any stranger, or other persons, more than is specified in the said table of fees, under such penalty as the Mayor shall think fit.

VII. That a convenient number of close chairs be appointed to attend every morning at the Baths, that all strangers may know where to send for them; and that the chairmen, so attending, be under the direction of the serjeants; the next chair to succeed, as at the Rooms, which will prevent many complaints, and remedy a real grievance.

VIII. As it has been customary for strangers and others, to give gratuities, over and above their stated fees, to the serjeants, guides, clothwomen, pumpers, &c. let it be ordered for the future, that all moneys be paid into a proper person's hands, at the appointment of the Mayor, or to the master of the pump-room for the time being; and that a register be kept of all such persons names, and sums of money, paid to the said person so appointed; and twice a year, or at the end of each season, this money shall be divided in such proportion, to all the serjeants, guides, men and women, clothwomen, and pumpers, &c. as the Mayor shall direct.

IX. It is proposed to have two chairs, constantly to attend at the Mayor's door, or where he shall please to appoint them, every night, from twelve o'clock 'till daylight, for the conveniency of all strangers, physicians, surgeons, men-midwives, apothecaries, and others; that the chairmen shall take their turns, and in consideration of their attendance, all persons using these chairs, shall pay double fare from and after twelve o'clock, till daylight, or what the Mayor shall direct.

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X. Whereas, frequently, and almost daily, complaints have been made by many indisposed people, who are obliged to keep their beds, and are deprived of rest by the continual noise of ringing and tolling of bells, it is to be hoped, when this is represented to the Mayor and Corporation, that they, together with the Rector of *Bath*, will think of some shorter method to give the proper notices, that the weak, and sick in bed, may not be disturbed.

XI. As no Bath Water is to be had after eleven at night, the Pumps being all locked up at that hour, it is proposed, that for the future, the common Pump near the king's Bath, and that belonging to the Hot Bath, shall be left open till one o'clock in the morning, for the convenience of all strangers, and others, who are ordered to drink, and bathe, before they go to bed; that the cocks of the different Pumps shall be set so high, as that a pail may be filled under each; and that a direction shall be stuck up in the pump-room, giving notice where the pumper may be found, for the benefit of those who want Water in the night.

The following PROPOSALS were presented by Mr. Cleland, at a Meeting of the Physicians and Surgeons, assembled, to consider of the improvements necessary to be made in the Hot Baths.

WE, the physicians, and surgeons, of *Bath*, beg leave to represent to the Mayor and Corporation, that great advantages will arise to the public, and to the city of *Bath* in particular, by having the king and queen's Bath altered, and made more convenient, and a sudatory erected, with sundry more improvements for the good of all such as shall come here for the benefit of the *Bath Waters*.

First, it is proposed to have a house fitted up as near the king's Bath as possible, for all topical applications, and other conveniencies; the lower rooms of which are to consist of a well-formed Hot Room in the middle, to be always kept in order with proper fires, &c. also with a Pump from the reservoir in the king's Bath, to supply it, at all times, with Hot Water, where any persons that require it may be cupp'd, and sweated; on each side of this Hot Room, to have a bathing room; one for gentlemen, and the other for ladies, to communicate with doors into the Hot Room. In each of these bathing rooms must be placed three cisterns, with curtains round each; one of these cisterns to bathe in, either sitting, or standing; the other two for bathing, lying, or half lying. In each of these cisterns must be placed three cocks, one from the reservoir in the king's Bath, to supply the same with Hot Water to bathe in, as also to pump upon any part affected: these pumps to be work'd on the outside of the bathing rooms. The second cock serves to convey the steam, or vapour, of the Bath Waters from a vapour Bath confined in a boiler, to be supplied from the reservoir by means of a Pump, which must deliver only into this boiler, from which there is no outlets, but through the tubes, with valves, or stop-cocks, to regulate the natural or artificial heat of the Waters and vapour, conveyed by them into these cisterns. The third cock into these cisterns, is from a Cold Bath kept always ready for those that are ordered Cold Bathing, in a cistern made for that purpose, and will serve also to lower the natural and artificial heat of the Waters immediately when wanted. To each of these private cisterns, or Baths, there must be bed-rooms, and antichambers, with fire-places, for the accommodation of those who sweat, bathe, and use the vapour Bath, cup,
or

or bleed, that the patients may stay to repose themselves, and cool, until it shall be proper for them to be carried to their lodgings.

The alterations proposed to be made in the king and queen's Bath are these :

First, to stop up the niches, and take away the rails; the north wall of the king's Bath should be raised so high, as to screen the people in the Bath, from those without it; that the east, west, and south walls should be rebuilt in the same form; that a portico should be inscribed round this cistern, for shelter to the Bathers; that the queen's Bath should be removed so far to the eastward, as to answer to the middle of the king's Bath; that four slips should be made into this cistern, with dressing-rooms, and antichambers to them; that four pumps should be fixt in the dressing-rooms, for the use of such as should be pump'd without going into the Bath; that four other pumps should be fixt in the king's Bath, out of the draught of any line of wind that could happen from the buildings, for the use of such as should be pump'd in the Bath; and that a paved walk should be made round both Baths, upon one level, for the benefit of poor cripples that make use of the Waters.

It is hoped, that, when this alteration is undertaken, the same care will be thought necessary for amending the slips into the king's Bath, as is proposed in the queen's.

These last alterations, which, together with the sudatory, and all its apparatus, will make the Baths compleatly useful; or, if it should happen that all these Pumps should be made use of at the same time, according to this plan, there will be, notwithstanding what is made use of at the pump-room, &c. still a sufficient quantity of Water to answer all these good purposes besides; seeing the king's Bath contains 427 tuns, and 50 gallons, and fills in 9 hours and 40 minutes.

As to the alterations required to be made in the cross and hot Baths they are but small, though a regulation in Bathing is much wanted, with respect to the serjeants, guides, chairmen, and clothwomen, the consideration of which is humbly submitted to the Mayor and Corporation, and a method for that purpose shall be made appear to them, at their desire.

The expence of these last alterations, Mr. *Wood* computed at one thousand pounds, and they, together with the Bagnio, and all its apparatus, will render the use of the Baths much more safe and effectual than it is at present, until the other more magnificent scheme of that ingenious architect shall be carried into execution.

